
RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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***** DESCRIPTION OF STUDY *****
* RANCHO MISSION VIEJO - PA3 & PA4 ROMP *
* REGIONAL WATERSHED S19- COMPLEX - PHASE CONDITION NO PA5 *
* 10-YR RM EV APRIL 2019 FKAZI *

FILE NAME: RI10EV19.DAT
TIME/DATE OF STUDY: 09:34 04/03/2019

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 3.927
- 2) 10.00; 2.601
- 3) 15.00; 1.897
- 4) 20.00; 1.624
- 5) 25.00; 1.415
- 6) 30.00; 1.266
- 7) 40.00; 1.086
- 8) 50.00; 0.968
- 9) 60.00; 0.881
- 10) 90.00; 0.734
- 11) 120.00; 0.652
- 12) 180.00; 0.549
- 13) 360.00; 0.408
- 14) 1200.00; 0.180

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE/ WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 11900.00 TO NODE 11901.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

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INITIAL SUBAREA FLOW-LENGTH(FEET) = 295.79
ELEVATION DATA: UPSTREAM(FEET) = 2369.48 DOWNSTREAM(FEET) = 2332.92

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 7.203
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 3.343
SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
RESIDENTIAL ".4 DWELLING/ACRE"	-	1.62	0.30	0.999	0	7.20

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.999
SUBAREA RUNOFF(CFS) = 4.44
TOTAL AREA(ACRES) = 1.62 PEAK FLOW RATE(CFS) = 4.44

FLOW PROCESS FROM NODE 11901.00 TO NODE 11902.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 2332.92 DOWNSTREAM(FEET) = 2297.70
CHANNEL LENGTH THRU SUBAREA(FEET) = 664.26 CHANNEL SLOPE = 0.0530
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.46
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.467
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	8.35	0.30	0.906	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.906
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 12.81
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 2.95
AVERAGE FLOW DEPTH(FEET) = 0.40 TRAVEL TIME(MIN.) = 3.75
Tc(MIN.) = 10.95
SUBAREA AREA(ACRES) = 8.35 SUBAREA RUNOFF(CFS) = 16.50
EFFECTIVE AREA(ACRES) = 9.97 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA(ACRES) = 10.0 PEAK FLOW RATE(CFS) = 19.66
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.52

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.52 FLOW VELOCITY(FEET/SEC.) = 3.41
LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11902.00 = 960.05 FEET.

FLOW PROCESS FROM NODE 11902.00 TO NODE 11902.50 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2297.70 DOWNSTREAM(FEET) = 2263.40
CHANNEL LENGTH THRU SUBAREA(FEET) = 928.77 CHANNEL SLOPE = 0.0369
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.03

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.931

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	34.48	0.30	0.904	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.904

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 45.86

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.06

AVERAGE FLOW DEPTH(FEET) = 0.95 TRAVEL TIME(MIN.) = 3.81

Tc(MIN.) = 14.76

SUBAREA AREA(ACRES) = 34.48 SUBAREA RUNOFF(CFS) = 51.49

EFFECTIVE AREA(ACRES) = 44.45 AREA-AVERAGED Fm(INCH/HR) = 0.27

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.91

TOTAL AREA(ACRES) = 44.5 PEAK FLOW RATE(CFS) = 66.34

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.17

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.17 FLOW VELOCITY(FEET/SEC.) = 4.59

LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11902.50 = 1888.82 FEET.

FLOW PROCESS FROM NODE 11902.50 TO NODE 11903.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2263.40 DOWNSTREAM(FEET) = 2252.14
CHANNEL LENGTH THRU SUBAREA(FEET) = 895.50 CHANNEL SLOPE = 0.0126
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.81

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.669

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	23.65	0.30	0.958	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.958

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 81.06

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 3.38

AVERAGE FLOW DEPTH(FEET) = 1.77 TRAVEL TIME(MIN.) = 4.42

Tc(MIN.) = 19.18

SUBAREA AREA(ACRES) = 23.65 SUBAREA RUNOFF(CFS) = 29.40

EFFECTIVE AREA(ACRES) = 68.10 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93

TOTAL AREA(ACRES) = 68.1 PEAK FLOW RATE(CFS) = 85.26

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.82

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.82 FLOW VELOCITY(FEET/SEC.) = 3.43

LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11903.00 = 2784.32 FEET.

FLOW PROCESS FROM NODE 11903.00 TO NODE 11904.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2252.14 DOWNSTREAM(FEET) = 2186.04
CHANNEL LENGTH THRU SUBAREA(FEET) = 1924.35 CHANNEL SLOPE = 0.0343
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.73

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.411

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	68.53	0.30	0.961	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.961

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 120.00

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.39

AVERAGE FLOW DEPTH(FEET) = 1.67 TRAVEL TIME(MIN.) = 5.95

Tc(MIN.) = 25.13

SUBAREA AREA(ACRES) = 68.53 SUBAREA RUNOFF(CFS) = 69.26

EFFECTIVE AREA(ACRES) = 136.63 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94

TOTAL AREA(ACRES) = 136.6 PEAK FLOW RATE(CFS) = 138.74

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.81

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.81 FLOW VELOCITY(FEET/SEC.) = 5.65

LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11904.00 = 4708.67 FEET.

FLOW PROCESS FROM NODE 11904.00 TO NODE 11905.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2186.04 DOWNSTREAM(FEET) = 1957.34
CHANNEL LENGTH THRU SUBAREA(FEET) = 1926.87 CHANNEL SLOPE = 0.1187
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.44

* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.307
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 63.15 0.30 1.000 -
 SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 167.37
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 9.16
 AVERAGE FLOW DEPTH (FEET) = 1.42 TRAVEL TIME (MIN.) = 3.50
 Tc (MIN.) = 28.63
 SUBAREA AREA (ACRES) = 63.15 SUBAREA RUNOFF (CFS) = 57.22
 EFFECTIVE AREA (ACRES) = 199.78 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
 TOTAL AREA (ACRES) = 199.8 PEAK FLOW RATE (CFS) = 183.12
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.49
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.49 FLOW VELOCITY (FEET/SEC.) = 9.45
 LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11905.00 = 6635.54 FEET.

FLOW PROCESS FROM NODE 11905.00 TO NODE 11906.00 IS CODE = 56

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 1957.34 DOWNSTREAM (FEET) = 1244.16
 CHANNEL LENGTH THRU SUBAREA (FEET) = 2498.96 CHANNEL SLOPE = 0.2854
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.30
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.235
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 84.87 0.30 1.000 -
 SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 218.85
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 13.46
 AVERAGE FLOW DEPTH (FEET) = 1.29 TRAVEL TIME (MIN.) = 3.09
 Tc (MIN.) = 31.73
 SUBAREA AREA (ACRES) = 84.87 SUBAREA RUNOFF (CFS) = 71.42
 EFFECTIVE AREA (ACRES) = 284.65 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97
 TOTAL AREA (ACRES) = 284.6 PEAK FLOW RATE (CFS) = 241.62
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.36

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.36 FLOW VELOCITY (FEET/SEC.) = 13.93
 LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11906.00 = 9134.50 FEET.

FLOW PROCESS FROM NODE 11906.00 TO NODE 11920.00 IS CODE = 56

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 1244.16 DOWNSTREAM (FEET) = 873.95
 CHANNEL LENGTH THRU SUBAREA (FEET) = 3370.75 CHANNEL SLOPE = 0.1098
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.10
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.142
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 199.43 0.30 1.000 -
 SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 317.23
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 10.84
 AVERAGE FLOW DEPTH (FEET) = 2.07 TRAVEL TIME (MIN.) = 5.18
 Tc (MIN.) = 36.91
 SUBAREA AREA (ACRES) = 199.43 SUBAREA RUNOFF (CFS) = 151.06
 EFFECTIVE AREA (ACRES) = 484.08 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 484.1 PEAK FLOW RATE (CFS) = 368.78
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.25

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 2.25 FLOW VELOCITY (FEET/SEC.) = 11.33
 LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11920.00 = 12505.25 FEET.

FLOW PROCESS FROM NODE 11906.00 TO NODE 11920.00 IS CODE = 1

 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION (MIN.) = 36.91
 RAINFALL INTENSITY (INCH/HR) = 1.14
 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.98
 EFFECTIVE STREAM AREA (ACRES) = 484.08
 TOTAL STREAM AREA (ACRES) = 484.08
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 368.78

FLOW PROCESS FROM NODE 11910.00 TO NODE 11911.00 IS CODE = 21

 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

INITIAL SUBAREA FLOW-LENGTH (FEET) = 517.62
 ELEVATION DATA: UPSTREAM (FEET) = 2531.88 DOWNSTREAM (FEET) = 2441.33

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 12.185
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.293
 SUBAREA Tc AND LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF" - 3.46 0.30 1.000 0 12.19
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 6.21
 TOTAL AREA(ACRES) = 3.46 PEAK FLOW RATE(CFS) = 6.21

 FLOW PROCESS FROM NODE 11911.00 TO NODE 11912.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 2441.33 DOWNSTREAM(FEET) = 2382.20
 CHANNEL LENGTH THRU SUBAREA(FEET) = 397.30 CHANNEL SLOPE = 0.1488
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.28
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.047

SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 5.79 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 10.78
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 3.79
 AVERAGE FLOW DEPTH(FEET) = 0.27 TRAVEL TIME(MIN.) = 1.75
 Tc(MIN.) = 13.93
 SUBAREA AREA(ACRES) = 5.79 SUBAREA RUNOFF(CFS) = 9.11
 EFFECTIVE AREA(ACRES) = 9.25 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 9.2 PEAK FLOW RATE(CFS) = 14.55
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.32

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 0.32 FLOW VELOCITY(FEET/SEC.) = 4.23
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11912.00 = 914.92 FEET.

 FLOW PROCESS FROM NODE 11912.00 TO NODE 11913.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 2382.20 DOWNSTREAM(FEET) = 2263.77
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1891.47 CHANNEL SLOPE = 0.0626
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.93

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.609
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 54.30 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 46.93
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.91
 AVERAGE FLOW DEPTH(FEET) = 0.82 TRAVEL TIME(MIN.) = 6.42
 Tc(MIN.) = 20.35
 SUBAREA AREA(ACRES) = 54.30 SUBAREA RUNOFF(CFS) = 63.98
 EFFECTIVE AREA(ACRES) = 63.55 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 63.5 PEAK FLOW RATE(CFS) = 74.88
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 1.08

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 1.08 FLOW VELOCITY(FEET/SEC.) = 5.71
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11913.00 = 2806.39 FEET.

 FLOW PROCESS FROM NODE 11913.00 TO NODE 11914.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 2263.77 DOWNSTREAM(FEET) = 1845.23
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1957.31 CHANNEL SLOPE = 0.2138
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.96
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.470

SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 65.14 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 109.23
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.77
 AVERAGE FLOW DEPTH(FEET) = 0.94 TRAVEL TIME(MIN.) = 3.34
 Tc(MIN.) = 23.69
 SUBAREA AREA(ACRES) = 65.14 SUBAREA RUNOFF(CFS) = 68.57
 EFFECTIVE AREA(ACRES) = 128.69 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 128.7 PEAK FLOW RATE(CFS) = 135.47
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 1.07

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 1.07 FLOW VELOCITY(FEET/SEC.) = 10.48
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11914.00 = 4763.70 FEET.

FLOW PROCESS FROM NODE 11914.00 TO NODE 11915.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1845.23 DOWNSTREAM(FEET) = 1557.21
CHANNEL LENGTH THRU SUBAREA(FEET) = 1686.78 CHANNEL SLOPE = 0.1708
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.32
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.374

SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 78.52 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 173.44
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.52
AVERAGE FLOW DEPTH(FEET) = 1.31 TRAVEL TIME(MIN.) = 2.67
Tc(MIN.) = 26.37

SUBAREA AREA(ACRES) = 78.52 SUBAREA RUNOFF(CFS) = 75.92
EFFECTIVE AREA(ACRES) = 207.21 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 207.2 PEAK FLOW RATE(CFS) = 200.34
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.42

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.42 FLOW VELOCITY(FEET/SEC.) = 11.02
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11915.00 = 6450.48 FEET.

FLOW PROCESS FROM NODE 11915.00 TO NODE 11916.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1557.21 DOWNSTREAM(FEET) = 1403.38
CHANNEL LENGTH THRU SUBAREA(FEET) = 1909.39 CHANNEL SLOPE = 0.0806
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.91
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.267

SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 70.48 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 231.03
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 8.84
AVERAGE FLOW DEPTH(FEET) = 1.89 TRAVEL TIME(MIN.) = 3.60
Tc(MIN.) = 29.97

SUBAREA AREA(ACRES) = 70.48 SUBAREA RUNOFF(CFS) = 61.34
EFFECTIVE AREA(ACRES) = 277.69 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 277.7 PEAK FLOW RATE(CFS) = 241.68
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.94

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.94 FLOW VELOCITY(FEET/SEC.) = 8.97
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11916.00 = 8359.87 FEET.

FLOW PROCESS FROM NODE 11916.00 TO NODE 11917.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1403.38 DOWNSTREAM(FEET) = 1079.99
CHANNEL LENGTH THRU SUBAREA(FEET) = 1945.82 CHANNEL SLOPE = 0.1662
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.93
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.221

SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 232.20 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 337.93
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 12.78
AVERAGE FLOW DEPTH(FEET) = 1.91 TRAVEL TIME(MIN.) = 2.54
Tc(MIN.) = 32.50

SUBAREA AREA(ACRES) = 232.20 SUBAREA RUNOFF(CFS) = 192.47
EFFECTIVE AREA(ACRES) = 509.89 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 509.9 PEAK FLOW RATE(CFS) = 422.64
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.16

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 2.16 FLOW VELOCITY(FEET/SEC.) = 13.65
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11917.00 = 10305.69 FEET.

FLOW PROCESS FROM NODE 11917.00 TO NODE 11920.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1079.99 DOWNSTREAM(FEET) = 873.95
CHANNEL LENGTH THRU SUBAREA(FEET) = 2563.91 CHANNEL SLOPE = 0.0804
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 2.77
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.150

SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN

USER-DEFINED - 110.82 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 465.04
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.83
 AVERAGE FLOW DEPTH(FEET) = 2.76 TRAVEL TIME(MIN.) = 3.95
 Tc(MIN.) = 36.45
 SUBAREA AREA(ACRES) = 110.82 SUBAREA RUNOFF(CFS) = 84.77
 EFFECTIVE AREA(ACRES) = 620.71 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 620.7 PEAK FLOW RATE(CFS) = 474.83
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 2.80

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 2.80 FLOW VELOCITY(FEET/SEC.) = 10.90
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11920.00 = 12869.60 FEET.

 FLOW PROCESS FROM NODE 11917.00 TO NODE 11920.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
 =====

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION(MIN.) = 36.45
 RAINFALL INTENSITY(INCH/HR) = 1.15
 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 1.00
 EFFECTIVE STREAM AREA(ACRES) = 620.71
 TOTAL STREAM AREA(ACRES) = 620.71
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 474.83

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	368.78	36.91	1.142	0.30(0.30)	0.98	484.1	11900.00
2	474.83	36.45	1.150	0.30(0.30)	1.00	620.7	11910.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	842.56	36.45	1.150	0.30(0.30)	0.99	1098.7	11910.00
2	838.95	36.91	1.142	0.30(0.30)	0.99	1104.8	11900.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) = 842.56 Tc(MIN.) = 36.45
 EFFECTIVE AREA(ACRES) = 1098.72 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 1104.8
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11920.00 = 12869.60 FEET.

 FLOW PROCESS FROM NODE 11920.00 TO NODE 11921.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<
 =====

ELEVATION DATA: UPSTREAM(FEET) = 873.95 DOWNSTREAM(FEET) = 827.94
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1417.25 CHANNEL SLOPE = 0.0325
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 4.83
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.104
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	107.47	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 881.46
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.29
 AVERAGE FLOW DEPTH(FEET) = 4.83 TRAVEL TIME(MIN.) = 2.54
 Tc(MIN.) = 38.99
 SUBAREA AREA(ACRES) = 107.47 SUBAREA RUNOFF(CFS) = 77.79
 EFFECTIVE AREA(ACRES) = 1206.19 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 1212.3 PEAK FLOW RATE(CFS) = 875.11
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 4.81

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 4.81 FLOW VELOCITY(FEET/SEC.) = 9.27
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11921.00 = 14286.85 FEET.

 FLOW PROCESS FROM NODE 11921.00 TO NODE 11922.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<
 =====

ELEVATION DATA: UPSTREAM(FEET) = 827.94 DOWNSTREAM(FEET) = 753.55
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1886.43 CHANNEL SLOPE = 0.0394
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 4.90
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.062
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	344.27	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 993.16
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.30
 AVERAGE FLOW DEPTH(FEET) = 4.88 TRAVEL TIME(MIN.) = 3.05
 Tc(MIN.) = 42.04
 SUBAREA AREA(ACRES) = 344.27 SUBAREA RUNOFF(CFS) = 236.08
 EFFECTIVE AREA(ACRES) = 1550.46 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1556.5 PEAK FLOW RATE(CFS) = 1065.30
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 5.05

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 5.05 FLOW VELOCITY(FEET/SEC.) = 10.48
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11922.00 = 16173.28 FEET.

FLOW PROCESS FROM NODE 11922.00 TO NODE 11923.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 753.55 DOWNSTREAM(FEET) = 641.58
CHANNEL LENGTH THRU SUBAREA(FEET) = 2860.88 CHANNEL SLOPE = 0.0391
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 5.19
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.009

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	165.18	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1117.99

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.59

AVERAGE FLOW DEPTH(FEET) = 5.18 TRAVEL TIME(MIN.) = 4.50

Tc(MIN.) = 46.55

SUBAREA AREA(ACRES) = 165.18 SUBAREA RUNOFF(CFS) = 105.37

EFFECTIVE AREA(ACRES) = 1715.64 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 1721.7 PEAK FLOW RATE(CFS) = 1096.54

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 5.13

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 5.13 FLOW VELOCITY(FEET/SEC.) = 10.55
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11923.00 = 19034.16 FEET.

FLOW PROCESS FROM NODE 11923.00 TO NODE 11924.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 641.58 DOWNSTREAM(FEET) = 579.89
CHANNEL LENGTH THRU SUBAREA(FEET) = 1844.02 CHANNEL SLOPE = 0.0335
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 5.65

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.973

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	165.18	0.30	1.000	-

LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 433.73 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1227.99
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.25
AVERAGE FLOW DEPTH(FEET) = 5.63 TRAVEL TIME(MIN.) = 3.00
Tc(MIN.) = 49.54
SUBAREA AREA(ACRES) = 433.73 SUBAREA RUNOFF(CFS) = 262.88
EFFECTIVE AREA(ACRES) = 2149.37 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 2155.4 PEAK FLOW RATE(CFS) = 1304.79
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 5.80

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 5.80 FLOW VELOCITY(FEET/SEC.) = 10.41
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11924.00 = 20878.18 FEET.

FLOW PROCESS FROM NODE 11924.00 TO NODE 11925.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 579.89 DOWNSTREAM(FEET) = 494.12
CHANNEL LENGTH THRU SUBAREA(FEET) = 2756.15 CHANNEL SLOPE = 0.0311
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 6.08

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.933

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	265.42	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1380.42

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.29

AVERAGE FLOW DEPTH(FEET) = 6.06 TRAVEL TIME(MIN.) = 4.46

Tc(MIN.) = 54.01

SUBAREA AREA(ACRES) = 265.42 SUBAREA RUNOFF(CFS) = 151.26

EFFECTIVE AREA(ACRES) = 2414.79 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 2420.9 PEAK FLOW RATE(CFS) = 1378.20

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 6.06

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 6.06 FLOW VELOCITY(FEET/SEC.) = 10.28
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11925.00 = 23634.33 FEET.

FLOW PROCESS FROM NODE 11925.00 TO NODE 11926.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 494.12 DOWNSTREAM(FEET) = 458.40
CHANNEL LENGTH THRU SUBAREA(FEET) = 1922.70 CHANNEL SLOPE = 0.0186
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 6.91
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.900

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	97.46	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1404.54
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 8.54
AVERAGE FLOW DEPTH(FEET) = 6.91 TRAVEL TIME(MIN.) = 3.75
Tc(MIN.) = 57.76
SUBAREA AREA(ACRES) = 97.46 SUBAREA RUNOFF(CFS) = 52.68
EFFECTIVE AREA(ACRES) = 2512.25 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 2518.3 PEAK FLOW RATE(CFS) = 1378.20
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 6.85

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 6.85 FLOW VELOCITY(FEET/SEC.) = 8.50
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11926.00 = 25557.03 FEET.

FLOW PROCESS FROM NODE 11926.00 TO NODE 11927.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 458.40 DOWNSTREAM(FEET) = 399.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2170.13 CHANNEL SLOPE = 0.0274
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 6.28
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.874

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	53.83	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1392.11
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.84
AVERAGE FLOW DEPTH(FEET) = 6.28 TRAVEL TIME(MIN.) = 3.68
Tc(MIN.) = 61.44
SUBAREA AREA(ACRES) = 53.83 SUBAREA RUNOFF(CFS) = 27.81
EFFECTIVE AREA(ACRES) = 2566.08 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 2572.1 PEAK FLOW RATE(CFS) = 1378.20
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 6.25

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 6.25 FLOW VELOCITY(FEET/SEC.) = 9.81
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11927.00 = 27727.16 FEET.

FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: P401XX10.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	539.61	27.74	0.30(0.30)	1.00	625.8	40130.00
2	534.97	29.62	0.30(0.30)	1.00	654.2	40100.00
TOTAL AREA(ACRES) =						654.2

FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1378.20	61.44	0.874	0.30(0.30)	1.00	2566.1	11910.00
2	1372.61	61.93	0.872	0.30(0.30)	1.00	2572.1	11900.00

LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11927.00 = 27727.16 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	539.61	27.74	1.333	0.30(0.30)	1.00	625.8	40130.00
2	534.97	29.62	1.277	0.30(0.30)	1.00	654.2	40100.00

LONGEST FLOWPATH FROM NODE 40100.00 TO NODE 11927.00 = 10245.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1659.11	27.74	1.333	0.30(0.30)	1.00	1784.4	40130.00
2	1665.58	29.62	1.277	0.30(0.30)	1.00	1891.2	40100.00
3	1692.35	61.44	0.874	0.30(0.30)	1.00	3220.3	11910.00
4	1685.45	61.93	0.872	0.30(0.30)	1.00	3226.4	11900.00
TOTAL AREA(ACRES) =						3226.4	

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1692.35 Tc(MIN.) = 61.439

EFFECTIVE AREA(ACRES) = 3220.28 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3226.4
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11927.00 = 27727.16 FEET.

FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<<

FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.50 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 399.00 DOWNSTREAM(FEET) = 384.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 986.26 CHANNEL SLOPE = 0.0152
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 7.89
CHANNEL FLOW THRU SUBAREA(CFS) = 1692.35
FLOW VELOCITY(FEET/SEC.) = 8.32 FLOW DEPTH(FEET) = 7.89
TRAVEL TIME(MIN.) = 1.98 Tc(MIN.) = 63.42
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11927.50 = 28713.42 FEET.

FLOW PROCESS FROM NODE 11927.50 TO NODE 11927.50 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<<

MAINLINE Tc(MIN.) = 63.42
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.864
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"WOODLAND,GRASS" B 2.40 0.30 1.000 65
NATURAL FAIR COVER
"WOODLAND,GRASS" B 1.70 0.30 1.000 65
NATURAL FAIR COVER
"WOODLAND,GRASS" B 1.50 0.30 1.000 65
NATURAL FAIR COVER
"OPEN BRUSH" B 1.30 0.30 1.000 66
NATURAL FAIR COVER
"OPEN BRUSH" B 0.90 0.30 1.000 66
NATURAL FAIR COVER
"GRASS" B 0.60 0.30 1.000 69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 8.40 SUBAREA RUNOFF(CFS) = 4.27
EFFECTIVE AREA(ACRES) = 3228.68 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3234.8 PEAK FLOW RATE(CFS) = 1692.35
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 11927.50 TO NODE 11927.50 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<<

MAINLINE Tc(MIN.) = 63.42
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.864
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH" B 0.30 0.30 1.000 66
NATURAL FAIR COVER
"OPEN BRUSH" B 0.10 0.30 1.000 66
NATURAL FAIR COVER
"WOODLAND,GRASS" B 0.10 0.30 1.000 65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 0.50 SUBAREA RUNOFF(CFS) = 0.25
EFFECTIVE AREA(ACRES) = 3229.18 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3235.2 PEAK FLOW RATE(CFS) = 1692.35
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 11927.50 TO NODE 11927.50 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<<

MAINLINE Tc(MIN.) = 63.42
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.864
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"WOODLAND,GRASS" B 0.80 0.30 1.000 65
NATURAL FAIR COVER
"WOODLAND,GRASS" B 0.70 0.30 1.000 65
NATURAL FAIR COVER
"OPEN BRUSH" B 0.20 0.30 1.000 66
NATURAL FAIR COVER
"WOODLAND,GRASS" B 0.20 0.30 1.000 65
NATURAL FAIR COVER
"OPEN BRUSH" B 0.10 0.30 1.000 66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 2.00 SUBAREA RUNOFF(CFS) = 1.02
EFFECTIVE AREA(ACRES) = 3231.18 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3237.2 PEAK FLOW RATE(CFS) = 1692.35
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 11927.50 TO NODE 11928.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 384.00 DOWNSTREAM(FEET) = 359.00

CHANNEL LENGTH THRU SUBAREA (FEET) = 647.19 CHANNEL SLOPE = 0.0386
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 6.38
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.860
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	78.01	0.30	0.984	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.984
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 1712.17
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 11.79
 AVERAGE FLOW DEPTH (FEET) = 6.38 TRAVEL TIME (MIN.) = 0.92
 Tc (MIN.) = 64.33
 SUBAREA AREA (ACRES) = 78.01 SUBAREA RUNOFF (CFS) = 39.64
 EFFECTIVE AREA (ACRES) = 3309.19 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 3315.3 PEAK FLOW RATE (CFS) = 1692.35
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 6.34

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 6.34 FLOW VELOCITY (FEET/SEC.) = 11.76
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11928.00 = 29360.61 FEET.

 FLOW PROCESS FROM NODE 11928.00 TO NODE 11928.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
 =====
 MAINLINE Tc (MIN.) = 64.33
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.860
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND, GRASS"	B	1.10	0.30	1.000	65
NATURAL FAIR COVER "OPEN BRUSH"	B	0.60	0.30	1.000	66

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 1.70 SUBAREA RUNOFF (CFS) = 0.86
 EFFECTIVE AREA (ACRES) = 3310.89 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 3317.0 PEAK FLOW RATE (CFS) = 1692.35
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 11928.00 TO NODE 11929.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<
 =====
 ELEVATION DATA: UPSTREAM (FEET) = 359.00 DOWNSTREAM (FEET) = 341.63
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1322.66 CHANNEL SLOPE = 0.0131

GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 8.17
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.846
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	8.18	0.30	0.890	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.890
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 1694.48
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.88
 AVERAGE FLOW DEPTH (FEET) = 8.17 TRAVEL TIME (MIN.) = 2.80
 Tc (MIN.) = 67.13
 SUBAREA AREA (ACRES) = 8.18 SUBAREA RUNOFF (CFS) = 4.26
 EFFECTIVE AREA (ACRES) = 3319.07 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 3325.1 PEAK FLOW RATE (CFS) = 1692.35
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 8.16

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 8.16 FLOW VELOCITY (FEET/SEC.) = 7.88
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11929.00 = 30683.27 FEET.

 FLOW PROCESS FROM NODE 11929.00 TO NODE 11929.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
 =====
 MAINLINE Tc (MIN.) = 67.13
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.846
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	1.90	0.30	1.000	66
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.60	0.30	1.000	65

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 2.50 SUBAREA RUNOFF (CFS) = 1.23
 EFFECTIVE AREA (ACRES) = 3321.57 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 3327.6 PEAK FLOW RATE (CFS) = 1692.35
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 11928.00 TO NODE 11929.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<
 =====

 FLOW PROCESS FROM NODE 11841.00 TO NODE 12527.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

PEAK FLOWRATE TABLE FILE NAME: S18X10.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	11616.90	44.00	0.30 (0.30)	1.00	7599.6	11801.00
2	12892.03	58.27	0.30 (0.30)	1.00	10804.1	11530.00
3	13438.67	64.50	0.30 (0.30)	1.00	12758.4	11701.00
4	13628.71	66.49	0.30 (0.30)	1.00	13434.8	11000.00
5	15265.02	77.21	0.30 (0.30)	1.00	18437.6	11330.00
6	15528.32	79.96	0.30 (0.30)	1.00	19719.4	10800.00
7	15902.78	82.44	0.30 (0.30)	1.00	21039.3	11300.00
8	16140.10	85.75	0.30 (0.30)	1.00	22434.4	10630.00
9	15918.65	96.09	0.30 (0.30)	1.00	25763.3	11620.00
10	15868.02	97.88	0.30 (0.30)	1.00	26303.3	11600.00
11	15636.46	103.56	0.30 (0.30)	1.00	27777.9	11111.00
12	15531.21	106.40	0.30 (0.30)	1.00	28370.9	10500.00
13	15352.00	110.70	0.30 (0.30)	1.00	29161.8	10710.00
14	15201.33	113.32	0.30 (0.30)	1.00	29547.2	10410.00
15	14857.39	118.86	0.30 (0.30)	1.00	30260.6	10700.00
16	14446.26	125.40	0.30 (0.30)	1.00	31040.6	10400.00
17	14178.55	129.18	0.30 (0.30)	1.00	31414.4	10200.00
18	13775.63	136.31	0.30 (0.30)	1.00	32035.9	10320.00
19	13411.70	140.89	0.30 (0.30)	1.00	32196.8	10210.00
20	11422.66	173.20	0.30 (0.30)	1.00	32916.6	10100.00

TOTAL AREA (ACRES) = 32916.6

FLOW PROCESS FROM NODE 12526.00 TO NODE 12527.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<

PEAK FLOWRATE TABLE FILE NAME: S25X10.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	4457.80	74.17	0.30 (0.30)	0.99	6215.9	12500.00
2	4830.00	89.61	0.30 (0.30)	0.99	8185.8	12300.00
3	4886.59	91.31	0.30 (0.30)	0.99	8494.7	12330.00
4	4976.75	94.56	0.30 (0.30)	0.98	9045.8	12410.00
5	5066.75	99.26	0.30 (0.29)	0.98	9767.7	12400.00
6	5124.87	104.67	0.30 (0.29)	0.98	10457.3	12211.00
7	5154.35	109.58	0.30 (0.29)	0.98	11071.5	12201.00
8	5066.62	114.70	0.30 (0.29)	0.98	11560.6	12111.00
9	5049.30	118.21	0.30 (0.29)	0.98	11939.4	12231.00
10	5009.12	121.09	0.30 (0.29)	0.98	12207.1	12101.10
11	4983.48	122.44	0.30 (0.29)	0.98	12317.7	12261.00
12	4583.59	136.43	0.30 (0.29)	0.98	13120.1	12010.00
13	4254.50	145.50	0.30 (0.29)	0.98	13237.1	12000.00

TOTAL AREA (ACRES) = 13237.1

FLOW PROCESS FROM NODE 12526.00 TO NODE 12527.00 IS CODE = 14.0

>>>>MEMORY BANK # 2 COPIED ONTO MAIN-STREAM MEMORY<<<<<

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	4457.80	74.17	0.30 (0.30)	0.99	6215.9	12500.00
2	4830.00	89.61	0.30 (0.30)	0.99	8185.8	12300.00
3	4886.59	91.31	0.30 (0.30)	0.99	8494.7	12330.00
4	4976.75	94.56	0.30 (0.30)	0.98	9045.8	12410.00
5	5066.75	99.26	0.30 (0.29)	0.98	9767.7	12400.00
6	5124.87	104.67	0.30 (0.29)	0.98	10457.3	12211.00
7	5154.35	109.58	0.30 (0.29)	0.98	11071.5	12201.00
8	5066.62	114.70	0.30 (0.29)	0.98	11560.6	12111.00
9	5049.30	118.21	0.30 (0.29)	0.98	11939.4	12231.00
10	5009.12	121.09	0.30 (0.29)	0.98	12207.1	12101.10
11	4983.48	122.44	0.30 (0.29)	0.98	12317.7	12261.00
12	4583.59	136.43	0.30 (0.29)	0.98	13120.1	12010.00
13	4254.50	145.50	0.30 (0.29)	0.98	13237.1	12000.00

TOTAL AREA (ACRES) = 13237.1

FLOW PROCESS FROM NODE 11841.00 TO NODE 12527.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	4457.80	74.17	0.812	0.30 (0.30)	0.99	6215.9	12500.00
2	4830.00	89.61	0.736	0.30 (0.30)	0.99	8185.8	12300.00
3	4886.59	91.31	0.730	0.30 (0.30)	0.99	8494.7	12330.00
4	4976.75	94.56	0.722	0.30 (0.30)	0.98	9045.8	12410.00
5	5066.75	99.26	0.709	0.30 (0.29)	0.98	9767.7	12400.00
6	5124.87	104.67	0.694	0.30 (0.29)	0.98	10457.3	12211.00
7	5154.35	109.58	0.680	0.30 (0.29)	0.98	11071.5	12201.00
8	5066.62	114.70	0.666	0.30 (0.29)	0.98	11560.6	12111.00
9	5049.30	118.21	0.657	0.30 (0.29)	0.98	11939.4	12231.00
10	5009.12	121.09	0.650	0.30 (0.29)	0.98	12207.1	12101.10
11	4983.48	122.44	0.648	0.30 (0.29)	0.98	12317.7	12261.00
12	4583.59	136.43	0.624	0.30 (0.29)	0.98	13120.1	12010.00
13	4254.50	145.50	0.608	0.30 (0.29)	0.98	13237.1	12000.00

LONGEST FLOWPATH FROM NODE 12000.00 TO NODE 12527.00 = 77156.98 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	11616.90	44.00	1.039	0.30 (0.30)	1.00	7599.6	11801.00
2	12892.03	58.27	0.896	0.30 (0.30)	1.00	10804.1	11530.00
3	13438.67	64.50	0.859	0.30 (0.30)	1.00	12758.4	11701.00
4	13628.71	66.49	0.849	0.30 (0.30)	1.00	13434.8	11000.00
5	15265.02	77.21	0.797	0.30 (0.30)	1.00	18437.6	11330.00
6	15528.32	79.96	0.783	0.30 (0.30)	1.00	19719.4	10800.00
7	15902.78	82.44	0.771	0.30 (0.30)	1.00	21039.3	11300.00
8	16140.10	85.75	0.755	0.30 (0.30)	1.00	22434.4	10630.00
9	15918.65	96.09	0.717	0.30 (0.30)	1.00	25763.3	11620.00
10	15868.02	97.88	0.712	0.30 (0.30)	1.00	26303.3	11600.00
11	15636.46	103.56	0.697	0.30 (0.30)	1.00	27777.9	11111.00
12	15531.21	106.40	0.689	0.30 (0.30)	1.00	28370.9	10500.00
13	15352.00	110.70	0.677	0.30 (0.30)	1.00	29161.8	10710.00

14	15201.33	113.32	0.670	0.30(0.30)	1.00	29547.2	10410.00
15	14857.39	118.86	0.655	0.30(0.30)	1.00	30260.6	10700.00
16	14446.26	125.40	0.643	0.30(0.30)	1.00	31040.6	10400.00
17	14178.55	129.18	0.636	0.30(0.30)	1.00	31414.4	10200.00
18	13775.63	136.31	0.624	0.30(0.30)	1.00	32035.9	10320.00
19	13411.70	140.89	0.616	0.30(0.30)	1.00	32196.8	10210.00
20	11422.66	173.20	0.561	0.30(0.30)	1.00	32916.6	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12527.00 = 97868.13 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	15427.07	44.00	1.039	0.30(0.30)	0.99	11287.3	11801.00
2	16968.09	58.27	0.896	0.30(0.30)	0.99	15687.3	11530.00
3	17671.53	64.50	0.859	0.30(0.30)	0.99	18163.7	11701.00
4	17916.64	66.49	0.849	0.30(0.30)	0.99	19007.1	11000.00
5	19259.36	74.17	0.812	0.30(0.30)	0.99	23236.5	12500.00
6	19795.97	77.21	0.797	0.30(0.30)	0.99	25040.6	11330.00
7	20125.68	79.96	0.783	0.30(0.30)	0.99	26674.0	10800.00
8	20559.80	82.44	0.771	0.30(0.30)	0.99	28309.7	11300.00
9	20877.05	85.75	0.755	0.30(0.30)	0.99	30127.8	10630.00
10	20887.39	89.61	0.736	0.30(0.30)	0.99	31863.6	12300.00
11	20907.71	91.31	0.730	0.30(0.30)	0.99	32717.7	12330.00
12	20928.11	94.56	0.722	0.30(0.30)	0.99	34317.4	12410.00
13	20924.67	96.09	0.717	0.30(0.30)	0.99	35043.8	11620.00
14	20908.49	97.88	0.712	0.30(0.30)	0.99	35860.1	11600.00
15	20878.88	99.26	0.709	0.30(0.30)	0.99	36427.0	12400.00
16	20749.46	103.56	0.697	0.30(0.30)	0.99	38094.4	11111.00
17	20720.29	104.67	0.694	0.30(0.30)	0.99	38466.4	12211.00
18	20666.45	106.40	0.689	0.30(0.30)	0.99	39044.4	10500.00
19	20552.81	109.58	0.680	0.30(0.30)	0.99	40028.3	12201.00
20	20487.24	110.70	0.677	0.30(0.30)	0.99	40339.9	10710.00
21	20291.57	113.32	0.670	0.30(0.30)	0.99	40976.1	10410.00
22	20182.47	114.70	0.666	0.30(0.30)	0.99	41285.1	12111.00
23	19946.92	118.21	0.657	0.30(0.30)	0.99	42116.5	12231.00
24	19897.64	118.86	0.655	0.30(0.30)	0.99	42260.3	10700.00
25	19726.52	121.09	0.650	0.30(0.30)	0.99	42733.2	12101.10
26	19615.75	122.44	0.648	0.30(0.30)	0.99	43005.4	12261.00
27	19345.12	125.40	0.643	0.30(0.30)	0.99	43528.1	10400.00
28	18969.58	129.18	0.636	0.30(0.30)	0.99	44118.3	10200.00
29	18362.79	136.31	0.624	0.30(0.30)	0.99	45148.8	10320.00
30	18349.32	136.43	0.624	0.30(0.30)	0.99	45160.4	12010.00
31	17833.67	140.89	0.616	0.30(0.30)	0.99	45374.3	10210.00
32	17382.11	145.50	0.608	0.30(0.30)	0.99	45536.7	12000.00
33	15034.06	173.20	0.561	0.30(0.30)	0.99	46153.7	10100.00

TOTAL AREA (ACRES) = 46153.7

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 20928.11 Tc (MIN.) = 94.562
EFFECTIVE AREA (ACRES) = 34317.40 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 46153.7
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12527.00 = 97868.13 FEET.

FLOW PROCESS FROM NODE 12527.00 TO NODE 11929.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 347.47 DOWNSTREAM (FEET) = 341.63
CHANNEL LENGTH THRU SUBAREA (FEET) = 532.38 CHANNEL SLOPE = 0.0110
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 6.93
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.720

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	14.37	0.30	0.987	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.987
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 20930.85
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 12.87
AVERAGE FLOW DEPTH (FEET) = 6.93 TRAVEL TIME (MIN.) = 0.69
Tc (MIN.) = 95.25
SUBAREA AREA (ACRES) = 14.37 SUBAREA RUNOFF (CFS) = 5.48
EFFECTIVE AREA (ACRES) = 34331.77 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 46168.0 PEAK FLOW RATE (CFS) = 20928.11

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT (FEET) = 6.93

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 6.93 FLOW VELOCITY (FEET/SEC.) = 12.87

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 11929.00 = 98400.52 FEET.

FLOW PROCESS FROM NODE 11928.00 TO NODE 11929.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	15427.07	44.77	1.030	0.30(0.30)	0.99	11301.7	11801.00
2	16968.09	59.01	0.890	0.30(0.30)	0.99	15701.7	11530.00
3	17671.53	65.23	0.855	0.30(0.30)	0.99	18178.1	11701.00
4	17916.64	67.22	0.846	0.30(0.30)	0.99	19021.5	11000.00
5	19259.36	74.88	0.808	0.30(0.30)	0.99	23250.9	12500.00
6	19795.97	77.91	0.793	0.30(0.30)	0.99	25055.0	11330.00
7	20125.68	80.66	0.780	0.30(0.30)	0.99	26688.3	10800.00
8	20559.80	83.13	0.768	0.30(0.30)	0.99	28324.0	11300.00
9	20877.05	86.44	0.751	0.30(0.30)	0.99	30142.2	10630.00
10	20887.39	90.30	0.733	0.30(0.30)	0.99	31878.0	12300.00
11	20907.71	92.00	0.729	0.30(0.30)	0.99	32732.0	12330.00
12	20928.11	95.25	0.720	0.30(0.30)	0.99	34331.8	12410.00
13	20924.67	96.78	0.715	0.30(0.30)	0.99	35058.2	11620.00
14	20908.49	98.57	0.711	0.30(0.30)	0.99	35874.5	11600.00
15	20878.88	99.95	0.707	0.30(0.30)	0.99	36441.4	12400.00
16	20749.46	104.26	0.695	0.30(0.30)	0.99	38108.8	11111.00
17	20720.29	105.36	0.692	0.30(0.30)	0.99	38480.8	12211.00
18	20666.45	107.09	0.687	0.30(0.30)	0.99	39058.8	10500.00

19	20552.81	110.28	0.679	0.30 (0.30)	0.99	40042.7	12201.00
20	20487.24	111.39	0.676	0.30 (0.30)	0.99	40354.2	10710.00
21	20291.57	114.02	0.668	0.30 (0.30)	0.99	40990.5	10410.00
22	20182.47	115.39	0.665	0.30 (0.30)	0.99	41299.5	12111.00
23	19946.92	118.91	0.655	0.30 (0.30)	0.99	42130.9	12231.00
24	19897.64	119.56	0.653	0.30 (0.30)	0.99	42274.7	10700.00
25	19726.52	121.79	0.649	0.30 (0.30)	0.99	42747.6	12101.10
26	19615.75	123.15	0.647	0.30 (0.30)	0.99	43019.8	12261.00
27	19345.12	126.11	0.642	0.30 (0.30)	0.99	43542.5	10400.00
28	18969.58	129.89	0.635	0.30 (0.30)	0.99	44132.7	10200.00
29	18362.79	137.03	0.623	0.30 (0.30)	0.99	45163.2	10320.00
30	18349.32	137.15	0.623	0.30 (0.30)	0.99	45174.8	12010.00
31	17833.67	141.62	0.615	0.30 (0.30)	0.99	45388.7	10210.00
32	17382.11	146.24	0.607	0.30 (0.30)	0.99	45551.1	12000.00
33	15034.06	173.97	0.559	0.30 (0.30)	0.99	46168.0	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 11929.00 = 98400.52 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1659.11	33.46	1.204	0.30 (0.30)	1.00	1885.7	40130.00
2	1665.58	35.33	1.170	0.30 (0.30)	1.00	1992.5	40100.00
3	1692.35	67.13	0.846	0.30 (0.30)	1.00	3321.6	11910.00
4	1685.45	67.62	0.844	0.30 (0.30)	1.00	3327.6	11900.00

LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11929.00 = 30683.27 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	15929.33	33.46	1.204	0.30 (0.30)	0.99	10331.7	40130.00
2	16173.79	35.33	1.170	0.30 (0.30)	0.99	10911.0	40100.00
3	17100.60	44.77	1.030	0.30 (0.30)	0.99	13688.7	11801.00
4	18653.61	59.01	0.890	0.30 (0.30)	0.99	18684.0	11530.00
5	19362.29	65.23	0.855	0.30 (0.30)	0.99	21420.3	11701.00
6	19597.81	67.13	0.846	0.30 (0.30)	0.99	22304.6	11910.00
7	19607.73	67.22	0.846	0.30 (0.30)	0.99	22344.2	11000.00
8	19672.87	67.62	0.844	0.30 (0.30)	0.99	22572.1	11900.00
9	20834.75	74.88	0.808	0.30 (0.30)	0.99	26578.5	12500.00
10	21325.43	77.91	0.793	0.30 (0.30)	0.99	28382.6	11330.00
11	21613.42	80.66	0.780	0.30 (0.30)	0.99	30016.0	10800.00
12	22010.08	83.13	0.768	0.30 (0.30)	0.99	31651.7	11300.00
13	22277.11	86.44	0.751	0.30 (0.30)	0.99	33469.8	10630.00
14	22230.94	90.30	0.733	0.30 (0.30)	0.99	35205.6	12300.00
15	22236.95	92.00	0.729	0.30 (0.30)	0.99	36059.7	12330.00
16	22229.80	95.25	0.720	0.30 (0.30)	0.99	37659.4	12410.00
17	22213.45	96.78	0.715	0.30 (0.30)	0.99	38385.8	11620.00
18	22182.07	98.57	0.711	0.30 (0.30)	0.99	39202.1	11600.00
19	22140.86	99.95	0.707	0.30 (0.30)	0.99	39769.0	12400.00
20	21974.99	104.26	0.695	0.30 (0.30)	0.99	41436.4	11111.00
21	21936.47	105.36	0.692	0.30 (0.30)	0.99	41808.4	12211.00
22	21868.00	107.09	0.687	0.30 (0.30)	0.99	42386.4	10500.00
23	21727.41	110.28	0.679	0.30 (0.30)	0.99	43370.3	12201.00
24	21652.42	111.39	0.676	0.30 (0.30)	0.99	43681.9	10710.00
25	21434.54	114.02	0.668	0.30 (0.30)	0.99	44318.1	10410.00
26	21313.77	115.39	0.665	0.30 (0.30)	0.99	44627.1	12111.00
27	21048.44	118.91	0.655	0.30 (0.30)	0.99	45458.5	12231.00
28	20993.68	119.56	0.653	0.30 (0.30)	0.99	45602.3	10700.00
29	20809.33	121.79	0.649	0.30 (0.30)	0.99	46075.2	12101.10

30	20691.36	123.15	0.647	0.30 (0.30)	0.99	46347.4	12261.00
31	20404.98	126.11	0.642	0.30 (0.30)	0.99	46870.1	10400.00
32	20009.38	129.89	0.635	0.30 (0.30)	0.99	47460.3	10200.00
33	19364.66	137.03	0.623	0.30 (0.30)	0.99	48490.9	10320.00
34	19350.52	137.15	0.623	0.30 (0.30)	0.99	48502.4	12010.00
35	18811.18	141.62	0.615	0.30 (0.30)	0.99	48716.3	10210.00
36	18335.06	146.24	0.607	0.30 (0.30)	0.99	48878.7	12000.00
37	15839.68	173.97	0.559	0.30 (0.30)	0.99	49495.7	10100.00

TOTAL AREA (ACRES) = 49495.7

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 22277.11 Tc (MIN.) = 86.444
EFFECTIVE AREA (ACRES) = 33469.80 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 49495.7
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 11929.00 = 98400.52 FEET.

END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 49495.7 TC (MIN.) = 86.44
EFFECTIVE AREA (ACRES) = 33469.80 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.994
PEAK FLOW RATE (CFS) = 22277.11

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	15929.33	33.46	1.204	0.30 (0.30)	0.99	10331.7	40130.00
2	16173.79	35.33	1.170	0.30 (0.30)	0.99	10911.0	40100.00
3	17100.60	44.77	1.030	0.30 (0.30)	0.99	13688.7	11801.00
4	18653.61	59.01	0.890	0.30 (0.30)	0.99	18684.0	11530.00
5	19362.29	65.23	0.855	0.30 (0.30)	0.99	21420.3	11701.00
6	19597.81	67.13	0.846	0.30 (0.30)	0.99	22304.6	11910.00
7	19607.73	67.22	0.846	0.30 (0.30)	0.99	22344.2	11000.00
8	19672.87	67.62	0.844	0.30 (0.30)	0.99	22572.1	11900.00
9	20834.75	74.88	0.808	0.30 (0.30)	0.99	26578.5	12500.00
10	21325.43	77.91	0.793	0.30 (0.30)	0.99	28382.6	11330.00
11	21613.42	80.66	0.780	0.30 (0.30)	0.99	30016.0	10800.00
12	22010.08	83.13	0.768	0.30 (0.30)	0.99	31651.7	11300.00
13	22277.11	86.44	0.751	0.30 (0.30)	0.99	33469.8	10630.00
14	22230.94	90.30	0.733	0.30 (0.30)	0.99	35205.6	12300.00
15	22236.95	92.00	0.729	0.30 (0.30)	0.99	36059.7	12330.00
16	22229.80	95.25	0.720	0.30 (0.30)	0.99	37659.4	12410.00
17	22213.45	96.78	0.715	0.30 (0.30)	0.99	38385.8	11620.00
18	22182.07	98.57	0.711	0.30 (0.30)	0.99	39202.1	11600.00
19	22140.86	99.95	0.707	0.30 (0.30)	0.99	39769.0	12400.00
20	21974.99	104.26	0.695	0.30 (0.30)	0.99	41436.4	11111.00
21	21936.47	105.36	0.692	0.30 (0.30)	0.99	41808.4	12211.00
22	21868.00	107.09	0.687	0.30 (0.30)	0.99	42386.4	10500.00
23	21727.41	110.28	0.679	0.30 (0.30)	0.99	43370.3	12201.00
24	21652.42	111.39	0.676	0.30 (0.30)	0.99	43681.9	10710.00
25	21434.54	114.02	0.668	0.30 (0.30)	0.99	44318.1	10410.00
26	21313.77	115.39	0.665	0.30 (0.30)	0.99	44627.1	12111.00
27	21048.44	118.91	0.655	0.30 (0.30)	0.99	45458.5	12231.00
28	20993.68	119.56	0.653	0.30 (0.30)	0.99	45602.3	10700.00
29	20809.33	121.79	0.649	0.30 (0.30)	0.99	46075.2	12101.10
30	20691.36	123.15	0.647	0.30 (0.30)	0.99	46347.4	12261.00
31	20404.98	126.11	0.642	0.30 (0.30)	0.99	46870.1	10400.00
32	20009.38	129.89	0.635	0.30 (0.30)	0.99	47460.3	10200.00

33	19364.66	137.03	0.623	0.30	(0.30)	0.99	48490.9	10320.00
34	19350.52	137.15	0.623	0.30	(0.30)	0.99	48502.4	12010.00
35	18811.18	141.62	0.615	0.30	(0.30)	0.99	48716.3	10210.00
36	18335.06	146.24	0.607	0.30	(0.30)	0.99	48878.7	12000.00
37	15839.68	173.97	0.559	0.30	(0.30)	0.99	49495.7	10100.00

=====
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END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
(c) Copyright 1983-2010 Advanced Engineering Software (aes)
Ver. 17.0 Release Date: 07/01/2010 License ID 1527

Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 126 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 10-YR EV AUG 2023 ROKAMOTO *

FILE NAME: RI10EV26.DAT
TIME/DATE OF STUDY: 11:42 08/09/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 3.912
- 2) 10.00; 2.592
- 3) 15.00; 1.893
- 4) 20.00; 1.621
- 5) 25.00; 1.412
- 6) 30.00; 1.265
- 7) 40.00; 1.084
- 8) 50.00; 0.966
- 9) 60.00; 0.879
- 10) 90.00; 0.732
- 11) 120.00; 0.650
- 12) 180.00; 0.547
- 13) 360.00; 0.406
- 14) 1200.00; 0.179

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER WIDTH (FT)	GEOMETRIES: LIP (FT)	MANNING HIKE FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 11929.00 TO NODE 11929.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RI10EV19.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	16173.79	35.33	0.30 (0.30)	0.99	10911.0	40100.00
2	17100.60	44.77	0.30 (0.30)	0.99	13688.7	11801.00
3	18653.61	59.01	0.30 (0.30)	0.99	18684.0	11530.00
4	19672.87	67.62	0.30 (0.30)	0.99	22572.1	11900.00
5	21325.43	77.91	0.30 (0.30)	0.99	28382.6	11330.00
6	22010.08	83.13	0.30 (0.30)	0.99	31651.7	11300.00
7	22277.11	86.44	0.30 (0.30)	0.99	33469.8	10630.00
8	22236.95	92.00	0.30 (0.30)	0.99	36059.7	12330.00
9	22229.80	95.25	0.30 (0.30)	0.99	37659.4	12410.00
10	22182.07	98.57	0.30 (0.30)	0.99	39202.1	11600.00
11	21974.99	104.26	0.30 (0.30)	0.99	41436.4	11111.00
12	21727.41	110.28	0.30 (0.30)	0.99	43370.3	12201.00
13	21434.54	114.02	0.30 (0.30)	0.99	44318.1	10410.00
14	21048.44	118.91	0.30 (0.30)	0.99	45458.5	12231.00
15	20404.98	126.11	0.30 (0.30)	0.99	46870.1	10400.00
16	20009.38	129.89	0.30 (0.30)	0.99	47460.3	10200.00
17	19364.66	137.03	0.30 (0.30)	0.99	48490.9	10320.00
18	18811.18	141.62	0.30 (0.30)	0.99	48716.3	10210.00
19	18335.06	146.24	0.30 (0.30)	0.99	48878.7	12000.00
20	15839.68	173.97	0.30 (0.30)	0.99	49495.7	10100.00
TOTAL AREA (ACRES) =						49495.7

FLOW PROCESS FROM NODE 11929.00 TO NODE 11929.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	16173.79	35.33	0.30 (0.30)	0.99	10911.0	40100.00
2	17100.60	44.77	0.30 (0.30)	0.99	13688.7	11801.00
3	18653.61	59.01	0.30 (0.30)	0.99	18684.0	11530.00
4	19672.87	67.62	0.30 (0.30)	0.99	22572.1	11900.00
5	21325.43	77.91	0.30 (0.30)	0.99	28382.6	11330.00
6	22010.08	83.13	0.30 (0.30)	0.99	31651.7	11300.00
7	22277.11	86.44	0.30 (0.30)	0.99	33469.8	10630.00
8	22236.95	92.00	0.30 (0.30)	0.99	36059.7	12330.00
9	22229.80	95.25	0.30 (0.30)	0.99	37659.4	12410.00
10	22182.07	98.57	0.30 (0.30)	0.99	39202.1	11600.00
11	21974.99	104.26	0.30 (0.30)	0.99	41436.4	11111.00
12	21727.41	110.28	0.30 (0.30)	0.99	43370.3	12201.00
13	21434.54	114.02	0.30 (0.30)	0.99	44318.1	10410.00

14	21048.44	118.91	0.30	(0.30)	0.99	45458.5	12231.00
15	20404.98	126.11	0.30	(0.30)	0.99	46870.1	10400.00
16	20009.38	129.89	0.30	(0.30)	0.99	47460.3	10200.00
17	19364.66	137.03	0.30	(0.30)	0.99	48490.9	10320.00
18	18811.18	141.62	0.30	(0.30)	0.99	48716.3	10210.00
19	18335.06	146.24	0.30	(0.30)	0.99	48878.7	12000.00
20	15839.68	173.97	0.30	(0.30)	0.99	49495.7	10100.00

TOTAL AREA (ACRES) = 49495.7

FLOW PROCESS FROM NODE 11929.00 TO NODE 12601.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 341.63 DOWNSTREAM (FEET) = 325.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1467.93 CHANNEL SLOPE = 0.0113
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT (FEET) = 6.03

* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.742

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.40	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.50	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	0.90	0.30	1.000	63
NATURAL FAIR COVER					
"GRASS"	B	0.50	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	11.50	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.30	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 22279.91

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 16.05

AVERAGE FLOW DEPTH (FEET) = 6.03 TRAVEL TIME (MIN.) = 1.52

Tc (MIN.) = 87.97

SUBAREA AREA (ACRES) = 14.10 SUBAREA RUNOFF (CFS) = 5.61

EFFECTIVE AREA (ACRES) = 33483.91 AREA-AVERAGED Fm (INCH/HR) = 0.30

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99

TOTAL AREA (ACRES) = 49509.8 PEAK FLOW RATE (CFS) = 22277.11

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT (FEET) = 6.03

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 6.03 FLOW VELOCITY (FEET/SEC.) = 16.05

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12601.00 = 99868.45 FEET.

FLOW PROCESS FROM NODE 12601.00 TO NODE 12601.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 3010EVRL.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	67.76	17.31	0.30 (0.29)	0.98	51.1	600.00

TOTAL AREA (ACRES) = 51.1

FLOW PROCESS FROM NODE 12601.00 TO NODE 12601.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	16173.79	37.03	1.138	0.30 (0.30)	0.99	10925.1	40100.00
2	17100.60	46.44	1.008	0.30 (0.30)	0.99	13702.8	11801.00
3	18653.61	60.63	0.876	0.30 (0.30)	0.99	18698.1	11530.00
4	19672.87	69.21	0.834	0.30 (0.30)	0.99	22586.2	11900.00
5	21325.43	79.46	0.784	0.30 (0.30)	0.99	28396.7	11330.00
6	22010.08	84.66	0.758	0.30 (0.30)	0.99	31665.8	11300.00
7	22277.11	87.97	0.742	0.30 (0.30)	0.99	33483.9	10630.00
8	22236.95	93.52	0.722	0.30 (0.30)	0.99	36073.8	12330.00
9	22229.80	96.78	0.713	0.30 (0.30)	0.99	37673.5	12410.00
10	22182.07	100.10	0.704	0.30 (0.30)	0.99	39216.2	11600.00
11	21974.99	105.79	0.689	0.30 (0.30)	0.99	41450.6	11111.00
12	21727.41	111.81	0.672	0.30 (0.30)	0.99	43384.4	12201.00
13	21434.54	115.56	0.662	0.30 (0.30)	0.99	44332.2	10410.00
14	21048.44	120.47	0.649	0.30 (0.30)	0.99	45472.6	12231.00
15	20404.98	127.69	0.637	0.30 (0.30)	0.99	46884.2	10400.00
16	20009.38	131.47	0.630	0.30 (0.30)	0.99	47474.4	10200.00
17	19364.66	138.63	0.618	0.30 (0.30)	0.99	48505.0	10320.00
18	18811.18	143.23	0.610	0.30 (0.30)	0.99	48730.4	10210.00
19	18335.06	147.87	0.602	0.30 (0.30)	0.99	48892.8	12000.00
20	15839.68	175.69	0.554	0.30 (0.30)	0.99	49509.8	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12601.00 = 99868.45 FEET.

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	67.76	17.31	1.767	0.30 (0.29)	0.98	51.1	600.00

LONGEST FLOWPATH FROM NODE 600.00 TO NODE 12601.00 = 4850.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13297.29	17.31	1.767	0.30 (0.30)	0.99	5159.0	600.00
2	16212.60	37.03	1.138	0.30 (0.30)	0.99	10976.2	40100.00
3	17133.45	46.44	1.008	0.30 (0.30)	0.99	13753.9	11801.00
4	18680.38	60.63	0.876	0.30 (0.30)	0.99	18749.2	11530.00
5	19697.71	69.21	0.834	0.30 (0.30)	0.99	22637.3	11900.00
6	21347.96	79.46	0.784	0.30 (0.30)	0.99	28447.8	11330.00
7	22031.44	84.66	0.758	0.30 (0.30)	0.99	31716.9	11300.00
8	22297.72	87.97	0.742	0.30 (0.30)	0.99	33535.0	10630.00
9	22256.66	93.52	0.722	0.30 (0.30)	0.99	36124.9	12330.00


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10 22249.10 96.78 0.713 0.30( 0.30) 0.99 37724.6 12410.00
11 22200.96 100.10 0.704 0.30( 0.30) 0.99 39267.3 11600.00
12 21993.16 105.79 0.689 0.30( 0.30) 0.99 41501.7 11111.00
13 21744.82 111.81 0.672 0.30( 0.30) 0.99 43435.5 12201.00
14 21451.48 115.56 0.662 0.30( 0.30) 0.99 44383.3 10410.00
15 21064.79 120.47 0.649 0.30( 0.30) 0.99 45523.8 12231.00
16 20420.76 127.69 0.637 0.30( 0.30) 0.99 46935.3 10400.00
17 20024.86 131.47 0.630 0.30( 0.30) 0.99 47525.5 10200.00
18 19379.57 138.63 0.618 0.30( 0.30) 0.99 48556.1 10320.00
19 18825.73 143.23 0.610 0.30( 0.30) 0.99 48781.5 10210.00
20 18349.25 147.87 0.602 0.30( 0.30) 0.99 48943.9 12000.00
21 15851.67 175.69 0.554 0.30( 0.30) 0.99 49560.9 10100.00
TOTAL AREA (ACRES) = 49560.9

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COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

```

PEAK FLOW RATE(CFS) = 22297.72 Tc(MIN.) = 87.968
EFFECTIVE AREA(ACRES) = 33535.01 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 49560.9
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12601.00 = 99868.45 FEET.

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*****
FLOW PROCESS FROM NODE 12601.00 TO NODE 12603.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
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ELEVATION DATA: UPSTREAM(FEET) = 325.00 DOWNSTREAM(FEET) = 310.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1690.00 CHANNEL SLOPE = 0.0089
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 6.47
CHANNEL FLOW THRU SUBAREA(CFS) = 22297.72
FLOW VELOCITY(FEET/SEC.) = 14.82 FLOW DEPTH(FEET) = 6.47
TRAVEL TIME(MIN.) = 1.90 Tc(MIN.) = 89.87
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12603.00 = 101558.45 FEET.

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*****
FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 12
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>>>>CLEAR MEMORY BANK # 1 <<<<
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*****
FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 1
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>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
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TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 89.87
RAINFALL INTENSITY(INCH/HR) = 0.73
AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.99
EFFECTIVE STREAM AREA(ACRES) = 33535.01
TOTAL STREAM AREA(ACRES) = 49560.89
PEAK FLOW RATE(CFS) AT CONFLUENCE = 22297.72

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*****
FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 7
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>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<
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USER-SPECIFIED VALUES ARE AS FOLLOWS:

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TC(MIN.) = 9.86 RAINFALL INTENSITY(INCH/HR) = 2.63
EFFECTIVE AREA(ACRES) = 71.80
TOTAL AREA(ACRES) = 171.00 PEAK FLOW RATE(CFS) = 101.30
AREA-AVERAGED Fm(INCH/HR) = 0.17 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.58
NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
CONFLUENCE ANALYSES.

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*****
FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 1
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>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
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TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 9.86
RAINFALL INTENSITY(INCH/HR) = 2.63
AREA-AVERAGED Fm(INCH/HR) = 0.17
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.58
EFFECTIVE STREAM AREA(ACRES) = 71.80
TOTAL STREAM AREA(ACRES) = 171.00
PEAK FLOW RATE(CFS) AT CONFLUENCE = 101.30

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** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13297.29	19.59	1.643	0.30(0.30)	0.99	5159.0	600.00
1	16212.60	39.16	1.099	0.30(0.30)	0.99	10976.2	40100.00
1	17133.45	48.52	0.983	0.30(0.30)	0.99	13753.9	11801.00
1	18680.38	62.65	0.866	0.30(0.30)	0.99	18749.2	11530.00
1	19697.71	71.20	0.824	0.30(0.30)	0.99	22637.3	11900.00
1	21347.96	81.39	0.774	0.30(0.30)	0.99	28447.8	11330.00
1	22031.44	86.57	0.749	0.30(0.30)	0.99	31716.9	11300.00
1	22297.72	89.87	0.733	0.30(0.30)	0.99	33535.0	10630.00
1	22256.66	95.42	0.717	0.30(0.30)	0.99	36124.9	12330.00
1	22249.10	98.68	0.708	0.30(0.30)	0.99	37724.6	12410.00
1	22200.96	102.01	0.699	0.30(0.30)	0.99	39267.3	11600.00
1	21993.16	107.70	0.684	0.30(0.30)	0.99	41501.7	11111.00
1	21744.82	113.73	0.667	0.30(0.30)	0.99	43435.5	12201.00
1	21451.48	117.49	0.657	0.30(0.30)	0.99	44383.3	10410.00
1	21064.79	122.41	0.646	0.30(0.30)	0.99	45523.8	12231.00
1	20420.76	129.64	0.633	0.30(0.30)	0.99	46935.3	10400.00
1	20024.86	133.45	0.627	0.30(0.30)	0.99	47525.5	10200.00
1	19379.57	140.63	0.615	0.30(0.30)	0.99	48556.1	10320.00
1	18825.73	145.25	0.607	0.30(0.30)	0.99	48781.5	10210.00
1	18349.25	149.90	0.599	0.30(0.30)	0.99	48943.9	12000.00
1	15851.67	177.83	0.551	0.30(0.30)	0.99	49560.9	10100.00
2	101.30	9.86	2.629	0.30(0.17)	0.58	71.8	12603.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	11697.24	9.86	2.629	0.30 (0.29)	0.98	2668.4	12603.00
2	13357.92	19.59	1.643	0.30 (0.30)	0.99	5230.8	600.00
3	16250.78	39.16	1.099	0.30 (0.30)	0.99	11048.0	40100.00
4	17166.85	48.52	0.983	0.30 (0.30)	0.99	13825.7	11801.00
5	18708.94	62.65	0.866	0.30 (0.30)	0.99	18821.0	11530.00
6	19724.53	71.20	0.824	0.30 (0.30)	0.99	22709.1	11900.00
7	21372.73	81.39	0.774	0.30 (0.30)	0.99	28519.6	11330.00
8	22055.16	86.57	0.749	0.30 (0.30)	0.99	31788.7	11300.00
9	22320.77	89.87	0.733	0.30 (0.30)	0.99	33606.8	10630.00
10	22279.07	95.42	0.717	0.30 (0.30)	0.99	36196.7	12330.00
11	22271.15	98.68	0.708	0.30 (0.30)	0.99	37796.4	12410.00
12	22222.63	102.01	0.699	0.30 (0.30)	0.99	39339.1	11600.00
13	22014.19	107.70	0.684	0.30 (0.30)	0.99	41573.5	11111.00
14	21765.17	113.73	0.667	0.30 (0.30)	0.99	43507.3	12201.00
15	21471.41	117.49	0.657	0.30 (0.30)	0.99	44455.1	10410.00
16	21084.26	122.41	0.646	0.30 (0.30)	0.99	45595.6	12231.00
17	20439.71	129.64	0.633	0.30 (0.30)	0.99	47007.1	10400.00
18	20043.54	133.45	0.627	0.30 (0.30)	0.99	47597.3	10200.00
19	19397.75	140.63	0.615	0.30 (0.30)	0.99	48627.9	10320.00
20	18843.58	145.25	0.607	0.30 (0.30)	0.99	48853.3	10210.00
21	18366.77	149.90	0.599	0.30 (0.30)	0.99	49015.7	12000.00
22	15867.21	177.83	0.551	0.30 (0.30)	0.99	49632.7	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 22320.77 Tc(MIN.) = 89.87
 EFFECTIVE AREA(ACRES) = 33606.81 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49731.9
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12603.00 = 101558.45 FEET.

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 89.87
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.733
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.20	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.30	0.30	1.000	66
PUBLIC PARK	B	1.30	0.30	0.850	56
COMMERCIAL	B	1.40	0.30	0.100	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	1.70	0.30	0.900	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	12.40	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.911

SUBAREA AREA(ACRES) = 18.30 SUBAREA RUNOFF(CFS) = 7.56
 EFFECTIVE AREA(ACRES) = 33625.11 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49750.2 PEAK FLOW RATE(CFS) = 22320.77
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 89.87
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.733
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	26.90	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 26.90 SUBAREA RUNOFF(CFS) = 10.47
 EFFECTIVE AREA(ACRES) = 33652.01 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49777.1 PEAK FLOW RATE(CFS) = 22320.77
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 89.87
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.733
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.50	0.30	1.000	63
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.40	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	0.40	0.30	1.000	72
NATURAL FAIR COVER					
"GRASS"	B	0.60	0.30	1.000	69
PUBLIC PARK	B	0.70	0.30	0.850	56
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	0.70	0.30	1.000	72

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.968
 SUBAREA AREA(ACRES) = 3.30 SUBAREA RUNOFF(CFS) = 1.31
 EFFECTIVE AREA(ACRES) = 33655.31 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49780.4 PEAK FLOW RATE(CFS) = 22320.77
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 89.87
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.733
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	1.00	0.30	1.000	66
NATURAL FAIR COVER "OPEN BRUSH"	B	1.20	0.30	1.000	66
RESIDENTIAL ".4 DWELLING/ACRE"	B	1.70	0.30	0.900	56
NATURAL FAIR COVER "OPEN BRUSH"	B	1.90	0.30	1.000	66
RESIDENTIAL ".4 DWELLING/ACRE"	B	2.10	0.30	0.900	56
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	B	2.90	0.30	1.000	72

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.965
 SUBAREA AREA(ACRES) = 10.80 SUBAREA RUNOFF(CFS) = 4.31
 EFFECTIVE AREA(ACRES) = 33666.11 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49791.2 PEAK FLOW RATE(CFS) = 22320.77
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 89.87
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.733
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND,GRASS"	B	5.60	0.30	1.000	65
NATURAL FAIR COVER "WOODLAND,GRASS"	B	9.00	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 14.60 SUBAREA RUNOFF(CFS) = 5.68
 EFFECTIVE AREA(ACRES) = 33680.71 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49805.8 PEAK FLOW RATE(CFS) = 22320.77
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12605.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 310.00 DOWNSTREAM(FEET) = 305.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 885.00 CHANNEL SLOPE = 0.0056
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 7.38
 CHANNEL FLOW THRU SUBAREA(CFS) = 22320.77
 FLOW VELOCITY(FEET/SEC.) = 12.77 FLOW DEPTH(FEET) = 7.38
 TRAVEL TIME(MIN.) = 1.16 Tc(MIN.) = 91.02
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12605.00 = 102443.45 FEET.

 FLOW PROCESS FROM NODE 12605.00 TO NODE 12605.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 91.02
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.729
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "ROW CROPS,STRAIGHT ROW"	B	0.50	0.30	1.000	81
NATURAL FAIR COVER "WOODLAND,GRASS"	B	0.70	0.30	1.000	65
PUBLIC PARK	B	1.30	0.30	0.850	56
RESIDENTIAL ".4 DWELLING/ACRE"	B	1.30	0.30	0.900	56
AGRICULTURAL POOR COVER "ROW CROPS,STRAIGHT ROW"	B	1.90	0.30	1.000	81
PUBLIC PARK	B	2.10	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.918
 SUBAREA AREA(ACRES) = 7.80 SUBAREA RUNOFF(CFS) = 3.19
 EFFECTIVE AREA(ACRES) = 33688.51 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49813.6 PEAK FLOW RATE(CFS) = 22320.77
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12605.00 TO NODE 12605.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 91.02
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.729
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	3.20	0.30	1.000	66
NATURAL FAIR COVER "WOODLAND,GRASS"	B	3.50	0.30	1.000	65
PUBLIC PARK	B	6.10	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.929
 SUBAREA AREA(ACRES) = 12.80 SUBAREA RUNOFF(CFS) = 5.19
 EFFECTIVE AREA(ACRES) = 33701.31 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49826.4 PEAK FLOW RATE(CFS) = 22320.77
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

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FLOW PROCESS FROM NODE 12605.00 TO NODE 12606.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 305.00 DOWNSTREAM(FEET) = 286.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2159.47 CHANNEL SLOPE = 0.0088
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 6.50
CHANNEL FLOW THRU SUBAREA(CFS) = 22320.77
FLOW VELOCITY(FEET/SEC.) = 14.78 FLOW DEPTH(FEET) = 6.50
TRAVEL TIME(MIN.) = 2.44 Tc(MIN.) = 93.46
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12606.00 = 104602.91 FEET.
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FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 1
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>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 93.46
RAINFALL INTENSITY(INCH/HR) = 0.72
AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.99
EFFECTIVE STREAM AREA(ACRES) = 33701.31
TOTAL STREAM AREA(ACRES) = 49826.39
PEAK FLOW RATE(CFS) AT CONFLUENCE = 22320.77
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FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 7
-----
>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<
=====
USER-SPECIFIED VALUES ARE AS FOLLOWS:
TC(MIN.) = 17.80 RAINFALL INTENSITY(INCH/HR) = 1.74
EFFECTIVE AREA(ACRES) = 457.90
TOTAL AREA(ACRES) = 553.80 PEAK FLOW RATE(CFS) = 538.10
AREA-AVERAGED Fm(INCH/HR) = 0.26 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.85
NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
CONFLUENCE ANALYSES.
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AREA-AVERAGED Ap = 0.85
EFFECTIVE STREAM AREA(ACRES) = 457.90
TOTAL STREAM AREA(ACRES) = 553.80
PEAK FLOW RATE(CFS) AT CONFLUENCE = 538.10

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** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	11697.24	14.35	1.983	0.30(0.29)	0.98	2762.9	12603.00
1	13357.92	23.88	1.459	0.30(0.30)	0.99	5325.3	600.00
1	16250.78	43.16	1.047	0.30(0.30)	0.99	11142.5	40100.00
1	17166.85	52.45	0.945	0.30(0.30)	0.99	13920.2	11801.00
1	18708.94	66.47	0.847	0.30(0.30)	0.99	18915.5	11530.00
1	19724.53	74.94	0.806	0.30(0.30)	0.99	22803.6	11900.00
1	21372.73	85.03	0.756	0.30(0.30)	0.99	28614.1	11330.00
1	22055.16	90.18	0.732	0.30(0.30)	0.99	31883.2	11300.00
1	22320.77	93.46	0.723	0.30(0.30)	0.99	33701.3	10630.00
1	22279.07	99.02	0.707	0.30(0.30)	0.99	36291.2	12330.00
1	22271.15	102.27	0.698	0.30(0.30)	0.99	37890.9	12410.00
1	22222.63	105.60	0.689	0.30(0.30)	0.99	39433.6	11600.00
1	22014.19	111.30	0.674	0.30(0.30)	0.99	41668.0	11111.00
1	21765.17	117.35	0.657	0.30(0.30)	0.99	43601.8	12201.00
1	21471.41	121.13	0.648	0.30(0.30)	0.99	44549.6	10410.00
1	21084.26	126.07	0.640	0.30(0.30)	0.99	45690.1	12231.00
1	20439.71	133.35	0.627	0.30(0.30)	0.99	47101.6	10400.00
1	20043.54	137.17	0.621	0.30(0.30)	0.99	47691.8	10200.00
1	19397.75	144.39	0.608	0.30(0.30)	0.99	48722.4	10320.00
1	18843.58	149.05	0.600	0.30(0.30)	0.99	48947.8	10210.00
1	18366.77	153.74	0.592	0.30(0.30)	0.99	49110.2	12000.00
1	15867.21	181.86	0.546	0.30(0.30)	0.99	49727.2	10100.00
2	538.10	17.80	1.741	0.30(0.26)	0.85	457.9	12606.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12202.03	14.35	1.983	0.30(0.29)	0.97	3132.2	12603.00
2	12835.94	17.80	1.741	0.30(0.29)	0.97	4147.5	12606.00
3	13793.90	23.88	1.459	0.30(0.29)	0.98	5783.2	600.00
4	16537.52	43.16	1.047	0.30(0.30)	0.98	11600.4	40100.00
5	17416.64	52.45	0.945	0.30(0.30)	0.99	14378.1	11801.00
6	18923.46	66.47	0.847	0.30(0.30)	0.99	19373.4	11530.00
7	19924.02	74.94	0.806	0.30(0.30)	0.99	23261.5	11900.00
8	21554.32	85.03	0.756	0.30(0.30)	0.99	29072.0	11330.00
9	22227.75	90.18	0.732	0.30(0.30)	0.99	32341.1	11300.00
10	22490.11	93.46	0.723	0.30(0.30)	0.99	34159.2	10630.00
11	22442.91	99.02	0.707	0.30(0.30)	0.99	36749.1	12330.00
12	22431.76	102.27	0.698	0.30(0.30)	0.99	38348.8	12410.00
13	22379.95	105.60	0.689	0.30(0.30)	0.99	39891.5	11600.00
14	22165.87	111.30	0.674	0.30(0.30)	0.99	42125.9	11111.00
15	21910.86	117.35	0.657	0.30(0.30)	0.99	44059.7	12201.00
16	21613.77	121.13	0.648	0.30(0.30)	0.99	45007.5	10410.00
17	21223.55	126.07	0.640	0.30(0.30)	0.99	46148.0	12231.00
18	20574.48	133.35	0.627	0.30(0.30)	0.99	47559.5	10400.00
19	20175.93	137.17	0.621	0.30(0.30)	0.99	48149.7	10200.00
20	19525.65	144.39	0.608	0.30(0.30)	0.99	49180.3	10320.00

21 18968.58 149.05 0.600 0.30(0.30) 0.99 49405.7 10210.00
 22 18488.86 153.74 0.592 0.30(0.30) 0.99 49568.1 12000.00
 23 15972.44 181.86 0.546 0.30(0.30) 0.99 50185.1 10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 22490.11 Tc(MIN.) = 93.46
 EFFECTIVE AREA(ACRES) = 34159.21 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 50380.2
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12606.00 = 104602.91 FEET.

 FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 93.46
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.723
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.30	0.30	1.000	63
NATURAL FAIR COVER					
"GRASS"	B	0.30	0.30	1.000	69
PUBLIC PARK	B	0.40	0.30	0.850	56
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	0.60	0.30	1.000	72
COMMERCIAL	B	1.10	0.30	0.100	56
PUBLIC PARK	B	0.80	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.666
 SUBAREA AREA(ACRES) = 3.50 SUBAREA RUNOFF(CFS) = 1.65
 EFFECTIVE AREA(ACRES) = 34162.71 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 50383.7 PEAK FLOW RATE(CFS) = 22490.11
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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MAINLINE Tc(MIN.) = 93.46
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.723
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	0.80	0.30	1.000	69
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.90	0.30	1.000	65
AGRICULTURAL POOR COVER					
"ROW CROPS,STRAIGHT ROW"	B	1.50	0.30	1.000	81
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.60	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.80	0.30	1.000	66

NATURAL FAIR COVER
 "WOODLAND,GRASS" B 1.90 0.30 1.000 65
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 8.50 SUBAREA RUNOFF(CFS) = 3.23
 EFFECTIVE AREA(ACRES) = 34171.21 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 50392.2 PEAK FLOW RATE(CFS) = 22490.11
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 93.46
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.723
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.30	0.30	1.000	66
PUBLIC PARK	B	3.70	0.30	0.850	56
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	3.90	0.30	1.000	72
PUBLIC PARK	B	5.90	0.30	0.850	56
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	9.10	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	20.60	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.969
 SUBAREA AREA(ACRES) = 46.50 SUBAREA RUNOFF(CFS) = 18.07
 EFFECTIVE AREA(ACRES) = 34217.71 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 50438.7 PEAK FLOW RATE(CFS) = 22490.11
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

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END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 50438.7 TC(MIN.) = 93.46
 EFFECTIVE AREA(ACRES) = 34217.71 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.991
 PEAK FLOW RATE(CFS) = 22490.11

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12202.03	14.35	1.983	0.30(0.29)	0.97	3190.7	12603.00
2	12835.94	17.80	1.741	0.30(0.29)	0.97	4206.0	12606.00
3	13793.90	23.88	1.459	0.30(0.29)	0.98	5841.7	600.00
4	16537.52	43.16	1.047	0.30(0.30)	0.98	11658.9	40100.00
5	17416.64	52.45	0.945	0.30(0.30)	0.99	14436.6	11801.00
6	18923.46	66.47	0.847	0.30(0.30)	0.99	19431.9	11530.00
7	19924.02	74.94	0.806	0.30(0.30)	0.99	23320.0	11900.00
8	21554.32	85.03	0.756	0.30(0.30)	0.99	29130.5	11330.00
9	22227.75	90.18	0.732	0.30(0.30)	0.99	32399.6	11300.00
10	22490.11	93.46	0.723	0.30(0.30)	0.99	34217.7	10630.00
11	22442.91	99.02	0.707	0.30(0.30)	0.99	36807.6	12330.00

12	22431.76	102.27	0.698	0.30	(0.30)	0.99	38407.3	12410.00
13	22379.95	105.60	0.689	0.30	(0.30)	0.99	39950.0	11600.00
14	22165.87	111.30	0.674	0.30	(0.30)	0.99	42184.4	11111.00
15	21910.86	117.35	0.657	0.30	(0.30)	0.99	44118.2	12201.00
16	21613.77	121.13	0.648	0.30	(0.30)	0.99	45066.0	10410.00
17	21223.55	126.07	0.640	0.30	(0.30)	0.99	46206.5	12231.00
18	20574.48	133.35	0.627	0.30	(0.30)	0.99	47618.0	10400.00
19	20175.93	137.17	0.621	0.30	(0.30)	0.99	48208.2	10200.00
20	19525.65	144.39	0.608	0.30	(0.30)	0.99	49238.8	10320.00
21	18968.58	149.05	0.600	0.30	(0.30)	0.99	49464.2	10210.00
22	18488.86	153.74	0.592	0.30	(0.30)	0.99	49626.6	12000.00
23	15972.44	181.86	0.546	0.30	(0.30)	0.99	50243.6	10100.00

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END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 127 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 10-YR EV AUG 2023 ROKAMOTO *

FILE NAME: RI10EV27.DAT
TIME/DATE OF STUDY: 11:42 08/09/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 3.867
- 2) 10.00; 2.568
- 3) 15.00; 1.883
- 4) 20.00; 1.612
- 5) 25.00; 1.405
- 6) 30.00; 1.260
- 7) 40.00; 1.079
- 8) 50.00; 0.961
- 9) 60.00; 0.873
- 10) 90.00; 0.726
- 11) 120.00; 0.643
- 12) 180.00; 0.540
- 13) 360.00; 0.400
- 14) 1200.00; 0.176

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	(FT)	(FT)	SIDE / SIDE/ WAY	(FT)	(FT)	(FT)	(FT)	(n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RU10EV26.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12834.66	17.80	0.30 (0.29)	0.97	4205.8	12606.00
2	13792.69	23.88	0.30 (0.29)	0.98	5841.2	600.00
3	16537.52	43.16	0.30 (0.30)	0.98	11658.9	40100.00
4	17416.64	52.45	0.30 (0.30)	0.99	14436.6	11801.00
5	18923.47	66.47	0.30 (0.30)	0.99	19431.9	11530.00
6	19924.02	74.94	0.30 (0.30)	0.99	23320.0	11900.00
7	21554.32	85.03	0.30 (0.30)	0.99	29130.6	11330.00
8	22490.11	93.46	0.30 (0.30)	0.99	34217.7	10630.00
9	22442.91	99.02	0.30 (0.30)	0.99	36807.6	12330.00
10	22379.95	105.60	0.30 (0.30)	0.99	39950.0	11600.00
11	22165.87	111.30	0.30 (0.30)	0.99	42184.4	11111.00
12	21910.86	117.35	0.30 (0.30)	0.99	44118.2	12201.00
13	21613.77	121.13	0.30 (0.30)	0.99	45066.0	10410.00
14	21223.55	126.07	0.30 (0.30)	0.99	46206.5	12231.00
15	20574.48	133.35	0.30 (0.30)	0.99	47618.0	10400.00
16	20175.93	137.17	0.30 (0.30)	0.99	48208.2	10200.00
17	19525.65	144.39	0.30 (0.30)	0.99	49238.8	10320.00
18	18968.58	149.05	0.30 (0.30)	0.99	49464.3	10210.00
19	18488.86	153.74	0.30 (0.30)	0.99	49626.6	12000.00
20	15972.44	181.86	0.30 (0.30)	0.99	50243.6	10100.00
TOTAL AREA (ACRES) =						50243.6

FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

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MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12834.66	17.80	0.30 (0.29)	0.97	4205.8	12606.00
2	13792.69	23.88	0.30 (0.29)	0.98	5841.2	600.00
3	16537.52	43.16	0.30 (0.30)	0.98	11658.9	40100.00
4	17416.64	52.45	0.30 (0.30)	0.99	14436.6	11801.00
5	18923.47	66.47	0.30 (0.30)	0.99	19431.9	11530.00
6	19924.02	74.94	0.30 (0.30)	0.99	23320.0	11900.00
7	21554.32	85.03	0.30 (0.30)	0.99	29130.6	11330.00
8	22490.11	93.46	0.30 (0.30)	0.99	34217.7	10630.00
9	22442.91	99.02	0.30 (0.30)	0.99	36807.6	12330.00
10	22379.95	105.60	0.30 (0.30)	0.99	39950.0	11600.00
11	22165.87	111.30	0.30 (0.30)	0.99	42184.4	11111.00
12	21910.86	117.35	0.30 (0.30)	0.99	44118.2	12201.00
13	21613.77	121.13	0.30 (0.30)	0.99	45066.0	10410.00

14 21223.55 126.07 0.30(0.30) 0.99 46206.5 12231.00
 15 20574.48 133.35 0.30(0.30) 0.99 47618.0 10400.00
 16 20175.93 137.17 0.30(0.30) 0.99 48208.2 10200.00
 17 19525.65 144.39 0.30(0.30) 0.99 49238.8 10320.00
 18 18968.58 149.05 0.30(0.30) 0.99 49464.3 10210.00
 19 18488.86 153.74 0.30(0.30) 0.99 49626.6 12000.00
 20 15972.44 181.86 0.30(0.30) 0.99 50243.6 10100.00
 TOTAL AREA(ACRES) = 50243.6

FLOW PROCESS FROM NODE 12606.00 TO NODE 12701.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 286.00 DOWNSTREAM(FEET) = 276.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1260.19 CHANNEL SLOPE = 0.0079
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 6.72
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.712

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	B	0.70	0.30	0.500	56
PUBLIC PARK	B	0.90	0.30	0.850	56
COMMERCIAL	B	3.40	0.30	0.100	56
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	3.60	0.30	1.000	65
PUBLIC PARK	B	10.10	0.30	0.850	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	17.40	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.860
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 22497.49
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 14.32
 AVERAGE FLOW DEPTH(FEET) = 6.72 TRAVEL TIME(MIN.) = 1.47
 Tc(MIN.) = 94.93
 SUBAREA AREA(ACRES) = 36.10 SUBAREA RUNOFF(CFS) = 14.76
 EFFECTIVE AREA(ACRES) = 34253.82 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 50279.7 PEAK FLOW RATE(CFS) = 22490.11
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 6.72

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 6.72 FLOW VELOCITY(FEET/SEC.) = 14.32
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12701.00 = 105863.10 FEET.

FLOW PROCESS FROM NODE 12701.00 TO NODE 12720.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 276.00 DOWNSTREAM(FEET) = 275.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 147.65 CHANNEL SLOPE = 0.0068
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 7.04
 CHANNEL FLOW THRU SUBAREA(CFS) = 22490.11
 FLOW VELOCITY(FEET/SEC.) = 13.59 FLOW DEPTH(FEET) = 7.04
 TRAVEL TIME(MIN.) = 0.18 Tc(MIN.) = 95.11
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12720.00 = 106010.75 FEET.

FLOW PROCESS FROM NODE 12701.00 TO NODE 12720.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION(MIN.) = 95.11
 RAINFALL INTENSITY(INCH/HR) = 0.71
 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.99
 EFFECTIVE STREAM AREA(ACRES) = 34253.82
 TOTAL STREAM AREA(ACRES) = 50279.70
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 22490.11

FLOW PROCESS FROM NODE 12710.00 TO NODE 12711.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

INITIAL SUBAREA FLOW-LENGTH(FEET) = 943.56
 ELEVATION DATA: UPSTREAM(FEET) = 940.78 DOWNSTREAM(FEET) = 657.79

Tc = K*(LENGTH** 3.00)/(ELEVATION CHANGE)**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 13.910
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.032
 SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
NATURAL FAIR COVER						
"GRASS"	B	6.56	0.30	1.000	69	13.91

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 10.23
 TOTAL AREA(ACRES) = 6.56 PEAK FLOW RATE(CFS) = 10.23

FLOW PROCESS FROM NODE 12711.00 TO NODE 12712.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 657.79 DOWNSTREAM(FEET) = 585.63
 CHANNEL LENGTH THRU SUBAREA(FEET) = 766.00 CHANNEL SLOPE = 0.0942
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 0.58
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.795
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	26.94	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 28.41
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 4.70
 AVERAGE FLOW DEPTH (FEET) = 0.54 TRAVEL TIME (MIN.) = 2.71
 Tc (MIN.) = 16.62
 SUBAREA AREA (ACRES) = 26.94 SUBAREA RUNOFF (CFS) = 36.25
 EFFECTIVE AREA (ACRES) = 33.50 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 33.5 PEAK FLOW RATE (CFS) = 45.07
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 0.71

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 0.71 FLOW VELOCITY (FEET/SEC.) = 5.52
 LONGEST FLOWPATH FROM NODE 12710.00 TO NODE 12712.00 = 1709.56 FEET.

 FLOW PROCESS FROM NODE 12712.00 TO NODE 12713.00 IS CODE = 56

>>>> COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>> TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM (FEET) = 585.63 DOWNSTREAM (FEET) = 463.75
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1025.79 CHANNEL SLOPE = 0.1188
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 0.75
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.649
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	14.73	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 54.02
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.33
 AVERAGE FLOW DEPTH (FEET) = 0.74 TRAVEL TIME (MIN.) = 2.70
 Tc (MIN.) = 19.32
 SUBAREA AREA (ACRES) = 14.73 SUBAREA RUNOFF (CFS) = 17.88
 EFFECTIVE AREA (ACRES) = 48.23 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 48.2 PEAK FLOW RATE (CFS) = 58.54
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 0.78

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 0.78 FLOW VELOCITY (FEET/SEC.) = 6.54

LONGEST FLOWPATH FROM NODE 12710.00 TO NODE 12713.00 = 2735.35 FEET.

 FLOW PROCESS FROM NODE 12713.00 TO NODE 12714.00 IS CODE = 56

>>>> COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>> TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM (FEET) = 463.75 DOWNSTREAM (FEET) = 360.30
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1148.54 CHANNEL SLOPE = 0.0901
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.29
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.534
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	105.64	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 117.27
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.46
 AVERAGE FLOW DEPTH (FEET) = 1.26 TRAVEL TIME (MIN.) = 2.57
 Tc (MIN.) = 21.89
 SUBAREA AREA (ACRES) = 105.64 SUBAREA RUNOFF (CFS) = 117.30
 EFFECTIVE AREA (ACRES) = 153.87 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 153.9 PEAK FLOW RATE (CFS) = 170.86
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.55

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.55 FLOW VELOCITY (FEET/SEC.) = 8.40
 LONGEST FLOWPATH FROM NODE 12710.00 TO NODE 12714.00 = 3883.89 FEET.

 FLOW PROCESS FROM NODE 12714.00 TO NODE 12720.00 IS CODE = 56

>>>> COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>> TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM (FEET) = 360.30 DOWNSTREAM (FEET) = 275.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1314.99 CHANNEL SLOPE = 0.0649
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.06
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.424
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	127.13	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 235.20
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.26

AVERAGE FLOW DEPTH (FEET) = 2.03 TRAVEL TIME (MIN.) = 2.65
 Tc (MIN.) = 24.54
 SUBAREA AREA (ACRES) = 127.13 SUBAREA RUNOFF (CFS) = 128.60
 EFFECTIVE AREA (ACRES) = 281.00 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 281.0 PEAK FLOW RATE (CFS) = 284.24
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.25

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 2.25 FLOW VELOCITY (FEET/SEC.) = 8.72
 LONGEST FLOWPATH FROM NODE 12710.00 TO NODE 12720.00 = 5198.88 FEET.

 FLOW PROCESS FROM NODE 12720.00 TO NODE 12720.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

=====
 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 24.54
 RAINFALL INTENSITY (INCH/HR) = 1.42
 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 1.00
 EFFECTIVE STREAM AREA (ACRES) = 281.00
 TOTAL STREAM AREA (ACRES) = 281.00
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 284.24

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12834.66	19.80	1.623	0.30 (0.29)	0.97	4241.9	12606.00
1	13792.69	25.83	1.381	0.30 (0.29)	0.97	5877.3	600.00
1	16537.52	44.99	1.020	0.30 (0.30)	0.98	11695.0	40100.00
1	17416.64	54.25	0.924	0.30 (0.30)	0.99	14472.7	11801.00
1	18923.47	68.21	0.833	0.30 (0.30)	0.99	19468.0	11530.00
1	19924.02	76.66	0.791	0.30 (0.30)	0.99	23356.1	11900.00
1	21554.32	86.70	0.742	0.30 (0.30)	0.99	29166.7	11330.00
1	22490.11	95.11	0.712	0.30 (0.30)	0.99	34253.8	10630.00
1	22442.91	100.67	0.696	0.30 (0.30)	0.99	36843.7	12330.00
1	22379.95	107.25	0.678	0.30 (0.30)	0.99	39986.1	11600.00
1	22165.87	112.96	0.662	0.30 (0.30)	0.99	42220.5	11111.00
1	21910.86	119.02	0.646	0.30 (0.30)	0.99	44154.3	12201.00
1	21613.77	122.80	0.638	0.30 (0.30)	0.99	45102.1	10410.00
1	21223.55	127.75	0.630	0.30 (0.30)	0.99	46242.6	12231.00
1	20574.48	135.04	0.617	0.30 (0.30)	0.99	47654.1	10400.00
1	20175.93	138.88	0.611	0.30 (0.30)	0.99	48244.3	10200.00
1	19525.65	146.12	0.598	0.30 (0.30)	0.99	49274.9	10320.00
1	18968.58	150.80	0.590	0.30 (0.30)	0.99	49500.4	10210.00
1	18488.86	155.50	0.582	0.30 (0.30)	0.99	49662.7	12000.00
1	15972.44	183.72	0.537	0.30 (0.30)	0.99	50279.7	10100.00
2	284.24	24.54	1.424	0.30 (0.30)	1.00	281.0	12710.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13104.56	19.80	1.623	0.30 (0.29)	0.97	4468.6	12606.00
2	13872.07	24.54	1.424	0.30 (0.29)	0.97	5808.6	12710.00
3	14066.04	25.83	1.381	0.30 (0.29)	0.98	6158.3	600.00
4	16719.63	44.99	1.020	0.30 (0.30)	0.98	11976.0	40100.00
5	17574.34	54.25	0.924	0.30 (0.30)	0.99	14753.7	11801.00
6	19058.20	68.21	0.833	0.30 (0.30)	0.99	19749.0	11530.00
7	20048.28	76.66	0.791	0.30 (0.30)	0.99	23637.1	11900.00
8	21666.14	86.70	0.742	0.30 (0.30)	0.99	29447.7	11330.00
9	22594.27	95.11	0.712	0.30 (0.30)	0.99	34534.8	10630.00
10	22543.19	100.67	0.696	0.30 (0.30)	0.99	37124.7	12330.00
11	22475.62	107.25	0.678	0.30 (0.30)	0.99	40267.1	11600.00
12	22257.54	112.96	0.662	0.30 (0.30)	0.99	42501.5	11111.00
13	21998.29	119.02	0.646	0.30 (0.30)	0.99	44435.3	12201.00
14	21699.30	122.80	0.638	0.30 (0.30)	0.99	45383.1	10410.00
15	21306.93	127.75	0.630	0.30 (0.30)	0.99	46523.6	12231.00
16	20654.70	135.04	0.617	0.30 (0.30)	0.99	47935.1	10400.00
17	20254.48	138.88	0.611	0.30 (0.30)	0.99	48525.3	10200.00
18	19601.05	146.12	0.598	0.30 (0.30)	0.99	49555.9	10320.00
19	19041.96	150.80	0.590	0.30 (0.30)	0.99	49781.4	10210.00
20	18560.19	155.50	0.582	0.30 (0.30)	0.99	49943.7	12000.00
21	16032.41	183.72	0.537	0.30 (0.30)	0.99	50560.7	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE (CFS) = 22594.27 Tc (MIN.) = 95.11
 EFFECTIVE AREA (ACRES) = 34534.82 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA (ACRES) = 50560.7
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12720.00 = 106010.75 FEET.

 FLOW PROCESS FROM NODE 12720.00 TO NODE 12720.50 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====
 ELEVATION DATA: UPSTREAM (FEET) = 275.00 DOWNSTREAM (FEET) = 258.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 2669.21 CHANNEL SLOPE = 0.0064
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 7.18
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.703
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	0.20	0.30	1.000	86
NATURAL POOR COVER					
"BARREN"	B	0.20	0.30	1.000	86
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.20	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.30	0.30	1.000	65
COMMERCIAL	B	0.30	0.30	0.100	56
NATURAL FAIR COVER					

"MEADOWS" B 0.50 0.30 1.000 70
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.841
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 22594.61
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 13.34
 AVERAGE FLOW DEPTH (FEET) = 7.18 TRAVEL TIME (MIN.) = 3.34
 Tc (MIN.) = 98.44
 SUBAREA AREA (ACRES) = 1.70 SUBAREA RUNOFF (CFS) = 0.69
 EFFECTIVE AREA (ACRES) = 34536.52 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA (ACRES) = 50562.4 PEAK FLOW RATE (CFS) = 22594.27
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 7.18

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 7.18 FLOW VELOCITY (FEET/SEC.) = 13.34
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12720.50 = 108679.96 FEET.

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc (MIN.) = 98.44
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.703
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
PUBLIC PARK	B	0.50	0.30	0.850	56
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.70	0.30	1.000	65
NATURAL FAIR COVER "OPEN BRUSH"	B	1.50	0.30	1.000	66
COMMERCIAL	B	1.40	0.30	0.100	56
COMMERCIAL	B	2.30	0.30	0.100	56
NATURAL FAIR COVER "GRASS"	B	9.30	0.30	1.000	69

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.783
 SUBAREA AREA (ACRES) = 15.70 SUBAREA RUNOFF (CFS) = 6.61
 EFFECTIVE AREA (ACRES) = 34552.22 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA (ACRES) = 50578.1 PEAK FLOW RATE (CFS) = 22594.27
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc (MIN.) = 98.44
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.703
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					

"WOODLAND, GRASS" B 11.20 0.30 1.000 65
 NATURAL FAIR COVER
 "WOODLAND, GRASS" B 11.40 0.30 1.000 65
 NATURAL FAIR COVER
 "CHAPARRAL, NARROWLEAF" B 11.80 0.30 1.000 72
 NATURAL FAIR COVER
 "OPEN BRUSH" B 27.70 0.30 1.000 66
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 62.10 SUBAREA RUNOFF (CFS) = 22.50
 EFFECTIVE AREA (ACRES) = 34614.32 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA (ACRES) = 50640.2 PEAK FLOW RATE (CFS) = 22594.27
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION (MIN.) = 98.44
 RAINFALL INTENSITY (INCH/HR) = 0.70
 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.99
 EFFECTIVE STREAM AREA (ACRES) = 34614.32
 TOTAL STREAM AREA (ACRES) = 50640.20
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 22594.27

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 7

>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<

 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC (MIN.) = 23.50 RAINFALL INTENSITY (INCH/HR) = 1.47
 EFFECTIVE AREA (ACRES) = 762.10
 TOTAL AREA (ACRES) = 1292.30 PEAK FLOW RATE (CFS) = 827.00
 AREA-AVERAGED Fm (INCH/HR) = 0.13 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.43
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
 CONFLUENCE ANALYSES.

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 23.50
 RAINFALL INTENSITY (INCH/HR) = 1.47
 AREA-AVERAGED Fm (INCH/HR) = 0.13
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.43

EFFECTIVE STREAM AREA(ACRES) = 762.10
 TOTAL STREAM AREA(ACRES) = 1292.30
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 827.00

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13104.56	23.82	1.454	0.30(0.29)	0.97	4548.1	12606.00
1	13872.07	28.49	1.304	0.30(0.29)	0.97	5888.1	12710.00
1	14066.04	29.76	1.267	0.30(0.29)	0.98	6237.8	600.00
1	16719.63	48.69	0.976	0.30(0.30)	0.98	12055.5	40100.00
1	17574.34	57.89	0.892	0.30(0.30)	0.99	14833.2	11801.00
1	19058.20	71.75	0.815	0.30(0.30)	0.99	19828.5	11530.00
1	20048.28	80.13	0.774	0.30(0.30)	0.99	23716.6	11900.00
1	21666.14	90.08	0.726	0.30(0.30)	0.99	29527.2	11330.00
1	22594.27	98.44	0.703	0.30(0.30)	0.99	34614.3	10630.00
1	22543.19	104.00	0.687	0.30(0.30)	0.99	37204.2	12330.00
1	22475.62	110.59	0.669	0.30(0.30)	0.99	40346.6	11600.00
1	22257.54	116.31	0.653	0.30(0.30)	0.99	42581.0	11111.00
1	21998.29	122.38	0.639	0.30(0.30)	0.99	44514.8	12201.00
1	21699.30	126.18	0.632	0.30(0.30)	0.99	45462.6	10410.00
1	21306.93	131.15	0.624	0.30(0.30)	0.99	46603.1	12231.00
1	20654.70	138.48	0.611	0.30(0.30)	0.99	48014.6	10400.00
1	20254.48	142.34	0.605	0.30(0.30)	0.99	48604.8	10200.00
1	19601.05	149.62	0.592	0.30(0.30)	0.99	49635.4	10320.00
1	19041.96	154.33	0.584	0.30(0.30)	0.99	49860.9	10210.00
1	18560.19	159.07	0.576	0.30(0.30)	0.99	50023.2	12000.00
1	16032.41	187.47	0.534	0.30(0.30)	0.99	50640.2	10100.00
2	827.00	23.50	1.467	0.30(0.13)	0.43	762.1	12720.50

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13902.42	23.50	1.467	0.30(0.27)	0.89	5248.4	12720.50
2	13923.27	23.82	1.454	0.30(0.27)	0.89	5310.2	12606.00
3	14598.22	28.49	1.304	0.30(0.27)	0.91	6650.2	12710.00
4	14769.40	29.76	1.267	0.30(0.27)	0.92	6999.9	600.00
5	17243.40	48.69	0.976	0.30(0.29)	0.95	12817.6	40100.00
6	18045.67	57.89	0.892	0.30(0.29)	0.96	15595.3	11801.00
7	19482.44	71.75	0.815	0.30(0.29)	0.97	20590.6	11530.00
8	20447.13	80.13	0.774	0.30(0.29)	0.97	24478.7	11900.00
9	22034.97	90.08	0.726	0.30(0.29)	0.98	30289.3	11330.00
10	22948.80	98.44	0.703	0.30(0.29)	0.98	35376.4	10630.00
11	22888.21	104.00	0.687	0.30(0.29)	0.98	37966.3	12330.00
12	22809.38	110.59	0.669	0.30(0.29)	0.98	41108.7	11600.00
13	22581.52	116.31	0.653	0.30(0.29)	0.98	43343.1	11111.00
14	22313.44	122.38	0.639	0.30(0.29)	0.98	45276.9	12201.00
15	22010.42	126.18	0.632	0.30(0.29)	0.98	46224.7	10410.00
16	21612.78	131.15	0.624	0.30(0.29)	0.98	47365.2	12231.00
17	20952.76	138.48	0.611	0.30(0.29)	0.98	48776.7	10400.00
18	20548.45	142.34	0.605	0.30(0.29)	0.98	49366.9	10200.00
19	19887.29	149.62	0.592	0.30(0.29)	0.98	50397.5	10320.00
20	19323.20	154.33	0.584	0.30(0.29)	0.98	50623.0	10210.00
21	18836.41	159.07	0.576	0.30(0.29)	0.98	50785.3	12000.00
22	16282.83	187.47	0.534	0.30(0.29)	0.98	51402.3	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) = 22948.80 Tc(MIN.) = 98.44
 EFFECTIVE AREA(ACRES) = 35376.42 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA(ACRES) = 51932.5
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12720.50 = 108679.96 FEET.

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12722.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 258.00 DOWNSTREAM(FEET) = 255.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1269.00 CHANNEL SLOPE = 0.0024
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 9.61
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.697

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
PUBLIC PARK	B	0.10	0.30	0.850	56
NATURAL FAIR COVER "GRASS"	B	0.10	0.30	1.000	69
NATURAL FAIR COVER "GRASS"	B	0.20	0.30	1.000	69
NATURAL FAIR COVER "GRASS"	B	0.30	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	0.30	0.30	1.000	66
COMMERCIAL	B	0.40	0.30	0.100	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.732

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 22949.10

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.63

AVERAGE FLOW DEPTH(FEET) = 9.61 TRAVEL TIME(MIN.) = 2.20

Tc(MIN.) = 100.64

SUBAREA AREA(ACRES) = 1.40 SUBAREA RUNOFF(CFS) = 0.60

EFFECTIVE AREA(ACRES) = 35377.82 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98

TOTAL AREA(ACRES) = 51933.9 PEAK FLOW RATE(CFS) = 22948.80

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 9.61

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 9.61 FLOW VELOCITY(FEET/SEC.) = 9.63

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12722.00 = 109948.96 FEET.

 FLOW PROCESS FROM NODE 12722.00 TO NODE 12722.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 100.64

* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.697
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	0.50	0.30	0.100	56
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.60	0.30	1.000	65
NATURAL POOR COVER "BARREN"	B	0.60	0.30	1.000	86
COMMERCIAL	B	0.60	0.30	0.100	56
NATURAL FAIR COVER "OPEN BRUSH"	B	0.90	0.30	1.000	66
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	B	1.00	0.30	1.000	63

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.764
 SUBAREA AREA (ACRES) = 4.20 SUBAREA RUNOFF (CFS) = 1.77
 EFFECTIVE AREA (ACRES) = 35382.02 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 51938.1 PEAK FLOW RATE (CFS) = 22948.80
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12722.00 TO NODE 12722.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
 =====

MAINLINE Tc (MIN.) = 100.64
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.697
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND, GRASS"	B	1.30	0.30	1.000	65
NATURAL FAIR COVER "MEADOWS"	B	3.20	0.30	1.000	70
NATURAL FAIR COVER "WOODLAND, GRASS"	B	3.70	0.30	1.000	65
NATURAL FAIR COVER "OPEN BRUSH"	B	12.00	0.30	1.000	66

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 20.20 SUBAREA RUNOFF (CFS) = 7.21
 EFFECTIVE AREA (ACRES) = 35402.22 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 51958.3 PEAK FLOW RATE (CFS) = 22948.80
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12722.00 TO NODE 12740.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<
 =====

ELEVATION DATA: UPSTREAM (FEET) = 255.00 DOWNSTREAM (FEET) = 252.10
 CHANNEL LENGTH THRU SUBAREA (FEET) = 624.00 CHANNEL SLOPE = 0.0046
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT (FEET) = 7.93
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.694
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	0.10	0.30	1.000	81
PUBLIC PARK	B	0.50	0.30	0.850	56
NATURAL FAIR COVER "GRASS"	B	0.50	0.30	1.000	69
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	B	0.80	0.30	1.000	63
NATURAL FAIR COVER "WOODLAND, GRASS"	B	1.20	0.30	1.000	65
COMMERCIAL	B	1.50	0.30	0.100	56

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.690
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 22949.81
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 12.08
 AVERAGE FLOW DEPTH (FEET) = 7.93 TRAVEL TIME (MIN.) = 0.86
 Tc (MIN.) = 101.50
 SUBAREA AREA (ACRES) = 4.60 SUBAREA RUNOFF (CFS) = 2.02
 EFFECTIVE AREA (ACRES) = 35406.82 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 51962.9 PEAK FLOW RATE (CFS) = 22948.80
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 7.93

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 7.93 FLOW VELOCITY (FEET/SEC.) = 12.08
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12740.00 = 110572.96 FEET.

 FLOW PROCESS FROM NODE 12740.00 TO NODE 12740.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
 =====

MAINLINE Tc (MIN.) = 101.50
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.694
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	2.50	0.30	0.100	56
NATURAL FAIR COVER "GRASS"	B	2.60	0.30	1.000	69
NATURAL FAIR COVER "GRASS"	B	2.80	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	5.40	0.30	1.000	66
NATURAL FAIR COVER "WOODLAND, GRASS"	B	6.20	0.30	1.000	65
NATURAL FAIR COVER "WOODLAND, GRASS"	B	6.50	0.30	1.000	65

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.913
 SUBAREA AREA (ACRES) = 26.00 SUBAREA RUNOFF (CFS) = 9.83

EFFECTIVE AREA(ACRES) = 35432.82 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 51988.9 PEAK FLOW RATE(CFS) = 22948.80
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12740.00 TO NODE 12740.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 101.50
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.694
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	6.70	0.30	1.000	66
NATURAL FAIR COVER "OPEN BRUSH"	B	12.00	0.30	1.000	66
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	20.30	0.30	1.000	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 39.00 SUBAREA RUNOFF(CFS) = 13.84
EFFECTIVE AREA(ACRES) = 35471.82 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 52027.9 PEAK FLOW RATE(CFS) = 22948.80
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12740.00 TO NODE 12740.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

=====

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 101.50
RAINFALL INTENSITY(INCH/HR) = 0.69
AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.98
EFFECTIVE STREAM AREA(ACRES) = 35471.82
TOTAL STREAM AREA(ACRES) = 52027.90
PEAK FLOW RATE(CFS) AT CONFLUENCE = 22948.80

FLOW PROCESS FROM NODE 12730.00 TO NODE 12731.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 561.54
ELEVATION DATA: UPSTREAM(FEET) = 613.29 DOWNSTREAM(FEET) = 551.75

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 13.823
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.044
SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/
LAND USE

SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
B	6.33	0.30	1.000	63	13.82

NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF(CFS) = 9.94
TOTAL AREA(ACRES) = 6.33 PEAK FLOW RATE(CFS) = 9.94

FLOW PROCESS FROM NODE 12731.00 TO NODE 12732.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 551.75 DOWNSTREAM(FEET) = 494.40
CHANNEL LENGTH THRU SUBAREA(FEET) = 971.91 CHANNEL SLOPE = 0.0590
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.73
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.740
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	34.62	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 32.51
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.24
AVERAGE FLOW DEPTH(FEET) = 0.68 TRAVEL TIME(MIN.) = 3.82
Tc(MIN.) = 17.65
SUBAREA AREA(ACRES) = 34.62 SUBAREA RUNOFF(CFS) = 44.85
EFFECTIVE AREA(ACRES) = 40.95 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 40.9 PEAK FLOW RATE(CFS) = 53.05
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.90

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 0.90 FLOW VELOCITY(FEET/SEC.) = 5.01
LONGEST FLOWPATH FROM NODE 12730.00 TO NODE 12732.00 = 1533.45 FEET.

FLOW PROCESS FROM NODE 12732.00 TO NODE 12733.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 494.40 DOWNSTREAM(FEET) = 431.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1156.41 CHANNEL SLOPE = 0.0548
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.26
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.570
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
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LAND USE      GROUP  (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"OPEN BRUSH"      B      59.52    0.30    1.000    66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 87.14
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.72
AVERAGE FLOW DEPTH(FEET) = 1.22 TRAVEL TIME(MIN.) = 3.37
Tc(MIN.) = 21.02
SUBAREA AREA(ACRES) = 59.52 SUBAREA RUNOFF(CFS) = 68.03
EFFECTIVE AREA(ACRES) = 100.47 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 100.5 PEAK FLOW RATE(CFS) = 114.83
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.43

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.43 FLOW VELOCITY(FEET/SEC.) = 6.25
LONGEST FLOWPATH FROM NODE 12730.00 TO NODE 12733.00 = 2689.86 FEET.

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FLOW PROCESS FROM NODE 12733.00 TO NODE 12734.00 IS CODE = 56

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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 431.00 DOWNSTREAM(FEET) = 367.10
CHANNEL LENGTH THRU SUBAREA(FEET) = 1654.48 CHANNEL SLOPE = 0.0386
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.84
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.386
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH"      B      64.05    0.30    1.000    66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 146.19
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.96
AVERAGE FLOW DEPTH(FEET) = 1.80 TRAVEL TIME(MIN.) = 4.63
Tc(MIN.) = 25.64
SUBAREA AREA(ACRES) = 64.05 SUBAREA RUNOFF(CFS) = 62.62
EFFECTIVE AREA(ACRES) = 164.52 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 164.5 PEAK FLOW RATE(CFS) = 160.85
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.90

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.90 FLOW VELOCITY(FEET/SEC.) = 6.15
LONGEST FLOWPATH FROM NODE 12730.00 TO NODE 12734.00 = 4344.34 FEET.

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FLOW PROCESS FROM NODE 12734.00 TO NODE 12740.00 IS CODE = 56

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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 367.11 DOWNSTREAM(FEET) = 252.10
CHANNEL LENGTH THRU SUBAREA(FEET) = 1880.98 CHANNEL SLOPE = 0.0611
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.74
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.263
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH"      B      26.02    0.30    1.000    66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 172.12
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 7.36
AVERAGE FLOW DEPTH(FEET) = 1.74 TRAVEL TIME(MIN.) = 4.26
Tc(MIN.) = 29.91
SUBAREA AREA(ACRES) = 26.02 SUBAREA RUNOFF(CFS) = 22.54
EFFECTIVE AREA(ACRES) = 190.54 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 190.5 PEAK FLOW RATE(CFS) = 165.09
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.70

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.70 FLOW VELOCITY(FEET/SEC.) = 7.27
LONGEST FLOWPATH FROM NODE 12730.00 TO NODE 12740.00 = 6225.32 FEET.

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FLOW PROCESS FROM NODE 12740.00 TO NODE 12740.00 IS CODE = 1

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>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 29.91
RAINFALL INTENSITY(INCH/HR) = 1.26
AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 190.54
TOTAL STREAM AREA(ACRES) = 190.54
PEAK FLOW RATE(CFS) AT CONFLUENCE = 165.09

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** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13902.42	27.11	1.344	0.30 (0.27)	0.89	5343.8	12720.50
1	13923.27	27.44	1.334	0.30 (0.27)	0.89	5405.6	12606.00
1	14598.22	32.04	1.223	0.30 (0.27)	0.91	6745.6	12710.00
1	14769.40	33.30	1.200	0.30 (0.27)	0.92	7095.3	600.00
1	17243.40	52.05	0.943	0.30 (0.29)	0.95	12913.0	40100.00

1	18045.67	61.20	0.867	0.30 (0.29)	0.96	15690.7	11801.00
1	19482.44	74.98	0.800	0.30 (0.29)	0.97	20686.0	11530.00
1	20447.13	83.31	0.759	0.30 (0.29)	0.97	24574.1	11900.00
1	22034.97	93.18	0.717	0.30 (0.29)	0.98	30384.7	11330.00
1	22948.80	101.50	0.694	0.30 (0.29)	0.98	35471.8	10630.00
1	22888.21	107.06	0.679	0.30 (0.29)	0.98	38061.7	12330.00
1	22809.38	113.65	0.661	0.30 (0.29)	0.98	41204.1	11600.00
1	22581.52	119.38	0.645	0.30 (0.29)	0.98	43438.5	11111.00
1	22313.44	125.47	0.634	0.30 (0.29)	0.98	45372.3	12201.00
1	22010.42	129.28	0.627	0.30 (0.29)	0.98	46320.1	10410.00
1	21612.78	134.27	0.619	0.30 (0.29)	0.98	47460.6	12231.00
1	20952.76	141.63	0.606	0.30 (0.29)	0.98	48872.1	10400.00
1	20548.45	145.51	0.599	0.30 (0.29)	0.98	49462.3	10200.00
1	19887.29	152.83	0.587	0.30 (0.29)	0.98	50492.9	10320.00
1	19323.20	157.57	0.579	0.30 (0.29)	0.98	50718.4	10210.00
1	18836.41	162.33	0.570	0.30 (0.29)	0.98	50880.7	12000.00
1	16282.83	190.90	0.532	0.30 (0.29)	0.98	51497.7	10100.00
2	165.09	29.91	1.263	0.30 (0.30)	1.00	190.5	12730.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	14064.69	27.11	1.344	0.30 (0.27)	0.89	5516.5	12720.50
2	14086.00	27.44	1.334	0.30 (0.27)	0.90	5580.5	12606.00
3	14450.40	29.91	1.263	0.30 (0.27)	0.91	6314.9	12730.00
4	14756.52	32.04	1.223	0.30 (0.27)	0.91	6936.2	12710.00
5	14923.79	33.30	1.200	0.30 (0.28)	0.92	7285.9	600.00
6	17353.65	52.05	0.943	0.30 (0.29)	0.95	13103.5	40100.00
7	18142.93	61.20	0.867	0.30 (0.29)	0.96	15881.3	11801.00
8	19568.12	74.98	0.800	0.30 (0.29)	0.97	20876.5	11530.00
9	20525.80	83.31	0.759	0.30 (0.29)	0.97	24764.6	11900.00
10	22106.51	93.18	0.717	0.30 (0.29)	0.98	30575.2	11330.00
11	23016.40	101.50	0.694	0.30 (0.29)	0.98	35662.4	10630.00
12	22953.17	107.06	0.679	0.30 (0.29)	0.98	38252.2	12330.00
13	22871.21	113.65	0.661	0.30 (0.29)	0.98	41394.7	11600.00
14	22640.63	119.38	0.645	0.30 (0.29)	0.98	43629.0	11111.00
15	22370.65	125.47	0.634	0.30 (0.29)	0.98	45562.9	12201.00
16	22066.51	129.28	0.627	0.30 (0.29)	0.98	46510.7	10410.00
17	21667.40	134.27	0.619	0.30 (0.29)	0.98	47651.1	12231.00
18	21005.21	141.63	0.606	0.30 (0.29)	0.98	49062.7	10400.00
19	20599.76	145.51	0.599	0.30 (0.29)	0.98	49652.9	10200.00
20	19936.45	152.83	0.587	0.30 (0.29)	0.98	50683.4	10320.00
21	19370.96	157.57	0.579	0.30 (0.29)	0.98	50908.9	10210.00
22	18882.77	162.33	0.570	0.30 (0.29)	0.98	51071.2	12000.00
23	16322.53	190.90	0.532	0.30 (0.29)	0.98	51688.2	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 23016.40 Tc (MIN.) = 101.50
EFFECTIVE AREA (ACRES) = 35662.36 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52218.4
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12740.00 = 110572.96 FEET.

FLOW PROCESS FROM NODE 12740.00 TO NODE 12800.00 IS CODE = 56

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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 252.10 DOWNSTREAM(FEET) = 240.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1220.00 CHANNEL SLOPE = 0.0099
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 6.39
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.691
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
AGRICULTURAL POOR COVER
"ROW CROPS, STRAIGHT ROW" B 0.30 0.30 1.000 81
NATURAL FAIR COVER
"WOODLAND, GRASS" B 0.40 0.30 1.000 65
COMMERCIAL B 0.40 0.30 0.100 56
COMMERCIAL B 0.60 0.30 0.100 56
NATURAL FAIR COVER
"OPEN BRUSH" B 1.50 0.30 1.000 66
PUBLIC PARK B 3.20 0.30 0.850 56
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.784
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 23017.71
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 15.53
AVERAGE FLOW DEPTH (FEET) = 6.39 TRAVEL TIME (MIN.) = 1.31
Tc (MIN.) = 102.81
SUBAREA AREA (ACRES) = 6.40 SUBAREA RUNOFF (CFS) = 2.62
EFFECTIVE AREA (ACRES) = 35668.76 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52224.8 PEAK FLOW RATE (CFS) = 23016.40
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 6.39

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 6.39 FLOW VELOCITY (FEET/SEC.) = 15.53
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12800.00 = 111792.96 FEET.

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FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc (MIN.) = 102.81
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.691
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"GRASS" B 3.90 0.30 1.000 69
NATURAL FAIR COVER
"GRASS" B 8.70 0.30 1.000 69
NATURAL FAIR COVER
"WOODLAND, GRASS" B 10.30 0.30 1.000 65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

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SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 22.90 SUBAREA RUNOFF(CFS) = 8.05
 EFFECTIVE AREA(ACRES) = 35691.66 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA(ACRES) = 52247.7 PEAK FLOW RATE(CFS) = 23016.40
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

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END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 52247.7 TC(MIN.) = 102.81
 EFFECTIVE AREA(ACRES) = 35691.66 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.979
 PEAK FLOW RATE(CFS) = 23016.40

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	14064.69	28.67	1.299	0.30(0.27)	0.90	5545.8	12720.50
2	14086.00	28.99	1.289	0.30(0.27)	0.90	5609.8	12606.00
3	14450.40	31.45	1.234	0.30(0.27)	0.91	6344.2	12730.00
4	14756.52	33.57	1.195	0.30(0.27)	0.92	6965.5	12710.00
5	14923.79	34.82	1.173	0.30(0.28)	0.92	7315.2	600.00
6	17353.65	53.49	0.930	0.30(0.29)	0.95	13132.8	40100.00
7	18142.93	62.62	0.860	0.30(0.29)	0.96	15910.6	11801.00
8	19568.12	76.36	0.793	0.30(0.29)	0.97	20905.8	11530.00
9	20525.80	84.67	0.752	0.30(0.29)	0.97	24793.9	11900.00
10	22106.51	94.51	0.714	0.30(0.29)	0.98	30604.5	11330.00
11	23016.40	102.81	0.691	0.30(0.29)	0.98	35691.7	10630.00
12	22953.17	108.37	0.675	0.30(0.29)	0.98	38281.5	12330.00
13	22871.21	114.97	0.657	0.30(0.29)	0.98	41424.0	11600.00
14	22640.63	120.70	0.642	0.30(0.29)	0.98	43658.3	11111.00
15	22370.65	126.79	0.631	0.30(0.29)	0.98	45592.1	12201.00
16	22066.51	130.60	0.625	0.30(0.29)	0.98	46540.0	10410.00
17	21667.40	135.61	0.616	0.30(0.29)	0.98	47680.4	12231.00
18	21005.21	142.98	0.604	0.30(0.29)	0.98	49091.9	10400.00
19	20599.76	146.87	0.597	0.30(0.29)	0.98	49682.2	10200.00
20	19936.45	154.21	0.584	0.30(0.29)	0.98	50712.7	10320.00
21	19370.96	158.96	0.576	0.30(0.29)	0.98	50938.2	10210.00
22	18882.77	163.73	0.568	0.30(0.29)	0.98	51100.5	12000.00
23	16322.53	192.37	0.530	0.30(0.29)	0.98	51717.5	10100.00

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END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 128 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 10-YR EV AUG 2023 ROKAMOTO *

FILE NAME: RI10EV28.DAT
TIME/DATE OF STUDY: 11:42 08/09/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 3.867
- 2) 10.00; 2.568
- 3) 15.00; 1.883
- 4) 20.00; 1.612
- 5) 25.00; 1.405
- 6) 30.00; 1.260
- 7) 40.00; 1.079
- 8) 50.00; 0.961
- 9) 60.00; 0.873
- 10) 90.00; 0.726
- 11) 120.00; 0.643
- 12) 180.00; 0.540
- 13) 360.00; 0.400
- 14) 1200.00; 0.176

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RI10EV27.DNA
MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	14450.40	31.45	0.30 (0.27)	0.91	6344.2	12730.00
2	14923.79	34.82	0.30 (0.28)	0.92	7315.2	600.00
3	17353.65	53.49	0.30 (0.29)	0.95	13132.8	40100.00
4	18142.93	62.62	0.30 (0.29)	0.96	15910.6	11801.00
5	19568.12	76.36	0.30 (0.29)	0.97	20905.8	11530.00
6	20525.80	84.67	0.30 (0.29)	0.97	24793.9	11900.00
7	22106.51	94.51	0.30 (0.29)	0.98	30604.5	11330.00
8	23016.40	102.81	0.30 (0.29)	0.98	35691.7	10630.00
9	22953.17	108.37	0.30 (0.29)	0.98	38281.5	12330.00
10	22871.21	114.97	0.30 (0.29)	0.98	41424.0	11600.00
11	22640.63	120.70	0.30 (0.29)	0.98	43658.3	11111.00
12	22370.65	126.79	0.30 (0.29)	0.98	45592.1	12201.00
13	22066.51	130.60	0.30 (0.29)	0.98	46540.0	10410.00
14	21667.40	135.61	0.30 (0.29)	0.98	47680.4	12231.00
15	21005.21	142.98	0.30 (0.29)	0.98	49091.9	10400.00
16	20599.76	146.87	0.30 (0.29)	0.98	49682.2	10200.00
17	19936.45	154.21	0.30 (0.29)	0.98	50712.7	10320.00
18	19370.96	158.96	0.30 (0.29)	0.98	50938.2	10210.00
19	18882.77	163.73	0.30 (0.29)	0.98	51100.5	12000.00
20	16322.53	192.37	0.30 (0.29)	0.98	51717.5	10100.00
TOTAL AREA (ACRES) =						51717.5

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: 0610501V.DNA
MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	980.25	27.73	0.30 (0.29)	0.98	1026.3	50120.00
2	957.41	29.15	0.30 (0.29)	0.98	1042.7	50150.00
3	896.35	32.55	0.30 (0.29)	0.98	1063.4	50100.00
TOTAL AREA (ACRES) =						1063.4

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 14.0

>>>>MEMORY BANK # 3 COPIED ONTO MAIN-STREAM MEMORY<<<<<

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MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM	Q	Tc	Fp (Fm)	Ap	Ae	HEADWATER
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NUMBER	(CFS)	(MIN.)	(INCH/HR)	(ACRES)	NODE
1	980.25	27.73	0.30 (0.29) 0.98	1026.3	50120.00
2	957.41	29.15	0.30 (0.29) 0.98	1042.7	50150.00
3	896.35	32.55	0.30 (0.29) 0.98	1063.4	50100.00
TOTAL AREA (ACRES) =			1063.4		

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	980.25	27.73	1.326	0.30 (0.29) 0.98	0.98	1026.3	50120.00
2	957.41	29.15	1.285	0.30 (0.29) 0.98	0.98	1042.7	50150.00
3	896.35	32.55	1.214	0.30 (0.29) 0.98	0.98	1063.4	50100.00
LONGEST FLOWPATH FROM NODE 50150.00 TO NODE 12800.00 = 11349.00 FEET.							

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	14450.40	31.45	1.234	0.30 (0.27) 0.91	0.91	6344.2	12730.00
2	14923.79	34.82	1.173	0.30 (0.28) 0.92	0.92	7315.2	600.00
3	17353.65	53.49	0.930	0.30 (0.29) 0.95	0.95	13132.8	40100.00
4	18142.93	62.62	0.860	0.30 (0.29) 0.96	0.96	15910.6	11801.00
5	19568.12	76.36	0.793	0.30 (0.29) 0.97	0.97	20905.8	11530.00
6	20525.80	84.67	0.752	0.30 (0.29) 0.97	0.97	24793.9	11900.00
7	22106.51	94.51	0.714	0.30 (0.29) 0.98	0.98	30604.5	11330.00
8	23016.40	102.81	0.691	0.30 (0.29) 0.98	0.98	35691.7	10630.00
9	22953.17	108.37	0.675	0.30 (0.29) 0.98	0.98	38281.5	12330.00
10	22871.21	114.97	0.657	0.30 (0.29) 0.98	0.98	41424.0	11600.00
11	22640.63	120.70	0.642	0.30 (0.29) 0.98	0.98	43658.3	11111.00
12	22370.65	126.79	0.631	0.30 (0.29) 0.98	0.98	45592.1	12201.00
13	22066.51	130.60	0.625	0.30 (0.29) 0.98	0.98	46540.0	10410.00
14	21667.40	135.61	0.616	0.30 (0.29) 0.98	0.98	47680.4	12231.00
15	21005.21	142.98	0.604	0.30 (0.29) 0.98	0.98	49091.9	10400.00
16	20599.76	146.87	0.597	0.30 (0.29) 0.98	0.98	49682.2	10200.00
17	19936.45	154.21	0.584	0.30 (0.29) 0.98	0.98	50712.7	10320.00
18	19370.96	158.96	0.576	0.30 (0.29) 0.98	0.98	50938.2	10210.00
19	18882.77	163.73	0.568	0.30 (0.29) 0.98	0.98	51100.5	12000.00
20	16322.53	192.37	0.530	0.30 (0.29) 0.98	0.98	51717.5	10100.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12800.00 = 111792.96 FEET.							

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	14941.62	27.73	1.326	0.30 (0.28) 0.92	0.92	6620.7	50120.00
2	15060.42	29.15	1.285	0.30 (0.28) 0.92	0.92	6923.7	50150.00
3	15366.59	31.45	1.234	0.30 (0.28) 0.92	0.92	7400.9	12730.00
4	15501.87	32.55	1.214	0.30 (0.28) 0.92	0.92	7725.8	50100.00
5	15780.12	34.82	1.173	0.30 (0.28) 0.93	0.93	8378.6	600.00
6	17973.54	53.49	0.930	0.30 (0.29) 0.95	0.95	14196.2	40100.00
7	18694.49	62.62	0.860	0.30 (0.29) 0.96	0.96	16973.9	11801.00
8	20054.03	76.36	0.793	0.30 (0.29) 0.97	0.97	21969.2	11530.00
9	20972.01	84.67	0.752	0.30 (0.29) 0.97	0.97	25857.3	11900.00
10	22515.09	94.51	0.714	0.30 (0.29) 0.98	0.98	31667.9	11330.00

11	23402.59	102.81	0.691	0.30 (0.29) 0.98	0.98	36755.0	10630.00
12	23324.36	108.37	0.675	0.30 (0.29) 0.98	0.98	39344.9	12330.00
13	23224.60	114.97	0.657	0.30 (0.29) 0.98	0.98	42487.4	11600.00
14	22979.28	120.70	0.642	0.30 (0.29) 0.98	0.98	44721.7	11111.00
15	22699.11	126.79	0.631	0.30 (0.29) 0.98	0.98	46655.5	12201.00
16	22388.59	130.60	0.625	0.30 (0.29) 0.98	0.98	47603.3	10410.00
17	21981.10	135.61	0.616	0.30 (0.29) 0.98	0.98	48743.8	12231.00
18	21306.57	142.98	0.604	0.30 (0.29) 0.98	0.98	50155.3	10400.00
19	20894.60	146.87	0.597	0.30 (0.29) 0.98	0.98	50745.5	10200.00
20	20219.02	154.21	0.584	0.30 (0.29) 0.98	0.98	51776.1	10320.00
21	19645.58	158.96	0.576	0.30 (0.29) 0.98	0.98	52001.6	10210.00
22	19149.40	163.73	0.568	0.30 (0.29) 0.98	0.98	52163.9	12000.00
23	16552.55	192.37	0.530	0.30 (0.29) 0.98	0.98	52780.9	10100.00
TOTAL AREA (ACRES) =			52780.9				

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 23402.59 Tc(MIN.) = 102.810

EFFECTIVE AREA(ACRES) = 36755.04 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98

TOTAL AREA (ACRES) = 52780.9

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12800.00 = 111792.96 FEET.

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 52780.9 TC(MIN.) = 102.81

EFFECTIVE AREA(ACRES) = 36755.04 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.979

PEAK FLOW RATE(CFS) = 23402.59

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	14941.62	27.73	1.326	0.30 (0.28) 0.92	0.92	6620.7	50120.00
2	15060.42	29.15	1.285	0.30 (0.28) 0.92	0.92	6923.7	50150.00
3	15366.59	31.45	1.234	0.30 (0.28) 0.92	0.92	7400.9	12730.00
4	15501.87	32.55	1.214	0.30 (0.28) 0.92	0.92	7725.8	50100.00
5	15780.12	34.82	1.173	0.30 (0.28) 0.93	0.93	8378.6	600.00
6	17973.54	53.49	0.930	0.30 (0.29) 0.95	0.95	14196.2	40100.00
7	18694.49	62.62	0.860	0.30 (0.29) 0.96	0.96	16973.9	11801.00
8	20054.03	76.36	0.793	0.30 (0.29) 0.97	0.97	21969.2	11530.00
9	20972.01	84.67	0.752	0.30 (0.29) 0.97	0.97	25857.3	11900.00
10	22515.09	94.51	0.714	0.30 (0.29) 0.98	0.98	31667.9	11330.00
11	23402.59	102.81	0.691	0.30 (0.29) 0.98	0.98	36755.0	10630.00
12	23324.36	108.37	0.675	0.30 (0.29) 0.98	0.98	39344.9	12330.00
13	23224.60	114.97	0.657	0.30 (0.29) 0.98	0.98	42487.4	11600.00
14	22979.28	120.70	0.642	0.30 (0.29) 0.98	0.98	44721.7	11111.00
15	22699.11	126.79	0.631	0.30 (0.29) 0.98	0.98	46655.5	12201.00
16	22388.59	130.60	0.625	0.30 (0.29) 0.98	0.98	47603.3	10410.00
17	21981.10	135.61	0.616	0.30 (0.29) 0.98	0.98	48743.8	12231.00
18	21306.57	142.98	0.604	0.30 (0.29) 0.98	0.98	50155.3	10400.00
19	20894.60	146.87	0.597	0.30 (0.29) 0.98	0.98	50745.5	10200.00
20	20219.02	154.21	0.584	0.30 (0.29) 0.98	0.98	51776.1	10320.00
21	19645.58	158.96	0.576	0.30 (0.29) 0.98	0.98	52001.6	10210.00
22	19149.40	163.73	0.568	0.30 (0.29) 0.98	0.98	52163.9	12000.00
23	16552.55	192.37	0.530	0.30 (0.29) 0.98	0.98	52780.9	10100.00

END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 129 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 10-YR EV AUG 2023 ROKAMOTO *

FILE NAME: RI10EV29.DAT
TIME/DATE OF STUDY: 13:17 08/09/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 3.855
- 2) 10.00; 2.561
- 3) 15.00; 1.881
- 4) 20.00; 1.610
- 5) 25.00; 1.403
- 6) 30.00; 1.259
- 7) 40.00; 1.077
- 8) 50.00; 0.959
- 9) 60.00; 0.872
- 10) 90.00; 0.725
- 11) 120.00; 0.642
- 12) 180.00; 0.539
- 13) 360.00; 0.399
- 14) 1200.00; 0.175

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RI10EV28.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	15060.42	29.15	0.30 (0.28)	0.92	6923.7	50150.00
2	15780.12	34.82	0.30 (0.28)	0.93	8378.6	600.00
3	17973.54	53.49	0.30 (0.29)	0.95	14196.2	40100.00
4	18694.49	62.62	0.30 (0.29)	0.96	16973.9	11801.00
5	20054.03	76.36	0.30 (0.29)	0.97	21969.2	11530.00
6	20972.01	84.67	0.30 (0.29)	0.97	25857.3	11900.00
7	22515.09	94.51	0.30 (0.29)	0.98	31667.9	11330.00
8	23402.59	102.81	0.30 (0.29)	0.98	36755.0	10630.00
9	23324.36	108.37	0.30 (0.29)	0.98	39344.9	12330.00
10	23224.60	114.97	0.30 (0.29)	0.98	42487.4	11600.00
11	22979.28	120.70	0.30 (0.29)	0.98	44721.7	11111.00
12	22699.11	126.79	0.30 (0.29)	0.98	46655.5	12201.00
13	22388.59	130.60	0.30 (0.29)	0.98	47603.3	10410.00
14	21981.10	135.61	0.30 (0.29)	0.98	48743.8	12231.00
15	21306.57	142.98	0.30 (0.29)	0.98	50155.3	10400.00
16	20894.60	146.87	0.30 (0.29)	0.98	50745.5	10200.00
17	20219.02	154.21	0.30 (0.29)	0.98	51776.1	10320.00
18	19645.58	158.96	0.30 (0.29)	0.98	52001.6	10210.00
19	19149.40	163.73	0.30 (0.29)	0.98	52163.9	12000.00
20	16552.55	192.37	0.30 (0.29)	0.98	52780.9	10100.00
TOTAL AREA (ACRES) =						52780.9

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	15060.42	29.15	0.30 (0.28)	0.92	6923.7	50150.00
2	15780.12	34.82	0.30 (0.28)	0.93	8378.6	600.00
3	17973.54	53.49	0.30 (0.29)	0.95	14196.2	40100.00
4	18694.49	62.62	0.30 (0.29)	0.96	16973.9	11801.00
5	20054.03	76.36	0.30 (0.29)	0.97	21969.2	11530.00
6	20972.01	84.67	0.30 (0.29)	0.97	25857.3	11900.00
7	22515.09	94.51	0.30 (0.29)	0.98	31667.9	11330.00
8	23402.59	102.81	0.30 (0.29)	0.98	36755.0	10630.00
9	23324.36	108.37	0.30 (0.29)	0.98	39344.9	12330.00
10	23224.60	114.97	0.30 (0.29)	0.98	42487.4	11600.00
11	22979.28	120.70	0.30 (0.29)	0.98	44721.7	11111.00
12	22699.11	126.79	0.30 (0.29)	0.98	46655.5	12201.00
13	22388.59	130.60	0.30 (0.29)	0.98	47603.3	10410.00

14	21981.10	135.61	0.30	(0.29)	0.98	48743.8	12231.00
15	21306.57	142.98	0.30	(0.29)	0.98	50155.3	10400.00
16	20894.60	146.87	0.30	(0.29)	0.98	50745.5	10200.00
17	20219.02	154.21	0.30	(0.29)	0.98	51776.1	10320.00
18	19645.58	158.96	0.30	(0.29)	0.98	52001.6	10210.00
19	19149.40	163.73	0.30	(0.29)	0.98	52163.9	12000.00
20	16552.55	192.37	0.30	(0.29)	0.98	52780.9	10100.00
TOTAL AREA (ACRES) =							52780.9

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<<
=====

FLOW PROCESS FROM NODE 12800.00 TO NODE 12901.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 240.00 DOWNSTREAM (FEET) = 216.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 3120.28 CHANNEL SLOPE = 0.0077
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 6.94
CHANNEL FLOW THRU SUBAREA (CFS) = 23402.59
FLOW VELOCITY (FEET/SEC.) = 14.37 FLOW DEPTH (FEET) = 6.94
TRAVEL TIME (MIN.) = 3.62 Tc (MIN.) = 106.43
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12901.00 = 114913.24 FEET.

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<<
=====

MAINLINE Tc (MIN.) = 106.43
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.680
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	14.30	0.30	0.100	56
PUBLIC PARK	B	9.40	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.397
SUBAREA AREA (ACRES) = 23.70 SUBAREA RUNOFF (CFS) = 11.95
EFFECTIVE AREA (ACRES) = 36778.74 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52804.6 PEAK FLOW RATE (CFS) = 23402.59
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<<
=====

MAINLINE Tc (MIN.) = 106.43
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.680

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	0.20	0.30	0.100	56
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	B	0.40	0.30	0.500	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.50	0.30	0.900	56
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.60	0.30	1.000	65
COMMERCIAL	B	0.70	0.30	0.100	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.70	0.30	0.900	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.635
SUBAREA AREA (ACRES) = 3.10 SUBAREA RUNOFF (CFS) = 1.36
EFFECTIVE AREA (ACRES) = 36781.84 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52807.7 PEAK FLOW RATE (CFS) = 23402.59
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<<
=====

MAINLINE Tc (MIN.) = 106.43
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.680
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
PUBLIC PARK	B	0.70	0.30	0.850	56
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	1.00	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.40	0.30	1.000	66
NATURAL FAIR COVER					
"GRASS"	B	1.50	0.30	1.000	69
COMMERCIAL	B	1.70	0.30	0.100	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.90	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.822
SUBAREA AREA (ACRES) = 9.20 SUBAREA RUNOFF (CFS) = 3.58
EFFECTIVE AREA (ACRES) = 36791.04 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52816.9 PEAK FLOW RATE (CFS) = 23402.59
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<<
=====

MAINLINE Tc (MIN.) = 106.43
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.680
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
-------------------------------	-------------------	-----------------	-----------------	-----------------	-----------

LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
NATURAL FAIR COVER "WOODLAND, GRASS"	B	3.60	0.30	1.000	65
RESIDENTIAL "5-7 DWELLINGS/ACRE"	B	3.70	0.30	0.500	56
RESIDENTIAL "5-7 DWELLINGS/ACRE"	B	4.10	0.30	0.500	56
RESIDENTIAL ".4 DWELLING/ACRE"	B	5.40	0.30	0.900	56
NATURAL FAIR COVER "OPEN BRUSH"	B	6.70	0.30	1.000	66
NATURAL POOR COVER "BARREN"	B	12.00	0.30	1.000	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.875
SUBAREA AREA (ACRES) = 35.50 SUBAREA RUNOFF (CFS) = 13.33
EFFECTIVE AREA (ACRES) = 36826.54 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52852.4 PEAK FLOW RATE (CFS) = 23402.59
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 106.43
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.680
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "GRASS"	B	12.90	0.30	1.000	69
PUBLIC PARK	B	38.60	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.888
SUBAREA AREA (ACRES) = 51.50 SUBAREA RUNOFF (CFS) = 19.16
EFFECTIVE AREA (ACRES) = 36878.04 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52903.9 PEAK FLOW RATE (CFS) = 23402.59
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12902.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 216.00 DOWNSTREAM (FEET) = 215.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 122.04 CHANNEL SLOPE = 0.0082
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 6.82
CHANNEL FLOW THRU SUBAREA (CFS) = 23402.59
FLOW VELOCITY (FEET/SEC.) = 14.67 FLOW DEPTH (FEET) = 6.82
TRAVEL TIME (MIN.) = 0.14 Tc (MIN.) = 106.57
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: E502XX10.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	44.85	11.41	0.30 (0.27)	0.91	28.7	50200.00
TOTAL AREA (ACRES) =			28.7			

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	15060.42	33.52	1.195	0.30 (0.27)	0.92	7046.7	50150.00
2	15780.12	39.12	1.093	0.30 (0.28)	0.92	8501.6	600.00
3	17973.54	57.61	0.893	0.30 (0.29)	0.95	14319.2	40100.00
4	18694.49	66.68	0.839	0.30 (0.29)	0.96	17096.9	11801.00
5	20054.03	80.32	0.772	0.30 (0.29)	0.97	22092.2	11530.00
6	20972.01	88.57	0.732	0.30 (0.29)	0.97	25980.3	11900.00
7	22515.09	98.32	0.702	0.30 (0.29)	0.98	31790.9	11330.00
8	23402.59	106.57	0.679	0.30 (0.29)	0.98	36878.0	10630.00
9	23324.36	112.13	0.664	0.30 (0.29)	0.98	39467.9	12330.00
10	23224.60	118.73	0.646	0.30 (0.29)	0.98	42610.4	11600.00
11	22979.28	124.48	0.634	0.30 (0.29)	0.98	44844.7	11111.00
12	22699.11	130.58	0.624	0.30 (0.29)	0.98	46778.5	12201.00
13	22388.59	134.42	0.617	0.30 (0.29)	0.98	47726.3	10410.00
14	21981.10	139.44	0.609	0.30 (0.29)	0.98	48866.8	12231.00
15	21306.57	146.86	0.596	0.30 (0.29)	0.98	50278.3	10400.00
16	20894.60	150.78	0.589	0.30 (0.29)	0.98	50868.5	10200.00
17	20219.02	158.16	0.576	0.30 (0.29)	0.98	51899.1	10320.00
18	19645.58	162.95	0.568	0.30 (0.29)	0.98	52124.6	10210.00
19	19149.40	167.76	0.560	0.30 (0.29)	0.98	52286.9	12000.00
20	16552.55	196.60	0.526	0.30 (0.29)	0.98	52903.9	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	44.85	11.41	2.370	0.30 (0.27)	0.91	28.7	50200.00

LONGEST FLOWPATH FROM NODE 50200.00 TO NODE 12902.00 = 1426.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	11710.79	11.41	2.370	0.30 (0.27)	0.92	2426.7	50200.00
2	15080.14	33.52	1.195	0.30 (0.27)	0.92	7075.4	50150.00
3	15797.66	39.12	1.093	0.30 (0.28)	0.92	8530.3	600.00
4	17986.79	57.61	0.893	0.30 (0.29)	0.95	14347.9	40100.00
5	18706.60	66.68	0.839	0.30 (0.29)	0.96	17125.6	11801.00
6	20064.71	80.32	0.772	0.30 (0.29)	0.97	22120.9	11530.00

7	20981.82	88.57	0.732	0.30	(0.29)	0.97	26009.0	11900.00
8	22524.27	98.32	0.702	0.30	(0.29)	0.98	31819.6	11330.00
9	23411.28	106.57	0.679	0.30	(0.29)	0.98	36906.7	10630.00
10	23332.72	112.13	0.664	0.30	(0.29)	0.98	39496.6	12330.00
11	23232.57	118.73	0.646	0.30	(0.29)	0.98	42639.1	11600.00
12	22987.01	124.48	0.634	0.30	(0.29)	0.98	44873.4	11111.00
13	22706.62	130.58	0.624	0.30	(0.29)	0.98	46807.2	12201.00
14	22395.95	134.42	0.617	0.30	(0.29)	0.98	47755.0	10410.00
15	21988.28	139.44	0.609	0.30	(0.29)	0.98	48895.5	12231.00
16	21313.48	146.86	0.596	0.30	(0.29)	0.98	50307.0	10400.00
17	20901.37	150.78	0.589	0.30	(0.29)	0.98	50897.2	10200.00
18	20225.51	158.16	0.576	0.30	(0.29)	0.98	51927.8	10320.00
19	19651.90	162.95	0.568	0.30	(0.29)	0.98	52153.3	10210.00
20	19155.54	167.76	0.560	0.30	(0.29)	0.98	52315.6	12000.00
21	16557.96	196.60	0.526	0.30	(0.29)	0.98	52932.6	10100.00

TOTAL AREA (ACRES) = 52932.6

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 23411.28 Tc (MIN.) = 106.568
EFFECTIVE AREA (ACRES) = 36906.74 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52932.6
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<<
=====

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: E503XX10.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	315.51	26.45	0.30 (0.30)	0.99	366.4	50300.00
TOTAL AREA (ACRES) = 366.4						

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<<
=====

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	11710.79	11.41	2.370	0.30 (0.27)	0.92	2426.7	50200.00
2	15080.14	33.52	1.195	0.30 (0.27)	0.92	7075.4	50150.00
3	15797.66	39.12	1.093	0.30 (0.28)	0.92	8530.3	600.00
4	17986.79	57.61	0.893	0.30 (0.29)	0.95	14347.9	40100.00
5	18706.60	66.68	0.839	0.30 (0.29)	0.96	17125.6	11801.00
6	20064.71	80.32	0.772	0.30 (0.29)	0.97	22120.9	11530.00
7	20981.82	88.57	0.732	0.30 (0.29)	0.97	26009.0	11900.00

8	22524.27	98.32	0.702	0.30	(0.29)	0.98	31819.6	11330.00
9	23411.28	106.57	0.679	0.30	(0.29)	0.98	36906.7	10630.00
10	23332.72	112.13	0.664	0.30	(0.29)	0.98	39496.6	12330.00
11	23232.57	118.73	0.646	0.30	(0.29)	0.98	42639.1	11600.00
12	22987.01	124.48	0.634	0.30	(0.29)	0.98	44873.4	11111.00
13	22706.62	130.58	0.624	0.30	(0.29)	0.98	46807.2	12201.00
14	22395.95	134.42	0.617	0.30	(0.29)	0.98	47755.0	10410.00
15	21988.28	139.44	0.609	0.30	(0.29)	0.98	48895.5	12231.00
16	21313.48	146.86	0.596	0.30	(0.29)	0.98	50307.0	10400.00
17	20901.37	150.78	0.589	0.30	(0.29)	0.98	50897.2	10200.00
18	20225.51	158.16	0.576	0.30	(0.29)	0.98	51927.8	10320.00
19	19651.90	162.95	0.568	0.30	(0.29)	0.98	52153.3	10210.00
20	19155.54	167.76	0.560	0.30	(0.29)	0.98	52315.6	12000.00
21	16557.96	196.60	0.526	0.30	(0.29)	0.98	52932.6	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	315.51	26.45	1.361	0.30 (0.30)	0.99	366.4	50300.00

LONGEST FLOWPATH FROM NODE 50300.00 TO NODE 12902.00 = 8614.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	11975.61	11.41	2.370	0.30 (0.28)	0.92	2584.7	50200.00
2	14318.09	26.45	1.361	0.30 (0.28)	0.92	5955.1	50300.00
3	15346.40	33.52	1.195	0.30 (0.28)	0.92	7441.8	50150.00
4	16033.74	39.12	1.093	0.30 (0.28)	0.93	8896.7	600.00
5	18163.63	57.61	0.893	0.30 (0.29)	0.95	14714.3	40100.00
6	18867.59	66.68	0.839	0.30 (0.29)	0.96	17492.0	11801.00
7	20205.90	80.32	0.772	0.30 (0.29)	0.97	22487.3	11530.00
8	21111.05	88.57	0.732	0.30 (0.29)	0.97	26375.4	11900.00
9	22644.61	98.32	0.702	0.30 (0.29)	0.98	32186.0	11330.00
10	23524.86	106.57	0.679	0.30 (0.29)	0.98	37273.1	10630.00
11	23441.75	112.13	0.664	0.30 (0.29)	0.98	39863.0	12330.00
12	23336.19	118.73	0.646	0.30 (0.29)	0.98	43005.5	11600.00
13	23087.32	124.48	0.634	0.30 (0.29)	0.98	45239.8	11111.00
14	22803.82	130.58	0.624	0.30 (0.29)	0.98	47173.6	12201.00
15	22491.21	134.42	0.617	0.30 (0.29)	0.98	48121.4	10410.00
16	22080.98	139.44	0.609	0.30 (0.29)	0.98	49261.9	12231.00
17	21402.41	146.86	0.596	0.30 (0.29)	0.98	50673.4	10400.00
18	20988.31	150.78	0.589	0.30 (0.29)	0.98	51263.6	10200.00
19	20308.70	158.16	0.576	0.30 (0.29)	0.98	52294.2	10320.00
20	19732.65	162.95	0.568	0.30 (0.29)	0.98	52519.7	10210.00
21	19233.85	167.76	0.560	0.30 (0.29)	0.98	52682.0	12000.00
22	16626.23	196.60	0.526	0.30 (0.29)	0.98	53299.0	10100.00

TOTAL AREA (ACRES) = 53299.0

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 23524.86 Tc (MIN.) = 106.568
EFFECTIVE AREA (ACRES) = 37273.14 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 53299.0
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 12

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>>>>CLEAR MEMORY BANK # 1 <<<<<
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*****
FLOW PROCESS FROM NODE 12902.00 TO NODE 12903.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 215.00 DOWNSTREAM(FEET) = 214.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 895.53 CHANNEL SLOPE = 0.0011
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 12.02
CHANNEL FLOW THRU SUBAREA(CFS) = 23524.86
FLOW VELOCITY(FEET/SEC.) = 7.53 FLOW DEPTH(FEET) = 12.02
TRAVEL TIME(MIN.) = 1.98 Tc(MIN.) = 108.55
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12903.00 = 115930.81 FEET.
*****
FLOW PROCESS FROM NODE 12903.00 TO NODE 12903.00 IS CODE = 15.1
-----
>>>>DEFINE MEMORY BANK # 1 <<<<<
=====
PEAK FLOWRATE TABLE FILE NAME: E504XX10.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
STREAM Q Tc Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 81.37 17.84 0.30( 0.29) 0.97 70.5 50400.00
TOTAL AREA(ACRES) = 70.5
*****
FLOW PROCESS FROM NODE 12903.00 TO NODE 12903.00 IS CODE = 11
-----
>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
=====
** MAIN STREAM CONFLUENCE DATA **
STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 11975.61 13.88 2.034 0.30( 0.28) 0.92 2584.7 50200.00
2 14318.09 28.78 1.294 0.30( 0.28) 0.92 5955.1 50300.00
3 15346.40 35.80 1.153 0.30( 0.28) 0.92 7441.8 50150.00
4 16033.74 41.37 1.061 0.30( 0.28) 0.93 8896.7 600.00
5 18163.63 59.76 0.874 0.30( 0.29) 0.95 14714.3 40100.00
6 18867.59 68.80 0.829 0.30( 0.29) 0.96 17492.0 11801.00
7 20205.90 82.40 0.762 0.30( 0.29) 0.97 22487.3 11530.00
8 21111.05 90.62 0.723 0.30( 0.29) 0.97 26375.4 11900.00
9 22644.61 100.32 0.696 0.30( 0.29) 0.98 32186.0 11330.00
10 23524.86 108.55 0.674 0.30( 0.29) 0.98 37273.1 10630.00
11 23441.75 114.12 0.658 0.30( 0.29) 0.98 39863.0 12330.00
12 23336.19 120.72 0.641 0.30( 0.29) 0.98 43005.5 11600.00
13 23087.32 126.48 0.631 0.30( 0.29) 0.98 45239.8 11111.00
14 22803.82 132.59 0.620 0.30( 0.29) 0.98 47173.6 12201.00
15 22491.21 136.43 0.614 0.30( 0.29) 0.98 48121.4 10410.00
16 22080.98 141.47 0.605 0.30( 0.29) 0.98 49261.9 12231.00
17 21402.41 148.90 0.592 0.30( 0.29) 0.98 50673.4 10400.00

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18 20988.31 152.84 0.586 0.30( 0.29) 0.98 51263.6 10200.00
19 20308.70 160.24 0.573 0.30( 0.29) 0.98 52294.2 10320.00
20 19732.65 165.04 0.565 0.30( 0.29) 0.98 52519.7 10210.00
21 19233.85 169.87 0.556 0.30( 0.29) 0.98 52682.0 12000.00
22 16626.23 198.82 0.524 0.30( 0.29) 0.98 53299.0 10100.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12903.00 = 115930.81 FEET.
** MEMORY BANK # 1 CONFLUENCE DATA **
STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 81.37 17.84 1.727 0.30( 0.29) 0.97 70.5 50400.00
LONGEST FLOWPATH FROM NODE 50400.00 TO NODE 12903.00 = 3607.00 FEET.
** PEAK FLOW RATE TABLE **
STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 12052.42 13.88 2.034 0.30( 0.28) 0.92 2639.6 50200.00
2 12679.60 17.84 1.727 0.30( 0.28) 0.92 3551.0 50400.00
3 14374.95 28.78 1.294 0.30( 0.28) 0.92 6025.6 50300.00
4 15395.29 35.80 1.153 0.30( 0.28) 0.92 7512.3 50150.00
5 16077.38 41.37 1.061 0.30( 0.28) 0.93 8967.2 600.00
6 18196.70 59.76 0.874 0.30( 0.29) 0.95 14784.8 40100.00
7 18898.10 68.80 0.829 0.30( 0.29) 0.96 17562.5 11801.00
8 20232.64 82.40 0.762 0.30( 0.29) 0.97 22557.8 11530.00
9 21135.59 90.62 0.723 0.30( 0.29) 0.97 26445.9 11900.00
10 22667.63 100.32 0.696 0.30( 0.29) 0.98 32256.5 11330.00
11 23546.59 108.55 0.674 0.30( 0.29) 0.98 37343.6 10630.00
12 23462.60 114.12 0.658 0.30( 0.29) 0.98 39933.5 12330.00
13 23356.05 120.72 0.641 0.30( 0.29) 0.98 43076.0 11600.00
14 23106.62 126.48 0.631 0.30( 0.29) 0.98 45310.3 11111.00
15 22822.53 132.59 0.620 0.30( 0.29) 0.98 47244.1 12201.00
16 22509.54 136.43 0.614 0.30( 0.29) 0.98 48191.9 10410.00
17 22098.82 141.47 0.605 0.30( 0.29) 0.98 49332.4 12231.00
18 21419.53 148.90 0.592 0.30( 0.29) 0.98 50743.9 10400.00
19 21005.05 152.84 0.586 0.30( 0.29) 0.98 51334.1 10200.00
20 20324.72 160.24 0.573 0.30( 0.29) 0.98 52364.7 10320.00
21 19748.21 165.04 0.565 0.30( 0.29) 0.98 52590.2 10210.00
22 19248.93 169.87 0.556 0.30( 0.29) 0.98 52752.5 12000.00
23 16639.50 198.82 0.524 0.30( 0.29) 0.98 53369.5 10100.00
TOTAL AREA(ACRES) = 53369.5
COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 23546.59 Tc(MIN.) = 108.551
EFFECTIVE AREA(ACRES) = 37343.64 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 53369.5
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12903.00 = 115930.81 FEET.
*****
FLOW PROCESS FROM NODE 12903.00 TO NODE 12903.00 IS CODE = 12
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>>>>CLEAR MEMORY BANK # 1 <<<<<
=====
*****
FLOW PROCESS FROM NODE 12903.00 TO NODE 12904.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

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>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 214.00 DOWNSTREAM(FEET) = 213.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 767.57 CHANNEL SLOPE = 0.0013
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 11.52
CHANNEL FLOW THRU SUBAREA(CFS) = 23546.59
FLOW VELOCITY(FEET/SEC.) = 7.93 FLOW DEPTH(FEET) = 11.52
TRAVEL TIME(MIN.) = 1.61 Tc(MIN.) = 110.16
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12904.00 = 116698.38 FEET.

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 110.16
RAINFALL INTENSITY(INCH/HR) = 0.67
AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.98
EFFECTIVE STREAM AREA(ACRES) = 37343.64
TOTAL STREAM AREA(ACRES) = 53369.52
PEAK FLOW RATE(CFS) AT CONFLUENCE = 23546.59

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 7

>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<

USER-SPECIFIED VALUES ARE AS FOLLOWS:
TC(MIN.) = 20.59 RAINFALL INTENSITY(INCH/HR) = 1.59
EFFECTIVE AREA(ACRES) = 30.00
TOTAL AREA(ACRES) = 213.70 PEAK FLOW RATE(CFS) = 35.40
AREA-AVERAGED Fm(INCH/HR) = 0.13 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.43
NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
CONFLUENCE ANALYSES.

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 20.59
RAINFALL INTENSITY(INCH/HR) = 1.59
AREA-AVERAGED Fm(INCH/HR) = 0.13
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.43
EFFECTIVE STREAM AREA(ACRES) = 30.00
TOTAL STREAM AREA(ACRES) = 213.70
PEAK FLOW RATE(CFS) AT CONFLUENCE = 35.40

** CONFLUENCE DATA **

Table with 8 columns: STREAM NUMBER, Q (CFS), Tc (MIN.), Intensity (INCH/HR), Fp(Fm) (INCH/HR), Ap, Ae (ACRES), HEADWATER NODE. Contains 23 rows of data.

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

Table with 8 columns: STREAM NUMBER, Q (CFS), Tc (MIN.), Intensity (INCH/HR), Fp(Fm) (INCH/HR), Ap, Ae (ACRES), HEADWATER NODE. Contains 23 rows of data.

24 16649.07 200.62 0.523 0.30(0.29) 0.98 53399.5 10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 23559.71 Tc(MIN.) = 110.16
EFFECTIVE AREA(ACRES) = 37373.64 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 53583.2
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12904.00 = 116698.38 FEET.

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 110.16

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.669

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.10	0.30	0.900	56
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.20	0.30	1.000	65
NATURAL FAIR COVER					
"GRASS"	B	0.80	0.30	1.000	69
COMMERCIAL	B	1.20	0.30	0.100	56
COMMERCIAL	B	1.50	0.30	0.100	56
NATURAL FAIR COVER					
"GRASS"	B	3.00	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.641

SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 2.92

EFFECTIVE AREA(ACRES) = 37380.44 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98

TOTAL AREA(ACRES) = 53590.0 PEAK FLOW RATE(CFS) = 23559.71

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 110.16

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.669

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	3.60	0.30	1.000	69
PUBLIC PARK	B	15.10	0.30	0.850	56
NATURAL FAIR COVER					
"GRASS"	B	20.00	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.941

SUBAREA AREA(ACRES) = 38.70 SUBAREA RUNOFF(CFS) = 13.47

EFFECTIVE AREA(ACRES) = 37419.14 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98

TOTAL AREA(ACRES) = 53628.7 PEAK FLOW RATE(CFS) = 23559.71

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 53628.7 TC(MIN.) = 110.16

EFFECTIVE AREA(ACRES) = 37419.14 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.978

PEAK FLOW RATE(CFS) = 23559.71

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12084.37	15.88	1.833	0.30(0.27)	0.92	2708.2	50200.00
2	12714.47	19.81	1.620	0.30(0.27)	0.92	3625.4	50400.00
3	12836.94	20.59	1.586	0.30(0.27)	0.92	3804.5	12904.00
4	14402.11	30.67	1.247	0.30(0.28)	0.92	6101.1	50300.00
5	15419.37	37.65	1.120	0.30(0.28)	0.92	7587.8	50150.00
6	16099.51	43.19	1.039	0.30(0.28)	0.93	9042.7	600.00
7	18214.57	61.51	0.865	0.30(0.29)	0.95	14860.3	40100.00
8	18914.90	70.53	0.820	0.30(0.29)	0.96	17638.0	11801.00
9	20247.83	84.10	0.754	0.30(0.29)	0.97	22633.3	11530.00
10	21149.92	92.29	0.719	0.30(0.29)	0.97	26521.4	11900.00
11	22681.31	101.96	0.692	0.30(0.29)	0.98	32332.0	11330.00
12	23559.71	110.16	0.669	0.30(0.29)	0.98	37419.1	10630.00
13	23475.36	115.73	0.654	0.30(0.29)	0.98	40009.0	12330.00
14	23368.42	122.34	0.638	0.30(0.29)	0.98	43151.5	11600.00
15	23118.75	128.10	0.628	0.30(0.29)	0.98	45385.8	11111.00
16	22834.40	134.21	0.618	0.30(0.29)	0.98	47319.6	12201.00
17	22521.26	138.07	0.611	0.30(0.29)	0.98	48267.4	10410.00
18	22110.33	143.11	0.602	0.30(0.29)	0.98	49407.9	12231.00
19	21430.72	150.57	0.590	0.30(0.29)	0.98	50819.4	10400.00
20	21016.07	154.51	0.583	0.30(0.29)	0.98	51409.6	10200.00
21	20335.44	161.93	0.570	0.30(0.29)	0.98	52440.2	10320.00
22	19758.72	166.75	0.562	0.30(0.29)	0.98	52665.7	10210.00
23	19259.25	171.59	0.553	0.30(0.29)	0.98	52828.0	12000.00
24	16649.07	200.62	0.523	0.30(0.29)	0.98	53445.0	10100.00

END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 133 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 10-YR EV AUG 2023 ROKAMOTO *

FILE NAME: RI10EV33.DAT
TIME/DATE OF STUDY: 13:17 08/09/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 3.775
- 2) 10.00; 2.517
- 3) 15.00; 1.863
- 4) 20.00; 1.593
- 5) 25.00; 1.391
- 6) 30.00; 1.250
- 7) 40.00; 1.068
- 8) 50.00; 0.950
- 9) 60.00; 0.862
- 10) 90.00; 0.714
- 11) 120.00; 0.630
- 12) 180.00; 0.528
- 13) 360.00; 0.388
- 14) 1200.00; 0.170

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT-/PARK- SIDE / SIDE/ WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13222.00 TO NODE 13222.00 IS CODE = 7

>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<

=====

USER-SPECIFIED VALUES ARE AS FOLLOWS:

TC(MIN.) = 70.37 RAINFALL INTENSITY(INCH/HR) = 0.81
EFFECTIVE AREA(ACRES) = 3660.20
TOTAL AREA(ACRES) = 4924.40 PEAK FLOW RATE(CFS) = 1572.50
AREA-AVERAGED Fm(INCH/HR) = 0.25 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.82
NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
CONFLUENCE ANALYSES.

FLOW PROCESS FROM NODE 13222.00 TO NODE 13301.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 427.51 DOWNSTREAM(FEET) = 382.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2533.33 CHANNEL SLOPE = 0.0180
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.93
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.788
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	1.40	0.30	0.100	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	15.60	0.30	1.000	66
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	B	0.10	0.30	0.600	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	5.30	0.30	1.000	79
NATURAL POOR COVER					
"BARREN"	B	0.20	0.30	1.000	86
COMMERCIAL	B	22.60	0.30	0.100	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.521
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1585.35
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.22
AVERAGE FLOW DEPTH(FEET) = 2.93 TRAVEL TIME(MIN.) = 4.58
Tc(MIN.) = 74.95
SUBAREA AREA(ACRES) = 45.20 SUBAREA RUNOFF(CFS) = 25.70
EFFECTIVE AREA(ACRES) = 3705.40 AREA-AVERAGED Fm(INCH/HR) = 0.24
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.82
TOTAL AREA(ACRES) = 4969.6 PEAK FLOW RATE(CFS) = 1811.93
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 3.16

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 3.16 FLOW VELOCITY(FEET/SEC.) = 9.63
 LONGEST FLOWPATH FROM NODE 13222.00 TO NODE 13301.00 = 2533.33 FEET.

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 74.95
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.788
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	1.00	0.30	1.000	79
NATURAL POOR COVER					
"BARREN"	B	0.50	0.30	1.000	86
COMMERCIAL	B	7.40	0.30	0.100	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	4.70	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	2.90	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.596
 SUBAREA AREA(ACRES) = 16.50 SUBAREA RUNOFF(CFS) = 9.05
 EFFECTIVE AREA(ACRES) = 3721.90 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.82
 TOTAL AREA(ACRES) = 4986.1 PEAK FLOW RATE(CFS) = 1820.98

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 74.95
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.788
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	1.30	0.30	1.000	86
COMMERCIAL	B	0.20	0.30	0.100	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	5.30	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.30	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	0.20	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.60	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.977
 SUBAREA AREA(ACRES) = 7.90 SUBAREA RUNOFF(CFS) = 3.52
 EFFECTIVE AREA(ACRES) = 3729.80 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.82
 TOTAL AREA(ACRES) = 4994.0 PEAK FLOW RATE(CFS) = 1824.50

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 74.95
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.788
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	4.30	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.80	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	1.10	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	6.90	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	7.90	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	1.00	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 22.00 SUBAREA RUNOFF(CFS) = 9.67
 EFFECTIVE AREA(ACRES) = 3751.80 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.82
 TOTAL AREA(ACRES) = 5016.0 PEAK FLOW RATE(CFS) = 1834.17

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 74.95
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.788
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.40	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	14.60	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 15.00 SUBAREA RUNOFF(CFS) = 6.59
 EFFECTIVE AREA(ACRES) = 3766.80 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.82
 TOTAL AREA(ACRES) = 5031.0 PEAK FLOW RATE(CFS) = 1840.76

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<

 FLOW PROCESS FROM NODE 31100.00 TO NODE 31101.00 IS CODE = 21

=====
>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
=====

INITIAL SUBAREA FLOW-LENGTH (FEET) = 317.00
ELEVATION DATA: UPSTREAM (FEET) = 801.00 DOWNSTREAM (FEET) = 685.00

Tc = K * [(LENGTH** 3.00) / (ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc (MIN.) = 8.641
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 2.859
SUBAREA Tc AND LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" B 0.50 0.30 1.000 63 8.64
NATURAL FAIR COVER
"OPEN BRUSH" B 0.30 0.30 1.000 66 8.64
NATURAL FAIR COVER
"OPEN BRUSH" B 0.30 0.30 1.000 66 8.64
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF (CFS) = 2.53
TOTAL AREA (ACRES) = 1.10 PEAK FLOW RATE (CFS) = 2.53

FLOW PROCESS FROM NODE 31101.00 TO NODE 31102.00 IS CODE = 51
=====

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 685.00 DOWNSTREAM (FEET) = 655.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 135.00 CHANNEL SLOPE = 0.2222
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 2.768
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" B 0.50 0.30 1.000 63
NATURAL FAIR COVER
"OPEN BRUSH" B 0.10 0.30 1.000 66
NATURAL FAIR COVER
"OPEN BRUSH" B 0.70 0.30 1.000 66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 3.98
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.25
AVERAGE FLOW DEPTH (FEET) = 0.46 TRAVEL TIME (MIN.) = 0.36
Tc (MIN.) = 9.00
SUBAREA AREA (ACRES) = 1.30 SUBAREA RUNOFF (CFS) = 2.89
EFFECTIVE AREA (ACRES) = 2.40 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 2.4 PEAK FLOW RATE (CFS) = 5.33

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.51 FLOW VELOCITY (FEET/SEC.) = 6.88
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31102.00 = 452.00 FEET.

FLOW PROCESS FROM NODE 31102.00 TO NODE 31103.00 IS CODE = 51
=====

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 655.00 DOWNSTREAM (FEET) = 630.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 203.00 CHANNEL SLOPE = 0.1232
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.030 MAXIMUM DEPTH (FEET) = 10.00
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 2.654
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" B 0.30 0.30 1.000 63
NATURAL FAIR COVER
"OPEN BRUSH" B 0.10 0.30 1.000 66
NATURAL FAIR COVER
"OPEN BRUSH" B 1.90 0.30 1.000 66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 7.77
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.43
AVERAGE FLOW DEPTH (FEET) = 0.59 TRAVEL TIME (MIN.) = 0.46
Tc (MIN.) = 9.46
SUBAREA AREA (ACRES) = 2.30 SUBAREA RUNOFF (CFS) = 4.87
EFFECTIVE AREA (ACRES) = 4.70 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 4.7 PEAK FLOW RATE (CFS) = 9.96

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.65 FLOW VELOCITY (FEET/SEC.) = 7.96
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31103.00 = 655.00 FEET.

FLOW PROCESS FROM NODE 31103.00 TO NODE 31104.00 IS CODE = 51
=====

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 630.00 DOWNSTREAM (FEET) = 605.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 321.00 CHANNEL SLOPE = 0.0779
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 2.467
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH" B 1.10 0.30 1.000 66
NATURAL FAIR COVER
"OPEN BRUSH" B 2.50 0.30 1.000 66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 13.47
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.79

AVERAGE FLOW DEPTH(FEET) = 0.88 TRAVEL TIME(MIN.) = 0.92
Tc(MIN.) = 10.38
SUBAREA AREA(ACRES) = 3.60 SUBAREA RUNOFF(CFS) = 7.02
EFFECTIVE AREA(ACRES) = 8.30 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 8.3 PEAK FLOW RATE(CFS) = 16.19

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 0.94 FLOW VELOCITY(FEET/SEC.) = 6.07
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31104.00 = 976.00 FEET.

FLOW PROCESS FROM NODE 31104.00 TO NODE 31105.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 605.00 DOWNSTREAM(FEET) = 585.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 288.00 CHANNEL SLOPE = 0.0694
CHANNEL BASE(FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.367

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.70	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.60	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.00	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.10	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 22.15
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.26
AVERAGE FLOW DEPTH(FEET) = 1.09 TRAVEL TIME(MIN.) = 0.77
Tc(MIN.) = 11.15
SUBAREA AREA(ACRES) = 6.40 SUBAREA RUNOFF(CFS) = 11.91
EFFECTIVE AREA(ACRES) = 14.70 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 14.7 PEAK FLOW RATE(CFS) = 27.35

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.17 FLOW VELOCITY(FEET/SEC.) = 6.64
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31105.00 = 1264.00 FEET.

FLOW PROCESS FROM NODE 31105.00 TO NODE 31106.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 585.00 DOWNSTREAM(FEET) = 560.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 344.00 CHANNEL SLOPE = 0.0727
CHANNEL BASE(FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.264

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.60	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	2.80	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.60	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.10	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.60	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	4.10	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 36.89
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 7.26
AVERAGE FLOW DEPTH(FEET) = 1.30 TRAVEL TIME(MIN.) = 0.79
Tc(MIN.) = 11.94
SUBAREA AREA(ACRES) = 10.80 SUBAREA RUNOFF(CFS) = 19.09
EFFECTIVE AREA(ACRES) = 25.50 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 25.5 PEAK FLOW RATE(CFS) = 45.07

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.40 FLOW VELOCITY(FEET/SEC.) = 7.65
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31106.00 = 1608.00 FEET.

FLOW PROCESS FROM NODE 31106.00 TO NODE 31107.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 560.00 DOWNSTREAM(FEET) = 530.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 619.00 CHANNEL SLOPE = 0.0485
CHANNEL BASE(FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.070

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.80	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	1.90	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.50	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	8.20	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.70	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 57.10

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.97
AVERAGE FLOW DEPTH (FEET) = 1.65 TRAVEL TIME (MIN.) = 1.48
Tc (MIN.) = 13.42
SUBAREA AREA (ACRES) = 15.10 SUBAREA RUNOFF (CFS) = 24.05
EFFECTIVE AREA (ACRES) = 40.60 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 40.6 PEAK FLOW RATE (CFS) = 64.68

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 1.73 FLOW VELOCITY (FEET/SEC.) = 7.16
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31107.00 = 2227.00 FEET.

FLOW PROCESS FROM NODE 31107.00 TO NODE 31108.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<

ELEVATION DATA: UPSTREAM (FEET) = 530.00 DOWNSTREAM (FEET) = 515.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 377.00 CHANNEL SLOPE = 0.0398
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.952

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	0.50	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	6.50	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	1.30	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.10	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	5.50	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.40	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 78.29
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.98
AVERAGE FLOW DEPTH (FEET) = 1.93 TRAVEL TIME (MIN.) = 0.90
Tc (MIN.) = 14.32
SUBAREA AREA (ACRES) = 18.30 SUBAREA RUNOFF (CFS) = 27.21
EFFECTIVE AREA (ACRES) = 58.90 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 58.9 PEAK FLOW RATE (CFS) = 87.59

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 2.02 FLOW VELOCITY (FEET/SEC.) = 7.18
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31108.00 = 2604.00 FEET.

FLOW PROCESS FROM NODE 31108.00 TO NODE 31109.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<

ELEVATION DATA: UPSTREAM (FEET) = 515.00 DOWNSTREAM (FEET) = 490.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 520.00 CHANNEL SLOPE = 0.0481
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.841

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	0.70	0.30	1.000	63
NATURAL FAIR COVER					
"GRASS"	B	2.20	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.10	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.90	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	7.40	0.30	1.000	63
NATURAL FAIR COVER					
"GRASS"	B	0.30	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 97.72
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.93
AVERAGE FLOW DEPTH (FEET) = 2.03 TRAVEL TIME (MIN.) = 1.09
Tc (MIN.) = 15.41
SUBAREA AREA (ACRES) = 14.60 SUBAREA RUNOFF (CFS) = 20.25
EFFECTIVE AREA (ACRES) = 73.50 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 73.5 PEAK FLOW RATE (CFS) = 101.93

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 2.06 FLOW VELOCITY (FEET/SEC.) = 8.03
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31109.00 = 3124.00 FEET.

FLOW PROCESS FROM NODE 31109.00 TO NODE 31109.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 15.41
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.841
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	11.40	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	8.90	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	1.90	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	9.20	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	1.40	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA (ACRES) = 32.80 SUBAREA RUNOFF (CFS) = 45.49
EFFECTIVE AREA (ACRES) = 106.30 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 106.3 PEAK FLOW RATE (CFS) = 147.42

FLOW PROCESS FROM NODE 31109.00 TO NODE 31110.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 490.00 DOWNSTREAM (FEET) = 432.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1420.00 CHANNEL SLOPE = 0.0408
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.688

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	0.80	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.60	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.10	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	1.30	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	4.00	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	1.50	0.30	1.000	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.999
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 152.60
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.34
AVERAGE FLOW DEPTH (FEET) = 2.47 TRAVEL TIME (MIN.) = 2.84
Tc (MIN.) = 18.25
SUBAREA AREA (ACRES) = 8.30 SUBAREA RUNOFF (CFS) = 10.37
EFFECTIVE AREA (ACRES) = 114.60 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 114.6 PEAK FLOW RATE (CFS) = 147.42
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 2.44 FLOW VELOCITY (FEET/SEC.) = 8.28
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31110.00 = 4544.00 FEET.

FLOW PROCESS FROM NODE 31110.00 TO NODE 31110.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 18.25
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.688

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
"GRASS"	B	0.30	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	9.60	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.40	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	6.20	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	3.90	0.30	1.000	65
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	1.40	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.998
SUBAREA AREA (ACRES) = 21.80 SUBAREA RUNOFF (CFS) = 27.24
EFFECTIVE AREA (ACRES) = 136.40 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 136.4 PEAK FLOW RATE (CFS) = 170.37

FLOW PROCESS FROM NODE 31110.00 TO NODE 13301.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 432.00 DOWNSTREAM (FEET) = 382.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1847.00 CHANNEL SLOPE = 0.0271
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.497

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	4.90	0.30	1.000	86
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	1.50	0.30	1.000	79
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.60	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	2.50	0.30	1.000	79
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	5.30	0.30	1.000	79
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	3.30	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.997
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 180.13
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.44
AVERAGE FLOW DEPTH (FEET) = 2.84 TRAVEL TIME (MIN.) = 4.14
Tc (MIN.) = 22.38
SUBAREA AREA (ACRES) = 18.10 SUBAREA RUNOFF (CFS) = 19.51
EFFECTIVE AREA (ACRES) = 154.50 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 154.5 PEAK FLOW RATE (CFS) = 170.37
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 2.78 FLOW VELOCITY (FEET/SEC.) = 7.35

LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13301.00 = 6391.00 FEET.

FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	170.37	22.38	1.497	0.30 (0.30)	1.00	154.5	31100.00

LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13301.00 = 6391.00 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1840.76	74.95	0.788	0.30 (0.25)	0.82	3766.8	13222.00

LONGEST FLOWPATH FROM NODE 13222.00 TO NODE 13301.00 = 2533.33 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1437.37	22.38	1.497	0.30 (0.25)	0.84	1279.4	31100.00
2	1910.29	74.95	0.788	0.30 (0.25)	0.82	3921.3	13222.00

TOTAL AREA (ACRES) = 5185.5

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 1910.29 Tc(MIN.) = 74.952
EFFECTIVE AREA(ACRES) = 3921.30 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.82
TOTAL AREA(ACRES) = 5185.5
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13301.00 = 6391.00 FEET.

FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 13301.00 TO NODE 13302.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 382.00 DOWNSTREAM(FEET) = 375.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1141.09 CHANNEL SLOPE = 0.0061
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 4.43
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.774
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	1.20	0.30	1.000	86
AGRICULTURAL POOR COVER					

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
"ROW CROPS, STRAIGHT ROW"	B	0.60	0.30	1.000	81
NATURAL POOR COVER "BARREN"	B	0.90	0.30	1.000	86
NATURAL FAIR COVER "OPEN BRUSH"	B	4.80	0.30	1.000	66
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	1.90	0.30	1.000	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1912.29
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.82
AVERAGE FLOW DEPTH(FEET) = 4.43 TRAVEL TIME(MIN.) = 2.79
Tc(MIN.) = 77.74
SUBAREA AREA(ACRES) = 9.40 SUBAREA RUNOFF(CFS) = 4.01
EFFECTIVE AREA(ACRES) = 3930.70 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
TOTAL AREA(ACRES) = 5194.9 PEAK FLOW RATE(CFS) = 1910.29
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 4.42

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 4.42 FLOW VELOCITY(FEET/SEC.) = 6.83
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13302.00 = 7532.09 FEET.

FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 77.74
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.774
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	13.80	0.30	1.000	86
NATURAL POOR COVER "BARREN"	B	2.60	0.30	1.000	86
COMMERCIAL RESIDENTIAL ".4 DWELLING/ACRE"	B	1.10	0.30	0.100	56
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	3.50	0.30	0.900	56
NATURAL POOR COVER "BARREN"	B	6.90	0.30	1.000	79
NATURAL POOR COVER "BARREN"	B	0.20	0.30	1.000	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.952
SUBAREA AREA(ACRES) = 28.10 SUBAREA RUNOFF(CFS) = 12.36
EFFECTIVE AREA(ACRES) = 3958.80 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
TOTAL AREA(ACRES) = 5223.0 PEAK FLOW RATE(CFS) = 1910.29
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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MAINLINE Tc(MIN.) = 77.74
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.774
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	0.10	0.30	1.000	79
COMMERCIAL	B	0.10	0.30	0.100	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	2.40	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	0.50	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.894
 SUBAREA AREA(ACRES) = 3.10 SUBAREA RUNOFF(CFS) = 1.41
 EFFECTIVE AREA(ACRES) = 3961.90 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
 TOTAL AREA(ACRES) = 5226.1 PEAK FLOW RATE(CFS) = 1910.29
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 77.74
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.774
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	0.10	0.30	1.000	86
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.60	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	3.10	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.40	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.20	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	13.80	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 20.20 SUBAREA RUNOFF(CFS) = 8.63
 EFFECTIVE AREA(ACRES) = 3982.10 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
 TOTAL AREA(ACRES) = 5246.3 PEAK FLOW RATE(CFS) = 1910.29
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 77.74

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.774

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	34.60	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	2.40	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	22.60	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	11.60	0.30	1.000	79
APARTMENTS	B	0.40	0.30	0.200	56
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	4.80	0.30	1.000	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.996
 SUBAREA AREA(ACRES) = 76.40 SUBAREA RUNOFF(CFS) = 32.71
 EFFECTIVE AREA(ACRES) = 4058.50 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
 TOTAL AREA(ACRES) = 5322.7 PEAK FLOW RATE(CFS) = 1919.28

 FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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MAINLINE Tc(MIN.) = 77.74
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.774
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	1.60	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	46.40	0.30	1.000	66
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	B	0.10	0.30	0.200	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	60.70	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	5.80	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.999
 SUBAREA AREA(ACRES) = 114.60 SUBAREA RUNOFF(CFS) = 48.96
 EFFECTIVE AREA(ACRES) = 4173.10 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
 TOTAL AREA(ACRES) = 5437.3 PEAK FLOW RATE(CFS) = 1968.24

 FLOW PROCESS FROM NODE 13302.00 TO NODE 13303.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 375.00 DOWNSTREAM(FEET) = 355.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 2193.96 CHANNEL SLOPE = 0.0091
 GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 4.02
 CHANNEL FLOW THRU SUBAREA (CFS) = 1968.24
 FLOW VELOCITY (FEET/SEC.) = 7.88 FLOW DEPTH (FEET) = 4.02
 TRAVEL TIME (MIN.) = 4.64 Tc (MIN.) = 82.38
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13303.00 = 9726.05 FEET.

 FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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MAINLINE Tc (MIN.) = 82.38
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.752
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	0.20	0.30	1.000	86
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.40	0.30	1.000	65
NATURAL POOR COVER "BARREN"	B	0.80	0.30	1.000	86
COMMERCIAL	B	1.40	0.30	0.100	56
NATURAL FAIR COVER "GRASS"	B	2.60	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	2.20	0.30	1.000	66

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.834
 SUBAREA AREA (ACRES) = 7.60 SUBAREA RUNOFF (CFS) = 3.43
 EFFECTIVE AREA (ACRES) = 4180.70 AREA-AVERAGED Fm (INCH/HR) = 0.25
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
 TOTAL AREA (ACRES) = 5444.9 PEAK FLOW RATE (CFS) = 1968.24
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc (MIN.) = 82.38
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.752
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	3.10	0.30	1.000	79
NATURAL FAIR COVER "WOODLAND, GRASS"	B	3.40	0.30	1.000	65
NATURAL POOR COVER "BARREN"	B	0.50	0.30	1.000	86
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	B	0.20	0.30	1.000	63
COMMERCIAL	B	3.60	0.30	0.100	56
NATURAL FAIR COVER "GRASS"	B	4.00	0.30	1.000	69

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.781
 SUBAREA AREA (ACRES) = 14.80 SUBAREA RUNOFF (CFS) = 6.89
 EFFECTIVE AREA (ACRES) = 4195.50 AREA-AVERAGED Fm (INCH/HR) = 0.25
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
 TOTAL AREA (ACRES) = 5459.7 PEAK FLOW RATE (CFS) = 1968.24
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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MAINLINE Tc (MIN.) = 82.38
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.752
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	14.60	0.30	1.000	66
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	6.30	0.30	1.000	79
NATURAL FAIR COVER "WOODLAND, GRASS"	B	3.70	0.30	1.000	65

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 24.60 SUBAREA RUNOFF (CFS) = 10.00
 EFFECTIVE AREA (ACRES) = 4220.10 AREA-AVERAGED Fm (INCH/HR) = 0.25
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA (ACRES) = 5484.3 PEAK FLOW RATE (CFS) = 1968.24
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc (MIN.) = 82.38
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.752
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	0.50	0.30	1.000	86
COMMERCIAL	B	0.30	0.30	0.100	56
NATURAL FAIR COVER "OPEN BRUSH"	B	0.20	0.30	1.000	66
RESIDENTIAL ".4 DWELLING/ACRE"	B	0.80	0.30	0.900	56
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	1.60	0.30	1.000	79
NATURAL POOR COVER "BARREN"	B	31.90	0.30	1.000	86

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.990
 SUBAREA AREA (ACRES) = 35.30 SUBAREA RUNOFF (CFS) = 14.44
 EFFECTIVE AREA (ACRES) = 4255.40 AREA-AVERAGED Fm (INCH/HR) = 0.25
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA (ACRES) = 5519.6 PEAK FLOW RATE (CFS) = 1968.24

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 82.38
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.752
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	1.70	0.30	0.100	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.30	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	2.60	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	5.50	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.20	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.20	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.830
 SUBAREA AREA(ACRES) = 10.50 SUBAREA RUNOFF(CFS) = 4.75
 EFFECTIVE AREA(ACRES) = 4265.90 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5530.1 PEAK FLOW RATE(CFS) = 1968.24
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 82.38
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.752
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
".4 DWELLING/ACRE"	B	1.30	0.30	0.900	56
NATURAL POOR COVER					
"BARREN"	B	0.30	0.30	1.000	86
COMMERCIAL	B	0.20	0.30	0.100	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.30	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	6.50	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	3.00	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.917
 SUBAREA AREA(ACRES) = 11.60 SUBAREA RUNOFF(CFS) = 4.97
 EFFECTIVE AREA(ACRES) = 4277.50 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5541.7 PEAK FLOW RATE(CFS) = 1968.24

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13303.00 TO NODE 13304.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 355.00 DOWNSTREAM(FEET) = 350.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 925.40 CHANNEL SLOPE = 0.0054
 GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 4.66
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.740
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	0.20	0.30	1.000	86
AGRICULTURAL POOR COVER					
"ROW CROPS,STRAIGHT ROW"	B	0.50	0.30	1.000	81
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	1.10	0.30	1.000	65
NATURAL POOR COVER					
"BARREN"	B	0.30	0.30	1.000	86
NATURAL FAIR COVER					
"GRASS"	B	1.10	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.50	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1969.57
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.60
 AVERAGE FLOW DEPTH(FEET) = 4.66 TRAVEL TIME(MIN.) = 2.34
 Tc(MIN.) = 84.72
 SUBAREA AREA(ACRES) = 6.70 SUBAREA RUNOFF(CFS) = 2.65
 EFFECTIVE AREA(ACRES) = 4284.20 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5548.4 PEAK FLOW RATE(CFS) = 1968.24
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 4.66

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 4.66 FLOW VELOCITY(FEET/SEC.) = 6.59
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13304.00 = 10651.45 FEET.

FLOW PROCESS FROM NODE 13304.00 TO NODE 13304.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 84.72
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.740
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
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AGRICULTURAL POOR COVER
"ROW CROPS,STRAIGHT ROW" B 1.40 0.30 1.000 81
NATURAL FAIR COVER
"OPEN BRUSH" B 4.80 0.30 1.000 66
AGRICULTURAL POOR COVER
"ROW CROPS,STRAIGHT ROW" B 0.90 0.30 1.000 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 7.10 SUBAREA RUNOFF (CFS) = 2.81
EFFECTIVE AREA (ACRES) = 4291.30 AREA-AVERAGED Fm (INCH/HR) = 0.25
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA (ACRES) = 5555.5 PEAK FLOW RATE (CFS) = 1968.24
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13304.00 TO NODE 13304.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 84.72
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.740
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL POOR COVER
"BARREN" B 7.80 0.30 1.000 86
AGRICULTURAL POOR COVER
"ROW CROPS,CONTOURED" B 1.70 0.30 1.000 79
NATURAL POOR COVER
"BARREN" B 9.40 0.30 1.000 86
NATURAL FAIR COVER
"OPEN BRUSH" B 1.20 0.30 1.000 66
RESIDENTIAL
".4 DWELLING/ACRE" B 0.10 0.30 0.900 56
AGRICULTURAL POOR COVER
"ROW CROPS,CONTOURED" B 2.60 0.30 1.000 79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 22.80 SUBAREA RUNOFF (CFS) = 9.03
EFFECTIVE AREA (ACRES) = 4314.10 AREA-AVERAGED Fm (INCH/HR) = 0.25
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA (ACRES) = 5578.3 PEAK FLOW RATE (CFS) = 1968.24
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13304.00 TO NODE 13304.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 84.72
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.740
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"WOODLAND,GRASS" B 0.20 0.30 1.000 65
NATURAL FAIR COVER
"OPEN BRUSH" B 0.30 0.30 1.000 66

RESIDENTIAL
".4 DWELLING/ACRE" B 0.20 0.30 0.900 56
AGRICULTURAL POOR COVER
"ROW CROPS,CONTOURED" B 2.70 0.30 1.000 79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.994
SUBAREA AREA (ACRES) = 3.40 SUBAREA RUNOFF (CFS) = 1.35
EFFECTIVE AREA (ACRES) = 4317.50 AREA-AVERAGED Fm (INCH/HR) = 0.25
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA (ACRES) = 5581.7 PEAK FLOW RATE (CFS) = 1968.24
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13304.00 TO NODE 13305.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 350.00 DOWNSTREAM (FEET) = 315.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 2966.27 CHANNEL SLOPE = 0.0118
GIVEN CHANNEL BASE (FEET) = 50.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 3.74
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.713
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL POOR COVER
"BARREN" B 1.70 0.30 1.000 86
NATURAL FAIR COVER
"GRASS" B 0.60 0.30 1.000 69
NATURAL FAIR COVER
"OPEN BRUSH" B 0.10 0.30 1.000 66
NATURAL FAIR COVER
"WOODLAND,GRASS" B 0.40 0.30 1.000 65
NATURAL POOR COVER
"BARREN" B 2.20 0.30 1.000 86
NATURAL FAIR COVER
"GRASS" B 4.20 0.30 1.000 69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 1969.95
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.60
AVERAGE FLOW DEPTH (FEET) = 3.74 TRAVEL TIME (MIN.) = 5.75
Tc (MIN.) = 90.46
SUBAREA AREA (ACRES) = 9.20 SUBAREA RUNOFF (CFS) = 3.42
EFFECTIVE AREA (ACRES) = 4326.70 AREA-AVERAGED Fm (INCH/HR) = 0.25
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA (ACRES) = 5590.9 PEAK FLOW RATE (CFS) = 1968.24
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE (FEET) = 50.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 3.74

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 3.74 FLOW VELOCITY (FEET/SEC.) = 8.59
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13305.00 = 13617.72 FEET.

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 90.46
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.713
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	8.10	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	2.30	0.30	1.000	65
NATURAL FAIR COVER					
"GRASS"	B	0.20	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	6.90	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.70	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 18.20 SUBAREA RUNOFF(CFS) = 6.76
 EFFECTIVE AREA(ACRES) = 4344.90 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5609.1 PEAK FLOW RATE(CFS) = 1968.24
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 90.46
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.713
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	18.40	0.30	1.000	86
NATURAL FAIR COVER					
"MEADOWS"	B	1.20	0.30	1.000	70
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.10	0.30	1.000	65
NATURAL POOR COVER					
"BARREN"	B	26.60	0.30	1.000	86
COMMERCIAL	B	3.90	0.30	0.100	56
AGRICULTURAL POOR COVER					
"FALLOW"	B	3.00	0.30	1.000	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.934
 SUBAREA AREA(ACRES) = 53.20 SUBAREA RUNOFF(CFS) = 20.71
 EFFECTIVE AREA(ACRES) = 4398.10 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5662.3 PEAK FLOW RATE(CFS) = 1968.24
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 90.46
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.713
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	1.10	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.20	0.30	1.000	65
NATURAL POOR COVER					
"BARREN"	B	14.00	0.30	1.000	86
COMMERCIAL	B	4.30	0.30	0.100	56
AGRICULTURAL POOR COVER					
"FALLOW"	B	5.30	0.30	1.000	86
NATURAL FAIR COVER					
"GRASS"	B	2.70	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.860
 SUBAREA AREA(ACRES) = 27.60 SUBAREA RUNOFF(CFS) = 11.30
 EFFECTIVE AREA(ACRES) = 4425.70 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5689.9 PEAK FLOW RATE(CFS) = 1968.24
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 90.46
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.713
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"MEADOWS"	B	3.20	0.30	1.000	70
NATURAL FAIR COVER					
"OPEN BRUSH"	B	6.10	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	7.50	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	5.40	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	1.60	0.30	1.000	65
NATURAL POOR COVER					
"BARREN"	B	1.90	0.30	1.000	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.971
 SUBAREA AREA(ACRES) = 25.70 SUBAREA RUNOFF(CFS) = 9.75
 EFFECTIVE AREA(ACRES) = 4451.40 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5715.6 PEAK FLOW RATE(CFS) = 1968.24
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE


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FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN.) = 90.46
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.713
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp   Ap   SCS
LAND USE            GROUP   (ACRES) (INCH/HR) (DECIMAL) CN
COMMERCIAL          B        2.00   0.30   0.100  56
AGRICULTURAL POOR COVER
"FALLOW"           B        3.70   0.30   1.000  86
NATURAL FAIR COVER
"OPEN BRUSH"       B        2.10   0.30   1.000  66
RESIDENTIAL
".4 DWELLING/ACRE" B        2.60   0.30   0.900  56
AGRICULTURAL POOR COVER
"ROW CROPS,CONTOURED" B        0.20   0.30   1.000  79
NATURAL FAIR COVER
"WOODLAND,GRASS"  B        0.10   0.30   1.000  65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.807
SUBAREA AREA(ACRES) = 10.70   SUBAREA RUNOFF(CFS) = 4.53
EFFECTIVE AREA(ACRES) = 4462.10   AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30   AREA-AVERAGED Ap = 0.84
TOTAL AREA(ACRES) = 5726.3   PEAK FLOW RATE(CFS) = 1968.24
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

*****
FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN.) = 90.46
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.713
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp   Ap   SCS
LAND USE            GROUP   (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH"       B        0.50   0.30   1.000  66
RESIDENTIAL
".4 DWELLING/ACRE" B        8.20   0.30   0.900  56
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.906
SUBAREA AREA(ACRES) = 8.70   SUBAREA RUNOFF(CFS) = 3.45
EFFECTIVE AREA(ACRES) = 4470.80   AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30   AREA-AVERAGED Ap = 0.84
TOTAL AREA(ACRES) = 5735.0   PEAK FLOW RATE(CFS) = 1968.24
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

*****
FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 15.1
-----
>>>>DEFINE MEMORY BANK # 1 <<<<
=====
PEAK FLOWRATE TABLE FILE NAME: 3A10EVRL.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:

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STREAM      Q      Tc      Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS) (MIN.) (INCH/HR)      (ACRES)  NODE
1          742.58 14.11 0.30( 0.13) 0.43 433.8 120.00
2          739.67 14.27 0.30( 0.13) 0.43 436.5 110.00
3          635.72 21.58 0.30( 0.13) 0.43 503.8 100.00
4          587.61 24.64 0.30( 0.13) 0.43 510.2 150.00
TOTAL AREA(ACRES) = 510.2

*****
FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 11
-----
>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<
=====
** MAIN STREAM CONFLUENCE DATA **
STREAM      Q      Tc      Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS) (MIN.) (INCH/HR) (INCH/HR)      (ACRES)  NODE
1          1542.58 39.22 1.082 0.30( 0.26) 0.88 1828.9 31100.00
2          1968.24 90.46 0.713 0.30( 0.25) 0.84 4470.8 13222.00
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13305.00 = 13617.72 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **
STREAM      Q      Tc      Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS) (MIN.) (INCH/HR) (INCH/HR)      (ACRES)  NODE
1          742.58 14.11 1.980 0.30( 0.13) 0.43 433.8 120.00
2          739.67 14.27 1.959 0.30( 0.13) 0.43 436.5 110.00
3          635.72 21.58 1.529 0.30( 0.13) 0.43 503.8 100.00
4          587.61 24.64 1.406 0.30( 0.13) 0.43 510.2 150.00
LONGEST FLOWPATH FROM NODE 150.00 TO NODE 13305.00 = 9867.00 FEET.

** PEAK FLOW RATE TABLE **
STREAM      Q      Tc      Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS) (MIN.) (INCH/HR) (INCH/HR)      (ACRES)  NODE
1          1905.30 14.11 1.980 0.30( 0.21) 0.70 1091.6 120.00
2          1901.25 14.27 1.959 0.30( 0.21) 0.70 1101.8 110.00
3          1947.53 21.58 1.529 0.30( 0.22) 0.73 1510.0 100.00
4          1939.19 24.64 1.406 0.30( 0.22) 0.74 1659.0 150.00
5          1981.16 39.22 1.082 0.30( 0.23) 0.78 2339.1 31100.00
6          2236.64 90.46 0.713 0.30( 0.24) 0.80 4981.0 13222.00
TOTAL AREA(ACRES) = 6245.2

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2236.64 Tc(MIN.) = 90.464
EFFECTIVE AREA(ACRES) = 4981.00 AREA-AVERAGED Fm(INCH/HR) = 0.24
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.70
TOTAL AREA(ACRES) = 6245.2
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13305.00 = 13617.72 FEET.

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FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 12
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>>>>CLEAR MEMORY BANK # 1 <<<<
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*****
FLOW PROCESS FROM NODE 13305.00 TO NODE 13306.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

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>>>>TRAVELTIME THRU SUBAREA<<<<<

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=====
ELEVATION DATA: UPSTREAM(FEET) = 315.00 DOWNSTREAM(FEET) = 245.50
CHANNEL LENGTH THRU SUBAREA(FEET) = 4408.41 CHANNEL SLOPE = 0.0158
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 3.71
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.692
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp   Ap   SCS
LAND USE           GROUP  (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL POOR COVER
"BARREN"           B         0.40   0.30   1.000   86
NATURAL FAIR COVER
"GRASS"            B         9.20   0.30   1.000   69
NATURAL FAIR COVER
"OPEN BRUSH"       B         1.00   0.30   1.000   66
NATURAL FAIR COVER
"WOODLAND,GRASS"  B         1.30   0.30   1.000   65
NATURAL POOR COVER
"BARREN"           B         2.40   0.30   1.000   86
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" B       4.10   0.30   1.000   63
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2239.89
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.89
AVERAGE FLOW DEPTH(FEET) = 3.71 TRAVEL TIME(MIN.) = 7.43
Tc(MIN.) = 97.89
SUBAREA AREA(ACRES) = 18.40 SUBAREA RUNOFF(CFS) = 6.49
EFFECTIVE AREA(ACRES) = 4999.40 AREA-AVERAGED Fm(INCH/HR) = 0.24
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA(ACRES) = 6263.6 PEAK FLOW RATE(CFS) = 2236.64
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 3.70

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END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 3.70 FLOW VELOCITY(FEET/SEC.) = 9.88
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13306.00 = 18026.13 FEET.

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FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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=====
MAINLINE Tc(MIN.) = 97.89
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.692
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp   Ap   SCS
LAND USE           GROUP  (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"GRASS"            B        19.20   0.30   1.000   69
NATURAL FAIR COVER
"OPEN BRUSH"       B        20.90   0.30   1.000   66
NATURAL FAIR COVER
"WOODLAND,GRASS"  B         4.10   0.30   1.000   65

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NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" B       0.50   0.30   1.000   63
NATURAL FAIR COVER
"GRASS"            B       4.30   0.30   1.000   69
NATURAL FAIR COVER
"OPEN BRUSH"       B       0.60   0.30   1.000   66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 49.60 SUBAREA RUNOFF(CFS) = 17.49
EFFECTIVE AREA(ACRES) = 5049.00 AREA-AVERAGED Fm(INCH/HR) = 0.24
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA(ACRES) = 6313.2 PEAK FLOW RATE(CFS) = 2236.64
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

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*****
FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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=====
MAINLINE Tc(MIN.) = 97.89
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.692
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp   Ap   SCS
LAND USE           GROUP  (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"WOODLAND,GRASS"  B         0.80   0.30   1.000   65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 0.80 SUBAREA RUNOFF(CFS) = 0.28
EFFECTIVE AREA(ACRES) = 5049.80 AREA-AVERAGED Fm(INCH/HR) = 0.24
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA(ACRES) = 6314.0 PEAK FLOW RATE(CFS) = 2236.64
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

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*****
FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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=====
MAINLINE Tc(MIN.) = 97.89
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.692
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp   Ap   SCS
LAND USE           GROUP  (ACRES) (INCH/HR) (DECIMAL) CN
PUBLIC PARK        B         0.10   0.30   0.850   56
NATURAL FAIR COVER
"OPEN BRUSH"       B         0.10   0.30   1.000   66
NATURAL FAIR COVER
"WOODLAND,GRASS"  B         0.10   0.30   1.000   65
NATURAL POOR COVER
"BARREN"           B         0.20   0.30   1.000   86
PUBLIC PARK        B         0.40   0.30   0.850   56
NATURAL FAIR COVER
"GRASS"            B         0.40   0.30   1.000   69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.942
SUBAREA AREA(ACRES) = 1.30 SUBAREA RUNOFF(CFS) = 0.48
EFFECTIVE AREA(ACRES) = 5051.10 AREA-AVERAGED Fm(INCH/HR) = 0.24

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AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA (ACRES) = 6315.3 PEAK FLOW RATE (CFS) = 2236.64
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 97.89
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.692
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
RESIDENTIAL
".4 DWELLING/ACRE" B 0.80 0.30 0.900 56
NATURAL FAIR COVER
"GRASS" B 0.80 0.30 1.000 69
NATURAL FAIR COVER
"OPEN BRUSH" B 1.00 0.30 1.000 66
NATURAL FAIR COVER
"WOODLAND, GRASS" B 1.10 0.30 1.000 65
COMMERCIAL B 1.10 0.30 0.100 56
RESIDENTIAL
".4 DWELLING/ACRE" B 2.80 0.30 0.900 56
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.822
SUBAREA AREA (ACRES) = 7.60 SUBAREA RUNOFF (CFS) = 3.05
EFFECTIVE AREA (ACRES) = 5058.70 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA (ACRES) = 6322.9 PEAK FLOW RATE (CFS) = 2236.64
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 97.89
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.692
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
COMMERCIAL B 3.50 0.30 0.100 56
NATURAL FAIR COVER
"GRASS" B 5.00 0.30 1.000 69
RESIDENTIAL
".4 DWELLING/ACRE" B 6.70 0.30 0.900 56
NATURAL FAIR COVER
"WOODLAND, GRASS" B 7.80 0.30 1.000 65
NATURAL FAIR COVER
"OPEN BRUSH" B 10.80 0.30 1.000 66
COMMERCIAL B 13.80 0.30 0.100 56
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.659
SUBAREA AREA (ACRES) = 47.60 SUBAREA RUNOFF (CFS) = 21.17
EFFECTIVE AREA (ACRES) = 5106.30 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80

TOTAL AREA (ACRES) = 6370.5 PEAK FLOW RATE (CFS) = 2236.64
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 97.89
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.692
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL POOR COVER
"BARREN" B 21.54 0.30 1.000 86
NATURAL POOR COVER
"BARREN" B 36.64 0.30 1.000 86
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 58.18 SUBAREA RUNOFF (CFS) = 20.52
EFFECTIVE AREA (ACRES) = 5164.48 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA (ACRES) = 6428.7 PEAK FLOW RATE (CFS) = 2236.64
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13306.00 TO NODE 13307.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 245.50 DOWNSTREAM (FEET) = 220.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1543.21 CHANNEL SLOPE = 0.0165
GIVEN CHANNEL BASE (FEET) = 50.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
* ESTIMATED CHANNEL HEIGHT (FEET) = 3.66
CHANNEL FLOW THRU SUBAREA (CFS) = 2236.64
FLOW VELOCITY (FEET/SEC.) = 10.03 FLOW DEPTH (FEET) = 3.66
TRAVEL TIME (MIN.) = 2.56 Tc (MIN.) = 100.46
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13307.00 = 19569.34 FEET.

FLOW PROCESS FROM NODE 13307.00 TO NODE 13307.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 100.46
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.685
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
COMMERCIAL B 0.20 0.30 0.100 56
NATURAL FAIR COVER
"GRASS" B 0.10 0.30 1.000 69
AGRICULTURAL FAIR COVER
"ORCHARDS" B 0.20 0.30 1.000 65
NATURAL POOR COVER
"BARREN" B 3.70 0.30 1.000 86

COMMERCIAL B 0.30 0.30 0.100 56
 NATURAL FAIR COVER
 "GRASS" B 3.20 0.30 1.000 69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.942
 SUBAREA AREA (ACRES) = 7.70 SUBAREA RUNOFF(CFS) = 2.79
 EFFECTIVE AREA(ACRES) = 5172.18 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA(ACRES) = 6436.4 PEAK FLOW RATE(CFS) = 2236.64
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13307.00 TO NODE 13307.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 100.46
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.685
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 NATURAL FAIR COVER
 "WOODLAND,GRASS" B 3.60 0.30 1.000 65
 NATURAL FAIR COVER
 "GRASS" B 1.90 0.30 1.000 69
 NATURAL FAIR COVER
 "WOODLAND,GRASS" B 0.60 0.30 1.000 65
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 6.10 SUBAREA RUNOFF(CFS) = 2.11
 EFFECTIVE AREA(ACRES) = 5178.28 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA(ACRES) = 6442.5 PEAK FLOW RATE(CFS) = 2236.64
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13307.00 TO NODE 13308.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 220.00 DOWNSTREAM(FEET) = 212.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 925.62 CHANNEL SLOPE = 0.0086
 GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 4.39
 CHANNEL FLOW THRU SUBAREA(CFS) = 2236.64
 FLOW VELOCITY(FEET/SEC.) = 8.06 FLOW DEPTH(FEET) = 4.39
 TRAVEL TIME(MIN.) = 1.91 Tc(MIN.) = 102.37
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13308.00 = 20494.96 FEET.

 FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 102.37
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.679

SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 NATURAL FAIR COVER
 "GRASS" B 0.10 0.30 1.000 69
 NATURAL FAIR COVER
 "OPEN BRUSH" B 0.20 0.30 1.000 66
 NATURAL FAIR COVER
 "WOODLAND,GRASS" B 5.00 0.30 1.000 65
 COMMERCIAL B 3.20 0.30 0.100 56
 NATURAL FAIR COVER
 "GRASS" B 0.10 0.30 1.000 69
 NATURAL FAIR COVER
 "OPEN BRUSH" B 0.90 0.30 1.000 66
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.697
 SUBAREA AREA(ACRES) = 9.50 SUBAREA RUNOFF(CFS) = 4.02
 EFFECTIVE AREA(ACRES) = 5187.78 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA(ACRES) = 6452.0 PEAK FLOW RATE(CFS) = 2236.64
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 102.37
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.679
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 APARTMENTS B 0.30 0.30 0.200 56
 NATURAL POOR COVER
 "BARREN" B 0.20 0.30 1.000 86
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF" B 1.00 0.30 1.000 63
 COMMERCIAL B 41.90 0.30 0.100 56
 NATURAL FAIR COVER
 "GRASS" B 7.20 0.30 1.000 69
 NATURAL FAIR COVER
 "OPEN BRUSH" B 25.00 0.30 1.000 66
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.498
 SUBAREA AREA(ACRES) = 75.60 SUBAREA RUNOFF(CFS) = 36.06
 EFFECTIVE AREA(ACRES) = 5263.38 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA(ACRES) = 6527.6 PEAK FLOW RATE(CFS) = 2236.64
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 102.37
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.679
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
PUBLIC PARK	B	0.10	0.30	0.850	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	0.90	0.30	1.000	79
SCHOOL	B	0.30	0.30	0.600	56
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	13.20	0.30	1.000	65
APARTMENTS	B	0.50	0.30	0.200	56
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	0.60	0.30	1.000	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.966
SUBAREA AREA (ACRES) = 15.60 SUBAREA RUNOFF (CFS) = 5.47
EFFECTIVE AREA (ACRES) = 5278.98 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA (ACRES) = 6543.2 PEAK FLOW RATE (CFS) = 2236.64
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc (MIN.) = 102.37
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.679
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	33.90	0.30	0.100	56
NATURAL FAIR COVER					
"GRASS"	B	17.60	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	16.80	0.30	1.000	66
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	B	0.60	0.30	0.200	56
RESIDENTIAL					
"8-10 DWELLINGS/ACRE"	B	1.50	0.30	0.400	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	10.00	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.603
SUBAREA AREA (ACRES) = 80.40 SUBAREA RUNOFF (CFS) = 36.06
EFFECTIVE AREA (ACRES) = 5359.38 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA (ACRES) = 6623.6 PEAK FLOW RATE (CFS) = 2236.64
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc (MIN.) = 102.37
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.679
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	33.90	0.30	0.100	56
NATURAL FAIR COVER					
"GRASS"	B	17.60	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	16.80	0.30	1.000	66
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	B	0.60	0.30	0.200	56
RESIDENTIAL					
"8-10 DWELLINGS/ACRE"	B	1.50	0.30	0.400	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	10.00	0.30	1.000	79

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
SCHOOL	B	0.30	0.30	0.600	56
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.70	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.880
SUBAREA AREA (ACRES) = 1.00 SUBAREA RUNOFF (CFS) = 0.37
EFFECTIVE AREA (ACRES) = 5360.38 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA (ACRES) = 6624.6 PEAK FLOW RATE (CFS) = 2236.64
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc (MIN.) = 102.37
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.679
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	0.30	0.30	1.000	69
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.80	0.30	1.000	65
NATURAL FAIR COVER					
"GRASS"	B	0.50	0.30	1.000	69
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.20	0.30	1.000	65
NATURAL FAIR COVER					
"GRASS"	B	0.30	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 2.10 SUBAREA RUNOFF (CFS) = 0.72
EFFECTIVE AREA (ACRES) = 5362.48 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA (ACRES) = 6626.7 PEAK FLOW RATE (CFS) = 2236.64
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc (MIN.) = 102.37
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.679
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	1.20	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.50	0.30	1.000	66
PUBLIC PARK	B	1.70	0.30	0.850	56
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	7.20	0.30	1.000	65
NATURAL FAIR COVER					
"GRASS"	B	1.00	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.978
 SUBAREA AREA(ACRES) = 11.60 SUBAREA RUNOFF(CFS) = 4.03
 EFFECTIVE AREA(ACRES) = 5374.08 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA(ACRES) = 6638.3 PEAK FLOW RATE(CFS) = 2236.64
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<

 FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<

PEAK FLOWRATE TABLE FILE NAME: RI10EV29.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12836.94	20.59	0.30 (0.27)	0.92	3804.5	12904.00
2	14402.11	30.67	0.30 (0.28)	0.92	6101.1	50300.00
3	15419.37	37.65	0.30 (0.28)	0.92	7587.8	50150.00
4	16099.51	43.19	0.30 (0.28)	0.93	9042.7	600.00
5	18214.57	61.51	0.30 (0.29)	0.95	14860.3	40100.00
6	18914.90	70.53	0.30 (0.29)	0.96	17638.0	11801.00
7	20247.83	84.10	0.30 (0.29)	0.97	22633.3	11530.00
8	21149.92	92.29	0.30 (0.29)	0.97	26521.4	11900.00
9	22681.31	101.96	0.30 (0.29)	0.98	32332.0	11330.00
10	23559.71	110.16	0.30 (0.29)	0.98	37419.1	10630.00
11	23475.36	115.73	0.30 (0.29)	0.98	40009.0	12330.00
12	23368.42	122.34	0.30 (0.29)	0.98	43151.5	11600.00
13	23118.75	128.10	0.30 (0.29)	0.98	45385.8	11111.00
14	22834.40	134.21	0.30 (0.29)	0.98	47319.6	12201.00
15	22110.33	143.11	0.30 (0.29)	0.98	49407.9	12231.00
16	21430.72	150.57	0.30 (0.29)	0.98	50819.4	10400.00
17	20335.44	161.93	0.30 (0.29)	0.98	52440.2	10320.00
18	19758.72	166.75	0.30 (0.29)	0.98	52665.7	10210.00
19	19259.25	171.59	0.30 (0.29)	0.98	52828.0	12000.00
20	16649.07	200.62	0.30 (0.29)	0.98	53445.0	10100.00
TOTAL AREA(ACRES) =						53445.0

 FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 14.0

>>>>MEMORY BANK # 2 COPIED ONTO MAIN-STREAM MEMORY<<<<<

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12836.94	20.59	0.30 (0.27)	0.92	3804.5	12904.00
2	14402.11	30.67	0.30 (0.28)	0.92	6101.1	50300.00
3	15419.37	37.65	0.30 (0.28)	0.92	7587.8	50150.00
4	16099.51	43.19	0.30 (0.28)	0.93	9042.7	600.00

5	18214.57	61.51	0.30 (0.29)	0.95	14860.3	40100.00
6	18914.90	70.53	0.30 (0.29)	0.96	17638.0	11801.00
7	20247.83	84.10	0.30 (0.29)	0.97	22633.3	11530.00
8	21149.92	92.29	0.30 (0.29)	0.97	26521.4	11900.00
9	22681.31	101.96	0.30 (0.29)	0.98	32332.0	11330.00
10	23559.71	110.16	0.30 (0.29)	0.98	37419.1	10630.00
11	23475.36	115.73	0.30 (0.29)	0.98	40009.0	12330.00
12	23368.42	122.34	0.30 (0.29)	0.98	43151.5	11600.00
13	23118.75	128.10	0.30 (0.29)	0.98	45385.8	11111.00
14	22834.40	134.21	0.30 (0.29)	0.98	47319.6	12201.00
15	22110.33	143.11	0.30 (0.29)	0.98	49407.9	12231.00
16	21430.72	150.57	0.30 (0.29)	0.98	50819.4	10400.00
17	20335.44	161.93	0.30 (0.29)	0.98	52440.2	10320.00
18	19758.72	166.75	0.30 (0.29)	0.98	52665.7	10210.00
19	19259.25	171.59	0.30 (0.29)	0.98	52828.0	12000.00
20	16649.07	200.62	0.30 (0.29)	0.98	53445.0	10100.00
TOTAL AREA(ACRES) =						53445.0

 FLOW PROCESS FROM NODE 12904.00 TO NODE 13308.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

 ELEVATION DATA: UPSTREAM(FEET) = 213.00 DOWNSTREAM(FEET) = 212.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1389.52 CHANNEL SLOPE = 0.0007
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 13.59
 CHANNEL FLOW THRU SUBAREA(CFS) = 23559.71
 FLOW VELOCITY(FEET/SEC.) = 6.47 FLOW DEPTH(FEET) = 13.59
 TRAVEL TIME(MIN.) = 3.58 Tc(MIN.) = 113.74
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13308.00 = 118087.91 FEET.

 FLOW PROCESS FROM NODE 13307.00 TO NODE 13308.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12836.94	24.93	1.394	0.30 (0.27)	0.92	3804.5	12904.00
2	14402.11	34.85	1.162	0.30 (0.28)	0.92	6101.1	50300.00
3	15419.37	41.74	1.048	0.30 (0.28)	0.92	7587.8	50150.00
4	16099.51	47.22	0.983	0.30 (0.28)	0.93	9042.7	600.00
5	18214.57	65.39	0.835	0.30 (0.29)	0.95	14860.3	40100.00
6	18914.90	74.36	0.791	0.30 (0.29)	0.96	17638.0	11801.00
7	20247.83	87.85	0.725	0.30 (0.29)	0.97	22633.3	11530.00
8	21149.92	95.99	0.697	0.30 (0.29)	0.97	26521.4	11900.00
9	22681.31	105.58	0.670	0.30 (0.29)	0.98	32332.0	11330.00
10	23559.71	113.74	0.648	0.30 (0.29)	0.98	37419.1	10630.00
11	23475.36	119.31	0.632	0.30 (0.29)	0.98	40009.0	12330.00
12	23368.42	125.93	0.620	0.30 (0.29)	0.98	43151.5	11600.00
13	23118.75	131.70	0.610	0.30 (0.29)	0.98	45385.8	11111.00
14	22834.40	137.83	0.600	0.30 (0.29)	0.98	47319.6	12201.00
15	22110.33	146.76	0.585	0.30 (0.29)	0.98	49407.9	12231.00

16	21430.72	154.25	0.572	0.30	(0.29)	0.98	50819.4	10400.00
17	20335.44	165.67	0.552	0.30	(0.29)	0.98	52440.2	10320.00
18	19758.72	170.53	0.544	0.30	(0.29)	0.98	52665.7	10210.00
19	19259.25	175.40	0.536	0.30	(0.29)	0.98	52828.0	12000.00
20	16649.07	204.61	0.509	0.30	(0.29)	0.98	53445.0	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13308.00 = 118087.91 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1905.30	26.65	1.344	0.30(0.22)	0.72	1484.7	120.00
2	1901.25	26.82	1.340	0.30(0.22)	0.72	1494.8	110.00
3	1947.53	34.03	1.177	0.30(0.22)	0.73	1903.1	100.00
4	1939.19	37.11	1.121	0.30(0.22)	0.75	2052.1	150.00
5	1981.16	51.61	0.936	0.30(0.23)	0.78	2732.2	31100.00
6	2236.64	102.37	0.679	0.30(0.24)	0.80	5374.1	13222.00

LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13308.00 = 20494.96 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	14697.13	24.93	1.394	0.30(0.26)	0.86	5193.2	12904.00
2	15014.08	26.65	1.344	0.30(0.26)	0.86	5688.1	120.00
3	15035.99	26.82	1.340	0.30(0.26)	0.86	5736.3	110.00
4	16220.81	34.03	1.177	0.30(0.26)	0.87	7815.2	100.00
5	16347.43	34.85	1.162	0.30(0.26)	0.87	8043.7	50300.00
6	16675.38	37.11	1.121	0.30(0.26)	0.88	8641.4	150.00
7	17371.95	41.74	1.048	0.30(0.26)	0.88	9856.8	50150.00
8	18067.97	47.22	0.983	0.30(0.27)	0.89	11569.1	600.00
9	18591.31	51.61	0.936	0.30(0.27)	0.90	13179.4	31100.00
10	20265.11	65.39	0.835	0.30(0.28)	0.92	18309.9	40100.00
11	21010.59	74.36	0.791	0.30(0.28)	0.93	21554.6	11801.00
12	22411.38	87.85	0.725	0.30(0.28)	0.94	27251.6	11530.00
13	23354.46	95.99	0.697	0.30(0.28)	0.94	31563.6	11900.00
14	24405.52	102.37	0.679	0.30(0.28)	0.95	35761.7	13222.00
15	24872.32	105.58	0.670	0.30(0.28)	0.95	37706.1	11330.00
16	25634.54	113.74	0.648	0.30(0.29)	0.96	42793.2	10630.00
17	25470.89	119.31	0.632	0.30(0.29)	0.96	45383.1	12330.00
18	25303.02	125.93	0.620	0.30(0.29)	0.96	48525.5	11600.00
19	25003.47	131.70	0.610	0.30(0.29)	0.96	50759.9	11111.00
20	24666.18	137.83	0.600	0.30(0.29)	0.96	52693.7	12201.00
21	23864.94	146.76	0.585	0.30(0.29)	0.96	54782.0	12231.00
22	23120.63	154.25	0.572	0.30(0.29)	0.96	56193.5	10400.00
23	21926.70	165.67	0.552	0.30(0.29)	0.96	57814.3	10320.00
24	21308.01	170.53	0.544	0.30(0.29)	0.96	58039.8	10210.00
25	20766.45	175.40	0.536	0.30(0.29)	0.96	58202.1	12000.00
26	18019.26	204.61	0.509	0.30(0.29)	0.96	58819.1	10100.00

TOTAL AREA (ACRES) = 60083.3

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 25634.54 Tc (MIN.) = 113.742
EFFECTIVE AREA (ACRES) = 42793.22 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA (ACRES) = 60083.3
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13308.00 = 118087.91 FEET.

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END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 60083.3 TC (MIN.) = 113.74

EFFECTIVE AREA (ACRES) = 42793.22 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.955
PEAK FLOW RATE (CFS) = 25634.54

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	14697.13	24.93	1.394	0.30(0.26)	0.86	5193.2	12904.00
2	15014.08	26.65	1.344	0.30(0.26)	0.86	5688.1	120.00
3	15035.99	26.82	1.340	0.30(0.26)	0.86	5736.3	110.00
4	16220.81	34.03	1.177	0.30(0.26)	0.87	7815.2	100.00
5	16347.43	34.85	1.162	0.30(0.26)	0.87	8043.7	50300.00
6	16675.38	37.11	1.121	0.30(0.26)	0.88	8641.4	150.00
7	17371.95	41.74	1.048	0.30(0.26)	0.88	9856.8	50150.00
8	18067.97	47.22	0.983	0.30(0.27)	0.89	11569.1	600.00
9	18591.31	51.61	0.936	0.30(0.27)	0.90	13179.4	31100.00
10	20265.11	65.39	0.835	0.30(0.28)	0.92	18309.9	40100.00
11	21010.59	74.36	0.791	0.30(0.28)	0.93	21554.6	11801.00
12	22411.38	87.85	0.725	0.30(0.28)	0.94	27251.6	11530.00
13	23354.46	95.99	0.697	0.30(0.28)	0.94	31563.6	11900.00
14	24405.52	102.37	0.679	0.30(0.28)	0.95	35761.7	13222.00
15	24872.32	105.58	0.670	0.30(0.28)	0.95	37706.1	11330.00
16	25634.54	113.74	0.648	0.30(0.29)	0.96	42793.2	10630.00
17	25470.89	119.31	0.632	0.30(0.29)	0.96	45383.1	12330.00
18	25303.02	125.93	0.620	0.30(0.29)	0.96	48525.5	11600.00
19	25003.47	131.70	0.610	0.30(0.29)	0.96	50759.9	11111.00
20	24666.18	137.83	0.600	0.30(0.29)	0.96	52693.7	12201.00
21	23864.94	146.76	0.585	0.30(0.29)	0.96	54782.0	12231.00
22	23120.63	154.25	0.572	0.30(0.29)	0.96	56193.5	10400.00
23	21926.70	165.67	0.552	0.30(0.29)	0.96	57814.3	10320.00
24	21308.01	170.53	0.544	0.30(0.29)	0.96	58039.8	10210.00
25	20766.45	175.40	0.536	0.30(0.29)	0.96	58202.1	12000.00
26	18019.26	204.61	0.509	0.30(0.29)	0.96	58819.1	10100.00

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END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 134 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 10-YR EV AUG 2023 ROKAMOTO *

FILE NAME: RI10EV34.DAT
TIME/DATE OF STUDY: 13:17 08/09/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 3.757
- 2) 10.00; 2.507
- 3) 15.00; 1.859
- 4) 20.00; 1.590
- 5) 25.00; 1.388
- 6) 30.00; 1.248
- 7) 40.00; 1.066
- 8) 50.00; 0.948
- 9) 60.00; 0.860
- 10) 90.00; 0.712
- 11) 120.00; 0.627
- 12) 180.00; 0.525
- 13) 360.00; 0.386
- 14) 1200.00; 0.169

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RI10EV33.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	15035.99	26.82	0.30 (0.26)	0.86	5736.3	110.00
2	16675.38	37.11	0.30 (0.26)	0.88	8641.4	150.00
3	17371.95	41.74	0.30 (0.26)	0.88	9856.8	50150.00
4	18591.31	51.61	0.30 (0.27)	0.90	13179.4	31100.00
5	20265.11	65.39	0.30 (0.28)	0.92	18309.9	40100.00
6	21010.59	74.36	0.30 (0.28)	0.93	21554.6	11801.00
7	22411.38	87.85	0.30 (0.28)	0.94	27251.6	11530.00
8	23354.46	95.99	0.30 (0.28)	0.94	31563.6	11900.00
9	24872.32	105.58	0.30 (0.28)	0.95	37706.1	11330.00
10	25634.54	113.74	0.30 (0.29)	0.96	42793.2	10630.00
11	25470.89	119.31	0.30 (0.29)	0.96	45383.1	12330.00
12	25303.02	125.93	0.30 (0.29)	0.96	48525.5	11600.00
13	25003.47	131.70	0.30 (0.29)	0.96	50759.9	11111.00
14	24666.18	137.83	0.30 (0.29)	0.96	52693.7	12201.00
15	23864.94	146.76	0.30 (0.29)	0.96	54782.0	12231.00
16	23120.63	154.25	0.30 (0.29)	0.96	56193.5	10400.00
17	21926.70	165.67	0.30 (0.29)	0.96	57814.3	10320.00
18	21308.01	170.53	0.30 (0.29)	0.96	58039.8	10210.00
19	20766.45	175.40	0.30 (0.29)	0.96	58202.1	12000.00
20	18019.26	204.61	0.30 (0.29)	0.96	58819.1	10100.00
TOTAL AREA (ACRES) =						58819.1

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

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MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	15035.99	26.82	0.30 (0.26)	0.86	5736.3	110.00
2	16675.38	37.11	0.30 (0.26)	0.88	8641.4	150.00
3	17371.95	41.74	0.30 (0.26)	0.88	9856.8	50150.00
4	18591.31	51.61	0.30 (0.27)	0.90	13179.4	31100.00
5	20265.11	65.39	0.30 (0.28)	0.92	18309.9	40100.00
6	21010.59	74.36	0.30 (0.28)	0.93	21554.6	11801.00
7	22411.38	87.85	0.30 (0.28)	0.94	27251.6	11530.00
8	23354.46	95.99	0.30 (0.28)	0.94	31563.6	11900.00
9	24872.32	105.58	0.30 (0.28)	0.95	37706.1	11330.00
10	25634.54	113.74	0.30 (0.29)	0.96	42793.2	10630.00
11	25470.89	119.31	0.30 (0.29)	0.96	45383.1	12330.00
12	25303.02	125.93	0.30 (0.29)	0.96	48525.5	11600.00
13	25003.47	131.70	0.30 (0.29)	0.96	50759.9	11111.00

14	24666.18	137.83	0.30 (0.29)	0.96	52693.7	12201.00
15	23864.94	146.76	0.30 (0.29)	0.96	54782.0	12231.00
16	23120.63	154.25	0.30 (0.29)	0.96	56193.5	10400.00
17	21926.70	165.67	0.30 (0.29)	0.96	57814.3	10320.00
18	21308.01	170.53	0.30 (0.29)	0.96	58039.8	10210.00
19	20766.45	175.40	0.30 (0.29)	0.96	58202.1	12000.00
20	18019.26	204.61	0.30 (0.29)	0.96	58819.1	10100.00

TOTAL AREA (ACRES) = 58819.1

FLOW PROCESS FROM NODE 13308.00 TO NODE 13402.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 212.00 DOWNSTREAM (FEET) = 209.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 623.02 CHANNEL SLOPE = 0.0048
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 8.36
 CHANNEL FLOW THRU SUBAREA (CFS) = 25634.54
 FLOW VELOCITY (FEET/SEC.) = 12.68 FLOW DEPTH (FEET) = 8.36
 TRAVEL TIME (MIN.) = 0.82 Tc (MIN.) = 114.56
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13402.00 = 118710.93 FEET.

FLOW PROCESS FROM NODE 13402.00 TO NODE 13402.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<

PEAK FLOWRATE TABLE FILE NAME: 0610505V.DNA
 MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	172.78	21.02	0.30 (0.30)	0.99	153.2	50500.00

TOTAL AREA (ACRES) = 153.2

FLOW PROCESS FROM NODE 13402.00 TO NODE 13402.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	15035.99	27.80	1.310	0.30 (0.26)	0.86	5736.3	110.00
2	16675.38	38.06	1.101	0.30 (0.26)	0.88	8641.4	150.00
3	17371.95	42.67	1.035	0.30 (0.26)	0.88	9856.8	50150.00
4	18591.31	52.52	0.926	0.30 (0.27)	0.90	13179.4	31100.00
5	20265.11	66.28	0.829	0.30 (0.28)	0.92	18309.9	40100.00
6	21010.59	75.24	0.785	0.30 (0.28)	0.93	21554.6	11801.00
7	22411.38	88.70	0.718	0.30 (0.28)	0.94	27251.6	11530.00
8	23354.46	96.84	0.693	0.30 (0.28)	0.94	31563.6	11900.00
9	24872.32	106.40	0.666	0.30 (0.28)	0.95	37706.1	11330.00
10	25634.54	114.56	0.642	0.30 (0.29)	0.96	42793.2	10630.00
11	25470.89	120.14	0.627	0.30 (0.29)	0.96	45383.1	12330.00
12	25303.02	126.75	0.616	0.30 (0.29)	0.96	48525.5	11600.00

13	25003.47	132.53	0.606	0.30 (0.29)	0.96	50759.9	11111.00
14	24666.18	138.66	0.595	0.30 (0.29)	0.96	52693.7	12201.00
15	23864.94	147.60	0.580	0.30 (0.29)	0.96	54782.0	12231.00
16	23120.63	155.10	0.567	0.30 (0.29)	0.96	56193.5	10400.00
17	21926.70	166.53	0.548	0.30 (0.29)	0.96	57814.3	10320.00
18	21308.01	171.40	0.540	0.30 (0.29)	0.96	58039.8	10210.00
19	20766.45	176.28	0.531	0.30 (0.29)	0.96	58202.1	12000.00
20	18019.26	205.54	0.505	0.30 (0.29)	0.96	58819.1	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13402.00 = 118710.93 FEET.

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	172.78	21.02	1.549	0.30 (0.30)	0.99	153.2	50500.00

LONGEST FLOWPATH FROM NODE 50500.00 TO NODE 13402.00 = 6247.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	14131.42	21.02	1.549	0.30 (0.26)	0.87	4491.1	50500.00
2	15175.80	27.80	1.310	0.30 (0.26)	0.87	5889.5	110.00
3	16786.46	38.06	1.101	0.30 (0.26)	0.88	8794.6	150.00
4	17473.81	42.67	1.035	0.30 (0.26)	0.88	10010.0	50150.00
5	18678.18	52.52	0.926	0.30 (0.27)	0.90	13332.6	31100.00
6	20338.63	66.28	0.829	0.30 (0.28)	0.92	18463.1	40100.00
7	21078.02	75.24	0.785	0.30 (0.28)	0.93	21707.7	11801.00
8	22469.65	88.70	0.718	0.30 (0.28)	0.94	27404.8	11530.00
9	23409.18	96.84	0.693	0.30 (0.28)	0.94	31716.8	11900.00
10	24923.30	106.40	0.666	0.30 (0.28)	0.95	37859.2	11330.00
11	25682.34	114.56	0.642	0.30 (0.29)	0.96	42946.4	10630.00
12	25516.53	120.14	0.627	0.30 (0.29)	0.96	45536.3	12330.00
13	25347.10	126.75	0.616	0.30 (0.29)	0.96	48678.7	11600.00
14	25046.20	132.53	0.606	0.30 (0.29)	0.96	50913.0	11111.00
15	24707.48	138.66	0.595	0.30 (0.29)	0.96	52846.9	12201.00
16	23904.13	147.60	0.580	0.30 (0.29)	0.96	54935.1	12231.00
17	23158.07	155.10	0.567	0.30 (0.29)	0.96	56346.7	10400.00
18	21961.46	166.53	0.548	0.30 (0.29)	0.96	57967.5	10320.00
19	21341.62	171.40	0.540	0.30 (0.29)	0.96	58192.9	10210.00
20	20798.92	176.28	0.531	0.30 (0.29)	0.96	58355.3	12000.00
21	18048.14	205.54	0.505	0.30 (0.29)	0.96	58972.3	10100.00

TOTAL AREA (ACRES) = 58972.3

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 25682.34 Tc (MIN.) = 114.561
 EFFECTIVE AREA (ACRES) = 42946.40 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 58972.3
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13402.00 = 118710.93 FEET.

FLOW PROCESS FROM NODE 13402.00 TO NODE 13404.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 209.00 DOWNSTREAM (FEET) = 207.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 395.35 CHANNEL SLOPE = 0.0051
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 8.25
 CHANNEL FLOW THRU SUBAREA(CFS) = 25682.34
 FLOW VELOCITY(FEET/SEC.) = 12.90 FLOW DEPTH(FEET) = 8.25
 TRAVEL TIME(MIN.) = 0.51 Tc(MIN.) = 115.07
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13404.00 = 119106.28 FEET.

 FLOW PROCESS FROM NODE 13404.00 TO NODE 13404.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: 0610506V.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	61.99	18.17	0.30	(0.30)	1.00	49.6	50600.00
TOTAL AREA (ACRES) =							49.6

 FLOW PROCESS FROM NODE 13404.00 TO NODE 13404.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

 ** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	14131.42	21.65	1.524	0.30(0.26)	0.87	4491.1	50500.00
2	15175.80	28.41	1.293	0.30(0.26)	0.87	5889.5	110.00
3	16786.46	38.65	1.091	0.30(0.26)	0.88	8794.6	150.00
4	17473.81	43.25	1.028	0.30(0.26)	0.88	10010.0	50150.00
5	18678.18	53.09	0.921	0.30(0.27)	0.90	13332.6	31100.00
6	20338.63	66.83	0.826	0.30(0.28)	0.92	18463.1	40100.00
7	21078.02	75.79	0.782	0.30(0.28)	0.93	21707.7	11801.00
8	22469.65	89.24	0.716	0.30(0.28)	0.94	27404.8	11530.00
9	23409.18	97.36	0.691	0.30(0.28)	0.94	31716.8	11900.00
10	24923.30	106.92	0.664	0.30(0.28)	0.95	37859.2	11330.00
11	25682.34	115.07	0.641	0.30(0.29)	0.96	42946.4	10630.00
12	25516.53	120.65	0.626	0.30(0.29)	0.96	45536.3	12330.00
13	25347.10	127.26	0.615	0.30(0.29)	0.96	48678.7	11600.00
14	25046.20	133.04	0.605	0.30(0.29)	0.96	50913.0	11111.00
15	24707.48	139.17	0.594	0.30(0.29)	0.96	52846.9	12201.00
16	23904.13	148.12	0.579	0.30(0.29)	0.96	54935.1	12231.00
17	23158.07	155.63	0.566	0.30(0.29)	0.96	56346.7	10400.00
18	21961.46	167.07	0.547	0.30(0.29)	0.96	57967.5	10320.00
19	21341.62	171.94	0.539	0.30(0.29)	0.96	58192.9	10210.00
20	20798.92	176.83	0.530	0.30(0.29)	0.96	58355.3	12000.00
21	18048.14	206.11	0.505	0.30(0.29)	0.96	58972.3	10100.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13404.00 =							119106.28 FEET.

 ** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	61.99	18.17	1.688	0.30(0.30)	1.00	49.6	50600.00
LONGEST FLOWPATH FROM NODE 50600.00 TO NODE 13404.00 =							4378.00 FEET.

 ** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13473.56	18.17	1.688	0.30(0.26)	0.87	3819.6	50600.00
2	14186.05	21.65	1.524	0.30(0.26)	0.87	4540.7	50500.00
3	15220.12	28.41	1.293	0.30(0.26)	0.87	5939.1	110.00
4	16821.76	38.65	1.091	0.30(0.26)	0.88	8844.2	150.00
5	17506.30	43.25	1.028	0.30(0.26)	0.88	10059.6	50150.00
6	18705.90	53.09	0.921	0.30(0.27)	0.90	13382.2	31100.00
7	20362.13	66.83	0.826	0.30(0.28)	0.92	18512.7	40100.00
8	21099.54	75.79	0.782	0.30(0.28)	0.93	21757.3	11801.00
9	22488.21	89.24	0.716	0.30(0.28)	0.94	27454.4	11530.00
10	23426.64	97.36	0.691	0.30(0.28)	0.94	31766.4	11900.00
11	24939.56	106.92	0.664	0.30(0.28)	0.95	37908.8	11330.00
12	25697.56	115.07	0.641	0.30(0.29)	0.96	42996.0	10630.00
13	25531.08	120.65	0.626	0.30(0.29)	0.96	45585.9	12330.00
14	25361.15	127.26	0.615	0.30(0.29)	0.96	48728.3	11600.00
15	25059.81	133.04	0.605	0.30(0.29)	0.96	50962.6	11111.00
16	24720.62	139.17	0.594	0.30(0.29)	0.96	52896.5	12201.00
17	23916.60	148.12	0.579	0.30(0.29)	0.96	54984.7	12231.00
18	23169.97	155.63	0.566	0.30(0.29)	0.96	56396.3	10400.00
19	21972.49	167.07	0.547	0.30(0.29)	0.96	58017.0	10320.00
20	21352.28	171.94	0.539	0.30(0.29)	0.96	58242.5	10210.00
21	20809.21	176.83	0.530	0.30(0.29)	0.96	58404.9	12000.00
22	18057.29	206.11	0.505	0.30(0.29)	0.96	59021.9	10100.00
TOTAL AREA (ACRES) =							59021.9

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 25697.56 Tc(MIN.) = 115.072
 EFFECTIVE AREA(ACRES) = 42996.00 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA(ACRES) = 59021.9
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13404.00 = 119106.28 FEET.

 FLOW PROCESS FROM NODE 13404.00 TO NODE 13406.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 207.00 DOWNSTREAM(FEET) = 195.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1601.97 CHANNEL SLOPE = 0.0075
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 7.38
 CHANNEL FLOW THRU SUBAREA(CFS) = 25697.56
 FLOW VELOCITY(FEET/SEC.) = 14.70 FLOW DEPTH(FEET) = 7.38
 TRAVEL TIME(MIN.) = 1.82 Tc(MIN.) = 116.89
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13406.00 = 120708.25 FEET.

 FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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MAINLINE Tc(MIN.) = 116.89
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.636
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap	SCS
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LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
NATURAL FAIR COVER					
"GRASS"	B	0.20	0.30	1.000	69
NATURAL FAIR COVER					
"GRASS"	B	4.00	0.30	1.000	69
NATURAL FAIR COVER					
"GRASS"	B	2.00	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	9.70	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.60	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS, STRAIGHT ROW"	B	1.80	0.30	1.000	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 20.30 SUBAREA RUNOFF (CFS) = 6.14
EFFECTIVE AREA (ACRES) = 43016.30 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
TOTAL AREA (ACRES) = 59042.2 PEAK FLOW RATE (CFS) = 25697.56
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 116.89

* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.636

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS, STRAIGHT ROW"	B	3.50	0.30	1.000	81
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	7.20	0.30	1.000	65
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	5.80	0.30	1.000	65
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.10	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA (ACRES) = 16.60 SUBAREA RUNOFF (CFS) = 5.02

EFFECTIVE AREA (ACRES) = 43032.90 AREA-AVERAGED Fm (INCH/HR) = 0.29

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96

TOTAL AREA (ACRES) = 59058.8 PEAK FLOW RATE (CFS) = 25697.56

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 2P10EVBB.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	518.09	10.14	0.30 (0.11)	0.38	237.9	429.00
2	548.24	11.82	0.30 (0.11)	0.38	277.3	425.00
3	551.99	12.10	0.30 (0.11)	0.38	284.1	400.00
4	566.31	13.74	0.30 (0.11)	0.38	322.9	300.00
5	605.65	19.30	0.30 (0.11)	0.38	439.2	210.00
6	601.31	21.30	0.30 (0.11)	0.38	463.8	410.00
7	598.36	22.55	0.30 (0.11)	0.38	478.8	200.00
8	595.72	23.25	0.30 (0.11)	0.38	486.6	230.00
9	580.44	24.41	0.30 (0.11)	0.37	491.2	220.50
TOTAL AREA (ACRES) =			491.2			

FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13473.56	20.44	1.572	0.30 (0.26)	0.87	3856.5	50600.00
2	14186.05	23.87	1.433	0.30 (0.26)	0.87	4577.6	50500.00
3	15220.12	30.58	1.237	0.30 (0.26)	0.87	5976.0	110.00
4	16821.76	40.75	1.057	0.30 (0.26)	0.88	8881.1	150.00
5	17506.30	45.32	1.003	0.30 (0.26)	0.88	10096.5	50150.00
6	18705.90	55.11	0.903	0.30 (0.27)	0.90	13419.1	31100.00
7	20362.13	68.80	0.817	0.30 (0.28)	0.92	18549.6	40100.00
8	21099.54	77.73	0.773	0.30 (0.28)	0.93	21794.2	11801.00
9	22488.21	91.14	0.709	0.30 (0.28)	0.94	27491.3	11530.00
10	23426.64	99.24	0.686	0.30 (0.28)	0.94	31803.3	11900.00
11	24939.56	108.75	0.659	0.30 (0.28)	0.95	37945.7	11330.00
12	25697.56	116.89	0.636	0.30 (0.29)	0.96	43032.9	10630.00
13	25531.08	122.47	0.623	0.30 (0.29)	0.96	45622.8	12330.00
14	25361.15	129.09	0.612	0.30 (0.29)	0.96	48765.2	11600.00
15	25059.81	134.87	0.602	0.30 (0.29)	0.96	50999.5	11111.00
16	24720.62	141.01	0.591	0.30 (0.29)	0.96	52933.4	12201.00
17	23916.60	149.98	0.576	0.30 (0.29)	0.96	55021.6	12231.00
18	23169.97	157.51	0.563	0.30 (0.29)	0.96	56433.2	10400.00
19	21972.49	168.99	0.544	0.30 (0.29)	0.96	58053.9	10320.00
20	21352.28	173.88	0.535	0.30 (0.29)	0.96	58279.4	10210.00
21	20809.21	178.78	0.527	0.30 (0.29)	0.96	58441.8	12000.00
22	18057.29	208.16	0.503	0.30 (0.29)	0.96	59058.8	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13406.00 = 120708.25 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	518.09	10.14	2.489	0.30 (0.11)	0.38	237.9	429.00
2	548.24	11.82	2.271	0.30 (0.11)	0.38	277.3	425.00
3	551.99	12.10	2.234	0.30 (0.11)	0.38	284.1	400.00
4	566.31	13.74	2.022	0.30 (0.11)	0.38	322.9	300.00
5	605.65	19.30	1.628	0.30 (0.11)	0.38	439.2	210.00
6	601.31	21.30	1.537	0.30 (0.11)	0.38	463.8	410.00
7	598.36	22.55	1.487	0.30 (0.11)	0.38	478.8	200.00

8 595.72 23.25 1.459 0.30(0.11) 0.38 486.6 230.00
 9 580.44 24.41 1.412 0.30(0.11) 0.37 491.2 220.50
 LONGEST FLOWPATH FROM NODE 230.00 TO NODE 13406.00 = 11903.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	11874.90	10.14	2.489	0.30(0.25)	0.82	2150.5	429.00
2	12494.91	11.82	2.271	0.30(0.25)	0.82	2507.9	425.00
3	12561.18	12.10	2.234	0.30(0.25)	0.82	2567.9	400.00
4	12733.64	13.74	2.022	0.30(0.25)	0.82	2916.3	300.00
5	13865.97	19.30	1.628	0.30(0.25)	0.82	4080.6	210.00
6	14076.74	20.44	1.572	0.30(0.25)	0.82	4309.7	50600.00
7	14253.46	21.30	1.537	0.30(0.25)	0.82	4501.0	410.00
8	14508.77	22.55	1.487	0.30(0.25)	0.82	4777.4	200.00
9	14651.43	23.25	1.459	0.30(0.25)	0.82	4932.3	230.00
10	14773.55	23.87	1.433	0.30(0.25)	0.82	5066.7	50500.00
11	14849.73	24.41	1.412	0.30(0.25)	0.82	5181.4	220.50
12	15722.73	30.58	1.237	0.30(0.25)	0.83	6467.2	110.00
13	17243.84	40.75	1.057	0.30(0.26)	0.85	9372.3	150.00
14	17904.26	45.32	1.003	0.30(0.26)	0.86	10587.7	50150.00
15	19059.09	55.11	0.903	0.30(0.26)	0.88	13910.3	31100.00
16	20676.73	68.80	0.817	0.30(0.27)	0.91	19040.8	40100.00
17	21394.46	77.73	0.773	0.30(0.27)	0.92	22285.4	11801.00
18	22754.63	91.14	0.709	0.30(0.28)	0.93	27982.5	11530.00
19	23682.81	99.24	0.686	0.30(0.28)	0.93	32294.5	11900.00
20	25183.68	108.75	0.659	0.30(0.28)	0.94	38436.9	11330.00
21	25931.39	116.89	0.636	0.30(0.28)	0.95	43524.1	10630.00
22	25759.10	122.47	0.623	0.30(0.29)	0.95	46114.0	12330.00
23	25584.14	129.09	0.612	0.30(0.29)	0.95	49256.4	11600.00
24	25278.41	134.87	0.602	0.30(0.29)	0.96	51490.7	11111.00
25	24934.55	141.01	0.591	0.30(0.29)	0.96	53424.6	12201.00
26	24123.71	149.98	0.576	0.30(0.29)	0.96	55512.8	12231.00
27	23371.37	157.51	0.563	0.30(0.29)	0.96	56924.4	10400.00
28	22165.17	168.99	0.544	0.30(0.29)	0.96	58545.1	10320.00
29	21541.25	173.88	0.535	0.30(0.29)	0.96	58770.6	10210.00
30	20994.46	178.78	0.527	0.30(0.29)	0.96	58933.0	12000.00
31	18231.90	208.16	0.503	0.30(0.29)	0.96	59550.0	10100.00
TOTAL AREA (ACRES) =		59550.0					

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) = 25931.39 Tc(MIN.) = 116.888
 EFFECTIVE AREA(ACRES) = 43524.10 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
 TOTAL AREA(ACRES) = 59550.0
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13406.00 = 120708.25 FEET.

 FLOW PROCESS FROM NODE 13406.00 TO NODE 13408.00 IS CODE = 56

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<
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ELEVATION DATA: UPSTREAM(FEET) = 195.00 DOWNSTREAM(FEET) = 182.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 2458.36 CHANNEL SLOPE = 0.0053
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 8.19

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.627
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 7.00 0.30 1.000 -
 USER-DEFINED - 3.30 0.30 1.000 -
 USER-DEFINED - 0.40 0.30 0.100 -
 USER-DEFINED - 1.40 0.30 1.000 -
 USER-DEFINED - 0.30 0.30 0.100 -
 SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.949
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 25933.30
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 13.14
 AVERAGE FLOW DEPTH(FEET) = 8.19 TRAVEL TIME(MIN.) = 3.12
 Tc(MIN.) = 120.01
 SUBAREA AREA(ACRES) = 12.40 SUBAREA RUNOFF(CFS) = 3.82
 EFFECTIVE AREA(ACRES) = 43536.50 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA(ACRES) = 59562.4 PEAK FLOW RATE(CFS) = 25931.39
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 8.19

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 8.19 FLOW VELOCITY(FEET/SEC.) = 13.14
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13408.00 = 123166.61 FEET.

 FLOW PROCESS FROM NODE 13408.00 TO NODE 13408.00 IS CODE = 12

 >>>>CLEAR MEMORY BANK # 2 <<<<<
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 FLOW PROCESS FROM NODE 13408.00 TO NODE 13408.00 IS CODE = 15.1

 >>>>DEFINE MEMORY BANK # 2 <<<<<
 =====

PEAK FLOWRATE TABLE FILE NAME: 0610507V.DNA
 MEMORY BANK # 2 DEFINED AS FOLLOWS:
 STREAM Q Tc Fp(Fm) Ap Ae HEADWATER
 NUMBER (CFS) (MIN.) (INCH/HR) (ACRES) NODE
 1 264.52 21.27 0.30(0.30) 0.99 236.8 50700.00
 TOTAL AREA(ACRES) = 236.8

 FLOW PROCESS FROM NODE 13408.00 TO NODE 13408.00 IS CODE = 11

 >>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
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** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	11874.90	14.21	1.962	0.30(0.25)	0.82	2162.9	429.00
2	12494.91	15.82	1.815	0.30(0.25)	0.82	2520.3	425.00
3	12561.18	16.10	1.800	0.30(0.25)	0.82	2580.3	400.00

4	12733.64	17.72	1.713	0.30 (0.25)	0.82	2928.7	300.00
5	13865.97	23.16	1.462	0.30 (0.25)	0.82	4093.0	210.00
6	14076.74	24.28	1.417	0.30 (0.25)	0.82	4322.1	50600.00
7	14253.46	25.12	1.385	0.30 (0.25)	0.82	4513.4	410.00
8	14508.77	26.35	1.350	0.30 (0.25)	0.82	4789.8	200.00
9	14651.43	27.03	1.331	0.30 (0.25)	0.82	4944.7	230.00
10	14773.55	27.65	1.314	0.30 (0.25)	0.82	5079.1	50500.00
11	14849.73	28.18	1.299	0.30 (0.25)	0.82	5193.8	220.50
12	15722.73	34.27	1.170	0.30 (0.25)	0.83	6479.6	110.00
13	17243.84	44.32	1.015	0.30 (0.26)	0.85	9384.7	150.00
14	17904.26	48.86	0.961	0.30 (0.26)	0.86	10600.1	50150.00
15	19059.09	58.57	0.873	0.30 (0.26)	0.88	13922.7	31100.00
16	20676.73	72.16	0.800	0.30 (0.27)	0.91	19053.2	40100.00
17	21394.46	81.06	0.756	0.30 (0.27)	0.92	22297.8	11801.00
18	22754.63	94.40	0.700	0.30 (0.28)	0.93	27994.9	11530.00
19	23682.81	102.45	0.677	0.30 (0.28)	0.93	32306.9	11900.00
20	25183.68	111.90	0.650	0.30 (0.28)	0.94	38449.3	11330.00
21	25931.39	120.01	0.627	0.30 (0.28)	0.95	43536.5	10630.00
22	25759.10	125.59	0.617	0.30 (0.29)	0.95	46126.4	12330.00
23	25584.14	132.22	0.606	0.30 (0.29)	0.95	49268.8	11600.00
24	25278.41	138.02	0.596	0.30 (0.29)	0.96	51503.1	11111.00
25	24934.55	144.17	0.586	0.30 (0.29)	0.96	53437.0	12201.00
26	24123.71	153.18	0.571	0.30 (0.29)	0.96	55525.2	12231.00
27	23371.37	160.74	0.558	0.30 (0.29)	0.96	56936.8	10400.00
28	22165.17	172.27	0.538	0.30 (0.29)	0.96	58557.5	10320.00
29	21541.25	177.20	0.530	0.30 (0.29)	0.96	58783.0	10210.00
30	20994.46	182.13	0.523	0.30 (0.29)	0.96	58945.4	12000.00
31	18231.90	211.67	0.501	0.30 (0.29)	0.96	59562.4	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13408.00 = 123166.61 FEET.

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	264.52	21.27	1.539	0.30 (0.30)	0.99	236.8	50700.00

LONGEST FLOWPATH FROM NODE 50700.00 TO NODE 13408.00 = 7903.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12111.81	14.21	1.962	0.30 (0.25)	0.83	2321.0	429.00
2	12735.46	15.82	1.815	0.30 (0.25)	0.83	2696.5	425.00
3	12803.52	16.10	1.800	0.30 (0.25)	0.83	2759.5	400.00
4	12984.91	17.72	1.713	0.30 (0.25)	0.83	3126.0	300.00
5	13737.53	21.27	1.539	0.30 (0.25)	0.83	3925.7	50700.00
6	14114.24	23.16	1.462	0.30 (0.25)	0.83	4329.8	210.00
7	14315.38	24.28	1.417	0.30 (0.25)	0.83	4558.8	50600.00
8	14485.13	25.12	1.385	0.30 (0.25)	0.83	4750.2	410.00
9	14733.14	26.35	1.350	0.30 (0.25)	0.83	5026.6	200.00
10	14871.70	27.03	1.331	0.30 (0.25)	0.83	5181.4	230.00
11	14990.13	27.65	1.314	0.30 (0.25)	0.83	5315.8	50500.00
12	15063.14	28.18	1.299	0.30 (0.25)	0.83	5430.5	220.50
13	15908.71	34.27	1.170	0.30 (0.25)	0.84	6716.4	110.00
14	17396.73	44.32	1.015	0.30 (0.26)	0.86	9621.5	150.00
15	18045.75	48.86	0.961	0.30 (0.26)	0.86	10836.9	50150.00
16	19181.62	58.57	0.873	0.30 (0.27)	0.89	14159.5	31100.00
17	20783.79	72.16	0.800	0.30 (0.27)	0.91	19289.9	40100.00
18	21492.17	81.06	0.756	0.30 (0.27)	0.92	22534.6	11801.00
19	22840.29	94.40	0.700	0.30 (0.28)	0.93	28231.7	11530.00

20	23763.60	102.45	0.677	0.30 (0.28)	0.93	32543.7	11900.00
21	25258.76	111.90	0.650	0.30 (0.28)	0.94	38686.1	11330.00
22	26001.57	120.01	0.627	0.30 (0.28)	0.95	43773.3	10630.00
23	25827.26	125.59	0.617	0.30 (0.29)	0.95	46363.1	12330.00
24	25649.90	132.22	0.606	0.30 (0.29)	0.95	49505.6	11600.00
25	25342.06	138.02	0.596	0.30 (0.29)	0.96	51739.9	11111.00
26	24995.98	144.17	0.586	0.30 (0.29)	0.96	53673.8	12201.00
27	24181.88	153.18	0.571	0.30 (0.29)	0.96	55762.0	12231.00
28	23426.79	160.74	0.558	0.30 (0.29)	0.96	57173.6	10400.00
29	22216.42	172.27	0.538	0.30 (0.29)	0.96	58794.3	10320.00
30	21590.71	177.20	0.530	0.30 (0.29)	0.96	59019.8	10210.00
31	21042.55	182.13	0.523	0.30 (0.29)	0.96	59182.2	12000.00
32	18275.13	211.67	0.501	0.30 (0.29)	0.96	59799.2	10100.00

TOTAL AREA (ACRES) = 59799.2

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 26001.57 Tc(MIN.) = 120.007
EFFECTIVE AREA(ACRES) = 43773.28 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA(ACRES) = 59799.2
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13408.00 = 123166.61 FEET.

FLOW PROCESS FROM NODE 13408.00 TO NODE 13410.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 182.00 DOWNSTREAM(FEET) = 178.72
CHANNEL LENGTH THRU SUBAREA(FEET) = 952.73 CHANNEL SLOPE = 0.0034
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 9.27
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.625

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.40	0.30	1.000	-
USER-DEFINED	-	2.90	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 26002.06
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.38
AVERAGE FLOW DEPTH(FEET) = 9.27 TRAVEL TIME(MIN.) = 1.40
Tc(MIN.) = 121.40
SUBAREA AREA(ACRES) = 3.30 SUBAREA RUNOFF(CFS) = 0.96
EFFECTIVE AREA(ACRES) = 43776.58 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 59802.5 PEAK FLOW RATE(CFS) = 26001.57
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 9.27

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 9.27 FLOW VELOCITY(FEET/SEC.) = 11.38
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13410.00 = 124119.34 FEET.

 FLOW PROCESS FROM NODE 13410.00 TO NODE 13410.00 IS CODE = 12

 >>>>CLEAR MEMORY BANK # 3 <<<<<<
 =====

 FLOW PROCESS FROM NODE 13410.00 TO NODE 13410.00 IS CODE = 15.1

 >>>>DEFINE MEMORY BANK # 3 <<<<<<
 =====

PEAK FLOWRATE TABLE FILE NAME: RI10EV36.DNA
 MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1521.80	30.81	0.30 (0.27)	0.90	1440.9	110.00
2	1573.72	33.19	0.30 (0.27)	0.90	1597.0	100.00
3	1590.73	34.56	0.30 (0.27)	0.90	1678.1	100.00
4	1600.63	37.85	0.30 (0.27)	0.91	1850.3	130.00
5	1651.13	52.91	0.30 (0.28)	0.93	2602.0	20100.00
6	1611.81	59.35	0.30 (0.28)	0.93	2797.2	13600.00
7	1408.16	100.08	0.30 (0.28)	0.93	3789.3	13510.00
8	1318.82	111.28	0.30 (0.28)	0.93	3859.7	13500.00
TOTAL AREA (ACRES) =						3859.7

 FLOW PROCESS FROM NODE 13410.00 TO NODE 13410.00 IS CODE = 11

 >>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<<
 =====

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12111.81	16.01	1.805	0.30 (0.25)	0.83	2324.3	429.00
2	12735.46	17.60	1.719	0.30 (0.25)	0.83	2699.8	425.00
3	12803.52	17.87	1.705	0.30 (0.25)	0.83	2762.8	400.00
4	12984.91	19.48	1.618	0.30 (0.25)	0.83	3129.3	300.00
5	13737.53	23.00	1.469	0.30 (0.25)	0.83	3929.0	50700.00
6	14114.24	24.87	1.393	0.30 (0.25)	0.83	4333.1	210.00
7	14315.38	25.98	1.361	0.30 (0.25)	0.83	4562.1	50600.00
8	14485.13	26.82	1.337	0.30 (0.25)	0.83	4753.5	410.00
9	14733.14	28.03	1.303	0.30 (0.25)	0.83	5029.9	200.00
10	14871.70	28.71	1.284	0.30 (0.25)	0.83	5184.7	230.00
11	14990.13	29.33	1.267	0.30 (0.25)	0.83	5319.1	50500.00
12	15063.14	29.86	1.252	0.30 (0.25)	0.83	5433.8	220.50
13	15908.71	35.92	1.140	0.30 (0.25)	0.84	6719.7	110.00
14	17396.73	45.92	0.996	0.30 (0.26)	0.86	9624.8	150.00
15	18045.75	50.43	0.944	0.30 (0.26)	0.86	10840.2	50150.00
16	19181.62	60.12	0.859	0.30 (0.27)	0.89	14162.8	31100.00
17	20783.79	73.66	0.793	0.30 (0.27)	0.91	19293.2	40100.00
18	21492.17	82.54	0.749	0.30 (0.27)	0.92	22537.9	11801.00
19	22840.29	95.85	0.695	0.30 (0.28)	0.93	28235.0	11530.00
20	23763.60	103.89	0.673	0.30 (0.28)	0.93	32547.0	11900.00
21	25258.76	113.31	0.646	0.30 (0.28)	0.94	38689.4	11330.00
22	26001.57	121.40	0.625	0.30 (0.28)	0.95	43776.6	10630.00
23	25827.26	126.99	0.615	0.30 (0.29)	0.95	46366.4	12330.00
24	25649.90	133.62	0.604	0.30 (0.29)	0.95	49508.9	11600.00

25	25342.06	139.42	0.594	0.30 (0.29)	0.96	51743.2	11111.00
26	24995.98	145.59	0.584	0.30 (0.29)	0.96	53677.1	12201.00
27	24181.88	154.61	0.568	0.30 (0.29)	0.96	55765.3	12231.00
28	23426.79	162.18	0.555	0.30 (0.29)	0.96	57176.9	10400.00
29	22216.42	173.74	0.536	0.30 (0.29)	0.96	58797.6	10320.00
30	21590.71	178.68	0.527	0.30 (0.29)	0.96	59023.1	10210.00
31	21042.55	183.62	0.522	0.30 (0.29)	0.96	59185.5	12000.00
32	18275.13	213.24	0.499	0.30 (0.29)	0.96	59802.5	10100.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13410.00 =							124119.34 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1521.80	30.81	1.233	0.30 (0.27)	0.90	1440.9	110.00
2	1573.72	33.19	1.190	0.30 (0.27)	0.90	1597.0	100.00
3	1590.73	34.56	1.165	0.30 (0.27)	0.90	1678.1	100.00
4	1600.63	37.85	1.105	0.30 (0.27)	0.91	1850.3	130.00
5	1651.13	52.91	0.922	0.30 (0.28)	0.93	2602.0	20100.00
6	1611.81	59.35	0.866	0.30 (0.28)	0.93	2797.2	13600.00
7	1408.16	100.08	0.683	0.30 (0.28)	0.93	3789.3	13510.00
8	1318.82	111.28	0.652	0.30 (0.28)	0.93	3859.7	13500.00
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13410.00 =							41710.10 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13371.93	16.01	1.805	0.30 (0.25)	0.85	3073.3	429.00
2	14043.34	17.60	1.719	0.30 (0.25)	0.85	3522.8	425.00
3	14118.23	17.87	1.705	0.30 (0.25)	0.85	3598.5	400.00
4	14331.58	19.48	1.618	0.30 (0.25)	0.85	4040.5	300.00
5	15151.50	23.00	1.469	0.30 (0.25)	0.84	5004.8	50700.00
6	15546.82	24.87	1.393	0.30 (0.25)	0.84	5496.3	210.00
7	15768.31	25.98	1.361	0.30 (0.25)	0.84	5777.3	50600.00
8	15952.69	26.82	1.337	0.30 (0.25)	0.84	6007.9	410.00
9	16218.25	28.03	1.303	0.30 (0.25)	0.84	6341.0	200.00
10	16364.82	28.71	1.284	0.30 (0.25)	0.85	6527.8	230.00
11	16489.31	29.33	1.267	0.30 (0.25)	0.85	6690.9	50500.00
12	16566.68	29.86	1.252	0.30 (0.25)	0.85	6830.4	220.50
13	16717.19	30.81	1.233	0.30 (0.25)	0.85	7075.8	110.00
14	17101.29	33.19	1.190	0.30 (0.25)	0.85	7737.1	100.00
15	17309.80	34.56	1.165	0.30 (0.25)	0.85	8109.4	100.00
16	17503.53	35.92	1.140	0.30 (0.26)	0.85	8468.9	110.00
17	17796.76	37.85	1.105	0.30 (0.26)	0.85	9131.1	130.00
18	19024.43	45.92	0.996	0.30 (0.26)	0.87	11878.0	150.00
19	19688.58	50.43	0.944	0.30 (0.26)	0.87	13318.7	50150.00
20	19987.06	52.91	0.922	0.30 (0.26)	0.88	14291.1	20100.00
21	20703.88	59.35	0.866	0.30 (0.27)	0.89	16698.1	13600.00
22	20789.61	60.12	0.859	0.30 (0.27)	0.89	16978.6	31100.00
23	22324.04	73.66	0.793	0.30 (0.27)	0.91	22439.1	40100.00
24	22988.02	82.54	0.749	0.30 (0.28)	0.92	25900.1	11801.00
25	24269.57	95.85	0.695	0.30 (0.28)	0.93	31921.4	11530.00
26	24733.58	100.08	0.683	0.30 (0.28)	0.93	34289.9	13510.00
27	25141.34	103.89	0.673	0.30 (0.28)	0.93	36360.3	11900.00
28	26254.83	111.28	0.652	0.30 (0.28)	0.94	41223.1	13500.00
29	26557.12	113.31	0.646	0.30 (0.28)	0.94	42549.1	11330.00
30	27224.26	121.40	0.625	0.30 (0.28)	0.95	47636.3	10630.00
31	27016.23	126.99	0.615	0.30 (0.28)	0.95	50226.1	12330.00
32	26798.88	133.62	0.604	0.30 (0.29)	0.95	53368.6	11600.00

33	26456.04	139.42	0.594	0.30 (0.29)	0.95	55602.9	11111.00
34	26072.77	145.59	0.584	0.30 (0.29)	0.95	57536.8	12201.00
35	25204.25	154.61	0.568	0.30 (0.29)	0.96	59625.0	12231.00
36	24403.48	162.18	0.555	0.30 (0.29)	0.96	61036.6	10400.00
37	23123.38	173.74	0.536	0.30 (0.29)	0.96	62657.3	10320.00
38	22467.89	178.68	0.527	0.30 (0.29)	0.96	62882.8	10210.00
39	21901.84	183.62	0.522	0.30 (0.29)	0.96	63045.2	12000.00
40	19053.26	213.24	0.499	0.30 (0.29)	0.96	63662.1	10100.00
TOTAL AREA (ACRES) =							63662.1

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 27224.26 Tc (MIN.) = 121.402
EFFECTIVE AREA (ACRES) = 47636.27 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.89
TOTAL AREA (ACRES) = 63662.1
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13410.00 = 124119.34 FEET.

FLOW PROCESS FROM NODE 13410.00 TO NODE 13412.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 178.72 DOWNSTREAM (FEET) = 176.93
CHANNEL LENGTH THRU SUBAREA (FEET) = 169.78 CHANNEL SLOPE = 0.0105
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 6.92
CHANNEL FLOW THRU SUBAREA (CFS) = 27224.26
FLOW VELOCITY (FEET/SEC.) = 16.78 FLOW DEPTH (FEET) = 6.92
TRAVEL TIME (MIN.) = 0.17 Tc (MIN.) = 121.57
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13412.00 = 124289.12 FEET.

FLOW PROCESS FROM NODE 13412.00 TO NODE 13412.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 13412.00 TO NODE 13412.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 0506101E.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	366.95	40.42	0.30 (0.30)	0.98	591.0	10100.00
TOTAL AREA (ACRES) =						591.0

FLOW PROCESS FROM NODE 13412.00 TO NODE 13412.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13371.93	16.23	1.793	0.30 (0.25)	0.85	3073.3	429.00
2	14043.34	17.81	1.708	0.30 (0.25)	0.85	3522.8	425.00
3	14118.23	18.08	1.693	0.30 (0.25)	0.85	3598.5	400.00
4	14331.58	19.69	1.607	0.30 (0.25)	0.85	4040.5	300.00
5	15151.50	23.21	1.461	0.30 (0.25)	0.84	5004.8	50700.00
6	15546.82	25.07	1.386	0.30 (0.25)	0.84	5496.3	210.00
7	15768.31	26.18	1.355	0.30 (0.25)	0.84	5777.3	50600.00
8	15952.69	27.02	1.331	0.30 (0.25)	0.84	6007.9	410.00
9	16218.25	28.23	1.297	0.30 (0.25)	0.84	6341.0	200.00
10	16364.82	28.92	1.278	0.30 (0.25)	0.85	6527.8	230.00
11	16489.31	29.53	1.261	0.30 (0.25)	0.85	6690.9	50500.00
12	16566.68	30.06	1.247	0.30 (0.25)	0.85	6830.4	220.50
13	16717.19	31.00	1.230	0.30 (0.25)	0.85	7075.8	110.00
14	17101.29	33.38	1.186	0.30 (0.25)	0.85	7737.1	100.00
15	17309.80	34.76	1.161	0.30 (0.25)	0.85	8109.4	100.00
16	17503.53	36.11	1.137	0.30 (0.26)	0.85	8468.9	110.00
17	17796.76	38.05	1.102	0.30 (0.26)	0.85	9131.1	130.00
18	19024.43	46.11	0.994	0.30 (0.26)	0.87	11878.0	150.00
19	19688.58	50.62	0.943	0.30 (0.26)	0.87	13318.7	50150.00
20	19987.06	53.09	0.921	0.30 (0.26)	0.88	14291.1	20100.00
21	20703.88	59.54	0.864	0.30 (0.27)	0.89	16698.1	13600.00
22	20789.61	60.30	0.859	0.30 (0.27)	0.89	16978.6	31100.00
23	22324.04	73.84	0.792	0.30 (0.27)	0.91	22439.1	40100.00
24	22988.02	82.72	0.748	0.30 (0.28)	0.92	25900.1	11801.00
25	24269.57	96.03	0.695	0.30 (0.28)	0.93	31921.4	11530.00
26	24733.58	100.25	0.683	0.30 (0.28)	0.93	34289.9	13510.00
27	25141.34	104.06	0.672	0.30 (0.28)	0.93	36360.3	11900.00
28	26254.83	111.45	0.651	0.30 (0.28)	0.94	41223.2	13500.00
29	26557.12	113.48	0.645	0.30 (0.28)	0.94	42549.1	11330.00
30	27224.26	121.57	0.624	0.30 (0.28)	0.95	47636.3	10630.00
31	27016.23	127.16	0.615	0.30 (0.28)	0.95	50226.1	12330.00
32	26798.88	133.79	0.604	0.30 (0.29)	0.95	53368.6	11600.00
33	26456.04	139.59	0.594	0.30 (0.29)	0.95	55602.9	11111.00
34	26072.77	145.76	0.583	0.30 (0.29)	0.95	57536.8	12201.00
35	25204.25	154.78	0.568	0.30 (0.29)	0.96	59625.0	12231.00
36	24403.48	162.36	0.555	0.30 (0.29)	0.96	61036.6	10400.00
37	23123.38	173.92	0.535	0.30 (0.29)	0.96	62657.3	10320.00
38	22467.89	178.86	0.527	0.30 (0.29)	0.96	62882.8	10210.00
39	21901.84	183.80	0.522	0.30 (0.29)	0.96	63045.2	12000.00
40	19053.26	213.43	0.499	0.30 (0.29)	0.96	63662.1	10100.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13412.00 =							124289.12 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	366.95	40.42	1.061	0.30 (0.30)	0.98	591.0	10100.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13412.00 =							14677.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13660.00	16.23	1.793	0.30 (0.26)	0.86	3310.5	429.00
2	14341.53	17.81	1.708	0.30 (0.26)	0.86	3783.2	425.00
3	14417.83	18.08	1.693	0.30 (0.26)	0.86	3862.9	400.00
4	14637.66	19.69	1.607	0.30 (0.26)	0.85	4328.4	300.00
5	15472.02	23.21	1.461	0.30 (0.26)	0.85	5344.0	50700.00

6	15870.98	25.07	1.386	0.30	(0.26)	0.85	5862.9	210.00
7	16097.17	26.18	1.355	0.30	(0.26)	0.85	6160.0	50600.00
8	16284.57	27.02	1.331	0.30	(0.26)	0.85	6402.9	410.00
9	16553.66	28.23	1.297	0.30	(0.26)	0.85	6753.8	200.00
10	16701.79	28.92	1.278	0.30	(0.26)	0.85	6950.6	230.00
11	16827.41	29.53	1.261	0.30	(0.26)	0.85	7122.6	50500.00
12	16905.76	30.06	1.247	0.30	(0.26)	0.85	7269.8	220.50
13	17060.63	31.00	1.230	0.30	(0.26)	0.85	7529.1	110.00
14	17453.96	33.38	1.186	0.30	(0.26)	0.86	8225.2	100.00
15	17666.67	34.76	1.161	0.30	(0.26)	0.86	8617.5	100.00
16	17863.77	36.11	1.137	0.30	(0.26)	0.86	8996.9	110.00
17	18160.41	38.05	1.102	0.30	(0.26)	0.86	9687.4	130.00
18	18525.88	40.42	1.061	0.30	(0.26)	0.87	10532.5	10100.00
19	19359.24	46.11	0.994	0.30	(0.26)	0.87	12469.0	150.00
20	19998.79	50.62	0.943	0.30	(0.26)	0.88	13909.7	50150.00
21	20286.85	53.09	0.921	0.30	(0.26)	0.88	14882.1	20100.00
22	20976.49	59.54	0.864	0.30	(0.27)	0.89	17289.1	13600.00
23	21059.56	60.30	0.859	0.30	(0.27)	0.90	17569.6	31100.00
24	22561.99	73.84	0.792	0.30	(0.27)	0.91	23030.1	40100.00
25	23204.99	82.72	0.748	0.30	(0.28)	0.92	26491.1	11801.00
26	24461.15	96.03	0.695	0.30	(0.28)	0.93	32512.4	11530.00
27	24919.43	100.25	0.683	0.30	(0.28)	0.93	34880.9	13510.00
28	25322.01	104.06	0.672	0.30	(0.28)	0.94	36951.3	11900.00
29	26425.47	111.45	0.651	0.30	(0.28)	0.94	41814.2	13500.00
30	26725.01	113.48	0.645	0.30	(0.28)	0.94	43140.1	11330.00
31	27382.02	121.57	0.624	0.30	(0.28)	0.95	48227.3	10630.00
32	27169.44	127.16	0.615	0.30	(0.29)	0.95	50817.1	12330.00
33	26946.69	133.79	0.604	0.30	(0.29)	0.95	53959.6	11600.00
34	26599.12	139.59	0.594	0.30	(0.29)	0.95	56193.9	11111.00
35	26210.83	145.76	0.583	0.30	(0.29)	0.96	58127.8	12201.00
36	25334.96	154.78	0.568	0.30	(0.29)	0.96	60216.0	12231.00
37	24528.03	162.36	0.555	0.30	(0.29)	0.96	61627.6	10400.00
38	23238.50	173.92	0.535	0.30	(0.29)	0.96	63248.3	10320.00
39	22579.00	178.86	0.527	0.30	(0.29)	0.96	63473.8	10210.00
40	22010.61	183.80	0.522	0.30	(0.29)	0.96	63636.2	12000.00
41	19151.06	213.43	0.499	0.30	(0.29)	0.96	64253.1	10100.00

TOTAL AREA (ACRES) = 64253.1

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 27382.02 Tc (MIN.) = 121.570
EFFECTIVE AREA (ACRES) = 48227.27 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA (ACRES) = 64253.1
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13412.00 = 124289.12 FEET.

FLOW PROCESS FROM NODE 13412.00 TO NODE 13700.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 176.93 DOWNSTREAM (FEET) = 170.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 260.10 CHANNEL SLOPE = 0.0266
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 5.31
CHANNEL FLOW THRU SUBAREA (CFS) = 27382.02
FLOW VELOCITY (FEET/SEC.) = 22.78 FLOW DEPTH (FEET) = 5.31

TRAVEL TIME (MIN.) = 0.19 Tc (MIN.) = 121.76
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13700.00 = 124549.22 FEET.

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 2 <<<<<
=====

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: 0610508V.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	143.78	21.90	0.30 (0.30)	0.99	131.3	50800.00
TOTAL AREA (ACRES) =			131.3			

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
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** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13660.00	16.47	1.780	0.30 (0.26)	0.86	3310.5	429.00
2	14341.53	18.05	1.695	0.30 (0.26)	0.86	3783.2	425.00
3	14417.83	18.32	1.680	0.30 (0.26)	0.86	3862.9	400.00
4	14637.66	19.93	1.594	0.30 (0.26)	0.85	4328.4	300.00
5	15472.02	23.44	1.451	0.30 (0.26)	0.85	5344.0	50700.00
6	15870.98	25.30	1.379	0.30 (0.26)	0.85	5862.9	210.00
7	16097.17	26.41	1.348	0.30 (0.26)	0.85	6160.0	50600.00
8	16284.57	27.25	1.325	0.30 (0.26)	0.85	6402.9	410.00
9	16553.66	28.46	1.291	0.30 (0.26)	0.85	6753.8	200.00
10	16701.79	29.14	1.272	0.30 (0.26)	0.85	6950.6	230.00
11	16827.41	29.75	1.255	0.30 (0.26)	0.85	7122.6	50500.00
12	16905.76	30.28	1.243	0.30 (0.26)	0.85	7269.8	220.50
13	17060.63	31.23	1.226	0.30 (0.26)	0.85	7529.1	110.00
14	17453.96	33.61	1.182	0.30 (0.26)	0.86	8225.2	100.00
15	17666.67	34.98	1.157	0.30 (0.26)	0.86	8617.5	100.00
16	17863.77	36.34	1.133	0.30 (0.26)	0.86	8996.9	110.00
17	18160.41	38.27	1.098	0.30 (0.26)	0.86	9687.4	130.00
18	18525.88	40.64	1.058	0.30 (0.26)	0.87	10532.5	10100.00
19	19359.24	46.32	0.991	0.30 (0.26)	0.87	12469.0	150.00
20	19998.79	50.83	0.941	0.30 (0.26)	0.88	13909.7	50150.00
21	20286.85	53.30	0.919	0.30 (0.26)	0.88	14882.1	20100.00
22	20976.49	59.75	0.862	0.30 (0.27)	0.89	17289.1	13600.00
23	21059.56	60.51	0.857	0.30 (0.27)	0.90	17569.6	31100.00
24	22561.99	74.05	0.791	0.30 (0.27)	0.91	23030.1	40100.00
25	23204.99	82.92	0.747	0.30 (0.28)	0.92	26491.1	11801.00
26	24461.15	96.23	0.694	0.30 (0.28)	0.93	32512.4	11530.00
27	24919.43	100.45	0.682	0.30 (0.28)	0.93	34880.9	13510.00
28	25322.01	104.26	0.672	0.30 (0.28)	0.94	36951.3	11900.00

29	26425.47	111.64	0.651	0.30 (0.28)	0.94	41814.2	13500.00
30	26725.01	113.67	0.645	0.30 (0.28)	0.94	43140.1	11330.00
31	27382.02	121.76	0.624	0.30 (0.28)	0.95	48227.3	10630.00
32	27169.44	127.35	0.615	0.30 (0.29)	0.95	50817.1	12330.00
33	26946.69	133.98	0.603	0.30 (0.29)	0.95	53959.6	11600.00
34	26599.12	139.79	0.593	0.30 (0.29)	0.95	56193.9	11111.00
35	26210.83	145.95	0.583	0.30 (0.29)	0.96	58127.8	12201.00
36	25334.96	154.98	0.568	0.30 (0.29)	0.96	60216.0	12231.00
37	24528.03	162.56	0.555	0.30 (0.29)	0.96	61627.6	10400.00
38	23238.50	174.12	0.535	0.30 (0.29)	0.96	63248.3	10320.00
39	22579.00	179.06	0.527	0.30 (0.29)	0.96	63473.8	10210.00
40	22010.61	184.01	0.522	0.30 (0.29)	0.96	63636.2	12000.00
41	19151.06	213.65	0.499	0.30 (0.29)	0.96	64253.1	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13700.00 = 124549.22 FEET.

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	143.78	21.90	1.513	0.30 (0.30)	0.99	131.3	50800.00

LONGEST FLOWPATH FROM NODE 50800.00 TO NODE 13700.00 = 5946.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13791.83	16.47	1.780	0.30 (0.26)	0.86	3409.2	429.00
2	14477.72	18.05	1.695	0.30 (0.26)	0.86	3891.3	425.00
3	14554.63	18.32	1.680	0.30 (0.26)	0.86	3972.7	400.00
4	14777.16	19.93	1.594	0.30 (0.26)	0.86	4447.9	300.00
5	15250.30	21.90	1.513	0.30 (0.26)	0.86	5030.4	50800.00
6	15608.46	23.44	1.451	0.30 (0.26)	0.86	5475.3	50700.00
7	15998.96	25.30	1.379	0.30 (0.26)	0.86	5994.1	210.00
8	16221.49	26.41	1.348	0.30 (0.26)	0.86	6291.3	50600.00
9	16406.11	27.25	1.325	0.30 (0.26)	0.86	6534.2	410.00
10	16671.20	28.46	1.291	0.30 (0.26)	0.86	6885.1	200.00
11	16817.07	29.14	1.272	0.30 (0.26)	0.86	7081.8	230.00
12	16940.67	29.75	1.255	0.30 (0.26)	0.86	7253.9	50500.00
13	17017.60	30.28	1.243	0.30 (0.26)	0.86	7401.1	220.50
14	17170.43	31.23	1.226	0.30 (0.26)	0.86	7660.4	110.00
15	17558.65	33.61	1.182	0.30 (0.26)	0.86	8356.5	100.00
16	17768.41	34.98	1.157	0.30 (0.26)	0.86	8748.8	100.00
17	17962.58	36.34	1.133	0.30 (0.26)	0.86	9128.2	110.00
18	18255.08	38.27	1.098	0.30 (0.26)	0.86	9818.6	130.00
19	18615.93	40.64	1.058	0.30 (0.26)	0.87	10663.8	10100.00
20	19441.36	46.32	0.991	0.30 (0.26)	0.87	12600.3	150.00
21	20074.92	50.83	0.941	0.30 (0.26)	0.88	14040.9	50150.00
22	20360.40	53.30	0.919	0.30 (0.27)	0.88	15013.3	20100.00
23	21043.35	59.75	0.862	0.30 (0.27)	0.89	17420.4	13600.00
24	21125.86	60.51	0.857	0.30 (0.27)	0.90	17700.9	31100.00
25	22620.39	74.05	0.791	0.30 (0.27)	0.91	23161.4	40100.00
26	23258.22	82.92	0.747	0.30 (0.28)	0.92	26622.3	11801.00
27	24508.17	96.23	0.694	0.30 (0.28)	0.93	32643.7	11530.00
28	24965.04	100.45	0.682	0.30 (0.28)	0.93	35012.2	13510.00
29	25366.34	104.26	0.672	0.30 (0.28)	0.94	37082.5	11900.00
30	26467.33	111.64	0.651	0.30 (0.28)	0.94	41945.5	13500.00
31	26766.19	113.67	0.645	0.30 (0.28)	0.94	43271.4	11330.00
32	27420.72	121.76	0.624	0.30 (0.28)	0.95	48358.5	10630.00
33	27207.03	127.35	0.615	0.30 (0.29)	0.95	50948.4	12330.00
34	26982.94	133.98	0.603	0.30 (0.29)	0.95	54090.8	11600.00

35	26634.20	139.79	0.593	0.30 (0.29)	0.95	56325.2	11111.00
36	26244.68	145.95	0.583	0.30 (0.29)	0.96	58259.0	12201.00
37	25367.00	154.98	0.568	0.30 (0.29)	0.96	60347.3	12231.00
38	24558.54	162.56	0.555	0.30 (0.29)	0.96	61758.8	10400.00
39	23266.69	174.12	0.535	0.30 (0.29)	0.96	63379.6	10320.00
40	22606.19	179.06	0.527	0.30 (0.29)	0.96	63605.1	10210.00
41	22037.25	184.01	0.522	0.30 (0.29)	0.96	63767.4	12000.00
42	19175.00	213.65	0.499	0.30 (0.29)	0.96	64384.4	10100.00

TOTAL AREA (ACRES) = 64384.4

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 27420.72 Tc(MIN.) = 121.760
EFFECTIVE AREA(ACRES) = 48358.53 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA (ACRES) = 64384.4
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13700.00 = 124549.22 FEET.

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 64384.4 TC(MIN.) = 121.76
EFFECTIVE AREA(ACRES) = 48358.53 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.948
PEAK FLOW RATE(CFS) = 27420.72

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13791.83	16.47	1.780	0.30 (0.26)	0.86	3409.2	429.00
2	14477.72	18.05	1.695	0.30 (0.26)	0.86	3891.3	425.00
3	14554.63	18.32	1.680	0.30 (0.26)	0.86	3972.7	400.00
4	14777.16	19.93	1.594	0.30 (0.26)	0.86	4447.9	300.00
5	15250.30	21.90	1.513	0.30 (0.26)	0.86	5030.4	50800.00
6	15608.46	23.44	1.451	0.30 (0.26)	0.86	5475.3	50700.00
7	15998.96	25.30	1.379	0.30 (0.26)	0.86	5994.1	210.00
8	16221.49	26.41	1.348	0.30 (0.26)	0.86	6291.3	50600.00
9	16406.11	27.25	1.325	0.30 (0.26)	0.86	6534.2	410.00
10	16671.20	28.46	1.291	0.30 (0.26)	0.86	6885.1	200.00
11	16817.07	29.14	1.272	0.30 (0.26)	0.86	7081.8	230.00
12	16940.67	29.75	1.255	0.30 (0.26)	0.86	7253.9	50500.00
13	17017.60	30.28	1.243	0.30 (0.26)	0.86	7401.1	220.50
14	17170.43	31.23	1.226	0.30 (0.26)	0.86	7660.4	110.00
15	17558.65	33.61	1.182	0.30 (0.26)	0.86	8356.5	100.00
16	17768.41	34.98	1.157	0.30 (0.26)	0.86	8748.8	100.00
17	17962.58	36.34	1.133	0.30 (0.26)	0.86	9128.2	110.00
18	18255.08	38.27	1.098	0.30 (0.26)	0.86	9818.6	130.00
19	18615.93	40.64	1.058	0.30 (0.26)	0.87	10663.8	10100.00
20	19441.36	46.32	0.991	0.30 (0.26)	0.87	12600.3	150.00
21	20074.92	50.83	0.941	0.30 (0.26)	0.88	14040.9	50150.00
22	20360.40	53.30	0.919	0.30 (0.27)	0.88	15013.3	20100.00
23	21043.35	59.75	0.862	0.30 (0.27)	0.89	17420.4	13600.00
24	21125.86	60.51	0.857	0.30 (0.27)	0.90	17700.9	31100.00
25	22620.39	74.05	0.791	0.30 (0.27)	0.91	23161.4	40100.00
26	23258.22	82.92	0.747	0.30 (0.28)	0.92	26622.3	11801.00
27	24508.17	96.23	0.694	0.30 (0.28)	0.93	32643.7	11530.00
28	24965.04	100.45	0.682	0.30 (0.28)	0.93	35012.2	13510.00
29	25366.34	104.26	0.672	0.30 (0.28)	0.94	37082.5	11900.00
30	26467.33	111.64	0.651	0.30 (0.28)	0.94	41945.5	13500.00
31	26766.19	113.67	0.645	0.30 (0.28)	0.94	43271.4	11330.00
32	27420.72	121.76	0.624	0.30 (0.28)	0.95	48358.5	10630.00

33	27207.03	127.35	0.615	0.30	(0.29)	0.95	50948.4	12330.00
34	26982.94	133.98	0.603	0.30	(0.29)	0.95	54090.8	11600.00
35	26634.20	139.79	0.593	0.30	(0.29)	0.95	56325.2	11111.00
36	26244.68	145.95	0.583	0.30	(0.29)	0.96	58259.0	12201.00
37	25367.00	154.98	0.568	0.30	(0.29)	0.96	60347.3	12231.00
38	24558.54	162.56	0.555	0.30	(0.29)	0.96	61758.8	10400.00
39	23266.69	174.12	0.535	0.30	(0.29)	0.96	63379.6	10320.00
40	22606.19	179.06	0.527	0.30	(0.29)	0.96	63605.1	10210.00
41	22037.25	184.01	0.522	0.30	(0.29)	0.96	63767.4	12000.00
42	19175.00	213.65	0.499	0.30	(0.29)	0.96	64384.4	10100.00

=====
=====
END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 136 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 10-YR EV MAY 2023 ROKAMOTO *

FILE NAME: RI10EV36.DAT
TIME/DATE OF STUDY: 14:49 05/09/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 3.720
- 2) 10.00; 2.487
- 3) 15.00; 1.851
- 4) 20.00; 1.582
- 5) 25.00; 1.382
- 6) 30.00; 1.244
- 7) 40.00; 1.061
- 8) 50.00; 0.944
- 9) 60.00; 0.855
- 10) 90.00; 0.707
- 11) 120.00; 0.622
- 12) 180.00; 0.520
- 13) 360.00; 0.381
- 14) 1200.00; 0.166

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0313	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13600.00 TO NODE 13600.50 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 488.61
ELEVATION DATA: UPSTREAM(FEET) = 872.12 DOWNSTREAM(FEET) = 744.80

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 10.995
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.360
SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
NATURAL FAIR COVER "OPEN BRUSH"	-	3.39	0.30	1.000	65	11.00

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF(CFS) = 6.29
TOTAL AREA(ACRES) = 3.39 PEAK FLOW RATE(CFS) = 6.29

FLOW PROCESS FROM NODE 13600.50 TO NODE 13601.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 744.80 DOWNSTREAM(FEET) = 707.32
CHANNEL LENGTH THRU SUBAREA(FEET) = 418.30 CHANNEL SLOPE = 0.0896
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.35
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.101
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	7.45	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 12.34
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 3.41
AVERAGE FLOW DEPTH(FEET) = 0.34 TRAVEL TIME(MIN.) = 2.04
Tc(MIN.) = 13.04
SUBAREA AREA(ACRES) = 7.45 SUBAREA RUNOFF(CFS) = 12.07
EFFECTIVE AREA(ACRES) = 10.84 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 10.8 PEAK FLOW RATE(CFS) = 17.57
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.42

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.42 FLOW VELOCITY(FEET/SEC.) = 3.89
LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13601.00 = 906.91 FEET.

FLOW PROCESS FROM NODE 13601.00 TO NODE 13602.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 707.32 DOWNSTREAM(FEET) = 657.12
CHANNEL LENGTH THRU SUBAREA(FEET) = 777.60 CHANNEL SLOPE = 0.0646
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.77
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.806

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.32	0.30	1.000	-
USER-DEFINED	-	4.70	0.30	1.000	-
USER-DEFINED	-	25.05	0.30	1.000	-
USER-DEFINED	-	0.45	0.30	1.000	-
USER-DEFINED	-	0.44	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 38.61

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.62

AVERAGE FLOW DEPTH(FEET) = 0.73 TRAVEL TIME(MIN.) = 2.81

Tc(MIN.) = 15.84

SUBAREA AREA(ACRES) = 30.96 SUBAREA RUNOFF(CFS) = 41.96
EFFECTIVE AREA(ACRES) = 41.80 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 41.8 PEAK FLOW RATE(CFS) = 56.64
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.91

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.91 FLOW VELOCITY(FEET/SEC.) = 5.26

LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13602.00 = 1684.51 FEET.

FLOW PROCESS FROM NODE 13602.00 TO NODE 13603.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 657.12 DOWNSTREAM(FEET) = 584.58
CHANNEL LENGTH THRU SUBAREA(FEET) = 1186.54 CHANNEL SLOPE = 0.0611
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.07
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.614

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	7.03	0.30	1.000	-
USER-DEFINED	-	2.51	0.30	1.000	-

USER-DEFINED - 1.52 0.30 1.000 -
USER-DEFINED - 12.30 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 70.48

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.56

AVERAGE FLOW DEPTH(FEET) = 1.05 TRAVEL TIME(MIN.) = 3.56

Tc(MIN.) = 19.40

SUBAREA AREA(ACRES) = 23.36 SUBAREA RUNOFF(CFS) = 27.63

EFFECTIVE AREA(ACRES) = 65.16 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 65.2 PEAK FLOW RATE(CFS) = 77.08

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.10

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.10 FLOW VELOCITY(FEET/SEC.) = 5.72

LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13603.00 = 2871.05 FEET.

FLOW PROCESS FROM NODE 13603.00 TO NODE 13620.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 584.58 DOWNSTREAM(FEET) = 544.91
CHANNEL LENGTH THRU SUBAREA(FEET) = 860.98 CHANNEL SLOPE = 0.0461
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.30
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.500

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	10.22	0.30	1.000	-
USER-DEFINED	-	4.19	0.30	1.000	-
USER-DEFINED	-	0.07	0.30	1.000	-
USER-DEFINED	-	1.11	0.30	1.000	-
USER-DEFINED	-	5.56	0.30	1.000	-
USER-DEFINED	-	0.09	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 88.56

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.44

AVERAGE FLOW DEPTH(FEET) = 1.29 TRAVEL TIME(MIN.) = 2.64

Tc(MIN.) = 22.04

SUBAREA AREA(ACRES) = 21.24 SUBAREA RUNOFF(CFS) = 22.95

EFFECTIVE AREA(ACRES) = 86.40 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 86.4 PEAK FLOW RATE(CFS) = 93.35

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.33

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.33 FLOW VELOCITY(FEET/SEC.) = 5.53

LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13620.00 = 3732.03 FEET.

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*****
FLOW PROCESS FROM NODE 13603.00 TO NODE 13620.00 IS CODE = 10
-----
>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
=====
*****
FLOW PROCESS FROM NODE 13522.00 TO NODE 13522.00 IS CODE = 15.1
-----
>>>>DEFINE MEMORY BANK # 2 <<<<<
=====
PEAK FLOWRATE TABLE FILE NAME: S35X10.DNA
MEMORY BANK # 2 DEFINED AS FOLLOWS:
STREAM      Q      Tc      Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.)  (INCH/HR)    (ACRES)  NODE
  1         688.52  58.84  0.30( 0.28) 0.95    1509.5  13510.00
  2         640.29  69.13  0.30( 0.28) 0.94    1579.8  13500.00
TOTAL AREA(ACRES) =      1579.8
*****
FLOW PROCESS FROM NODE 13522.00 TO NODE 13522.00 IS CODE = 14.0
-----
>>>>MEMORY BANK # 2 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====
MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
STREAM      Q      Tc      Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.)  (INCH/HR)    (ACRES)  NODE
  1         688.52  58.84  0.30( 0.28) 0.95    1509.5  13510.00
  2         640.29  69.13  0.30( 0.28) 0.94    1579.8  13500.00
TOTAL AREA(ACRES) =      1579.8
*****
FLOW PROCESS FROM NODE 13522.00 TO NODE 13620.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 632.19 DOWNSTREAM(FEET) = 544.91
CHANNEL LENGTH THRU SUBAREA( FEET) = 2062.96 CHANNEL SLOPE = 0.0423
GIVEN CHANNEL BASE( FEET) = 30.00 CHANNEL FREEBOARD( FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT( FEET) = 1.87
* 10 YEAR RAINFALL INTENSITY( INCH/HR) = 0.844
SUBAREA LOSS RATE DATA( AMC II):
DEVELOPMENT TYPE/      SCS SOIL      AREA      Fp      Ap      SCS
LAND USE              GROUP  (ACRES)  (INCH/HR)  (DECIMAL)  CN
USER-DEFINED          -          17.68     0.30     1.000     -
USER-DEFINED          -           2.36     0.30     1.000     -
USER-DEFINED          -           0.60     0.30     1.000     -
USER-DEFINED          -           0.22     0.30     1.000     -
USER-DEFINED          -           2.22     0.30     1.000     -
USER-DEFINED          -           3.42     0.30     1.000     -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp( INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW( CFS) = 695.01
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY( FEET/SEC.) = 10.42

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AVERAGE FLOW DEPTH( FEET) = 1.87 TRAVEL TIME( MIN.) = 3.30
Tc( MIN.) = 62.14
SUBAREA AREA( ACRES) = 26.50 SUBAREA RUNOFF( CFS) = 12.99
EFFECTIVE AREA( ACRES) = 1535.98 AREA-AVERAGED Fm( INCH/HR) = 0.28
AREA-AVERAGED Fp( INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA( ACRES) = 1606.3 PEAK FLOW RATE( CFS) = 774.35
GIVEN CHANNEL BASE( FEET) = 30.00 CHANNEL FREEBOARD( FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT( FEET) = 1.99

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH( FEET) = 1.99 FLOW VELOCITY( FEET/SEC.) = 10.79
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13620.00 = 20677.72 FEET.

** PEAK FLOW RATE TABLE **
STREAM      Q      Tc      Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.)  (INCH/HR)  (INCH/HR)  (ACRES)  NODE
  1         774.35  62.14     0.844  0.30( 0.28) 0.95    1536.0  13510.00
  2         736.87  72.51     0.793  0.30( 0.28) 0.95    1606.3  13500.00
NEW PEAK FLOW DATA ARE:
PEAK FLOW RATE( CFS) = 774.35 Tc( MIN.) = 62.14
AREA-AVERAGED Fm( INCH/HR) = 0.28 AREA-AVERAGED Fp( INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.95 EFFECTIVE AREA( ACRES) = 1535.98
*****
FLOW PROCESS FROM NODE 13620.00 TO NODE 13620.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====
MAINLINE Tc( MIN.) = 62.14
* 10 YEAR RAINFALL INTENSITY( INCH/HR) = 0.844
SUBAREA LOSS RATE DATA( AMC II):
DEVELOPMENT TYPE/      SCS SOIL      AREA      Fp      Ap      SCS
LAND USE              GROUP  (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"WOODLAND, GRASS"      B          1.44     0.30     1.000     65
NATURAL FAIR COVER
"WOODLAND, GRASS"      B           0.01     0.30     1.000     65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp( INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA( ACRES) = 1.45 SUBAREA RUNOFF( CFS) = 0.71
EFFECTIVE AREA( ACRES) = 1537.43 AREA-AVERAGED Fm( INCH/HR) = 0.28
AREA-AVERAGED Fp( INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA( ACRES) = 1607.8 PEAK FLOW RATE( CFS) = 775.06
*****
FLOW PROCESS FROM NODE 13603.00 TO NODE 13620.00 IS CODE = 11
-----
>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
=====
** MAIN STREAM CONFLUENCE DATA **
STREAM      Q      Tc      Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.)  (INCH/HR)  (INCH/HR)  (ACRES)  NODE
  1         775.06  62.14     0.844  0.30( 0.28) 0.95    1537.4  13510.00
  2         737.52  72.51     0.793  0.30( 0.28) 0.95    1607.8  13500.00
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13620.00 = 20677.72 FEET.

```

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	93.35	22.04	1.500	0.30(0.30)	1.00	86.4	13600.00

LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13620.00 = 3732.03 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	690.20	22.04	1.500	0.30(0.29)	0.96	631.7	13600.00
2	817.40	62.14	0.844	0.30(0.29)	0.95	1623.8	13510.00
3	775.88	72.51	0.793	0.30(0.28)	0.95	1694.2	13500.00

TOTAL AREA (ACRES) = 1694.2

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 817.40 Tc(MIN.) = 62.136
EFFECTIVE AREA(ACRES) = 1623.83 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
TOTAL AREA (ACRES) = 1694.2
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13620.00 = 20677.72 FEET.

FLOW PROCESS FROM NODE 13620.00 TO NODE 13640.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 544.91 DOWNSTREAM(FEET) = 489.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1384.37 CHANNEL SLOPE = 0.0404
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.10

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.834
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	5.39	0.30	1.000	-
USER-DEFINED	-	16.30	0.30	1.000	-
USER-DEFINED	-	4.08	0.30	1.000	-
USER-DEFINED	-	12.36	0.30	1.000	-
USER-DEFINED	-	11.23	0.30	1.000	-
USER-DEFINED	-	5.16	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 830.51
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.89
AVERAGE FLOW DEPTH(FEET) = 2.10 TRAVEL TIME(MIN.) = 2.12
Tc(MIN.) = 64.26
SUBAREA AREA(ACRES) = 54.52 SUBAREA RUNOFF(CFS) = 26.21
EFFECTIVE AREA(ACRES) = 1678.35 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 1748.7 PEAK FLOW RATE(CFS) = 828.33
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.10

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 2.10 FLOW VELOCITY(FEET/SEC.) = 10.90

LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13640.00 = 22062.09 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	694.12	24.27	1.411	0.30(0.29)	0.96	686.3	13600.00
2	828.33	64.26	0.834	0.30(0.29)	0.95	1678.3	13510.00
3	783.33	74.67	0.783	0.30(0.28)	0.95	1748.7	13500.00

NEW PEAK FLOW DATA ARE:
PEAK FLOW RATE(CFS) = 828.33 Tc(MIN.) = 64.26
AREA-AVERAGED Fm(INCH/HR) = 0.29 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.95 EFFECTIVE AREA(ACRES) = 1678.35

FLOW PROCESS FROM NODE 13640.00 TO NODE 13640.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 64.26
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.834
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	53.93	0.30	1.000	-
USER-DEFINED	-	0.45	0.30	1.000	-
USER-DEFINED	-	3.98	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 58.36 SUBAREA RUNOFF(CFS) = 28.05
EFFECTIVE AREA(ACRES) = 1736.71 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 1807.1 PEAK FLOW RATE(CFS) = 856.39

FLOW PROCESS FROM NODE 13640.00 TO NODE 13640.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: P201XX10.DNA
MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	158.08	17.90	0.30(0.26)	0.85	133.8	20100.00

TOTAL AREA(ACRES) = 133.8

FLOW PROCESS FROM NODE 13640.00 TO NODE 13640.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

=====

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	752.50	24.27	1.411	0.30(0.29)	0.96	744.6	13600.00
2	856.39	64.26	0.834	0.30(0.29)	0.95	1736.7	13510.00
3	808.68	74.67	0.783	0.30(0.29)	0.95	1807.1	13500.00

LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13640.00 = 22062.09 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 158.08 17.90 1.695 0.30(0.26) 0.85 133.8 20100.00
LONGEST FLOWPATH FROM NODE 20100.00 TO NODE 13640.00 = 5247.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 853.43 17.90 1.695 0.30(0.28) 0.94 683.2 20100.00
2 879.44 24.27 1.411 0.30(0.28) 0.95 878.4 13600.00
3 919.88 64.26 0.834 0.30(0.28) 0.95 1870.5 13510.00
4 866.53 74.67 0.783 0.30(0.28) 0.94 1940.9 13500.00
TOTAL AREA (ACRES) = 1940.9

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 919.88 Tc (MIN.) = 64.255
EFFECTIVE AREA (ACRES) = 1870.51 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 1940.9
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13640.00 = 22062.09 FEET.

FLOW PROCESS FROM NODE 13640.00 TO NODE 13641.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 489.00 DOWNSTREAM (FEET) = 436.89
CHANNEL LENGTH THRU SUBAREA (FEET) = 2994.52 CHANNEL SLOPE = 0.0174
GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 2.85
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.805

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.96 0.30 1.000 -
USER-DEFINED - 0.01 0.30 1.000 -
USER-DEFINED - 1.56 0.30 1.000 -
USER-DEFINED - 10.45 0.30 1.000 -
USER-DEFINED - 44.94 0.30 1.000 -
USER-DEFINED - 9.66 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 935.24
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.51
AVERAGE FLOW DEPTH (FEET) = 2.85 TRAVEL TIME (MIN.) = 5.86
Tc (MIN.) = 70.12
SUBAREA AREA (ACRES) = 67.58 SUBAREA RUNOFF (CFS) = 30.72
EFFECTIVE AREA (ACRES) = 1938.09 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 2008.4 PEAK FLOW RATE (CFS) = 919.88
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 2.83

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 2.83 FLOW VELOCITY (FEET/SEC.) = 8.46
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13641.00 = 25056.61 FEET.

** PEAK FLOW RATE TABLE **

STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 853.43 23.86 1.428 0.30(0.28) 0.95 750.8 20100.00
2 879.44 30.19 1.241 0.30(0.28) 0.95 946.0 13600.00
3 919.88 70.12 0.805 0.30(0.28) 0.95 1938.1 13510.00
4 866.53 80.65 0.753 0.30(0.28) 0.95 2008.4 13500.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE (CFS) = 919.88 Tc (MIN.) = 70.12
AREA-AVERAGED Fm (INCH/HR) = 0.28 AREA-AVERAGED Fp (INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.95 EFFECTIVE AREA (ACRES) = 1938.09

FLOW PROCESS FROM NODE 13641.00 TO NODE 13641.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 70.12

* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.805

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 16.49 0.30 1.000 -
USER-DEFINED - 20.39 0.30 1.000 -
USER-DEFINED - 7.02 0.30 1.000 -
USER-DEFINED - 12.58 0.30 1.000 -
USER-DEFINED - 42.49 0.30 1.000 -
USER-DEFINED - 5.73 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 104.70 SUBAREA RUNOFF (CFS) = 47.60
EFFECTIVE AREA (ACRES) = 2042.79 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 2113.1 PEAK FLOW RATE (CFS) = 955.58

FLOW PROCESS FROM NODE 13641.00 TO NODE 13641.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 70.12

* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.805

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 1.78 0.30 1.000 -
USER-DEFINED - 6.25 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 8.03 SUBAREA RUNOFF (CFS) = 3.65
EFFECTIVE AREA (ACRES) = 2050.82 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95

TOTAL AREA (ACRES) = 2121.2 PEAK FLOW RATE (CFS) = 959.23

FLOW PROCESS FROM NODE 13641.00 TO NODE 13642.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 436.89 DOWNSTREAM(FEET) = 394.80

CHANNEL LENGTH THRU SUBAREA(FEET) = 2814.16 CHANNEL SLOPE = 0.0150

GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 3.10

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.777

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.67	0.30	1.000	-
USER-DEFINED	-	24.24	0.30	1.000	-
USER-DEFINED	-	1.34	0.30	1.000	-
USER-DEFINED	-	74.98	0.30	1.000	-
USER-DEFINED	-	101.12	0.30	1.000	-
USER-DEFINED	-	16.90	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1006.31

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 8.26

AVERAGE FLOW DEPTH(FEET) = 3.10 TRAVEL TIME(MIN.) = 5.68

Tc(MIN.) = 75.80

SUBAREA AREA(ACRES) = 219.25 SUBAREA RUNOFF(CFS) = 94.15

EFFECTIVE AREA(ACRES) = 2270.07 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96

TOTAL AREA(ACRES) = 2340.4 PEAK FLOW RATE(CFS) = 1001.67

GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 3.09

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 3.09 FLOW VELOCITY(FEET/SEC.) = 8.26

LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13642.00 = 27870.77 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	942.27	29.58	1.256	0.30(0.29)	0.96	1082.8	20100.00
2	974.92	35.88	1.136	0.30(0.29)	0.96	1278.0	13600.00
3	1001.67	75.80	0.777	0.30(0.29)	0.96	2270.1	13510.00
4	923.24	86.45	0.725	0.30(0.29)	0.95	2340.4	13500.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 1001.67 Tc(MIN.) = 75.80

AREA-AVERAGED Fm(INCH/HR) = 0.29 AREA-AVERAGED Fp(INCH/HR) = 0.30

AREA-AVERAGED Ap = 0.96 EFFECTIVE AREA(ACRES) = 2270.07

FLOW PROCESS FROM NODE 13642.00 TO NODE 13642.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 75.80

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.777

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	9.95	0.30	1.000	-
USER-DEFINED	-	10.02	0.30	1.000	-
USER-DEFINED	-	4.45	0.30	1.000	-
USER-DEFINED	-	179.37	0.30	1.000	-
USER-DEFINED	-	11.47	0.30	1.000	-
USER-DEFINED	-	0.17	0.30	0.850	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA(ACRES) = 215.43 SUBAREA RUNOFF(CFS) = 92.52

EFFECTIVE AREA(ACRES) = 2485.50 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96

TOTAL AREA(ACRES) = 2555.9 PEAK FLOW RATE(CFS) = 1094.18

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1127.58	29.58	1.256	0.30(0.29)	0.97	1298.2	20100.00
2	1137.09	35.88	1.136	0.30(0.29)	0.97	1493.4	13600.00
3	1094.18	75.80	0.777	0.30(0.29)	0.96	2485.5	13510.00
4	1005.57	86.45	0.725	0.30(0.29)	0.96	2555.9	13500.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 1137.09 Tc(MIN.) = 35.88

AREA-AVERAGED Fm(INCH/HR) = 0.29 AREA-AVERAGED Fp(INCH/HR) = 0.30

AREA-AVERAGED Ap = 0.97 EFFECTIVE AREA(ACRES) = 1493.41

FLOW PROCESS FROM NODE 13642.00 TO NODE 13642.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 35.88

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.136

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.03	0.30	0.850	-
USER-DEFINED	-	5.14	0.30	1.000	-
USER-DEFINED	-	11.22	0.30	1.000	-
USER-DEFINED	-	0.33	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA(ACRES) = 16.72 SUBAREA RUNOFF(CFS) = 12.59

EFFECTIVE AREA(ACRES) = 1510.13 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97

TOTAL AREA(ACRES) = 2572.6 PEAK FLOW RATE(CFS) = 1149.68

FLOW PROCESS FROM NODE 13642.00 TO NODE 13643.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 394.80 DOWNSTREAM(FEET) = 342.39

CHANNEL LENGTH THRU SUBAREA(FEET) = 2913.57 CHANNEL SLOPE = 0.0180

GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 3.25
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.048
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.22	0.30	1.000	-
USER-DEFINED	-	2.17	0.30	1.000	-
USER-DEFINED	-	9.19	0.30	1.000	-
USER-DEFINED	-	67.57	0.30	1.000	-
USER-DEFINED	-	35.19	0.30	1.000	-
USER-DEFINED	-	30.67	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 1198.50
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 9.29
 AVERAGE FLOW DEPTH (FEET) = 3.25 TRAVEL TIME (MIN.) = 5.22
 Tc (MIN.) = 41.11
 SUBAREA AREA (ACRES) = 145.01 SUBAREA RUNOFF (CFS) = 97.63
 EFFECTIVE AREA (ACRES) = 1655.14 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97
 TOTAL AREA (ACRES) = 2717.6 PEAK FLOW RATE (CFS) = 1149.68
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 3.17

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 3.17 FLOW VELOCITY (FEET/SEC.) = 9.18
 LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13643.00 = 30784.34 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1141.97	34.79	1.156	0.30 (0.29)	0.97	1459.9	20100.00
2	1149.68	41.11	1.048	0.30 (0.29)	0.97	1655.1	13600.00
3	1101.36	81.12	0.751	0.30 (0.29)	0.96	2647.2	13510.00
4	1011.96	91.91	0.702	0.30 (0.29)	0.96	2717.6	13500.00

NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE (CFS) = 1149.68 Tc (MIN.) = 41.11
 AREA-AVERAGED Fm (INCH/HR) = 0.29 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.97 EFFECTIVE AREA (ACRES) = 1655.14

 FLOW PROCESS FROM NODE 13643.00 TO NODE 13643.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc (MIN.) = 41.11
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.048

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.89	0.30	1.000	-
USER-DEFINED	-	20.65	0.30	1.000	-
USER-DEFINED	-	2.69	0.30	1.000	-
USER-DEFINED	-	8.45	0.30	1.000	-

USER-DEFINED - 96.93 0.30 1.000 -
 USER-DEFINED - 13.19 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 142.80 SUBAREA RUNOFF (CFS) = 96.14
 EFFECTIVE AREA (ACRES) = 1797.94 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97
 TOTAL AREA (ACRES) = 2860.4 PEAK FLOW RATE (CFS) = 1223.45

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1246.17	34.79	1.156	0.30 (0.29)	0.97	1602.7	20100.00
2	1223.45	41.11	1.048	0.30 (0.29)	0.97	1797.9	13600.00
3	1159.10	81.12	0.751	0.30 (0.29)	0.96	2790.0	13510.00
4	1062.94	91.91	0.702	0.30 (0.29)	0.96	2860.4	13500.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE (CFS) = 1246.17 Tc (MIN.) = 34.79
 AREA-AVERAGED Fm (INCH/HR) = 0.29 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.97 EFFECTIVE AREA (ACRES) = 1602.73

 FLOW PROCESS FROM NODE 13643.00 TO NODE 13643.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc (MIN.) = 34.79
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.156

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	42.54	0.30	1.000	-
USER-DEFINED	-	16.96	0.30	1.000	-
USER-DEFINED	-	80.60	0.30	1.000	-
USER-DEFINED	-	1.56	0.30	1.000	-
USER-DEFINED	-	2.00	0.30	1.000	-
USER-DEFINED	-	3.11	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 146.77 SUBAREA RUNOFF (CFS) = 113.12
 EFFECTIVE AREA (ACRES) = 1749.50 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 3007.2 PEAK FLOW RATE (CFS) = 1359.28

 FLOW PROCESS FROM NODE 13643.00 TO NODE 13660.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

 ELEVATION DATA: UPSTREAM (FEET) = 342.39 DOWNSTREAM (FEET) = 300.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1591.23 CHANNEL SLOPE = 0.0266
 GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 3.15
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.113
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
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LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 0.89 0.30 1.000 -
 USER-DEFINED - 23.73 0.30 1.000 -
 USER-DEFINED - 0.27 0.30 1.000 -
 USER-DEFINED - 19.87 0.30 1.000 -
 USER-DEFINED - 6.40 0.30 1.000 -
 USER-DEFINED - 3.14 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1379.14
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.11
 AVERAGE FLOW DEPTH(FEET) = 3.15 TRAVEL TIME(MIN.) = 2.39
 Tc(MIN.) = 37.18
 SUBAREA AREA(ACRES) = 54.30 SUBAREA RUNOFF(CFS) = 39.72
 EFFECTIVE AREA(ACRES) = 1803.80 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA(ACRES) = 3061.5 PEAK FLOW RATE(CFS) = 1359.28
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 3.12

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 3.12 FLOW VELOCITY(FEET/SEC.) = 11.08
 LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13660.00 = 32375.57 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1359.28	37.18	1.113	0.30(0.29)	0.98	1803.8	20100.00
2	1322.27	43.52	1.020	0.30(0.29)	0.98	1999.0	13600.00
3	1218.66	83.59	0.739	0.30(0.29)	0.97	2991.1	13510.00
4	1115.99	94.45	0.694	0.30(0.29)	0.96	3061.5	13500.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 1359.28 Tc(MIN.) = 37.18
 AREA-AVERAGED Fm(INCH/HR) = 0.29 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.98 EFFECTIVE AREA(ACRES) = 1803.80

 FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 37.18
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.113

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.67	0.30	1.000	-
USER-DEFINED	-	9.52	0.30	1.000	-
USER-DEFINED	-	0.71	0.30	1.000	-
USER-DEFINED	-	0.22	0.30	1.000	-
USER-DEFINED	-	39.42	0.30	1.000	-
USER-DEFINED	-	0.62	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 51.16 SUBAREA RUNOFF(CFS) = 37.42
 EFFECTIVE AREA(ACRES) = 1854.96 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA(ACRES) = 3112.6 PEAK FLOW RATE(CFS) = 1367.67

 FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 37.18
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.113

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.11	0.30	1.000	-
USER-DEFINED	-	0.77	0.30	1.000	-
USER-DEFINED	-	0.22	0.30	1.000	-
USER-DEFINED	-	2.69	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 3.79 SUBAREA RUNOFF(CFS) = 2.77
 EFFECTIVE AREA(ACRES) = 1858.75 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA(ACRES) = 3116.4 PEAK FLOW RATE(CFS) = 1370.44

 FLOW PROCESS FROM NODE 13643.00 TO NODE 13660.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

 FLOW PROCESS FROM NODE 13659.00 TO NODE 13659.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 2P10EVAA.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	369.81	15.08	0.30(0.11)	0.36	172.7	110.00
2	370.44	17.62	0.30(0.11)	0.37	203.0	100.00
3	361.39	19.04	0.30(0.11)	0.38	213.7	100.00
4	316.02	22.37	0.30(0.12)	0.40	221.1	130.00
TOTAL AREA(ACRES) =		221.1				

 FLOW PROCESS FROM NODE 13659.00 TO NODE 13660.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<

>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 338.00 DOWNSTREAM(FEET) = 300.00
 FLOW LENGTH(FEET) = 881.07 MANNING'S N = 0.013
 DEPTH OF FLOW IN 87.0 INCH PIPE IS 70.7 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 38.17
 ESTIMATED PIPE DIAMETER(INCH) = 87.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 1370.44
 PIPE TRAVEL TIME(MIN.) = 0.38 Tc(MIN.) = 37.56

LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13660.00 = 33256.64 FEET.

FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1370.44	37.56	1.106	0.30(0.29)	0.98	1858.7	20100.00
2	1343.78	43.90	1.015	0.30(0.29)	0.98	2054.0	13600.00
3	1229.56	83.98	0.737	0.30(0.29)	0.97	3046.0	13510.00
4	1135.31	94.85	0.693	0.30(0.29)	0.97	3116.4	13500.00

LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13660.00 = 33256.64 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	369.81	15.08	1.847	0.30(0.11)	0.36	172.7	110.00
2	370.44	17.62	1.710	0.30(0.11)	0.37	203.0	100.00
3	361.39	19.04	1.634	0.30(0.11)	0.38	213.7	100.00
4	316.02	22.37	1.487	0.30(0.12)	0.40	221.1	130.00

LONGEST FLOWPATH FROM NODE 130.00 TO NODE 13660.00 = 6327.50 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1421.87	15.08	1.847	0.30(0.26)	0.86	918.7	110.00
2	1491.67	17.62	1.710	0.30(0.26)	0.86	1074.8	100.00
3	1507.68	19.04	1.634	0.30(0.26)	0.87	1155.9	100.00
4	1515.65	22.37	1.487	0.30(0.26)	0.88	1328.1	130.00
5	1598.25	37.56	1.106	0.30(0.28)	0.92	2079.8	20100.00
6	1550.73	43.90	1.015	0.30(0.28)	0.92	2275.1	13600.00
7	1372.07	83.98	0.737	0.30(0.28)	0.93	3267.1	13510.00
8	1267.78	94.85	0.693	0.30(0.28)	0.93	3337.5	13500.00

TOTAL AREA (ACRES) = 3337.5

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 1598.25 Tc(MIN.) = 37.564
EFFECTIVE AREA(ACRES) = 2079.85 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.86
TOTAL AREA (ACRES) = 3337.5
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13660.00 = 33256.64 FEET.

FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 37.56

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.106

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "FALLOW"	B	1.11	0.30	1.000	86

AGRICULTURAL POOR COVER

"FALLOW"	B	0.44	0.30	1.000	86
NATURAL FAIR COVER "GRASS"	B	1.49	0.30	1.000	69
NATURAL FAIR COVER "GRASS"	B	1.70	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	1.09	0.30	1.000	66
NATURAL FAIR COVER "OPEN BRUSH"	B	18.57	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 24.40 SUBAREA RUNOFF(CFS) = 17.69
EFFECTIVE AREA(ACRES) = 2104.25 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA(ACRES) = 3361.9 PEAK FLOW RATE(CFS) = 1598.25
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 37.56

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.106

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL FAIR COVER "ORCHARDS"	B	12.39	0.30	1.000	65
AGRICULTURAL FAIR COVER "ORCHARDS"	B	2.30	0.30	1.000	65
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	5.19	0.30	1.000	79
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	28.71	0.30	1.000	81
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.17	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 48.76 SUBAREA RUNOFF(CFS) = 35.35
EFFECTIVE AREA(ACRES) = 2153.01 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA(ACRES) = 3410.7 PEAK FLOW RATE(CFS) = 1607.75

FLOW PROCESS FROM NODE 13660.00 TO NODE 13680.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 300.00 DOWNSTREAM(FEET) = 288.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 933.89 CHANNEL SLOPE = 0.0128
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 4.19
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.074
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 0.22 0.30 1.000 -
 USER-DEFINED - 9.23 0.30 1.000 -
 USER-DEFINED - 0.54 0.30 1.000 -
 USER-DEFINED - 5.66 0.30 1.000 -
 USER-DEFINED - 3.66 0.30 1.000 -
 USER-DEFINED - 0.67 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1614.71
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.06
 AVERAGE FLOW DEPTH(FEET) = 4.19 TRAVEL TIME(MIN.) = 1.72
 Tc(MIN.) = 39.28
 SUBAREA AREA(ACRES) = 19.98 SUBAREA RUNOFF(CFS) = 13.92
 EFFECTIVE AREA(ACRES) = 2172.99 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3430.6 PEAK FLOW RATE(CFS) = 1607.75
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 4.18

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 4.18 FLOW VELOCITY(FEET/SEC.) = 9.05
 LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13680.00 = 34190.53 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1421.87	16.86	1.751	0.30(0.26)	0.88	1011.8	110.00
2	1496.44	19.37	1.616	0.30(0.26)	0.87	1168.0	100.00
3	1516.47	20.79	1.550	0.30(0.26)	0.88	1249.0	100.00
4	1539.45	24.11	1.418	0.30(0.27)	0.89	1421.3	130.00
5	1607.75	39.28	1.074	0.30(0.28)	0.92	2173.0	20100.00
6	1560.66	45.63	0.995	0.30(0.28)	0.92	2368.2	13600.00
7	1375.63	85.78	0.728	0.30(0.28)	0.93	3360.3	13510.00
8	1272.00	96.70	0.688	0.30(0.28)	0.93	3430.6	13500.00

NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE(CFS) = 1607.75 Tc(MIN.) = 39.28
 AREA-AVERAGED Fm(INCH/HR) = 0.28 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.92 EFFECTIVE AREA(ACRES) = 2172.99

 FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN.) = 39.28
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.074
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 1.56 0.30 1.000 -
 USER-DEFINED - 9.40 0.30 1.000 -
 USER-DEFINED - 2.76 0.30 1.000 -
 USER-DEFINED - 17.38 0.30 1.000 -
 USER-DEFINED - 2.46 0.30 1.000 -

USER-DEFINED - 5.56 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 39.12 SUBAREA RUNOFF(CFS) = 27.26
 EFFECTIVE AREA(ACRES) = 2212.11 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3469.8 PEAK FLOW RATE(CFS) = 1607.75
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN.) = 39.28
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.074
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 0.65 0.30 1.000 -
 USER-DEFINED - 1.70 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 2.35 SUBAREA RUNOFF(CFS) = 1.64
 EFFECTIVE AREA(ACRES) = 2214.46 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3472.1 PEAK FLOW RATE(CFS) = 1607.75
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13660.00 TO NODE 13680.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

 FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN.) = 39.28
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.074
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 5.29 0.30 1.000 -
 USER-DEFINED - 31.25 0.30 1.000 -
 USER-DEFINED - 0.22 0.30 1.000 -
 USER-DEFINED - 6.26 0.30 1.000 -
 USER-DEFINED - 0.07 0.30 1.000 -
 USER-DEFINED - 0.22 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 43.31 SUBAREA RUNOFF(CFS) = 30.18
 EFFECTIVE AREA(ACRES) = 2257.77 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3515.4 PEAK FLOW RATE(CFS) = 1619.86

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*****
FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN.) = 39.28
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.074
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA      Fp        Ap      SCS
LAND USE            GROUP   (ACRES)  (INCH/HR) (DECIMAL) CN
USER-DEFINED        -         2.47     0.30     0.850   -
USER-DEFINED        -         3.06     0.30     0.850   -
USER-DEFINED        -        17.76     0.30     0.500   -
USER-DEFINED        -         7.31     0.30     0.500   -
USER-DEFINED        -         0.34     0.30     1.000   -
USER-DEFINED        -         8.22     0.30     1.000   -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.659
SUBAREA AREA(ACRES) = 39.16      SUBAREA RUNOFF(CFS) = 30.89
EFFECTIVE AREA(ACRES) = 2296.93  AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30  AREA-AVERAGED Ap = 0.92
TOTAL AREA(ACRES) = 3554.6      PEAK FLOW RATE(CFS) = 1650.76

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*****
FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN.) = 39.28
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.074
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA      Fp        Ap      SCS
LAND USE            GROUP   (ACRES)  (INCH/HR) (DECIMAL) CN
USER-DEFINED        -         0.53     0.30     1.000   -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 0.53      SUBAREA RUNOFF(CFS) = 0.37
EFFECTIVE AREA(ACRES) = 2297.46  AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30  AREA-AVERAGED Ap = 0.92
TOTAL AREA(ACRES) = 3555.1      PEAK FLOW RATE(CFS) = 1651.13

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*****
FLOW PROCESS FROM NODE 13680.00 TO NODE 13682.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 288.00  DOWNSTREAM(FEET) = 242.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2860.77  CHANNEL SLOPE = 0.0161
GIVEN CHANNEL BASE(FEET) = 30.00  CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000  MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 3.99
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.013
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA      Fp        Ap      SCS
LAND USE            GROUP   (ACRES)  (INCH/HR) (DECIMAL) CN
USER-DEFINED        -         0.22     0.30     1.000   -
USER-DEFINED        -         5.28     0.30     1.000   -

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USER-DEFINED        -         0.52     0.30     1.000   -
USER-DEFINED        -         3.61     0.30     1.000   -
USER-DEFINED        -         0.67     0.30     1.000   -
USER-DEFINED        -         1.37     0.30     1.000   -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1654.87
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.87
AVERAGE FLOW DEPTH(FEET) = 3.99  TRAVEL TIME(MIN.) = 4.83
Tc(MIN.) = 44.11
SUBAREA AREA(ACRES) = 11.67      SUBAREA RUNOFF(CFS) = 7.49
EFFECTIVE AREA(ACRES) = 2309.13  AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30  AREA-AVERAGED Ap = 0.92
TOTAL AREA(ACRES) = 3566.8      PEAK FLOW RATE(CFS) = 1651.13
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 30.00  CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000  MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 3.99

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 3.99  FLOW VELOCITY(FEET/SEC.) = 9.87
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13682.00 = 37051.30 FEET.

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** PEAK FLOW RATE TABLE **
STREAM      Q      Tc  Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)  (MIN.) (INCH/HR) (INCH/HR)  (ACRES)  NODE
1      1521.80  21.81  1.510  0.30( 0.26) 0.88  1148.0  110.00
2      1573.72  24.27  1.411  0.30( 0.26) 0.88  1304.1  100.00
3      1590.73  25.67  1.363  0.30( 0.26) 0.88  1385.2  100.00
4      1600.63  28.98  1.272  0.30( 0.27) 0.89  1557.4  130.00
5      1651.13  44.11  1.013  0.30( 0.28) 0.92  2309.1  20100.00
6      1611.81  50.50  0.940  0.30( 0.28) 0.92  2504.3  13600.00
7      1408.16  90.85  0.705  0.30( 0.28) 0.93  3496.4  13510.00
8      1310.02 101.87  0.673  0.30( 0.28) 0.93  3566.8  13500.00
NEW PEAK FLOW DATA ARE:
PEAK FLOW RATE(CFS) = 1651.13  Tc(MIN.) = 44.11
AREA-AVERAGED Fm(INCH/HR) = 0.28  AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.92  EFFECTIVE AREA(ACRES) = 2309.13

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FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN.) = 44.11
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.013
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA      Fp        Ap      SCS
LAND USE            GROUP   (ACRES)  (INCH/HR) (DECIMAL) CN
USER-DEFINED        -         6.90     0.30     1.000   -
USER-DEFINED        -        23.04     0.30     1.000   -
USER-DEFINED        -         1.18     0.30     1.000   -
USER-DEFINED        -         1.56     0.30     1.000   -
USER-DEFINED        -        53.20     0.30     1.000   -
USER-DEFINED        -         2.08     0.30     1.000   -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 87.96      SUBAREA RUNOFF(CFS) = 56.44

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EFFECTIVE AREA(ACRES) = 2397.09 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA(ACRES) = 3654.7 PEAK FLOW RATE(CFS) = 1651.13
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 44.11
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.013
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.01	0.30	1.000	-
USER-DEFINED	-	0.18	0.30	1.000	-
USER-DEFINED	-	0.38	0.30	1.000	-
USER-DEFINED	-	0.22	0.30	1.000	-
USER-DEFINED	-	7.73	0.30	1.000	-
USER-DEFINED	-	4.37	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 12.89 SUBAREA RUNOFF(CFS) = 8.27
EFFECTIVE AREA(ACRES) = 2409.98 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA(ACRES) = 3667.6 PEAK FLOW RATE(CFS) = 1651.13
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 44.11
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.013
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "FALLOW"	B	2.57	0.30	1.000	86
AGRICULTURAL POOR COVER "FALLOW"	B	1.97	0.30	1.000	86
NATURAL FAIR COVER "GRASS"	B	1.00	0.30	1.000	69
NATURAL FAIR COVER "GRASS"	B	2.98	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	2.39	0.30	1.000	66
NATURAL FAIR COVER "OPEN BRUSH"	B	1.67	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 12.58 SUBAREA RUNOFF(CFS) = 8.07
EFFECTIVE AREA(ACRES) = 2422.56 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA(ACRES) = 3680.2 PEAK FLOW RATE(CFS) = 1651.13
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 44.11
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.013
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	0.44	0.30	1.000	66
PUBLIC PARK	B	2.65	0.30	0.850	56
PUBLIC PARK	B	1.16	0.30	0.850	56
RESIDENTIAL "5-7 DWELLINGS/ACRE"	B	0.47	0.30	0.500	56
RESIDENTIAL "5-7 DWELLINGS/ACRE"	B	0.25	0.30	0.500	56
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	20.24	0.30	1.000	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.963
SUBAREA AREA(ACRES) = 25.21 SUBAREA RUNOFF(CFS) = 16.43
EFFECTIVE AREA(ACRES) = 2447.77 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA(ACRES) = 3705.4 PEAK FLOW RATE(CFS) = 1651.13
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 44.11
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.013
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	7.08	0.30	1.000	-
USER-DEFINED	-	6.75	0.30	1.000	-
USER-DEFINED	-	0.02	0.30	1.000	-
USER-DEFINED	-	0.93	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 14.78 SUBAREA RUNOFF(CFS) = 9.48
EFFECTIVE AREA(ACRES) = 2462.55 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA(ACRES) = 3720.2 PEAK FLOW RATE(CFS) = 1651.13
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13682.00 TO NODE 13683.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 242.00 DOWNSTREAM(FEET) = 208.53

CHANNEL LENGTH THRU SUBAREA (FEET) = 2526.22 CHANNEL SLOPE = 0.0132
 GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 4.22
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.960
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	8.49	0.30	1.000	-
USER-DEFINED	-	13.31	0.30	1.000	-
USER-DEFINED	-	0.87	0.30	1.000	-
USER-DEFINED	-	20.26	0.30	1.000	-
USER-DEFINED	-	1.21	0.30	1.000	-
USER-DEFINED	-	0.05	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 1664.24
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 9.24
 AVERAGE FLOW DEPTH (FEET) = 4.22 TRAVEL TIME (MIN.) = 4.56
 Tc (MIN.) = 48.67
 SUBAREA AREA (ACRES) = 44.19 SUBAREA RUNOFF (CFS) = 26.24
 EFFECTIVE AREA (ACRES) = 2506.74 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA (ACRES) = 3764.4 PEAK FLOW RATE (CFS) = 1651.13
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 4.20

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 4.20 FLOW VELOCITY (FEET/SEC.) = 9.23
 LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13683.00 = 39577.52 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1521.80	26.46	1.342	0.30 (0.27)	0.90	1345.6	110.00
2	1573.72	28.89	1.275	0.30 (0.27)	0.89	1501.7	100.00
3	1590.73	30.27	1.239	0.30 (0.27)	0.89	1582.8	100.00
4	1600.63	33.57	1.179	0.30 (0.27)	0.90	1755.0	130.00
5	1651.13	48.67	0.960	0.30 (0.28)	0.93	2506.7	20100.00
6	1611.81	55.09	0.899	0.30 (0.28)	0.93	2701.9	13600.00
7	1408.16	95.63	0.691	0.30 (0.28)	0.93	3694.0	13510.00
8	1318.82	106.75	0.660	0.30 (0.28)	0.93	3764.4	13500.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE (CFS) = 1651.13 Tc (MIN.) = 48.67
 AREA-AVERAGED Fm (INCH/HR) = 0.28 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.93 EFFECTIVE AREA (ACRES) = 2506.74

FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 48.67

* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.960

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
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LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
USER-DEFINED	-	12.56	0.30	1.000	-
USER-DEFINED	-	0.81	0.30	1.000	-
USER-DEFINED	-	0.01	0.30	1.000	-
USER-DEFINED	-	1.11	0.30	1.000	-
USER-DEFINED	-	0.59	0.30	1.000	-
USER-DEFINED	-	3.04	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 18.12 SUBAREA RUNOFF (CFS) = 10.76
 EFFECTIVE AREA (ACRES) = 2524.86 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA (ACRES) = 3782.5 PEAK FLOW RATE (CFS) = 1651.13
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 48.67

* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.960

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
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RESIDENTIAL					
"8-10 DWELLINGS/ACRE"	B	0.10	0.30	0.400	56
PUBLIC PARK	B	1.30	0.30	0.850	56
RESIDENTIAL					
"8-10 DWELLINGS/ACRE"	B	0.10	0.30	0.400	56
PUBLIC PARK	B	1.70	0.30	0.850	56
PUBLIC PARK	B	0.10	0.30	0.850	56
PUBLIC PARK	B	2.90	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.835

SUBAREA AREA (ACRES) = 6.20 SUBAREA RUNOFF (CFS) = 3.96

EFFECTIVE AREA (ACRES) = 2531.06 AREA-AVERAGED Fm (INCH/HR) = 0.28

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93

TOTAL AREA (ACRES) = 3788.7 PEAK FLOW RATE (CFS) = 1651.13

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 48.67

* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.960

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
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RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	B	0.10	0.30	0.500	56
CONDOMINIUMS	B	0.10	0.30	0.350	56
PUBLIC PARK	B	6.90	0.30	0.850	56
PUBLIC PARK	B	0.40	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.839

SUBAREA AREA (ACRES) = 7.50 SUBAREA RUNOFF (CFS) = 4.78
EFFECTIVE AREA (ACRES) = 2538.56 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
TOTAL AREA (ACRES) = 3796.2 PEAK FLOW RATE (CFS) = 1651.13
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13682.00 TO NODE 13683.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

MEMORY BANK # 3 IS EMPTY - PROCESS IGNORED.

FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 48.67

* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.960

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "FALLOW"	B	2.55	0.30	1.000	86
AGRICULTURAL POOR COVER "FALLOW"	B	0.01	0.30	1.000	86
AGRICULTURAL POOR COVER "FALLOW"	B	1.35	0.30	1.000	86
NATURAL FAIR COVER "GRASS"	B	0.44	0.30	1.000	69
NATURAL FAIR COVER "GRASS"	B	0.67	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	1.06	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA (ACRES) = 6.08 SUBAREA RUNOFF (CFS) = 3.61

EFFECTIVE AREA (ACRES) = 2544.64 AREA-AVERAGED Fm (INCH/HR) = 0.28

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93

TOTAL AREA (ACRES) = 3802.3 PEAK FLOW RATE (CFS) = 1651.13

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 48.67

* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.960

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	2.16	0.30	1.000	66
NATURAL FAIR COVER "OPEN BRUSH"	B	2.45	0.30	1.000	66
NATURAL FAIR COVER					

"OPEN BRUSH"	B	6.15	0.30	1.000	66
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	1.34	0.30	1.000	81
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	18.46	0.30	1.000	81
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	4.13	0.30	1.000	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 34.69 SUBAREA RUNOFF (CFS) = 20.59
EFFECTIVE AREA (ACRES) = 2579.33 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
TOTAL AREA (ACRES) = 3837.0 PEAK FLOW RATE (CFS) = 1651.13
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 48.67

* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.960

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	8.69	0.30	1.000	81
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.73	0.30	1.000	65
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.41	0.30	1.000	65
NATURAL FAIR COVER "WOODLAND, GRASS"	B	1.37	0.30	1.000	65
NATURAL FAIR COVER "WOODLAND, GRASS"	B	3.11	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA (ACRES) = 14.31 SUBAREA RUNOFF (CFS) = 8.49

EFFECTIVE AREA (ACRES) = 2593.64 AREA-AVERAGED Fm (INCH/HR) = 0.28

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93

TOTAL AREA (ACRES) = 3851.3 PEAK FLOW RATE (CFS) = 1651.13

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13683.00 TO NODE 13685.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 208.53 DOWNSTREAM (FEET) = 194.24
CHANNEL LENGTH THRU SUBAREA (FEET) = 289.01 CHANNEL SLOPE = 0.0494
GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 2.92
CHANNEL FLOW THRU SUBAREA (CFS) = 1651.13
FLOW VELOCITY (FEET/SEC.) = 14.56 FLOW DEPTH (FEET) = 2.92
TRAVEL TIME (MIN.) = 0.33 Tc (MIN.) = 49.00
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13685.00 = 39866.53 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1521.80	26.80	1.332	0.30 (0.27)	0.90	1432.5	110.00
2	1573.72	29.22	1.265	0.30 (0.27)	0.90	1588.6	100.00
3	1590.73	30.61	1.233	0.30 (0.27)	0.90	1669.7	100.00
4	1600.63	33.91	1.172	0.30 (0.27)	0.91	1841.9	130.00
5	1651.13	49.00	0.956	0.30 (0.28)	0.93	2593.6	20100.00
6	1611.81	55.42	0.896	0.30 (0.28)	0.93	2788.8	13600.00
7	1408.16	95.98	0.690	0.30 (0.28)	0.93	3780.9	13510.00
8	1318.82	107.10	0.659	0.30 (0.28)	0.93	3851.3	13500.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 1651.13 Tc(MIN.) = 49.00
 AREA-AVERAGED Fm(INCH/HR) = 0.28 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.93 EFFECTIVE AREA(ACRES) = 2593.64

FLOW PROCESS FROM NODE 13685.00 TO NODE 13410.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 194.24 DOWNSTREAM(FEET) = 178.72
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1843.57 CHANNEL SLOPE = 0.0084
 GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 4.75
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.918

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.23	0.30	1.000	-
USER-DEFINED	-	1.52	0.30	1.000	-
USER-DEFINED	-	0.06	0.30	1.000	-
USER-DEFINED	-	0.13	0.30	1.000	-
USER-DEFINED	-	6.45	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1653.46

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 7.87

AVERAGE FLOW DEPTH(FEET) = 4.75 TRAVEL TIME(MIN.) = 3.91

Tc(MIN.) = 52.91

SUBAREA AREA(ACRES) = 8.39 SUBAREA RUNOFF(CFS) = 4.67

EFFECTIVE AREA(ACRES) = 2602.03 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93

TOTAL AREA(ACRES) = 3859.7 PEAK FLOW RATE(CFS) = 1651.13

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 4.75

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 4.75 FLOW VELOCITY(FEET/SEC.) = 7.86

LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13410.00 = 41710.10 FEET.

** PEAK FLOW RATE TABLE **

STREAM	Q	Tc	Intensity	Fp(Fm)	Ap	Ae	HEADWATER
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NUMBER	(CFS)	(MIN.)	(INCH/HR)	(INCH/HR)	(ACRES)	NODE
1	1521.80	30.81	1.229	0.30 (0.27)	0.90	1440.9
2	1573.72	33.19	1.186	0.30 (0.27)	0.90	1597.0
3	1590.73	34.56	1.161	0.30 (0.27)	0.90	1678.1
4	1600.63	37.85	1.100	0.30 (0.27)	0.91	1850.3
5	1651.13	52.91	0.918	0.30 (0.28)	0.93	2602.0
6	1611.81	59.35	0.861	0.30 (0.28)	0.93	2797.2
7	1408.16	100.08	0.678	0.30 (0.28)	0.93	3789.3
8	1318.82	111.28	0.647	0.30 (0.28)	0.93	3859.7

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 1651.13 Tc(MIN.) = 52.91
 AREA-AVERAGED Fm(INCH/HR) = 0.28 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.93 EFFECTIVE AREA(ACRES) = 2602.03

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 3859.7 TC(MIN.) = 52.91
 EFFECTIVE AREA(ACRES) = 2602.03 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.927
 PEAK FLOW RATE(CFS) = 1651.13

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1521.80	30.81	1.229	0.30 (0.27)	0.90	1440.9	110.00
2	1573.72	33.19	1.186	0.30 (0.27)	0.90	1597.0	100.00
3	1590.73	34.56	1.161	0.30 (0.27)	0.90	1678.1	100.00
4	1600.63	37.85	1.100	0.30 (0.27)	0.91	1850.3	130.00
5	1651.13	52.91	0.918	0.30 (0.28)	0.93	2602.0	20100.00
6	1611.81	59.35	0.861	0.30 (0.28)	0.93	2797.2	13600.00
7	1408.16	100.08	0.678	0.30 (0.28)	0.93	3789.3	13510.00
8	1318.82	111.28	0.647	0.30 (0.28)	0.93	3859.7	13500.00

END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 137 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 10-YR EV AUG 2023 ROKAMOTO *

FILE NAME: RI10EV37.DAT
TIME/DATE OF STUDY: 13:17 08/09/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 3.709
- 2) 10.00; 2.481
- 3) 15.00; 1.848
- 4) 20.00; 1.580
- 5) 25.00; 1.381
- 6) 30.00; 1.243
- 7) 40.00; 1.060
- 8) 50.00; 0.942
- 9) 60.00; 0.854
- 10) 90.00; 0.706
- 11) 120.00; 0.620
- 12) 180.00; 0.519
- 13) 360.00; 0.379
- 14) 1200.00; 0.165

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL
HALF- CROWN TO STREET-CROSSFALL: CURB GUTTER-GEOMETRIES: MANNING
WIDTH CROSSFALL IN- / OUT-/PARK- HEIGHT WIDTH LIP HIKE FACTOR
NO. (FT) (FT) SIDE / SIDE/ WAY (FT) (FT) (FT) (FT) (n)
====

1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
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GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RI10EV34.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	17170.43	31.23	0.30 (0.26)	0.86	7660.4	110.00
2	18615.93	40.64	0.30 (0.26)	0.87	10663.8	10100.00
3	19441.36	46.32	0.30 (0.26)	0.87	12600.3	150.00
4	20360.40	53.30	0.30 (0.27)	0.88	15013.3	20100.00
5	21125.86	60.51	0.30 (0.27)	0.90	17700.9	31100.00
6	22620.39	74.05	0.30 (0.27)	0.91	23161.4	40100.00
7	23258.22	82.92	0.30 (0.28)	0.92	26622.3	11801.00
8	24508.17	96.23	0.30 (0.28)	0.93	32643.7	11530.00
9	25366.34	104.26	0.30 (0.28)	0.94	37082.5	11900.00
10	26766.19	113.67	0.30 (0.28)	0.94	43271.4	11330.00
11	27420.72	121.76	0.30 (0.28)	0.95	48358.5	10630.00
12	27207.03	127.35	0.30 (0.29)	0.95	50948.4	12330.00
13	26982.94	133.98	0.30 (0.29)	0.95	54090.8	11600.00
14	26634.20	139.79	0.30 (0.29)	0.95	56325.2	11111.00
15	26244.68	145.95	0.30 (0.29)	0.96	58259.0	12201.00
16	25367.00	154.98	0.30 (0.29)	0.96	60347.3	12231.00
17	24558.54	162.56	0.30 (0.29)	0.96	61758.8	10400.00
18	23266.69	174.12	0.30 (0.29)	0.96	63379.6	10320.00
19	22037.25	184.01	0.30 (0.29)	0.96	63767.4	12000.00
20	19175.00	213.65	0.30 (0.29)	0.96	64384.4	10100.00
TOTAL AREA (ACRES) =						64384.4

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 14.0

>>>>MEMORY BANK # 3 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	17170.43	31.23	0.30 (0.26)	0.86	7660.4	110.00
2	18615.93	40.64	0.30 (0.26)	0.87	10663.8	10100.00
3	19441.36	46.32	0.30 (0.26)	0.87	12600.3	150.00
4	20360.40	53.30	0.30 (0.27)	0.88	15013.3	20100.00
5	21125.86	60.51	0.30 (0.27)	0.90	17700.9	31100.00
6	22620.39	74.05	0.30 (0.27)	0.91	23161.4	40100.00
7	23258.22	82.92	0.30 (0.28)	0.92	26622.3	11801.00
8	24508.17	96.23	0.30 (0.28)	0.93	32643.7	11530.00
9	25366.34	104.26	0.30 (0.28)	0.94	37082.5	11900.00
10	26766.19	113.67	0.30 (0.28)	0.94	43271.4	11330.00
11	27420.72	121.76	0.30 (0.28)	0.95	48358.5	10630.00
12	27207.03	127.35	0.30 (0.29)	0.95	50948.4	12330.00
13	26982.94	133.98	0.30 (0.29)	0.95	54090.8	11600.00

14	26634.20	139.79	0.30	(0.29)	0.95	56325.2	11111.00
15	26244.68	145.95	0.30	(0.29)	0.96	58259.0	12201.00
16	25367.00	154.98	0.30	(0.29)	0.96	60347.3	12231.00
17	24558.54	162.56	0.30	(0.29)	0.96	61758.8	10400.00
18	23266.69	174.12	0.30	(0.29)	0.96	63379.6	10320.00
19	22037.25	184.01	0.30	(0.29)	0.96	63767.4	12000.00
20	19175.00	213.65	0.30	(0.29)	0.96	64384.4	10100.00
TOTAL AREA (ACRES) =							64384.4

FLOW PROCESS FROM NODE 13700.00 TO NODE 13720.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 170.00 DOWNSTREAM(FEET) = 165.51
CHANNEL LENGTH THRU SUBAREA(FEET) = 1891.83 CHANNEL SLOPE = 0.0024
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 10.61

CHANNEL FLOW THRU SUBAREA(CFS) = 27420.72

FLOW VELOCITY(FEET/SEC.) = 10.22 FLOW DEPTH(FEET) = 10.61

TRAVEL TIME(MIN.) = 3.09 Tc(MIN.) = 124.85

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13720.00 = 126441.05 FEET.

FLOW PROCESS FROM NODE 13700.00 TO NODE 13720.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

FLOW PROCESS FROM NODE 13720.00 TO NODE 13720.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 0506102E.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	239.83	16.06	1.791	0.30 (0.29)	0.96	193.8	10230.00
2	217.18	25.14	1.377	0.30 (0.29)	0.95	240.5	10250.00
3	216.13	25.45	1.369	0.30 (0.29)	0.95	241.8	10200.00
4	200.96	29.41	1.259	0.30 (0.29)	0.95	246.3	10220.00
TOTAL AREA (ACRES) =							246.3

FLOW PROCESS FROM NODE 13720.00 TO NODE 13720.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	17170.43	34.83	1.155	0.30 (0.26)	0.86	7660.4	110.00
2	18615.93	44.15	1.011	0.30 (0.26)	0.87	10663.8	10100.00
3	19441.36	49.78	0.945	0.30 (0.26)	0.87	12600.3	150.00

4	20360.40	56.70	0.883	0.30 (0.27)	0.88	15013.3	20100.00
5	21125.86	63.87	0.835	0.30 (0.27)	0.90	17700.9	31100.00
6	22620.39	77.33	0.768	0.30 (0.27)	0.91	23161.4	40100.00
7	23258.22	86.18	0.725	0.30 (0.28)	0.92	26622.3	11801.00
8	24508.17	99.43	0.679	0.30 (0.28)	0.93	32643.7	11530.00
9	25366.34	107.42	0.656	0.30 (0.28)	0.94	37082.5	11900.00
10	26766.19	116.79	0.629	0.30 (0.28)	0.94	43271.4	11330.00
11	27420.72	124.85	0.612	0.30 (0.28)	0.95	48358.5	10630.00
12	27207.03	130.44	0.602	0.30 (0.29)	0.95	50948.4	12330.00
13	26982.94	137.08	0.591	0.30 (0.29)	0.95	54090.8	11600.00
14	26634.20	142.90	0.581	0.30 (0.29)	0.95	56325.2	11111.00
15	26244.68	149.08	0.571	0.30 (0.29)	0.96	58259.0	12201.00
16	25367.00	158.14	0.556	0.30 (0.29)	0.96	60347.3	12231.00
17	24558.54	165.75	0.543	0.30 (0.29)	0.96	61758.8	10400.00
18	23266.69	177.38	0.523	0.30 (0.29)	0.96	63379.6	10320.00
19	22037.25	187.32	0.513	0.30 (0.29)	0.96	63767.4	12000.00
20	19175.00	217.11	0.490	0.30 (0.29)	0.96	64384.4	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13720.00 = 126441.05 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	239.83	16.06	1.791	0.30 (0.29)	0.96	193.8	10230.00
2	217.18	25.14	1.377	0.30 (0.29)	0.95	240.5	10250.00
3	216.13	25.45	1.369	0.30 (0.29)	0.95	241.8	10200.00
4	200.96	29.41	1.259	0.30 (0.29)	0.95	246.3	10220.00

LONGEST FLOWPATH FROM NODE 10200.00 TO NODE 13720.00 = 9099.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13774.69	16.06	1.791	0.30 (0.26)	0.86	3727.4	10230.00
2	15684.64	25.14	1.377	0.30 (0.26)	0.86	5770.9	10250.00
3	15754.52	25.45	1.369	0.30 (0.26)	0.86	5840.2	10200.00
4	16391.05	29.41	1.259	0.30 (0.26)	0.86	6715.6	10220.00
5	17349.81	34.83	1.155	0.30 (0.26)	0.86	7906.6	110.00
6	18765.65	44.15	1.011	0.30 (0.26)	0.87	10910.0	10100.00
7	19577.36	49.78	0.945	0.30 (0.26)	0.88	12846.5	150.00
8	20483.68	56.70	0.883	0.30 (0.27)	0.88	15259.6	20100.00
9	21239.20	63.87	0.835	0.30 (0.27)	0.90	17947.2	31100.00
10	22720.02	77.33	0.768	0.30 (0.27)	0.91	23407.6	40100.00
11	23348.83	86.18	0.725	0.30 (0.28)	0.92	26868.6	11801.00
12	24589.31	99.43	0.679	0.30 (0.28)	0.93	32889.9	11530.00
13	25442.74	107.42	0.656	0.30 (0.28)	0.94	37328.8	11900.00
14	26837.05	116.79	0.629	0.30 (0.28)	0.94	43517.6	11330.00
15	27488.00	124.85	0.612	0.30 (0.28)	0.95	48604.8	10630.00
16	27272.35	130.44	0.602	0.30 (0.29)	0.95	51194.7	12330.00
17	27045.96	137.08	0.591	0.30 (0.29)	0.95	54337.1	11600.00
18	26695.20	142.90	0.581	0.30 (0.29)	0.95	56571.4	11111.00
19	26303.53	149.08	0.571	0.30 (0.29)	0.96	58505.3	12201.00
20	25422.70	158.14	0.556	0.30 (0.29)	0.96	60593.5	12231.00
21	24611.59	165.75	0.543	0.30 (0.29)	0.96	62005.1	10400.00
22	23315.70	177.38	0.523	0.30 (0.29)	0.96	63625.8	10320.00
23	22084.17	187.32	0.513	0.30 (0.29)	0.96	64013.7	12000.00
24	19217.14	217.11	0.490	0.30 (0.29)	0.96	64630.7	10100.00
TOTAL AREA (ACRES) =							64630.7

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 27488.00 Tc(MIN.) = 124.847
 EFFECTIVE AREA(ACRES) = 48604.79 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 64630.7
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13720.00 = 126441.05 FEET.

 FLOW PROCESS FROM NODE 13720.00 TO NODE 13740.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 165.51 DOWNSTREAM(FEET) = 161.03
 CHANNEL LENGTH THRU SUBAREA(FEET) = 2067.54 CHANNEL SLOPE = 0.0022
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 10.90
 CHANNEL FLOW THRU SUBAREA(CFS) = 27488.00
 FLOW VELOCITY(FEET/SEC.) = 9.91 FLOW DEPTH(FEET) = 10.90
 TRAVEL TIME(MIN.) = 3.48 Tc(MIN.) = 128.32
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13740.00 = 128508.59 FEET.

 FLOW PROCESS FROM NODE 13720.00 TO NODE 13740.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

 FLOW PROCESS FROM NODE 13740.00 TO NODE 13740.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: 0506103E.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	489.59	19.32	0.30(0.23)	0.76	401.6	10300.00
2	490.14	20.03	0.30(0.23)	0.76	412.9	10380.00
3	480.40	22.78	0.30(0.23)	0.76	441.7	10320.00
4	464.91	24.67	0.30(0.23)	0.76	451.8	10360.00
5	436.74	27.62	0.30(0.23)	0.76	460.8	10340.00
TOTAL AREA(ACRES) =						460.8

 FLOW PROCESS FROM NODE 13740.00 TO NODE 13740.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

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** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13774.69	20.43	1.563	0.30(0.26)	0.86	3727.4	10230.00
2	15684.64	29.32	1.262	0.30(0.26)	0.86	5770.9	10250.00
3	15754.52	29.62	1.253	0.30(0.26)	0.86	5840.2	10200.00
4	16391.05	33.53	1.178	0.30(0.26)	0.86	6715.6	10220.00
5	17349.81	38.87	1.081	0.30(0.26)	0.86	7906.6	110.00

6	18765.65	48.08	0.965	0.30(0.26)	0.87	10910.0	10100.00
7	19577.36	53.66	0.910	0.30(0.26)	0.88	12846.5	150.00
8	20483.68	60.53	0.851	0.30(0.27)	0.88	15259.6	20100.00
9	21239.20	67.65	0.816	0.30(0.27)	0.90	17947.2	31100.00
10	22720.02	81.03	0.750	0.30(0.27)	0.91	23407.6	40100.00
11	23348.83	89.84	0.707	0.30(0.28)	0.92	26868.6	11801.00
12	24589.31	103.03	0.669	0.30(0.28)	0.93	32889.9	11530.00
13	25442.74	110.99	0.646	0.30(0.28)	0.94	37328.8	11900.00
14	26837.05	120.29	0.620	0.30(0.28)	0.94	43517.6	11330.00
15	27488.00	128.32	0.606	0.30(0.28)	0.95	48604.8	10630.00
16	27272.35	133.93	0.597	0.30(0.29)	0.95	51194.7	12330.00
17	27045.96	140.58	0.585	0.30(0.29)	0.95	54337.1	11600.00
18	26695.20	146.41	0.576	0.30(0.29)	0.95	56571.4	11111.00
19	26303.53	152.61	0.565	0.30(0.29)	0.96	58505.3	12201.00
20	25422.70	161.71	0.550	0.30(0.29)	0.96	60593.5	12231.00
21	24611.59	169.36	0.537	0.30(0.29)	0.96	62005.1	10400.00
22	23315.70	181.04	0.518	0.30(0.29)	0.96	63625.8	10320.00
23	22084.17	191.05	0.510	0.30(0.29)	0.96	64013.7	12000.00
24	19217.14	221.02	0.487	0.30(0.29)	0.96	64630.7	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13740.00 = 128508.59 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	489.59	19.32	1.617	0.30(0.23)	0.76	401.6	10300.00
2	490.14	20.03	1.579	0.30(0.23)	0.76	412.9	10380.00
3	480.40	22.78	1.469	0.30(0.23)	0.76	441.7	10320.00
4	464.91	24.67	1.394	0.30(0.23)	0.76	451.8	10360.00
5	436.74	27.62	1.309	0.30(0.23)	0.76	460.8	10340.00

LONGEST FLOWPATH FROM NODE 10320.00 TO NODE 13740.00 = 8457.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	14050.90	19.32	1.617	0.30(0.26)	0.85	3926.3	10300.00
2	14161.19	20.03	1.579	0.30(0.26)	0.85	4068.1	10380.00
3	14263.43	20.43	1.563	0.30(0.26)	0.85	4144.4	10230.00
4	14760.08	22.78	1.469	0.30(0.26)	0.85	4709.4	10320.00
5	15150.68	24.67	1.394	0.30(0.26)	0.85	5154.0	10360.00
6	15756.39	27.62	1.309	0.30(0.26)	0.85	5841.2	10340.00
7	16102.41	29.32	1.262	0.30(0.26)	0.85	6231.7	10250.00
8	16168.90	29.62	1.253	0.30(0.26)	0.85	6301.0	10200.00
9	16775.10	33.53	1.178	0.30(0.26)	0.85	7176.4	10220.00
10	17694.34	38.87	1.081	0.30(0.26)	0.85	8367.4	110.00
11	19063.21	48.08	0.965	0.30(0.26)	0.86	11370.8	10100.00
12	19852.75	53.66	0.910	0.30(0.26)	0.87	13307.3	150.00
13	20735.43	60.53	0.851	0.30(0.26)	0.88	15720.4	20100.00
14	21476.74	67.65	0.816	0.30(0.27)	0.89	18408.0	31100.00
15	22930.86	81.03	0.750	0.30(0.27)	0.91	23868.4	40100.00
16	23542.09	89.84	0.707	0.30(0.28)	0.92	27329.4	11801.00
17	24767.14	103.03	0.669	0.30(0.28)	0.93	33350.7	11530.00
18	25611.34	110.99	0.646	0.30(0.28)	0.93	37789.6	11900.00
19	26995.00	120.29	0.620	0.30(0.28)	0.94	43978.4	11330.00
20	27640.48	128.32	0.606	0.30(0.28)	0.95	49065.6	10630.00
21	27421.02	133.93	0.597	0.30(0.28)	0.95	51655.5	12330.00
22	27190.10	140.58	0.585	0.30(0.29)	0.95	54797.9	11600.00
23	26835.37	146.41	0.576	0.30(0.29)	0.95	57032.2	11111.00
24	26439.47	152.61	0.565	0.30(0.29)	0.95	58966.1	12201.00

25 25552.45 161.71 0.550 0.30(0.29) 0.95 61054.3 12231.00
 26 24736.13 169.36 0.537 0.30(0.29) 0.96 62465.9 10400.00
 27 23432.67 181.04 0.518 0.30(0.29) 0.96 64086.6 10320.00
 28 22197.99 191.05 0.510 0.30(0.29) 0.96 64474.5 12000.00
 29 19321.53 221.02 0.487 0.30(0.29) 0.96 65091.5 10100.00
 TOTAL AREA (ACRES) = 65091.5

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 27640.48 Tc(MIN.) = 128.324
 EFFECTIVE AREA(ACRES) = 49065.59 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.91
 TOTAL AREA(ACRES) = 65091.5
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13740.00 = 128508.59 FEET.

FLOW PROCESS FROM NODE 13740.00 TO NODE 13741.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 161.03 DOWNSTREAM(FEET) = 141.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 364.08 CHANNEL SLOPE = 0.0550
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 6.32
 CHANNEL FLOW THRU SUBAREA(CFS) = 27640.48
 FLOW VELOCITY(FEET/SEC.) = 34.90 FLOW DEPTH(FEET) = 6.32
 TRAVEL TIME(MIN.) = 0.17 Tc(MIN.) = 128.50
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13741.00 = 128872.66 FEET.

FLOW PROCESS FROM NODE 13740.00 TO NODE 13741.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

FLOW PROCESS FROM NODE 13741.00 TO NODE 13741.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 0506104E.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	49.20	20.74	0.30(0.24)	0.80	44.3	10400.00
TOTAL AREA(ACRES) =						44.3

FLOW PROCESS FROM NODE 13741.00 TO NODE 13741.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	14050.90	19.54	1.605	0.30(0.26)	0.85	3926.3	10300.00

2	14161.19	20.25	1.570	0.30(0.26)	0.85	4068.1	10380.00
3	14263.43	20.64	1.554	0.30(0.26)	0.85	4144.4	10230.00
4	14760.08	22.99	1.461	0.30(0.26)	0.85	4709.4	10320.00
5	15150.68	24.88	1.386	0.30(0.26)	0.85	5154.0	10360.00
6	15756.39	27.83	1.303	0.30(0.26)	0.85	5841.2	10340.00
7	16102.41	29.53	1.256	0.30(0.26)	0.85	6231.7	10250.00
8	16168.90	29.83	1.248	0.30(0.26)	0.85	6301.0	10200.00
9	16775.10	33.73	1.175	0.30(0.26)	0.85	7176.4	10220.00
10	17694.34	39.07	1.077	0.30(0.26)	0.85	8367.4	110.00
11	19063.21	48.28	0.962	0.30(0.26)	0.86	11370.8	10100.00
12	19852.75	53.85	0.908	0.30(0.26)	0.87	13307.3	150.00
13	20735.43	60.72	0.850	0.30(0.26)	0.88	15720.4	20100.00
14	21476.74	67.84	0.815	0.30(0.27)	0.89	18408.0	31100.00
15	22930.86	81.21	0.749	0.30(0.27)	0.91	23868.4	40100.00
16	23542.09	90.02	0.706	0.30(0.28)	0.92	27329.4	11801.00
17	24767.14	103.21	0.668	0.30(0.28)	0.93	33350.7	11530.00
18	25611.34	111.17	0.645	0.30(0.28)	0.93	37789.6	11900.00
19	26995.00	120.46	0.619	0.30(0.28)	0.94	43978.4	11330.00
20	27640.48	128.50	0.606	0.30(0.28)	0.95	49065.6	10630.00
21	27421.02	134.10	0.596	0.30(0.28)	0.95	51655.5	12330.00
22	27190.10	140.75	0.585	0.30(0.29)	0.95	54797.9	11600.00
23	26835.37	146.59	0.575	0.30(0.29)	0.95	57032.2	11111.00
24	26439.47	152.79	0.565	0.30(0.29)	0.95	58966.1	12201.00
25	25552.45	161.89	0.549	0.30(0.29)	0.95	61054.3	12231.00
26	24736.13	169.54	0.537	0.30(0.29)	0.96	62465.9	10400.00
27	23432.67	181.23	0.518	0.30(0.29)	0.96	64086.6	10320.00
28	22197.99	191.24	0.510	0.30(0.29)	0.96	64474.5	12000.00
29	19321.53	221.21	0.487	0.30(0.29)	0.96	65091.5	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13741.00 = 128872.66 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	49.20	20.74	1.551	0.30(0.24)	0.80	44.3	10400.00

LONGEST FLOWPATH FROM NODE 10400.00 TO NODE 13741.00 = 6237.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	14099.17	19.54	1.605	0.30(0.26)	0.85	3968.0	10300.00
2	14209.95	20.25	1.570	0.30(0.26)	0.85	4111.4	10380.00
3	14312.55	20.64	1.554	0.30(0.26)	0.85	4188.5	10230.00
4	14331.75	20.74	1.551	0.30(0.26)	0.85	4210.5	10400.00
5	14805.91	22.99	1.461	0.30(0.26)	0.85	4753.7	10320.00
6	15193.69	24.88	1.386	0.30(0.26)	0.85	5198.3	10360.00
7	15796.29	27.83	1.303	0.30(0.26)	0.85	5885.5	10340.00
8	16140.55	29.53	1.256	0.30(0.26)	0.85	6276.0	10250.00
9	16206.73	29.83	1.248	0.30(0.26)	0.85	6345.3	10200.00
10	16810.19	33.73	1.175	0.30(0.26)	0.85	7220.7	10220.00
11	17725.77	39.07	1.077	0.30(0.26)	0.85	8411.7	110.00
12	19090.33	48.28	0.962	0.30(0.26)	0.86	11415.1	10100.00
13	19877.84	53.85	0.908	0.30(0.26)	0.87	13351.6	150.00
14	20758.36	60.72	0.850	0.30(0.26)	0.88	15764.7	20100.00
15	21498.35	67.84	0.815	0.30(0.27)	0.89	18452.3	31100.00
16	22949.99	81.21	0.749	0.30(0.27)	0.91	23912.7	40100.00
17	23559.59	90.02	0.706	0.30(0.28)	0.92	27373.7	11801.00
18	24783.22	103.21	0.668	0.30(0.28)	0.93	33395.0	11530.00
19	25626.57	111.17	0.645	0.30(0.28)	0.93	37833.9	11900.00

20	27009.25	120.46	0.619	0.30	(0.28)	0.94	44022.7	11330.00
21	27654.22	128.50	0.606	0.30	(0.28)	0.95	49109.9	10630.00
22	27434.40	134.10	0.596	0.30	(0.28)	0.95	51699.8	12330.00
23	27203.07	140.75	0.585	0.30	(0.29)	0.95	54842.2	11600.00
24	26847.96	146.59	0.575	0.30	(0.29)	0.95	57076.5	11111.00
25	26451.68	152.79	0.565	0.30	(0.29)	0.95	59010.4	12201.00
26	25564.08	161.89	0.549	0.30	(0.29)	0.95	61098.6	12231.00
27	24747.28	169.54	0.537	0.30	(0.29)	0.96	62510.2	10400.00
28	23443.12	181.23	0.518	0.30	(0.29)	0.96	64130.9	10320.00
29	22208.15	191.24	0.510	0.30	(0.29)	0.96	64518.8	12000.00
30	19330.81	221.21	0.487	0.30	(0.29)	0.96	65135.8	10100.00

TOTAL AREA (ACRES) = 65135.8

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 27654.22 Tc (MIN.) = 128.497
EFFECTIVE AREA (ACRES) = 49109.89 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA (ACRES) = 65135.8
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13741.00 = 128872.66 FEET.

FLOW PROCESS FROM NODE 13741.00 TO NODE 13802.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 141.00 DOWNSTREAM (FEET) = 135.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1533.41 CHANNEL SLOPE = 0.0039
GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 13.03
CHANNEL FLOW THRU SUBAREA (CFS) = 27654.22
FLOW VELOCITY (FEET/SEC.) = 13.95 FLOW DEPTH (FEET) = 13.03
TRAVEL TIME (MIN.) = 1.83 Tc (MIN.) = 130.33
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13802.00 = 130406.07 FEET.

FLOW PROCESS FROM NODE 13802.00 TO NODE 13802.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<

FLOW PROCESS FROM NODE 13802.00 TO NODE 13802.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<

PEAK FLOWRATE TABLE FILE NAME: 0506105L.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	263.73	15.21	0.30 (0.27)	0.90	203.7	10520.00
2	303.03	33.18	0.30 (0.28)	0.93	403.6	10500.00
TOTAL AREA (ACRES) =						403.6

FLOW PROCESS FROM NODE 13802.00 TO NODE 13802.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	14099.17	21.77	1.509	0.30 (0.26)	0.85	3968.0	10300.00
2	14209.95	22.48	1.481	0.30 (0.26)	0.85	4111.4	10380.00
3	14312.55	22.87	1.466	0.30 (0.26)	0.85	4188.5	10230.00
4	14331.75	22.96	1.462	0.30 (0.26)	0.85	4210.5	10400.00
5	14805.91	25.20	1.376	0.30 (0.26)	0.85	4753.7	10320.00
6	15193.69	27.07	1.324	0.30 (0.26)	0.85	5198.3	10360.00
7	15796.29	29.99	1.243	0.30 (0.26)	0.85	5885.5	10340.00
8	16140.55	31.68	1.212	0.30 (0.26)	0.85	6276.0	10250.00
9	16206.73	31.98	1.207	0.30 (0.26)	0.85	6345.3	10200.00
10	16810.19	35.86	1.136	0.30 (0.26)	0.85	7220.7	10220.00
11	17725.77	41.16	1.046	0.30 (0.26)	0.85	8411.7	110.00
12	19090.33	50.32	0.939	0.30 (0.26)	0.86	11415.1	10100.00
13	19877.84	55.87	0.890	0.30 (0.26)	0.87	13351.6	150.00
14	20758.36	62.71	0.841	0.30 (0.26)	0.88	15764.7	20100.00
15	21498.35	69.81	0.806	0.30 (0.27)	0.89	18452.3	31100.00
16	22949.99	83.15	0.740	0.30 (0.27)	0.91	23912.7	40100.00
17	23559.59	91.94	0.700	0.30 (0.28)	0.92	27373.7	11801.00
18	24783.22	105.10	0.663	0.30 (0.28)	0.93	33395.0	11530.00
19	25626.57	113.04	0.640	0.30 (0.28)	0.93	37833.9	11900.00
20	27009.25	122.31	0.616	0.30 (0.28)	0.94	44022.7	11330.00
21	27654.22	130.33	0.603	0.30 (0.28)	0.95	49109.9	10630.00
22	27434.40	135.94	0.593	0.30 (0.28)	0.95	51699.8	12330.00
23	27203.07	142.59	0.582	0.30 (0.29)	0.95	54842.2	11600.00
24	26847.96	148.43	0.572	0.30 (0.29)	0.95	57076.5	11111.00
25	26451.68	154.64	0.562	0.30 (0.29)	0.95	59010.4	12201.00
26	25564.08	163.76	0.546	0.30 (0.29)	0.95	61098.6	12231.00
27	24747.28	171.43	0.533	0.30 (0.29)	0.96	62510.2	10400.00
28	23443.12	183.15	0.517	0.30 (0.29)	0.96	64130.9	10320.00
29	22208.15	193.19	0.509	0.30 (0.29)	0.96	64518.8	12000.00
30	19330.81	223.25	0.485	0.30 (0.29)	0.96	65135.8	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13802.00 = 130406.07 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	263.73	15.21	1.837	0.30 (0.27)	0.90	203.7	10520.00
2	303.03	33.18	1.185	0.30 (0.28)	0.93	403.6	10500.00

LONGEST FLOWPATH FROM NODE 10500.00 TO NODE 13802.00 = 12187.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12684.10	15.21	1.837	0.30 (0.26)	0.85	2975.8	10520.00
2	14377.26	21.77	1.509	0.30 (0.26)	0.86	4244.8	10300.00
3	14489.58	22.48	1.481	0.30 (0.26)	0.86	4396.0	10380.00
4	14593.04	22.87	1.466	0.30 (0.26)	0.86	4477.5	10230.00
5	14612.43	22.96	1.462	0.30 (0.26)	0.86	4500.4	10400.00
6	15091.48	25.20	1.376	0.30 (0.26)	0.86	5068.5	10320.00
7	15483.35	27.07	1.324	0.30 (0.26)	0.86	5533.9	10360.00
8	16092.35	29.99	1.243	0.30 (0.26)	0.86	6253.6	10340.00
9	16440.29	31.68	1.212	0.30 (0.26)	0.86	6662.9	10250.00
10	16507.12	31.98	1.207	0.30 (0.26)	0.86	6735.5	10200.00

11	16697.42	33.18	1.185	0.30	(0.26)	0.86	7021.2	10500.00
12	17096.87	35.86	1.136	0.30	(0.26)	0.86	7624.3	10220.00
13	17982.55	41.16	1.046	0.30	(0.26)	0.86	8815.3	110.00
14	19311.29	50.32	0.939	0.30	(0.26)	0.87	11818.7	10100.00
15	20082.48	55.87	0.890	0.30	(0.26)	0.87	13755.2	150.00
16	20946.38	62.71	0.841	0.30	(0.26)	0.88	16168.3	20100.00
17	21674.67	69.81	0.806	0.30	(0.27)	0.89	18855.9	31100.00
18	23104.32	83.15	0.740	0.30	(0.27)	0.91	24316.3	40100.00
19	23700.76	91.94	0.700	0.30	(0.28)	0.92	27777.3	11801.00
20	24911.79	105.10	0.663	0.30	(0.28)	0.93	33798.6	11530.00
21	25747.54	113.04	0.640	0.30	(0.28)	0.93	38237.5	11900.00
22	27122.25	122.31	0.616	0.30	(0.28)	0.94	44426.3	11330.00
23	27762.71	130.33	0.603	0.30	(0.28)	0.95	49513.5	10630.00
24	27539.73	135.94	0.593	0.30	(0.28)	0.95	52103.4	12330.00
25	27304.65	142.59	0.582	0.30	(0.29)	0.95	55245.8	11600.00
26	26946.26	148.43	0.572	0.30	(0.29)	0.95	57480.1	11111.00
27	26546.48	154.64	0.562	0.30	(0.29)	0.95	59414.0	12201.00
28	25653.76	163.76	0.546	0.30	(0.29)	0.95	61502.2	12231.00
29	24832.65	171.43	0.533	0.30	(0.29)	0.95	62913.8	10400.00
30	23522.84	183.15	0.517	0.30	(0.29)	0.96	64534.5	10320.00
31	22285.26	193.19	0.509	0.30	(0.29)	0.96	64922.4	12000.00
32	19400.11	223.25	0.485	0.30	(0.29)	0.96	65539.4	10100.00

TOTAL AREA (ACRES) = 65539.4

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 27762.71 Tc (MIN.) = 130.329
EFFECTIVE AREA (ACRES) = 49513.49 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
TOTAL AREA (ACRES) = 65539.4
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13802.00 = 130406.07 FEET.

FLOW PROCESS FROM NODE 13802.00 TO NODE 13803.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 135.00 DOWNSTREAM (FEET) = 134.99
CHANNEL LENGTH THRU SUBAREA (FEET) = 207.23 CHANNEL SLOPE = 0.0000
GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 38.64
CHANNEL FLOW THRU SUBAREA (CFS) = 27762.71
FLOW VELOCITY (FEET/SEC.) = 2.82 FLOW DEPTH (FEET) = 38.64
TRAVEL TIME (MIN.) = 1.22 Tc (MIN.) = 131.55
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13803.00 = 130613.30 FEET.

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 131.55
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.601
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
RESIDENTIAL

"1 DWELLING/ACRE" B 48.80 0.30 0.800 56
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.800
SUBAREA AREA (ACRES) = 48.80 SUBAREA RUNOFF (CFS) = 15.84
EFFECTIVE AREA (ACRES) = 49562.29 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 65588.2 PEAK FLOW RATE (CFS) = 27762.71
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13802.00 TO NODE 13803.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 0506106E.DNA
MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	45.15	18.06	0.30 (0.20)	0.67	36.9	10600.00
TOTAL AREA (ACRES) =			36.9			

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12684.10	16.72	1.756	0.30 (0.26)	0.85	3024.6	10520.00
2	14377.26	23.23	1.451	0.30 (0.26)	0.85	4293.6	10300.00
3	14489.58	23.93	1.423	0.30 (0.26)	0.85	4444.8	10380.00
4	14593.04	24.32	1.408	0.30 (0.26)	0.85	4526.3	10230.00
5	14612.43	24.41	1.404	0.30 (0.26)	0.85	4549.2	10400.00
6	15091.48	26.64	1.336	0.30 (0.26)	0.86	5117.3	10320.00
7	15483.35	28.50	1.285	0.30 (0.26)	0.86	5582.7	10360.00
8	16092.35	31.40	1.217	0.30 (0.26)	0.86	6302.4	10340.00
9	16440.29	33.08	1.187	0.30 (0.26)	0.86	6711.7	10250.00
10	16507.12	33.38	1.181	0.30 (0.26)	0.86	6784.3	10200.00
11	16697.42	34.58	1.159	0.30 (0.26)	0.86	7070.0	10500.00
12	17096.87	37.24	1.110	0.30 (0.26)	0.86	7673.1	10220.00
13	17982.55	42.53	1.030	0.30 (0.26)	0.86	8864.1	110.00
14	19311.29	51.67	0.927	0.30 (0.26)	0.87	11867.5	10100.00
15	20082.48	57.20	0.879	0.30 (0.26)	0.87	13804.0	150.00
16	20946.38	64.03	0.834	0.30 (0.26)	0.88	16217.1	20100.00
17	21674.67	71.12	0.799	0.30 (0.27)	0.89	18904.7	31100.00
18	23104.32	84.43	0.733	0.30 (0.27)	0.91	24365.1	40100.00
19	23700.76	93.22	0.697	0.30 (0.28)	0.92	27826.1	11801.00
20	24911.79	106.36	0.659	0.30 (0.28)	0.93	33847.4	11530.00
21	25747.54	114.29	0.636	0.30 (0.28)	0.93	38286.3	11900.00
22	27122.25	123.54	0.614	0.30 (0.28)	0.94	44475.1	11330.00

23 27762.71 131.55 0.601 0.30(0.28) 0.95 49562.3 10630.00
 24 27539.73 137.17 0.591 0.30(0.28) 0.95 52152.2 12330.00
 25 27304.65 143.82 0.580 0.30(0.29) 0.95 55294.6 11600.00
 26 26946.26 149.67 0.570 0.30(0.29) 0.95 57528.9 11111.00
 27 26546.48 155.88 0.560 0.30(0.29) 0.95 59462.8 12201.00
 28 25653.76 165.01 0.544 0.30(0.29) 0.95 61551.0 12231.00
 29 24832.65 172.69 0.531 0.30(0.29) 0.95 62962.6 10400.00
 30 23522.84 184.43 0.516 0.30(0.29) 0.96 64583.3 10320.00
 31 22285.26 194.49 0.508 0.30(0.29) 0.96 64971.2 12000.00
 32 19400.11 224.59 0.484 0.30(0.29) 0.96 65588.2 10100.00
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13803.00 = 130613.30 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	45.15	18.06	1.684	0.30(0.20)	0.67	36.9	10600.00

LONGEST FLOWPATH FROM NODE 10600.00 TO NODE 13803.00 = 1713.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12727.92	16.72	1.756	0.30(0.26)	0.85	3058.8	10520.00
2	13079.98	18.06	1.684	0.30(0.26)	0.85	3324.4	10600.00
3	14415.34	23.23	1.451	0.30(0.26)	0.85	4330.5	10300.00
4	14526.81	23.93	1.423	0.30(0.26)	0.85	4481.7	10380.00
5	14629.79	24.32	1.408	0.30(0.26)	0.85	4563.2	10230.00
6	14649.08	24.41	1.404	0.30(0.26)	0.85	4586.1	10400.00
7	15126.04	26.64	1.336	0.30(0.26)	0.85	5154.2	10320.00
8	15516.35	28.50	1.285	0.30(0.26)	0.86	5619.6	10360.00
9	16123.30	31.40	1.217	0.30(0.26)	0.86	6339.3	10340.00
10	16470.30	33.08	1.187	0.30(0.26)	0.86	6748.6	10250.00
11	16536.97	33.38	1.181	0.30(0.26)	0.86	6821.2	10200.00
12	16726.60	34.58	1.159	0.30(0.26)	0.86	7106.9	10500.00
13	17124.57	37.24	1.110	0.30(0.26)	0.86	7710.0	10220.00
14	18007.80	42.53	1.030	0.30(0.26)	0.86	8901.0	110.00
15	19333.41	51.67	0.927	0.30(0.26)	0.87	11904.4	10100.00
16	20103.12	57.20	0.879	0.30(0.26)	0.87	13840.9	150.00
17	20965.66	64.03	0.834	0.30(0.26)	0.88	16254.0	20100.00
18	21692.89	71.12	0.799	0.30(0.27)	0.89	18941.6	31100.00
19	23120.54	84.43	0.733	0.30(0.27)	0.91	24402.0	40100.00
20	23715.86	93.22	0.697	0.30(0.28)	0.92	27863.0	11801.00
21	24925.74	106.36	0.659	0.30(0.28)	0.93	33884.3	11530.00
22	25760.79	114.29	0.636	0.30(0.28)	0.93	38323.2	11900.00
23	27134.83	123.54	0.614	0.30(0.28)	0.94	44512.0	11330.00
24	27774.88	131.55	0.601	0.30(0.28)	0.95	49599.2	10630.00
25	27551.61	137.17	0.591	0.30(0.28)	0.95	52189.1	12330.00
26	27316.19	143.82	0.580	0.30(0.29)	0.95	55331.5	11600.00
27	26957.50	149.67	0.570	0.30(0.29)	0.95	57565.8	11111.00
28	26557.41	155.88	0.560	0.30(0.29)	0.95	59499.7	12201.00
29	25664.21	165.01	0.544	0.30(0.29)	0.95	61587.9	12231.00
30	24842.71	172.69	0.531	0.30(0.29)	0.95	62999.5	10400.00
31	23532.42	184.43	0.516	0.30(0.29)	0.96	64620.2	10320.00
32	22294.60	194.49	0.508	0.30(0.29)	0.96	65008.1	12000.00
33	19408.74	224.59	0.484	0.30(0.29)	0.96	65625.1	10100.00

TOTAL AREA (ACRES) = 65625.1

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 27774.88 Tc (MIN.) = 131.553

EFFECTIVE AREA (ACRES) = 49599.19 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
 TOTAL AREA (ACRES) = 65625.1
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13803.00 = 130613.30 FEET.

END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 65625.1 TC (MIN.) = 131.55
 EFFECTIVE AREA (ACRES) = 49599.19 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.946
 PEAK FLOW RATE (CFS) = 27774.88

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12727.92	16.72	1.756	0.30(0.26)	0.85	3058.8	10520.00
2	13079.98	18.06	1.684	0.30(0.26)	0.85	3324.4	10600.00
3	14415.34	23.23	1.451	0.30(0.26)	0.85	4330.5	10300.00
4	14526.81	23.93	1.423	0.30(0.26)	0.85	4481.7	10380.00
5	14629.79	24.32	1.408	0.30(0.26)	0.85	4563.2	10230.00
6	14649.08	24.41	1.404	0.30(0.26)	0.85	4586.1	10400.00
7	15126.04	26.64	1.336	0.30(0.26)	0.85	5154.2	10320.00
8	15516.35	28.50	1.285	0.30(0.26)	0.86	5619.6	10360.00
9	16123.30	31.40	1.217	0.30(0.26)	0.86	6339.3	10340.00
10	16470.30	33.08	1.187	0.30(0.26)	0.86	6748.6	10250.00
11	16536.97	33.38	1.181	0.30(0.26)	0.86	6821.2	10200.00
12	16726.60	34.58	1.159	0.30(0.26)	0.86	7106.9	10500.00
13	17124.57	37.24	1.110	0.30(0.26)	0.86	7710.0	10220.00
14	18007.80	42.53	1.030	0.30(0.26)	0.86	8901.0	110.00
15	19333.41	51.67	0.927	0.30(0.26)	0.87	11904.4	10100.00
16	20103.12	57.20	0.879	0.30(0.26)	0.87	13840.9	150.00
17	20965.66	64.03	0.834	0.30(0.26)	0.88	16254.0	20100.00
18	21692.89	71.12	0.799	0.30(0.27)	0.89	18941.6	31100.00
19	23120.54	84.43	0.733	0.30(0.27)	0.91	24402.0	40100.00
20	23715.86	93.22	0.697	0.30(0.28)	0.92	27863.0	11801.00
21	24925.74	106.36	0.659	0.30(0.28)	0.93	33884.3	11530.00
22	25760.79	114.29	0.636	0.30(0.28)	0.93	38323.2	11900.00
23	27134.83	123.54	0.614	0.30(0.28)	0.94	44512.0	11330.00
24	27774.88	131.55	0.601	0.30(0.28)	0.95	49599.2	10630.00
25	27551.61	137.17	0.591	0.30(0.28)	0.95	52189.1	12330.00
26	27316.19	143.82	0.580	0.30(0.29)	0.95	55331.5	11600.00
27	26957.50	149.67	0.570	0.30(0.29)	0.95	57565.8	11111.00
28	26557.41	155.88	0.560	0.30(0.29)	0.95	59499.7	12201.00
29	25664.21	165.01	0.544	0.30(0.29)	0.95	61587.9	12231.00
30	24842.71	172.69	0.531	0.30(0.29)	0.95	62999.5	10400.00
31	23532.42	184.43	0.516	0.30(0.29)	0.96	64620.2	10320.00
32	22294.60	194.49	0.508	0.30(0.29)	0.96	65008.1	12000.00
33	19408.74	224.59	0.484	0.30(0.29)	0.96	65625.1	10100.00

END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 138 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 10-YR EV AUG 2023 ROKAMOTO *

FILE NAME: RI10EV38.DAT
TIME/DATE OF STUDY: 13:18 08/09/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 3.698
- 2) 10.00; 2.475
- 3) 15.00; 1.846
- 4) 20.00; 1.578
- 5) 25.00; 1.379
- 6) 30.00; 1.242
- 7) 40.00; 1.059
- 8) 50.00; 0.941
- 9) 60.00; 0.852
- 10) 90.00; 0.704
- 11) 120.00; 0.619
- 12) 180.00; 0.517
- 13) 360.00; 0.378
- 14) 1200.00; 0.165

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: RI10EV37.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13079.98	18.06	0.30 (0.26)	0.85	3324.4	10600.00
2	14649.08	24.41	0.30 (0.26)	0.85	4586.1	10400.00
3	16123.30	31.40	0.30 (0.26)	0.86	6339.3	10340.00
4	18007.80	42.53	0.30 (0.26)	0.86	8901.0	110.00
5	20103.12	57.20	0.30 (0.26)	0.87	13840.9	150.00
6	20965.66	64.03	0.30 (0.26)	0.88	16254.0	20100.00
7	21692.89	71.12	0.30 (0.27)	0.89	18941.6	31100.00
8	23120.54	84.43	0.30 (0.27)	0.91	24402.0	40100.00
9	23715.86	93.22	0.30 (0.28)	0.92	27863.0	11801.00
10	24925.74	106.36	0.30 (0.28)	0.93	33884.3	11530.00
11	25760.79	114.29	0.30 (0.28)	0.93	38323.2	11900.00
12	27134.83	123.54	0.30 (0.28)	0.94	44512.0	11330.00
13	27774.88	131.55	0.30 (0.28)	0.95	49599.2	10630.00
14	27316.19	143.82	0.30 (0.29)	0.95	55331.5	11600.00
15	26557.41	155.88	0.30 (0.29)	0.95	59499.7	12201.00
16	25664.21	165.01	0.30 (0.29)	0.95	61587.9	12231.00
17	24842.71	172.69	0.30 (0.29)	0.95	62999.5	10400.00
18	23532.42	184.43	0.30 (0.29)	0.96	64620.2	10320.00
19	22294.60	194.49	0.30 (0.29)	0.96	65008.1	12000.00
20	19408.74	224.59	0.30 (0.29)	0.96	65625.1	10100.00
TOTAL AREA (ACRES) =						65625.1

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13079.98	18.06	0.30 (0.26)	0.85	3324.4	10600.00
2	14649.08	24.41	0.30 (0.26)	0.85	4586.1	10400.00
3	16123.30	31.40	0.30 (0.26)	0.86	6339.3	10340.00
4	18007.80	42.53	0.30 (0.26)	0.86	8901.0	110.00
5	20103.12	57.20	0.30 (0.26)	0.87	13840.9	150.00
6	20965.66	64.03	0.30 (0.26)	0.88	16254.0	20100.00
7	21692.89	71.12	0.30 (0.27)	0.89	18941.6	31100.00
8	23120.54	84.43	0.30 (0.27)	0.91	24402.0	40100.00
9	23715.86	93.22	0.30 (0.28)	0.92	27863.0	11801.00
10	24925.74	106.36	0.30 (0.28)	0.93	33884.3	11530.00
11	25760.79	114.29	0.30 (0.28)	0.93	38323.2	11900.00
12	27134.83	123.54	0.30 (0.28)	0.94	44512.0	11330.00
13	27774.88	131.55	0.30 (0.28)	0.95	49599.2	10630.00

14 27316.19 143.82 0.30(0.29) 0.95 55331.5 11600.00
 15 26557.41 155.88 0.30(0.29) 0.95 59499.7 12201.00
 16 25664.21 165.01 0.30(0.29) 0.95 61587.9 12231.00
 17 24842.71 172.69 0.30(0.29) 0.95 62999.5 10400.00
 18 23532.42 184.43 0.30(0.29) 0.96 64620.2 10320.00
 19 22294.60 194.49 0.30(0.29) 0.96 65008.1 12000.00
 20 19408.74 224.59 0.30(0.29) 0.96 65625.1 10100.00
 TOTAL AREA (ACRES) = 65625.1

FLOW PROCESS FROM NODE 13803.00 TO NODE 13820.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 134.99 DOWNSTREAM(FEET) = 134.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 926.91 CHANNEL SLOPE = 0.0011
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 18.28

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.596

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	31.44	0.30	0.983	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.983

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 27779.14

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 8.78

AVERAGE FLOW DEPTH(FEET) = 18.28 TRAVEL TIME(MIN.) = 1.76

Tc(MIN.) = 133.31

SUBAREA AREA(ACRES) = 31.44 SUBAREA RUNOFF(CFS) = 8.53

EFFECTIVE AREA(ACRES) = 49630.63 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95

TOTAL AREA(ACRES) = 65656.5 PEAK FLOW RATE(CFS) = 27774.88

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 18.28

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 18.28 FLOW VELOCITY(FEET/SEC.) = 8.77

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13820.00 = 131540.20 FEET.

FLOW PROCESS FROM NODE 13803.00 TO NODE 13820.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

TOTAL NUMBER OF STREAMS = 2

CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:

TIME OF CONCENTRATION(MIN.) = 133.31

RAINFALL INTENSITY(INCH/HR) = 0.60

AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30

AREA-AVERAGED Ap = 0.95

EFFECTIVE STREAM AREA(ACRES) = 49630.63

TOTAL STREAM AREA(ACRES) = 65656.50

PEAK FLOW RATE(CFS) AT CONFLUENCE = 27774.88

FLOW PROCESS FROM NODE 13810.00 TO NODE 13811.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

INITIAL SUBAREA FLOW-LENGTH(FEET) = 648.54

ELEVATION DATA: UPSTREAM(FEET) = 756.46 DOWNSTREAM(FEET) = 586.02

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20

SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 12.293

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.187

SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	-	5.58	0.30	1.000	56	12.29

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

SUBAREA RUNOFF(CFS) = 9.47

TOTAL AREA(ACRES) = 5.58 PEAK FLOW RATE(CFS) = 9.47

FLOW PROCESS FROM NODE 13811.00 TO NODE 13811.50 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 586.02 DOWNSTREAM(FEET) = 437.69

CHANNEL LENGTH THRU SUBAREA(FEET) = 696.28 CHANNEL SLOPE = 0.2130

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 0.37

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.914

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	14.79	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 20.28

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.35

AVERAGE FLOW DEPTH(FEET) = 0.35 TRAVEL TIME(MIN.) = 2.17

Tc(MIN.) = 14.46

SUBAREA AREA(ACRES) = 14.79 SUBAREA RUNOFF(CFS) = 21.48

EFFECTIVE AREA(ACRES) = 20.37 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 20.4 PEAK FLOW RATE(CFS) = 29.59

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 0.44

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.44 FLOW VELOCITY(FEET/SEC.) = 6.19

LONGEST FLOWPATH FROM NODE 13810.00 TO NODE 13811.50 = 1344.82 FEET.

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*****
FLOW PROCESS FROM NODE 13811.50 TO NODE 13812.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 437.69 DOWNSTREAM(FEET) = 402.36
CHANNEL LENGTH THRU SUBAREA(FEET) = 681.04 CHANNEL SLOPE = 0.0519
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.83
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.737
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA      Fp        Ap   SCS
LAND USE           GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED       -         18.41    0.30     1.000   -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 41.51
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.40
AVERAGE FLOW DEPTH(FEET) = 0.81 TRAVEL TIME(MIN.) = 2.58
Tc(MIN.) = 17.04
SUBAREA AREA(ACRES) = 18.41 SUBAREA RUNOFF(CFS) = 23.81
EFFECTIVE AREA(ACRES) = 38.78 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 38.8 PEAK FLOW RATE(CFS) = 50.14
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.90

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 0.90 FLOW VELOCITY(FEET/SEC.) = 4.70
LONGEST FLOWPATH FROM NODE 13810.00 TO NODE 13812.00 = 2025.86 FEET.

*****
FLOW PROCESS FROM NODE 13812.00 TO NODE 13813.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 402.36 DOWNSTREAM(FEET) = 259.72
CHANNEL LENGTH THRU SUBAREA(FEET) = 1282.56 CHANNEL SLOPE = 0.1112
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.86
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.568
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA      Fp        Ap   SCS
LAND USE           GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED       -         27.87    0.30     0.858   -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.858
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 66.60
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.68
AVERAGE FLOW DEPTH(FEET) = 0.85 TRAVEL TIME(MIN.) = 3.20
Tc(MIN.) = 20.24
SUBAREA AREA(ACRES) = 27.87 SUBAREA RUNOFF(CFS) = 32.89
EFFECTIVE AREA(ACRES) = 66.65 AREA-AVERAGED Fm(INCH/HR) = 0.28

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AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA(ACRES) = 66.7 PEAK FLOW RATE(CFS) = 77.16
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.93

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 0.93 FLOW VELOCITY(FEET/SEC.) = 7.01
LONGEST FLOWPATH FROM NODE 13810.00 TO NODE 13813.00 = 3308.42 FEET.

*****
FLOW PROCESS FROM NODE 13813.00 TO NODE 13820.00 IS CODE = 31
-----
>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 259.72 DOWNSTREAM(FEET) = 137.00
FLOW LENGTH(FEET) = 2412.88 MANNING'S N = 0.013
ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 36.000
DEPTH OF FLOW IN 36.0 INCH PIPE IS 18.9 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 20.58
ESTIMATED PIPE DIAMETER(INCH) = 36.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 77.16
PIPE TRAVEL TIME(MIN.) = 1.95 Tc(MIN.) = 22.19
LONGEST FLOWPATH FROM NODE 13810.00 TO NODE 13820.00 = 5721.30 FEET.

*****
FLOW PROCESS FROM NODE 13813.00 TO NODE 13820.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN.) = 22.19
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.491
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA      Fp        Ap   SCS
LAND USE           GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED       -         83.64    0.30     0.570   -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.570
SUBAREA AREA(ACRES) = 83.64 SUBAREA RUNOFF(CFS) = 99.35
EFFECTIVE AREA(ACRES) = 150.29 AREA-AVERAGED Fm(INCH/HR) = 0.22
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.73
TOTAL AREA(ACRES) = 150.3 PEAK FLOW RATE(CFS) = 171.84

*****
FLOW PROCESS FROM NODE 13813.00 TO NODE 13820.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 22.19
RAINFALL INTENSITY(INCH/HR) = 1.49
AREA-AVERAGED Fm(INCH/HR) = 0.22
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.73
EFFECTIVE STREAM AREA(ACRES) = 150.29

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TOTAL STREAM AREA(ACRES) = 150.29
PEAK FLOW RATE(CFS) AT CONFLUENCE = 171.84

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13079.98	20.25	1.568	0.30 (0.26)	0.85	3355.8	10600.00
1	14649.08	26.52	1.337	0.30 (0.26)	0.85	4617.5	10400.00
1	16123.30	33.46	1.179	0.30 (0.26)	0.86	6370.8	10340.00
1	18007.80	44.52	1.006	0.30 (0.26)	0.86	8932.5	110.00
1	20103.12	59.13	0.860	0.30 (0.26)	0.87	13872.4	150.00
1	20965.66	65.93	0.823	0.30 (0.26)	0.88	16285.4	20100.00
1	21692.89	73.00	0.788	0.30 (0.27)	0.89	18973.0	31100.00
1	23120.54	86.28	0.722	0.30 (0.27)	0.91	24433.5	40100.00
1	23715.86	95.06	0.690	0.30 (0.28)	0.92	27894.4	11801.00
1	24925.74	108.17	0.653	0.30 (0.28)	0.93	33915.8	11530.00
1	25760.79	116.08	0.630	0.30 (0.28)	0.93	38354.6	11900.00
1	27134.83	125.31	0.610	0.30 (0.28)	0.94	44543.5	11330.00
1	27774.88	133.31	0.596	0.30 (0.28)	0.95	49630.6	10630.00
1	27316.19	145.59	0.575	0.30 (0.29)	0.95	55362.9	11600.00
1	26557.41	157.66	0.555	0.30 (0.29)	0.95	59531.1	12201.00
1	25664.21	166.81	0.539	0.30 (0.29)	0.95	61619.4	12231.00
1	24842.71	174.50	0.526	0.30 (0.29)	0.95	63030.9	10400.00
1	23532.42	186.27	0.512	0.30 (0.29)	0.96	64651.7	10320.00
1	22294.60	196.36	0.504	0.30 (0.29)	0.96	65039.5	12000.00
1	19408.74	226.54	0.481	0.30 (0.29)	0.96	65656.5	10100.00
2	171.84	22.19	1.491	0.30 (0.22)	0.73	150.3	13810.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13246.31	20.25	1.568	0.30 (0.25)	0.85	3492.9	10600.00
2	13738.73	22.19	1.491	0.30 (0.25)	0.85	3897.6	13810.00
3	14800.17	26.52	1.337	0.30 (0.26)	0.85	4767.8	10400.00
4	16252.94	33.46	1.179	0.30 (0.26)	0.85	6521.1	10340.00
5	18114.04	44.52	1.006	0.30 (0.26)	0.86	9082.8	110.00
6	20189.62	59.13	0.860	0.30 (0.26)	0.87	14022.6	150.00
7	21047.15	65.93	0.823	0.30 (0.26)	0.88	16435.7	20100.00
8	21769.67	73.00	0.788	0.30 (0.27)	0.89	19123.3	31100.00
9	23188.45	86.28	0.722	0.30 (0.27)	0.91	24583.8	40100.00
10	23779.35	95.06	0.690	0.30 (0.27)	0.92	28044.7	11801.00
11	24984.21	108.17	0.653	0.30 (0.28)	0.93	34066.1	11530.00
12	25816.23	116.08	0.630	0.30 (0.28)	0.93	38504.9	11900.00
13	27187.54	125.31	0.610	0.30 (0.28)	0.94	44693.8	11330.00
14	27825.75	133.31	0.596	0.30 (0.28)	0.95	49780.9	10630.00
15	27364.24	145.59	0.575	0.30 (0.28)	0.95	55513.2	11600.00
16	26602.68	157.66	0.555	0.30 (0.29)	0.95	59681.4	12201.00
17	25707.38	166.81	0.539	0.30 (0.29)	0.95	61769.7	12231.00
18	24884.11	174.50	0.526	0.30 (0.29)	0.95	63181.2	10400.00
19	23571.91	186.27	0.512	0.30 (0.29)	0.96	64802.0	10320.00
20	22333.03	196.36	0.504	0.30 (0.29)	0.96	65189.8	12000.00
21	19444.02	226.54	0.481	0.30 (0.29)	0.96	65806.8	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 27825.75 Tc(MIN.) = 133.31

EFFECTIVE AREA(ACRES) = 49780.92 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 65806.8
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13820.00 = 131540.20 FEET.

FLOW PROCESS FROM NODE 13820.00 TO NODE 13840.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 137.00 DOWNSTREAM(FEET) = 133.00

CHANNEL LENGTH THRU SUBAREA(FEET) = 1261.34 CHANNEL SLOPE = 0.0032

GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 13.82

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.594

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
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USER-DEFINED	-	31.60	0.30	0.683	-
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SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.683

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 27831.28

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 12.97

AVERAGE FLOW DEPTH(FEET) = 13.82 TRAVEL TIME(MIN.) = 1.62

Tc(MIN.) = 134.93

SUBAREA AREA(ACRES) = 31.60 SUBAREA RUNOFF(CFS) = 11.06

EFFECTIVE AREA(ACRES) = 49812.52 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95

TOTAL AREA(ACRES) = 65838.4 PEAK FLOW RATE(CFS) = 27825.75

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 13.81

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 13.81 FLOW VELOCITY(FEET/SEC.) = 12.97

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13840.00 = 132801.55 FEET.

FLOW PROCESS FROM NODE 13820.00 TO NODE 13840.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<

TOTAL NUMBER OF STREAMS = 2

CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:

TIME OF CONCENTRATION(MIN.) = 134.93

RAINFALL INTENSITY(INCH/HR) = 0.59

AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30

AREA-AVERAGED Ap = 0.95

EFFECTIVE STREAM AREA(ACRES) = 49812.52

TOTAL STREAM AREA(ACRES) = 65838.39

PEAK FLOW RATE(CFS) AT CONFLUENCE = 27825.75

FLOW PROCESS FROM NODE 13830.00 TO NODE 13831.00 IS CODE = 21

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>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
=====
INITIAL SUBAREA FLOW-LENGTH (FEET) = 744.71
ELEVATION DATA: UPSTREAM (FEET) = 1100.95 DOWNSTREAM (FEET) = 959.21

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc (MIN.) = 13.858
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.990
SUBAREA Tc AND LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" - 5.06 0.30 1.000 56 13.86
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF (CFS) = 7.70
TOTAL AREA (ACRES) = 5.06 PEAK FLOW RATE (CFS) = 7.70

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FLOW PROCESS FROM NODE 13831.00 TO NODE 13832.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
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ELEVATION DATA: UPSTREAM (FEET) = 959.21 DOWNSTREAM (FEET) = 832.83
CHANNEL LENGTH THRU SUBAREA (FEET) = 1076.71 CHANNEL SLOPE = 0.1174
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.55
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.716
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 32.57 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 28.59
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.04
AVERAGE FLOW DEPTH (FEET) = 0.51 TRAVEL TIME (MIN.) = 3.56
Tc (MIN.) = 17.42
SUBAREA AREA (ACRES) = 32.57 SUBAREA RUNOFF (CFS) = 41.52
EFFECTIVE AREA (ACRES) = 37.63 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 37.6 PEAK FLOW RATE (CFS) = 47.97
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.70

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END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.70 FLOW VELOCITY (FEET/SEC.) = 6.04
LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13832.00 = 1821.42 FEET.

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FLOW PROCESS FROM NODE 13832.00 TO NODE 13833.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

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>>>>TRAVELTIME THRU SUBAREA<<<<<
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ELEVATION DATA: UPSTREAM (FEET) = 832.83 DOWNSTREAM (FEET) = 572.49
CHANNEL LENGTH THRU SUBAREA (FEET) = 1883.58 CHANNEL SLOPE = 0.1382
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.81
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.505
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 32.23 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 65.50
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.10
AVERAGE FLOW DEPTH (FEET) = 0.80 TRAVEL TIME (MIN.) = 4.42
Tc (MIN.) = 21.84
SUBAREA AREA (ACRES) = 32.23 SUBAREA RUNOFF (CFS) = 34.95
EFFECTIVE AREA (ACRES) = 69.86 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 69.9 PEAK FLOW RATE (CFS) = 75.75
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.86

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END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.86 FLOW VELOCITY (FEET/SEC.) = 7.47
LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13833.00 = 3705.00 FEET.

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FLOW PROCESS FROM NODE 13833.00 TO NODE 13834.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
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ELEVATION DATA: UPSTREAM (FEET) = 572.49 DOWNSTREAM (FEET) = 471.65
CHANNEL LENGTH THRU SUBAREA (FEET) = 943.78 CHANNEL SLOPE = 0.1068
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 1.03
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.418
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 27.51 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 89.60
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.25
AVERAGE FLOW DEPTH (FEET) = 1.03 TRAVEL TIME (MIN.) = 2.17
Tc (MIN.) = 24.01
SUBAREA AREA (ACRES) = 27.51 SUBAREA RUNOFF (CFS) = 27.69
EFFECTIVE AREA (ACRES) = 97.37 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 97.4 PEAK FLOW RATE (CFS) = 98.02
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

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*ESTIMATED CHANNEL HEIGHT (FEET) = 1.08
END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 1.08 FLOW VELOCITY (FEET/SEC.) = 7.46
LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13834.00 = 4648.78 FEET.

FLOW PROCESS FROM NODE 13834.00 TO NODE 13835.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM (FEET) = 471.65 DOWNSTREAM (FEET) = 347.06
CHANNEL LENGTH THRU SUBAREA (FEET) = 1647.45 CHANNEL SLOPE = 0.0756
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 1.49
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.305

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	94.21	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 140.67

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.45

AVERAGE FLOW DEPTH (FEET) = 1.46 TRAVEL TIME (MIN.) = 3.69

Tc (MIN.) = 27.70

SUBAREA AREA (ACRES) = 94.21 SUBAREA RUNOFF (CFS) = 85.23

EFFECTIVE AREA (ACRES) = 191.58 AREA-AVERAGED Fm (INCH/HR) = 0.30

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.000

TOTAL AREA (ACRES) = 191.6 PEAK FLOW RATE (CFS) = 173.31

GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 1.64

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 1.64 FLOW VELOCITY (FEET/SEC.) = 7.94

LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13835.00 = 6296.23 FEET.

FLOW PROCESS FROM NODE 13835.00 TO NODE 13836.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 347.06 DOWNSTREAM (FEET) = 269.29
CHANNEL LENGTH THRU SUBAREA (FEET) = 1696.71 CHANNEL SLOPE = 0.0458
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 2.44

* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.216

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	233.25	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 269.53
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.59
AVERAGE FLOW DEPTH (FEET) = 2.40 TRAVEL TIME (MIN.) = 3.72
Tc (MIN.) = 31.42
SUBAREA AREA (ACRES) = 233.25 SUBAREA RUNOFF (CFS) = 192.31
EFFECTIVE AREA (ACRES) = 424.83 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 424.8 PEAK FLOW RATE (CFS) = 350.25
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 2.76

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 2.76 FLOW VELOCITY (FEET/SEC.) = 8.18

LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13836.00 = 7992.94 FEET.

FLOW PROCESS FROM NODE 13836.00 TO NODE 13837.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 269.29 DOWNSTREAM (FEET) = 191.87
CHANNEL LENGTH THRU SUBAREA (FEET) = 2529.21 CHANNEL SLOPE = 0.0306
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 3.31

* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.111

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	134.70	0.30	0.880	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.880

TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 401.61

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.35

AVERAGE FLOW DEPTH (FEET) = 3.29 TRAVEL TIME (MIN.) = 5.73

Tc (MIN.) = 37.15

SUBAREA AREA (ACRES) = 134.70 SUBAREA RUNOFF (CFS) = 102.70

EFFECTIVE AREA (ACRES) = 559.53 AREA-AVERAGED Fm (INCH/HR) = 0.29

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97

TOTAL AREA (ACRES) = 559.5 PEAK FLOW RATE (CFS) = 412.84

GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 3.34

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 3.34 FLOW VELOCITY (FEET/SEC.) = 7.41

LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13837.00 = 10522.15 FEET.

FLOW PROCESS FROM NODE 13837.00 TO NODE 13840.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 191.87 DOWNSTREAM (FEET) = 133.00
FLOW LENGTH (FEET) = 1151.02 MANNING'S N = 0.013

DEPTH OF FLOW IN 54.0 INCH PIPE IS 43.2 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 30.24
 ESTIMATED PIPE DIAMETER (INCH) = 54.00 NUMBER OF PIPES = 1
 PIPE-FLOW (CFS) = 412.84
 PIPE TRAVEL TIME (MIN.) = 0.63 Tc (MIN.) = 37.79
 LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13840.00 = 11673.17 FEET.

 FLOW PROCESS FROM NODE 13837.00 TO NODE 13840.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 37.79
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.099
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	5.97	0.30	0.622	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.622
 SUBAREA AREA (ACRES) = 5.97 SUBAREA RUNOFF (CFS) = 4.91
 EFFECTIVE AREA (ACRES) = 565.50 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97
 TOTAL AREA (ACRES) = 565.5 PEAK FLOW RATE (CFS) = 412.84
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13837.00 TO NODE 13840.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 37.79
 RAINFALL INTENSITY (INCH/HR) = 1.10
 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.97
 EFFECTIVE STREAM AREA (ACRES) = 565.50
 TOTAL STREAM AREA (ACRES) = 565.50
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 412.84

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13246.31	22.26	1.488	0.30 (0.25)	0.85	3524.5	10600.00
1	13738.73	24.19	1.411	0.30 (0.25)	0.85	3929.2	13810.00
1	14800.17	28.47	1.284	0.30 (0.25)	0.85	4799.4	10400.00
1	16252.94	35.36	1.144	0.30 (0.26)	0.85	6552.7	10340.00
1	18114.04	46.35	0.984	0.30 (0.26)	0.85	9114.4	110.00
1	20189.62	60.91	0.848	0.30 (0.26)	0.87	14054.2	150.00
1	21047.15	67.69	0.814	0.30 (0.26)	0.88	16467.3	20100.00
1	21769.67	74.74	0.779	0.30 (0.27)	0.89	19154.9	31100.00
1	23188.45	87.99	0.714	0.30 (0.27)	0.91	24615.4	40100.00
1	23779.35	96.76	0.685	0.30 (0.27)	0.92	28076.3	11801.00
1	24984.21	109.84	0.648	0.30 (0.28)	0.93	34097.7	11530.00
1	25816.23	117.74	0.625	0.30 (0.28)	0.93	38536.5	11900.00

1	27187.54	126.94	0.607	0.30 (0.28)	0.94	44725.4	11330.00
1	27825.75	134.93	0.594	0.30 (0.28)	0.95	49812.5	10630.00
1	27364.24	147.22	0.573	0.30 (0.28)	0.95	55544.8	11600.00
1	26602.68	159.30	0.552	0.30 (0.29)	0.95	59713.0	12201.00
1	25707.38	168.47	0.537	0.30 (0.29)	0.95	61801.3	12231.00
1	24884.11	176.18	0.523	0.30 (0.29)	0.95	63212.8	10400.00
1	23571.91	187.97	0.511	0.30 (0.29)	0.96	64833.6	10320.00
1	22333.03	198.09	0.503	0.30 (0.29)	0.96	65221.4	12000.00
1	19444.02	228.34	0.480	0.30 (0.29)	0.96	65838.4	10100.00
2	412.84	37.79	1.099	0.30 (0.29)	0.97	565.5	13830.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13606.29	22.26	1.488	0.30 (0.26)	0.86	3857.7	10600.00
2	14104.82	24.19	1.411	0.30 (0.26)	0.86	4291.2	13810.00
3	15182.11	28.47	1.284	0.30 (0.26)	0.86	5225.5	10400.00
4	16660.45	35.36	1.144	0.30 (0.26)	0.86	7081.8	10340.00
5	17077.50	37.79	1.099	0.30 (0.26)	0.86	7684.9	13830.00
6	18468.00	46.35	0.984	0.30 (0.26)	0.86	9679.9	110.00
7	20473.93	60.91	0.848	0.30 (0.26)	0.88	14619.7	150.00
8	21314.40	67.69	0.814	0.30 (0.26)	0.88	17032.8	20100.00
9	22019.17	74.74	0.779	0.30 (0.27)	0.89	19720.4	31100.00
10	23404.60	87.99	0.714	0.30 (0.27)	0.91	25180.9	40100.00
11	23980.69	96.76	0.685	0.30 (0.28)	0.92	28641.8	11801.00
12	25166.63	109.84	0.648	0.30 (0.28)	0.93	34663.2	11530.00
13	25987.24	117.74	0.625	0.30 (0.28)	0.93	39102.0	11900.00
14	27349.27	126.94	0.607	0.30 (0.28)	0.94	45290.9	11330.00
15	27980.54	134.93	0.594	0.30 (0.28)	0.95	50378.0	10630.00
16	27508.38	147.22	0.573	0.30 (0.28)	0.95	56110.3	11600.00
17	26736.34	159.30	0.552	0.30 (0.29)	0.95	60278.5	12201.00
18	25833.10	168.47	0.537	0.30 (0.29)	0.95	62366.8	12231.00
19	25003.14	176.18	0.523	0.30 (0.29)	0.95	63778.3	10400.00
20	23684.48	187.97	0.511	0.30 (0.29)	0.96	65399.1	10320.00
21	22441.62	198.09	0.503	0.30 (0.29)	0.96	65786.9	12000.00
22	19540.69	228.34	0.480	0.30 (0.29)	0.96	66403.9	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 27980.54 Tc (MIN.) = 134.93
 EFFECTIVE AREA (ACRES) = 50378.02 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 66403.9
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13840.00 = 132801.55 FEET.

 FLOW PROCESS FROM NODE 13840.00 TO NODE 13860.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 133.00 DOWNSTREAM (FEET) = 130.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 654.44 CHANNEL SLOPE = 0.0046
 GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 12.57

* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.592
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 6.61 0.30 0.975 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.975
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 27981.44
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 14.81
 AVERAGE FLOW DEPTH (FEET) = 12.57 TRAVEL TIME (MIN.) = 0.74
 Tc (MIN.) = 135.67
 SUBAREA AREA (ACRES) = 6.61 SUBAREA RUNOFF (CFS) = 1.78
 EFFECTIVE AREA (ACRES) = 50384.63 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 66410.5 PEAK FLOW RATE (CFS) = 27980.54
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 12.57

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 12.57 FLOW VELOCITY (FEET/SEC.) = 14.81
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13860.00 = 133455.98 FEET.

 FLOW PROCESS FROM NODE 13840.00 TO NODE 13860.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

=====

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION (MIN.) = 135.67
 RAINFALL INTENSITY (INCH/HR) = 0.59
 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.95
 EFFECTIVE STREAM AREA (ACRES) = 50384.63
 TOTAL STREAM AREA (ACRES) = 66410.50
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 27980.54

 FLOW PROCESS FROM NODE 13850.00 TO NODE 13851.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

=====

INITIAL SUBAREA FLOW-LENGTH (FEET) = 617.57
 ELEVATION DATA: UPSTREAM (FEET) = 646.95 DOWNSTREAM (FEET) = 490.10

Tc = K * [(LENGTH ** 3.00) / (ELEVATION CHANGE)] ** 0.20
 SUBAREA ANALYSIS USED MINIMUM Tc (MIN.) = 12.137
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 2.206
 SUBAREA Tc AND LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF" - 4.95 0.30 1.000 56 12.14
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF (CFS) = 8.49
 TOTAL AREA (ACRES) = 4.95 PEAK FLOW RATE (CFS) = 8.49

 FLOW PROCESS FROM NODE 13851.00 TO NODE 13851.50 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 490.10 DOWNSTREAM (FEET) = 440.98
 CHANNEL LENGTH THRU SUBAREA (FEET) = 351.14 CHANNEL SLOPE = 0.1399
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 0.29
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 2.015

SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 4.02 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 11.59
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 3.85
 AVERAGE FLOW DEPTH (FEET) = 0.29 TRAVEL TIME (MIN.) = 1.52
 Tc (MIN.) = 13.66

SUBAREA AREA (ACRES) = 4.02 SUBAREA RUNOFF (CFS) = 6.20
 EFFECTIVE AREA (ACRES) = 8.97 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 9.0 PEAK FLOW RATE (CFS) = 13.84
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 0.32

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 0.32 FLOW VELOCITY (FEET/SEC.) = 4.10
 LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13851.50 = 968.71 FEET.

 FLOW PROCESS FROM NODE 13851.50 TO NODE 13852.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 440.98 DOWNSTREAM (FEET) = 395.76
 CHANNEL LENGTH THRU SUBAREA (FEET) = 512.91 CHANNEL SLOPE = 0.0882
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 0.45
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.803

SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 7.17 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 18.69
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 3.98

AVERAGE FLOW DEPTH (FEET) = 0.43 TRAVEL TIME (MIN.) = 2.15
Tc (MIN.) = 15.80
SUBAREA AREA (ACRES) = 7.17 SUBAREA RUNOFF (CFS) = 9.70
EFFECTIVE AREA (ACRES) = 16.14 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 16.1 PEAK FLOW RATE (CFS) = 21.83
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.48

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.48 FLOW VELOCITY (FEET/SEC.) = 4.19
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13852.00 = 1481.62 FEET.

FLOW PROCESS FROM NODE 13852.00 TO NODE 13853.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 395.76 DOWNSTREAM (FEET) = 354.94
CHANNEL LENGTH THRU SUBAREA (FEET) = 443.69 CHANNEL SLOPE = 0.0920
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 0.52
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.715
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 6.76 0.30 1.000 -
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 26.14
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 4.52
AVERAGE FLOW DEPTH (FEET) = 0.52 TRAVEL TIME (MIN.) = 1.64
Tc (MIN.) = 17.44
SUBAREA AREA (ACRES) = 6.76 SUBAREA RUNOFF (CFS) = 8.61
EFFECTIVE AREA (ACRES) = 22.90 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 22.9 PEAK FLOW RATE (CFS) = 29.17
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.56

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.56 FLOW VELOCITY (FEET/SEC.) = 4.69
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13853.00 = 1925.31 FEET.

FLOW PROCESS FROM NODE 13853.00 TO NODE 13854.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 354.94 DOWNSTREAM (FEET) = 263.57
CHANNEL LENGTH THRU SUBAREA (FEET) = 962.09 CHANNEL SLOPE = 0.0950
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 0.67
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.559
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 18.16 0.30 1.000 -
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 39.46
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.29
AVERAGE FLOW DEPTH (FEET) = 0.66 TRAVEL TIME (MIN.) = 3.03
Tc (MIN.) = 20.47
SUBAREA AREA (ACRES) = 18.16 SUBAREA RUNOFF (CFS) = 20.58
EFFECTIVE AREA (ACRES) = 41.06 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 41.1 PEAK FLOW RATE (CFS) = 46.54
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.73

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.73 FLOW VELOCITY (FEET/SEC.) = 5.58
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13854.00 = 2887.40 FEET.

FLOW PROCESS FROM NODE 13854.00 TO NODE 13855.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 263.57 DOWNSTREAM (FEET) = 188.74
CHANNEL LENGTH THRU SUBAREA (FEET) = 1228.77 CHANNEL SLOPE = 0.0609
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 1.03
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.409
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 38.75 0.30 0.879 -
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.879
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 66.54
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.43
AVERAGE FLOW DEPTH (FEET) = 1.02 TRAVEL TIME (MIN.) = 3.77
Tc (MIN.) = 24.24
SUBAREA AREA (ACRES) = 38.75 SUBAREA RUNOFF (CFS) = 39.95
EFFECTIVE AREA (ACRES) = 79.81 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA (ACRES) = 79.8 PEAK FLOW RATE (CFS) = 80.95
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 1.13

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 1.13 FLOW VELOCITY (FEET/SEC.) = 5.82
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13855.00 = 4116.17 FEET.

FLOW PROCESS FROM NODE 13853.00 TO NODE 13854.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 354.94 DOWNSTREAM (FEET) = 263.57
CHANNEL LENGTH THRU SUBAREA (FEET) = 962.09 CHANNEL SLOPE = 0.0950
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

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FLOW PROCESS FROM NODE 13855.00 TO NODE 13860.00 IS CODE = 31
-----
>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 188.74 DOWNSTREAM(FEET) = 130.00
FLOW LENGTH(FEET) = 2092.67 MANNING'S N = 0.013
ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 36.000
DEPTH OF FLOW IN 36.0 INCH PIPE IS 23.6 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 16.52
ESTIMATED PIPE DIAMETER(INCH) = 36.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 80.95
PIPE TRAVEL TIME(MIN.) = 2.11 Tc(MIN.) = 26.35
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13860.00 = 6208.84 FEET.

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FLOW PROCESS FROM NODE 13855.00 TO NODE 13860.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
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MAINLINE Tc(MIN.) = 26.35
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.342
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 43.41 0.30 0.707 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.707
SUBAREA AREA(ACRES) = 43.41 SUBAREA RUNOFF(CFS) = 44.14
EFFECTIVE AREA(ACRES) = 123.22 AREA-AVERAGED Fm(INCH/HR) = 0.26
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.86
TOTAL AREA(ACRES) = 123.2 PEAK FLOW RATE(CFS) = 120.26

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*****
FLOW PROCESS FROM NODE 13855.00 TO NODE 13860.00 IS CODE = 1
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>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
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TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 26.35
RAINFALL INTENSITY(INCH/HR) = 1.34
AREA-AVERAGED Fm(INCH/HR) = 0.26
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.86
EFFECTIVE STREAM AREA(ACRES) = 123.22
TOTAL STREAM AREA(ACRES) = 123.22
PEAK FLOW RATE(CFS) AT CONFLUENCE = 120.26

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** CONFLUENCE DATA **
STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 13606.29 23.18 1.451 0.30( 0.26) 0.86 3864.3 10600.00
1 14104.82 25.09 1.376 0.30( 0.26) 0.86 4297.8 13810.00
1 15182.11 29.36 1.260 0.30( 0.26) 0.86 5232.1 10400.00
1 16660.45 36.21 1.128 0.30( 0.26) 0.86 7088.4 10340.00

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1 17077.50 38.64 1.084 0.30( 0.26) 0.86 7691.5 13830.00
1 18468.00 47.19 0.974 0.30( 0.26) 0.86 9686.5 110.00
1 20473.93 61.72 0.844 0.30( 0.26) 0.88 14626.4 150.00
1 21314.40 68.49 0.810 0.30( 0.26) 0.88 17039.4 20100.00
1 22019.17 75.53 0.775 0.30( 0.27) 0.89 19727.0 31100.00
1 23404.60 88.77 0.710 0.30( 0.27) 0.91 25187.5 40100.00
1 23980.69 97.53 0.683 0.30( 0.28) 0.92 28648.4 11801.00
1 25166.63 110.60 0.646 0.30( 0.28) 0.93 34669.8 11530.00
1 25987.24 118.49 0.623 0.30( 0.28) 0.93 39108.6 11900.00
1 27349.27 127.69 0.606 0.30( 0.28) 0.94 45297.5 11330.00
1 27980.54 135.67 0.592 0.30( 0.28) 0.95 50384.6 10630.00
1 27508.38 147.96 0.571 0.30( 0.28) 0.95 56116.9 11600.00
1 26736.34 160.05 0.551 0.30( 0.29) 0.95 60285.1 12201.00
1 25833.10 169.22 0.535 0.30( 0.29) 0.95 62373.4 12231.00
1 25003.14 176.94 0.522 0.30( 0.29) 0.95 63784.9 10400.00
1 23684.48 188.74 0.510 0.30( 0.29) 0.96 65405.7 10320.00
1 22441.62 198.87 0.502 0.30( 0.29) 0.96 65793.5 12000.00
1 19540.69 229.16 0.479 0.30( 0.29) 0.96 66410.5 10100.00
2 120.26 26.35 1.342 0.30( 0.26) 0.86 123.2 13850.00

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RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13722.75	23.18	1.451	0.30(0.26)	0.86	3972.7	10600.00
2	14222.97	25.09	1.376	0.30(0.26)	0.86	4415.2	13810.00
3	14543.07	26.35	1.342	0.30(0.26)	0.86	4696.8	13850.00
4	15293.24	29.36	1.260	0.30(0.26)	0.86	5355.4	10400.00
5	16757.01	36.21	1.128	0.30(0.26)	0.86	7211.6	10340.00
6	17169.13	38.64	1.084	0.30(0.26)	0.86	7814.7	13830.00
7	18547.47	47.19	0.974	0.30(0.26)	0.86	9809.7	110.00
8	20538.92	61.72	0.844	0.30(0.26)	0.88	14749.6	150.00
9	21375.67	68.49	0.810	0.30(0.26)	0.88	17162.7	20100.00
10	22076.60	75.53	0.775	0.30(0.27)	0.89	19850.2	31100.00
11	23454.79	88.77	0.710	0.30(0.27)	0.91	25310.7	40100.00
12	24027.84	97.53	0.683	0.30(0.28)	0.92	28771.7	11801.00
13	25209.67	110.60	0.646	0.30(0.28)	0.93	34793.0	11530.00
14	26027.80	118.49	0.623	0.30(0.28)	0.93	39231.8	11900.00
15	27387.90	127.69	0.606	0.30(0.28)	0.94	45420.7	11330.00
16	28017.67	135.67	0.592	0.30(0.28)	0.95	50507.9	10630.00
17	27543.20	147.96	0.571	0.30(0.28)	0.95	56240.2	11600.00
18	26768.88	160.05	0.551	0.30(0.29)	0.95	60408.3	12201.00
19	25863.90	169.22	0.535	0.30(0.29)	0.95	62496.6	12231.00
20	25032.49	176.94	0.522	0.30(0.29)	0.95	63908.1	10400.00
21	23712.50	188.74	0.510	0.30(0.29)	0.96	65528.9	10320.00
22	22468.78	198.87	0.502	0.30(0.29)	0.96	65916.7	12000.00
23	19565.25	229.16	0.479	0.30(0.29)	0.96	66533.7	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

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PEAK FLOW RATE(CFS) = 28017.67 Tc(MIN.) = 135.67
EFFECTIVE AREA(ACRES) = 50507.85 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 66533.7
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13860.00 = 133455.98 FEET.

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FLOW PROCESS FROM NODE 13860.00 TO NODE 13880.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 130.00 DOWNSTREAM(FEET) = 120.57
CHANNEL LENGTH THRU SUBAREA(FEET) = 610.77 CHANNEL SLOPE = 0.0154
GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 9.07

* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.592

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 4.89 0.30 1.000 -

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 28018.32

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 22.67

AVERAGE FLOW DEPTH(FEET) = 9.07 TRAVEL TIME(MIN.) = 0.45

Tc(MIN.) = 136.12

SUBAREA AREA(ACRES) = 4.89 SUBAREA RUNOFF(CFS) = 1.28

EFFECTIVE AREA(ACRES) = 50512.74 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95

TOTAL AREA(ACRES) = 66538.6 PEAK FLOW RATE(CFS) = 28017.67

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 9.07

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 9.07 FLOW VELOCITY(FEET/SEC.) = 22.67

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13880.00 = 134066.75 FEET.

FLOW PROCESS FROM NODE 13860.00 TO NODE 13880.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<

TOTAL NUMBER OF STREAMS = 2

CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:

TIME OF CONCENTRATION(MIN.) = 136.12

RAINFALL INTENSITY(INCH/HR) = 0.59

AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30

AREA-AVERAGED Ap = 0.95

EFFECTIVE STREAM AREA(ACRES) = 50512.74

TOTAL STREAM AREA(ACRES) = 66538.61

PEAK FLOW RATE(CFS) AT CONFLUENCE = 28017.67

FLOW PROCESS FROM NODE 13870.00 TO NODE 13871.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<

>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

INITIAL SUBAREA FLOW-LENGTH(FEET) = 872.65

ELEVATION DATA: UPSTREAM(FEET) = 558.52 DOWNSTREAM(FEET) = 436.47

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20

SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 15.704

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.808

SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER

"GRASS" - 7.32 0.30 1.000 56 15.70

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

SUBAREA RUNOFF(CFS) = 9.94

TOTAL AREA(ACRES) = 7.32 PEAK FLOW RATE(CFS) = 9.94

FLOW PROCESS FROM NODE 13871.00 TO NODE 13872.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 436.47 DOWNSTREAM(FEET) = 337.62

CHANNEL LENGTH THRU SUBAREA(FEET) = 827.95 CHANNEL SLOPE = 0.1194

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 0.40

* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.635

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 13.01 0.30 1.000 -

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 17.77

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.27

AVERAGE FLOW DEPTH(FEET) = 0.39 TRAVEL TIME(MIN.) = 3.23

Tc(MIN.) = 18.93

SUBAREA AREA(ACRES) = 13.01 SUBAREA RUNOFF(CFS) = 15.63

EFFECTIVE AREA(ACRES) = 20.33 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 20.3 PEAK FLOW RATE(CFS) = 24.43

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 0.46

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.46 FLOW VELOCITY(FEET/SEC.) = 4.83

LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13872.00 = 1700.60 FEET.

FLOW PROCESS FROM NODE 13872.00 TO NODE 13873.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 337.62 DOWNSTREAM(FEET) = 253.88

CHANNEL LENGTH THRU SUBAREA(FEET) = 1049.16 CHANNEL SLOPE = 0.0798

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 0.74
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.485
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 32.99 0.30 0.923 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.923
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 42.38
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.13
 AVERAGE FLOW DEPTH (FEET) = 0.72 TRAVEL TIME (MIN.) = 3.41
 Tc (MIN.) = 22.34
 SUBAREA AREA (ACRES) = 32.99 SUBAREA RUNOFF (CFS) = 35.86
 EFFECTIVE AREA (ACRES) = 53.32 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 53.3 PEAK FLOW RATE (CFS) = 57.54
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 0.86

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 0.86 FLOW VELOCITY (FEET/SEC.) = 5.67
 LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13873.00 = 2749.76 FEET.

 FLOW PROCESS FROM NODE 13873.00 TO NODE 13874.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<
 =====

ELEVATION DATA: UPSTREAM (FEET) = 253.88 DOWNSTREAM (FEET) = 160.73
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1518.60 CHANNEL SLOPE = 0.0613
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 0.86
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.358

SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 30.94 0.30 0.900 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.900
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 72.69
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.37
 AVERAGE FLOW DEPTH (FEET) = 0.84 TRAVEL TIME (MIN.) = 3.43
 Tc (MIN.) = 25.78
 SUBAREA AREA (ACRES) = 30.94 SUBAREA RUNOFF (CFS) = 30.29
 EFFECTIVE AREA (ACRES) = 84.26 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA (ACRES) = 84.3 PEAK FLOW RATE (CFS) = 81.74
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 0.90

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 0.90 FLOW VELOCITY (FEET/SEC.) = 7.67
 LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13874.00 = 4268.36 FEET.

 FLOW PROCESS FROM NODE 13874.00 TO NODE 13875.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<
 =====

ELEVATION DATA: UPSTREAM (FEET) = 160.73 DOWNSTREAM (FEET) = 158.14
 CHANNEL LENGTH THRU SUBAREA (FEET) = 582.74 CHANNEL SLOPE = 0.0044
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.31
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.281

SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 73.67 0.30 0.930 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.930
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 114.96
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 3.46
 AVERAGE FLOW DEPTH (FEET) = 2.28 TRAVEL TIME (MIN.) = 2.81
 Tc (MIN.) = 28.59
 SUBAREA AREA (ACRES) = 73.67 SUBAREA RUNOFF (CFS) = 66.42
 EFFECTIVE AREA (ACRES) = 157.93 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA (ACRES) = 157.9 PEAK FLOW RATE (CFS) = 142.31
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.56

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 2.56 FLOW VELOCITY (FEET/SEC.) = 3.68
 LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13875.00 = 4851.10 FEET.

 FLOW PROCESS FROM NODE 13875.00 TO NODE 13880.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
 =====

ELEVATION DATA: UPSTREAM (FEET) = 158.14 DOWNSTREAM (FEET) = 120.57
 FLOW LENGTH (FEET) = 1855.67 MANNING'S N = 0.013
 DEPTH OF FLOW IN 45.0 INCH PIPE IS 32.5 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 16.65
 ESTIMATED PIPE DIAMETER (INCH) = 45.00 NUMBER OF PIPES = 1
 PIPE-FLOW (CFS) = 142.31
 PIPE TRAVEL TIME (MIN.) = 1.86 Tc (MIN.) = 30.45
 LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13880.00 = 6706.77 FEET.

 FLOW PROCESS FROM NODE 13875.00 TO NODE 13880.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====

MAINLINE Tc (MIN.) = 30.45
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 1.234
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS

LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 34.90 0.30 0.743 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.743
 SUBAREA AREA(ACRES) = 34.90 SUBAREA RUNOFF(CFS) = 31.76
 EFFECTIVE AREA(ACRES) = 192.83 AREA-AVERAGED Fm(INCH/HR) = 0.27
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.90
 TOTAL AREA(ACRES) = 192.8 PEAK FLOW RATE(CFS) = 167.41

FLOW PROCESS FROM NODE 13875.00 TO NODE 13880.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

=====

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION(MIN.) = 30.45
 RAINFALL INTENSITY(INCH/HR) = 1.23
 AREA-AVERAGED Fm(INCH/HR) = 0.27
 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.90
 EFFECTIVE STREAM AREA(ACRES) = 192.83
 TOTAL STREAM AREA(ACRES) = 192.83
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 167.41

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13722.75	23.74	1.429	0.30(0.26)	0.86	3977.6	10600.00
1	14222.97	25.65	1.361	0.30(0.26)	0.86	4420.1	13810.00
1	14543.07	26.90	1.327	0.30(0.26)	0.86	4701.7	13850.00
1	15293.24	29.90	1.245	0.30(0.26)	0.86	5360.2	10400.00
1	16757.01	36.74	1.119	0.30(0.26)	0.86	7216.5	10340.00
1	17169.13	39.16	1.074	0.30(0.26)	0.86	7819.6	13830.00
1	18547.47	47.70	0.968	0.30(0.26)	0.86	9814.6	110.00
1	20538.92	62.21	0.841	0.30(0.26)	0.88	14754.5	150.00
1	21375.67	68.98	0.808	0.30(0.26)	0.88	17167.5	20100.00
1	22076.60	76.02	0.773	0.30(0.27)	0.89	19855.1	31100.00
1	23454.79	89.24	0.708	0.30(0.27)	0.91	25315.6	40100.00
1	24027.84	98.00	0.681	0.30(0.28)	0.92	28776.5	11801.00
1	25209.67	111.07	0.644	0.30(0.28)	0.93	34797.9	11530.00
1	26027.80	118.95	0.622	0.30(0.28)	0.93	39236.7	11900.00
1	27387.90	128.14	0.605	0.30(0.28)	0.94	45425.6	11330.00
1	28017.67	136.12	0.592	0.30(0.28)	0.95	50512.7	10630.00
1	27543.20	148.41	0.571	0.30(0.28)	0.95	56245.1	11600.00
1	26768.88	160.51	0.550	0.30(0.29)	0.95	60413.2	12201.00
1	25863.90	169.68	0.535	0.30(0.29)	0.95	62501.5	12231.00
1	25032.49	177.40	0.521	0.30(0.29)	0.95	63913.0	10400.00
1	23712.50	189.22	0.510	0.30(0.29)	0.96	65533.8	10320.00
1	22468.78	199.35	0.502	0.30(0.29)	0.96	65921.6	12000.00
1	19565.25	229.66	0.479	0.30(0.29)	0.96	66538.6	10100.00
2	167.41	30.45	1.234	0.30(0.27)	0.90	192.8	13870.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13879.72	23.74	1.429	0.30(0.26)	0.86	4127.9	10600.00
2	14382.63	25.65	1.361	0.30(0.26)	0.86	4582.5	13810.00
3	14705.27	26.90	1.327	0.30(0.26)	0.86	4872.1	13850.00
4	15459.50	29.90	1.245	0.30(0.26)	0.86	5549.6	10400.00
5	15577.40	30.45	1.234	0.30(0.26)	0.86	5701.1	13870.00
6	16904.43	36.74	1.119	0.30(0.26)	0.86	7409.3	10340.00
7	17308.86	39.16	1.074	0.30(0.26)	0.86	8012.4	13830.00
8	18668.78	47.70	0.968	0.30(0.26)	0.86	10007.4	110.00
9	20638.17	62.21	0.841	0.30(0.26)	0.88	14947.3	150.00
10	21469.13	68.98	0.808	0.30(0.26)	0.88	17360.4	20100.00
11	22164.03	76.02	0.773	0.30(0.27)	0.89	20048.0	31100.00
12	23530.89	89.24	0.708	0.30(0.27)	0.91	25508.4	40100.00
13	24099.37	98.00	0.681	0.30(0.28)	0.92	28969.4	11801.00
14	25274.77	111.07	0.644	0.30(0.28)	0.93	34990.7	11530.00
15	26089.02	118.95	0.622	0.30(0.28)	0.93	39429.6	11900.00
16	27446.21	128.14	0.605	0.30(0.28)	0.94	45618.4	11330.00
17	28073.62	136.12	0.592	0.30(0.28)	0.95	50705.6	10630.00
18	27595.52	148.41	0.571	0.30(0.28)	0.95	56437.9	11600.00
19	26817.63	160.51	0.550	0.30(0.29)	0.95	60606.1	12201.00
20	25909.95	169.68	0.535	0.30(0.29)	0.95	62694.3	12231.00
21	25076.26	177.40	0.521	0.30(0.29)	0.95	64105.9	10400.00
22	23754.27	189.22	0.510	0.30(0.29)	0.95	65726.6	10320.00
23	22509.19	199.35	0.502	0.30(0.29)	0.96	66114.5	12000.00
24	19601.60	229.66	0.479	0.30(0.29)	0.96	66731.4	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 28073.62 Tc(MIN.) = 136.12
 EFFECTIVE AREA(ACRES) = 50705.57 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA(ACRES) = 66731.4
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13880.00 = 134066.75 FEET.

FLOW PROCESS FROM NODE 13880.00 TO NODE 13910.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 120.57 DOWNSTREAM(FEET) = 119.70
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1190.21 CHANNEL SLOPE = 0.0007
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 20.24
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.587
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 117.69 0.30 0.724 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.724
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 28093.22
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 7.68
 AVERAGE FLOW DEPTH(FEET) = 20.23 TRAVEL TIME(MIN.) = 2.58
 Tc(MIN.) = 138.70
 SUBAREA AREA(ACRES) = 117.69 SUBAREA RUNOFF(CFS) = 39.20
 EFFECTIVE AREA(ACRES) = 50823.26 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA (ACRES) = 66849.1 PEAK FLOW RATE (CFS) = 28073.62
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 20.22

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 20.22 FLOW VELOCITY (FEET/SEC.) = 7.67
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13910.00 = 135256.95 FEET.

FLOW PROCESS FROM NODE 13880.00 TO NODE 13910.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<

=====

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION (MIN.) = 138.70
RAINFALL INTENSITY (INCH/HR) = 0.59
AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.94
EFFECTIVE STREAM AREA (ACRES) = 50823.26
TOTAL STREAM AREA (ACRES) = 66849.12
PEAK FLOW RATE (CFS) AT CONFLUENCE = 28073.62

FLOW PROCESS FROM NODE 13889.00 TO NODE 13890.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

=====

INITIAL SUBAREA FLOW-LENGTH (FEET) = 447.89
ELEVATION DATA: UPSTREAM (FEET) = 564.89 DOWNSTREAM (FEET) = 421.92

Tc = K * [(LENGTH** 3.00) / (ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc (MIN.) = 6.976
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 3.215
SUBAREA Tc AND LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
PUBLIC PARK	-	3.03	0.30	0.960	56	6.98

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.960
SUBAREA RUNOFF (CFS) = 7.98
TOTAL AREA (ACRES) = 3.03 PEAK FLOW RATE (CFS) = 7.98

FLOW PROCESS FROM NODE 13890.00 TO NODE 13891.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 421.92 DOWNSTREAM (FEET) = 392.64
CHANNEL LENGTH THRU SUBAREA (FEET) = 435.33 CHANNEL SLOPE = 0.0673
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT (FEET) = 0.37
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 2.825
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	8.12	0.30	0.986	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.986
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 17.27
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 4.56
AVERAGE FLOW DEPTH (FEET) = 0.35 TRAVEL TIME (MIN.) = 1.59
Tc (MIN.) = 8.57
SUBAREA AREA (ACRES) = 8.12 SUBAREA RUNOFF (CFS) = 18.49
EFFECTIVE AREA (ACRES) = 11.15 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 11.1 PEAK FLOW RATE (CFS) = 25.41
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.45

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.45 FLOW VELOCITY (FEET/SEC.) = 5.24
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13891.00 = 883.22 FEET.

FLOW PROCESS FROM NODE 13891.00 TO NODE 13892.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 392.64 DOWNSTREAM (FEET) = 324.46
CHANNEL LENGTH THRU SUBAREA (FEET) = 662.40 CHANNEL SLOPE = 0.1029
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.51
* 10 YEAR RAINFALL INTENSITY (INCH/HR) = 2.455
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	12.50	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 37.55
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.93
AVERAGE FLOW DEPTH (FEET) = 0.49 TRAVEL TIME (MIN.) = 1.59
Tc (MIN.) = 10.16
SUBAREA AREA (ACRES) = 12.50 SUBAREA RUNOFF (CFS) = 24.24
EFFECTIVE AREA (ACRES) = 23.65 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 23.6 PEAK FLOW RATE (CFS) = 45.93
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.55

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.55 FLOW VELOCITY (FEET/SEC.) = 7.46
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13892.00 = 1545.62 FEET.

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FLOW PROCESS FROM NODE 13892.00 TO NODE 13893.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 324.46 DOWNSTREAM(FEET) = 240.82
CHANNEL LENGTH THRU SUBAREA(FEET) = 980.03 CHANNEL SLOPE = 0.0853
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.70
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.187
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA      Fp        Ap   SCS
  LAND USE          GROUP  (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED        -         15.87    0.30    1.000   -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 59.42
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 7.67
AVERAGE FLOW DEPTH(FEET) = 0.68 TRAVEL TIME(MIN.) = 2.13
Tc(MIN.) = 12.29
SUBAREA AREA(ACRES) = 15.87 SUBAREA RUNOFF(CFS) = 26.95
EFFECTIVE AREA(ACRES) = 39.52 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA(ACRES) = 39.5 PEAK FLOW RATE(CFS) = 67.18
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.74

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 0.74 FLOW VELOCITY(FEET/SEC.) = 7.97
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13893.00 = 2525.65 FEET.
*****
FLOW PROCESS FROM NODE 13893.00 TO NODE 13894.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 240.82 DOWNSTREAM(FEET) = 163.04
CHANNEL LENGTH THRU SUBAREA(FEET) = 1144.35 CHANNEL SLOPE = 0.0680
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.94
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.891
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA      Fp        Ap   SCS
  LAND USE          GROUP  (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED        -         28.41    0.30    0.985   -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.985
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 87.63
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 8.12
AVERAGE FLOW DEPTH(FEET) = 0.91 TRAVEL TIME(MIN.) = 2.35
Tc(MIN.) = 14.64
SUBAREA AREA(ACRES) = 28.41 SUBAREA RUNOFF(CFS) = 40.81
EFFECTIVE AREA(ACRES) = 67.93 AREA-AVERAGED Fm(INCH/HR) = 0.30

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AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA(ACRES) = 67.9 PEAK FLOW RATE(CFS) = 97.48
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.97

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 0.97 FLOW VELOCITY(FEET/SEC.) = 8.40
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13894.00 = 3670.00 FEET.
*****
FLOW PROCESS FROM NODE 13894.00 TO NODE 13910.00 IS CODE = 31
-----
>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 163.04 DOWNSTREAM(FEET) = 119.70
FLOW LENGTH(FEET) = 1899.01 MANNING'S N = 0.013
DEPTH OF FLOW IN 39.0 INCH PIPE IS 27.0 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 15.93
ESTIMATED PIPE DIAMETER(INCH) = 39.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 97.48
PIPE TRAVEL TIME(MIN.) = 1.99 Tc(MIN.) = 16.63
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13910.00 = 5569.01 FEET.
*****
FLOW PROCESS FROM NODE 13894.00 TO NODE 13910.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN.) = 16.63
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.759
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA      Fp        Ap   SCS
  LAND USE          GROUP  (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED        -         11.69    0.30    0.634   -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.634
SUBAREA AREA(ACRES) = 11.69 SUBAREA RUNOFF(CFS) = 16.50
EFFECTIVE AREA(ACRES) = 79.62 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA(ACRES) = 79.6 PEAK FLOW RATE(CFS) = 105.88
*****
FLOW PROCESS FROM NODE 13894.00 TO NODE 13910.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 16.63
RAINFALL INTENSITY(INCH/HR) = 1.76
AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.94
EFFECTIVE STREAM AREA(ACRES) = 79.62
TOTAL STREAM AREA(ACRES) = 79.62

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PEAK FLOW RATE(CFS) AT CONFLUENCE = 105.88

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	13879.72	26.89	1.327	0.30 (0.26)	0.86	4245.6	10600.00
1	14382.63	28.77	1.276	0.30 (0.26)	0.86	4700.2	13810.00
1	14705.27	30.00	1.242	0.30 (0.26)	0.86	4989.8	13850.00
1	15459.50	32.95	1.188	0.30 (0.26)	0.86	5667.3	10400.00
1	15577.40	33.49	1.178	0.30 (0.26)	0.86	5818.8	13870.00
1	16904.43	39.72	1.064	0.30 (0.26)	0.86	7527.0	10340.00
1	17308.86	42.12	1.034	0.30 (0.26)	0.86	8130.1	13830.00
1	18668.78	50.59	0.936	0.30 (0.26)	0.86	10125.1	110.00
1	20638.17	65.02	0.827	0.30 (0.26)	0.87	15065.0	150.00
1	21469.13	71.76	0.794	0.30 (0.26)	0.88	17478.1	20100.00
1	22164.03	78.77	0.759	0.30 (0.27)	0.89	20165.6	31100.00
1	23530.89	91.96	0.698	0.30 (0.27)	0.91	25626.1	40100.00
1	24099.37	100.69	0.674	0.30 (0.27)	0.92	29087.1	11801.00
1	25274.77	113.73	0.637	0.30 (0.28)	0.93	35108.4	11530.00
1	26089.02	121.59	0.616	0.30 (0.28)	0.93	39547.3	11900.00
1	27446.21	130.74	0.601	0.30 (0.28)	0.94	45736.1	11330.00
1	28073.62	138.70	0.587	0.30 (0.28)	0.94	50823.3	10630.00
1	27595.52	151.01	0.566	0.30 (0.28)	0.95	56555.6	11600.00
1	26817.63	163.12	0.546	0.30 (0.29)	0.95	60723.8	12201.00
1	25909.95	172.32	0.530	0.30 (0.29)	0.95	62812.0	12231.00
1	25076.26	180.07	0.517	0.30 (0.29)	0.95	64223.6	10400.00
1	23754.27	191.92	0.508	0.30 (0.29)	0.95	65844.3	10320.00
1	22509.19	202.10	0.500	0.30 (0.29)	0.95	66232.1	12000.00
1	19601.60	232.52	0.476	0.30 (0.29)	0.96	66849.1	10100.00
2	105.88	16.63	1.759	0.30 (0.28)	0.94	79.6	13889.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12147.95	16.63	1.759	0.30 (0.26)	0.86	2704.9	13889.00
2	13954.67	26.89	1.327	0.30 (0.26)	0.86	4325.3	10600.00
3	14453.90	28.77	1.276	0.30 (0.26)	0.86	4779.8	13810.00
4	14774.11	30.00	1.242	0.30 (0.26)	0.86	5069.4	13850.00
5	15524.47	32.95	1.188	0.30 (0.26)	0.86	5746.9	10400.00
6	15641.66	33.49	1.178	0.30 (0.26)	0.86	5898.4	13870.00
7	16960.53	39.72	1.064	0.30 (0.26)	0.86	7606.6	10340.00
8	17362.79	42.12	1.034	0.30 (0.26)	0.86	8209.7	13830.00
9	18715.68	50.59	0.936	0.30 (0.26)	0.86	10204.7	110.00
10	20677.29	65.02	0.827	0.30 (0.26)	0.87	15144.6	150.00
11	21505.87	71.76	0.794	0.30 (0.26)	0.88	17557.7	20100.00
12	22198.28	78.77	0.759	0.30 (0.27)	0.89	20245.3	31100.00
13	23560.78	91.96	0.698	0.30 (0.27)	0.91	25705.7	40100.00
14	24127.48	100.69	0.674	0.30 (0.27)	0.92	29166.7	11801.00
15	25300.24	113.73	0.637	0.30 (0.28)	0.93	35188.0	11530.00
16	26113.03	121.59	0.616	0.30 (0.28)	0.93	39626.9	11900.00
17	27469.10	130.74	0.601	0.30 (0.28)	0.94	45815.7	11330.00
18	28095.54	138.70	0.587	0.30 (0.28)	0.94	50902.9	10630.00
19	27615.94	151.01	0.566	0.30 (0.28)	0.95	56635.2	11600.00
20	26836.58	163.12	0.546	0.30 (0.29)	0.95	60803.4	12201.00
21	25927.78	172.32	0.530	0.30 (0.29)	0.95	62891.6	12231.00

22	25093.14	180.07	0.517	0.30 (0.29)	0.95	64303.2	10400.00
23	23770.50	191.92	0.508	0.30 (0.29)	0.95	65923.9	10320.00
24	22524.86	202.10	0.500	0.30 (0.29)	0.95	66311.8	12000.00
25	19615.58	232.52	0.476	0.30 (0.29)	0.96	66928.7	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 28095.54 Tc(MIN.) = 138.70
EFFECTIVE AREA(ACRES) = 50902.88 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA(ACRES) = 66928.7
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13910.00 = 135256.95 FEET.

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 66928.7 TC(MIN.) = 138.70
EFFECTIVE AREA(ACRES) = 50902.88 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.945
PEAK FLOW RATE(CFS) = 28095.54

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12147.95	16.63	1.759	0.30 (0.26)	0.86	2704.9	13889.00
2	13954.67	26.89	1.327	0.30 (0.26)	0.86	4325.3	10600.00
3	14453.90	28.77	1.276	0.30 (0.26)	0.86	4779.8	13810.00
4	14774.11	30.00	1.242	0.30 (0.26)	0.86	5069.4	13850.00
5	15524.47	32.95	1.188	0.30 (0.26)	0.86	5746.9	10400.00
6	15641.66	33.49	1.178	0.30 (0.26)	0.86	5898.4	13870.00
7	16960.53	39.72	1.064	0.30 (0.26)	0.86	7606.6	10340.00
8	17362.79	42.12	1.034	0.30 (0.26)	0.86	8209.7	13830.00
9	18715.68	50.59	0.936	0.30 (0.26)	0.86	10204.7	110.00
10	20677.29	65.02	0.827	0.30 (0.26)	0.87	15144.6	150.00
11	21505.87	71.76	0.794	0.30 (0.26)	0.88	17557.7	20100.00
12	22198.28	78.77	0.759	0.30 (0.27)	0.89	20245.3	31100.00
13	23560.78	91.96	0.698	0.30 (0.27)	0.91	25705.7	40100.00
14	24127.48	100.69	0.674	0.30 (0.27)	0.92	29166.7	11801.00
15	25300.24	113.73	0.637	0.30 (0.28)	0.93	35188.0	11530.00
16	26113.03	121.59	0.616	0.30 (0.28)	0.93	39626.9	11900.00
17	27469.10	130.74	0.601	0.30 (0.28)	0.94	45815.7	11330.00
18	28095.54	138.70	0.587	0.30 (0.28)	0.94	50902.9	10630.00
19	27615.94	151.01	0.566	0.30 (0.28)	0.95	56635.2	11600.00
20	26836.58	163.12	0.546	0.30 (0.29)	0.95	60803.4	12201.00
21	25927.78	172.32	0.530	0.30 (0.29)	0.95	62891.6	12231.00
22	25093.14	180.07	0.517	0.30 (0.29)	0.95	64303.2	10400.00
23	23770.50	191.92	0.508	0.30 (0.29)	0.95	65923.9	10320.00
24	22524.86	202.10	0.500	0.30 (0.29)	0.95	66311.8	12000.00
25	19615.58	232.52	0.476	0.30 (0.29)	0.96	66928.7	10100.00

END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 139 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 10-YR EV AUG 2023 ROKAMOTO *

FILE NAME: RI10EV39.DAT
TIME/DATE OF STUDY: 13:22 08/09/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 10.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 3.695
- 2) 10.00; 2.473
- 3) 15.00; 1.845
- 4) 20.00; 1.577
- 5) 25.00; 1.378
- 6) 30.00; 1.242
- 7) 40.00; 1.058
- 8) 50.00; 0.941
- 9) 60.00; 0.852
- 10) 90.00; 0.704
- 11) 120.00; 0.618
- 12) 180.00; 0.516
- 13) 360.00; 0.377
- 14) 1200.00; 0.164

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	STREET-CROSSFALL: HEIGHT (FT)	CURB WIDTH (FT)	GUTTER-GEOMETRIES: LIP (FT)	HIKE FACTOR (FT)	MANNING (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13900.00 TO NODE 13901.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 600.65
ELEVATION DATA: UPSTREAM(FEET) = 442.40 DOWNSTREAM(FEET) = 385.16

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 10.859
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.365
SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
AGRICULTURAL POOR COVER "FALLOW"	-	4.00	0.30	1.000	56	10.86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF(CFS) = 7.43
TOTAL AREA(ACRES) = 4.00 PEAK FLOW RATE(CFS) = 7.43

FLOW PROCESS FROM NODE 13901.00 TO NODE 13902.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 385.16 DOWNSTREAM(FEET) = 288.21
CHANNEL LENGTH THRU SUBAREA(FEET) = 647.42 CHANNEL SLOPE = 0.1497
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.26
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 2.119
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	8.47	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 14.40
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.51
AVERAGE FLOW DEPTH(FEET) = 0.25 TRAVEL TIME(MIN.) = 1.96
Tc(MIN.) = 12.82
SUBAREA AREA(ACRES) = 8.47 SUBAREA RUNOFF(CFS) = 13.87
EFFECTIVE AREA(ACRES) = 12.47 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 12.5 PEAK FLOW RATE(CFS) = 20.42
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.31

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.31 FLOW VELOCITY(FEET/SEC.) = 6.24
LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13902.00 = 1248.07 FEET.

FLOW PROCESS FROM NODE 13902.00 TO NODE 13903.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 288.21 DOWNSTREAM(FEET) = 184.89
CHANNEL LENGTH THRU SUBAREA(FEET) = 669.27 CHANNEL SLOPE = 0.1544
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 0.45

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.943

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	23.85	0.30	0.982	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.982

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 38.14

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 7.97

AVERAGE FLOW DEPTH(FEET) = 0.44 TRAVEL TIME(MIN.) = 1.40

Tc(MIN.) = 14.22

SUBAREA AREA(ACRES) = 23.85 SUBAREA RUNOFF(CFS) = 35.39

EFFECTIVE AREA(ACRES) = 36.32 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99

TOTAL AREA(ACRES) = 36.3 PEAK FLOW RATE(CFS) = 53.84

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 0.54

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.54 FLOW VELOCITY(FEET/SEC.) = 9.02

LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13903.00 = 1917.34 FEET.

FLOW PROCESS FROM NODE 13903.00 TO NODE 13904.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<

>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<

ELEVATION DATA: UPSTREAM(FEET) = 184.89 DOWNSTREAM(FEET) = 155.08

FLOW LENGTH(FEET) = 876.66 MANNING'S N = 0.013

ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 36.000

DEPTH OF FLOW IN 36.0 INCH PIPE IS 17.2 INCHES

PIPE-FLOW VELOCITY(FEET/SEC.) = 16.18

ESTIMATED PIPE DIAMETER(INCH) = 36.00 NUMBER OF PIPES = 1

PIPE-FLOW(CFS) = 53.84

PIPE TRAVEL TIME(MIN.) = 0.90 Tc(MIN.) = 15.12

LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13904.00 = 2794.00 FEET.

FLOW PROCESS FROM NODE 13903.00 TO NODE 13904.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 15.12

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.839

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	21.29	0.30	0.996	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.996

SUBAREA AREA(ACRES) = 21.29 SUBAREA RUNOFF(CFS) = 29.51

EFFECTIVE AREA(ACRES) = 57.61 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99

TOTAL AREA(ACRES) = 57.6 PEAK FLOW RATE(CFS) = 79.92

FLOW PROCESS FROM NODE 13904.00 TO NODE 13920.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<

>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<

ELEVATION DATA: UPSTREAM(FEET) = 155.08 DOWNSTREAM(FEET) = 118.00

FLOW LENGTH(FEET) = 1961.38 MANNING'S N = 0.013

DEPTH OF FLOW IN 36.0 INCH PIPE IS 27.2 INCHES

PIPE-FLOW VELOCITY(FEET/SEC.) = 13.96

ESTIMATED PIPE DIAMETER(INCH) = 36.00 NUMBER OF PIPES = 1

PIPE-FLOW(CFS) = 79.92

PIPE TRAVEL TIME(MIN.) = 2.34 Tc(MIN.) = 17.46

LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13920.00 = 4755.38 FEET.

FLOW PROCESS FROM NODE 13904.00 TO NODE 13920.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 17.46

* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.713

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	43.53	0.30	0.649	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.649

SUBAREA AREA(ACRES) = 43.53 SUBAREA RUNOFF(CFS) = 59.49

EFFECTIVE AREA(ACRES) = 101.14 AREA-AVERAGED Fm(INCH/HR) = 0.25

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84

TOTAL AREA(ACRES) = 101.1 PEAK FLOW RATE(CFS) = 132.90

FLOW PROCESS FROM NODE 13904.00 TO NODE 13920.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<

FLOW PROCESS FROM NODE 13910.00 TO NODE 13910.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<

PEAK FLOWRATE TABLE FILE NAME: RI10EV38.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12147.95	16.63	0.30 (0.26)	0.86	2704.9	13889.00
2	15641.66	33.49	0.30 (0.26)	0.86	5898.4	13870.00
3	17362.79	42.12	0.30 (0.26)	0.86	8209.7	13830.00
4	18715.68	50.59	0.30 (0.26)	0.86	10204.7	110.00
5	20677.29	65.02	0.30 (0.26)	0.87	15144.6	150.00
6	21505.87	71.76	0.30 (0.26)	0.88	17557.7	20100.00
7	22198.28	78.77	0.30 (0.27)	0.89	20245.3	31100.00
8	23560.78	91.96	0.30 (0.27)	0.91	25705.7	40100.00
9	24127.48	100.69	0.30 (0.27)	0.92	29166.7	11801.00
10	25300.24	113.73	0.30 (0.28)	0.93	35188.0	11530.00
11	26113.03	121.59	0.30 (0.28)	0.93	39626.9	11900.00
12	27469.10	130.74	0.30 (0.28)	0.94	45815.7	11330.00
13	28095.54	138.70	0.30 (0.28)	0.94	50902.9	10630.00
14	27615.94	151.01	0.30 (0.28)	0.95	56635.2	11600.00
15	26836.58	163.12	0.30 (0.29)	0.95	60803.4	12201.00
16	25927.78	172.32	0.30 (0.29)	0.95	62891.6	12231.00
17	25093.14	180.07	0.30 (0.29)	0.95	64303.2	10400.00
18	23770.50	191.92	0.30 (0.29)	0.95	65923.9	10320.00
19	22524.86	202.10	0.30 (0.29)	0.95	66311.8	12000.00
20	19615.58	232.52	0.30 (0.29)	0.96	66928.7	10100.00
TOTAL AREA (ACRES) =						66928.7

 FLOW PROCESS FROM NODE 13910.00 TO NODE 13910.00 IS CODE = 14.0

>>>>MEMORY BANK # 2 COPIED ONTO MAIN-STREAM MEMORY<<<<<

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12147.95	16.63	0.30 (0.26)	0.86	2704.9	13889.00
2	15641.66	33.49	0.30 (0.26)	0.86	5898.4	13870.00
3	17362.79	42.12	0.30 (0.26)	0.86	8209.7	13830.00
4	18715.68	50.59	0.30 (0.26)	0.86	10204.7	110.00
5	20677.29	65.02	0.30 (0.26)	0.87	15144.6	150.00
6	21505.87	71.76	0.30 (0.26)	0.88	17557.7	20100.00
7	22198.28	78.77	0.30 (0.27)	0.89	20245.3	31100.00
8	23560.78	91.96	0.30 (0.27)	0.91	25705.7	40100.00
9	24127.48	100.69	0.30 (0.27)	0.92	29166.7	11801.00
10	25300.24	113.73	0.30 (0.28)	0.93	35188.0	11530.00
11	26113.03	121.59	0.30 (0.28)	0.93	39626.9	11900.00
12	27469.10	130.74	0.30 (0.28)	0.94	45815.7	11330.00
13	28095.54	138.70	0.30 (0.28)	0.94	50902.9	10630.00
14	27615.94	151.01	0.30 (0.28)	0.95	56635.2	11600.00
15	26836.58	163.12	0.30 (0.29)	0.95	60803.4	12201.00
16	25927.78	172.32	0.30 (0.29)	0.95	62891.6	12231.00
17	25093.14	180.07	0.30 (0.29)	0.95	64303.2	10400.00
18	23770.50	191.92	0.30 (0.29)	0.95	65923.9	10320.00
19	22524.86	202.10	0.30 (0.29)	0.95	66311.8	12000.00
20	19615.58	232.52	0.30 (0.29)	0.96	66928.7	10100.00
TOTAL AREA (ACRES) =						66928.7

 FLOW PROCESS FROM NODE 13910.00 TO NODE 13920.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 119.70 DOWNSTREAM(FEET) = 118.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1376.26 CHANNEL SLOPE = 0.0012
 GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 17.73
 * 10 YEAR RAINFALL INTENSITY (INCH/HR) = 0.582
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 96.09 0.30 0.535 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.535
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 28113.77
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 9.28
 AVERAGE FLOW DEPTH (FEET) = 17.73 TRAVEL TIME (MIN.) = 2.47
 Tc (MIN.) = 141.18
 SUBAREA AREA (ACRES) = 96.09 SUBAREA RUNOFF (CFS) = 36.46
 EFFECTIVE AREA (ACRES) = 50998.97 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
 TOTAL AREA (ACRES) = 67024.8 PEAK FLOW RATE (CFS) = 28095.54
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 17.72

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 17.72 FLOW VELOCITY (FEET/SEC.) = 9.28

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13920.00 = 136633.22 FEET.

 FLOW PROCESS FROM NODE 13904.00 TO NODE 13920.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	12147.95	19.77	1.590	0.30 (0.25)	0.85	2801.0	13889.00
2	15641.66	36.41	1.124	0.30 (0.26)	0.85	5994.5	13870.00
3	17362.79	44.95	1.000	0.30 (0.26)	0.86	8305.8	13830.00
4	18715.68	53.36	0.911	0.30 (0.26)	0.86	10300.8	110.00
5	20677.29	67.72	0.814	0.30 (0.26)	0.87	15240.7	150.00
6	21505.87	74.42	0.781	0.30 (0.26)	0.88	17653.8	20100.00
7	22198.28	81.42	0.746	0.30 (0.27)	0.89	20341.3	31100.00
8	23560.78	94.55	0.691	0.30 (0.27)	0.91	25801.8	40100.00
9	24127.48	103.27	0.666	0.30 (0.27)	0.92	29262.8	11801.00
10	25300.24	116.27	0.629	0.30 (0.28)	0.92	35284.1	11530.00
11	26113.03	124.11	0.611	0.30 (0.28)	0.93	39723.0	11900.00
12	27469.10	133.22	0.596	0.30 (0.28)	0.94	45911.8	11330.00
13	28095.54	141.18	0.582	0.30 (0.28)	0.94	50999.0	10630.00
14	27615.94	153.49	0.561	0.30 (0.28)	0.95	56731.3	11600.00
15	26836.58	165.63	0.540	0.30 (0.29)	0.95	60899.5	12201.00
16	25927.78	174.85	0.525	0.30 (0.29)	0.95	62987.7	12231.00

17 25093.14 182.62 0.514 0.30(0.29) 0.95 64399.3 10400.00
 18 23770.50 194.51 0.505 0.30(0.29) 0.95 66020.0 10320.00
 19 22524.86 204.73 0.497 0.30(0.29) 0.95 66407.9 12000.00
 20 19615.58 235.25 0.473 0.30(0.29) 0.95 67024.8 10100.00
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13920.00 = 136633.22 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	132.90	17.46	1.713	0.30(0.25)	0.84	101.1	13900.00

LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13920.00 = 4755.38 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	11856.96	17.46	1.713	0.30(0.25)	0.85	2575.4	13900.00
2	12269.60	19.77	1.590	0.30(0.25)	0.85	2902.1	13889.00
3	15720.94	36.41	1.124	0.30(0.26)	0.85	6095.7	13870.00
4	17430.78	44.95	1.000	0.30(0.26)	0.86	8407.0	13830.00
5	18775.57	53.36	0.911	0.30(0.26)	0.86	10402.0	110.00
6	20728.34	67.72	0.814	0.30(0.26)	0.87	15341.8	150.00
7	21553.91	74.42	0.781	0.30(0.26)	0.88	17754.9	20100.00
8	22243.18	81.42	0.746	0.30(0.27)	0.89	20442.5	31100.00
9	23600.64	94.55	0.691	0.30(0.27)	0.91	25902.9	40100.00
10	24165.06	103.27	0.666	0.30(0.27)	0.91	29363.9	11801.00
11	25334.43	116.27	0.629	0.30(0.28)	0.92	35385.2	11530.00
12	26145.61	124.11	0.611	0.30(0.28)	0.93	39824.1	11900.00
13	27500.27	133.22	0.596	0.30(0.28)	0.94	46012.9	11330.00
14	28125.48	141.18	0.582	0.30(0.28)	0.94	51100.1	10630.00
15	27643.98	153.49	0.561	0.30(0.28)	0.95	56832.4	11600.00
16	26862.73	165.63	0.540	0.30(0.29)	0.95	61000.6	12201.00
17	25952.51	174.85	0.525	0.30(0.29)	0.95	63088.9	12231.00
18	25116.89	182.62	0.514	0.30(0.29)	0.95	64500.4	10400.00
19	23793.41	194.51	0.505	0.30(0.29)	0.95	66121.2	10320.00
20	22547.05	204.73	0.497	0.30(0.29)	0.95	66509.0	12000.00
21	19635.63	235.25	0.473	0.30(0.29)	0.95	67126.0	10100.00

TOTAL AREA (ACRES) = 67126.0

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 28125.48 Tc(MIN.) = 141.175
 EFFECTIVE AREA(ACRES) = 51100.11 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
 TOTAL AREA(ACRES) = 67126.0
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13920.00 = 136633.22 FEET.

 FLOW PROCESS FROM NODE 13920.00 TO NODE 13921.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 118.00 DOWNSTREAM(FEET) = 115.28
 CHANNEL LENGTH THRU SUBAREA(FEET) = 335.44 CHANNEL SLOPE = 0.0081
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 10.83
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.581
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	134.30	0.30	0.658	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.658
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 28148.70
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 18.14
 AVERAGE FLOW DEPTH(FEET) = 10.83 TRAVEL TIME(MIN.) = 0.31
 Tc(MIN.) = 141.48
 SUBAREA AREA(ACRES) = 134.30 SUBAREA RUNOFF(CFS) = 46.43
 EFFECTIVE AREA(ACRES) = 51234.41 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
 TOTAL AREA(ACRES) = 67260.3 PEAK FLOW RATE(CFS) = 28125.48
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 10.82

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 10.82 FLOW VELOCITY(FEET/SEC.) = 18.13
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13921.00 = 136968.66 FEET.

 FLOW PROCESS FROM NODE 13921.00 TO NODE 14010.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 115.28 DOWNSTREAM(FEET) = 100.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1396.08 CHANNEL SLOPE = 0.0109
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 9.98
 * 10 YEAR RAINFALL INTENSITY(INCH/HR) = 0.580

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	96.27	0.30	0.723	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.723
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 28141.19
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 20.14
 AVERAGE FLOW DEPTH(FEET) = 9.98 TRAVEL TIME(MIN.) = 1.16
 Tc(MIN.) = 142.64
 SUBAREA AREA(ACRES) = 96.27 SUBAREA RUNOFF(CFS) = 31.42
 EFFECTIVE AREA(ACRES) = 51330.68 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
 TOTAL AREA(ACRES) = 67356.5 PEAK FLOW RATE(CFS) = 28125.48
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 9.98

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 9.98 FLOW VELOCITY(FEET/SEC.) = 20.14
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 14010.00 = 138364.73 FEET.

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END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 67356.5 TC (MIN.) = 142.64
 EFFECTIVE AREA (ACRES) = 51330.68 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.942
 PEAK FLOW RATE (CFS) = 28125.48

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	11856.96	19.37	1.611	0.30 (0.25)	0.83	2806.0	13900.00
2	12269.60	21.66	1.511	0.30 (0.25)	0.84	3132.7	13889.00
3	15720.94	38.16	1.092	0.30 (0.25)	0.85	6326.2	13870.00
4	17430.78	46.65	0.980	0.30 (0.26)	0.85	8637.5	13830.00
5	18775.57	55.02	0.896	0.30 (0.26)	0.85	10632.5	110.00
6	20728.34	69.32	0.806	0.30 (0.26)	0.87	15572.4	150.00
7	21553.91	76.01	0.773	0.30 (0.26)	0.88	17985.5	20100.00
8	22243.18	82.99	0.739	0.30 (0.27)	0.89	20673.1	31100.00
9	23600.64	96.10	0.687	0.30 (0.27)	0.91	26133.5	40100.00
10	24165.06	104.80	0.662	0.30 (0.27)	0.91	29594.5	11801.00
11	25334.43	117.78	0.624	0.30 (0.28)	0.92	35615.8	11530.00
12	26145.61	125.61	0.608	0.30 (0.28)	0.93	40054.7	11900.00
13	27500.27	134.70	0.593	0.30 (0.28)	0.94	46243.5	11330.00
14	28125.48	142.64	0.580	0.30 (0.28)	0.94	51330.7	10630.00
15	27643.98	154.96	0.559	0.30 (0.28)	0.95	57063.0	11600.00
16	26862.73	167.11	0.538	0.30 (0.28)	0.95	61231.2	12201.00
17	25952.51	176.35	0.522	0.30 (0.29)	0.95	63319.4	12231.00
18	25116.89	184.14	0.513	0.30 (0.29)	0.95	64731.0	10400.00
19	23793.41	196.05	0.504	0.30 (0.29)	0.95	66351.7	10320.00
20	22547.05	206.30	0.496	0.30 (0.29)	0.95	66739.6	12000.00
21	19635.63	236.88	0.472	0.30 (0.29)	0.95	67356.5	10100.00

=====
 END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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***** DESCRIPTION OF STUDY *****
* RANCHO MISSION VIEJO - PA3 & PA4 ROMP *
* REGIONAL WATERSHED S19 - COMPLEX - PHASE CONDITION NO PA5 *
* 25-YR RM EV APRIL 2019 FKAZI *

FILE NAME: RI25EV19.DAT
TIME/DATE OF STUDY: 10:56 04/01/2019

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 25.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 5.002
- 2) 10.00; 3.253
- 3) 15.00; 2.474
- 4) 20.00; 2.039
- 5) 25.00; 1.776
- 6) 30.00; 1.555
- 7) 40.00; 1.357
- 8) 50.00; 1.203
- 9) 60.00; 1.080
- 10) 90.00; 0.912
- 11) 120.00; 0.803
- 12) 180.00; 0.673
- 13) 360.00; 0.500
- 14) 1200.00; 0.221

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE/ WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH LIP HIKE (FT) (FT) (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00 0.0312 0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 11900.00 TO NODE 11901.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

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INITIAL SUBAREA FLOW-LENGTH(FEET) = 295.79
ELEVATION DATA: UPSTREAM(FEET) = 2369.48 DOWNSTREAM(FEET) = 2332.92

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 7.203
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 4.231
SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
RESIDENTIAL ".4 DWELLING/ACRE"	-	1.62	0.30	0.999	0	7.20

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.999
SUBAREA RUNOFF(CFS) = 5.73
TOTAL AREA(ACRES) = 1.62 PEAK FLOW RATE(CFS) = 5.73

FLOW PROCESS FROM NODE 11901.00 TO NODE 11902.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 2332.92 DOWNSTREAM(FEET) = 2297.70
CHANNEL LENGTH THRU SUBAREA(FEET) = 664.26 CHANNEL SLOPE = 0.0530
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.53
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.158
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	8.35	0.30	0.906	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.906
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 16.71
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 3.25
AVERAGE FLOW DEPTH(FEET) = 0.47 TRAVEL TIME(MIN.) = 3.41
Tc(MIN.) = 10.61
SUBAREA AREA(ACRES) = 8.35 SUBAREA RUNOFF(CFS) = 21.69
EFFECTIVE AREA(ACRES) = 9.97 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA(ACRES) = 10.0 PEAK FLOW RATE(CFS) = 25.86
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.61

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.61 FLOW VELOCITY(FEET/SEC.) = 3.76
LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11902.00 = 960.05 FEET.

FLOW PROCESS FROM NODE 11902.00 TO NODE 11902.50 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2297.70 DOWNSTREAM(FEET) = 2263.40
CHANNEL LENGTH THRU SUBAREA(FEET) = 928.77 CHANNEL SLOPE = 0.0369
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.21
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.623

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	34.48	0.30	0.904	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.904
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 62.68
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.51
AVERAGE FLOW DEPTH(FEET) = 1.13 TRAVEL TIME(MIN.) = 3.44
Tc(MIN.) = 14.05

SUBAREA AREA(ACRES) = 34.48 SUBAREA RUNOFF(CFS) = 72.97
EFFECTIVE AREA(ACRES) = 44.45 AREA-AVERAGED Fm(INCH/HR) = 0.27
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.91
TOTAL AREA(ACRES) = 44.5 PEAK FLOW RATE(CFS) = 94.03
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.42

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.42 FLOW VELOCITY(FEET/SEC.) = 5.14
LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11902.50 = 1888.82 FEET.

FLOW PROCESS FROM NODE 11902.50 TO NODE 11903.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2263.40 DOWNSTREAM(FEET) = 2252.14
CHANNEL LENGTH THRU SUBAREA(FEET) = 895.50 CHANNEL SLOPE = 0.0126
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 2.19
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.210

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	23.65	0.30	0.958	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.958
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 114.54
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 3.75
AVERAGE FLOW DEPTH(FEET) = 2.14 TRAVEL TIME(MIN.) = 3.98

Tc(MIN.) = 18.03
SUBAREA AREA(ACRES) = 23.65 SUBAREA RUNOFF(CFS) = 40.93
EFFECTIVE AREA(ACRES) = 68.10 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
TOTAL AREA(ACRES) = 68.1 PEAK FLOW RATE(CFS) = 118.47
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.18

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 2.18 FLOW VELOCITY(FEET/SEC.) = 3.77
LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11903.00 = 2784.32 FEET.

FLOW PROCESS FROM NODE 11903.00 TO NODE 11904.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2252.14 DOWNSTREAM(FEET) = 2186.04
CHANNEL LENGTH THRU SUBAREA(FEET) = 1924.35 CHANNEL SLOPE = 0.0343
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 2.07
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.860

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	68.53	0.30	0.961	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.961
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 167.09
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.96
AVERAGE FLOW DEPTH(FEET) = 2.00 TRAVEL TIME(MIN.) = 5.38
Tc(MIN.) = 23.41

SUBAREA AREA(ACRES) = 68.53 SUBAREA RUNOFF(CFS) = 96.92
EFFECTIVE AREA(ACRES) = 136.63 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA(ACRES) = 136.6 PEAK FLOW RATE(CFS) = 193.88
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.17

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 2.17 FLOW VELOCITY(FEET/SEC.) = 6.22
LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11904.00 = 4708.67 FEET.

FLOW PROCESS FROM NODE 11904.00 TO NODE 11905.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2186.04 DOWNSTREAM(FEET) = 1957.34
CHANNEL LENGTH THRU SUBAREA(FEET) = 1926.87 CHANNEL SLOPE = 0.1187
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.73

* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.707
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 63.15 0.30 1.000 -
 SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 233.88
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 10.18
 AVERAGE FLOW DEPTH (FEET) = 1.71 TRAVEL TIME (MIN.) = 3.16
 Tc (MIN.) = 26.57
 SUBAREA AREA (ACRES) = 63.15 SUBAREA RUNOFF (CFS) = 79.96
 EFFECTIVE AREA (ACRES) = 199.78 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
 TOTAL AREA (ACRES) = 199.8 PEAK FLOW RATE (CFS) = 255.05
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.80
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.80 FLOW VELOCITY (FEET/SEC.) = 10.45
 LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11905.00 = 6635.54 FEET.

FLOW PROCESS FROM NODE 11905.00 TO NODE 11906.00 IS CODE = 56

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 1957.34 DOWNSTREAM (FEET) = 1244.16
 CHANNEL LENGTH THRU SUBAREA (FEET) = 2498.96 CHANNEL SLOPE = 0.2854
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.57
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.584
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 84.87 0.30 1.000 -
 SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 304.10
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 14.96
 AVERAGE FLOW DEPTH (FEET) = 1.55 TRAVEL TIME (MIN.) = 2.78
 Tc (MIN.) = 29.35
 SUBAREA AREA (ACRES) = 84.87 SUBAREA RUNOFF (CFS) = 98.06
 EFFECTIVE AREA (ACRES) = 284.65 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97
 TOTAL AREA (ACRES) = 284.6 PEAK FLOW RATE (CFS) = 330.98
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.63

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.63 FLOW VELOCITY (FEET/SEC.) = 15.34
 LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11906.00 = 9134.50 FEET.

FLOW PROCESS FROM NODE 11906.00 TO NODE 11920.00 IS CODE = 56

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 1244.16 DOWNSTREAM (FEET) = 873.95
 CHANNEL LENGTH THRU SUBAREA (FEET) = 3370.75 CHANNEL SLOPE = 0.1098
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.49
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.474
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 199.43 0.30 1.000 -
 SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 436.43
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 11.89
 AVERAGE FLOW DEPTH (FEET) = 2.46 TRAVEL TIME (MIN.) = 4.72
 Tc (MIN.) = 34.07
 SUBAREA AREA (ACRES) = 199.43 SUBAREA RUNOFF (CFS) = 210.79
 EFFECTIVE AREA (ACRES) = 484.08 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 484.1 PEAK FLOW RATE (CFS) = 513.75
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.68

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 2.68 FLOW VELOCITY (FEET/SEC.) = 12.48
 LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11920.00 = 12505.25 FEET.

FLOW PROCESS FROM NODE 11906.00 TO NODE 11920.00 IS CODE = 1

 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION (MIN.) = 34.07
 RAINFALL INTENSITY (INCH/HR) = 1.47
 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.98
 EFFECTIVE STREAM AREA (ACRES) = 484.08
 TOTAL STREAM AREA (ACRES) = 484.08
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 513.75

FLOW PROCESS FROM NODE 11910.00 TO NODE 11911.00 IS CODE = 21

 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

INITIAL SUBAREA FLOW-LENGTH (FEET) = 517.62
 ELEVATION DATA: UPSTREAM (FEET) = 2531.88 DOWNSTREAM (FEET) = 2441.33

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 12.185
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.913
 SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	-	3.46	0.30	1.000	0	12.19

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 8.14
 TOTAL AREA(ACRES) = 3.46 PEAK FLOW RATE(CFS) = 8.14

 FLOW PROCESS FROM NODE 11911.00 TO NODE 11912.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 2441.33 DOWNSTREAM(FEET) = 2382.20
 CHANNEL LENGTH THRU SUBAREA(FEET) = 397.30 CHANNEL SLOPE = 0.1488
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.33
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.669

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	5.79	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 14.32
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.24
 AVERAGE FLOW DEPTH(FEET) = 0.32 TRAVEL TIME(MIN.) = 1.56
 Tc(MIN.) = 13.75
 SUBAREA AREA(ACRES) = 5.79 SUBAREA RUNOFF(CFS) = 12.35
 EFFECTIVE AREA(ACRES) = 9.25 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 9.2 PEAK FLOW RATE(CFS) = 19.72
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.38

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 0.38 FLOW VELOCITY(FEET/SEC.) = 4.77
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11912.00 = 914.92 FEET.

 FLOW PROCESS FROM NODE 11912.00 TO NODE 11913.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 2382.20 DOWNSTREAM(FEET) = 2263.77
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1891.47 CHANNEL SLOPE = 0.0626
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 1.10

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.076
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	54.30	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 63.91
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.41
 AVERAGE FLOW DEPTH(FEET) = 0.99 TRAVEL TIME(MIN.) = 5.83
 Tc(MIN.) = 19.58
 SUBAREA AREA(ACRES) = 54.30 SUBAREA RUNOFF(CFS) = 86.79
 EFFECTIVE AREA(ACRES) = 63.55 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 63.5 PEAK FLOW RATE(CFS) = 101.57
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 1.28

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 1.28 FLOW VELOCITY(FEET/SEC.) = 6.29
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11913.00 = 2806.39 FEET.

 FLOW PROCESS FROM NODE 11913.00 TO NODE 11914.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 2263.77 DOWNSTREAM(FEET) = 1845.23
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1957.31 CHANNEL SLOPE = 0.2138
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 1.15
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.902

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	65.14	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 148.58
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.79
 AVERAGE FLOW DEPTH(FEET) = 1.12 TRAVEL TIME(MIN.) = 3.02
 Tc(MIN.) = 22.60
 SUBAREA AREA(ACRES) = 65.14 SUBAREA RUNOFF(CFS) = 93.93
 EFFECTIVE AREA(ACRES) = 128.69 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 128.7 PEAK FLOW RATE(CFS) = 185.57
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 1.28

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 1.28 FLOW VELOCITY(FEET/SEC.) = 11.58
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11914.00 = 4763.70 FEET.

FLOW PROCESS FROM NODE 11914.00 TO NODE 11915.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1845.23 DOWNSTREAM(FEET) = 1557.21
CHANNEL LENGTH THRU SUBAREA(FEET) = 1686.78 CHANNEL SLOPE = 0.1708
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.58
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.775

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 78.52 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 237.72

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.60

AVERAGE FLOW DEPTH(FEET) = 1.56 TRAVEL TIME(MIN.) = 2.42

Tc(MIN.) = 25.02

SUBAREA AREA(ACRES) = 78.52 SUBAREA RUNOFF(CFS) = 104.24

EFFECTIVE AREA(ACRES) = 207.21 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 207.2 PEAK FLOW RATE(CFS) = 275.07

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.70

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.70 FLOW VELOCITY(FEET/SEC.) = 12.11

LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11915.00 = 6450.48 FEET.

FLOW PROCESS FROM NODE 11915.00 TO NODE 11916.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1557.21 DOWNSTREAM(FEET) = 1403.38
CHANNEL LENGTH THRU SUBAREA(FEET) = 1909.39 CHANNEL SLOPE = 0.0806
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 2.27
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.630

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 70.48 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 317.28

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.74

AVERAGE FLOW DEPTH(FEET) = 2.25 TRAVEL TIME(MIN.) = 3.27

Tc(MIN.) = 28.29

SUBAREA AREA(ACRES) = 70.48 SUBAREA RUNOFF(CFS) = 84.40

EFFECTIVE AREA(ACRES) = 277.69 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 277.7 PEAK FLOW RATE(CFS) = 332.54
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.31

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 2.31 FLOW VELOCITY(FEET/SEC.) = 9.85

LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11916.00 = 8359.87 FEET.

FLOW PROCESS FROM NODE 11916.00 TO NODE 11917.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1403.38 DOWNSTREAM(FEET) = 1079.99
CHANNEL LENGTH THRU SUBAREA(FEET) = 1945.82 CHANNEL SLOPE = 0.1662
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 2.29
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.543

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 232.20 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 462.46

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 14.02

AVERAGE FLOW DEPTH(FEET) = 2.27 TRAVEL TIME(MIN.) = 2.31

Tc(MIN.) = 30.60

SUBAREA AREA(ACRES) = 232.20 SUBAREA RUNOFF(CFS) = 259.78

EFFECTIVE AREA(ACRES) = 509.89 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 509.9 PEAK FLOW RATE(CFS) = 570.46

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 2.54

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 2.54 FLOW VELOCITY(FEET/SEC.) = 14.91

LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11917.00 = 10305.69 FEET.

FLOW PROCESS FROM NODE 11917.00 TO NODE 11920.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1079.99 DOWNSTREAM(FEET) = 873.95
CHANNEL LENGTH THRU SUBAREA(FEET) = 2563.91 CHANNEL SLOPE = 0.0804
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 3.25
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.471

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN

USER-DEFINED - 110.82 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 628.88
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.79
 AVERAGE FLOW DEPTH(FEET) = 3.24 TRAVEL TIME(MIN.) = 3.62
 Tc(MIN.) = 34.23
 SUBAREA AREA(ACRES) = 110.82 SUBAREA RUNOFF(CFS) = 116.83
 EFFECTIVE AREA(ACRES) = 620.71 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 620.7 PEAK FLOW RATE(CFS) = 654.35
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 3.30

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 3.30 FLOW VELOCITY(FEET/SEC.) = 11.94
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11920.00 = 12869.60 FEET.

 FLOW PROCESS FROM NODE 11917.00 TO NODE 11920.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION(MIN.) = 34.23
 RAINFALL INTENSITY(INCH/HR) = 1.47
 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 1.00
 EFFECTIVE STREAM AREA(ACRES) = 620.71
 TOTAL STREAM AREA(ACRES) = 620.71
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 654.35

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	513.75	34.07	1.474	0.30(0.30)	0.98	484.1	11900.00
2	654.35	34.23	1.471	0.30(0.30)	1.00	620.7	11910.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1166.84	34.07	1.474	0.30(0.30)	0.99	1102.0	11900.00
2	1166.76	34.23	1.471	0.30(0.30)	0.99	1104.8	11910.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) = 1166.84 Tc(MIN.) = 34.07
 EFFECTIVE AREA(ACRES) = 1101.97 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 1104.8
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11920.00 = 12869.60 FEET.

 FLOW PROCESS FROM NODE 11920.00 TO NODE 11921.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 873.95 DOWNSTREAM(FEET) = 827.94
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1417.25 CHANNEL SLOPE = 0.0325
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 5.66
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.428

SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 107.47 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1221.40
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.13
 AVERAGE FLOW DEPTH(FEET) = 5.66 TRAVEL TIME(MIN.) = 2.33
 Tc(MIN.) = 36.41
 SUBAREA AREA(ACRES) = 107.47 SUBAREA RUNOFF(CFS) = 109.12
 EFFECTIVE AREA(ACRES) = 1209.44 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 1212.3 PEAK FLOW RATE(CFS) = 1230.16
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 5.68

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 5.68 FLOW VELOCITY(FEET/SEC.) = 10.14
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11921.00 = 14286.85 FEET.

 FLOW PROCESS FROM NODE 11921.00 TO NODE 11922.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 827.94 DOWNSTREAM(FEET) = 753.55
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1886.43 CHANNEL SLOPE = 0.0394
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 5.78
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.373

SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 344.27 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1396.39
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.27
 AVERAGE FLOW DEPTH(FEET) = 5.76 TRAVEL TIME(MIN.) = 2.79
 Tc(MIN.) = 39.20
 SUBAREA AREA(ACRES) = 344.27 SUBAREA RUNOFF(CFS) = 332.46
 EFFECTIVE AREA(ACRES) = 1553.71 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 1556.5 PEAK FLOW RATE(CFS) = 1502.51
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 5.96

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 5.96 FLOW VELOCITY(FEET/SEC.) = 11.49
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11922.00 = 16173.28 FEET.

FLOW PROCESS FROM NODE 11922.00 TO NODE 11923.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 753.55 DOWNSTREAM(FEET) = 641.58
CHANNEL LENGTH THRU SUBAREA(FEET) = 2860.88 CHANNEL SLOPE = 0.0391
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 6.13
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.306

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	165.18	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1577.30

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.60

AVERAGE FLOW DEPTH(FEET) = 6.12 TRAVEL TIME(MIN.) = 4.11

Tc(MIN.) = 43.31

SUBAREA AREA(ACRES) = 165.18 SUBAREA RUNOFF(CFS) = 149.58

EFFECTIVE AREA(ACRES) = 1718.89 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 1721.7 PEAK FLOW RATE(CFS) = 1558.63

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 6.08

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 6.08 FLOW VELOCITY(FEET/SEC.) = 11.56
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11923.00 = 19034.16 FEET.

FLOW PROCESS FROM NODE 11923.00 TO NODE 11924.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 641.58 DOWNSTREAM(FEET) = 579.89
CHANNEL LENGTH THRU SUBAREA(FEET) = 1844.02 CHANNEL SLOPE = 0.0335
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 6.68

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.264

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	165.18	0.30	1.000	-

LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 433.73 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1746.79
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.23
AVERAGE FLOW DEPTH(FEET) = 6.67 TRAVEL TIME(MIN.) = 2.74
Tc(MIN.) = 46.04
SUBAREA AREA(ACRES) = 433.73 SUBAREA RUNOFF(CFS) = 376.31
EFFECTIVE AREA(ACRES) = 2152.62 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 2155.4 PEAK FLOW RATE(CFS) = 1869.76
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 6.88

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 6.88 FLOW VELOCITY(FEET/SEC.) = 11.44
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11924.00 = 20878.18 FEET.

FLOW PROCESS FROM NODE 11924.00 TO NODE 11925.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 579.89 DOWNSTREAM(FEET) = 494.12
CHANNEL LENGTH THRU SUBAREA(FEET) = 2756.15 CHANNEL SLOPE = 0.0311
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 7.20

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.202

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	265.42	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1977.47

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.30

AVERAGE FLOW DEPTH(FEET) = 7.18 TRAVEL TIME(MIN.) = 4.07

Tc(MIN.) = 50.11

SUBAREA AREA(ACRES) = 265.42 SUBAREA RUNOFF(CFS) = 215.41

EFFECTIVE AREA(ACRES) = 2418.04 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 2420.9 PEAK FLOW RATE(CFS) = 1964.49

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 7.16

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 7.16 FLOW VELOCITY(FEET/SEC.) = 11.28
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11925.00 = 23634.33 FEET.

FLOW PROCESS FROM NODE 11925.00 TO NODE 11926.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 494.12 DOWNSTREAM(FEET) = 458.40
CHANNEL LENGTH THRU SUBAREA(FEET) = 1922.70 CHANNEL SLOPE = 0.0186
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 8.15
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.160
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	97.46	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2002.19
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.35
AVERAGE FLOW DEPTH(FEET) = 8.14 TRAVEL TIME(MIN.) = 3.43
Tc(MIN.) = 53.53
SUBAREA AREA(ACRES) = 97.46 SUBAREA RUNOFF(CFS) = 75.40
EFFECTIVE AREA(ACRES) = 2515.50 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 2518.3 PEAK FLOW RATE(CFS) = 1964.49
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 8.07

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 8.07 FLOW VELOCITY(FEET/SEC.) = 9.30
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11926.00 = 25557.03 FEET.

FLOW PROCESS FROM NODE 11926.00 TO NODE 11927.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 458.40 DOWNSTREAM(FEET) = 399.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2170.13 CHANNEL SLOPE = 0.0274
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 7.42
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.118
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	53.83	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1984.31
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.78
AVERAGE FLOW DEPTH(FEET) = 7.41 TRAVEL TIME(MIN.) = 3.35
Tc(MIN.) = 56.89
SUBAREA AREA(ACRES) = 53.83 SUBAREA RUNOFF(CFS) = 39.65
EFFECTIVE AREA(ACRES) = 2569.33 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 2572.1 PEAK FLOW RATE(CFS) = 1964.49
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 7.38

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 7.38 FLOW VELOCITY(FEET/SEC.) = 10.75
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11927.00 = 27727.16 FEET.

FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: P401XX25.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	738.86	26.31	0.30(0.30)	1.00	624.3	40130.00
2	730.65	28.19	0.30(0.30)	1.00	654.2	40100.00
TOTAL AREA(ACRES) =						654.2

FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1964.49	56.89	1.118	0.30(0.30)	1.00	2569.3	11900.00
2	1962.33	57.06	1.116	0.30(0.30)	1.00	2572.1	11910.00
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11927.00 = 27727.16 FEET.							

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	738.86	26.31	1.718	0.30(0.30)	1.00	624.3	40130.00
2	730.65	28.19	1.635	0.30(0.30)	1.00	654.2	40100.00
LONGEST FLOWPATH FROM NODE 40100.00 TO NODE 11927.00 = 10245.00 FEET.							

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2312.56	26.31	1.718	0.30(0.30)	1.00	1812.4	40130.00
2	2318.12	28.19	1.635	0.30(0.30)	1.00	1927.4	40100.00
3	2412.36	56.89	1.118	0.30(0.30)	1.00	3223.5	11900.00
4	2409.06	57.06	1.116	0.30(0.30)	1.00	3226.4	11910.00
TOTAL AREA(ACRES) =						3226.4	

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2412.36 Tc(MIN.) = 56.889

EFFECTIVE AREA(ACRES) = 3223.53 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3226.4
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11927.00 = 27727.16 FEET.

FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<<

FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.50 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 399.00 DOWNSTREAM(FEET) = 384.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 986.26 CHANNEL SLOPE = 0.0152
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 9.28
CHANNEL FLOW THRU SUBAREA(CFS) = 2412.36
FLOW VELOCITY(FEET/SEC.) = 9.10 FLOW DEPTH(FEET) = 9.28
TRAVEL TIME(MIN.) = 1.81 Tc(MIN.) = 58.69
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11927.50 = 28713.42 FEET.

FLOW PROCESS FROM NODE 11927.50 TO NODE 11927.50 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<<

MAINLINE Tc(MIN.) = 58.69
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.096
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"WOODLAND,GRASS" B 2.40 0.30 1.000 65
NATURAL FAIR COVER
"WOODLAND,GRASS" B 1.70 0.30 1.000 65
NATURAL FAIR COVER
"WOODLAND,GRASS" B 1.50 0.30 1.000 65
NATURAL FAIR COVER
"OPEN BRUSH" B 1.30 0.30 1.000 66
NATURAL FAIR COVER
"OPEN BRUSH" B 0.90 0.30 1.000 66
NATURAL FAIR COVER
"GRASS" B 0.60 0.30 1.000 69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 8.40 SUBAREA RUNOFF(CFS) = 6.02
EFFECTIVE AREA(ACRES) = 3231.93 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3234.8 PEAK FLOW RATE(CFS) = 2412.36
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 11927.50 TO NODE 11927.50 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<<

MAINLINE Tc(MIN.) = 58.69
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.096
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH" B 0.30 0.30 1.000 66
NATURAL FAIR COVER
"OPEN BRUSH" B 0.10 0.30 1.000 66
NATURAL FAIR COVER
"WOODLAND,GRASS" B 0.10 0.30 1.000 65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 0.50 SUBAREA RUNOFF(CFS) = 0.36
EFFECTIVE AREA(ACRES) = 3232.43 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3235.2 PEAK FLOW RATE(CFS) = 2412.36
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 11927.50 TO NODE 11927.50 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<<

MAINLINE Tc(MIN.) = 58.69
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.096
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"WOODLAND,GRASS" B 0.80 0.30 1.000 65
NATURAL FAIR COVER
"WOODLAND,GRASS" B 0.70 0.30 1.000 65
NATURAL FAIR COVER
"OPEN BRUSH" B 0.20 0.30 1.000 66
NATURAL FAIR COVER
"WOODLAND,GRASS" B 0.20 0.30 1.000 65
NATURAL FAIR COVER
"OPEN BRUSH" B 0.10 0.30 1.000 66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 2.00 SUBAREA RUNOFF(CFS) = 1.43
EFFECTIVE AREA(ACRES) = 3234.43 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3237.2 PEAK FLOW RATE(CFS) = 2412.36
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 11927.50 TO NODE 11928.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 384.00 DOWNSTREAM(FEET) = 359.00

CHANNEL LENGTH THRU SUBAREA (FEET) = 647.19 CHANNEL SLOPE = 0.0386
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 7.53
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.086
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	78.01	0.30	0.984	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.984
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 2440.11
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 12.92
 AVERAGE FLOW DEPTH (FEET) = 7.53 TRAVEL TIME (MIN.) = 0.84
 Tc (MIN.) = 59.53
 SUBAREA AREA (ACRES) = 78.01 SUBAREA RUNOFF (CFS) = 55.51
 EFFECTIVE AREA (ACRES) = 3312.44 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 3315.3 PEAK FLOW RATE (CFS) = 2412.36
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 7.49

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 7.49 FLOW VELOCITY (FEET/SEC.) = 12.88
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11928.00 = 29360.61 FEET.

 FLOW PROCESS FROM NODE 11928.00 TO NODE 11928.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc (MIN.) = 59.53
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.086
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND, GRASS"	B	1.10	0.30	1.000	65
NATURAL FAIR COVER "OPEN BRUSH"	B	0.60	0.30	1.000	66

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 1.70 SUBAREA RUNOFF (CFS) = 1.20
 EFFECTIVE AREA (ACRES) = 3314.14 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 3317.0 PEAK FLOW RATE (CFS) = 2412.36
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 11928.00 TO NODE 11929.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<

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ELEVATION DATA: UPSTREAM (FEET) = 359.00 DOWNSTREAM (FEET) = 341.63
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1322.66 CHANNEL SLOPE = 0.0131

GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 9.59
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.068
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	8.18	0.30	0.890	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.890
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 2415.31
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.62
 AVERAGE FLOW DEPTH (FEET) = 9.59 TRAVEL TIME (MIN.) = 2.56
 Tc (MIN.) = 62.09
 SUBAREA AREA (ACRES) = 8.18 SUBAREA RUNOFF (CFS) = 5.90
 EFFECTIVE AREA (ACRES) = 3322.32 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 3325.1 PEAK FLOW RATE (CFS) = 2412.36
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 9.59

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 9.59 FLOW VELOCITY (FEET/SEC.) = 8.62
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11929.00 = 30683.27 FEET.

 FLOW PROCESS FROM NODE 11929.00 TO NODE 11929.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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MAINLINE Tc (MIN.) = 62.09
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.068
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	1.90	0.30	1.000	66
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.60	0.30	1.000	65

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 2.50 SUBAREA RUNOFF (CFS) = 1.73
 EFFECTIVE AREA (ACRES) = 3324.82 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 3327.6 PEAK FLOW RATE (CFS) = 2412.36
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 11928.00 TO NODE 11929.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<

 FLOW PROCESS FROM NODE 11841.00 TO NODE 12527.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

PEAK FLOWRATE TABLE FILE NAME: S18X25.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	16891.05	38.90	0.30 (0.30)	1.00	7699.7	11831.00
2	17269.04	41.07	0.30 (0.30)	1.00	8149.8	11801.00
3	19484.28	52.56	0.30 (0.30)	1.00	11111.4	11530.00
4	20384.42	59.71	0.30 (0.30)	1.00	13605.9	11000.00
5	22298.73	70.25	0.30 (0.30)	1.00	18738.3	11330.00
6	22627.08	72.15	0.30 (0.30)	1.00	19721.6	11350.00
7	22975.81	75.44	0.30 (0.30)	1.00	21433.1	11300.00
8	23115.65	77.03	0.30 (0.30)	1.00	22200.3	11130.00
9	22643.41	86.92	0.30 (0.30)	1.00	25590.3	11620.00
10	22485.53	89.04	0.30 (0.30)	1.00	26262.8	11600.00
11	22019.00	94.91	0.30 (0.30)	1.00	27853.1	11111.00
12	21832.20	97.18	0.30 (0.30)	1.00	28360.1	10500.00
13	21473.90	101.65	0.30 (0.30)	1.00	29218.6	10710.00
14	21235.80	103.95	0.30 (0.30)	1.00	29569.4	10410.00
15	20918.29	108.69	0.30 (0.30)	1.00	30244.3	10700.00
16	20477.99	115.41	0.30 (0.30)	1.00	31136.9	10400.00
17	20244.15	118.03	0.30 (0.30)	1.00	31425.5	10200.00
18	19628.83	124.41	0.30 (0.30)	1.00	32019.9	10300.00
19	19047.00	129.43	0.30 (0.30)	1.00	32209.8	10210.00
20	16600.03	158.26	0.30 (0.30)	1.00	32916.6	10100.00
TOTAL AREA (ACRES) =						32916.6

FLOW PROCESS FROM NODE 12526.00 TO NODE 12527.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<

PEAK FLOWRATE TABLE FILE NAME: S25X25.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	5840.09	69.19	0.30 (0.30)	0.99	6331.6	12500.00
2	6596.78	83.06	0.30 (0.30)	0.99	8310.4	12300.00
3	6685.50	84.54	0.30 (0.30)	0.98	8607.7	12330.00
4	6818.17	87.39	0.30 (0.30)	0.98	9133.8	12410.00
5	6967.16	91.70	0.30 (0.29)	0.98	9855.5	12400.00
6	7051.85	96.73	0.30 (0.29)	0.98	10551.8	12211.00
7	7157.86	100.97	0.30 (0.29)	0.98	11151.2	12201.00
8	7157.25	105.22	0.30 (0.29)	0.98	11623.9	12111.00
9	7110.02	108.20	0.30 (0.29)	0.98	11957.2	12231.00
10	7048.35	111.16	0.30 (0.29)	0.98	12251.1	12101.10
11	7025.02	112.24	0.30 (0.29)	0.98	12348.3	12261.00
12	6564.46	124.38	0.30 (0.29)	0.98	13114.4	12010.00
13	6112.24	133.26	0.30 (0.29)	0.98	13237.1	12000.00
TOTAL AREA (ACRES) =						13237.1

FLOW PROCESS FROM NODE 12526.00 TO NODE 12527.00 IS CODE = 14.0

>>>>MEMORY BANK # 2 COPIED ONTO MAIN-STREAM MEMORY<<<<<

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	5840.09	69.19	0.30 (0.30)	0.99	6331.6	12500.00
2	6596.78	83.06	0.30 (0.30)	0.99	8310.4	12300.00
3	6685.50	84.54	0.30 (0.30)	0.98	8607.7	12330.00
4	6818.17	87.39	0.30 (0.30)	0.98	9133.8	12410.00
5	6967.16	91.70	0.30 (0.29)	0.98	9855.5	12400.00
6	7051.85	96.73	0.30 (0.29)	0.98	10551.8	12211.00
7	7157.86	100.97	0.30 (0.29)	0.98	11151.2	12201.00
8	7157.25	105.22	0.30 (0.29)	0.98	11623.9	12111.00
9	7110.02	108.20	0.30 (0.29)	0.98	11957.2	12231.00
10	7048.35	111.16	0.30 (0.29)	0.98	12251.1	12101.10
11	7025.02	112.24	0.30 (0.29)	0.98	12348.3	12261.00
12	6564.46	124.38	0.30 (0.29)	0.98	13114.4	12010.00
13	6112.24	133.26	0.30 (0.29)	0.98	13237.1	12000.00
TOTAL AREA (ACRES) =			13237.1			

FLOW PROCESS FROM NODE 11841.00 TO NODE 12527.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	5840.09	69.19	1.029	0.30 (0.30)	0.99	6331.6	12500.00
2	6596.78	83.06	0.951	0.30 (0.30)	0.99	8310.4	12300.00
3	6685.50	84.54	0.943	0.30 (0.30)	0.98	8607.7	12330.00
4	6818.17	87.39	0.927	0.30 (0.30)	0.98	9133.8	12410.00
5	6967.16	91.70	0.906	0.30 (0.29)	0.98	9855.5	12400.00
6	7051.85	96.73	0.888	0.30 (0.29)	0.98	10551.8	12211.00
7	7157.86	100.97	0.872	0.30 (0.29)	0.98	11151.2	12201.00
8	7157.25	105.22	0.857	0.30 (0.29)	0.98	11623.9	12111.00
9	7110.02	108.20	0.846	0.30 (0.29)	0.98	11957.2	12231.00
10	7048.35	111.16	0.835	0.30 (0.29)	0.98	12251.1	12101.10
11	7025.02	112.24	0.831	0.30 (0.29)	0.98	12348.3	12261.00
12	6564.46	124.38	0.794	0.30 (0.29)	0.98	13114.4	12010.00
13	6112.24	133.26	0.774	0.30 (0.29)	0.98	13237.1	12000.00
LONGEST FLOWPATH FROM NODE 12000.00 TO NODE 12527.00 = 77156.98 FEET.							

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	16891.05	38.90	1.379	0.30 (0.30)	1.00	7699.7	11831.00
2	17269.04	41.07	1.340	0.30 (0.30)	1.00	8149.8	11801.00
3	19484.28	52.56	1.172	0.30 (0.30)	1.00	11111.4	11530.00
4	20384.42	59.71	1.084	0.30 (0.30)	1.00	13605.9	11000.00
5	22298.73	70.25	1.023	0.30 (0.30)	1.00	18738.3	11330.00
6	22627.08	72.15	1.012	0.30 (0.30)	1.00	19721.6	11350.00
7	22975.81	75.44	0.994	0.30 (0.30)	1.00	21433.1	11300.00
8	23115.65	77.03	0.985	0.30 (0.30)	1.00	22200.3	11130.00
9	22643.41	86.92	0.929	0.30 (0.30)	1.00	25590.3	11620.00
10	22485.53	89.04	0.917	0.30 (0.30)	1.00	26262.8	11600.00
11	22019.00	94.91	0.894	0.30 (0.30)	1.00	27853.1	11111.00
12	21832.20	97.18	0.886	0.30 (0.30)	1.00	28360.1	10500.00
13	21473.90	101.65	0.870	0.30 (0.30)	1.00	29218.6	10710.00

14	21235.80	103.95	0.861	0.30 (0.30)	1.00	29569.4	10410.00
15	20918.29	108.69	0.844	0.30 (0.30)	1.00	30244.3	10700.00
16	20477.99	115.41	0.820	0.30 (0.30)	1.00	31136.9	10400.00
17	20244.15	118.03	0.810	0.30 (0.30)	1.00	31425.5	10200.00
18	19628.83	124.41	0.793	0.30 (0.30)	1.00	32019.9	10300.00
19	19047.00	129.43	0.783	0.30 (0.30)	1.00	32209.8	10210.00
20	16600.03	158.26	0.720	0.30 (0.30)	1.00	32916.6	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12527.00 = 97868.13 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21744.22	38.90	1.379	0.30 (0.30)	0.99	11259.4	11831.00
2	22212.18	41.07	1.340	0.30 (0.30)	0.99	11908.7	11801.00
3	24786.46	52.56	1.172	0.30 (0.30)	0.99	15920.9	11530.00
4	25802.98	59.71	1.084	0.30 (0.30)	0.99	19070.2	11000.00
5	27946.32	69.19	1.029	0.30 (0.30)	0.99	24553.8	12500.00
6	28196.63	70.25	1.023	0.30 (0.30)	0.99	25221.1	11330.00
7	28628.91	72.15	1.012	0.30 (0.30)	0.99	26476.2	11350.00
8	29156.91	75.44	0.994	0.30 (0.30)	0.99	28656.5	11300.00
9	29383.42	77.03	0.985	0.30 (0.30)	0.99	29650.4	11130.00
10	29424.60	83.06	0.951	0.30 (0.30)	0.99	32577.0	12300.00
11	29442.55	84.54	0.943	0.30 (0.30)	0.99	33382.3	12330.00
12	29439.82	86.92	0.929	0.30 (0.30)	0.99	34637.9	11620.00
13	29426.78	87.39	0.927	0.30 (0.30)	0.99	34872.4	12410.00
14	29360.88	89.04	0.917	0.30 (0.30)	0.99	35673.5	11600.00
15	29241.66	91.70	0.906	0.30 (0.30)	0.99	36837.6	12400.00
16	29040.22	94.91	0.894	0.30 (0.30)	0.99	38153.0	11111.00
17	28921.00	96.73	0.888	0.30 (0.30)	0.99	38811.6	12211.00
18	28895.27	97.18	0.886	0.30 (0.30)	0.99	38975.3	10500.00
19	28686.30	100.97	0.872	0.30 (0.30)	0.99	40239.2	12201.00
20	28631.67	101.65	0.870	0.30 (0.30)	0.99	40445.6	10710.00
21	28393.24	103.95	0.861	0.30 (0.30)	0.99	41052.8	10410.00
22	28308.43	105.22	0.857	0.30 (0.30)	0.99	41373.2	12111.00
23	28060.91	108.20	0.846	0.30 (0.30)	0.99	42132.2	12231.00
24	28018.20	108.69	0.844	0.30 (0.30)	0.99	42249.7	10700.00
25	27804.43	111.16	0.835	0.30 (0.30)	0.99	42824.2	12101.10
26	27710.28	112.24	0.831	0.30 (0.30)	0.99	43065.0	12261.00
27	27382.95	115.41	0.820	0.30 (0.30)	0.99	43684.9	10400.00
28	27049.59	118.03	0.810	0.30 (0.30)	0.99	44139.1	10200.00
29	26196.32	124.38	0.794	0.30 (0.30)	0.99	45131.3	12010.00
30	26191.70	124.41	0.793	0.30 (0.30)	0.99	45134.7	10300.00
31	25354.30	129.43	0.783	0.30 (0.30)	0.99	45393.9	10210.00
32	24834.19	133.26	0.774	0.30 (0.30)	0.99	45540.7	12000.00
33	22023.28	158.26	0.720	0.30 (0.30)	0.99	46153.7	10100.00

TOTAL AREA (ACRES) = 46153.7

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 29442.55 Tc (MIN.) = 84.542
EFFECTIVE AREA (ACRES) = 33382.26 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 46153.7
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12527.00 = 97868.13 FEET.

FLOW PROCESS FROM NODE 12527.00 TO NODE 11929.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 347.47 DOWNSTREAM (FEET) = 341.63
CHANNEL LENGTH THRU SUBAREA (FEET) = 532.38 CHANNEL SLOPE = 0.0110
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 8.43

* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.939

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	14.37	0.30	0.987	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.987
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 29446.71
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 14.43
AVERAGE FLOW DEPTH (FEET) = 8.43 TRAVEL TIME (MIN.) = 0.61
Tc (MIN.) = 85.16
SUBAREA AREA (ACRES) = 14.37 SUBAREA RUNOFF (CFS) = 8.32
EFFECTIVE AREA (ACRES) = 33396.63 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 46168.0 PEAK FLOW RATE (CFS) = 29442.55

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT (FEET) = 8.43

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 8.43 FLOW VELOCITY (FEET/SEC.) = 14.43

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 11929.00 = 98400.52 FEET.

FLOW PROCESS FROM NODE 11928.00 TO NODE 11929.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21744.22	39.58	1.365	0.30 (0.30)	0.99	11273.8	11831.00
2	22212.18	41.75	1.330	0.30 (0.30)	0.99	11923.1	11801.00
3	24786.46	53.21	1.164	0.30 (0.30)	0.99	15935.3	11530.00
4	25802.98	60.35	1.078	0.30 (0.30)	0.99	19084.6	11000.00
5	27946.32	69.81	1.025	0.30 (0.30)	0.99	24568.2	12500.00
6	28196.63	70.87	1.019	0.30 (0.30)	0.99	25235.5	11330.00
7	28628.91	72.77	1.008	0.30 (0.30)	0.99	26490.6	11350.00
8	29156.91	76.06	0.990	0.30 (0.30)	0.99	28670.9	11300.00
9	29383.42	77.64	0.981	0.30 (0.30)	0.99	29664.8	11130.00
10	29424.60	83.67	0.947	0.30 (0.30)	0.99	32591.4	12300.00
11	29442.55	85.16	0.939	0.30 (0.30)	0.99	33396.6	12330.00
12	29439.82	87.54	0.926	0.30 (0.30)	0.99	34652.2	11620.00
13	29426.78	88.01	0.923	0.30 (0.30)	0.99	34886.8	12410.00
14	29360.88	89.66	0.914	0.30 (0.30)	0.99	35687.9	11600.00
15	29241.66	92.31	0.904	0.30 (0.30)	0.99	36852.0	12400.00
16	29040.22	95.53	0.892	0.30 (0.30)	0.99	38167.4	11111.00
17	28921.00	97.35	0.885	0.30 (0.30)	0.99	38826.0	12211.00
18	28895.27	97.80	0.884	0.30 (0.30)	0.99	38989.7	10500.00

19	28686.30	101.59	0.870	0.30 (0.30)	0.99	40253.5	12201.00
20	28631.67	102.27	0.867	0.30 (0.30)	0.99	40460.0	10710.00
21	28393.24	104.58	0.859	0.30 (0.30)	0.99	41067.2	10410.00
22	28308.43	105.84	0.854	0.30 (0.30)	0.99	41387.6	12111.00
23	28060.91	108.83	0.844	0.30 (0.30)	0.99	42146.6	12231.00
24	28018.20	109.31	0.842	0.30 (0.30)	0.99	42264.1	10700.00
25	27804.43	111.79	0.833	0.30 (0.30)	0.99	42838.6	12101.10
26	27710.28	112.87	0.829	0.30 (0.30)	0.99	43079.4	12261.00
27	27382.95	116.04	0.817	0.30 (0.30)	0.99	43699.3	10400.00
28	27049.59	118.66	0.808	0.30 (0.30)	0.99	44153.4	10200.00
29	26196.32	125.02	0.792	0.30 (0.30)	0.99	45145.7	12010.00
30	26191.70	125.05	0.792	0.30 (0.30)	0.99	45149.1	10300.00
31	25354.30	130.08	0.781	0.30 (0.30)	0.99	45408.3	10210.00
32	24834.19	133.91	0.773	0.30 (0.30)	0.99	45555.1	12000.00
33	22023.28	158.94	0.719	0.30 (0.30)	0.99	46168.0	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 11929.00 = 98400.52 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2312.56	31.56	1.524	0.30 (0.30)	1.00	1913.7	40130.00
2	2318.12	33.44	1.487	0.30 (0.30)	1.00	2028.7	40100.00
3	2412.36	62.09	1.068	0.30 (0.30)	1.00	3324.8	11900.00
4	2409.06	62.26	1.067	0.30 (0.30)	1.00	3327.6	11910.00

LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11929.00 = 30683.27 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22229.05	31.56	1.524	0.30 (0.30)	0.99	10902.5	40130.00
2	22780.82	33.44	1.487	0.30 (0.30)	0.99	11553.3	40100.00
3	24082.55	39.58	1.365	0.30 (0.30)	0.99	13580.4	11831.00
4	24557.65	41.75	1.330	0.30 (0.30)	0.99	14327.9	11801.00
5	27169.61	53.21	1.164	0.30 (0.30)	0.99	18858.4	11530.00
6	28209.64	60.35	1.078	0.30 (0.30)	0.99	22331.0	11000.00
7	28607.78	62.09	1.068	0.30 (0.30)	0.99	23413.4	11900.00
8	28643.17	62.26	1.067	0.30 (0.30)	0.99	23515.2	11910.00
9	30222.67	69.81	1.025	0.30 (0.30)	0.99	27895.8	12500.00
10	30454.41	70.87	1.019	0.30 (0.30)	0.99	28563.1	11330.00
11	30853.30	72.77	1.008	0.30 (0.30)	0.99	29818.2	11350.00
12	31323.67	76.06	0.990	0.30 (0.30)	0.99	31998.5	11300.00
13	31522.31	77.64	0.981	0.30 (0.30)	0.99	32992.4	11130.00
14	31457.60	83.67	0.947	0.30 (0.30)	0.99	35919.0	12300.00
15	31449.52	85.16	0.939	0.30 (0.30)	0.99	36724.3	12330.00
16	31404.98	87.54	0.926	0.30 (0.30)	0.99	37979.9	11620.00
17	31383.73	88.01	0.923	0.30 (0.30)	0.99	38214.4	12410.00
18	31288.81	89.66	0.914	0.30 (0.30)	0.99	39015.5	11600.00
19	31137.25	92.31	0.904	0.30 (0.30)	0.99	40179.6	12400.00
20	30899.19	95.53	0.892	0.30 (0.30)	0.99	41495.0	11111.00
21	30759.23	97.35	0.885	0.30 (0.30)	0.99	42153.6	12211.00
22	30728.38	97.80	0.884	0.30 (0.30)	0.99	42317.4	10500.00
23	30476.18	101.59	0.870	0.30 (0.30)	0.99	43581.2	12201.00
24	30413.79	102.27	0.867	0.30 (0.30)	0.99	43787.7	10710.00
25	30149.10	104.58	0.859	0.30 (0.30)	0.99	44394.9	10410.00
26	30049.92	105.84	0.854	0.30 (0.30)	0.99	44715.2	12111.00
27	29768.36	108.83	0.844	0.30 (0.30)	0.99	45474.2	12231.00
28	29720.11	109.31	0.842	0.30 (0.30)	0.99	45591.7	10700.00
29	29478.12	111.79	0.833	0.30 (0.30)	0.99	46166.3	12101.10

30	29371.65	112.87	0.829	0.30 (0.30)	0.99	46407.0	12261.00
31	29008.24	116.04	0.817	0.30 (0.30)	0.99	47026.9	10400.00
32	28644.99	118.66	0.808	0.30 (0.30)	0.99	47481.1	10200.00
33	27742.38	125.02	0.792	0.30 (0.30)	0.99	48473.4	12010.00
34	27737.54	125.05	0.792	0.30 (0.30)	0.99	48476.7	10300.00
35	26866.01	130.08	0.781	0.30 (0.30)	0.99	48735.9	10210.00
36	26319.85	133.91	0.773	0.30 (0.30)	0.99	48882.8	12000.00
37	23338.91	158.94	0.719	0.30 (0.30)	0.99	49495.7	10100.00

TOTAL AREA (ACRES) = 49495.7

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 31522.31 Tc (MIN.) = 77.644
EFFECTIVE AREA (ACRES) = 32992.41 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 49495.7
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 11929.00 = 98400.52 FEET.

END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 49495.7 TC (MIN.) = 77.64
EFFECTIVE AREA (ACRES) = 32992.41 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.994
PEAK FLOW RATE (CFS) = 31522.31

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22229.05	31.56	1.524	0.30 (0.30)	0.99	10902.5	40130.00
2	22780.82	33.44	1.487	0.30 (0.30)	0.99	11553.3	40100.00
3	24082.55	39.58	1.365	0.30 (0.30)	0.99	13580.4	11831.00
4	24557.65	41.75	1.330	0.30 (0.30)	0.99	14327.9	11801.00
5	27169.61	53.21	1.164	0.30 (0.30)	0.99	18858.4	11530.00
6	28209.64	60.35	1.078	0.30 (0.30)	0.99	22331.0	11000.00
7	28607.78	62.09	1.068	0.30 (0.30)	0.99	23413.4	11900.00
8	28643.17	62.26	1.067	0.30 (0.30)	0.99	23515.2	11910.00
9	30222.67	69.81	1.025	0.30 (0.30)	0.99	27895.8	12500.00
10	30454.41	70.87	1.019	0.30 (0.30)	0.99	28563.1	11330.00
11	30853.30	72.77	1.008	0.30 (0.30)	0.99	29818.2	11350.00
12	31323.67	76.06	0.990	0.30 (0.30)	0.99	31998.5	11300.00
13	31522.31	77.64	0.981	0.30 (0.30)	0.99	32992.4	11130.00
14	31457.60	83.67	0.947	0.30 (0.30)	0.99	35919.0	12300.00
15	31449.52	85.16	0.939	0.30 (0.30)	0.99	36724.3	12330.00
16	31404.98	87.54	0.926	0.30 (0.30)	0.99	37979.9	11620.00
17	31383.73	88.01	0.923	0.30 (0.30)	0.99	38214.4	12410.00
18	31288.81	89.66	0.914	0.30 (0.30)	0.99	39015.5	11600.00
19	31137.25	92.31	0.904	0.30 (0.30)	0.99	40179.6	12400.00
20	30899.19	95.53	0.892	0.30 (0.30)	0.99	41495.0	11111.00
21	30759.23	97.35	0.885	0.30 (0.30)	0.99	42153.6	12211.00
22	30728.38	97.80	0.884	0.30 (0.30)	0.99	42317.4	10500.00
23	30476.18	101.59	0.870	0.30 (0.30)	0.99	43581.2	12201.00
24	30413.79	102.27	0.867	0.30 (0.30)	0.99	43787.7	10710.00
25	30149.10	104.58	0.859	0.30 (0.30)	0.99	44394.9	10410.00
26	30049.92	105.84	0.854	0.30 (0.30)	0.99	44715.2	12111.00
27	29768.36	108.83	0.844	0.30 (0.30)	0.99	45474.2	12231.00
28	29720.11	109.31	0.842	0.30 (0.30)	0.99	45591.7	10700.00
29	29478.12	111.79	0.833	0.30 (0.30)	0.99	46166.3	12101.10
30	29371.65	112.87	0.829	0.30 (0.30)	0.99	46407.0	12261.00
31	29008.24	116.04	0.817	0.30 (0.30)	0.99	47026.9	10400.00
32	28644.99	118.66	0.808	0.30 (0.30)	0.99	47481.1	10200.00

33	27742.38	125.02	0.792	0.30	(0.30)	0.99	48473.4	12010.00
34	27737.54	125.05	0.792	0.30	(0.30)	0.99	48476.7	10300.00
35	26866.01	130.08	0.781	0.30	(0.30)	0.99	48735.9	10210.00
36	26319.85	133.91	0.773	0.30	(0.30)	0.99	48882.8	12000.00
37	23338.91	158.94	0.719	0.30	(0.30)	0.99	49495.7	10100.00

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END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 126 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 25-YR EV JULY 2023 ROKAMOTO *

FILE NAME: RI25EV26.DAT
TIME/DATE OF STUDY: 14:19 07/05/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 25.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 4.985
- 2) 10.00; 3.243
- 3) 15.00; 2.468
- 4) 20.00; 2.035
- 5) 25.00; 1.773
- 6) 30.00; 1.553
- 7) 40.00; 1.354
- 8) 50.00; 1.201
- 9) 60.00; 1.077
- 10) 90.00; 0.909
- 11) 120.00; 0.800
- 12) 180.00; 0.670
- 13) 360.00; 0.498
- 14) 1200.00; 0.220

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	(FT)	(FT)	SIDE / SIDE/ WAY	(FT)	(FT)	(FT)	(FT)	(n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 11929.00 TO NODE 11929.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RI25EV19.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22780.82	33.44	0.30 (0.30)	0.99	11553.3	40100.00
2	24557.65	41.75	0.30 (0.30)	0.99	14327.9	11801.00
3	27169.61	53.21	0.30 (0.30)	0.99	18858.4	11530.00
4	28643.17	62.26	0.30 (0.30)	0.99	23515.2	11910.00
5	30853.30	72.77	0.30 (0.30)	0.99	29818.2	11350.00
6	31522.31	77.64	0.30 (0.30)	0.99	32992.4	11130.00
7	31457.60	83.67	0.30 (0.30)	0.99	35919.0	12300.00
8	31404.98	87.54	0.30 (0.30)	0.99	37979.9	11620.00
9	31137.25	92.31	0.30 (0.30)	0.99	40179.6	12400.00
10	30899.19	95.53	0.30 (0.30)	0.99	41495.0	11111.00
11	30476.18	101.59	0.30 (0.30)	0.99	43581.2	12201.00
12	30149.10	104.58	0.30 (0.30)	0.99	44394.9	10410.00
13	29768.36	108.83	0.30 (0.30)	0.99	45474.2	12231.00
14	29478.12	111.79	0.30 (0.30)	0.99	46166.3	12101.10
15	29008.24	116.04	0.30 (0.30)	0.99	47026.9	10400.00
16	28644.99	118.66	0.30 (0.30)	0.99	47481.1	10200.00
17	27742.38	125.02	0.30 (0.30)	0.99	48473.4	12010.00
18	26866.01	130.08	0.30 (0.30)	0.99	48735.9	10210.00
19	26319.85	133.91	0.30 (0.30)	0.99	48882.8	12000.00
20	23338.91	158.94	0.30 (0.30)	0.99	49495.7	10100.00
TOTAL AREA (ACRES) =						49495.7

FLOW PROCESS FROM NODE 11929.00 TO NODE 11929.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

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MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22780.82	33.44	0.30 (0.30)	0.99	11553.3	40100.00
2	24557.65	41.75	0.30 (0.30)	0.99	14327.9	11801.00
3	27169.61	53.21	0.30 (0.30)	0.99	18858.4	11530.00
4	28643.17	62.26	0.30 (0.30)	0.99	23515.2	11910.00
5	30853.30	72.77	0.30 (0.30)	0.99	29818.2	11350.00
6	31522.31	77.64	0.30 (0.30)	0.99	32992.4	11130.00
7	31457.60	83.67	0.30 (0.30)	0.99	35919.0	12300.00
8	31404.98	87.54	0.30 (0.30)	0.99	37979.9	11620.00
9	31137.25	92.31	0.30 (0.30)	0.99	40179.6	12400.00
10	30899.19	95.53	0.30 (0.30)	0.99	41495.0	11111.00
11	30476.18	101.59	0.30 (0.30)	0.99	43581.2	12201.00
12	30149.10	104.58	0.30 (0.30)	0.99	44394.9	10410.00
13	29768.36	108.83	0.30 (0.30)	0.99	45474.2	12231.00

14	29478.12	111.79	0.30	(0.30)	0.99	46166.3	12101.10
15	29008.24	116.04	0.30	(0.30)	0.99	47026.9	10400.00
16	28644.99	118.66	0.30	(0.30)	0.99	47481.1	10200.00
17	27742.38	125.02	0.30	(0.30)	0.99	48473.4	12010.00
18	26866.01	130.08	0.30	(0.30)	0.99	48735.9	10210.00
19	26319.85	133.91	0.30	(0.30)	0.99	48882.8	12000.00
20	23338.91	158.94	0.30	(0.30)	0.99	49495.7	10100.00

TOTAL AREA (ACRES) = 49495.7

FLOW PROCESS FROM NODE 11929.00 TO NODE 12601.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 341.63 DOWNSTREAM (FEET) = 325.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1467.93 CHANNEL SLOPE = 0.0113
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 7.37
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.971

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.40	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.50	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	0.90	0.30	1.000	63
NATURAL FAIR COVER					
"GRASS"	B	0.50	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	11.50	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.30	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 31526.56
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 18.07
AVERAGE FLOW DEPTH (FEET) = 7.37 TRAVEL TIME (MIN.) = 1.35
Tc (MIN.) = 79.00
SUBAREA AREA (ACRES) = 14.10 SUBAREA RUNOFF (CFS) = 8.51
EFFECTIVE AREA (ACRES) = 33006.52 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 49509.8 PEAK FLOW RATE (CFS) = 31522.31

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 7.37

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 7.37 FLOW VELOCITY (FEET/SEC.) = 18.07
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12601.00 = 99868.45 FEET.

FLOW PROCESS FROM NODE 12601.00 TO NODE 12601.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 3025EVRL.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	92.92	16.77	0.30 (0.29)	0.98	51.1	600.00

TOTAL AREA (ACRES) = 51.1

FLOW PROCESS FROM NODE 12601.00 TO NODE 12601.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22780.82	34.95	1.454	0.30 (0.30)	0.99	11567.4	40100.00
2	24557.65	43.23	1.305	0.30 (0.30)	0.99	14342.0	11801.00
3	27169.61	54.63	1.144	0.30 (0.30)	0.99	18872.5	11530.00
4	28643.17	63.66	1.057	0.30 (0.30)	0.99	23529.3	11910.00
5	30853.30	74.14	0.998	0.30 (0.30)	0.99	29832.3	11350.00
6	31522.31	79.00	0.971	0.30 (0.30)	0.99	33006.5	11130.00
7	31457.60	85.03	0.937	0.30 (0.30)	0.99	35933.1	12300.00
8	31404.98	88.89	0.915	0.30 (0.30)	0.99	37994.0	11620.00
9	31137.25	93.67	0.896	0.30 (0.30)	0.99	40193.7	12400.00
10	30899.19	96.89	0.884	0.30 (0.30)	0.99	41509.1	11111.00
11	30476.18	102.96	0.862	0.30 (0.30)	0.99	43595.3	12201.00
12	30149.10	105.95	0.851	0.30 (0.30)	0.99	44409.0	10410.00
13	29768.36	110.21	0.836	0.30 (0.30)	0.99	45488.3	12231.00
14	29478.12	113.18	0.825	0.30 (0.30)	0.99	46180.4	12101.10
15	29008.24	117.43	0.809	0.30 (0.30)	0.99	47041.0	10400.00
16	28644.99	120.06	0.800	0.30 (0.30)	0.99	47495.2	10200.00
17	27742.38	126.43	0.786	0.30 (0.30)	0.99	48487.5	12010.00
18	26866.01	131.50	0.775	0.30 (0.30)	0.99	48750.0	10210.00
19	26319.85	135.35	0.767	0.30 (0.30)	0.99	48896.9	12000.00
20	23338.91	160.44	0.712	0.30 (0.30)	0.99	49509.8	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12601.00 = 99868.45 FEET.

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	92.92	16.77	2.315	0.30 (0.29)	0.98	51.1	600.00

LONGEST FLOWPATH FROM NODE 600.00 TO NODE 12601.00 = 4850.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19154.32	16.77	2.315	0.30 (0.30)	0.99	5601.9	600.00
2	22834.20	34.95	1.454	0.30 (0.30)	0.99	11618.5	40100.00
3	24604.13	43.23	1.305	0.30 (0.30)	0.99	14393.1	11801.00
4	27208.68	54.63	1.144	0.30 (0.30)	0.99	18923.6	11530.00
5	28678.24	63.66	1.057	0.30 (0.30)	0.99	23580.4	11910.00
6	30885.67	74.14	0.998	0.30 (0.30)	0.99	29883.4	11350.00
7	31553.43	79.00	0.971	0.30 (0.30)	0.99	33057.6	11130.00
8	31487.16	85.03	0.937	0.30 (0.30)	0.99	35984.2	12300.00
9	31433.55	88.89	0.915	0.30 (0.30)	0.99	38045.1	11620.00

10	31164.92	93.67	0.896	0.30	(0.30)	0.99	40244.8	12400.00
11	30926.32	96.89	0.884	0.30	(0.30)	0.99	41560.2	11111.00
12	30502.30	102.96	0.862	0.30	(0.30)	0.99	43646.4	12201.00
13	30174.72	105.95	0.851	0.30	(0.30)	0.99	44460.1	10410.00
14	29793.27	110.21	0.836	0.30	(0.30)	0.99	45539.4	12231.00
15	29502.53	113.18	0.825	0.30	(0.30)	0.99	46231.5	12101.10
16	29031.95	117.43	0.809	0.30	(0.30)	0.99	47092.1	10400.00
17	28668.26	120.06	0.800	0.30	(0.30)	0.99	47546.3	10200.00
18	27765.01	126.43	0.786	0.30	(0.30)	0.99	48538.6	12010.00
19	26888.14	131.50	0.775	0.30	(0.30)	0.99	48801.1	10210.00
20	26341.59	135.35	0.767	0.30	(0.30)	0.99	48948.0	12000.00
21	23358.15	160.44	0.712	0.30	(0.30)	0.99	49560.9	10100.00

TOTAL AREA (ACRES) = 49560.9

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 31553.43 Tc (MIN.) = 78.998
EFFECTIVE AREA (ACRES) = 33057.62 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 49560.9
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12601.00 = 99868.45 FEET.

FLOW PROCESS FROM NODE 12601.00 TO NODE 12603.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 325.00 DOWNSTREAM (FEET) = 310.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1690.00 CHANNEL SLOPE = 0.0089
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 7.91
CHANNEL FLOW THRU SUBAREA (CFS) = 31553.43
FLOW VELOCITY (FEET/SEC.) = 16.66 FLOW DEPTH (FEET) = 7.91
TRAVEL TIME (MIN.) = 1.69 Tc (MIN.) = 80.69
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12603.00 = 101558.45 FEET.

FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<
=====

FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
=====

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION (MIN.) = 80.69
RAINFALL INTENSITY (INCH/HR) = 0.96
AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.99
EFFECTIVE STREAM AREA (ACRES) = 33057.62
TOTAL STREAM AREA (ACRES) = 49560.89
PEAK FLOW RATE (CFS) AT CONFLUENCE = 31553.43

FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 7

>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
=====

USER-SPECIFIED VALUES ARE AS FOLLOWS:
TC (MIN.) = 14.27 RAINFALL INTENSITY (INCH/HR) = 2.58
EFFECTIVE AREA (ACRES) = 95.50
TOTAL AREA (ACRES) = 171.00 PEAK FLOW RATE (CFS) = 176.40
AREA-AVERAGED Fm (INCH/HR) = 0.17 AREA-AVERAGED Fp (INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.58
NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
CONFLUENCE ANALYSES.

FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
=====

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION (MIN.) = 14.27
RAINFALL INTENSITY (INCH/HR) = 2.58
AREA-AVERAGED Fm (INCH/HR) = 0.17
AREA-AVERAGED Fp (INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.58
EFFECTIVE STREAM AREA (ACRES) = 95.50
TOTAL STREAM AREA (ACRES) = 171.00
PEAK FLOW RATE (CFS) AT CONFLUENCE = 176.40

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19154.32	18.78	2.141	0.30 (0.30)	0.99	5601.9	600.00
1	22834.20	36.84	1.417	0.30 (0.30)	0.99	11618.5	40100.00
1	24604.13	45.06	1.277	0.30 (0.30)	0.99	14393.1	11801.00
1	27208.68	56.41	1.122	0.30 (0.30)	0.99	18923.6	11530.00
1	28678.24	65.40	1.047	0.30 (0.30)	0.99	23580.4	11910.00
1	30885.67	75.84	0.988	0.30 (0.30)	0.99	29883.4	11350.00
1	31553.43	80.69	0.961	0.30 (0.30)	0.99	33057.6	11130.00
1	31487.16	86.72	0.927	0.30 (0.30)	0.99	35984.2	12300.00
1	31433.55	90.59	0.907	0.30 (0.30)	0.99	38045.1	11620.00
1	31164.92	95.37	0.889	0.30 (0.30)	0.99	40244.8	12400.00
1	30926.32	98.59	0.878	0.30 (0.30)	0.99	41560.2	11111.00
1	30502.30	104.67	0.856	0.30 (0.30)	0.99	43646.4	12201.00
1	30174.72	107.67	0.845	0.30 (0.30)	0.99	44460.1	10410.00
1	29793.27	111.93	0.829	0.30 (0.30)	0.99	45539.4	12231.00
1	29502.53	114.90	0.819	0.30 (0.30)	0.99	46231.5	12101.10
1	29031.95	119.17	0.803	0.30 (0.30)	0.99	47092.1	10400.00
1	28668.26	121.81	0.796	0.30 (0.30)	0.99	47546.3	10200.00
1	27765.01	128.20	0.782	0.30 (0.30)	0.99	48538.6	12010.00
1	26888.14	133.29	0.771	0.30 (0.30)	0.99	48801.1	10210.00
1	26341.59	137.15	0.763	0.30 (0.30)	0.99	48948.0	12000.00
1	23358.15	162.31	0.708	0.30 (0.30)	0.99	49560.9	10100.00
2	176.40	14.27	2.581	0.30 (0.17)	0.58	95.5	12603.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18210.52	14.27	2.581	0.30(0.30)	0.98	4353.2	12603.00
2	19298.47	18.78	2.141	0.30(0.30)	0.99	5697.4	600.00
3	22925.28	36.84	1.417	0.30(0.30)	0.99	11714.0	40100.00
4	24684.92	45.06	1.277	0.30(0.30)	0.99	14488.6	11801.00
5	27278.12	56.41	1.122	0.30(0.30)	0.99	19019.1	11530.00
6	28742.20	65.40	1.047	0.30(0.30)	0.99	23675.9	11910.00
7	30945.34	75.84	0.988	0.30(0.30)	0.99	29978.9	11350.00
8	31611.11	80.69	0.961	0.30(0.30)	0.99	33153.1	11130.00
9	31542.37	86.72	0.927	0.30(0.30)	0.99	36079.7	12300.00
10	31487.26	90.59	0.907	0.30(0.30)	0.99	38140.6	11620.00
11	31217.35	95.37	0.889	0.30(0.30)	0.99	40340.3	12400.00
12	30977.90	98.59	0.878	0.30(0.30)	0.99	41655.7	11111.00
13	30552.25	104.67	0.856	0.30(0.30)	0.99	43741.9	12201.00
14	30223.88	107.67	0.845	0.30(0.30)	0.99	44555.6	10410.00
15	29841.29	111.93	0.829	0.30(0.30)	0.99	45634.9	12231.00
16	29549.76	114.90	0.819	0.30(0.30)	0.99	46327.0	12101.10
17	29078.04	119.17	0.803	0.30(0.30)	0.99	47187.6	10400.00
18	28713.84	121.81	0.796	0.30(0.30)	0.99	47641.8	10200.00
19	27809.58	128.20	0.782	0.30(0.30)	0.99	48634.1	12010.00
20	26931.90	133.29	0.771	0.30(0.30)	0.99	48896.6	10210.00
21	26384.74	137.15	0.763	0.30(0.30)	0.99	49043.5	12000.00
22	23397.30	162.31	0.708	0.30(0.30)	0.99	49656.4	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 31611.11 Tc(MIN.) = 80.69
 EFFECTIVE AREA(ACRES) = 33153.12 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49731.9
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12603.00 = 101558.45 FEET.

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 80.69
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.961
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.20	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.30	0.30	1.000	66
PUBLIC PARK	B	1.30	0.30	0.850	56
COMMERCIAL	B	1.40	0.30	0.100	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	1.70	0.30	0.900	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	12.40	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.911

SUBAREA AREA(ACRES) = 18.30 SUBAREA RUNOFF(CFS) = 11.33
 EFFECTIVE AREA(ACRES) = 33171.42 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49750.2 PEAK FLOW RATE(CFS) = 31611.11
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 80.69
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.961
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	26.90	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 26.90 SUBAREA RUNOFF(CFS) = 16.01
 EFFECTIVE AREA(ACRES) = 33198.32 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49777.1 PEAK FLOW RATE(CFS) = 31611.11
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 80.69
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.961
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.50	0.30	1.000	63
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.40	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	0.40	0.30	1.000	72
NATURAL FAIR COVER					
"GRASS"	B	0.60	0.30	1.000	69
PUBLIC PARK	B	0.70	0.30	0.850	56
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	0.70	0.30	1.000	72

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.968
 SUBAREA AREA(ACRES) = 3.30 SUBAREA RUNOFF(CFS) = 1.99
 EFFECTIVE AREA(ACRES) = 33201.62 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49780.4 PEAK FLOW RATE(CFS) = 31611.11
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 80.69
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.961
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	1.00	0.30	1.000	66
NATURAL FAIR COVER "OPEN BRUSH"	B	1.20	0.30	1.000	66
RESIDENTIAL ".4 DWELLING/ACRE"	B	1.70	0.30	0.900	56
NATURAL FAIR COVER "OPEN BRUSH"	B	1.90	0.30	1.000	66
RESIDENTIAL ".4 DWELLING/ACRE"	B	2.10	0.30	0.900	56
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	B	2.90	0.30	1.000	72

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.965
 SUBAREA AREA(ACRES) = 10.80 SUBAREA RUNOFF(CFS) = 6.53
 EFFECTIVE AREA(ACRES) = 33212.42 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49791.2 PEAK FLOW RATE(CFS) = 31611.11
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 80.69
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.961
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND,GRASS"	B	5.60	0.30	1.000	65
NATURAL FAIR COVER "WOODLAND,GRASS"	B	9.00	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 14.60 SUBAREA RUNOFF(CFS) = 8.69
 EFFECTIVE AREA(ACRES) = 33227.02 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49805.8 PEAK FLOW RATE(CFS) = 31611.11
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12605.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 310.00 DOWNSTREAM(FEET) = 305.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 885.00 CHANNEL SLOPE = 0.0056
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 9.00
 CHANNEL FLOW THRU SUBAREA(CFS) = 31611.11
 FLOW VELOCITY(FEET/SEC.) = 14.34 FLOW DEPTH(FEET) = 9.00
 TRAVEL TIME(MIN.) = 1.03 Tc(MIN.) = 81.72
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12605.00 = 102443.45 FEET.

 FLOW PROCESS FROM NODE 12605.00 TO NODE 12605.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 81.72
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.955
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "ROW CROPS,STRAIGHT ROW"	B	0.50	0.30	1.000	81
NATURAL FAIR COVER "WOODLAND,GRASS"	B	0.70	0.30	1.000	65
PUBLIC PARK	B	1.30	0.30	0.850	56
RESIDENTIAL ".4 DWELLING/ACRE"	B	1.30	0.30	0.900	56
AGRICULTURAL POOR COVER "ROW CROPS,STRAIGHT ROW"	B	1.90	0.30	1.000	81
PUBLIC PARK	B	2.10	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.918
 SUBAREA AREA(ACRES) = 7.80 SUBAREA RUNOFF(CFS) = 4.77
 EFFECTIVE AREA(ACRES) = 33234.82 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49813.6 PEAK FLOW RATE(CFS) = 31611.11
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12605.00 TO NODE 12605.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 81.72
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.955
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	3.20	0.30	1.000	66
NATURAL FAIR COVER "WOODLAND,GRASS"	B	3.50	0.30	1.000	65
PUBLIC PARK	B	6.10	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.929
 SUBAREA AREA(ACRES) = 12.80 SUBAREA RUNOFF(CFS) = 7.80
 EFFECTIVE AREA(ACRES) = 33247.62 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49826.4 PEAK FLOW RATE(CFS) = 31611.11
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

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FLOW PROCESS FROM NODE 12605.00 TO NODE 12606.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 305.00 DOWNSTREAM(FEET) = 286.00
CHANNEL LENGTH THRU SUBAREA( FEET) = 2159.47 CHANNEL SLOPE = 0.0088
GIVEN CHANNEL BASE( FEET) = 200.00 CHANNEL FREEBOARD( FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT( FEET) = 7.93
CHANNEL FLOW THRU SUBAREA( CFS) = 31611.11
FLOW VELOCITY( FEET/SEC.) = 16.63 FLOW DEPTH( FEET) = 7.93
TRAVEL TIME( MIN.) = 2.16 Tc( MIN.) = 83.88
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12606.00 = 104602.91 FEET.
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*****
FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION( MIN.) = 83.88
RAINFALL INTENSITY( INCH/HR) = 0.94
AREA-AVERAGED Fm( INCH/HR) = 0.30
AREA-AVERAGED Fp( INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.99
EFFECTIVE STREAM AREA( ACRES) = 33247.62
TOTAL STREAM AREA( ACRES) = 49826.39
PEAK FLOW RATE( CFS) AT CONFLUENCE = 31611.11
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*****
FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 7
-----
>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<
=====
USER-SPECIFIED VALUES ARE AS FOLLOWS:
TC( MIN.) = 17.15 RAINFALL INTENSITY( INCH/HR) = 2.28
EFFECTIVE AREA( ACRES) = 457.40
TOTAL AREA( ACRES) = 553.80 PEAK FLOW RATE( CFS) = 720.30
AREA-AVERAGED Fm( INCH/HR) = 0.26 AREA-AVERAGED Fp( INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.85
NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
CONFLUENCE ANALYSES.
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AREA-AVERAGED Ap = 0.85
EFFECTIVE STREAM AREA( ACRES) = 457.40
TOTAL STREAM AREA( ACRES) = 553.80
PEAK FLOW RATE( CFS) AT CONFLUENCE = 720.30

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** CONFLUENCE DATA **

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STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18210.52	18.12	2.198	0.30(0.30)	0.98	4447.7	12603.00
1	19298.47	22.55	1.901	0.30(0.30)	0.99	5791.9	600.00
1	22925.28	40.40	1.348	0.30(0.30)	0.99	11808.5	40100.00
1	24684.92	48.53	1.223	0.30(0.30)	0.99	14583.1	11801.00
1	27278.12	59.76	1.080	0.30(0.30)	0.99	19113.6	11530.00
1	28742.20	68.70	1.028	0.30(0.30)	0.99	23770.4	11910.00
1	30945.34	79.06	0.970	0.30(0.30)	0.99	30073.4	11350.00
1	31611.11	83.88	0.943	0.30(0.30)	0.99	33247.6	11130.00
1	31542.37	89.92	0.909	0.30(0.30)	0.99	36174.2	12300.00
1	31487.26	93.78	0.895	0.30(0.30)	0.99	38235.1	11620.00
1	31217.35	98.58	0.878	0.30(0.30)	0.99	40434.8	12400.00
1	30977.90	101.81	0.866	0.30(0.30)	0.99	41750.2	11111.00
1	30552.25	107.90	0.844	0.30(0.30)	0.99	43836.4	12201.00
1	30223.88	110.91	0.833	0.30(0.30)	0.99	44650.1	10410.00
1	29841.29	115.19	0.817	0.30(0.30)	0.99	45729.4	12231.00
1	29549.76	118.17	0.807	0.30(0.30)	0.99	46421.5	12101.10
1	29078.04	122.45	0.795	0.30(0.30)	0.99	47282.1	10400.00
1	28713.84	125.10	0.789	0.30(0.30)	0.99	47736.3	10200.00
1	27809.58	131.53	0.775	0.30(0.30)	0.99	48728.6	12010.00
1	26931.90	136.66	0.764	0.30(0.30)	0.99	48991.1	10210.00
1	26384.74	140.54	0.755	0.30(0.30)	0.99	49138.0	12000.00
1	23397.30	165.84	0.701	0.30(0.30)	0.99	49750.9	10100.00
2	720.30	17.15	2.282	0.30(0.26)	0.85	457.4	12606.00

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RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

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** PEAK FLOW RATE TABLE **

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STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18717.06	17.15	2.282	0.30(0.29)	0.97	4667.2	12606.00
2	18901.00	18.12	2.198	0.30(0.29)	0.97	4905.1	12603.00
3	19883.60	22.55	1.901	0.30(0.29)	0.98	6249.3	600.00
4	23313.70	40.40	1.348	0.30(0.30)	0.98	12265.9	40100.00
5	25029.09	48.53	1.223	0.30(0.30)	0.99	15040.5	11801.00
6	27571.29	59.76	1.080	0.30(0.30)	0.99	19571.0	11530.00
7	29017.02	68.70	1.028	0.30(0.30)	0.99	24227.8	11910.00
8	31199.54	79.06	0.970	0.30(0.30)	0.99	30530.8	11350.00
9	31855.71	83.88	0.943	0.30(0.30)	0.99	33705.0	11130.00
10	31774.96	89.92	0.909	0.30(0.30)	0.99	36631.6	12300.00
11	31714.79	93.78	0.895	0.30(0.30)	0.99	38692.5	11620.00
12	31438.70	98.58	0.878	0.30(0.30)	0.99	40892.2	12400.00
13	31195.08	101.81	0.866	0.30(0.30)	0.99	42207.6	11111.00
14	30761.56	107.90	0.844	0.30(0.30)	0.99	44293.8	12201.00
15	30429.30	110.91	0.833	0.30(0.30)	0.99	45107.5	10410.00
16	30041.20	115.19	0.817	0.30(0.30)	0.99	46186.8	12231.00
17	29745.81	118.17	0.807	0.30(0.30)	0.99	46878.9	12101.10
18	29269.84	122.45	0.795	0.30(0.30)	0.99	47739.5	10400.00
19	28903.60	125.10	0.789	0.30(0.30)	0.99	48193.7	10200.00
20	27994.39	131.53	0.775	0.30(0.30)	0.99	49186.0	12010.00

21 27112.76 136.66 0.764 0.30(0.30) 0.99 49448.5 10210.00
 22 26562.61 140.54 0.755 0.30(0.30) 0.99 49595.4 12000.00
 23 23555.69 165.84 0.701 0.30(0.30) 0.99 50208.3 10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 31855.71 Tc(MIN.) = 83.88
 EFFECTIVE AREA(ACRES) = 33705.02 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 50380.2
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12606.00 = 104602.91 FEET.

 FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 83.88
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.943
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.30	0.30	1.000	63
NATURAL FAIR COVER					
"GRASS"	B	0.30	0.30	1.000	69
PUBLIC PARK	B	0.40	0.30	0.850	56
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	0.60	0.30	1.000	72
COMMERCIAL	B	1.10	0.30	0.100	56
PUBLIC PARK	B	0.80	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.666
 SUBAREA AREA(ACRES) = 3.50 SUBAREA RUNOFF(CFS) = 2.34
 EFFECTIVE AREA(ACRES) = 33708.52 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 50383.7 PEAK FLOW RATE(CFS) = 31855.71
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 83.88
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.943
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	0.80	0.30	1.000	69
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.90	0.30	1.000	65
AGRICULTURAL POOR COVER					
"ROW CROPS,STRAIGHT ROW"	B	1.50	0.30	1.000	81
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.60	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.80	0.30	1.000	66

NATURAL FAIR COVER
 "WOODLAND,GRASS" B 1.90 0.30 1.000 65
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 8.50 SUBAREA RUNOFF(CFS) = 4.92
 EFFECTIVE AREA(ACRES) = 33717.02 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 50392.2 PEAK FLOW RATE(CFS) = 31855.71
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 83.88
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.943
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.30	0.30	1.000	66
PUBLIC PARK	B	3.70	0.30	0.850	56
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	3.90	0.30	1.000	72
PUBLIC PARK	B	5.90	0.30	0.850	56
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	9.10	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	20.60	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.969
 SUBAREA AREA(ACRES) = 46.50 SUBAREA RUNOFF(CFS) = 27.31
 EFFECTIVE AREA(ACRES) = 33763.52 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 50438.7 PEAK FLOW RATE(CFS) = 31855.71
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

=====

END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 50438.7 TC(MIN.) = 83.88
 EFFECTIVE AREA(ACRES) = 33763.52 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.991
 PEAK FLOW RATE(CFS) = 31855.71

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18717.06	17.15	2.282	0.30(0.29)	0.97	4725.7	12606.00
2	18901.00	18.12	2.198	0.30(0.29)	0.97	4963.6	12603.00
3	19883.60	22.55	1.901	0.30(0.29)	0.98	6307.8	600.00
4	23313.70	40.40	1.348	0.30(0.30)	0.98	12324.4	40100.00
5	25029.09	48.53	1.223	0.30(0.30)	0.99	15099.0	11801.00
6	27571.29	59.76	1.080	0.30(0.30)	0.99	19629.5	11530.00
7	29017.02	68.70	1.028	0.30(0.30)	0.99	24286.3	11910.00
8	31199.54	79.06	0.970	0.30(0.30)	0.99	30589.3	11350.00
9	31855.71	83.88	0.943	0.30(0.30)	0.99	33763.5	11130.00
10	31774.96	89.92	0.909	0.30(0.30)	0.99	36690.1	12300.00
11	31714.79	93.78	0.895	0.30(0.30)	0.99	38751.0	11620.00

12	31438.70	98.58	0.878	0.30	(0.30)	0.99	40950.7	12400.00
13	31195.08	101.81	0.866	0.30	(0.30)	0.99	42266.1	11111.00
14	30761.56	107.90	0.844	0.30	(0.30)	0.99	44352.3	12201.00
15	30429.30	110.91	0.833	0.30	(0.30)	0.99	45166.0	10410.00
16	30041.20	115.19	0.817	0.30	(0.30)	0.99	46245.3	12231.00
17	29745.81	118.17	0.807	0.30	(0.30)	0.99	46937.4	12101.10
18	29269.84	122.45	0.795	0.30	(0.30)	0.99	47798.0	10400.00
19	28903.60	125.10	0.789	0.30	(0.30)	0.99	48252.2	10200.00
20	27994.39	131.53	0.775	0.30	(0.30)	0.99	49244.5	12010.00
21	27112.76	136.66	0.764	0.30	(0.30)	0.99	49507.0	10210.00
22	26562.61	140.54	0.755	0.30	(0.30)	0.99	49653.9	12000.00
23	23555.69	165.84	0.701	0.30	(0.30)	0.99	50266.8	10100.00

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END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 127 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 25-YR EV JULY 2023 ROKAMOTO *

FILE NAME: RI25EV27.DAT
TIME/DATE OF STUDY: 14:19 07/05/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 25.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 4.933
- 2) 10.00; 3.214
- 3) 15.00; 2.451
- 4) 20.00; 2.024
- 5) 25.00; 1.763
- 6) 30.00; 1.547
- 7) 40.00; 1.347
- 8) 50.00; 1.194
- 9) 60.00; 1.070
- 10) 90.00; 0.902
- 11) 120.00; 0.792
- 12) 180.00; 0.662
- 13) 360.00; 0.490
- 14) 1200.00; 0.216

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	(FT)	(FT)	SIDE / SIDE/ WAY	(FT)	(FT)	(FT)	(FT)	(n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: RI25EV26.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18901.00	18.12	0.30 (0.29)	0.97	4963.6	12603.00
2	19883.60	22.55	0.30 (0.29)	0.98	6307.8	600.00
3	23313.70	40.40	0.30 (0.30)	0.98	12324.4	40100.00
4	25029.09	48.53	0.30 (0.30)	0.99	15099.0	11801.00
5	27571.29	59.76	0.30 (0.30)	0.99	19629.5	11530.00
6	29017.02	68.70	0.30 (0.30)	0.99	24286.3	11910.00
7	31199.54	79.06	0.30 (0.30)	0.99	30589.3	11350.00
8	31855.71	83.88	0.30 (0.30)	0.99	33763.5	11130.00
9	31774.96	89.92	0.30 (0.30)	0.99	36690.1	12300.00
10	31714.79	93.78	0.30 (0.30)	0.99	38751.0	11620.00
11	31438.70	98.58	0.30 (0.30)	0.99	40950.7	12400.00
12	31195.08	101.81	0.30 (0.30)	0.99	42266.1	11111.00
13	30761.56	107.90	0.30 (0.30)	0.99	44352.3	12201.00
14	30429.30	110.91	0.30 (0.30)	0.99	45166.0	10410.00
15	30041.20	115.19	0.30 (0.30)	0.99	46245.3	12231.00
16	29269.84	122.45	0.30 (0.30)	0.99	47798.0	10400.00
17	27994.39	131.53	0.30 (0.30)	0.99	49244.5	12010.00
18	27112.76	136.66	0.30 (0.30)	0.99	49507.0	10210.00
19	26562.61	140.54	0.30 (0.30)	0.99	49653.9	12000.00
20	23555.69	165.84	0.30 (0.30)	0.99	50266.8	10100.00
TOTAL AREA (ACRES) =						50266.8

FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18901.00	18.12	0.30 (0.29)	0.97	4963.6	12603.00
2	19883.60	22.55	0.30 (0.29)	0.98	6307.8	600.00
3	23313.70	40.40	0.30 (0.30)	0.98	12324.4	40100.00
4	25029.09	48.53	0.30 (0.30)	0.99	15099.0	11801.00
5	27571.29	59.76	0.30 (0.30)	0.99	19629.5	11530.00
6	29017.02	68.70	0.30 (0.30)	0.99	24286.3	11910.00
7	31199.54	79.06	0.30 (0.30)	0.99	30589.3	11350.00
8	31855.71	83.88	0.30 (0.30)	0.99	33763.5	11130.00
9	31774.96	89.92	0.30 (0.30)	0.99	36690.1	12300.00
10	31714.79	93.78	0.30 (0.30)	0.99	38751.0	11620.00
11	31438.70	98.58	0.30 (0.30)	0.99	40950.7	12400.00
12	31195.08	101.81	0.30 (0.30)	0.99	42266.1	11111.00
13	30761.56	107.90	0.30 (0.30)	0.99	44352.3	12201.00

14 30429.30 110.91 0.30(0.30) 0.99 45166.0 10410.00
 15 30041.20 115.19 0.30(0.30) 0.99 46245.3 12231.00
 16 29269.84 122.45 0.30(0.30) 0.99 47798.0 10400.00
 17 27994.39 131.53 0.30(0.30) 0.99 49244.5 12010.00
 18 27112.76 136.66 0.30(0.30) 0.99 49507.0 10210.00
 19 26562.61 140.54 0.30(0.30) 0.99 49653.9 12000.00
 20 23555.69 165.84 0.30(0.30) 0.99 50266.8 10100.00
 TOTAL AREA (ACRES) = 50266.8

FLOW PROCESS FROM NODE 12606.00 TO NODE 12701.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 286.00 DOWNSTREAM(FEET) = 276.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1260.19 CHANNEL SLOPE = 0.0079
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 8.21
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.929

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
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RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	B	0.70	0.30	0.500	56
PUBLIC PARK	B	0.90	0.30	0.850	56
COMMERCIAL	B	3.40	0.30	0.100	56
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	3.60	0.30	1.000	65
PUBLIC PARK	B	10.10	0.30	0.850	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	17.40	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.860
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 31866.61
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 16.11
 AVERAGE FLOW DEPTH(FEET) = 8.21 TRAVEL TIME(MIN.) = 1.30
 Tc(MIN.) = 85.19
 SUBAREA AREA(ACRES) = 36.10 SUBAREA RUNOFF(CFS) = 21.80
 EFFECTIVE AREA(ACRES) = 33799.62 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 50302.9 PEAK FLOW RATE(CFS) = 31855.71
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 8.21

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 8.21 FLOW VELOCITY(FEET/SEC.) = 16.11
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12701.00 = 105863.10 FEET.

FLOW PROCESS FROM NODE 12701.00 TO NODE 12720.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 276.00 DOWNSTREAM(FEET) = 275.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 147.65 CHANNEL SLOPE = 0.0068
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 8.59
 CHANNEL FLOW THRU SUBAREA(CFS) = 31855.71
 FLOW VELOCITY(FEET/SEC.) = 15.27 FLOW DEPTH(FEET) = 8.59
 TRAVEL TIME(MIN.) = 0.16 Tc(MIN.) = 85.35
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12720.00 = 106010.75 FEET.

FLOW PROCESS FROM NODE 12701.00 TO NODE 12720.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION(MIN.) = 85.35
 RAINFALL INTENSITY(INCH/HR) = 0.93
 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.99
 EFFECTIVE STREAM AREA(ACRES) = 33799.62
 TOTAL STREAM AREA(ACRES) = 50302.89
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 31855.71

FLOW PROCESS FROM NODE 12710.00 TO NODE 12711.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

INITIAL SUBAREA FLOW-LENGTH(FEET) = 943.56
 ELEVATION DATA: UPSTREAM(FEET) = 940.78 DOWNSTREAM(FEET) = 657.79

Tc = K*(LENGTH** 3.00)/(ELEVATION CHANGE]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 13.910
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.617
 SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
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NATURAL FAIR COVER
 "GRASS" B 6.56 0.30 1.000 69 13.91
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 13.68
 TOTAL AREA(ACRES) = 6.56 PEAK FLOW RATE(CFS) = 13.68

FLOW PROCESS FROM NODE 12711.00 TO NODE 12712.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 657.79 DOWNSTREAM(FEET) = 585.63
 CHANNEL LENGTH THRU SUBAREA(FEET) = 766.00 CHANNEL SLOPE = 0.0942
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 0.68
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.335
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	26.94	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 38.43
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.22
 AVERAGE FLOW DEPTH (FEET) = 0.65 TRAVEL TIME (MIN.) = 2.45
 Tc (MIN.) = 16.36
 SUBAREA AREA (ACRES) = 26.94 SUBAREA RUNOFF (CFS) = 49.35
 EFFECTIVE AREA (ACRES) = 33.50 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 33.5 PEAK FLOW RATE (CFS) = 61.36
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 0.86

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 0.86 FLOW VELOCITY (FEET/SEC.) = 6.11
 LONGEST FLOWPATH FROM NODE 12710.00 TO NODE 12712.00 = 1709.56 FEET.

 FLOW PROCESS FROM NODE 12712.00 TO NODE 12713.00 IS CODE = 56

>>>> COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>> TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM (FEET) = 585.63 DOWNSTREAM (FEET) = 463.75
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1025.79 CHANNEL SLOPE = 0.1188
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 0.90
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.128
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	14.73	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 73.48
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.03
 AVERAGE FLOW DEPTH (FEET) = 0.89 TRAVEL TIME (MIN.) = 2.43
 Tc (MIN.) = 18.79
 SUBAREA AREA (ACRES) = 14.73 SUBAREA RUNOFF (CFS) = 24.23
 EFFECTIVE AREA (ACRES) = 48.23 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 48.2 PEAK FLOW RATE (CFS) = 79.33
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 0.93

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 0.93 FLOW VELOCITY (FEET/SEC.) = 7.21

LONGEST FLOWPATH FROM NODE 12710.00 TO NODE 12713.00 = 2735.35 FEET.

 FLOW PROCESS FROM NODE 12713.00 TO NODE 12714.00 IS CODE = 56

>>>> COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>> TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM (FEET) = 463.75 DOWNSTREAM (FEET) = 360.30
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1148.54 CHANNEL SLOPE = 0.0901
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.53
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.965
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	105.64	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 158.59
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.20
 AVERAGE FLOW DEPTH (FEET) = 1.49 TRAVEL TIME (MIN.) = 2.34
 Tc (MIN.) = 21.12
 SUBAREA AREA (ACRES) = 105.64 SUBAREA RUNOFF (CFS) = 158.34
 EFFECTIVE AREA (ACRES) = 153.87 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 153.9 PEAK FLOW RATE (CFS) = 230.62
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.83

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.83 FLOW VELOCITY (FEET/SEC.) = 9.20
 LONGEST FLOWPATH FROM NODE 12710.00 TO NODE 12714.00 = 3883.89 FEET.

 FLOW PROCESS FROM NODE 12714.00 TO NODE 12720.00 IS CODE = 56

>>>> COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>> TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 360.30 DOWNSTREAM (FEET) = 275.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1314.99 CHANNEL SLOPE = 0.0649
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.42
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.838
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	127.13	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 318.68
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 9.02

AVERAGE FLOW DEPTH (FEET) = 2.39 TRAVEL TIME (MIN.) = 2.43
 Tc (MIN.) = 23.55
 SUBAREA AREA (ACRES) = 127.13 SUBAREA RUNOFF (CFS) = 176.03
 EFFECTIVE AREA (ACRES) = 281.00 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 281.0 PEAK FLOW RATE (CFS) = 389.08
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.66

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 2.66 FLOW VELOCITY (FEET/SEC.) = 9.55
 LONGEST FLOWPATH FROM NODE 12710.00 TO NODE 12720.00 = 5198.88 FEET.

 FLOW PROCESS FROM NODE 12720.00 TO NODE 12720.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

=====
 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 23.55
 RAINFALL INTENSITY (INCH/HR) = 1.84
 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 1.00
 EFFECTIVE STREAM AREA (ACRES) = 281.00
 TOTAL STREAM AREA (ACRES) = 281.00
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 389.08

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18901.00	19.87	2.035	0.30 (0.29)	0.97	4999.7	12603.00
1	19883.60	24.27	1.801	0.30 (0.29)	0.98	6343.9	600.00
1	23313.70	42.02	1.316	0.30 (0.30)	0.98	12360.5	40100.00
1	25029.09	50.12	1.192	0.30 (0.30)	0.99	15135.1	11801.00
1	27571.29	61.30	1.063	0.30 (0.30)	0.99	19665.6	11530.00
1	29017.02	70.21	1.013	0.30 (0.30)	0.99	24322.4	11910.00
1	31199.54	80.53	0.955	0.30 (0.30)	0.99	30625.4	11350.00
1	31855.71	85.35	0.928	0.30 (0.30)	0.99	33799.6	11130.00
1	31774.96	91.38	0.897	0.30 (0.30)	0.99	36726.2	12300.00
1	31714.79	95.25	0.883	0.30 (0.30)	0.99	38787.1	11620.00
1	31438.70	100.05	0.865	0.30 (0.30)	0.99	40986.8	12400.00
1	31195.08	103.28	0.853	0.30 (0.30)	0.99	42302.2	11111.00
1	30761.56	109.38	0.831	0.30 (0.30)	0.99	44388.4	12201.00
1	30429.30	112.40	0.820	0.30 (0.30)	0.99	45202.1	10410.00
1	30041.20	116.68	0.804	0.30 (0.30)	0.99	46281.4	12231.00
1	29269.84	123.96	0.783	0.30 (0.30)	0.99	47834.1	10400.00
1	27994.39	133.06	0.764	0.30 (0.30)	0.99	49280.6	12010.00
1	27112.76	138.20	0.753	0.30 (0.30)	0.99	49543.1	10210.00
1	26562.61	142.10	0.744	0.30 (0.30)	0.99	49690.0	12000.00
1	23555.69	167.46	0.689	0.30 (0.30)	0.99	50302.9	10100.00
2	389.08	23.55	1.838	0.30 (0.30)	1.00	281.0	12710.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19271.17	19.87	2.035	0.30 (0.29)	0.97	5236.7	12603.00
2	20113.51	23.55	1.838	0.30 (0.29)	0.98	6407.2	12710.00
3	20263.28	24.27	1.801	0.30 (0.29)	0.98	6624.9	600.00
4	23570.66	42.02	1.316	0.30 (0.30)	0.98	12641.5	40100.00
5	25254.80	50.12	1.192	0.30 (0.30)	0.99	15416.1	11801.00
6	27764.19	61.30	1.063	0.30 (0.30)	0.99	19946.6	11530.00
7	29197.29	70.21	1.013	0.30 (0.30)	0.99	24603.4	11910.00
8	31365.20	80.53	0.955	0.30 (0.30)	0.99	30906.4	11350.00
9	32014.54	85.35	0.928	0.30 (0.30)	0.99	34080.6	11130.00
10	31925.92	91.38	0.897	0.30 (0.30)	0.99	37007.2	12300.00
11	31862.17	95.25	0.883	0.30 (0.30)	0.99	39068.1	11620.00
12	31581.63	100.05	0.865	0.30 (0.30)	0.99	41267.8	12400.00
13	31335.01	103.28	0.853	0.30 (0.30)	0.99	42583.2	11111.00
14	30895.83	109.38	0.831	0.30 (0.30)	0.99	44669.4	12201.00
15	30560.78	112.40	0.820	0.30 (0.30)	0.99	45483.1	10410.00
16	30168.70	116.68	0.804	0.30 (0.30)	0.99	46562.4	12231.00
17	29392.10	123.96	0.783	0.30 (0.30)	0.99	48115.1	10400.00
18	28111.66	133.06	0.764	0.30 (0.30)	0.99	49561.6	12010.00
19	27227.21	138.20	0.753	0.30 (0.30)	0.99	49824.1	10210.00
20	26674.93	142.10	0.744	0.30 (0.30)	0.99	49971.0	12000.00
21	23654.11	167.46	0.689	0.30 (0.30)	0.99	50583.9	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 32014.54 Tc (MIN.) = 85.35
 EFFECTIVE AREA (ACRES) = 34080.62 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA (ACRES) = 50583.9
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12720.00 = 106010.75 FEET.

 FLOW PROCESS FROM NODE 12720.00 TO NODE 12720.50 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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 ELEVATION DATA: UPSTREAM (FEET) = 275.00 DOWNSTREAM (FEET) = 258.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 2669.21 CHANNEL SLOPE = 0.0064
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 8.76

* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.911

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	0.20	0.30	1.000	86
NATURAL POOR COVER					
"BARREN"	B	0.20	0.30	1.000	86
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.20	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.30	0.30	1.000	65
COMMERCIAL	B	0.30	0.30	0.100	56
NATURAL FAIR COVER					

"MEADOWS" B 0.50 0.30 1.000 70
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.841
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 32015.05
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 14.99
 AVERAGE FLOW DEPTH (FEET) = 8.76 TRAVEL TIME (MIN.) = 2.97
 Tc (MIN.) = 88.31
 SUBAREA AREA (ACRES) = 1.70 SUBAREA RUNOFF (CFS) = 1.01
 EFFECTIVE AREA (ACRES) = 34082.32 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA (ACRES) = 50585.6 PEAK FLOW RATE (CFS) = 32014.54
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 8.76

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 8.76 FLOW VELOCITY (FEET/SEC.) = 14.99
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12720.50 = 108679.96 FEET.

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 88.31
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.911
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
PUBLIC PARK	B	0.50	0.30	0.850	56
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.70	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.50	0.30	1.000	66
COMMERCIAL	B	1.40	0.30	0.100	56
COMMERCIAL	B	2.30	0.30	0.100	56
NATURAL FAIR COVER					
"GRASS"	B	9.30	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.783
 SUBAREA AREA (ACRES) = 15.70 SUBAREA RUNOFF (CFS) = 9.56
 EFFECTIVE AREA (ACRES) = 34098.02 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA (ACRES) = 50601.3 PEAK FLOW RATE (CFS) = 32014.54
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 88.31
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.911
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					

"WOODLAND, GRASS" B 11.20 0.30 1.000 65
 NATURAL FAIR COVER
 "WOODLAND, GRASS" B 11.40 0.30 1.000 65
 NATURAL FAIR COVER
 "CHAPARRAL, NARROWLEAF" B 11.80 0.30 1.000 72
 NATURAL FAIR COVER
 "OPEN BRUSH" B 27.70 0.30 1.000 66
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 62.10 SUBAREA RUNOFF (CFS) = 34.17
 EFFECTIVE AREA (ACRES) = 34160.12 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA (ACRES) = 50663.4 PEAK FLOW RATE (CFS) = 32014.54
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION (MIN.) = 88.31
 RAINFALL INTENSITY (INCH/HR) = 0.91
 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.99
 EFFECTIVE STREAM AREA (ACRES) = 34160.12
 TOTAL STREAM AREA (ACRES) = 50663.39
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 32014.54

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 7

>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<

 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC (MIN.) = 22.51 RAINFALL INTENSITY (INCH/HR) = 1.89
 EFFECTIVE AREA (ACRES) = 699.10
 TOTAL AREA (ACRES) = 1292.30 PEAK FLOW RATE (CFS) = 997.00
 AREA-AVERAGED Fm (INCH/HR) = 0.13 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.43
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
 CONFLUENCE ANALYSES.

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 22.51
 RAINFALL INTENSITY (INCH/HR) = 1.89
 AREA-AVERAGED Fm (INCH/HR) = 0.13
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.43

EFFECTIVE STREAM AREA(ACRES) = 699.10
 TOTAL STREAM AREA(ACRES) = 1292.30
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 997.00

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19271.17	23.39	1.847	0.30(0.29)	0.97	5316.2	12603.00
1	20113.51	27.02	1.676	0.30(0.29)	0.98	6486.7	12710.00
1	20263.28	27.73	1.645	0.30(0.29)	0.98	6704.4	600.00
1	23570.66	45.31	1.266	0.30(0.30)	0.98	12721.0	40100.00
1	25254.80	53.33	1.153	0.30(0.30)	0.99	15495.6	11801.00
1	27764.19	64.41	1.045	0.30(0.30)	0.99	20026.1	11530.00
1	29197.29	73.27	0.996	0.30(0.30)	0.99	24682.9	11910.00
1	31365.20	83.52	0.938	0.30(0.30)	0.99	30985.9	11350.00
1	32014.54	88.31	0.911	0.30(0.30)	0.99	34160.1	11130.00
1	31925.92	94.35	0.886	0.30(0.30)	0.99	37086.7	12300.00
1	31862.17	98.22	0.872	0.30(0.30)	0.99	39147.6	11620.00
1	31581.63	103.03	0.854	0.30(0.30)	0.99	41347.3	12400.00
1	31335.01	106.27	0.842	0.30(0.30)	0.99	42662.7	11111.00
1	30895.83	112.39	0.820	0.30(0.30)	0.99	44748.9	12201.00
1	30560.78	115.41	0.809	0.30(0.30)	0.99	45562.6	10410.00
1	30168.70	119.71	0.793	0.30(0.30)	0.99	46641.9	12231.00
1	29392.10	127.01	0.777	0.30(0.30)	0.99	48194.6	10400.00
1	28111.66	136.16	0.757	0.30(0.30)	0.99	49641.1	12010.00
1	27227.21	141.34	0.746	0.30(0.30)	0.99	49903.6	10210.00
1	26674.93	145.25	0.737	0.30(0.30)	0.99	50050.5	12000.00
1	23654.11	170.75	0.682	0.30(0.30)	0.99	50663.4	10100.00
2	997.00	22.51	1.893	0.30(0.13)	0.43	699.1	12720.50

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20091.38	22.51	1.893	0.30(0.27)	0.91	5816.1	12720.50
2	20242.31	23.39	1.847	0.30(0.27)	0.91	6015.3	12603.00
3	20987.63	27.02	1.676	0.30(0.28)	0.92	7185.8	12710.00
4	21120.26	27.73	1.645	0.30(0.28)	0.92	7403.5	600.00
5	24213.15	45.31	1.266	0.30(0.29)	0.96	13420.1	40100.00
6	25833.37	53.33	1.153	0.30(0.29)	0.96	16194.7	11801.00
7	28282.08	64.41	1.045	0.30(0.29)	0.97	20725.2	11530.00
8	29687.14	73.27	0.996	0.30(0.29)	0.97	25382.0	11910.00
9	31822.60	83.52	0.938	0.30(0.29)	0.98	31685.0	11350.00
10	32456.78	88.31	0.911	0.30(0.29)	0.98	34859.2	11130.00
11	32353.79	94.35	0.886	0.30(0.29)	0.98	37785.8	12300.00
12	32282.03	98.22	0.872	0.30(0.29)	0.98	39846.7	11620.00
13	31991.53	103.03	0.854	0.30(0.29)	0.98	42046.4	12400.00
14	31738.19	106.27	0.842	0.30(0.29)	0.98	43361.8	11111.00
15	31286.34	112.39	0.820	0.30(0.29)	0.98	45448.0	12201.00
16	30945.02	115.41	0.809	0.30(0.29)	0.98	46261.7	10410.00
17	30544.04	119.71	0.793	0.30(0.29)	0.98	47341.0	12231.00
18	29758.24	127.01	0.777	0.30(0.29)	0.98	48893.7	10400.00
19	28466.60	136.16	0.757	0.30(0.29)	0.98	50340.2	12010.00
20	27575.81	141.34	0.746	0.30(0.29)	0.98	50602.7	10210.00
21	27018.74	145.25	0.737	0.30(0.29)	0.98	50749.6	12000.00
22	23966.69	170.75	0.682	0.30(0.29)	0.98	51362.5	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 32456.78 Tc(MIN.) = 88.31
 EFFECTIVE AREA(ACRES) = 34859.22 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA(ACRES) = 51955.7
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12720.50 = 108679.96 FEET.

FLOW PROCESS FROM NODE 12720.50 TO NODE 12722.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 258.00 DOWNSTREAM(FEET) = 255.00

CHANNEL LENGTH THRU SUBAREA(FEET) = 1269.00 CHANNEL SLOPE = 0.0024

GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 11.67

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.901

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
PUBLIC PARK	B	0.10	0.30	0.850	56
NATURAL FAIR COVER "GRASS"	B	0.10	0.30	1.000	69
NATURAL FAIR COVER "GRASS"	B	0.20	0.30	1.000	69
NATURAL FAIR COVER "GRASS"	B	0.30	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	0.30	0.30	1.000	66
COMMERCIAL	B	0.40	0.30	0.100	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.732

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 32457.21

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.77

AVERAGE FLOW DEPTH(FEET) = 11.67 TRAVEL TIME(MIN.) = 1.96

Tc(MIN.) = 90.28

SUBAREA AREA(ACRES) = 1.40 SUBAREA RUNOFF(CFS) = 0.86

EFFECTIVE AREA(ACRES) = 34860.62 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98

TOTAL AREA(ACRES) = 51957.1 PEAK FLOW RATE(CFS) = 32456.78

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 11.67

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 11.67 FLOW VELOCITY(FEET/SEC.) = 10.77

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12722.00 = 109948.96 FEET.

FLOW PROCESS FROM NODE 12722.00 TO NODE 12722.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 90.28

* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.901
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	0.50	0.30	0.100	56
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.60	0.30	1.000	65
NATURAL POOR COVER "BARREN"	B	0.60	0.30	1.000	86
COMMERCIAL	B	0.60	0.30	0.100	56
NATURAL FAIR COVER "OPEN BRUSH"	B	0.90	0.30	1.000	66
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	B	1.00	0.30	1.000	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.764
 SUBAREA AREA (ACRES) = 4.20 SUBAREA RUNOFF (CFS) = 2.54
 EFFECTIVE AREA (ACRES) = 34864.82 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 51961.3 PEAK FLOW RATE (CFS) = 32456.78
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12722.00 TO NODE 12722.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 90.28
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.901
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND, GRASS"	B	1.30	0.30	1.000	65
NATURAL FAIR COVER "MEADOWS"	B	3.20	0.30	1.000	70
NATURAL FAIR COVER "WOODLAND, GRASS"	B	3.70	0.30	1.000	65
NATURAL FAIR COVER "OPEN BRUSH"	B	12.00	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 20.20 SUBAREA RUNOFF (CFS) = 10.93
 EFFECTIVE AREA (ACRES) = 34885.02 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 51981.5 PEAK FLOW RATE (CFS) = 32456.78
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12722.00 TO NODE 12740.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 255.00 DOWNSTREAM (FEET) = 252.10
 CHANNEL LENGTH THRU SUBAREA (FEET) = 624.00 CHANNEL SLOPE = 0.0046
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT (FEET) = 9.65
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.898
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	0.10	0.30	1.000	81
PUBLIC PARK	B	0.50	0.30	0.850	56
NATURAL FAIR COVER "GRASS"	B	0.50	0.30	1.000	69
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	B	0.80	0.30	1.000	63
NATURAL FAIR COVER "WOODLAND, GRASS"	B	1.20	0.30	1.000	65
COMMERCIAL	B	1.50	0.30	0.100	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.690
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 32458.21
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 13.54
 AVERAGE FLOW DEPTH (FEET) = 9.65 TRAVEL TIME (MIN.) = 0.77
 Tc (MIN.) = 91.05
 SUBAREA AREA (ACRES) = 4.60 SUBAREA RUNOFF (CFS) = 2.86
 EFFECTIVE AREA (ACRES) = 34889.62 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 51986.1 PEAK FLOW RATE (CFS) = 32456.78
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 9.65

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 9.65 FLOW VELOCITY (FEET/SEC.) = 13.54
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12740.00 = 110572.96 FEET.

 FLOW PROCESS FROM NODE 12740.00 TO NODE 12740.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 91.05
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.898
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	2.50	0.30	0.100	56
NATURAL FAIR COVER "GRASS"	B	2.60	0.30	1.000	69
NATURAL FAIR COVER "GRASS"	B	2.80	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	5.40	0.30	1.000	66
NATURAL FAIR COVER "WOODLAND, GRASS"	B	6.20	0.30	1.000	65
NATURAL FAIR COVER "WOODLAND, GRASS"	B	6.50	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.913
 SUBAREA AREA (ACRES) = 26.00 SUBAREA RUNOFF (CFS) = 14.60

EFFECTIVE AREA(ACRES) = 34915.62 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 52012.1 PEAK FLOW RATE(CFS) = 32456.78
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12740.00 TO NODE 12740.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 91.05
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.898
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH" B 6.70 0.30 1.000 66
NATURAL FAIR COVER
"OPEN BRUSH" B 12.00 0.30 1.000 66
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" B 20.30 0.30 1.000 63
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 39.00 SUBAREA RUNOFF(CFS) = 21.00
EFFECTIVE AREA(ACRES) = 34954.62 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 52051.1 PEAK FLOW RATE(CFS) = 32456.78
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12740.00 TO NODE 12740.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 91.05
RAINFALL INTENSITY(INCH/HR) = 0.90
AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.98
EFFECTIVE STREAM AREA(ACRES) = 34954.62
TOTAL STREAM AREA(ACRES) = 52051.09
PEAK FLOW RATE(CFS) AT CONFLUENCE = 32456.78

FLOW PROCESS FROM NODE 12730.00 TO NODE 12731.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

INITIAL SUBAREA FLOW-LENGTH(FEET) = 561.54
ELEVATION DATA: UPSTREAM(FEET) = 613.29 DOWNSTREAM(FEET) = 551.75

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 13.823
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.631
SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" B 6.33 0.30 1.000 63 13.82
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF(CFS) = 13.28
TOTAL AREA(ACRES) = 6.33 PEAK FLOW RATE(CFS) = 13.28

FLOW PROCESS FROM NODE 12731.00 TO NODE 12732.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 551.75 DOWNSTREAM(FEET) = 494.40
CHANNEL LENGTH THRU SUBAREA(FEET) = 971.91 CHANNEL SLOPE = 0.0590
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.86
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.257
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH" B 34.62 0.30 1.000 66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 43.94
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.70
AVERAGE FLOW DEPTH(FEET) = 0.81 TRAVEL TIME(MIN.) = 3.45
Tc(MIN.) = 17.27
SUBAREA AREA(ACRES) = 34.62 SUBAREA RUNOFF(CFS) = 60.97
EFFECTIVE AREA(ACRES) = 40.95 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 40.9 PEAK FLOW RATE(CFS) = 72.12
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.07

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.07 FLOW VELOCITY(FEET/SEC.) = 5.53
LONGEST FLOWPATH FROM NODE 12730.00 TO NODE 12732.00 = 1533.45 FEET.

FLOW PROCESS FROM NODE 12732.00 TO NODE 12733.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 494.40 DOWNSTREAM(FEET) = 431.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1156.41 CHANNEL SLOPE = 0.0548
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.49
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.007
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS

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LAND USE      GROUP  (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"OPEN BRUSH"      B      59.52    0.30    1.000    66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 117.92
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.32
AVERAGE FLOW DEPTH(FEET) = 1.45 TRAVEL TIME(MIN.) = 3.05
Tc(MIN.) = 20.32
SUBAREA AREA(ACRES) = 59.52 SUBAREA RUNOFF(CFS) = 91.45
EFFECTIVE AREA(ACRES) = 100.47 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 100.5 PEAK FLOW RATE(CFS) = 154.37
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.68

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.68 FLOW VELOCITY(FEET/SEC.) = 6.86
LONGEST FLOWPATH FROM NODE 12730.00 TO NODE 12733.00 = 2689.86 FEET.

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FLOW PROCESS FROM NODE 12733.00 TO NODE 12734.00 IS CODE = 56

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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 431.00 DOWNSTREAM(FEET) = 367.10
CHANNEL LENGTH THRU SUBAREA(FEET) = 1654.48 CHANNEL SLOPE = 0.0386
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.16
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.786
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH"      B      64.05    0.30    1.000    66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 197.27
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.52
AVERAGE FLOW DEPTH(FEET) = 2.12 TRAVEL TIME(MIN.) = 4.23
Tc(MIN.) = 24.55
SUBAREA AREA(ACRES) = 64.05 SUBAREA RUNOFF(CFS) = 85.69
EFFECTIVE AREA(ACRES) = 164.52 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 164.5 PEAK FLOW RATE(CFS) = 220.10
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.25

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 2.25 FLOW VELOCITY(FEET/SEC.) = 6.73
LONGEST FLOWPATH FROM NODE 12730.00 TO NODE 12734.00 = 4344.34 FEET.

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FLOW PROCESS FROM NODE 12734.00 TO NODE 12740.00 IS CODE = 56

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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 367.11 DOWNSTREAM(FEET) = 252.10
CHANNEL LENGTH THRU SUBAREA(FEET) = 1880.98 CHANNEL SLOPE = 0.0611
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.07
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.615
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH"      B      26.02    0.30    1.000    66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 235.50
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 8.08
AVERAGE FLOW DEPTH(FEET) = 2.06 TRAVEL TIME(MIN.) = 3.88
Tc(MIN.) = 28.43
SUBAREA AREA(ACRES) = 26.02 SUBAREA RUNOFF(CFS) = 30.79
EFFECTIVE AREA(ACRES) = 190.54 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 190.5 PEAK FLOW RATE(CFS) = 225.48
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.02

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 2.02 FLOW VELOCITY(FEET/SEC.) = 7.97
LONGEST FLOWPATH FROM NODE 12730.00 TO NODE 12740.00 = 6225.32 FEET.

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FLOW PROCESS FROM NODE 12740.00 TO NODE 12740.00 IS CODE = 1

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>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 28.43
RAINFALL INTENSITY(INCH/HR) = 1.61
AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 190.54
TOTAL STREAM AREA(ACRES) = 190.54
PEAK FLOW RATE(CFS) AT CONFLUENCE = 225.48

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** CONFLUENCE DATA **

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STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20091.38	25.70	1.733	0.30(0.27)	0.91	5911.5	12720.50
1	20242.31	26.57	1.695	0.30(0.27)	0.91	6110.7	12603.00
1	20987.63	30.17	1.544	0.30(0.28)	0.92	7281.2	12710.00
1	21120.26	30.87	1.530	0.30(0.28)	0.92	7498.9	600.00
1	24213.15	48.31	1.220	0.30(0.29)	0.96	13515.5	40100.00

1	25833.37	56.28	1.116	0.30	(0.29)	0.96	16290.1	11801.00
1	28282.08	67.27	1.029	0.30	(0.29)	0.97	20820.6	11530.00
1	29687.14	76.08	0.980	0.30	(0.29)	0.97	25477.4	11910.00
1	31822.60	86.27	0.923	0.30	(0.29)	0.98	31780.4	11350.00
1	32456.78	91.05	0.898	0.30	(0.29)	0.98	34954.6	11130.00
1	32353.79	97.09	0.876	0.30	(0.29)	0.98	37881.2	12300.00
1	32282.03	100.96	0.862	0.30	(0.29)	0.98	39942.1	11620.00
1	31991.53	105.77	0.844	0.30	(0.29)	0.98	42141.8	12400.00
1	31738.19	109.02	0.832	0.30	(0.29)	0.98	43457.2	11111.00
1	31286.34	115.15	0.810	0.30	(0.29)	0.98	45543.4	12201.00
1	30945.02	118.18	0.799	0.30	(0.29)	0.98	46357.1	10410.00
1	30544.04	122.49	0.787	0.30	(0.29)	0.98	47436.4	12231.00
1	29758.24	129.82	0.771	0.30	(0.29)	0.98	48989.1	10400.00
1	28466.60	139.01	0.751	0.30	(0.29)	0.98	50435.6	12010.00
1	27575.81	144.22	0.740	0.30	(0.29)	0.98	50698.1	10210.00
1	27018.74	148.15	0.731	0.30	(0.29)	0.98	50845.0	12000.00
1	23966.69	173.76	0.676	0.30	(0.29)	0.98	51457.9	10100.00
2	225.48	28.43	1.615	0.30	(0.30)	1.00	190.5	12730.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20313.50	25.70	1.733	0.30 (0.27)	0.91	6083.7	12720.50
2	20465.92	26.57	1.695	0.30 (0.27)	0.91	6288.8	12603.00
3	20852.32	28.43	1.615	0.30 (0.28)	0.92	6905.1	12730.00
4	21200.88	30.17	1.544	0.30 (0.28)	0.92	7471.7	12710.00
5	21331.13	30.87	1.530	0.30 (0.28)	0.93	7689.5	600.00
6	24370.88	48.31	1.220	0.30 (0.29)	0.96	13706.1	40100.00
7	25973.33	56.28	1.116	0.30 (0.29)	0.96	16480.6	11801.00
8	28407.15	67.27	1.029	0.30 (0.29)	0.97	21011.2	11530.00
9	29803.74	76.08	0.980	0.30 (0.29)	0.97	25668.0	11910.00
10	31929.42	86.27	0.923	0.30 (0.29)	0.98	31970.9	11350.00
11	32559.36	91.05	0.898	0.30 (0.29)	0.98	35145.2	11130.00
12	32452.57	97.09	0.876	0.30 (0.29)	0.98	38071.7	12300.00
13	32378.37	100.96	0.862	0.30 (0.29)	0.98	40132.6	11620.00
14	32084.85	105.77	0.844	0.30 (0.29)	0.98	42332.3	12400.00
15	31829.46	109.02	0.832	0.30 (0.29)	0.98	43647.8	11111.00
16	31373.76	115.15	0.810	0.30 (0.29)	0.98	45733.9	12201.00
17	31030.54	118.18	0.799	0.30 (0.29)	0.98	46547.6	10410.00
18	30627.48	122.49	0.787	0.30 (0.29)	0.98	47626.9	12231.00
19	29838.96	129.82	0.771	0.30 (0.29)	0.98	49179.7	10400.00
20	28543.90	139.01	0.751	0.30 (0.29)	0.98	50626.1	12010.00
21	27651.18	144.22	0.740	0.30 (0.29)	0.98	50888.7	10210.00
22	27092.65	148.15	0.731	0.30 (0.29)	0.98	51035.5	12000.00
23	24031.09	173.76	0.676	0.30 (0.29)	0.98	51648.4	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 32559.36 Tc (MIN.) = 91.05
EFFECTIVE AREA (ACRES) = 35145.16 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52241.6
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12740.00 = 110572.96 FEET.

FLOW PROCESS FROM NODE 12740.00 TO NODE 12800.00 IS CODE = 56

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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 252.10 DOWNSTREAM(FEET) = 240.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1220.00 CHANNEL SLOPE = 0.0099
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 7.79
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.894
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
AGRICULTURAL POOR COVER
"ROW CROPS, STRAIGHT ROW" B 0.30 0.30 1.000 81
NATURAL FAIR COVER
"WOODLAND, GRASS" B 0.40 0.30 1.000 65
COMMERCIAL B 0.40 0.30 0.100 56
COMMERCIAL B 0.60 0.30 0.100 56
NATURAL FAIR COVER
"OPEN BRUSH" B 1.50 0.30 1.000 66
PUBLIC PARK B 3.20 0.30 0.850 56
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.784
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 32561.25
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 17.48
AVERAGE FLOW DEPTH(FEET) = 7.79 TRAVEL TIME(MIN.) = 1.16
Tc(MIN.) = 92.21
SUBAREA AREA(ACRES) = 6.40 SUBAREA RUNOFF(CFS) = 3.79
EFFECTIVE AREA(ACRES) = 35151.56 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 52248.0 PEAK FLOW RATE(CFS) = 32559.36
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 7.79

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 7.79 FLOW VELOCITY(FEET/SEC.) = 17.48
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12800.00 = 111792.96 FEET.

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FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN.) = 92.21
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.894
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"GRASS" B 3.90 0.30 1.000 69
NATURAL FAIR COVER
"GRASS" B 8.70 0.30 1.000 69
NATURAL FAIR COVER
"WOODLAND, GRASS" B 10.30 0.30 1.000 65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

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SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 22.90 SUBAREA RUNOFF (CFS) = 12.24
 EFFECTIVE AREA (ACRES) = 35174.46 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 52270.9 PEAK FLOW RATE (CFS) = 32559.36
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

=====

END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 52270.9 TC (MIN.) = 92.21
 EFFECTIVE AREA (ACRES) = 35174.46 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.980
 PEAK FLOW RATE (CFS) = 32559.36

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20313.50	27.07	1.674	0.30 (0.27)	0.91	6113.0	12720.50
2	20465.92	27.93	1.636	0.30 (0.27)	0.91	6318.1	12603.00
3	20852.32	29.78	1.556	0.30 (0.28)	0.92	6934.4	12730.00
4	21200.88	31.52	1.517	0.30 (0.28)	0.92	7501.0	12710.00
5	21331.13	32.21	1.503	0.30 (0.28)	0.93	7718.8	600.00
6	24370.88	49.60	1.200	0.30 (0.29)	0.96	13735.4	40100.00
7	25973.33	57.53	1.101	0.30 (0.29)	0.96	16509.9	11801.00
8	28407.15	68.48	1.022	0.30 (0.29)	0.97	21040.5	11530.00
9	29803.74	77.28	0.973	0.30 (0.29)	0.97	25697.3	11910.00
10	31929.42	87.44	0.916	0.30 (0.29)	0.98	32000.2	11350.00
11	32559.36	92.21	0.894	0.30 (0.29)	0.98	35174.5	11130.00
12	32452.57	98.25	0.872	0.30 (0.29)	0.98	38101.0	12300.00
13	32378.37	102.13	0.858	0.30 (0.29)	0.98	40161.9	11620.00
14	32084.85	106.94	0.840	0.30 (0.29)	0.98	42361.6	12400.00
15	31829.46	110.19	0.828	0.30 (0.29)	0.98	43677.1	11111.00
16	31373.76	116.33	0.805	0.30 (0.29)	0.98	45763.2	12201.00
17	31030.54	119.37	0.794	0.30 (0.29)	0.98	46576.9	10410.00
18	30627.48	123.68	0.784	0.30 (0.29)	0.98	47656.2	12231.00
19	29838.96	131.02	0.768	0.30 (0.29)	0.98	49209.0	10400.00
20	28543.90	140.23	0.748	0.30 (0.29)	0.98	50655.4	12010.00
21	27651.18	145.45	0.737	0.30 (0.29)	0.98	50918.0	10210.00
22	27092.65	149.38	0.728	0.30 (0.29)	0.98	51064.8	12000.00
23	24031.09	175.05	0.673	0.30 (0.29)	0.98	51677.7	10100.00

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END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 128 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 25-YR EV JULY 2023 ROKAMOTO *

FILE NAME: RI25EV28.DAT
TIME/DATE OF STUDY: 14:19 07/05/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 25.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 4.933
- 2) 10.00; 3.214
- 3) 15.00; 2.451
- 4) 20.00; 2.024
- 5) 25.00; 1.763
- 6) 30.00; 1.547
- 7) 40.00; 1.347
- 8) 50.00; 1.194
- 9) 60.00; 1.070
- 10) 90.00; 0.902
- 11) 120.00; 0.792
- 12) 180.00; 0.662
- 13) 360.00; 0.490
- 14) 1200.00; 0.216

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RI25EV27.DNA
MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20852.32	29.78	0.30 (0.28)	0.92	6934.4	12730.00
2	21331.13	32.21	0.30 (0.28)	0.93	7718.8	600.00
3	24370.88	49.60	0.30 (0.29)	0.96	13735.4	40100.00
4	25973.33	57.53	0.30 (0.29)	0.96	16509.9	11801.00
5	28407.15	68.48	0.30 (0.29)	0.97	21040.5	11530.00
6	29803.74	77.28	0.30 (0.29)	0.97	25697.3	11910.00
7	31929.42	87.44	0.30 (0.29)	0.98	32000.2	11350.00
8	32559.36	92.21	0.30 (0.29)	0.98	35174.5	11130.00
9	32452.57	98.25	0.30 (0.29)	0.98	38101.0	12300.00
10	32378.37	102.13	0.30 (0.29)	0.98	40161.9	11620.00
11	32084.85	106.94	0.30 (0.29)	0.98	42361.6	12400.00
12	31829.46	110.19	0.30 (0.29)	0.98	43677.1	11111.00
13	31373.76	116.33	0.30 (0.29)	0.98	45763.2	12201.00
14	31030.54	119.37	0.30 (0.29)	0.98	46576.9	10410.00
15	30627.48	123.68	0.30 (0.29)	0.98	47656.2	12231.00
16	29838.96	131.02	0.30 (0.29)	0.98	49209.0	10400.00
17	28543.90	140.23	0.30 (0.29)	0.98	50655.4	12010.00
18	27651.18	145.45	0.30 (0.29)	0.98	50918.0	10210.00
19	27092.65	149.38	0.30 (0.29)	0.98	51064.8	12000.00
20	24031.09	175.05	0.30 (0.29)	0.98	51677.7	10100.00
TOTAL AREA(ACRES) =						51677.7

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: 0610501W.DNA
MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1339.03	26.38	0.30 (0.29)	0.98	1025.9	50120.00
2	1307.01	27.68	0.30 (0.29)	0.98	1041.3	50150.00
3	1190.23	31.24	0.30 (0.29)	0.98	1063.4	50100.00
TOTAL AREA(ACRES) =						1063.4

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 14.0

>>>>MEMORY BANK # 3 COPIED ONTO MAIN-STREAM MEMORY<<<<<

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MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM	Q	Tc	Fp(Fm)	Ap	Ae	HEADWATER
--------	---	----	--------	----	----	-----------

NUMBER	(CFS)	(MIN.)	(INCH/HR)	(ACRES)	NODE
1	20852.32	29.78	0.30 (0.28) 0.92	6934.4	12730.00
2	21331.13	32.21	0.30 (0.28) 0.93	7718.8	600.00
3	24370.88	49.60	0.30 (0.29) 0.96	13735.4	40100.00
4	25973.33	57.53	0.30 (0.29) 0.96	16509.9	11801.00
5	28407.15	68.48	0.30 (0.29) 0.97	21040.5	11530.00
6	29803.74	77.28	0.30 (0.29) 0.97	25697.3	11910.00
7	31929.42	87.44	0.30 (0.29) 0.98	32000.2	11350.00
8	32559.36	92.21	0.30 (0.29) 0.98	35174.5	11130.00
9	32452.57	98.25	0.30 (0.29) 0.98	38101.0	12300.00
10	32378.37	102.13	0.30 (0.29) 0.98	40161.9	11620.00
11	32084.85	106.94	0.30 (0.29) 0.98	42361.6	12400.00
12	31829.46	110.19	0.30 (0.29) 0.98	43677.1	11111.00
13	31373.76	116.33	0.30 (0.29) 0.98	45763.2	12201.00
14	31030.54	119.37	0.30 (0.29) 0.98	46576.9	10410.00
15	30627.48	123.68	0.30 (0.29) 0.98	47656.2	12231.00
16	29838.96	131.02	0.30 (0.29) 0.98	49209.0	10400.00
17	28543.90	140.23	0.30 (0.29) 0.98	50655.4	12010.00
18	27651.18	145.45	0.30 (0.29) 0.98	50918.0	10210.00
19	27092.65	149.38	0.30 (0.29) 0.98	51064.8	12000.00
20	24031.09	175.05	0.30 (0.29) 0.98	51677.7	10100.00
TOTAL AREA (ACRES) =		51677.7			

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20852.32	29.78	1.556	0.30 (0.28) 0.92	6934.4	12730.00	
2	21331.13	32.21	1.503	0.30 (0.28) 0.93	7718.8	600.00	
3	24370.88	49.60	1.200	0.30 (0.29) 0.96	13735.4	40100.00	
4	25973.33	57.53	1.101	0.30 (0.29) 0.96	16509.9	11801.00	
5	28407.15	68.48	1.022	0.30 (0.29) 0.97	21040.5	11530.00	
6	29803.74	77.28	0.973	0.30 (0.29) 0.97	25697.3	11910.00	
7	31929.42	87.44	0.916	0.30 (0.29) 0.98	32000.2	11350.00	
8	32559.36	92.21	0.894	0.30 (0.29) 0.98	35174.5	11130.00	
9	32452.57	98.25	0.872	0.30 (0.29) 0.98	38101.0	12300.00	
10	32378.37	102.13	0.858	0.30 (0.29) 0.98	40161.9	11620.00	
11	32084.85	106.94	0.840	0.30 (0.29) 0.98	42361.6	12400.00	
12	31829.46	110.19	0.828	0.30 (0.29) 0.98	43677.1	11111.00	
13	31373.76	116.33	0.805	0.30 (0.29) 0.98	45763.2	12201.00	
14	31030.54	119.37	0.794	0.30 (0.29) 0.98	46576.9	10410.00	
15	30627.48	123.68	0.784	0.30 (0.29) 0.98	47656.2	12231.00	
16	29838.96	131.02	0.768	0.30 (0.29) 0.98	49209.0	10400.00	
17	28543.90	140.23	0.748	0.30 (0.29) 0.98	50655.4	12010.00	
18	27651.18	145.45	0.737	0.30 (0.29) 0.98	50918.0	10210.00	
19	27092.65	149.38	0.728	0.30 (0.29) 0.98	51064.8	12000.00	
20	24031.09	175.05	0.673	0.30 (0.29) 0.98	51677.7	10100.00	
LONGEST FLOWPATH FROM NODE		10100.00 TO NODE 12800.00 = 111792.96 FEET.					

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1339.03	26.38	1.703	0.30 (0.29) 0.98	1025.9	50120.00	

2	1307.01	27.68	1.647	0.30 (0.29) 0.98	1041.3	50150.00
3	1190.23	31.24	1.522	0.30 (0.29) 0.98	1063.4	50100.00
LONGEST FLOWPATH FROM NODE		50150.00 TO NODE 12800.00 = 11349.00 FEET.				

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21929.19	26.38	1.703	0.30 (0.28) 0.93	7168.9	50120.00	
2	22061.42	27.68	1.647	0.30 (0.28) 0.93	7485.9	50150.00	
3	22090.24	29.78	1.556	0.30 (0.28) 0.93	7988.8	12730.00	
4	22328.92	31.24	1.522	0.30 (0.28) 0.93	8466.9	50100.00	
5	22502.45	32.21	1.503	0.30 (0.28) 0.93	8782.2	600.00	
6	25248.84	49.60	1.200	0.30 (0.29) 0.96	14798.7	40100.00	
7	26754.79	57.53	1.101	0.30 (0.29) 0.96	17573.3	11801.00	
8	29112.88	68.48	1.022	0.30 (0.29) 0.97	22103.8	11530.00	
9	30461.72	77.28	0.973	0.30 (0.29) 0.97	26760.6	11910.00	
10	32532.23	87.44	0.916	0.30 (0.29) 0.98	33063.6	11350.00	
11	33140.43	92.21	0.894	0.30 (0.29) 0.98	36237.8	11130.00	
12	33012.17	98.25	0.872	0.30 (0.29) 0.98	39164.4	12300.00	
13	32924.21	102.13	0.858	0.30 (0.29) 0.98	41225.3	11620.00	
14	32613.57	106.94	0.840	0.30 (0.29) 0.98	43425.0	12400.00	
15	32346.62	110.19	0.828	0.30 (0.29) 0.98	44740.4	11111.00	
16	31869.12	116.33	0.805	0.30 (0.29) 0.98	46826.6	12201.00	
17	31515.09	119.37	0.794	0.30 (0.29) 0.98	47640.3	10410.00	
18	31102.05	123.68	0.784	0.30 (0.29) 0.98	48719.6	12231.00	
19	30298.12	131.02	0.768	0.30 (0.29) 0.98	50272.4	10400.00	
20	28983.73	140.23	0.748	0.30 (0.29) 0.98	51718.8	12010.00	
21	28080.04	145.45	0.737	0.30 (0.29) 0.98	51981.4	10210.00	
22	27513.24	149.38	0.728	0.30 (0.29) 0.98	52128.2	12000.00	
23	24397.77	175.05	0.673	0.30 (0.29) 0.98	52741.1	10100.00	
TOTAL AREA (ACRES) =		52741.1					

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 33140.43 Tc(MIN.) = 92.210
EFFECTIVE AREA(ACRES) = 36237.84 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97
TOTAL AREA(ACRES) = 52741.1
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12800.00 = 111792.96 FEET.

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 52741.1 TC(MIN.) = 92.21
EFFECTIVE AREA(ACRES) = 36237.84 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.980
PEAK FLOW RATE(CFS) = 33140.43

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21929.19	26.38	1.703	0.30 (0.28) 0.93	7168.9	50120.00	
2	22061.42	27.68	1.647	0.30 (0.28) 0.93	7485.9	50150.00	
3	22090.24	29.78	1.556	0.30 (0.28) 0.93	7988.8	12730.00	
4	22328.92	31.24	1.522	0.30 (0.28) 0.93	8466.9	50100.00	
5	22502.45	32.21	1.503	0.30 (0.28) 0.93	8782.2	600.00	
6	25248.84	49.60	1.200	0.30 (0.29) 0.96	14798.7	40100.00	
7	26754.79	57.53	1.101	0.30 (0.29) 0.96	17573.3	11801.00	
8	29112.88	68.48	1.022	0.30 (0.29) 0.97	22103.8	11530.00	
9	30461.72	77.28	0.973	0.30 (0.29) 0.97	26760.6	11910.00	
10	32532.23	87.44	0.916	0.30 (0.29) 0.98	33063.6	11350.00	

11	33140.43	92.21	0.894	0.30 (0.29)	0.98	36237.8	11130.00
12	33012.17	98.25	0.872	0.30 (0.29)	0.98	39164.4	12300.00
13	32924.21	102.13	0.858	0.30 (0.29)	0.98	41225.3	11620.00
14	32613.57	106.94	0.840	0.30 (0.29)	0.98	43425.0	12400.00
15	32346.62	110.19	0.828	0.30 (0.29)	0.98	44740.4	11111.00
16	31869.12	116.33	0.805	0.30 (0.29)	0.98	46826.6	12201.00
17	31515.09	119.37	0.794	0.30 (0.29)	0.98	47640.3	10410.00
18	31102.05	123.68	0.784	0.30 (0.29)	0.98	48719.6	12231.00
19	30298.12	131.02	0.768	0.30 (0.29)	0.98	50272.4	10400.00
20	28983.73	140.23	0.748	0.30 (0.29)	0.98	51718.8	12010.00
21	28080.04	145.45	0.737	0.30 (0.29)	0.98	51981.4	10210.00
22	27513.24	149.38	0.728	0.30 (0.29)	0.98	52128.2	12000.00
23	24397.77	175.05	0.673	0.30 (0.29)	0.98	52741.1	10100.00

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END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 129 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 25-YR EV JULY 2023 ROKAMOTO *

FILE NAME: RI25EV29.DAT
TIME/DATE OF STUDY: 14:19 07/05/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 25.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 4.920
- 2) 10.00; 3.206
- 3) 15.00; 2.446
- 4) 20.00; 2.021
- 5) 25.00; 1.761
- 6) 30.00; 1.545
- 7) 40.00; 1.345
- 8) 50.00; 1.192
- 9) 60.00; 1.068
- 10) 90.00; 0.900
- 11) 120.00; 0.790
- 12) 180.00; 0.660
- 13) 360.00; 0.488
- 14) 1200.00; 0.215

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RI25EV28.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22090.24	29.78	0.30 (0.28)	0.93	7988.8	12730.00
2	22502.45	32.21	0.30 (0.28)	0.93	8782.2	600.00
3	25248.84	49.60	0.30 (0.29)	0.96	14798.7	40100.00
4	26754.79	57.53	0.30 (0.29)	0.96	17573.3	11801.00
5	29112.88	68.48	0.30 (0.29)	0.97	22103.8	11530.00
6	30461.72	77.28	0.30 (0.29)	0.97	26760.6	11910.00
7	32532.23	87.44	0.30 (0.29)	0.98	33063.6	11350.00
8	33140.43	92.21	0.30 (0.29)	0.98	36237.8	11130.00
9	33012.17	98.25	0.30 (0.29)	0.98	39164.4	12300.00
10	32924.21	102.13	0.30 (0.29)	0.98	41225.3	11620.00
11	32613.57	106.94	0.30 (0.29)	0.98	43425.0	12400.00
12	32346.62	110.19	0.30 (0.29)	0.98	44740.4	11111.00
13	31869.12	116.33	0.30 (0.29)	0.98	46826.6	12201.00
14	31515.09	119.37	0.30 (0.29)	0.98	47640.3	10410.00
15	31102.05	123.68	0.30 (0.29)	0.98	48719.6	12231.00
16	30298.12	131.02	0.30 (0.29)	0.98	50272.4	10400.00
17	28983.73	140.23	0.30 (0.29)	0.98	51718.8	12010.00
18	28080.04	145.45	0.30 (0.29)	0.98	51981.4	10210.00
19	27513.24	149.38	0.30 (0.29)	0.98	52128.2	12000.00
20	24397.77	175.05	0.30 (0.29)	0.98	52741.1	10100.00
TOTAL AREA (ACRES) =						52741.1

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

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MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22090.24	29.78	0.30 (0.28)	0.93	7988.8	12730.00
2	22502.45	32.21	0.30 (0.28)	0.93	8782.2	600.00
3	25248.84	49.60	0.30 (0.29)	0.96	14798.7	40100.00
4	26754.79	57.53	0.30 (0.29)	0.96	17573.3	11801.00
5	29112.88	68.48	0.30 (0.29)	0.97	22103.8	11530.00
6	30461.72	77.28	0.30 (0.29)	0.97	26760.6	11910.00
7	32532.23	87.44	0.30 (0.29)	0.98	33063.6	11350.00
8	33140.43	92.21	0.30 (0.29)	0.98	36237.8	11130.00
9	33012.17	98.25	0.30 (0.29)	0.98	39164.4	12300.00
10	32924.21	102.13	0.30 (0.29)	0.98	41225.3	11620.00
11	32613.57	106.94	0.30 (0.29)	0.98	43425.0	12400.00
12	32346.62	110.19	0.30 (0.29)	0.98	44740.4	11111.00
13	31869.12	116.33	0.30 (0.29)	0.98	46826.6	12201.00

14	31515.09	119.37	0.30	(0.29)	0.98	47640.3	10410.00
15	31102.05	123.68	0.30	(0.29)	0.98	48719.6	12231.00
16	30298.12	131.02	0.30	(0.29)	0.98	50272.4	10400.00
17	28983.73	140.23	0.30	(0.29)	0.98	51718.8	12010.00
18	28080.04	145.45	0.30	(0.29)	0.98	51981.4	10210.00
19	27513.24	149.38	0.30	(0.29)	0.98	52128.2	12000.00
20	24397.77	175.05	0.30	(0.29)	0.98	52741.1	10100.00
TOTAL AREA (ACRES) =			52741.1				

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 12800.00 TO NODE 12901.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 240.00 DOWNSTREAM (FEET) = 216.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 3120.28 CHANNEL SLOPE = 0.0077
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 8.47
 CHANNEL FLOW THRU SUBAREA (CFS) = 33140.43
 FLOW VELOCITY (FEET/SEC.) = 16.15 FLOW DEPTH (FEET) = 8.47
 TRAVEL TIME (MIN.) = 3.22 Tc (MIN.) = 95.43
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12901.00 = 114913.24 FEET.

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 95.43
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.880
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	14.30	0.30	0.100	56
PUBLIC PARK	B	9.40	0.30	0.850	56

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.397
 SUBAREA AREA (ACRES) = 23.70 SUBAREA RUNOFF (CFS) = 16.23
 EFFECTIVE AREA (ACRES) = 36261.54 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 52764.8 PEAK FLOW RATE (CFS) = 33140.43
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 95.43
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.880

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	0.20	0.30	0.100	56
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	B	0.40	0.30	0.500	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.50	0.30	0.900	56
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.60	0.30	1.000	65
COMMERCIAL	B	0.70	0.30	0.100	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.70	0.30	0.900	56

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.635
 SUBAREA AREA (ACRES) = 3.10 SUBAREA RUNOFF (CFS) = 1.92
 EFFECTIVE AREA (ACRES) = 36264.64 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 52767.9 PEAK FLOW RATE (CFS) = 33140.43
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 95.43
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.880
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
PUBLIC PARK	B	0.70	0.30	0.850	56
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	1.00	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.40	0.30	1.000	66
NATURAL FAIR COVER					
"GRASS"	B	1.50	0.30	1.000	69
COMMERCIAL	B	1.70	0.30	0.100	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.90	0.30	1.000	66

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.822
 SUBAREA AREA (ACRES) = 9.20 SUBAREA RUNOFF (CFS) = 5.24
 EFFECTIVE AREA (ACRES) = 36273.84 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 52777.1 PEAK FLOW RATE (CFS) = 33140.43
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 95.43
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.880
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	0.20	0.30	0.100	56
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	B	0.40	0.30	0.500	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.50	0.30	0.900	56
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.60	0.30	1.000	65
COMMERCIAL	B	0.70	0.30	0.100	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.70	0.30	0.900	56

LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
NATURAL FAIR COVER "WOODLAND, GRASS"	B	3.60	0.30	1.000	65
RESIDENTIAL "5-7 DWELLINGS/ACRE"	B	3.70	0.30	0.500	56
RESIDENTIAL "5-7 DWELLINGS/ACRE"	B	4.10	0.30	0.500	56
RESIDENTIAL ".4 DWELLING/ACRE"	B	5.40	0.30	0.900	56
NATURAL FAIR COVER "OPEN BRUSH"	B	5.40	0.30	1.000	66
NATURAL FAIR COVER "OPEN BRUSH"	B	6.70	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.846
SUBAREA AREA (ACRES) = 28.90 SUBAREA RUNOFF (CFS) = 16.29
EFFECTIVE AREA (ACRES) = 36302.74 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52806.0 PEAK FLOW RATE (CFS) = 33140.43
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 95.43
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.880
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "GRASS"	B	12.90	0.30	1.000	69
PUBLIC PARK	B	38.60	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.888
SUBAREA AREA (ACRES) = 51.50 SUBAREA RUNOFF (CFS) = 28.45
EFFECTIVE AREA (ACRES) = 36354.24 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52857.5 PEAK FLOW RATE (CFS) = 33140.43
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12902.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 216.00 DOWNSTREAM (FEET) = 215.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 122.04 CHANNEL SLOPE = 0.0082
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 8.32
CHANNEL FLOW THRU SUBAREA (CFS) = 33140.43
FLOW VELOCITY (FEET/SEC.) = 16.49 FLOW DEPTH (FEET) = 8.32
TRAVEL TIME (MIN.) = 0.12 Tc (MIN.) = 95.55
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: E502XX25.DNA
MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	58.93	11.21	0.30 (0.27)	0.91	28.7	50200.00
TOTAL AREA (ACRES) =			28.7			

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22090.24	33.61	1.473	0.30 (0.28)	0.92	8105.2	12730.00
2	22502.45	36.02	1.425	0.30 (0.28)	0.93	8898.6	600.00
3	25248.84	53.26	1.152	0.30 (0.29)	0.96	14915.1	40100.00
4	26754.79	61.12	1.062	0.30 (0.29)	0.96	17689.7	11801.00
5	29112.88	71.98	1.001	0.30 (0.29)	0.97	22220.2	11530.00
6	30461.72	80.72	0.952	0.30 (0.29)	0.97	26877.0	11910.00
7	32532.23	90.81	0.897	0.30 (0.29)	0.98	33180.0	11350.00
8	33140.43	95.55	0.880	0.30 (0.29)	0.98	36354.2	11130.00
9	33012.17	101.60	0.857	0.30 (0.29)	0.98	39280.8	12300.00
10	32924.21	105.48	0.843	0.30 (0.29)	0.98	41341.7	11620.00
11	32613.57	110.30	0.826	0.30 (0.29)	0.98	43541.4	12400.00
12	32346.62	113.57	0.814	0.30 (0.29)	0.98	44856.8	11111.00
13	31869.12	119.72	0.791	0.30 (0.29)	0.98	46943.0	12201.00
14	31515.09	122.77	0.784	0.30 (0.29)	0.98	47756.7	10410.00
15	31102.05	127.10	0.775	0.30 (0.29)	0.98	48836.0	12231.00
16	30298.12	134.46	0.759	0.30 (0.29)	0.98	50388.8	10400.00
17	28983.73	143.72	0.739	0.30 (0.29)	0.98	51835.2	12010.00
18	28080.04	148.98	0.727	0.30 (0.29)	0.98	52097.8	10210.00
19	27513.24	152.94	0.719	0.30 (0.29)	0.98	52244.6	12000.00
20	24397.77	178.76	0.663	0.30 (0.29)	0.98	52857.5	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	58.93	11.21	3.021	0.30 (0.27)	0.91	28.7	50200.00

LONGEST FLOWPATH FROM NODE 50200.00 TO NODE 12902.00 = 1426.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	16976.05	11.21	3.021	0.30 (0.28)	0.92	2732.7	50200.00
2	22115.96	33.61	1.473	0.30 (0.28)	0.92	8133.9	12730.00
3	22527.14	36.02	1.425	0.30 (0.28)	0.93	8927.3	600.00
4	25267.68	53.26	1.152	0.30 (0.29)	0.96	14943.8	40100.00
5	26771.70	61.12	1.062	0.30 (0.29)	0.96	17718.4	11801.00
6	29128.48	71.98	1.001	0.30 (0.29)	0.97	22248.9	11530.00

7	30476.28	80.72	0.952	0.30	(0.29)	0.97	26905.7	11910.00
8	32545.62	90.81	0.897	0.30	(0.29)	0.98	33208.7	11350.00
9	33153.44	95.55	0.880	0.30	(0.29)	0.98	36382.9	11130.00
10	33024.70	101.60	0.857	0.30	(0.29)	0.98	39309.5	12300.00
11	32936.44	105.48	0.843	0.30	(0.29)	0.98	41370.4	11620.00
12	32625.41	110.30	0.826	0.30	(0.29)	0.98	43570.1	12400.00
13	32358.21	113.57	0.814	0.30	(0.29)	0.98	44885.5	11111.00
14	31880.22	119.72	0.791	0.30	(0.29)	0.98	46971.7	12201.00
15	31526.05	122.77	0.784	0.30	(0.29)	0.98	47785.4	10410.00
16	31112.81	127.10	0.775	0.30	(0.29)	0.98	48864.7	12231.00
17	30308.53	134.46	0.759	0.30	(0.29)	0.98	50417.5	10400.00
18	28993.71	143.72	0.739	0.30	(0.29)	0.98	51863.9	12010.00
19	28089.78	148.98	0.727	0.30	(0.29)	0.98	52126.5	10210.00
20	27522.80	152.94	0.719	0.30	(0.29)	0.98	52273.3	12000.00
21	24406.13	178.76	0.663	0.30	(0.29)	0.98	52886.2	10100.00

TOTAL AREA (ACRES) = 52886.2

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 33153.44 Tc (MIN.) = 95.553
EFFECTIVE AREA (ACRES) = 36382.94 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52886.2
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<<
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FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<<
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PEAK FLOWRATE TABLE FILE NAME: E503XX25.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	430.88	25.25	0.30 (0.30)	0.99	366.4	50300.00
TOTAL AREA (ACRES) = 366.4						

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<<
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** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	16976.05	11.21	3.021	0.30 (0.28)	0.92	2732.7	50200.00
2	22115.96	33.61	1.473	0.30 (0.28)	0.92	8133.9	12730.00
3	22527.14	36.02	1.425	0.30 (0.28)	0.93	8927.3	600.00
4	25267.68	53.26	1.152	0.30 (0.29)	0.96	14943.8	40100.00
5	26771.70	61.12	1.062	0.30 (0.29)	0.96	17718.4	11801.00
6	29128.48	71.98	1.001	0.30 (0.29)	0.97	22248.9	11530.00
7	30476.28	80.72	0.952	0.30 (0.29)	0.97	26905.7	11910.00

8	32545.62	90.81	0.897	0.30	(0.29)	0.98	33208.7	11350.00
9	33153.44	95.55	0.880	0.30	(0.29)	0.98	36382.9	11130.00
10	33024.70	101.60	0.857	0.30	(0.29)	0.98	39309.5	12300.00
11	32936.44	105.48	0.843	0.30	(0.29)	0.98	41370.4	11620.00
12	32625.41	110.30	0.826	0.30	(0.29)	0.98	43570.1	12400.00
13	32358.21	113.57	0.814	0.30	(0.29)	0.98	44885.5	11111.00
14	31880.22	119.72	0.791	0.30	(0.29)	0.98	46971.7	12201.00
15	31526.05	122.77	0.784	0.30	(0.29)	0.98	47785.4	10410.00
16	31112.81	127.10	0.775	0.30	(0.29)	0.98	48864.7	12231.00
17	30308.53	134.46	0.759	0.30	(0.29)	0.98	50417.5	10400.00
18	28993.71	143.72	0.739	0.30	(0.29)	0.98	51863.9	12010.00
19	28089.78	148.98	0.727	0.30	(0.29)	0.98	52126.5	10210.00
20	27522.80	152.94	0.719	0.30	(0.29)	0.98	52273.3	12000.00
21	24406.13	178.76	0.663	0.30	(0.29)	0.98	52886.2	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	430.88	25.25	1.750	0.30 (0.30)	0.99	366.4	50300.00

LONGEST FLOWPATH FROM NODE 50300.00 TO NODE 12902.00 = 8614.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	17334.66	11.21	3.021	0.30 (0.28)	0.93	2895.4	50200.00
2	20626.54	25.25	1.750	0.30 (0.28)	0.93	6482.4	50300.00
3	22464.60	33.61	1.473	0.30 (0.28)	0.93	8500.3	12730.00
4	22861.53	36.02	1.425	0.30 (0.28)	0.93	9293.7	600.00
5	25521.21	53.26	1.152	0.30 (0.29)	0.96	15310.2	40100.00
6	26998.62	61.12	1.062	0.30 (0.29)	0.96	18084.8	11801.00
7	29337.41	71.98	1.001	0.30 (0.29)	0.97	22615.3	11530.00
8	30670.70	80.72	0.952	0.30 (0.29)	0.97	27272.1	11910.00
9	32723.77	90.81	0.897	0.30 (0.29)	0.98	33575.1	11350.00
10	33326.44	95.55	0.880	0.30 (0.29)	0.98	36749.3	11130.00
11	33191.13	101.60	0.857	0.30 (0.29)	0.98	39675.9	12300.00
12	33098.66	105.48	0.843	0.30 (0.29)	0.98	41736.8	11620.00
13	32782.39	110.30	0.826	0.30 (0.29)	0.98	43936.5	12400.00
14	32511.64	113.57	0.814	0.30 (0.29)	0.98	45251.9	11111.00
15	32026.98	119.72	0.791	0.30 (0.29)	0.98	47338.1	12201.00
16	31670.72	122.77	0.784	0.30 (0.29)	0.98	48151.8	10410.00
17	31254.71	127.10	0.775	0.30 (0.29)	0.98	49231.1	12231.00
18	30445.70	134.46	0.759	0.30 (0.29)	0.98	50783.9	10400.00
19	29124.94	143.72	0.739	0.30 (0.29)	0.98	52230.3	12010.00
20	28217.64	148.98	0.727	0.30 (0.29)	0.98	52492.9	10210.00
21	27648.11	152.94	0.719	0.30 (0.29)	0.98	52639.7	12000.00
22	24514.88	178.76	0.663	0.30 (0.29)	0.98	53252.6	10100.00

TOTAL AREA (ACRES) = 53252.6

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 33326.44 Tc (MIN.) = 95.553
EFFECTIVE AREA (ACRES) = 36749.34 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 53252.6
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 12
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>>>>CLEAR MEMORY BANK # 1 <<<<<
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FLOW PROCESS FROM NODE 12902.00 TO NODE 12903.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
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ELEVATION DATA: UPSTREAM(FEET) = 215.00 DOWNSTREAM(FEET) = 214.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 895.53 CHANNEL SLOPE = 0.0011
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 14.57
CHANNEL FLOW THRU SUBAREA(CFS) = 33326.44
FLOW VELOCITY(FEET/SEC.) = 8.39 FLOW DEPTH(FEET) = 14.57
TRAVEL TIME(MIN.) = 1.78 Tc(MIN.) = 97.33
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12903.00 = 115930.81 FEET.
*****
FLOW PROCESS FROM NODE 12903.00 TO NODE 12903.00 IS CODE = 15.1
-----
>>>>DEFINE MEMORY BANK # 2 <<<<<
=====
PEAK FLOWRATE TABLE FILE NAME: E504XX25.DNA
MEMORY BANK # 2 DEFINED AS FOLLOWS:
STREAM Q Tc Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 108.86 17.34 0.30( 0.29) 0.97 70.5 50400.00
TOTAL AREA(ACRES) = 70.5
*****
FLOW PROCESS FROM NODE 12903.00 TO NODE 12903.00 IS CODE = 11
-----
>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
=====
** MAIN STREAM CONFLUENCE DATA **
STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 17334.66 13.40 2.689 0.30( 0.28) 0.93 2895.4 50200.00
2 20626.54 27.31 1.661 0.30( 0.28) 0.93 6482.4 50300.00
3 22464.60 35.63 1.432 0.30( 0.28) 0.93 8500.3 12730.00
4 22861.53 38.02 1.385 0.30( 0.28) 0.93 9293.7 600.00
5 25521.21 55.19 1.128 0.30( 0.29) 0.96 15310.2 40100.00
6 26998.62 63.02 1.051 0.30( 0.29) 0.96 18084.8 11801.00
7 29337.41 73.83 0.991 0.30( 0.29) 0.97 22615.3 11530.00
8 30670.70 82.54 0.942 0.30( 0.29) 0.97 27272.1 11910.00
9 32723.77 92.60 0.890 0.30( 0.29) 0.98 33575.1 11350.00
10 33326.44 97.33 0.873 0.30( 0.29) 0.98 36749.3 11130.00
11 33191.13 103.38 0.851 0.30( 0.29) 0.98 39675.9 12300.00
12 33098.66 107.26 0.837 0.30( 0.29) 0.98 41736.8 11620.00
13 32782.39 112.09 0.819 0.30( 0.29) 0.98 43936.5 12400.00
14 32511.64 115.36 0.807 0.30( 0.29) 0.98 45251.9 11111.00
15 32026.98 121.52 0.787 0.30( 0.29) 0.98 47338.1 12201.00
16 31670.72 124.57 0.780 0.30( 0.29) 0.98 48151.8 10410.00
17 31254.71 128.91 0.771 0.30( 0.29) 0.98 49231.1 12231.00

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18 30445.70 136.29 0.755 0.30( 0.29) 0.98 50783.9 10400.00
19 29124.94 145.58 0.735 0.30( 0.29) 0.98 52230.3 12010.00
20 28217.64 150.85 0.723 0.30( 0.29) 0.98 52492.9 10210.00
21 27648.11 154.83 0.715 0.30( 0.29) 0.98 52639.7 12000.00
22 24514.88 180.71 0.659 0.30( 0.29) 0.98 53252.6 10100.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12903.00 = 115930.81 FEET.
** MEMORY BANK # 2 CONFLUENCE DATA **
STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 108.86 17.34 2.247 0.30( 0.29) 0.97 70.5 50400.00
LONGEST FLOWPATH FROM NODE 50400.00 TO NODE 12903.00 = 3607.00 FEET.
** PEAK FLOW RATE TABLE **
STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 17437.79 13.40 2.689 0.30( 0.28) 0.93 2949.9 50200.00
2 18375.32 17.34 2.247 0.30( 0.28) 0.93 3981.2 50400.00
3 20702.79 27.31 1.661 0.30( 0.28) 0.93 6552.9 50300.00
4 22528.14 35.63 1.432 0.30( 0.28) 0.93 8570.8 12730.00
5 22922.41 38.02 1.385 0.30( 0.28) 0.93 9364.2 600.00
6 25567.80 55.19 1.128 0.30( 0.29) 0.96 15380.7 40100.00
7 27040.95 63.02 1.051 0.30( 0.29) 0.96 18155.3 11801.00
8 29376.37 73.83 0.991 0.30( 0.29) 0.97 22685.8 11530.00
9 30706.96 82.54 0.942 0.30( 0.29) 0.97 27342.6 11910.00
10 32757.17 92.60 0.890 0.30( 0.29) 0.98 33645.6 11350.00
11 33358.88 97.33 0.873 0.30( 0.29) 0.98 36819.8 11130.00
12 33222.33 103.38 0.851 0.30( 0.29) 0.98 39746.4 12300.00
13 33129.07 107.26 0.837 0.30( 0.29) 0.98 41807.3 11620.00
14 32811.82 112.09 0.819 0.30( 0.29) 0.98 44007.0 12400.00
15 32540.40 115.36 0.807 0.30( 0.29) 0.98 45322.4 11111.00
16 32054.61 121.52 0.787 0.30( 0.29) 0.98 47408.6 12201.00
17 31697.98 124.57 0.780 0.30( 0.29) 0.98 48222.3 10410.00
18 31281.44 128.91 0.771 0.30( 0.29) 0.98 49301.6 12231.00
19 30471.55 136.29 0.755 0.30( 0.29) 0.98 50854.4 10400.00
20 29149.67 145.58 0.735 0.30( 0.29) 0.98 52300.8 12010.00
21 28241.73 150.85 0.723 0.30( 0.29) 0.98 52563.4 10210.00
22 27671.72 154.83 0.715 0.30( 0.29) 0.98 52710.2 12000.00
23 24535.42 180.71 0.659 0.30( 0.29) 0.98 53323.1 10100.00
TOTAL AREA(ACRES) = 53323.1
COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 33358.88 Tc(MIN.) = 97.333
EFFECTIVE AREA(ACRES) = 36819.84 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 53323.1
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12903.00 = 115930.81 FEET.
*****
FLOW PROCESS FROM NODE 12903.00 TO NODE 12903.00 IS CODE = 12
-----
>>>>CLEAR MEMORY BANK # 2 <<<<<
=====
*****
FLOW PROCESS FROM NODE 12903.00 TO NODE 12904.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

```

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 214.00 DOWNSTREAM(FEET) = 213.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 767.57 CHANNEL SLOPE = 0.0013
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 13.97
CHANNEL FLOW THRU SUBAREA(CFS) = 33358.88
FLOW VELOCITY(FEET/SEC.) = 8.85 FLOW DEPTH(FEET) = 13.97
TRAVEL TIME(MIN.) = 1.45 Tc(MIN.) = 98.78
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12904.00 = 116698.38 FEET.

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 98.78
RAINFALL INTENSITY(INCH/HR) = 0.87
AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.98
EFFECTIVE STREAM AREA(ACRES) = 36819.84
TOTAL STREAM AREA(ACRES) = 53323.11
PEAK FLOW RATE(CFS) AT CONFLUENCE = 33358.88

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 7

>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<

USER-SPECIFIED VALUES ARE AS FOLLOWS:
TC(MIN.) = 19.82 RAINFALL INTENSITY(INCH/HR) = 2.04
EFFECTIVE AREA(ACRES) = 30.60
TOTAL AREA(ACRES) = 213.70 PEAK FLOW RATE(CFS) = 47.30
AREA-AVERAGED Fm(INCH/HR) = 0.13 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.43
NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
CONFLUENCE ANALYSES.

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 19.82
RAINFALL INTENSITY(INCH/HR) = 2.04
AREA-AVERAGED Fm(INCH/HR) = 0.13
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.43
EFFECTIVE STREAM AREA(ACRES) = 30.60
TOTAL STREAM AREA(ACRES) = 213.70
PEAK FLOW RATE(CFS) AT CONFLUENCE = 47.30

** CONFLUENCE DATA **

Table with 8 columns: STREAM NUMBER, Q (CFS), Tc (MIN.), Intensity (INCH/HR), Fp(Fm) (INCH/HR), Ap, Ae (ACRES), HEADWATER NODE. It lists 23 rows of stream data.

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

Table with 8 columns: STREAM NUMBER, Q (CFS), Tc (MIN.), Intensity (INCH/HR), Fp(Fm) (INCH/HR), Ap, Ae (ACRES), HEADWATER NODE. It lists 23 rows of peak flow rate data.

24 24548.53 182.31 0.658 0.30(0.29) 0.98 53353.7 10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 33377.20 Tc(MIN.) = 98.78
EFFECTIVE AREA(ACRES) = 36850.44 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 53536.8
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12904.00 = 116698.38 FEET.

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 98.78

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.868

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.10	0.30	0.900	56
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.20	0.30	1.000	65
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.80	0.30	1.000	65
COMMERCIAL	B	1.20	0.30	0.100	56
COMMERCIAL	B	1.50	0.30	0.100	56
NATURAL FAIR COVER					
"GRASS"	B	3.00	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.641

SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 4.13

EFFECTIVE AREA(ACRES) = 36857.24 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98

TOTAL AREA(ACRES) = 53543.6 PEAK FLOW RATE(CFS) = 33377.20

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 98.78

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.868

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	3.60	0.30	1.000	69
PUBLIC PARK	B	15.10	0.30	0.850	56
NATURAL FAIR COVER					
"GRASS"	B	20.00	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.941

SUBAREA AREA(ACRES) = 38.70 SUBAREA RUNOFF(CFS) = 20.39

EFFECTIVE AREA(ACRES) = 36895.94 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98

TOTAL AREA(ACRES) = 53582.3 PEAK FLOW RATE(CFS) = 33377.20

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 53582.3 TC(MIN.) = 98.78
EFFECTIVE AREA(ACRES) = 36895.94 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.978
PEAK FLOW RATE(CFS) = 33377.20

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	17481.50	15.18	2.431	0.30(0.28)	0.92	3018.8	50200.00
2	18422.36	19.09	2.099	0.30(0.28)	0.92	4056.2	50400.00
3	18595.06	19.82	2.036	0.30(0.28)	0.92	4247.9	12904.00
4	20738.99	28.99	1.588	0.30(0.28)	0.93	6629.0	50300.00
5	22559.66	37.26	1.400	0.30(0.28)	0.93	8646.9	12730.00
6	22952.74	39.65	1.352	0.30(0.28)	0.93	9440.3	600.00
7	25592.08	56.76	1.108	0.30(0.29)	0.96	15456.8	40100.00
8	27063.60	64.57	1.042	0.30(0.29)	0.96	18231.4	11801.00
9	29397.53	75.33	0.982	0.30(0.29)	0.97	22761.9	11530.00
10	30726.90	84.03	0.933	0.30(0.29)	0.97	27418.7	11910.00
11	32775.92	94.05	0.885	0.30(0.29)	0.98	33721.7	11350.00
12	33377.20	98.78	0.868	0.30(0.29)	0.98	36895.9	11130.00
13	33240.10	104.83	0.846	0.30(0.29)	0.98	39822.5	12300.00
14	33146.49	108.71	0.831	0.30(0.29)	0.98	41883.4	11620.00
15	32828.80	113.55	0.814	0.30(0.29)	0.98	44083.1	12400.00
16	32557.08	116.82	0.802	0.30(0.29)	0.98	45398.5	11111.00
17	32070.84	122.98	0.784	0.30(0.29)	0.98	47484.7	12201.00
18	31714.05	126.04	0.777	0.30(0.29)	0.98	48298.4	10410.00
19	31297.28	130.39	0.767	0.30(0.29)	0.98	49377.7	12231.00
20	30486.99	137.78	0.751	0.30(0.29)	0.98	50930.5	10400.00
21	29164.61	147.09	0.731	0.30(0.29)	0.98	52376.9	12010.00
22	28256.38	152.37	0.720	0.30(0.29)	0.98	52639.5	10210.00
23	27686.16	156.36	0.711	0.30(0.29)	0.98	52786.3	12000.00
24	24548.53	182.31	0.658	0.30(0.29)	0.98	53399.2	10100.00

END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 133 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 25-YR EV JULY 2023 ROKAMOTO *

FILE NAME: RI25EV33.DAT
TIME/DATE OF STUDY: 14:19 07/05/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 25.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 4.829
- 2) 10.00; 3.154
- 3) 15.00; 2.415
- 4) 20.00; 2.000
- 5) 25.00; 1.745
- 6) 30.00; 1.534
- 7) 40.00; 1.333
- 8) 50.00; 1.181
- 9) 60.00; 1.055
- 10) 90.00; 0.886
- 11) 120.00; 0.775
- 12) 180.00; 0.646
- 13) 360.00; 0.475
- 14) 1200.00; 0.208

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13222.00 TO NODE 13222.00 IS CODE = 7

>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<

=====

USER-SPECIFIED VALUES ARE AS FOLLOWS:

TC(MIN.) = 64.17 RAINFALL INTENSITY(INCH/HR) = 1.03
EFFECTIVE AREA(ACRES) = 3069.00
TOTAL AREA(ACRES) = 4924.40 PEAK FLOW RATE(CFS) = 2036.70
AREA-AVERAGED Fm(INCH/HR) = 0.25 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.82
NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
CONFLUENCE ANALYSES.

FLOW PROCESS FROM NODE 13222.00 TO NODE 13301.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 427.51 DOWNSTREAM(FEET) = 382.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2533.33 CHANNEL SLOPE = 0.0180
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 3.40
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.008
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	1.40	0.30	0.100	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	15.60	0.30	1.000	66
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	B	0.10	0.30	0.600	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	5.30	0.30	1.000	79
NATURAL POOR COVER					
"BARREN"	B	0.20	0.30	1.000	86
COMMERCIAL	B	22.60	0.30	0.100	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.521
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2054.02
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.04
AVERAGE FLOW DEPTH(FEET) = 3.40 TRAVEL TIME(MIN.) = 4.21
Tc(MIN.) = 68.38
SUBAREA AREA(ACRES) = 45.20 SUBAREA RUNOFF(CFS) = 34.64
EFFECTIVE AREA(ACRES) = 3114.20 AREA-AVERAGED Fm(INCH/HR) = 0.24
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.82
TOTAL AREA(ACRES) = 4969.6 PEAK FLOW RATE(CFS) = 2138.83
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 3.48

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 3.48 FLOW VELOCITY(FEET/SEC.) = 10.18
 LONGEST FLOWPATH FROM NODE 13222.00 TO NODE 13301.00 = 2533.33 FEET.

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 68.38
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.008
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	1.00	0.30	1.000	79
NATURAL POOR COVER					
"BARREN"	B	0.50	0.30	1.000	86
COMMERCIAL	B	7.40	0.30	0.100	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	4.70	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	2.90	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.596
 SUBAREA AREA(ACRES) = 16.50 SUBAREA RUNOFF(CFS) = 12.31
 EFFECTIVE AREA(ACRES) = 3130.70 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.81
 TOTAL AREA(ACRES) = 4986.1 PEAK FLOW RATE(CFS) = 2151.14

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 68.38
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.008
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	1.30	0.30	1.000	86
COMMERCIAL	B	0.20	0.30	0.100	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	5.30	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.30	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.20	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.60	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.977
 SUBAREA AREA(ACRES) = 7.90 SUBAREA RUNOFF(CFS) = 5.08
 EFFECTIVE AREA(ACRES) = 3138.60 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.81
 TOTAL AREA(ACRES) = 4994.0 PEAK FLOW RATE(CFS) = 2156.22

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 68.38
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.008
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	4.30	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.80	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	1.10	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	6.90	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	7.90	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	1.00	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 22.00 SUBAREA RUNOFF(CFS) = 14.01
 EFFECTIVE AREA(ACRES) = 3160.60 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.82
 TOTAL AREA(ACRES) = 5016.0 PEAK FLOW RATE(CFS) = 2170.23

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 68.38
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.008
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.40	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	14.60	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 15.00 SUBAREA RUNOFF(CFS) = 9.56
 EFFECTIVE AREA(ACRES) = 3175.60 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.82
 TOTAL AREA(ACRES) = 5031.0 PEAK FLOW RATE(CFS) = 2179.79

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<

 FLOW PROCESS FROM NODE 31100.00 TO NODE 31101.00 IS CODE = 21

=====
>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
=====

INITIAL SUBAREA FLOW-LENGTH (FEET) = 317.00
ELEVATION DATA: UPSTREAM (FEET) = 801.00 DOWNSTREAM (FEET) = 685.00

Tc = K * [(LENGTH** 3.00) / (ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc (MIN.) = 8.641
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.609
SUBAREA Tc AND LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" B 0.50 0.30 1.000 63 8.64
NATURAL FAIR COVER
"OPEN BRUSH" B 0.30 0.30 1.000 66 8.64
NATURAL FAIR COVER
"OPEN BRUSH" B 0.30 0.30 1.000 66 8.64
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF (CFS) = 3.28
TOTAL AREA (ACRES) = 1.10 PEAK FLOW RATE (CFS) = 3.28

FLOW PROCESS FROM NODE 31101.00 TO NODE 31102.00 IS CODE = 51
=====

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 685.00 DOWNSTREAM (FEET) = 655.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 135.00 CHANNEL SLOPE = 0.2222
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.497
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" B 0.50 0.30 1.000 63
NATURAL FAIR COVER
"OPEN BRUSH" B 0.10 0.30 1.000 66
NATURAL FAIR COVER
"OPEN BRUSH" B 0.70 0.30 1.000 66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 5.15
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.69
AVERAGE FLOW DEPTH (FEET) = 0.51 TRAVEL TIME (MIN.) = 0.34
Tc (MIN.) = 8.98
SUBAREA AREA (ACRES) = 1.30 SUBAREA RUNOFF (CFS) = 3.74
EFFECTIVE AREA (ACRES) = 2.40 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 2.4 PEAK FLOW RATE (CFS) = 6.90

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.56 FLOW VELOCITY (FEET/SEC.) = 7.29
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31102.00 = 452.00 FEET.

FLOW PROCESS FROM NODE 31102.00 TO NODE 31103.00 IS CODE = 51
=====

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 655.00 DOWNSTREAM (FEET) = 630.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 203.00 CHANNEL SLOPE = 0.1232
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.030 MAXIMUM DEPTH (FEET) = 10.00
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.353
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" B 0.30 0.30 1.000 63
NATURAL FAIR COVER
"OPEN BRUSH" B 0.10 0.30 1.000 66
NATURAL FAIR COVER
"OPEN BRUSH" B 1.90 0.30 1.000 66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 10.07
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.91
AVERAGE FLOW DEPTH (FEET) = 0.65 TRAVEL TIME (MIN.) = 0.43
Tc (MIN.) = 9.40
SUBAREA AREA (ACRES) = 2.30 SUBAREA RUNOFF (CFS) = 6.32
EFFECTIVE AREA (ACRES) = 4.70 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 4.7 PEAK FLOW RATE (CFS) = 12.92

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.71 FLOW VELOCITY (FEET/SEC.) = 8.44
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31103.00 = 655.00 FEET.

FLOW PROCESS FROM NODE 31103.00 TO NODE 31104.00 IS CODE = 51
=====

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 630.00 DOWNSTREAM (FEET) = 605.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 321.00 CHANNEL SLOPE = 0.0779
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.114
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH" B 1.10 0.30 1.000 66
NATURAL FAIR COVER
"OPEN BRUSH" B 2.50 0.30 1.000 66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 17.48
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.17

AVERAGE FLOW DEPTH(FEET) = 0.97 TRAVEL TIME(MIN.) = 0.87
Tc(MIN.) = 10.27
SUBAREA AREA(ACRES) = 3.60 SUBAREA RUNOFF(CFS) = 9.12
EFFECTIVE AREA(ACRES) = 8.30 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 8.3 PEAK FLOW RATE(CFS) = 21.02

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.04 FLOW VELOCITY(FEET/SEC.) = 6.47
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31104.00 = 976.00 FEET.

FLOW PROCESS FROM NODE 31104.00 TO NODE 31105.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 605.00 DOWNSTREAM(FEET) = 585.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 288.00 CHANNEL SLOPE = 0.0694
CHANNEL BASE(FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.008

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.70	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.60	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.00	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.10	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 28.82
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.73
AVERAGE FLOW DEPTH(FEET) = 1.19 TRAVEL TIME(MIN.) = 0.71
Tc(MIN.) = 10.99
SUBAREA AREA(ACRES) = 6.40 SUBAREA RUNOFF(CFS) = 15.60
EFFECTIVE AREA(ACRES) = 14.70 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 14.7 PEAK FLOW RATE(CFS) = 35.83

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.30 FLOW VELOCITY(FEET/SEC.) = 7.07
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31105.00 = 1264.00 FEET.

FLOW PROCESS FROM NODE 31105.00 TO NODE 31106.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 585.00 DOWNSTREAM(FEET) = 560.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 344.00 CHANNEL SLOPE = 0.0727
CHANNEL BASE(FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.900

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.60	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	2.80	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.60	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.10	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.60	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	4.10	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 48.47
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 7.80
AVERAGE FLOW DEPTH(FEET) = 1.44 TRAVEL TIME(MIN.) = 0.73
Tc(MIN.) = 11.72
SUBAREA AREA(ACRES) = 10.80 SUBAREA RUNOFF(CFS) = 25.27
EFFECTIVE AREA(ACRES) = 25.50 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 25.5 PEAK FLOW RATE(CFS) = 59.66

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.56 FLOW VELOCITY(FEET/SEC.) = 8.18
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31106.00 = 1608.00 FEET.

FLOW PROCESS FROM NODE 31106.00 TO NODE 31107.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 560.00 DOWNSTREAM(FEET) = 530.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 619.00 CHANNEL SLOPE = 0.0485
CHANNEL BASE(FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.695

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.80	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	1.90	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.50	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	8.20	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.70	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 75.95

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.47
 AVERAGE FLOW DEPTH (FEET) = 1.84 TRAVEL TIME (MIN.) = 1.38
 Tc (MIN.) = 13.10
 SUBAREA AREA (ACRES) = 15.10 SUBAREA RUNOFF (CFS) = 32.55
 EFFECTIVE AREA (ACRES) = 40.60 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 40.6 PEAK FLOW RATE (CFS) = 87.53

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.94 FLOW VELOCITY (FEET/SEC.) = 7.75
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31107.00 = 2227.00 FEET.

 FLOW PROCESS FROM NODE 31107.00 TO NODE 31108.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<

ELEVATION DATA: UPSTREAM (FEET) = 530.00 DOWNSTREAM (FEET) = 515.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 377.00 CHANNEL SLOPE = 0.0398
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.573

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	0.50	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	6.50	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	1.30	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.10	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	5.50	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.40	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 106.25
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.56
 AVERAGE FLOW DEPTH (FEET) = 2.16 TRAVEL TIME (MIN.) = 0.83
 Tc (MIN.) = 13.93

SUBAREA AREA (ACRES) = 18.30 SUBAREA RUNOFF (CFS) = 37.43
 EFFECTIVE AREA (ACRES) = 58.90 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 58.9 PEAK FLOW RATE (CFS) = 120.47

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 2.27 FLOW VELOCITY (FEET/SEC.) = 7.79
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31108.00 = 2604.00 FEET.

 FLOW PROCESS FROM NODE 31108.00 TO NODE 31109.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<

ELEVATION DATA: UPSTREAM (FEET) = 515.00 DOWNSTREAM (FEET) = 490.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 520.00 CHANNEL SLOPE = 0.0481
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.424

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	0.70	0.30	1.000	63
NATURAL FAIR COVER					
"GRASS"	B	2.20	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.10	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.90	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	7.40	0.30	1.000	63
NATURAL FAIR COVER					
"GRASS"	B	0.30	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 134.43
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.59
 AVERAGE FLOW DEPTH (FEET) = 2.28 TRAVEL TIME (MIN.) = 1.01
 Tc (MIN.) = 14.94
 SUBAREA AREA (ACRES) = 14.60 SUBAREA RUNOFF (CFS) = 27.90
 EFFECTIVE AREA (ACRES) = 73.50 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 73.5 PEAK FLOW RATE (CFS) = 140.47

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 2.32 FLOW VELOCITY (FEET/SEC.) = 8.68
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31109.00 = 3124.00 FEET.

 FLOW PROCESS FROM NODE 31109.00 TO NODE 31109.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 14.94
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.424
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	11.40	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	8.90	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	1.90	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	9.20	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	1.40	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA (ACRES) = 32.80 SUBAREA RUNOFF (CFS) = 62.69
EFFECTIVE AREA (ACRES) = 106.30 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 106.3 PEAK FLOW RATE (CFS) = 203.16

FLOW PROCESS FROM NODE 31109.00 TO NODE 31110.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 490.00 DOWNSTREAM (FEET) = 432.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1420.00 CHANNEL SLOPE = 0.0408
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.203

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	0.80	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.60	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.10	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	1.30	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	4.00	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	1.50	0.30	1.000	63
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30					
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.999					
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 210.27					
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 9.06					
AVERAGE FLOW DEPTH (FEET) = 2.78 TRAVEL TIME (MIN.) = 2.61					
Tc (MIN.) = 17.56					
SUBAREA AREA (ACRES) = 8.30 SUBAREA RUNOFF (CFS) = 14.22					
EFFECTIVE AREA (ACRES) = 114.60 AREA-AVERAGED Fm (INCH/HR) = 0.30					
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00					
TOTAL AREA (ACRES) = 114.6 PEAK FLOW RATE (CFS) = 203.16					
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE					

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 2.75 FLOW VELOCITY (FEET/SEC.) = 8.96
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31110.00 = 4544.00 FEET.

FLOW PROCESS FROM NODE 31110.00 TO NODE 31110.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 17.56

* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.203

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
"GRASS"	B	0.30	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	9.60	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.40	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	6.20	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	3.90	0.30	1.000	65
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	1.40	0.30	1.000	79
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30					
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.998					
SUBAREA AREA (ACRES) = 21.80 SUBAREA RUNOFF (CFS) = 37.35					
EFFECTIVE AREA (ACRES) = 136.40 AREA-AVERAGED Fm (INCH/HR) = 0.30					
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00					
TOTAL AREA (ACRES) = 136.4 PEAK FLOW RATE (CFS) = 233.61					

FLOW PROCESS FROM NODE 31110.00 TO NODE 13301.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 432.00 DOWNSTREAM (FEET) = 382.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1847.00 CHANNEL SLOPE = 0.0271
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.930

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	4.90	0.30	1.000	86
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	1.50	0.30	1.000	79
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.60	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	2.50	0.30	1.000	79
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	5.30	0.30	1.000	79
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	3.30	0.30	1.000	79
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30					
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.997					
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 246.90					
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.07					
AVERAGE FLOW DEPTH (FEET) = 3.19 TRAVEL TIME (MIN.) = 3.82					
Tc (MIN.) = 21.37					
SUBAREA AREA (ACRES) = 18.10 SUBAREA RUNOFF (CFS) = 26.57					
EFFECTIVE AREA (ACRES) = 154.50 AREA-AVERAGED Fm (INCH/HR) = 0.30					
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00					
TOTAL AREA (ACRES) = 154.5 PEAK FLOW RATE (CFS) = 233.61					
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE					

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 3.13 FLOW VELOCITY (FEET/SEC.) = 7.94

LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13301.00 = 6391.00 FEET.

FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	233.61	21.37	1.930	0.30(0.30)	1.00	154.5	31100.00

LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13301.00 = 6391.00 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2179.79	68.38	1.008	0.30(0.25)	0.82	3175.6	13222.00

LONGEST FLOWPATH FROM NODE 13222.00 TO NODE 13301.00 = 2533.33 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1738.73	21.37	1.930	0.30(0.25)	0.84	1147.0	31100.00
2	2281.24	68.38	1.008	0.30(0.25)	0.83	3330.1	13222.00

TOTAL AREA (ACRES) = 5185.5

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 2281.24 Tc(MIN.) = 68.377
EFFECTIVE AREA(ACRES) = 3330.10 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
TOTAL AREA(ACRES) = 5185.5
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13301.00 = 6391.00 FEET.

FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 13301.00 TO NODE 13302.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 382.00 DOWNSTREAM(FEET) = 375.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1141.09 CHANNEL SLOPE = 0.0061
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 4.89
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.993
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	1.20	0.30	1.000	86
AGRICULTURAL POOR COVER					

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
"ROW CROPS, STRAIGHT ROW"	B	0.60	0.30	1.000	81
NATURAL POOR COVER "BARREN"	B	0.90	0.30	1.000	86
NATURAL FAIR COVER "OPEN BRUSH"	B	4.80	0.30	1.000	66
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	1.90	0.30	1.000	81

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2284.18
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 7.22
AVERAGE FLOW DEPTH(FEET) = 4.89 TRAVEL TIME(MIN.) = 2.64
Tc(MIN.) = 71.01
SUBAREA AREA(ACRES) = 9.40 SUBAREA RUNOFF(CFS) = 5.86
EFFECTIVE AREA(ACRES) = 3339.50 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
TOTAL AREA(ACRES) = 5194.9 PEAK FLOW RATE(CFS) = 2281.24
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 4.89

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 4.89 FLOW VELOCITY(FEET/SEC.) = 7.22
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13302.00 = 7532.09 FEET.

FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 71.01
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.993
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	13.80	0.30	1.000	86
NATURAL POOR COVER "BARREN"	B	2.60	0.30	1.000	86
COMMERCIAL RESIDENTIAL ".4 DWELLING/ACRE"	B	1.10	0.30	0.100	56
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	3.50	0.30	0.900	56
NATURAL POOR COVER "BARREN"	B	6.90	0.30	1.000	79
NATURAL POOR COVER "BARREN"	B	0.20	0.30	1.000	86

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.952
SUBAREA AREA(ACRES) = 28.10 SUBAREA RUNOFF(CFS) = 17.89
EFFECTIVE AREA(ACRES) = 3367.60 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
TOTAL AREA(ACRES) = 5223.0 PEAK FLOW RATE(CFS) = 2281.24
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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MAINLINE Tc(MIN.) = 71.01
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.993
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	0.10	0.30	1.000	79
COMMERCIAL	B	0.10	0.30	0.100	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	2.40	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	0.50	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.894
 SUBAREA AREA(ACRES) = 3.10 SUBAREA RUNOFF(CFS) = 2.02
 EFFECTIVE AREA(ACRES) = 3370.70 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
 TOTAL AREA(ACRES) = 5226.1 PEAK FLOW RATE(CFS) = 2281.24
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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MAINLINE Tc(MIN.) = 71.01
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.993
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	0.10	0.30	1.000	86
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.60	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	3.10	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.40	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.20	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	13.80	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 20.20 SUBAREA RUNOFF(CFS) = 12.60
 EFFECTIVE AREA(ACRES) = 3390.90 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
 TOTAL AREA(ACRES) = 5246.3 PEAK FLOW RATE(CFS) = 2281.24
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 71.01

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.993

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	34.60	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	2.40	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	22.60	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	11.60	0.30	1.000	79
APARTMENTS	B	0.40	0.30	0.200	56
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	4.80	0.30	1.000	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.996
 SUBAREA AREA(ACRES) = 76.40 SUBAREA RUNOFF(CFS) = 47.73
 EFFECTIVE AREA(ACRES) = 3467.30 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
 TOTAL AREA(ACRES) = 5322.7 PEAK FLOW RATE(CFS) = 2319.85

 FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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MAINLINE Tc(MIN.) = 71.01
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.993
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	1.60	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	46.40	0.30	1.000	66
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	B	0.10	0.30	0.200	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	60.70	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	5.80	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.999
 SUBAREA AREA(ACRES) = 114.60 SUBAREA RUNOFF(CFS) = 71.49
 EFFECTIVE AREA(ACRES) = 3581.90 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5437.3 PEAK FLOW RATE(CFS) = 2391.35

 FLOW PROCESS FROM NODE 13302.00 TO NODE 13303.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 375.00 DOWNSTREAM(FEET) = 355.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 2193.96 CHANNEL SLOPE = 0.0091
 GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 4.49
 CHANNEL FLOW THRU SUBAREA (CFS) = 2391.35
 FLOW VELOCITY (FEET/SEC.) = 8.39 FLOW DEPTH (FEET) = 4.49
 TRAVEL TIME (MIN.) = 4.36 Tc (MIN.) = 75.37
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13303.00 = 9726.05 FEET.

 FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc (MIN.) = 75.37
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.968
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	0.20	0.30	1.000	86
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.40	0.30	1.000	65
NATURAL POOR COVER "BARREN"	B	0.80	0.30	1.000	86
COMMERCIAL	B	1.40	0.30	0.100	56
NATURAL FAIR COVER "GRASS"	B	2.60	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	2.20	0.30	1.000	66

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.834
 SUBAREA AREA (ACRES) = 7.60 SUBAREA RUNOFF (CFS) = 4.91
 EFFECTIVE AREA (ACRES) = 3589.50 AREA-AVERAGED Fm (INCH/HR) = 0.25
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA (ACRES) = 5444.9 PEAK FLOW RATE (CFS) = 2391.35
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc (MIN.) = 75.37
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.968
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	3.10	0.30	1.000	79
NATURAL FAIR COVER "WOODLAND, GRASS"	B	3.40	0.30	1.000	65
NATURAL POOR COVER "BARREN"	B	0.50	0.30	1.000	86
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	B	0.20	0.30	1.000	63
COMMERCIAL	B	3.60	0.30	0.100	56
NATURAL FAIR COVER "GRASS"	B	4.00	0.30	1.000	69

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.781
 SUBAREA AREA (ACRES) = 14.80 SUBAREA RUNOFF (CFS) = 9.78
 EFFECTIVE AREA (ACRES) = 3604.30 AREA-AVERAGED Fm (INCH/HR) = 0.25
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA (ACRES) = 5459.7 PEAK FLOW RATE (CFS) = 2391.35
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc (MIN.) = 75.37
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.968
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	14.60	0.30	1.000	66
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	6.30	0.30	1.000	79
NATURAL FAIR COVER "WOODLAND, GRASS"	B	3.70	0.30	1.000	65

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 24.60 SUBAREA RUNOFF (CFS) = 14.80
 EFFECTIVE AREA (ACRES) = 3628.90 AREA-AVERAGED Fm (INCH/HR) = 0.25
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA (ACRES) = 5484.3 PEAK FLOW RATE (CFS) = 2391.35
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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MAINLINE Tc (MIN.) = 75.37
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.968
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	0.50	0.30	1.000	86
COMMERCIAL	B	0.30	0.30	0.100	56
NATURAL FAIR COVER "OPEN BRUSH"	B	0.20	0.30	1.000	66
RESIDENTIAL ".4 DWELLING/ACRE"	B	0.80	0.30	0.900	56
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	1.60	0.30	1.000	79
NATURAL POOR COVER "BARREN"	B	31.90	0.30	1.000	86

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.990
 SUBAREA AREA (ACRES) = 35.30 SUBAREA RUNOFF (CFS) = 21.33
 EFFECTIVE AREA (ACRES) = 3664.20 AREA-AVERAGED Fm (INCH/HR) = 0.25
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA (ACRES) = 5519.6 PEAK FLOW RATE (CFS) = 2391.35

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 75.37
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.968
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	1.70	0.30	0.100	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.30	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	2.60	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	5.50	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.20	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.20	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.830
 SUBAREA AREA(ACRES) = 10.50 SUBAREA RUNOFF(CFS) = 6.80
 EFFECTIVE AREA(ACRES) = 3674.70 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5530.1 PEAK FLOW RATE(CFS) = 2391.35
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 75.37
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.968
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
".4 DWELLING/ACRE"	B	1.30	0.30	0.900	56
NATURAL POOR COVER					
"BARREN"	B	0.30	0.30	1.000	86
COMMERCIAL	B	0.20	0.30	0.100	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.30	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	6.50	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	3.00	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.917
 SUBAREA AREA(ACRES) = 11.60 SUBAREA RUNOFF(CFS) = 7.24
 EFFECTIVE AREA(ACRES) = 3686.30 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5541.7 PEAK FLOW RATE(CFS) = 2391.35

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13303.00 TO NODE 13304.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 355.00 DOWNSTREAM(FEET) = 350.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 925.40 CHANNEL SLOPE = 0.0054
 GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 5.20
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.956
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	0.20	0.30	1.000	86
AGRICULTURAL POOR COVER					
"ROW CROPS,STRAIGHT ROW"	B	0.50	0.30	1.000	81
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	1.10	0.30	1.000	65
NATURAL POOR COVER					
"BARREN"	B	0.30	0.30	1.000	86
NATURAL FAIR COVER					
"GRASS"	B	1.10	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.50	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2393.32
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 7.02
 AVERAGE FLOW DEPTH(FEET) = 5.20 TRAVEL TIME(MIN.) = 2.20
 Tc(MIN.) = 77.57
 SUBAREA AREA(ACRES) = 6.70 SUBAREA RUNOFF(CFS) = 3.96
 EFFECTIVE AREA(ACRES) = 3693.00 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5548.4 PEAK FLOW RATE(CFS) = 2391.35
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 5.20

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 5.20 FLOW VELOCITY(FEET/SEC.) = 7.01
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13304.00 = 10651.45 FEET.

FLOW PROCESS FROM NODE 13304.00 TO NODE 13304.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 77.57
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.956
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
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AGRICULTURAL POOR COVER
"ROW CROPS,STRAIGHT ROW" B 1.40 0.30 1.000 81
NATURAL FAIR COVER
"OPEN BRUSH" B 4.80 0.30 1.000 66
AGRICULTURAL POOR COVER
"ROW CROPS,STRAIGHT ROW" B 0.90 0.30 1.000 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 7.10 SUBAREA RUNOFF (CFS) = 4.19
EFFECTIVE AREA (ACRES) = 3700.10 AREA-AVERAGED Fm (INCH/HR) = 0.25
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA (ACRES) = 5555.5 PEAK FLOW RATE (CFS) = 2391.35
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13304.00 TO NODE 13304.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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MAINLINE Tc (MIN.) = 77.57
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.956
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	7.80	0.30	1.000	86
AGRICULTURAL POOR COVER "ROW CROPS,CONTOURED"	B	1.70	0.30	1.000	79
NATURAL POOR COVER "BARREN"	B	9.40	0.30	1.000	86
NATURAL FAIR COVER "OPEN BRUSH"	B	1.20	0.30	1.000	66
RESIDENTIAL ".4 DWELLING/ACRE"	B	0.10	0.30	0.900	56
AGRICULTURAL POOR COVER "ROW CROPS,CONTOURED"	B	2.60	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 22.80 SUBAREA RUNOFF (CFS) = 13.46
EFFECTIVE AREA (ACRES) = 3722.90 AREA-AVERAGED Fm (INCH/HR) = 0.25
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA (ACRES) = 5578.3 PEAK FLOW RATE (CFS) = 2391.35
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13304.00 TO NODE 13304.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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MAINLINE Tc (MIN.) = 77.57
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.956
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND,GRASS"	B	0.20	0.30	1.000	65
NATURAL FAIR COVER "OPEN BRUSH"	B	0.30	0.30	1.000	66

RESIDENTIAL
".4 DWELLING/ACRE" B 0.20 0.30 0.900 56
AGRICULTURAL POOR COVER
"ROW CROPS,CONTOURED" B 2.70 0.30 1.000 79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.994
SUBAREA AREA (ACRES) = 3.40 SUBAREA RUNOFF (CFS) = 2.01
EFFECTIVE AREA (ACRES) = 3726.30 AREA-AVERAGED Fm (INCH/HR) = 0.25
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA (ACRES) = 5581.7 PEAK FLOW RATE (CFS) = 2391.35
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13304.00 TO NODE 13305.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM (FEET) = 350.00 DOWNSTREAM (FEET) = 315.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 2966.27 CHANNEL SLOPE = 0.0118
GIVEN CHANNEL BASE (FEET) = 50.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 4.18
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.926
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	1.70	0.30	1.000	86
NATURAL FAIR COVER "GRASS"	B	0.60	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	0.10	0.30	1.000	66
NATURAL FAIR COVER "WOODLAND,GRASS"	B	0.40	0.30	1.000	65
NATURAL POOR COVER "BARREN"	B	2.20	0.30	1.000	86
NATURAL FAIR COVER "GRASS"	B	4.20	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 2393.94
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 9.16
AVERAGE FLOW DEPTH (FEET) = 4.18 TRAVEL TIME (MIN.) = 5.40
Tc (MIN.) = 82.97
SUBAREA AREA (ACRES) = 9.20 SUBAREA RUNOFF (CFS) = 5.18
EFFECTIVE AREA (ACRES) = 3735.50 AREA-AVERAGED Fm (INCH/HR) = 0.25
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA (ACRES) = 5590.9 PEAK FLOW RATE (CFS) = 2391.35
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE (FEET) = 50.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 4.18

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 4.18 FLOW VELOCITY (FEET/SEC.) = 9.16
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13305.00 = 13617.72 FEET.

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 82.97
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.926
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	8.10	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	2.30	0.30	1.000	65
NATURAL FAIR COVER					
"GRASS"	B	0.20	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	6.90	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.70	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 18.20 SUBAREA RUNOFF(CFS) = 10.25
 EFFECTIVE AREA(ACRES) = 3753.70 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5609.1 PEAK FLOW RATE(CFS) = 2391.35
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 82.97
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.926
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	18.40	0.30	1.000	86
NATURAL FAIR COVER					
"MEADOWS"	B	1.20	0.30	1.000	70
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.10	0.30	1.000	65
NATURAL POOR COVER					
"BARREN"	B	26.60	0.30	1.000	86
COMMERCIAL	B	3.90	0.30	0.100	56
AGRICULTURAL POOR COVER					
"FALLOW"	B	3.00	0.30	1.000	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.934
 SUBAREA AREA(ACRES) = 53.20 SUBAREA RUNOFF(CFS) = 30.90
 EFFECTIVE AREA(ACRES) = 3806.90 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5662.3 PEAK FLOW RATE(CFS) = 2391.35
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 82.97
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.926
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	1.10	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.20	0.30	1.000	65
NATURAL POOR COVER					
"BARREN"	B	14.00	0.30	1.000	86
COMMERCIAL	B	4.30	0.30	0.100	56
AGRICULTURAL POOR COVER					
"FALLOW"	B	5.30	0.30	1.000	86
NATURAL FAIR COVER					
"GRASS"	B	2.70	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.860
 SUBAREA AREA(ACRES) = 27.60 SUBAREA RUNOFF(CFS) = 16.59
 EFFECTIVE AREA(ACRES) = 3834.50 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5689.9 PEAK FLOW RATE(CFS) = 2391.35
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 82.97
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.926
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"MEADOWS"	B	3.20	0.30	1.000	70
NATURAL FAIR COVER					
"OPEN BRUSH"	B	6.10	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	7.50	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	5.40	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	1.60	0.30	1.000	65
NATURAL POOR COVER					
"BARREN"	B	1.90	0.30	1.000	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.971
 SUBAREA AREA(ACRES) = 25.70 SUBAREA RUNOFF(CFS) = 14.67
 EFFECTIVE AREA(ACRES) = 3860.20 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5715.6 PEAK FLOW RATE(CFS) = 2391.35
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 82.97

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.926

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	2.00	0.30	0.100	56
AGRICULTURAL POOR COVER "FALLOW"	B	3.70	0.30	1.000	86
NATURAL FAIR COVER "OPEN BRUSH"	B	2.10	0.30	1.000	66
RESIDENTIAL ".4 DWELLING/ACRE"	B	2.60	0.30	0.900	56
AGRICULTURAL POOR COVER "ROW CROPS,CONTOURED"	B	0.20	0.30	1.000	79
NATURAL FAIR COVER "WOODLAND,GRASS"	B	0.10	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.807

SUBAREA AREA(ACRES) = 10.70 SUBAREA RUNOFF(CFS) = 6.58

EFFECTIVE AREA(ACRES) = 3870.90 AREA-AVERAGED Fm(INCH/HR) = 0.25

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84

TOTAL AREA(ACRES) = 5726.3 PEAK FLOW RATE(CFS) = 2391.35

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 82.97

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.926

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	0.50	0.30	1.000	66
RESIDENTIAL ".4 DWELLING/ACRE"	B	8.20	0.30	0.900	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.906

SUBAREA AREA(ACRES) = 8.70 SUBAREA RUNOFF(CFS) = 5.12

EFFECTIVE AREA(ACRES) = 3879.60 AREA-AVERAGED Fm(INCH/HR) = 0.25

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84

TOTAL AREA(ACRES) = 5735.0 PEAK FLOW RATE(CFS) = 2391.35

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<

PEAK FLOWRATE TABLE FILE NAME: 3A25EVRL.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	985.44	13.67	0.30(0.13)	0.43	435.7	120.00
2	984.77	13.72	0.30(0.13)	0.43	436.5	110.00
3	831.39	20.84	0.30(0.13)	0.43	504.3	100.00
4	778.32	23.57	0.30(0.13)	0.43	510.2	150.00
TOTAL AREA(ACRES) =						510.2

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1917.45	37.07	1.392	0.30(0.26)	0.88	1696.5	31100.00
2	2391.35	82.97	0.926	0.30(0.25)	0.84	3879.6	13222.00
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13305.00 = 13617.72 FEET.							

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	985.44	13.67	2.612	0.30(0.13)	0.43	435.7	120.00
2	984.77	13.72	2.604	0.30(0.13)	0.43	436.5	110.00
3	831.39	20.84	1.957	0.30(0.13)	0.43	504.3	100.00
4	778.32	23.57	1.818	0.30(0.13)	0.43	510.2	150.00
LONGEST FLOWPATH FROM NODE 150.00 TO NODE 13305.00 = 9867.00 FEET.							

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2457.26	13.67	2.612	0.30(0.21)	0.70	1061.2	120.00
2	2457.33	13.72	2.604	0.30(0.21)	0.70	1064.4	110.00
3	2449.65	20.84	1.957	0.30(0.22)	0.72	1458.0	100.00
4	2457.99	23.57	1.818	0.30(0.22)	0.74	1588.7	150.00
5	2499.23	37.07	1.392	0.30(0.23)	0.78	2206.7	31100.00
6	2758.16	82.97	0.926	0.30(0.24)	0.80	4389.8	13222.00
TOTAL AREA(ACRES) = 6245.2							

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 2758.16 Tc(MIN.) = 82.965

EFFECTIVE AREA(ACRES) = 4389.80 AREA-AVERAGED Fm(INCH/HR) = 0.24

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.70

TOTAL AREA(ACRES) = 6245.2

LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13305.00 = 13617.72 FEET.

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<

FLOW PROCESS FROM NODE 13305.00 TO NODE 13306.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 315.00 DOWNSTREAM(FEET) = 245.50
 CHANNEL LENGTH THRU SUBAREA(FEET) = 4408.41 CHANNEL SLOPE = 0.0158
 GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 4.18
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.887

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	0.40	0.30	1.000	86
NATURAL FAIR COVER					
"GRASS"	B	9.20	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.00	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	1.30	0.30	1.000	65
NATURAL POOR COVER					
"BARREN"	B	2.40	0.30	1.000	86
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	4.10	0.30	1.000	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2763.02
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.58
 AVERAGE FLOW DEPTH(FEET) = 4.18 TRAVEL TIME(MIN.) = 6.94
 Tc(MIN.) = 89.91
 SUBAREA AREA(ACRES) = 18.40 SUBAREA RUNOFF(CFS) = 9.71
 EFFECTIVE AREA(ACRES) = 4408.20 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA(ACRES) = 6263.6 PEAK FLOW RATE(CFS) = 2758.16
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 4.17

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 4.17 FLOW VELOCITY(FEET/SEC.) = 10.58
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13306.00 = 18026.13 FEET.

 FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====

MAINLINE Tc(MIN.) = 89.91
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.887

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	19.20	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	20.90	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	4.10	0.30	1.000	65

NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF" B 0.50 0.30 1.000 63
 NATURAL FAIR COVER
 "GRASS" B 4.30 0.30 1.000 69
 NATURAL FAIR COVER
 "OPEN BRUSH" B 0.60 0.30 1.000 66
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 49.60 SUBAREA RUNOFF(CFS) = 26.18
 EFFECTIVE AREA(ACRES) = 4457.80 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA(ACRES) = 6313.2 PEAK FLOW RATE(CFS) = 2758.16
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====

MAINLINE Tc(MIN.) = 89.91
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.887

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.80	0.30	1.000	65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30					
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000					
SUBAREA AREA(ACRES) = 0.80 SUBAREA RUNOFF(CFS) = 0.42					
EFFECTIVE AREA(ACRES) = 4458.60 AREA-AVERAGED Fm(INCH/HR) = 0.24					
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80					
TOTAL AREA(ACRES) = 6314.0 PEAK FLOW RATE(CFS) = 2758.16					
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE					

 FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====

MAINLINE Tc(MIN.) = 89.91
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.887

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
PUBLIC PARK	B	0.10	0.30	0.850	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.10	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.10	0.30	1.000	65
NATURAL POOR COVER					
"BARREN"	B	0.20	0.30	1.000	86
PUBLIC PARK	B	0.40	0.30	0.850	56
NATURAL FAIR COVER					
"GRASS"	B	0.40	0.30	1.000	69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30					
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.942					
SUBAREA AREA(ACRES) = 1.30 SUBAREA RUNOFF(CFS) = 0.71					
EFFECTIVE AREA(ACRES) = 4459.90 AREA-AVERAGED Fm(INCH/HR) = 0.24					

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA (ACRES) = 6315.3 PEAK FLOW RATE (CFS) = 2758.16
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 89.91
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.887
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
RESIDENTIAL
".4 DWELLING/ACRE" B 0.80 0.30 0.900 56
NATURAL FAIR COVER
"GRASS" B 0.80 0.30 1.000 69
NATURAL FAIR COVER
"OPEN BRUSH" B 1.00 0.30 1.000 66
NATURAL FAIR COVER
"WOODLAND, GRASS" B 1.10 0.30 1.000 65
COMMERCIAL B 1.10 0.30 0.100 56
RESIDENTIAL
".4 DWELLING/ACRE" B 2.80 0.30 0.900 56
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.822
SUBAREA AREA (ACRES) = 7.60 SUBAREA RUNOFF (CFS) = 4.38
EFFECTIVE AREA (ACRES) = 4467.50 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA (ACRES) = 6322.9 PEAK FLOW RATE (CFS) = 2758.16
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 89.91
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.887
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
COMMERCIAL B 3.50 0.30 0.100 56
NATURAL FAIR COVER
"GRASS" B 5.00 0.30 1.000 69
RESIDENTIAL
".4 DWELLING/ACRE" B 6.70 0.30 0.900 56
NATURAL FAIR COVER
"WOODLAND, GRASS" B 7.80 0.30 1.000 65
NATURAL FAIR COVER
"OPEN BRUSH" B 10.80 0.30 1.000 66
COMMERCIAL B 13.80 0.30 0.100 56
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.659
SUBAREA AREA (ACRES) = 47.60 SUBAREA RUNOFF (CFS) = 29.51
EFFECTIVE AREA (ACRES) = 4515.10 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80

TOTAL AREA (ACRES) = 6370.5 PEAK FLOW RATE (CFS) = 2758.16
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 89.91
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.887
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL POOR COVER
"BARREN" B 21.54 0.30 1.000 86
NATURAL POOR COVER
"BARREN" B 36.64 0.30 1.000 86
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 58.18 SUBAREA RUNOFF (CFS) = 30.71
EFFECTIVE AREA (ACRES) = 4573.28 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA (ACRES) = 6428.7 PEAK FLOW RATE (CFS) = 2758.16
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13306.00 TO NODE 13307.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 245.50 DOWNSTREAM (FEET) = 220.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1543.21 CHANNEL SLOPE = 0.0165
GIVEN CHANNEL BASE (FEET) = 50.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
* ESTIMATED CHANNEL HEIGHT (FEET) = 4.12
CHANNEL FLOW THRU SUBAREA (CFS) = 2758.16
FLOW VELOCITY (FEET/SEC.) = 10.74 FLOW DEPTH (FEET) = 4.12
TRAVEL TIME (MIN.) = 2.39 Tc (MIN.) = 92.30
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13307.00 = 19569.34 FEET.

FLOW PROCESS FROM NODE 13307.00 TO NODE 13307.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 92.30
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.877
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
COMMERCIAL B 0.20 0.30 0.100 56
NATURAL FAIR COVER
"GRASS" B 0.10 0.30 1.000 69
AGRICULTURAL FAIR COVER
"ORCHARDS" B 0.20 0.30 1.000 65
NATURAL POOR COVER
"BARREN" B 3.70 0.30 1.000 86

COMMERCIAL B 0.30 0.30 0.100 56
 NATURAL FAIR COVER
 "GRASS" B 3.20 0.30 1.000 69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.942
 SUBAREA AREA (ACRES) = 7.70 SUBAREA RUNOFF (CFS) = 4.12
 EFFECTIVE AREA (ACRES) = 4580.98 AREA-AVERAGED Fm (INCH/HR) = 0.24
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA (ACRES) = 6436.4 PEAK FLOW RATE (CFS) = 2758.16
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13307.00 TO NODE 13307.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 92.30
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.877
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	3.60	0.30	1.000	65
NATURAL FAIR COVER					
"GRASS"	B	1.90	0.30	1.000	69
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.60	0.30	1.000	65

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 6.10 SUBAREA RUNOFF (CFS) = 3.17
 EFFECTIVE AREA (ACRES) = 4587.08 AREA-AVERAGED Fm (INCH/HR) = 0.24
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA (ACRES) = 6442.5 PEAK FLOW RATE (CFS) = 2758.16
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13307.00 TO NODE 13308.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 220.00 DOWNSTREAM (FEET) = 212.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 925.62 CHANNEL SLOPE = 0.0086
 GIVEN CHANNEL BASE (FEET) = 50.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 4.94
 CHANNEL FLOW THRU SUBAREA (CFS) = 2758.16
 FLOW VELOCITY (FEET/SEC.) = 8.62 FLOW DEPTH (FEET) = 4.94
 TRAVEL TIME (MIN.) = 1.79 Tc (MIN.) = 94.09
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13308.00 = 20494.96 FEET.

 FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 94.09
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.871

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	0.10	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.20	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	5.00	0.30	1.000	65
COMMERCIAL	B	3.20	0.30	0.100	56
NATURAL FAIR COVER					
"GRASS"	B	0.10	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.90	0.30	1.000	66

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.697
 SUBAREA AREA (ACRES) = 9.50 SUBAREA RUNOFF (CFS) = 5.66
 EFFECTIVE AREA (ACRES) = 4596.58 AREA-AVERAGED Fm (INCH/HR) = 0.24
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA (ACRES) = 6452.0 PEAK FLOW RATE (CFS) = 2758.16
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 94.09
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.871
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
APARTMENTS	B	0.30	0.30	0.200	56
NATURAL POOR COVER					
"BARREN"	B	0.20	0.30	1.000	86
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	1.00	0.30	1.000	63
COMMERCIAL	B	41.90	0.30	0.100	56
NATURAL FAIR COVER					
"GRASS"	B	7.20	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	25.00	0.30	1.000	66

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.498
 SUBAREA AREA (ACRES) = 75.60 SUBAREA RUNOFF (CFS) = 49.09
 EFFECTIVE AREA (ACRES) = 4672.18 AREA-AVERAGED Fm (INCH/HR) = 0.24
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA (ACRES) = 6527.6 PEAK FLOW RATE (CFS) = 2758.16
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 94.09
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.871
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
PUBLIC PARK	B	0.10	0.30	0.850	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	0.90	0.30	1.000	79
SCHOOL	B	0.30	0.30	0.600	56
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	13.20	0.30	1.000	65
APARTMENTS	B	0.50	0.30	0.200	56
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	0.60	0.30	1.000	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.966
SUBAREA AREA (ACRES) = 15.60 SUBAREA RUNOFF (CFS) = 8.16
EFFECTIVE AREA (ACRES) = 4687.78 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA (ACRES) = 6543.2 PEAK FLOW RATE (CFS) = 2758.16
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 94.09
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.871
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	33.90	0.30	0.100	56
NATURAL FAIR COVER					
"GRASS"	B	17.60	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	16.80	0.30	1.000	66
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	B	0.60	0.30	0.200	56
RESIDENTIAL					
"8-10 DWELLINGS/ACRE"	B	1.50	0.30	0.400	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	10.00	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.603
SUBAREA AREA (ACRES) = 80.40 SUBAREA RUNOFF (CFS) = 49.92
EFFECTIVE AREA (ACRES) = 4768.18 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.79
TOTAL AREA (ACRES) = 6623.6 PEAK FLOW RATE (CFS) = 2758.16
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 94.09
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.871
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
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DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
SCHOOL	B	0.30	0.30	0.600	56
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.70	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.880
SUBAREA AREA (ACRES) = 1.00 SUBAREA RUNOFF (CFS) = 0.55
EFFECTIVE AREA (ACRES) = 4769.18 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.79
TOTAL AREA (ACRES) = 6624.6 PEAK FLOW RATE (CFS) = 2758.16
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 94.09
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.871
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	0.30	0.30	1.000	69
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.80	0.30	1.000	65
NATURAL FAIR COVER					
"GRASS"	B	0.50	0.30	1.000	69
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.20	0.30	1.000	65
NATURAL FAIR COVER					
"GRASS"	B	0.30	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 2.10 SUBAREA RUNOFF (CFS) = 1.08
EFFECTIVE AREA (ACRES) = 4771.28 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.79
TOTAL AREA (ACRES) = 6626.7 PEAK FLOW RATE (CFS) = 2758.16
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 94.09
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.871
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	1.20	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.50	0.30	1.000	66
PUBLIC PARK	B	1.70	0.30	0.850	56
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	7.20	0.30	1.000	65
NATURAL FAIR COVER					
"GRASS"	B	1.00	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.978
 SUBAREA AREA(ACRES) = 11.60 SUBAREA RUNOFF(CFS) = 6.03
 EFFECTIVE AREA(ACRES) = 4782.88 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.79
 TOTAL AREA(ACRES) = 6638.3 PEAK FLOW RATE(CFS) = 2758.16
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<

 FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<

PEAK FLOWRATE TABLE FILE NAME: RI25EV29.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	17481.50	15.18	0.30 (0.28)	0.92	3018.8	50200.00
2	18595.06	19.82	0.30 (0.28)	0.92	4247.9	12904.00
3	20738.99	28.99	0.30 (0.28)	0.93	6629.0	50300.00
4	22952.74	39.65	0.30 (0.28)	0.93	9440.3	600.00
5	25592.08	56.76	0.30 (0.29)	0.96	15456.8	40100.00
6	27063.60	64.57	0.30 (0.29)	0.96	18231.4	11801.00
7	29397.53	75.33	0.30 (0.29)	0.97	22761.9	11530.00
8	30726.90	84.03	0.30 (0.29)	0.97	27418.7	11910.00
9	32775.92	94.05	0.30 (0.29)	0.98	33721.7	11350.00
10	33377.20	98.78	0.30 (0.29)	0.98	36895.9	11130.00
11	33240.10	104.83	0.30 (0.29)	0.98	39822.5	12300.00
12	33146.49	108.71	0.30 (0.29)	0.98	41883.4	11620.00
13	32828.80	113.55	0.30 (0.29)	0.98	44083.1	12400.00
14	32070.84	122.98	0.30 (0.29)	0.98	47484.7	12201.00
15	31297.28	130.39	0.30 (0.29)	0.98	49377.7	12231.00
16	30486.99	137.78	0.30 (0.29)	0.98	50930.5	10400.00
17	29164.61	147.09	0.30 (0.29)	0.98	52376.9	12010.00
18	28256.38	152.37	0.30 (0.29)	0.98	52639.5	10210.00
19	27686.16	156.36	0.30 (0.29)	0.98	52786.3	12000.00
20	24548.53	182.31	0.30 (0.29)	0.98	53399.2	10100.00
TOTAL AREA(ACRES) =						53399.2

 FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 14.0

>>>>MEMORY BANK # 2 COPIED ONTO MAIN-STREAM MEMORY<<<<<

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	17481.50	15.18	0.30 (0.28)	0.92	3018.8	50200.00
2	18595.06	19.82	0.30 (0.28)	0.92	4247.9	12904.00
3	20738.99	28.99	0.30 (0.28)	0.93	6629.0	50300.00
4	22952.74	39.65	0.30 (0.28)	0.93	9440.3	600.00

5	25592.08	56.76	0.30 (0.29)	0.96	15456.8	40100.00
6	27063.60	64.57	0.30 (0.29)	0.96	18231.4	11801.00
7	29397.53	75.33	0.30 (0.29)	0.97	22761.9	11530.00
8	30726.90	84.03	0.30 (0.29)	0.97	27418.7	11910.00
9	32775.92	94.05	0.30 (0.29)	0.98	33721.7	11350.00
10	33377.20	98.78	0.30 (0.29)	0.98	36895.9	11130.00
11	33240.10	104.83	0.30 (0.29)	0.98	39822.5	12300.00
12	33146.49	108.71	0.30 (0.29)	0.98	41883.4	11620.00
13	32828.80	113.55	0.30 (0.29)	0.98	44083.1	12400.00
14	32070.84	122.98	0.30 (0.29)	0.98	47484.7	12201.00
15	31297.28	130.39	0.30 (0.29)	0.98	49377.7	12231.00
16	30486.99	137.78	0.30 (0.29)	0.98	50930.5	10400.00
17	29164.61	147.09	0.30 (0.29)	0.98	52376.9	12010.00
18	28256.38	152.37	0.30 (0.29)	0.98	52639.5	10210.00
19	27686.16	156.36	0.30 (0.29)	0.98	52786.3	12000.00
20	24548.53	182.31	0.30 (0.29)	0.98	53399.2	10100.00
TOTAL AREA(ACRES) =						53399.2

 FLOW PROCESS FROM NODE 12904.00 TO NODE 13308.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

 ELEVATION DATA: UPSTREAM(FEET) = 213.00 DOWNSTREAM(FEET) = 212.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1389.52 CHANNEL SLOPE = 0.0007
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 16.43
 CHANNEL FLOW THRU SUBAREA(CFS) = 33377.20
 FLOW VELOCITY(FEET/SEC.) = 7.20 FLOW DEPTH(FEET) = 16.43
 TRAVEL TIME(MIN.) = 3.22 Tc(MIN.) = 102.00
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13308.00 = 118087.91 FEET.

 FLOW PROCESS FROM NODE 13307.00 TO NODE 13308.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	17481.50	19.11	2.074	0.30 (0.28)	0.92	3018.8	50200.00
2	18595.06	23.67	1.813	0.30 (0.28)	0.92	4247.9	12904.00
3	20738.99	32.72	1.479	0.30 (0.28)	0.93	6629.0	50300.00
4	22952.74	43.26	1.284	0.30 (0.28)	0.93	9440.3	600.00
5	25592.08	60.25	1.054	0.30 (0.29)	0.96	15456.8	40100.00
6	27063.60	68.00	1.010	0.30 (0.29)	0.96	18231.4	11801.00
7	29397.53	78.67	0.950	0.30 (0.29)	0.97	22761.9	11530.00
8	30726.90	87.33	0.901	0.30 (0.29)	0.97	27418.7	11910.00
9	32775.92	97.28	0.859	0.30 (0.29)	0.98	33721.7	11350.00
10	33377.20	102.00	0.842	0.30 (0.29)	0.98	36895.9	11130.00
11	33240.10	108.05	0.819	0.30 (0.29)	0.98	39822.5	12300.00
12	33146.49	111.93	0.805	0.30 (0.29)	0.98	41883.4	11620.00
13	32828.80	116.78	0.787	0.30 (0.29)	0.98	44083.1	12400.00
14	32070.84	126.24	0.762	0.30 (0.29)	0.98	47484.7	12201.00
15	31297.28	133.67	0.746	0.30 (0.29)	0.98	49377.7	12231.00

16 30486.99 141.09 0.730 0.30(0.29) 0.98 50930.5 10400.00
 17 29164.61 150.44 0.710 0.30(0.29) 0.98 52376.9 12010.00
 18 28256.38 155.76 0.698 0.30(0.29) 0.98 52639.5 10210.00
 19 27686.16 159.77 0.690 0.30(0.29) 0.98 52786.3 12000.00
 20 24548.53 185.84 0.640 0.30(0.29) 0.98 53399.2 10100.00
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13308.00 = 118087.91 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2457.26	25.21	1.736	0.30(0.21)	0.72	1454.3	120.00
2	2457.33	25.26	1.734	0.30(0.21)	0.72	1457.5	110.00
3	2449.65	32.39	1.486	0.30(0.22)	0.73	1851.0	100.00
4	2457.99	35.11	1.431	0.30(0.22)	0.74	1981.8	150.00
5	2499.23	48.56	1.203	0.30(0.23)	0.78	2599.8	31100.00
6	2758.16	94.09	0.871	0.30(0.24)	0.79	4782.9	13222.00

LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13308.00 = 20494.96 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19757.68	19.11	2.074	0.30(0.26)	0.87	4121.2	50200.00
2	21018.65	23.67	1.813	0.30(0.26)	0.87	5613.6	12904.00
3	21416.14	25.21	1.736	0.30(0.26)	0.87	6106.2	120.00
4	21428.09	25.26	1.734	0.30(0.26)	0.87	6122.6	110.00
5	23112.26	32.39	1.486	0.30(0.26)	0.88	8395.2	100.00
6	23189.63	32.72	1.479	0.30(0.27)	0.88	8495.5	50300.00
7	23698.98	35.11	1.431	0.30(0.27)	0.89	9248.2	150.00
8	25435.71	43.26	1.284	0.30(0.27)	0.90	11796.3	600.00
9	26275.81	48.56	1.203	0.30(0.27)	0.91	13918.1	31100.00
10	28157.80	60.25	1.054	0.30(0.28)	0.93	18617.2	40100.00
11	29673.35	68.00	1.010	0.30(0.28)	0.93	21763.0	11801.00
12	32068.00	78.67	0.950	0.30(0.28)	0.94	26805.5	11530.00
13	33446.58	87.33	0.901	0.30(0.28)	0.95	31877.1	11910.00
14	34877.45	94.09	0.871	0.30(0.29)	0.95	36484.7	13222.00
15	35482.58	97.28	0.859	0.30(0.29)	0.95	38504.6	11350.00
16	36007.86	102.00	0.842	0.30(0.29)	0.96	41678.8	11130.00
17	35773.03	108.05	0.819	0.30(0.29)	0.96	44605.4	12300.00
18	35616.82	111.93	0.805	0.30(0.29)	0.96	46666.3	11620.00
19	35220.93	116.78	0.787	0.30(0.29)	0.96	48866.0	12400.00
20	34352.52	126.24	0.762	0.30(0.29)	0.96	52267.6	12201.00
21	33509.29	133.67	0.746	0.30(0.29)	0.96	54160.6	12231.00
22	32629.42	141.09	0.730	0.30(0.29)	0.96	55713.3	10400.00
23	31219.39	150.44	0.710	0.30(0.29)	0.97	57159.8	12010.00
24	30261.26	155.76	0.698	0.30(0.29)	0.97	57422.3	10210.00
25	29653.48	159.77	0.690	0.30(0.29)	0.97	57569.2	12000.00
26	26301.94	185.84	0.640	0.30(0.29)	0.97	58182.1	10100.00

TOTAL AREA (ACRES) = 60037.5

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 36007.86 Tc(MIN.) = 101.995
 EFFECTIVE AREA(ACRES) = 41678.82 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA(ACRES) = 60037.5
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13308.00 = 118087.91 FEET.

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 END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 60037.5 TC(MIN.) = 102.00

EFFECTIVE AREA(ACRES) = 41678.82 AREA-AVERAGED Fm(INCH/HR)= 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.957
 PEAK FLOW RATE(CFS) = 36007.86

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19757.68	19.11	2.074	0.30(0.26)	0.87	4121.2	50200.00
2	21018.65	23.67	1.813	0.30(0.26)	0.87	5613.6	12904.00
3	21416.14	25.21	1.736	0.30(0.26)	0.87	6106.2	120.00
4	21428.09	25.26	1.734	0.30(0.26)	0.87	6122.6	110.00
5	23112.26	32.39	1.486	0.30(0.26)	0.88	8395.2	100.00
6	23189.63	32.72	1.479	0.30(0.27)	0.88	8495.5	50300.00
7	23698.98	35.11	1.431	0.30(0.27)	0.89	9248.2	150.00
8	25435.71	43.26	1.284	0.30(0.27)	0.90	11796.3	600.00
9	26275.81	48.56	1.203	0.30(0.27)	0.91	13918.1	31100.00
10	28157.80	60.25	1.054	0.30(0.28)	0.93	18617.2	40100.00
11	29673.35	68.00	1.010	0.30(0.28)	0.93	21763.0	11801.00
12	32068.00	78.67	0.950	0.30(0.28)	0.94	26805.5	11530.00
13	33446.58	87.33	0.901	0.30(0.28)	0.95	31877.1	11910.00
14	34877.45	94.09	0.871	0.30(0.29)	0.95	36484.7	13222.00
15	35482.58	97.28	0.859	0.30(0.29)	0.95	38504.6	11350.00
16	36007.86	102.00	0.842	0.30(0.29)	0.96	41678.8	11130.00
17	35773.03	108.05	0.819	0.30(0.29)	0.96	44605.4	12300.00
18	35616.82	111.93	0.805	0.30(0.29)	0.96	46666.3	11620.00
19	35220.93	116.78	0.787	0.30(0.29)	0.96	48866.0	12400.00
20	34352.52	126.24	0.762	0.30(0.29)	0.96	52267.6	12201.00
21	33509.29	133.67	0.746	0.30(0.29)	0.96	54160.6	12231.00
22	32629.42	141.09	0.730	0.30(0.29)	0.96	55713.3	10400.00
23	31219.39	150.44	0.710	0.30(0.29)	0.97	57159.8	12010.00
24	30261.26	155.76	0.698	0.30(0.29)	0.97	57422.3	10210.00
25	29653.48	159.77	0.690	0.30(0.29)	0.97	57569.2	12000.00
26	26301.94	185.84	0.640	0.30(0.29)	0.97	58182.1	10100.00

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 END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 134 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 25-YR EV AUG 2023 ROKAMOTO *

FILE NAME: RI25EV34.DAT
TIME/DATE OF STUDY: 10:19 08/09/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 25.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 4.808
- 2) 10.00; 3.143
- 3) 15.00; 2.408
- 4) 20.00; 1.996
- 5) 25.00; 1.742
- 6) 30.00; 1.531
- 7) 40.00; 1.331
- 8) 50.00; 1.178
- 9) 60.00; 1.052
- 10) 90.00; 0.883
- 11) 120.00; 0.772
- 12) 180.00; 0.643
- 13) 360.00; 0.472
- 14) 1200.00; 0.207

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RI25EV33.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19757.68	19.11	0.30 (0.26)	0.87	4121.2	50200.00
2	21428.09	25.26	0.30 (0.26)	0.87	6122.6	110.00
3	23698.98	35.11	0.30 (0.27)	0.89	9248.2	150.00
4	25435.71	43.26	0.30 (0.27)	0.90	11796.3	600.00
5	26275.81	48.56	0.30 (0.27)	0.91	13918.1	31100.00
6	28157.80	60.25	0.30 (0.28)	0.93	18617.2	40100.00
7	29673.35	68.00	0.30 (0.28)	0.93	21763.0	11801.00
8	32068.00	78.67	0.30 (0.28)	0.94	26805.5	11530.00
9	33446.58	87.33	0.30 (0.28)	0.95	31877.1	11910.00
10	35482.58	97.28	0.30 (0.29)	0.95	38504.6	11350.00
11	36007.86	102.00	0.30 (0.29)	0.96	41678.8	11130.00
12	35773.03	108.05	0.30 (0.29)	0.96	44605.4	12300.00
13	35220.93	116.78	0.30 (0.29)	0.96	48866.0	12400.00
14	34352.52	126.24	0.30 (0.29)	0.96	52267.6	12201.00
15	33509.29	133.67	0.30 (0.29)	0.96	54160.6	12231.00
16	32629.42	141.09	0.30 (0.29)	0.96	55713.3	10400.00
17	31219.39	150.44	0.30 (0.29)	0.97	57159.8	12010.00
18	30261.26	155.76	0.30 (0.29)	0.97	57422.3	10210.00
19	29653.48	159.77	0.30 (0.29)	0.97	57569.2	12000.00
20	26301.94	185.84	0.30 (0.29)	0.97	58182.1	10100.00
TOTAL AREA(ACRES) =						58182.1

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

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MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19757.68	19.11	0.30 (0.26)	0.87	4121.2	50200.00
2	21428.09	25.26	0.30 (0.26)	0.87	6122.6	110.00
3	23698.98	35.11	0.30 (0.27)	0.89	9248.2	150.00
4	25435.71	43.26	0.30 (0.27)	0.90	11796.3	600.00
5	26275.81	48.56	0.30 (0.27)	0.91	13918.1	31100.00
6	28157.80	60.25	0.30 (0.28)	0.93	18617.2	40100.00
7	29673.35	68.00	0.30 (0.28)	0.93	21763.0	11801.00
8	32068.00	78.67	0.30 (0.28)	0.94	26805.5	11530.00
9	33446.58	87.33	0.30 (0.28)	0.95	31877.1	11910.00
10	35482.58	97.28	0.30 (0.29)	0.95	38504.6	11350.00
11	36007.86	102.00	0.30 (0.29)	0.96	41678.8	11130.00
12	35773.03	108.05	0.30 (0.29)	0.96	44605.4	12300.00
13	35220.93	116.78	0.30 (0.29)	0.96	48866.0	12400.00

14	34352.52	126.24	0.30	(0.29)	0.96	52267.6	12201.00
15	33509.29	133.67	0.30	(0.29)	0.96	54160.6	12231.00
16	32629.42	141.09	0.30	(0.29)	0.96	55713.3	10400.00
17	31219.39	150.44	0.30	(0.29)	0.97	57159.8	12010.00
18	30261.26	155.76	0.30	(0.29)	0.97	57422.3	10210.00
19	29653.48	159.77	0.30	(0.29)	0.97	57569.2	12000.00
20	26301.94	185.84	0.30	(0.29)	0.97	58182.1	10100.00

TOTAL AREA (ACRES) = 58182.1

FLOW PROCESS FROM NODE 13308.00 TO NODE 13402.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 212.00 DOWNSTREAM (FEET) = 209.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 623.02 CHANNEL SLOPE = 0.0048
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 10.13
 CHANNEL FLOW THRU SUBAREA (CFS) = 36007.86
 FLOW VELOCITY (FEET/SEC.) = 14.17 FLOW DEPTH (FEET) = 10.13
 TRAVEL TIME (MIN.) = 0.73 Tc (MIN.) = 102.73
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13402.00 = 118710.93 FEET.

FLOW PROCESS FROM NODE 13402.00 TO NODE 13402.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<

PEAK FLOWRATE TABLE FILE NAME: 0610505W.DNA
 MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	233.86	20.08	0.30 (0.30)	0.99	153.2	50500.00

TOTAL AREA (ACRES) = 153.2

FLOW PROCESS FROM NODE 13402.00 TO NODE 13402.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19757.68	20.00	1.996	0.30 (0.26)	0.87	4121.2	50200.00
2	21428.09	26.13	1.694	0.30 (0.26)	0.87	6122.6	110.00
3	23698.98	35.95	1.412	0.30 (0.27)	0.89	9248.2	150.00
4	25435.71	44.08	1.269	0.30 (0.27)	0.90	11796.3	600.00
5	26275.81	49.37	1.188	0.30 (0.27)	0.91	13918.1	31100.00
6	28157.80	61.05	1.046	0.30 (0.28)	0.93	18617.2	40100.00
7	29673.35	68.78	1.003	0.30 (0.28)	0.93	21763.0	11801.00
8	32068.00	79.43	0.943	0.30 (0.28)	0.94	26805.5	11530.00
9	33446.58	88.08	0.894	0.30 (0.28)	0.95	31877.1	11910.00
10	35482.58	98.02	0.853	0.30 (0.29)	0.95	38504.6	11350.00
11	36007.86	102.73	0.836	0.30 (0.29)	0.96	41678.8	11130.00
12	35773.03	108.79	0.813	0.30 (0.29)	0.96	44605.4	12300.00

13	35220.93	117.52	0.781	0.30 (0.29)	0.96	48866.0	12400.00
14	34352.52	126.98	0.757	0.30 (0.29)	0.96	52267.6	12201.00
15	33509.29	134.42	0.741	0.30 (0.29)	0.96	54160.6	12231.00
16	32629.42	141.84	0.725	0.30 (0.29)	0.96	55713.3	10400.00
17	31219.39	151.20	0.705	0.30 (0.29)	0.97	57159.8	12010.00
18	30261.26	156.53	0.693	0.30 (0.29)	0.97	57422.3	10210.00
19	29653.48	160.55	0.685	0.30 (0.29)	0.97	57569.2	12000.00
20	26301.94	186.65	0.637	0.30 (0.29)	0.97	58182.1	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13402.00 = 118710.93 FEET.

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	233.86	20.08	1.992	0.30 (0.30)	0.99	153.2	50500.00

LONGEST FLOWPATH FROM NODE 50500.00 TO NODE 13402.00 = 6247.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19991.17	20.00	1.996	0.30 (0.26)	0.87	4273.8	50200.00
2	20013.57	20.08	1.992	0.30 (0.26)	0.87	4300.8	50500.00
3	21620.94	26.13	1.694	0.30 (0.26)	0.88	6275.8	110.00
4	23852.90	35.95	1.412	0.30 (0.27)	0.89	9401.4	150.00
5	25569.85	44.08	1.269	0.30 (0.27)	0.90	11949.5	600.00
6	26398.78	49.37	1.188	0.30 (0.27)	0.91	14071.2	31100.00
7	28261.25	61.05	1.046	0.30 (0.28)	0.93	18770.4	40100.00
8	29770.80	68.78	1.003	0.30 (0.28)	0.93	21916.2	11801.00
9	32157.17	79.43	0.943	0.30 (0.28)	0.94	26958.6	11530.00
10	33529.04	88.08	0.894	0.30 (0.28)	0.95	32030.3	11910.00
11	35559.45	98.02	0.853	0.30 (0.29)	0.95	38657.8	11350.00
12	36082.32	102.73	0.836	0.30 (0.29)	0.96	41832.0	11130.00
13	35844.41	108.79	0.813	0.30 (0.29)	0.96	44758.6	12300.00
14	35287.86	117.52	0.781	0.30 (0.29)	0.96	49019.2	12400.00
15	34416.10	126.98	0.757	0.30 (0.29)	0.96	52420.8	12201.00
16	33570.67	134.42	0.741	0.30 (0.29)	0.96	54313.8	12231.00
17	32688.60	141.84	0.725	0.30 (0.29)	0.96	55866.5	10400.00
18	31275.80	151.20	0.705	0.30 (0.29)	0.97	57312.9	12010.00
19	30316.09	156.53	0.693	0.30 (0.29)	0.97	57575.5	10210.00
20	29707.11	160.55	0.685	0.30 (0.29)	0.97	57722.3	12000.00
21	26348.94	186.65	0.637	0.30 (0.29)	0.97	58335.3	10100.00

TOTAL AREA (ACRES) = 58335.3

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 36082.32 Tc (MIN.) = 102.728
 EFFECTIVE AREA (ACRES) = 41832.00 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 58335.3
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13402.00 = 118710.93 FEET.

FLOW PROCESS FROM NODE 13402.00 TO NODE 13404.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 209.00 DOWNSTREAM (FEET) = 207.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 395.35 CHANNEL SLOPE = 0.0051
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 10.00
 CHANNEL FLOW THRU SUBAREA(CFS) = 36082.32
 FLOW VELOCITY(FEET/SEC.) = 14.42 FLOW DEPTH(FEET) = 10.00
 TRAVEL TIME(MIN.) = 0.46 Tc(MIN.) = 103.18
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13404.00 = 119106.28 FEET.

 FLOW PROCESS FROM NODE 13404.00 TO NODE 13404.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: 0610506W.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	84.62	17.59	0.30	(0.30)	1.00	49.6	50600.00
TOTAL AREA (ACRES) =							49.6

 FLOW PROCESS FROM NODE 13404.00 TO NODE 13404.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

 ** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19991.17	20.56	1.968	0.30 (0.26)	0.87	4273.8	50200.00
2	20013.57	20.64	1.964	0.30 (0.26)	0.87	4300.8	50500.00
3	21620.94	26.67	1.672	0.30 (0.26)	0.88	6275.8	110.00
4	23852.90	36.47	1.402	0.30 (0.27)	0.89	9401.4	150.00
5	25569.85	44.59	1.261	0.30 (0.27)	0.90	11949.5	600.00
6	26398.78	49.88	1.180	0.30 (0.27)	0.91	14071.2	31100.00
7	28261.25	61.54	1.043	0.30 (0.28)	0.93	18770.4	40100.00
8	29770.80	69.26	1.000	0.30 (0.28)	0.93	21916.2	11801.00
9	32157.17	79.91	0.940	0.30 (0.28)	0.94	26958.6	11530.00
10	33529.04	88.54	0.891	0.30 (0.28)	0.95	32030.3	11910.00
11	35559.45	98.48	0.852	0.30 (0.29)	0.95	38657.8	11350.00
12	36082.32	103.18	0.834	0.30 (0.29)	0.96	41832.0	11130.00
13	35844.41	109.24	0.812	0.30 (0.29)	0.96	44758.6	12300.00
14	35287.86	117.98	0.779	0.30 (0.29)	0.96	49019.2	12400.00
15	34416.10	127.44	0.756	0.30 (0.29)	0.96	52420.8	12201.00
16	33570.67	134.88	0.740	0.30 (0.29)	0.96	54313.8	12231.00
17	32688.60	142.32	0.724	0.30 (0.29)	0.96	55866.5	10400.00
18	31275.80	151.68	0.704	0.30 (0.29)	0.97	57312.9	12010.00
19	30316.09	157.02	0.692	0.30 (0.29)	0.97	57575.5	10210.00
20	29707.11	161.03	0.684	0.30 (0.29)	0.97	57722.3	12000.00
21	26348.94	187.16	0.636	0.30 (0.29)	0.97	58335.3	10100.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13404.00 =							119106.28 FEET.

 ** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	84.62	17.59	2.195	0.30 (0.30)	1.00	49.6	50600.00
LONGEST FLOWPATH FROM NODE 50600.00 TO NODE 13404.00 =							4378.00 FEET.

 ** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19464.44	17.59	2.195	0.30 (0.26)	0.87	3705.7	50600.00
2	20065.64	20.56	1.968	0.30 (0.26)	0.87	4323.3	50200.00
3	20087.86	20.64	1.964	0.30 (0.26)	0.87	4350.4	50500.00
4	21682.19	26.67	1.672	0.30 (0.26)	0.88	6325.4	110.00
5	23902.09	36.47	1.402	0.30 (0.27)	0.89	9451.0	150.00
6	25612.75	44.59	1.261	0.30 (0.27)	0.90	11999.1	600.00
7	26438.07	49.88	1.180	0.30 (0.27)	0.91	14120.8	31100.00
8	28294.45	61.54	1.043	0.30 (0.28)	0.93	18820.0	40100.00
9	29802.05	69.26	1.000	0.30 (0.28)	0.93	21965.7	11801.00
10	32185.74	79.91	0.940	0.30 (0.28)	0.94	27008.2	11530.00
11	33555.44	88.54	0.891	0.30 (0.28)	0.95	32079.9	11910.00
12	35584.09	98.48	0.852	0.30 (0.29)	0.95	38707.4	11350.00
13	36106.18	103.18	0.834	0.30 (0.29)	0.96	41881.6	11130.00
14	35867.27	109.24	0.812	0.30 (0.29)	0.96	44808.2	12300.00
15	35309.27	117.98	0.779	0.30 (0.29)	0.96	49068.8	12400.00
16	34436.46	127.44	0.756	0.30 (0.29)	0.96	52470.4	12201.00
17	33590.32	134.88	0.740	0.30 (0.29)	0.96	54363.4	12231.00
18	32707.54	142.32	0.724	0.30 (0.29)	0.96	55916.1	10400.00
19	31293.83	151.68	0.704	0.30 (0.29)	0.97	57362.5	12010.00
20	30333.62	157.02	0.692	0.30 (0.29)	0.97	57625.1	10210.00
21	29724.25	161.03	0.684	0.30 (0.29)	0.97	57771.9	12000.00
22	26363.96	187.16	0.636	0.30 (0.29)	0.97	58384.9	10100.00
TOTAL AREA (ACRES) =							58384.9

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 36106.18 Tc(MIN.) = 103.185
 EFFECTIVE AREA(ACRES) = 41881.59 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA(ACRES) = 58384.9
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13404.00 = 119106.28 FEET.

 FLOW PROCESS FROM NODE 13404.00 TO NODE 13406.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 207.00 DOWNSTREAM(FEET) = 195.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1601.97 CHANNEL SLOPE = 0.0075
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 8.96
 CHANNEL FLOW THRU SUBAREA(CFS) = 36106.18
 FLOW VELOCITY(FEET/SEC.) = 16.46 FLOW DEPTH(FEET) = 8.96
 TRAVEL TIME(MIN.) = 1.62 Tc(MIN.) = 104.81
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13406.00 = 120708.25 FEET.

 FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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MAINLINE Tc(MIN.) = 104.81
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.828
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS

LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
NATURAL FAIR COVER					
"GRASS"	B	0.20	0.30	1.000	69
NATURAL FAIR COVER					
"GRASS"	B	4.00	0.30	1.000	69
NATURAL FAIR COVER					
"GRASS"	B	2.00	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	9.70	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.60	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS, STRAIGHT ROW"	B	1.80	0.30	1.000	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 20.30 SUBAREA RUNOFF (CFS) = 9.65
EFFECTIVE AREA (ACRES) = 41901.89 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
TOTAL AREA (ACRES) = 58405.2 PEAK FLOW RATE (CFS) = 36106.18
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 104.81

* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.828

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS, STRAIGHT ROW"	B	3.50	0.30	1.000	81
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	7.20	0.30	1.000	65
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	5.80	0.30	1.000	65
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.10	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA (ACRES) = 16.60 SUBAREA RUNOFF (CFS) = 7.89

EFFECTIVE AREA (ACRES) = 41918.50 AREA-AVERAGED Fm (INCH/HR) = 0.29

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96

TOTAL AREA (ACRES) = 58421.8 PEAK FLOW RATE (CFS) = 36106.18

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 2p25evbb.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	676.18	9.97	0.30 (0.11)	0.38	243.5	429.00
2	719.57	11.48	0.30 (0.11)	0.38	280.3	425.00
3	729.64	11.90	0.30 (0.11)	0.38	290.5	400.00
4	756.99	13.36	0.30 (0.11)	0.38	326.6	300.00
5	801.01	18.55	0.30 (0.11)	0.38	439.8	210.00
6	788.68	20.66	0.30 (0.11)	0.38	466.8	410.00
7	782.25	21.72	0.30 (0.11)	0.38	480.1	200.00
8	780.36	22.29	0.30 (0.11)	0.38	486.6	230.00
9	762.79	23.40	0.30 (0.11)	0.37	491.2	220.50
TOTAL AREA (ACRES) =			491.2			

FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19464.44	19.58	2.030	0.30 (0.26)	0.88	3742.6	50600.00
2	20065.64	22.53	1.867	0.30 (0.26)	0.88	4360.2	50200.00
3	20087.86	22.61	1.863	0.30 (0.26)	0.88	4387.3	50500.00
4	21682.19	28.59	1.590	0.30 (0.26)	0.88	6362.3	110.00
5	23902.09	38.33	1.364	0.30 (0.27)	0.89	9487.9	150.00
6	25612.75	46.41	1.233	0.30 (0.27)	0.90	12036.0	600.00
7	26438.07	51.68	1.157	0.30 (0.27)	0.91	14157.7	31100.00
8	28294.45	63.30	1.033	0.30 (0.28)	0.93	18856.9	40100.00
9	29802.05	70.99	0.990	0.30 (0.28)	0.93	22002.6	11801.00
10	32185.74	81.59	0.930	0.30 (0.28)	0.94	27045.1	11530.00
11	33555.44	90.20	0.882	0.30 (0.28)	0.95	32116.8	11910.00
12	35584.09	100.11	0.846	0.30 (0.29)	0.95	38744.3	11350.00
13	36106.18	104.81	0.828	0.30 (0.29)	0.96	41918.5	11130.00
14	35867.27	110.87	0.806	0.30 (0.29)	0.96	44845.1	12300.00
15	35309.27	119.61	0.773	0.30 (0.29)	0.96	49105.7	12400.00
16	34436.46	129.09	0.752	0.30 (0.29)	0.96	52507.3	12201.00
17	33590.32	136.54	0.736	0.30 (0.29)	0.96	54400.3	12231.00
18	32707.54	143.99	0.720	0.30 (0.29)	0.96	55953.0	10400.00
19	31293.83	153.38	0.700	0.30 (0.29)	0.97	57399.4	12010.00
20	30333.62	158.74	0.689	0.30 (0.29)	0.97	57662.0	10210.00
21	29724.25	162.76	0.680	0.30 (0.29)	0.97	57808.8	12000.00
22	26363.96	188.96	0.634	0.30 (0.29)	0.97	58421.8	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13406.00 = 120708.25 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	676.18	9.97	3.155	0.30 (0.11)	0.38	243.5	429.00
2	719.57	11.48	2.926	0.30 (0.11)	0.38	280.3	425.00
3	729.64	11.90	2.864	0.30 (0.11)	0.38	290.5	400.00
4	756.99	13.36	2.648	0.30 (0.11)	0.38	326.6	300.00
5	801.01	18.55	2.115	0.30 (0.11)	0.38	439.8	210.00
6	788.68	20.66	1.962	0.30 (0.11)	0.38	466.8	410.00
7	782.25	21.72	1.909	0.30 (0.11)	0.38	480.1	200.00

8 780.36 22.29 1.880 0.30(0.11) 0.38 486.6 230.00
 9 762.79 23.40 1.823 0.30(0.11) 0.37 491.2 220.50
 LONGEST FLOWPATH FROM NODE 230.00 TO NODE 13406.00 = 11903.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	16880.18	9.97	3.155	0.30(0.25)	0.82	2148.1	429.00
2	17906.46	11.48	2.926	0.30(0.25)	0.82	2474.0	425.00
3	18132.33	11.90	2.864	0.30(0.25)	0.82	2564.5	400.00
4	18685.00	13.36	2.648	0.30(0.25)	0.82	2881.0	300.00
5	20126.79	18.55	2.115	0.30(0.25)	0.82	3985.5	210.00
6	20259.43	19.58	2.030	0.30(0.25)	0.82	4195.6	50600.00
7	20473.64	20.66	1.962	0.30(0.25)	0.82	4435.9	410.00
8	20682.89	21.72	1.909	0.30(0.25)	0.82	4670.8	200.00
9	20796.38	22.29	1.880	0.30(0.25)	0.82	4795.9	230.00
10	20842.16	22.53	1.867	0.30(0.25)	0.82	4847.9	50200.00
11	20863.11	22.61	1.863	0.30(0.25)	0.83	4875.2	50500.00
12	21061.03	23.40	1.823	0.30(0.25)	0.83	5139.1	220.50
13	22341.16	28.59	1.590	0.30(0.25)	0.84	6853.5	110.00
14	24460.28	38.33	1.364	0.30(0.26)	0.86	9979.1	150.00
15	26112.37	46.41	1.233	0.30(0.26)	0.88	12527.2	600.00
16	26903.74	51.68	1.157	0.30(0.27)	0.89	14648.9	31100.00
17	28705.08	63.30	1.033	0.30(0.27)	0.91	19348.1	40100.00
18	30193.37	70.99	0.990	0.30(0.28)	0.92	22493.8	11801.00
19	32550.43	81.59	0.930	0.30(0.28)	0.93	27536.3	11530.00
20	33898.66	90.20	0.882	0.30(0.28)	0.94	32608.0	11910.00
21	35910.97	100.11	0.846	0.30(0.28)	0.95	39235.5	11350.00
22	36425.32	104.81	0.828	0.30(0.29)	0.95	42409.7	11130.00
23	36176.40	110.87	0.806	0.30(0.29)	0.95	45336.3	12300.00
24	35603.99	119.61	0.773	0.30(0.29)	0.96	49596.9	12400.00
25	34721.82	129.09	0.752	0.30(0.29)	0.96	52998.5	12201.00
26	33868.54	136.54	0.736	0.30(0.29)	0.96	54891.5	12231.00
27	32978.62	143.99	0.720	0.30(0.29)	0.96	56444.2	10400.00
28	31555.91	153.38	0.700	0.30(0.29)	0.96	57890.6	12010.00
29	30590.56	158.74	0.689	0.30(0.29)	0.96	58153.2	10210.00
30	29977.33	162.76	0.680	0.30(0.29)	0.96	58300.0	12000.00
31	26596.72	188.96	0.634	0.30(0.29)	0.96	58913.0	10100.00
TOTAL AREA (ACRES) = 58913.0							

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) = 36425.32 Tc(MIN.) = 104.807
 EFFECTIVE AREA(ACRES) = 42409.70 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 58913.0
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13406.00 = 120708.25 FEET.

 FLOW PROCESS FROM NODE 13406.00 TO NODE 13408.00 IS CODE = 56

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<
 =====

ELEVATION DATA: UPSTREAM(FEET) = 195.00 DOWNSTREAM(FEET) = 182.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 2458.36 CHANNEL SLOPE = 0.0053
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 9.94

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.818
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 7.00 0.30 1.000 -
 USER-DEFINED - 3.30 0.30 1.000 -
 USER-DEFINED - 0.40 0.30 0.100 -
 USER-DEFINED - 1.40 0.30 1.000 -
 USER-DEFINED - 0.30 0.30 0.100 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.949
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 36428.29
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 14.68
 AVERAGE FLOW DEPTH(FEET) = 9.94 TRAVEL TIME(MIN.) = 2.79
 Tc(MIN.) = 107.60
 SUBAREA AREA(ACRES) = 12.40 SUBAREA RUNOFF(CFS) = 5.95
 EFFECTIVE AREA(ACRES) = 42422.09 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA(ACRES) = 58925.4 PEAK FLOW RATE(CFS) = 36425.32
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 9.94
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 9.94 FLOW VELOCITY(FEET/SEC.) = 14.68
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13408.00 = 123166.61 FEET.

 FLOW PROCESS FROM NODE 13408.00 TO NODE 13408.00 IS CODE = 12

 >>>>CLEAR MEMORY BANK # 2 <<<<<
 =====

 FLOW PROCESS FROM NODE 13408.00 TO NODE 13408.00 IS CODE = 15.1

 >>>>DEFINE MEMORY BANK # 2 <<<<<
 =====

PEAK FLOWRATE TABLE FILE NAME: 0610507W.DNA
 MEMORY BANK # 2 DEFINED AS FOLLOWS:
 STREAM Q Tc Fp(Fm) Ap Ae HEADWATER
 NUMBER (CFS) (MIN.) (INCH/HR) (ACRES) NODE
 1 358.70 20.30 0.30(0.30) 0.99 236.8 50700.00
 TOTAL AREA(ACRES) = 236.8

 FLOW PROCESS FROM NODE 13408.00 TO NODE 13408.00 IS CODE = 11

 >>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
 =====

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	16880.18	13.57	2.618	0.30(0.25)	0.82	2160.5	429.00
2	17906.46	15.01	2.407	0.30(0.25)	0.82	2486.4	425.00
3	18132.33	15.42	2.374	0.30(0.25)	0.82	2576.9	400.00

4	18685.00	16.85	2.256	0.30 (0.25)	0.82	2893.4	300.00
5	20126.79	21.95	1.897	0.30 (0.25)	0.82	3997.9	210.00
6	20259.43	22.97	1.845	0.30 (0.25)	0.82	4208.0	50600.00
7	20473.64	24.04	1.791	0.30 (0.25)	0.82	4448.3	410.00
8	20682.89	25.09	1.738	0.30 (0.25)	0.82	4683.2	200.00
9	20796.38	25.65	1.715	0.30 (0.25)	0.82	4808.3	230.00
10	20842.16	25.89	1.705	0.30 (0.25)	0.83	4860.3	50200.00
11	20863.11	25.97	1.701	0.30 (0.25)	0.83	4887.6	50500.00
12	21061.03	26.74	1.668	0.30 (0.25)	0.83	5151.5	220.50
13	22341.16	31.87	1.494	0.30 (0.25)	0.84	6865.9	110.00
14	24460.28	41.51	1.308	0.30 (0.26)	0.86	9991.5	150.00
15	26112.37	49.52	1.185	0.30 (0.26)	0.88	12539.6	600.00
16	26903.74	54.76	1.118	0.30 (0.27)	0.89	14661.3	31100.00
17	28705.08	66.31	1.016	0.30 (0.27)	0.91	19360.5	40100.00
18	30193.37	73.96	0.973	0.30 (0.28)	0.92	22506.2	11801.00
19	32550.43	84.49	0.914	0.30 (0.28)	0.93	27548.7	11530.00
20	33898.66	93.06	0.872	0.30 (0.28)	0.94	32620.4	11910.00
21	35910.97	102.91	0.835	0.30 (0.28)	0.95	39247.9	11350.00
22	36425.32	107.60	0.818	0.30 (0.29)	0.95	42422.1	11130.00
23	36176.40	113.67	0.795	0.30 (0.29)	0.95	45348.7	12300.00
24	35603.99	122.42	0.767	0.30 (0.29)	0.96	49609.3	12400.00
25	34721.82	131.92	0.746	0.30 (0.29)	0.96	53010.9	12201.00
26	33868.54	139.40	0.730	0.30 (0.29)	0.96	54903.9	12231.00
27	32978.62	146.87	0.714	0.30 (0.29)	0.96	56456.6	10400.00
28	31555.91	156.31	0.694	0.30 (0.29)	0.96	57903.0	12010.00
29	30590.56	161.69	0.682	0.30 (0.29)	0.96	58165.6	10210.00
30	29977.33	165.74	0.674	0.30 (0.29)	0.96	58312.4	12000.00
31	26596.72	192.05	0.632	0.30 (0.29)	0.96	58925.4	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13408.00 = 123166.61 FEET.

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	358.70	20.30	1.981	0.30 (0.30)	0.99	236.8	50700.00

LONGEST FLOWPATH FROM NODE 50700.00 TO NODE 13408.00 = 7903.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	17210.76	13.57	2.618	0.30 (0.25)	0.83	2318.8	429.00
2	18238.88	15.01	2.407	0.30 (0.25)	0.83	2661.5	425.00
3	18468.33	15.42	2.374	0.30 (0.25)	0.83	2756.7	400.00
4	19031.32	16.85	2.256	0.30 (0.25)	0.83	3089.9	300.00
5	20020.29	20.30	1.981	0.30 (0.25)	0.83	3878.3	50700.00
6	20467.68	21.95	1.897	0.30 (0.25)	0.83	4234.6	210.00
7	20589.25	22.97	1.845	0.30 (0.25)	0.83	4444.8	50600.00
8	20791.87	24.04	1.791	0.30 (0.25)	0.83	4685.1	410.00
9	20989.96	25.09	1.738	0.30 (0.25)	0.83	4920.0	200.00
10	21098.41	25.65	1.715	0.30 (0.25)	0.83	5045.1	230.00
11	21142.03	25.89	1.705	0.30 (0.25)	0.83	5097.0	50200.00
12	21162.27	25.97	1.701	0.30 (0.25)	0.83	5124.4	50500.00
13	21353.17	26.74	1.668	0.30 (0.25)	0.84	5388.2	220.50
14	22596.06	31.87	1.494	0.30 (0.25)	0.85	7102.7	110.00
15	24675.59	41.51	1.308	0.30 (0.26)	0.87	10228.3	150.00
16	26301.56	49.52	1.185	0.30 (0.26)	0.88	12776.4	600.00
17	27078.59	54.76	1.118	0.30 (0.27)	0.89	14898.1	31100.00
18	28858.27	66.31	1.016	0.30 (0.27)	0.91	19597.3	40100.00
19	30337.38	73.96	0.973	0.30 (0.28)	0.92	22743.0	11801.00

20	32681.80	84.49	0.914	0.30 (0.28)	0.93	27785.5	11530.00
21	34021.00	93.06	0.872	0.30 (0.28)	0.94	32857.2	11910.00
22	36025.54	102.91	0.835	0.30 (0.28)	0.95	39484.7	11350.00
23	36536.19	107.60	0.818	0.30 (0.29)	0.95	42658.9	11130.00
24	36282.48	113.67	0.795	0.30 (0.29)	0.95	45585.5	12300.00
25	35703.97	122.42	0.767	0.30 (0.29)	0.96	49846.1	12400.00
26	34817.45	131.92	0.746	0.30 (0.29)	0.96	53247.6	12201.00
27	33960.73	139.40	0.730	0.30 (0.29)	0.96	55140.7	12231.00
28	33067.39	146.87	0.714	0.30 (0.29)	0.96	56693.4	10400.00
29	31640.36	156.31	0.694	0.30 (0.29)	0.96	58139.8	12010.00
30	30672.54	161.69	0.682	0.30 (0.29)	0.96	58402.4	10210.00
31	30057.46	165.74	0.674	0.30 (0.29)	0.96	58549.2	12000.00
32	26667.87	192.05	0.632	0.30 (0.29)	0.96	59162.2	10100.00

TOTAL AREA (ACRES) = 59162.2

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 36536.19 Tc (MIN.) = 107.597
EFFECTIVE AREA (ACRES) = 42658.88 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 59162.2
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13408.00 = 123166.61 FEET.

FLOW PROCESS FROM NODE 13408.00 TO NODE 13410.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 182.00 DOWNSTREAM (FEET) = 178.72
CHANNEL LENGTH THRU SUBAREA (FEET) = 952.73 CHANNEL SLOPE = 0.0034
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 11.23
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.813

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.40	0.30	1.000	-
USER-DEFINED	-	2.90	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 36536.95
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 12.71
AVERAGE FLOW DEPTH (FEET) = 11.23 TRAVEL TIME (MIN.) = 1.25
Tc (MIN.) = 108.85
SUBAREA AREA (ACRES) = 3.30 SUBAREA RUNOFF (CFS) = 1.52
EFFECTIVE AREA (ACRES) = 42662.18 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 59165.5 PEAK FLOW RATE (CFS) = 36536.19
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 11.23

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 11.23 FLOW VELOCITY (FEET/SEC.) = 12.71
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13410.00 = 124119.34 FEET.

 FLOW PROCESS FROM NODE 13410.00 TO NODE 13410.00 IS CODE = 12

 >>>>CLEAR MEMORY BANK # 3 <<<<<<
 =====

 FLOW PROCESS FROM NODE 13410.00 TO NODE 13410.00 IS CODE = 15.1

 >>>>DEFINE MEMORY BANK # 3 <<<<<<
 =====

PEAK FLOWRATE TABLE FILE NAME: RI25EV36.DNA
 MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2146.96	28.56	0.30 (0.27)	0.90	1467.2	110.00
2	2209.71	30.95	0.30 (0.27)	0.90	1632.7	100.00
3	2208.12	32.23	0.30 (0.27)	0.90	1711.6	100.00
4	2242.47	35.30	0.30 (0.27)	0.91	1886.6	130.00
5	2335.96	48.91	0.30 (0.28)	0.93	2627.1	20100.00
6	2291.37	54.60	0.30 (0.28)	0.93	2814.2	13600.00
7	2090.26	91.42	0.30 (0.28)	0.93	3793.8	13510.00
8	1979.94	100.93	0.30 (0.28)	0.93	3859.7	13500.00
TOTAL AREA (ACRES) =						3859.7

 FLOW PROCESS FROM NODE 13410.00 TO NODE 13410.00 IS CODE = 11

 >>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<<
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** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	17210.76	15.17	2.394	0.30 (0.25)	0.83	2322.1	429.00
2	18238.88	16.58	2.278	0.30 (0.25)	0.83	2664.8	425.00
3	18468.33	16.98	2.245	0.30 (0.25)	0.83	2760.0	400.00
4	19031.32	18.39	2.128	0.30 (0.25)	0.83	3093.2	300.00
5	20020.29	21.82	1.903	0.30 (0.25)	0.83	3881.6	50700.00
6	20467.68	23.46	1.820	0.30 (0.25)	0.83	4237.9	210.00
7	20589.25	24.48	1.769	0.30 (0.25)	0.83	4448.1	50600.00
8	20791.87	25.54	1.719	0.30 (0.25)	0.83	4688.4	410.00
9	20989.96	26.58	1.675	0.30 (0.25)	0.83	4923.3	200.00
10	21098.41	27.14	1.652	0.30 (0.25)	0.83	5048.4	230.00
11	21142.03	27.38	1.642	0.30 (0.25)	0.83	5100.3	50200.00
12	21162.27	27.46	1.638	0.30 (0.25)	0.83	5127.7	50500.00
13	21353.17	28.23	1.606	0.30 (0.25)	0.84	5391.5	220.50
14	22596.06	33.33	1.464	0.30 (0.25)	0.85	7106.0	110.00
15	24675.59	42.93	1.286	0.30 (0.26)	0.87	10231.6	150.00
16	26301.56	50.91	1.167	0.30 (0.26)	0.88	12779.7	600.00
17	27078.59	56.13	1.101	0.30 (0.27)	0.89	14901.4	31100.00
18	28858.27	67.66	1.009	0.30 (0.27)	0.91	19600.6	40100.00
19	30337.38	75.28	0.966	0.30 (0.28)	0.92	22746.3	11801.00
20	32681.80	85.78	0.907	0.30 (0.28)	0.93	27788.8	11530.00
21	34021.00	94.34	0.867	0.30 (0.28)	0.94	32860.5	11910.00
22	36025.54	104.17	0.831	0.30 (0.28)	0.95	39488.0	11350.00
23	36536.19	108.85	0.813	0.30 (0.29)	0.95	42662.2	11130.00
24	36282.48	114.92	0.791	0.30 (0.29)	0.95	45588.8	12300.00

25	35703.97	123.68	0.764	0.30 (0.29)	0.96	49849.4	12400.00
26	34817.45	133.19	0.744	0.30 (0.29)	0.96	53250.9	12201.00
27	33960.73	140.68	0.728	0.30 (0.29)	0.96	55144.0	12231.00
28	33067.39	148.16	0.711	0.30 (0.29)	0.96	56696.7	10400.00
29	31640.36	157.61	0.691	0.30 (0.29)	0.96	58143.1	12010.00
30	30672.54	163.01	0.680	0.30 (0.29)	0.96	58405.7	10210.00
31	30057.46	167.07	0.671	0.30 (0.29)	0.96	58552.5	12000.00
32	26667.87	193.43	0.630	0.30 (0.29)	0.96	59165.5	10100.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13410.00 =							124119.34 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2146.96	28.56	1.592	0.30 (0.27)	0.90	1467.2	110.00
2	2209.71	30.95	1.512	0.30 (0.27)	0.90	1632.7	100.00
3	2208.12	32.23	1.486	0.30 (0.27)	0.90	1711.6	100.00
4	2242.47	35.30	1.425	0.30 (0.27)	0.91	1886.6	130.00
5	2335.96	48.91	1.195	0.30 (0.28)	0.93	2627.1	20100.00
6	2291.37	54.60	1.120	0.30 (0.28)	0.93	2814.2	13600.00
7	2090.26	91.42	0.878	0.30 (0.28)	0.93	3793.8	13510.00
8	1979.94	100.93	0.843	0.30 (0.28)	0.93	3859.7	13500.00
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13410.00 =							41710.10 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19043.55	15.17	2.394	0.30 (0.25)	0.85	3101.3	429.00
2	20132.39	16.58	2.278	0.30 (0.25)	0.85	3516.4	425.00
3	20375.73	16.98	2.245	0.30 (0.25)	0.85	3632.2	400.00
4	20975.62	18.39	2.128	0.30 (0.25)	0.85	4038.0	300.00
5	22047.73	21.82	1.903	0.30 (0.25)	0.85	5002.5	50700.00
6	22536.14	23.46	1.820	0.30 (0.25)	0.85	5442.9	210.00
7	22675.48	24.48	1.769	0.30 (0.25)	0.85	5705.4	50600.00
8	22897.04	25.54	1.719	0.30 (0.25)	0.85	6000.4	410.00
9	23114.46	26.58	1.675	0.30 (0.25)	0.85	6288.7	200.00
10	23231.15	27.14	1.652	0.30 (0.25)	0.85	6442.4	230.00
11	23277.83	27.38	1.642	0.30 (0.25)	0.85	6506.7	50200.00
12	23299.02	27.46	1.638	0.30 (0.25)	0.85	6538.1	50500.00
13	23497.69	28.23	1.606	0.30 (0.25)	0.85	6841.7	220.50
14	23580.65	28.56	1.592	0.30 (0.25)	0.85	6969.8	110.00
15	24226.23	30.95	1.512	0.30 (0.26)	0.85	7939.3	100.00
16	24535.86	32.23	1.486	0.30 (0.26)	0.86	8447.4	100.00
17	24816.51	33.33	1.464	0.30 (0.26)	0.86	8880.4	110.00
18	25264.09	35.30	1.425	0.30 (0.26)	0.86	9632.2	130.00
19	26970.48	42.93	1.286	0.30 (0.26)	0.88	12533.4	150.00
20	28230.84	48.91	1.195	0.30 (0.27)	0.89	14769.5	20100.00
21	28621.88	50.91	1.167	0.30 (0.27)	0.89	15472.5	600.00
22	29141.59	54.60	1.120	0.30 (0.27)	0.90	17092.0	13600.00
23	29361.57	56.13	1.101	0.30 (0.27)	0.90	17756.5	31100.00
24	31078.29	67.66	1.009	0.30 (0.27)	0.92	22762.3	40100.00
25	32515.78	75.28	0.966	0.30 (0.28)	0.92	26110.8	11801.00
26	34802.86	85.78	0.907	0.30 (0.28)	0.93	31432.6	11530.00
27	35654.55	91.42	0.878	0.30 (0.28)	0.94	34924.6	13510.00
28	36077.39	94.34	0.867	0.30 (0.28)	0.94	36674.5	11910.00
29	37344.45	100.93	0.843	0.30 (0.28)	0.94	41162.1	13500.00
30	37963.28	104.17	0.831	0.30 (0.28)	0.95	43347.6	11350.00
31	38412.98	108.85	0.813	0.30 (0.28)	0.95	46521.9	11130.00
32	38080.21	114.92	0.791	0.30 (0.29)	0.95	49448.4	12300.00

33	37407.67	123.68	0.764	0.30	(0.29)	0.96	53709.0	12400.00
34	36449.16	133.19	0.744	0.30	(0.29)	0.96	57110.6	12201.00
35	35535.79	140.68	0.728	0.30	(0.29)	0.96	59003.7	12231.00
36	34585.82	148.16	0.711	0.30	(0.29)	0.96	60556.4	10400.00
37	33087.27	157.61	0.691	0.30	(0.29)	0.96	62002.8	12010.00
38	32078.62	163.01	0.680	0.30	(0.29)	0.96	62265.4	10210.00
39	31432.85	167.07	0.671	0.30	(0.29)	0.96	62412.2	12000.00
40	27900.46	193.43	0.630	0.30	(0.29)	0.96	63025.1	10100.00
TOTAL AREA (ACRES) =		63025.1						

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 38412.98 Tc (MIN.) = 108.846
EFFECTIVE AREA (ACRES) = 46521.86 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.90
TOTAL AREA (ACRES) = 63025.1
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13410.00 = 124119.34 FEET.

FLOW PROCESS FROM NODE 13410.00 TO NODE 13412.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 178.72 DOWNSTREAM (FEET) = 176.93
CHANNEL LENGTH THRU SUBAREA (FEET) = 169.78 CHANNEL SLOPE = 0.0105
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 8.42
CHANNEL FLOW THRU SUBAREA (CFS) = 38412.98
FLOW VELOCITY (FEET/SEC.) = 18.84 FLOW DEPTH (FEET) = 8.42
TRAVEL TIME (MIN.) = 0.15 Tc (MIN.) = 109.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13412.00 = 124289.12 FEET.

FLOW PROCESS FROM NODE 13412.00 TO NODE 13412.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 13412.00 TO NODE 13412.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 0506101d.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	518.50	38.19	0.30 (0.30)	0.98	591.0	10100.00
TOTAL AREA (ACRES) =		591.0				

FLOW PROCESS FROM NODE 13412.00 TO NODE 13412.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19043.55	15.36	2.378	0.30 (0.25)	0.85	3101.3	429.00
2	20132.39	16.77	2.263	0.30 (0.25)	0.85	3516.4	425.00
3	20375.73	17.17	2.229	0.30 (0.25)	0.85	3632.2	400.00
4	20975.62	18.58	2.113	0.30 (0.25)	0.85	4038.0	300.00
5	22047.73	22.00	1.894	0.30 (0.25)	0.85	5002.5	50700.00
6	22536.14	23.64	1.811	0.30 (0.25)	0.85	5442.9	210.00
7	22675.48	24.66	1.759	0.30 (0.25)	0.85	5705.4	50600.00
8	22897.04	25.72	1.712	0.30 (0.25)	0.85	6000.4	410.00
9	23114.46	26.76	1.668	0.30 (0.25)	0.85	6288.7	200.00
10	23231.15	27.32	1.644	0.30 (0.25)	0.85	6442.4	230.00
11	23277.83	27.56	1.634	0.30 (0.25)	0.85	6506.7	50200.00
12	23299.02	27.64	1.631	0.30 (0.25)	0.85	6538.1	50500.00
13	23497.69	28.41	1.598	0.30 (0.25)	0.85	6841.7	220.50
14	23580.65	28.74	1.584	0.30 (0.25)	0.85	6969.8	110.00
15	24226.23	31.13	1.508	0.30 (0.26)	0.85	7939.3	100.00
16	24535.86	32.41	1.483	0.30 (0.26)	0.86	8447.4	100.00
17	24816.51	33.51	1.461	0.30 (0.26)	0.86	8880.4	110.00
18	25264.09	35.47	1.422	0.30 (0.26)	0.86	9632.2	130.00
19	26970.48	43.10	1.284	0.30 (0.26)	0.88	12533.4	150.00
20	28230.84	49.08	1.192	0.30 (0.27)	0.89	14769.5	20100.00
21	28621.88	51.07	1.164	0.30 (0.27)	0.89	15472.5	600.00
22	29141.59	54.76	1.118	0.30 (0.27)	0.90	17092.0	13600.00
23	29361.57	56.30	1.099	0.30 (0.27)	0.90	17756.5	31100.00
24	31078.29	67.82	1.008	0.30 (0.27)	0.92	22762.3	40100.00
25	32515.78	75.44	0.965	0.30 (0.28)	0.92	26110.8	11801.00
26	34802.86	85.94	0.906	0.30 (0.28)	0.93	31432.6	11530.00
27	35654.55	91.57	0.877	0.30 (0.28)	0.94	34924.6	13510.00
28	36077.39	94.49	0.866	0.30 (0.28)	0.94	36674.5	11910.00
29	37344.45	101.08	0.842	0.30 (0.28)	0.94	41162.1	13500.00
30	37963.28	104.32	0.830	0.30 (0.28)	0.95	43347.6	11350.00
31	38412.98	109.00	0.813	0.30 (0.28)	0.95	46521.9	11130.00
32	38080.21	115.07	0.790	0.30 (0.29)	0.95	49448.4	12300.00
33	37407.67	123.83	0.764	0.30 (0.29)	0.96	53709.0	12400.00
34	36449.16	133.35	0.743	0.30 (0.29)	0.96	57110.6	12201.00
35	35535.79	140.83	0.727	0.30 (0.29)	0.96	59003.7	12231.00
36	34585.82	148.32	0.711	0.30 (0.29)	0.96	60556.4	10400.00
37	33087.27	157.77	0.691	0.30 (0.29)	0.96	62002.8	12010.00
38	32078.62	163.17	0.679	0.30 (0.29)	0.96	62265.4	10210.00
39	31432.85	167.23	0.670	0.30 (0.29)	0.96	62412.2	12000.00
40	27900.46	193.60	0.630	0.30 (0.29)	0.96	63025.1	10100.00
LONGEST FLOWPATH FROM NODE		10100.00 TO NODE 13412.00 = 124289.12 FEET.					

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	518.50	38.19	1.367	0.30 (0.30)	0.98	591.0	10100.00
LONGEST FLOWPATH FROM NODE		10100.00 TO NODE 13412.00 = 14677.00 FEET.					

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19448.76	15.36	2.378	0.30 (0.26)	0.86	3339.0	429.00
2	20550.09	16.77	2.263	0.30 (0.26)	0.86	3775.8	425.00
3	20796.24	17.17	2.229	0.30 (0.26)	0.86	3897.9	400.00
4	21403.34	18.58	2.113	0.30 (0.26)	0.86	4325.5	300.00
5	22493.32	22.00	1.894	0.30 (0.26)	0.86	5343.1	50700.00

6	22989.97	23.64	1.811	0.30	(0.26)	0.86	5808.7	210.00
7	23132.71	24.66	1.759	0.30	(0.26)	0.86	6086.9	50600.00
8	23358.41	25.72	1.712	0.30	(0.26)	0.86	6398.5	410.00
9	23579.61	26.76	1.668	0.30	(0.26)	0.86	6702.8	200.00
10	23697.86	27.32	1.644	0.30	(0.26)	0.86	6865.2	230.00
11	23745.10	27.56	1.634	0.30	(0.26)	0.86	6933.1	50200.00
12	23766.46	27.64	1.631	0.30	(0.26)	0.86	6965.7	50500.00
13	23966.48	28.41	1.598	0.30	(0.26)	0.86	7281.4	220.50
14	24049.81	28.74	1.584	0.30	(0.26)	0.86	7414.5	110.00
15	24704.53	31.13	1.508	0.30	(0.26)	0.86	8421.0	100.00
16	25023.29	32.41	1.483	0.30	(0.26)	0.86	8948.9	100.00
17	25311.16	33.51	1.461	0.30	(0.26)	0.87	9398.9	110.00
18	25770.09	35.47	1.422	0.30	(0.26)	0.87	10181.1	130.00
19	26391.12	38.19	1.367	0.30	(0.26)	0.87	11257.8	10100.00
20	27448.54	43.10	1.284	0.30	(0.26)	0.88	13124.4	150.00
21	28664.66	49.08	1.192	0.30	(0.27)	0.89	15360.5	20100.00
22	29042.34	51.07	1.164	0.30	(0.27)	0.89	16063.5	600.00
23	29539.57	54.76	1.118	0.30	(0.27)	0.90	17683.0	13600.00
24	29750.19	56.30	1.099	0.30	(0.27)	0.90	18347.5	31100.00
25	31423.05	67.82	1.008	0.30	(0.28)	0.92	23353.3	40100.00
26	32839.78	75.44	0.965	0.30	(0.28)	0.92	26701.8	11801.00
27	35098.27	85.94	0.906	0.30	(0.28)	0.93	32023.6	11530.00
28	35936.07	91.57	0.877	0.30	(0.28)	0.94	35515.6	13510.00
29	36353.69	94.49	0.866	0.30	(0.28)	0.94	37265.5	11910.00
30	37608.96	101.08	0.842	0.30	(0.28)	0.94	41753.1	13500.00
31	38222.00	104.32	0.830	0.30	(0.28)	0.95	43938.6	11350.00
32	38663.33	109.00	0.813	0.30	(0.28)	0.95	47112.9	11130.00
33	38319.69	115.07	0.790	0.30	(0.29)	0.95	50039.4	12300.00
34	37634.35	123.83	0.764	0.30	(0.29)	0.96	54300.0	12400.00
35	36665.94	133.35	0.743	0.30	(0.29)	0.96	57701.6	12201.00
36	35744.79	140.83	0.727	0.30	(0.29)	0.96	59594.7	12231.00
37	34787.04	148.32	0.711	0.30	(0.29)	0.96	61147.4	10400.00
38	33278.66	157.77	0.691	0.30	(0.29)	0.96	62593.8	12010.00
39	32264.40	163.17	0.679	0.30	(0.29)	0.96	62856.4	10210.00
40	31614.41	167.23	0.670	0.30	(0.29)	0.96	63003.2	12000.00
41	28062.49	193.60	0.630	0.30	(0.29)	0.96	63616.1	10100.00

TOTAL AREA (ACRES) = 63616.1

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 38663.33 Tc (MIN.) = 108.997
EFFECTIVE AREA (ACRES) = 47112.86 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 63616.1
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13412.00 = 124289.12 FEET.

FLOW PROCESS FROM NODE 13412.00 TO NODE 13700.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 176.93 DOWNSTREAM (FEET) = 170.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 260.10 CHANNEL SLOPE = 0.0266
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 6.48
CHANNEL FLOW THRU SUBAREA (CFS) = 38663.33
FLOW VELOCITY (FEET/SEC.) = 25.67 FLOW DEPTH (FEET) = 6.48

TRAVEL TIME (MIN.) = 0.17 Tc (MIN.) = 109.17
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13700.00 = 124549.22 FEET.

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 2 <<<<<
=====

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: 0610508W.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	194.47	21.06	0.30 (0.30)	0.99	131.3	50800.00
TOTAL AREA (ACRES) =			131.3			

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
=====

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19448.76	15.58	2.361	0.30 (0.26)	0.86	3339.0	429.00
2	20550.09	16.98	2.245	0.30 (0.26)	0.86	3775.8	425.00
3	20796.24	17.38	2.212	0.30 (0.26)	0.86	3897.9	400.00
4	21403.34	18.79	2.096	0.30 (0.26)	0.86	4325.5	300.00
5	22493.32	22.21	1.884	0.30 (0.26)	0.86	5343.1	50700.00
6	22989.97	23.84	1.801	0.30 (0.26)	0.86	5808.7	210.00
7	23132.71	24.86	1.749	0.30 (0.26)	0.86	6086.9	50600.00
8	23358.41	25.92	1.703	0.30 (0.26)	0.86	6398.5	410.00
9	23579.61	26.96	1.659	0.30 (0.26)	0.86	6702.8	200.00
10	23697.86	27.52	1.636	0.30 (0.26)	0.86	6865.2	230.00
11	23745.10	27.76	1.626	0.30 (0.26)	0.86	6933.1	50200.00
12	23766.46	27.84	1.622	0.30 (0.26)	0.86	6965.7	50500.00
13	23966.48	28.61	1.590	0.30 (0.26)	0.86	7281.4	220.50
14	24049.81	28.94	1.576	0.30 (0.26)	0.86	7414.5	110.00
15	24704.53	31.33	1.504	0.30 (0.26)	0.86	8421.0	100.00
16	25023.29	32.60	1.479	0.30 (0.26)	0.86	8948.9	100.00
17	25311.16	33.70	1.457	0.30 (0.26)	0.87	9398.9	110.00
18	25770.09	35.66	1.418	0.30 (0.26)	0.87	10181.1	130.00
19	26391.12	38.38	1.363	0.30 (0.26)	0.87	11257.8	10100.00
20	27448.54	43.29	1.281	0.30 (0.26)	0.88	13124.4	150.00
21	28664.66	49.27	1.189	0.30 (0.27)	0.89	15360.5	20100.00
22	29042.34	51.26	1.162	0.30 (0.27)	0.89	16063.5	600.00
23	29539.57	54.95	1.116	0.30 (0.27)	0.90	17683.0	13600.00
24	29750.19	56.48	1.096	0.30 (0.27)	0.90	18347.5	31100.00
25	31423.05	68.00	1.007	0.30 (0.28)	0.92	23353.3	40100.00
26	32839.78	75.62	0.964	0.30 (0.28)	0.92	26701.8	11801.00
27	35098.27	86.11	0.905	0.30 (0.28)	0.93	32023.6	11530.00
28	35936.07	91.75	0.877	0.30 (0.28)	0.94	35515.6	13510.00

29	36353.69	94.66	0.866	0.30 (0.28)	0.94	37265.5	11910.00
30	37608.96	101.25	0.841	0.30 (0.28)	0.94	41753.1	13500.00
31	38222.00	104.49	0.829	0.30 (0.28)	0.95	43938.6	11350.00
32	38663.33	109.17	0.812	0.30 (0.28)	0.95	47112.9	11130.00
33	38319.69	115.24	0.790	0.30 (0.29)	0.95	50039.4	12300.00
34	37634.35	124.00	0.763	0.30 (0.29)	0.96	54300.0	12400.00
35	36665.94	133.52	0.743	0.30 (0.29)	0.96	57701.6	12201.00
36	35744.79	141.01	0.727	0.30 (0.29)	0.96	59594.7	12231.00
37	34787.04	148.49	0.711	0.30 (0.29)	0.96	61147.4	10400.00
38	33278.66	157.95	0.690	0.30 (0.29)	0.96	62593.8	12010.00
39	32264.40	163.35	0.679	0.30 (0.29)	0.96	62856.4	10210.00
40	31614.41	167.41	0.670	0.30 (0.29)	0.96	63003.2	12000.00
41	28062.49	193.79	0.630	0.30 (0.29)	0.96	63616.1	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13700.00 = 124549.22 FEET.

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	194.47	21.06	1.942	0.30 (0.30)	0.99	131.3	50800.00

LONGEST FLOWPATH FROM NODE 50800.00 TO NODE 13700.00 = 5946.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19629.17	15.58	2.361	0.30 (0.26)	0.86	3436.1	429.00
2	20735.72	16.98	2.245	0.30 (0.26)	0.86	3881.6	425.00
3	20983.04	17.38	2.212	0.30 (0.26)	0.86	4006.2	400.00
4	21593.04	18.79	2.096	0.30 (0.26)	0.86	4442.6	300.00
5	22320.95	21.06	1.942	0.30 (0.26)	0.86	5131.9	50800.00
6	22680.88	22.21	1.884	0.30 (0.26)	0.86	5474.3	50700.00
7	23167.73	23.84	1.801	0.30 (0.26)	0.86	5939.9	210.00
8	23304.36	24.86	1.749	0.30 (0.26)	0.86	6218.2	50600.00
9	23524.61	25.92	1.703	0.30 (0.26)	0.86	6529.7	410.00
10	23740.64	26.96	1.659	0.30 (0.26)	0.86	6834.1	200.00
11	23856.10	27.52	1.636	0.30 (0.26)	0.86	6996.5	230.00
12	23902.15	27.76	1.626	0.30 (0.26)	0.86	7064.4	50200.00
13	23923.12	27.84	1.622	0.30 (0.26)	0.86	7097.0	50500.00
14	24119.28	28.61	1.590	0.30 (0.26)	0.86	7412.7	220.50
15	24200.97	28.94	1.576	0.30 (0.26)	0.86	7545.8	110.00
16	24847.27	31.33	1.504	0.30 (0.26)	0.86	8552.3	100.00
17	25163.02	32.60	1.479	0.30 (0.26)	0.87	9080.2	100.00
18	25448.29	33.70	1.457	0.30 (0.26)	0.87	9530.2	110.00
19	25902.57	35.66	1.418	0.30 (0.26)	0.87	10312.4	130.00
20	26517.18	38.38	1.363	0.30 (0.26)	0.88	11389.1	10100.00
21	27564.83	43.29	1.281	0.30 (0.26)	0.88	13255.6	150.00
22	28770.15	49.27	1.189	0.30 (0.27)	0.89	15491.8	20100.00
23	29144.63	51.26	1.162	0.30 (0.27)	0.89	16194.7	600.00
24	29636.37	54.95	1.116	0.30 (0.27)	0.90	17814.3	13600.00
25	29844.70	56.48	1.096	0.30 (0.27)	0.90	18478.7	31100.00
26	31506.99	68.00	1.007	0.30 (0.28)	0.92	23484.5	40100.00
27	32918.65	75.62	0.964	0.30 (0.28)	0.92	26833.1	11801.00
28	35170.16	86.11	0.905	0.30 (0.28)	0.93	32154.8	11530.00
29	36004.61	91.75	0.877	0.30 (0.28)	0.94	35646.9	13510.00
30	36420.96	94.66	0.866	0.30 (0.28)	0.94	37396.8	11910.00
31	37673.35	101.25	0.841	0.30 (0.28)	0.94	41884.4	13500.00
32	38284.97	104.49	0.829	0.30 (0.28)	0.95	44069.9	11350.00
33	38724.26	109.17	0.812	0.30 (0.28)	0.95	47244.1	11130.00
34	38377.96	115.24	0.790	0.30 (0.29)	0.95	50170.7	12300.00

35	37689.52	124.00	0.763	0.30 (0.29)	0.96	54431.3	12400.00
36	36718.70	133.52	0.743	0.30 (0.29)	0.96	57832.9	12201.00
37	35795.64	141.01	0.727	0.30 (0.29)	0.96	59725.9	12231.00
38	34835.99	148.49	0.711	0.30 (0.29)	0.96	61278.6	10400.00
39	33325.21	157.95	0.690	0.30 (0.29)	0.96	62725.1	12010.00
40	32309.57	163.35	0.679	0.30 (0.29)	0.96	62987.6	10210.00
41	31658.55	167.41	0.670	0.30 (0.29)	0.96	63134.5	12000.00
42	28101.89	193.79	0.630	0.30 (0.29)	0.96	63747.4	10100.00

TOTAL AREA (ACRES) = 63747.4

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 38724.26 Tc(MIN.) = 109.165
EFFECTIVE AREA(ACRES) = 47244.13 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 63747.4
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13700.00 = 124549.22 FEET.

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 63747.4 TC(MIN.) = 109.17
EFFECTIVE AREA(ACRES) = 47244.13 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.950
PEAK FLOW RATE(CFS) = 38724.26

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19629.17	15.58	2.361	0.30 (0.26)	0.86	3436.1	429.00
2	20735.72	16.98	2.245	0.30 (0.26)	0.86	3881.6	425.00
3	20983.04	17.38	2.212	0.30 (0.26)	0.86	4006.2	400.00
4	21593.04	18.79	2.096	0.30 (0.26)	0.86	4442.6	300.00
5	22320.95	21.06	1.942	0.30 (0.26)	0.86	5131.9	50800.00
6	22680.88	22.21	1.884	0.30 (0.26)	0.86	5474.3	50700.00
7	23167.73	23.84	1.801	0.30 (0.26)	0.86	5939.9	210.00
8	23304.36	24.86	1.749	0.30 (0.26)	0.86	6218.2	50600.00
9	23524.61	25.92	1.703	0.30 (0.26)	0.86	6529.7	410.00
10	23740.64	26.96	1.659	0.30 (0.26)	0.86	6834.1	200.00
11	23856.10	27.52	1.636	0.30 (0.26)	0.86	6996.5	230.00
12	23902.15	27.76	1.626	0.30 (0.26)	0.86	7064.4	50200.00
13	23923.12	27.84	1.622	0.30 (0.26)	0.86	7097.0	50500.00
14	24119.28	28.61	1.590	0.30 (0.26)	0.86	7412.7	220.50
15	24200.97	28.94	1.576	0.30 (0.26)	0.86	7545.8	110.00
16	24847.27	31.33	1.504	0.30 (0.26)	0.86	8552.3	100.00
17	25163.02	32.60	1.479	0.30 (0.26)	0.87	9080.2	100.00
18	25448.29	33.70	1.457	0.30 (0.26)	0.87	9530.2	110.00
19	25902.57	35.66	1.418	0.30 (0.26)	0.87	10312.4	130.00
20	26517.18	38.38	1.363	0.30 (0.26)	0.88	11389.1	10100.00
21	27564.83	43.29	1.281	0.30 (0.26)	0.88	13255.6	150.00
22	28770.15	49.27	1.189	0.30 (0.27)	0.89	15491.8	20100.00
23	29144.63	51.26	1.162	0.30 (0.27)	0.89	16194.7	600.00
24	29636.37	54.95	1.116	0.30 (0.27)	0.90	17814.3	13600.00
25	29844.70	56.48	1.096	0.30 (0.27)	0.90	18478.7	31100.00
26	31506.99	68.00	1.007	0.30 (0.28)	0.92	23484.5	40100.00
27	32918.65	75.62	0.964	0.30 (0.28)	0.92	26833.1	11801.00
28	35170.16	86.11	0.905	0.30 (0.28)	0.93	32154.8	11530.00
29	36004.61	91.75	0.877	0.30 (0.28)	0.94	35646.9	13510.00
30	36420.96	94.66	0.866	0.30 (0.28)	0.94	37396.8	11910.00
31	37673.35	101.25	0.841	0.30 (0.28)	0.94	41884.4	13500.00
32	38284.97	104.49	0.829	0.30 (0.28)	0.95	44069.9	11350.00

33	38724.26	109.17	0.812	0.30 (0.28)	0.95	47244.1	11130.00
34	38377.96	115.24	0.790	0.30 (0.29)	0.95	50170.7	12300.00
35	37689.52	124.00	0.763	0.30 (0.29)	0.96	54431.3	12400.00
36	36718.70	133.52	0.743	0.30 (0.29)	0.96	57832.9	12201.00
37	35795.64	141.01	0.727	0.30 (0.29)	0.96	59725.9	12231.00
38	34835.99	148.49	0.711	0.30 (0.29)	0.96	61278.6	10400.00
39	33325.21	157.95	0.690	0.30 (0.29)	0.96	62725.1	12010.00
40	32309.57	163.35	0.679	0.30 (0.29)	0.96	62987.6	10210.00
41	31658.55	167.41	0.670	0.30 (0.29)	0.96	63134.5	12000.00
42	28101.89	193.79	0.630	0.30 (0.29)	0.96	63747.4	10100.00

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END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 136 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 25-YR EV MAY 2023 ROKAMOTO *

FILE NAME: RI25EV36.DAT
TIME/DATE OF STUDY: 09:55 05/11/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 25.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 4.766
- 2) 10.00; 3.119
- 3) 15.00; 2.394
- 4) 20.00; 1.986
- 5) 25.00; 1.734
- 6) 30.00; 1.526
- 7) 40.00; 1.325
- 8) 50.00; 1.173
- 9) 60.00; 1.046
- 10) 90.00; 0.877
- 11) 120.00; 0.765
- 12) 180.00; 0.636
- 13) 360.00; 0.466
- 14) 1200.00; 0.204

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE/ WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0313	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13600.00 TO NODE 13600.50 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 488.61
ELEVATION DATA: UPSTREAM(FEET) = 872.12 DOWNSTREAM(FEET) = 744.80

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 10.995
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.975
SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
NATURAL FAIR COVER "OPEN BRUSH"	-	3.39	0.30	1.000	65	11.00

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF(CFS) = 8.16
TOTAL AREA(ACRES) = 3.39 PEAK FLOW RATE(CFS) = 8.16

FLOW PROCESS FROM NODE 13600.50 TO NODE 13601.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 744.80 DOWNSTREAM(FEET) = 707.32
CHANNEL LENGTH THRU SUBAREA(FEET) = 418.30 CHANNEL SLOPE = 0.0896
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.41
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.706
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	7.45	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 16.25
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 3.77
AVERAGE FLOW DEPTH(FEET) = 0.40 TRAVEL TIME(MIN.) = 1.85
Tc(MIN.) = 12.85
SUBAREA AREA(ACRES) = 7.45 SUBAREA RUNOFF(CFS) = 16.13
EFFECTIVE AREA(ACRES) = 10.84 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 10.8 PEAK FLOW RATE(CFS) = 23.48
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.49

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.49 FLOW VELOCITY(FEET/SEC.) = 4.33
LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13601.00 = 906.91 FEET.

FLOW PROCESS FROM NODE 13601.00 TO NODE 13602.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 707.32 DOWNSTREAM(FEET) = 657.12
CHANNEL LENGTH THRU SUBAREA(FEET) = 777.60 CHANNEL SLOPE = 0.0646
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.91
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.364

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.32	0.30	1.000	-
USER-DEFINED	-	4.70	0.30	1.000	-
USER-DEFINED	-	25.05	0.30	1.000	-
USER-DEFINED	-	0.45	0.30	1.000	-
USER-DEFINED	-	0.44	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 52.31

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.14

AVERAGE FLOW DEPTH(FEET) = 0.87 TRAVEL TIME(MIN.) = 2.52

Tc(MIN.) = 15.37

SUBAREA AREA(ACRES) = 30.96 SUBAREA RUNOFF(CFS) = 57.52
EFFECTIVE AREA(ACRES) = 41.80 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 41.8 PEAK FLOW RATE(CFS) = 77.65
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.09

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.09 FLOW VELOCITY(FEET/SEC.) = 5.82

LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13602.00 = 1684.51 FEET.

FLOW PROCESS FROM NODE 13602.00 TO NODE 13603.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 657.12 DOWNSTREAM(FEET) = 584.58
CHANNEL LENGTH THRU SUBAREA(FEET) = 1186.54 CHANNEL SLOPE = 0.0611
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.28
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.102

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	7.03	0.30	1.000	-
USER-DEFINED	-	2.51	0.30	1.000	-

USER-DEFINED - 1.52 0.30 1.000 -
USER-DEFINED - 12.30 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 96.62

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.15

AVERAGE FLOW DEPTH(FEET) = 1.26 TRAVEL TIME(MIN.) = 3.22

Tc(MIN.) = 18.58

SUBAREA AREA(ACRES) = 23.36 SUBAREA RUNOFF(CFS) = 37.88

EFFECTIVE AREA(ACRES) = 65.16 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 65.2 PEAK FLOW RATE(CFS) = 105.66

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.32

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.32 FLOW VELOCITY(FEET/SEC.) = 6.32

LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13603.00 = 2871.05 FEET.

FLOW PROCESS FROM NODE 13603.00 TO NODE 13620.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 584.58 DOWNSTREAM(FEET) = 544.91
CHANNEL LENGTH THRU SUBAREA(FEET) = 860.98 CHANNEL SLOPE = 0.0461
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.56
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.937

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	10.22	0.30	1.000	-
USER-DEFINED	-	4.19	0.30	1.000	-
USER-DEFINED	-	0.07	0.30	1.000	-
USER-DEFINED	-	1.11	0.30	1.000	-
USER-DEFINED	-	5.56	0.30	1.000	-
USER-DEFINED	-	0.09	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 121.31

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.99

AVERAGE FLOW DEPTH(FEET) = 1.55 TRAVEL TIME(MIN.) = 2.39

Tc(MIN.) = 20.98

SUBAREA AREA(ACRES) = 21.24 SUBAREA RUNOFF(CFS) = 31.29

EFFECTIVE AREA(ACRES) = 86.40 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 86.4 PEAK FLOW RATE(CFS) = 127.28

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.59

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.59 FLOW VELOCITY(FEET/SEC.) = 6.07

LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13620.00 = 3732.03 FEET.

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*****
FLOW PROCESS FROM NODE 13603.00 TO NODE 13620.00 IS CODE = 10
-----
>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
=====
*****
FLOW PROCESS FROM NODE 13522.00 TO NODE 13522.00 IS CODE = 15.1
-----
>>>>DEFINE MEMORY BANK # 2 <<<<<
=====
PEAK FLOWRATE TABLE FILE NAME: S35X25.DNA
MEMORY BANK # 2 DEFINED AS FOLLOWS:
STREAM      Q      Tc      Fp(Fm)    Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.)  (INCH/HR) (ACRES)  NODE
  1      1006.57  54.62  0.30( 0.28) 0.95  1513.9  13510.00
  2       918.88  63.50  0.30( 0.28) 0.94  1579.8  13500.00
TOTAL AREA (ACRES) = 1579.8

*****
FLOW PROCESS FROM NODE 13522.00 TO NODE 13522.00 IS CODE = 14.0
-----
>>>>MEMORY BANK # 2 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====
MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
STREAM      Q      Tc      Fp(Fm)    Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.)  (INCH/HR) (ACRES)  NODE
  1      1006.57  54.62  0.30( 0.28) 0.95  1513.9  13510.00
  2       918.88  63.50  0.30( 0.28) 0.94  1579.8  13500.00
TOTAL AREA (ACRES) = 1579.8

*****
FLOW PROCESS FROM NODE 13522.00 TO NODE 13620.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 632.19 DOWNSTREAM(FEET) = 544.91
CHANNEL LENGTH THRU SUBAREA(FEET) = 2062.96 CHANNEL SLOPE = 0.0423
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.32
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.077
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp      Ap      SCS
LAND USE              GROUP  (ACRES)  (INCH/HR) (DECIMAL) CN
USER-DEFINED          -      17.68    0.30    1.000  -
USER-DEFINED          -      2.36    0.30    1.000  -
USER-DEFINED          -      0.60    0.30    1.000  -
USER-DEFINED          -      0.22    0.30    1.000  -
USER-DEFINED          -      2.22    0.30    1.000  -
USER-DEFINED          -      3.42    0.30    1.000  -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1015.85
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.82

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AVERAGE FLOW DEPTH(FEET) = 2.32 TRAVEL TIME(MIN.) = 2.91
Tc(MIN.) = 57.52
SUBAREA AREA(ACRES) = 26.50 SUBAREA RUNOFF(CFS) = 18.55
EFFECTIVE AREA(ACRES) = 1540.42 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 1606.3 PEAK FLOW RATE(CFS) = 1099.65
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.43

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 2.43 FLOW VELOCITY(FEET/SEC.) = 12.13
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13620.00 = 20677.72 FEET.

*****
FLOW PROCESS FROM NODE 13620.00 TO NODE 13620.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====
MAINLINE Tc(MIN.) = 57.52
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.077
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp      Ap      SCS
LAND USE              GROUP  (ACRES)  (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"WOODLAND,GRASS"      B      1.44    0.30    1.000  65
NATURAL FAIR COVER
"WOODLAND,GRASS"      B      0.01    0.30    1.000  65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 1.45 SUBAREA RUNOFF(CFS) = 1.01
EFFECTIVE AREA(ACRES) = 1541.87 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 1607.8 PEAK FLOW RATE(CFS) = 1100.66

*****
FLOW PROCESS FROM NODE 13603.00 TO NODE 13620.00 IS CODE = 11
-----
>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
=====
** MAIN STREAM CONFLUENCE DATA **
STREAM      Q      Tc  Intensity  Fp(Fm)    Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.) (INCH/HR) (INCH/HR) (ACRES)  NODE
  1      1100.66  57.52  1.077  0.30( 0.28) 0.95  1541.9  13510.00
  2      1050.24  66.50  1.009  0.30( 0.28) 0.95  1607.8  13500.00
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13620.00 = 20677.72 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **
STREAM      Q      Tc  Intensity  Fp(Fm)    Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.) (INCH/HR) (INCH/HR) (ACRES)  NODE
  1      127.28  20.98  1.937  0.30( 0.30) 1.00    86.4  13600.00
LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13620.00 = 3732.03 FEET.

** PEAK FLOW RATE TABLE **
STREAM      Q      Tc  Intensity  Fp(Fm)    Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.) (INCH/HR) (INCH/HR) (ACRES)  NODE
  1      963.50  20.98  1.937  0.30( 0.29) 0.95    648.7  13600.00

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2 1161.12 57.52 1.077 0.30(0.29) 0.95 1628.3 13510.00
3 1105.40 66.50 1.009 0.30(0.28) 0.95 1694.2 13500.00
TOTAL AREA(ACRES) = 1694.2

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 1161.12 Tc(MIN.) = 57.525
EFFECTIVE AREA(ACRES) = 1628.27 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 1694.2
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13620.00 = 20677.72 FEET.

FLOW PROCESS FROM NODE 13620.00 TO NODE 13640.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 544.91 DOWNSTREAM(FEET) = 489.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1384.37 CHANNEL SLOPE = 0.0404
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.57
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.053

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	5.39	0.30	1.000	-
USER-DEFINED	-	16.30	0.30	1.000	-
USER-DEFINED	-	4.08	0.30	1.000	-
USER-DEFINED	-	12.36	0.30	1.000	-
USER-DEFINED	-	11.23	0.30	1.000	-
USER-DEFINED	-	5.16	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1179.61
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 12.19
AVERAGE FLOW DEPTH(FEET) = 2.57 TRAVEL TIME(MIN.) = 1.89
Tc(MIN.) = 59.42

SUBAREA AREA(ACRES) = 54.52 SUBAREA RUNOFF(CFS) = 36.97
EFFECTIVE AREA(ACRES) = 1682.79 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 1748.7 PEAK FLOW RATE(CFS) = 1162.87
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.54

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 2.54 FLOW VELOCITY(FEET/SEC.) = 12.15
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13640.00 = 22062.09 FEET.

FLOW PROCESS FROM NODE 13640.00 TO NODE 13640.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 59.42
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.053
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	53.93	0.30	1.000	-
USER-DEFINED	-	0.45	0.30	1.000	-
USER-DEFINED	-	3.98	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 58.36 SUBAREA RUNOFF(CFS) = 39.58
EFFECTIVE AREA(ACRES) = 1741.15 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 1807.1 PEAK FLOW RATE(CFS) = 1202.45

FLOW PROCESS FROM NODE 13640.00 TO NODE 13640.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: P201XX25.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	210.74	17.33	0.30(0.26)	0.85	133.8	20100.00

TOTAL AREA(ACRES) = 133.8

FLOW PROCESS FROM NODE 13640.00 TO NODE 13640.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1060.91	22.97	1.836	0.30(0.29)	0.96	761.5	13600.00
2	1202.45	59.42	1.053	0.30(0.29)	0.95	1741.1	13510.00
3	1159.89	68.42	0.999	0.30(0.29)	0.95	1807.1	13500.00

LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13640.00 = 22062.09 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	210.74	17.33	2.204	0.30(0.26)	0.85	133.8	20100.00

LONGEST FLOWPATH FROM NODE 20100.00 TO NODE 13640.00 = 5247.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1201.19	17.33	2.204	0.30(0.28)	0.94	708.3	20100.00
2	1231.87	22.97	1.836	0.30(0.28)	0.95	895.3	13600.00
3	1288.70	59.42	1.053	0.30(0.28)	0.95	1874.9	13510.00
4	1240.21	68.42	0.999	0.30(0.28)	0.94	1940.9	13500.00

TOTAL AREA(ACRES) = 1940.9

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 1288.70 Tc(MIN.) = 59.417
EFFECTIVE AREA(ACRES) = 1874.95 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 1940.9

LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13640.00 = 22062.09 FEET.

FLOW PROCESS FROM NODE 13640.00 TO NODE 13641.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 489.00 DOWNSTREAM(FEET) = 436.89
CHANNEL LENGTH THRU SUBAREA(FEET) = 2994.52 CHANNEL SLOPE = 0.0174
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 3.44

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.020

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.96	0.30	1.000	-
USER-DEFINED	-	0.01	0.30	1.000	-
USER-DEFINED	-	1.56	0.30	1.000	-
USER-DEFINED	-	10.45	0.30	1.000	-
USER-DEFINED	-	44.94	0.30	1.000	-
USER-DEFINED	-	9.66	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1310.59

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.46

AVERAGE FLOW DEPTH(FEET) = 3.44 TRAVEL TIME(MIN.) = 5.28

Tc(MIN.) = 64.70

SUBAREA AREA(ACRES) = 67.58 SUBAREA RUNOFF(CFS) = 43.77

EFFECTIVE AREA(ACRES) = 1942.53 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95

TOTAL AREA(ACRES) = 2008.4 PEAK FLOW RATE(CFS) = 1288.70

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 3.41

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 3.41 FLOW VELOCITY(FEET/SEC.) = 9.40

LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13641.00 = 25056.61 FEET.

FLOW PROCESS FROM NODE 13641.00 TO NODE 13641.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 64.70

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.020

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	16.49	0.30	1.000	-
USER-DEFINED	-	20.39	0.30	1.000	-
USER-DEFINED	-	7.02	0.30	1.000	-
USER-DEFINED	-	12.58	0.30	1.000	-
USER-DEFINED	-	42.49	0.30	1.000	-
USER-DEFINED	-	5.73	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA(ACRES) = 104.70 SUBAREA RUNOFF(CFS) = 67.81

EFFECTIVE AREA(ACRES) = 2047.23 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95

TOTAL AREA(ACRES) = 2113.1 PEAK FLOW RATE(CFS) = 1352.90

FLOW PROCESS FROM NODE 13641.00 TO NODE 13641.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 64.70

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.020

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	1.78	0.30	1.000	-
USER-DEFINED	-	6.25	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA(ACRES) = 8.03 SUBAREA RUNOFF(CFS) = 5.20

EFFECTIVE AREA(ACRES) = 2055.26 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95

TOTAL AREA(ACRES) = 2121.2 PEAK FLOW RATE(CFS) = 1358.10

FLOW PROCESS FROM NODE 13641.00 TO NODE 13642.00 IS CODE = 56

ELEVATION DATA: UPSTREAM(FEET) = 436.89 DOWNSTREAM(FEET) = 394.80

CHANNEL LENGTH THRU SUBAREA(FEET) = 2814.16 CHANNEL SLOPE = 0.0150

GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 3.76

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.991

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.67	0.30	1.000	-
USER-DEFINED	-	24.24	0.30	1.000	-
USER-DEFINED	-	1.34	0.30	1.000	-
USER-DEFINED	-	74.98	0.30	1.000	-
USER-DEFINED	-	101.12	0.30	1.000	-
USER-DEFINED	-	16.90	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1426.27

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.20

AVERAGE FLOW DEPTH(FEET) = 3.76 TRAVEL TIME(MIN.) = 5.10

Tc(MIN.) = 69.79

SUBAREA AREA(ACRES) = 219.25 SUBAREA RUNOFF(CFS) = 136.33

EFFECTIVE AREA(ACRES) = 2274.51 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96

TOTAL AREA(ACRES) = 2340.4 PEAK FLOW RATE(CFS) = 1441.31

GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 3.78

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 3.78 FLOW VELOCITY(FEET/SEC.) = 9.23
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13642.00 = 27870.77 FEET.

FLOW PROCESS FROM NODE 13642.00 TO NODE 13642.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 69.79
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.991
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 9.95 0.30 1.000 -
USER-DEFINED - 10.02 0.30 1.000 -
USER-DEFINED - 4.45 0.30 1.000 -
USER-DEFINED - 179.37 0.30 1.000 -
USER-DEFINED - 11.47 0.30 1.000 -
USER-DEFINED - 0.17 0.30 0.850 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 215.43 SUBAREA RUNOFF(CFS) = 133.96
EFFECTIVE AREA(ACRES) = 2489.94 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
TOTAL AREA(ACRES) = 2555.9 PEAK FLOW RATE(CFS) = 1575.27

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1578.91	27.83	1.616	0.30(0.29)	0.97	1323.3	20100.00
2	1585.73	33.44	1.457	0.30(0.29)	0.97	1510.3	13600.00
3	1575.27	69.79	0.991	0.30(0.29)	0.96	2489.9	13510.00
4	1499.78	78.93	0.939	0.30(0.29)	0.96	2555.9	13500.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 1585.73 Tc(MIN.) = 33.44
AREA-AVERAGED Fm(INCH/HR) = 0.29 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.97 EFFECTIVE AREA(ACRES) = 1510.33

FLOW PROCESS FROM NODE 13642.00 TO NODE 13642.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 33.44
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.457
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.03 0.30 0.850 -
USER-DEFINED - 5.14 0.30 1.000 -
USER-DEFINED - 11.22 0.30 1.000 -
USER-DEFINED - 0.33 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA(ACRES) = 16.72 SUBAREA RUNOFF(CFS) = 17.41
EFFECTIVE AREA(ACRES) = 1527.05 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97
TOTAL AREA(ACRES) = 2572.6 PEAK FLOW RATE(CFS) = 1603.14

FLOW PROCESS FROM NODE 13642.00 TO NODE 13643.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 394.80 DOWNSTREAM(FEET) = 342.39
CHANNEL LENGTH THRU SUBAREA(FEET) = 2913.57 CHANNEL SLOPE = 0.0180
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 3.90
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.362
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.22 0.30 1.000 -
USER-DEFINED - 2.17 0.30 1.000 -
USER-DEFINED - 9.19 0.30 1.000 -
USER-DEFINED - 67.57 0.30 1.000 -
USER-DEFINED - 35.19 0.30 1.000 -
USER-DEFINED - 30.67 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1672.45
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.30
AVERAGE FLOW DEPTH(FEET) = 3.90 TRAVEL TIME(MIN.) = 4.72
Tc(MIN.) = 38.16
SUBAREA AREA(ACRES) = 145.01 SUBAREA RUNOFF(CFS) = 138.61
EFFECTIVE AREA(ACRES) = 1672.06 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97
TOTAL AREA(ACRES) = 2717.6 PEAK FLOW RATE(CFS) = 1611.49
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 3.82

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 3.82 FLOW VELOCITY(FEET/SEC.) = 10.18
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13643.00 = 30784.34 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1598.72	32.55	1.475	0.30(0.29)	0.97	1485.0	20100.00
2	1611.49	38.16	1.362	0.30(0.29)	0.97	1672.1	13600.00
3	1611.93	74.55	0.964	0.30(0.29)	0.96	2651.7	13510.00
4	1526.38	83.75	0.912	0.30(0.29)	0.96	2717.6	13500.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 1611.93 Tc(MIN.) = 74.55
AREA-AVERAGED Fm(INCH/HR) = 0.29 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.96 EFFECTIVE AREA(ACRES) = 2651.67

FLOW PROCESS FROM NODE 13643.00 TO NODE 13643.00 IS CODE = 81

=====
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====

MAINLINE Tc(MIN.) = 74.55
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.964
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.89 0.30 1.000 -
USER-DEFINED - 20.65 0.30 1.000 -
USER-DEFINED - 2.69 0.30 1.000 -
USER-DEFINED - 8.45 0.30 1.000 -
USER-DEFINED - 96.93 0.30 1.000 -
USER-DEFINED - 13.19 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 142.80 SUBAREA RUNOFF(CFS) = 85.35
EFFECTIVE AREA(ACRES) = 2794.47 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
TOTAL AREA(ACRES) = 2860.4 PEAK FLOW RATE(CFS) = 1697.29

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1732.49	32.55	1.475	0.30(0.29)	0.97	1627.8	20100.00
2	1747.99	38.16	1.362	0.30(0.29)	0.97	1814.9	13600.00
3	1697.29	74.55	0.964	0.30(0.29)	0.96	2794.5	13510.00
4	1605.07	83.75	0.912	0.30(0.29)	0.96	2860.4	13500.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 1747.99 Tc(MIN.) = 38.16
AREA-AVERAGED Fm(INCH/HR) = 0.29 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.97 EFFECTIVE AREA(ACRES) = 1814.86

FLOW PROCESS FROM NODE 13643.00 TO NODE 13643.00 IS CODE = 81

=====
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====

MAINLINE Tc(MIN.) = 38.16
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.362
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 42.54 0.30 1.000 -
USER-DEFINED - 16.96 0.30 1.000 -
USER-DEFINED - 80.60 0.30 1.000 -
USER-DEFINED - 1.56 0.30 1.000 -
USER-DEFINED - 2.00 0.30 1.000 -
USER-DEFINED - 3.11 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 146.77 SUBAREA RUNOFF(CFS) = 140.30
EFFECTIVE AREA(ACRES) = 1961.63 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 3007.2 PEAK FLOW RATE(CFS) = 1888.28

FLOW PROCESS FROM NODE 13643.00 TO NODE 13660.00 IS CODE = 56

=====
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
=====

>>>>TRAVELTIME THRU SUBAREA<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 342.39 DOWNSTREAM(FEET) = 300.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1591.23 CHANNEL SLOPE = 0.0266
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 3.77
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.320
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.89 0.30 1.000 -
USER-DEFINED - 23.73 0.30 1.000 -
USER-DEFINED - 0.27 0.30 1.000 -
USER-DEFINED - 19.87 0.30 1.000 -
USER-DEFINED - 6.40 0.30 1.000 -
USER-DEFINED - 3.14 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1913.22
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 12.30
AVERAGE FLOW DEPTH(FEET) = 3.77 TRAVEL TIME(MIN.) = 2.16
Tc(MIN.) = 40.31
SUBAREA AREA(ACRES) = 54.30 SUBAREA RUNOFF(CFS) = 49.86
EFFECTIVE AREA(ACRES) = 2015.93 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 3061.5 PEAK FLOW RATE(CFS) = 1888.28
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 3.74

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 3.74 FLOW VELOCITY(FEET/SEC.) = 12.24
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13660.00 = 32375.57 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1887.68	34.70	1.432	0.30(0.29)	0.98	1828.9	20100.00
2	1888.28	40.31	1.320	0.30(0.29)	0.98	2015.9	13600.00
3	1785.01	76.74	0.952	0.30(0.29)	0.97	2995.5	13510.00
4	1685.95	85.99	0.900	0.30(0.29)	0.96	3061.5	13500.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 1888.28 Tc(MIN.) = 40.31
AREA-AVERAGED Fm(INCH/HR) = 0.29 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.98 EFFECTIVE AREA(ACRES) = 2015.93

FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 81

=====
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====

MAINLINE Tc(MIN.) = 40.31
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.320
SUBAREA LOSS RATE DATA(AMC II):

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DEVELOPMENT TYPE/   SCS SOIL  AREA      Fp      Ap      SCS
LAND USE            GROUP  (ACRES)  (INCH/HR)  (DECIMAL)  CN
USER-DEFINED        -         0.67     0.30     1.000     -
USER-DEFINED        -         9.52     0.30     1.000     -
USER-DEFINED        -         0.71     0.30     1.000     -
USER-DEFINED        -         0.22     0.30     1.000     -
USER-DEFINED        -        39.42     0.30     1.000     -
USER-DEFINED        -         0.62     0.30     1.000     -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 51.16      SUBAREA RUNOFF (CFS) = 46.98
EFFECTIVE AREA (ACRES) = 2067.09  AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30  AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 3112.6      PEAK FLOW RATE (CFS) = 1911.34

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** PEAK FLOW RATE TABLE **
STREAM      Q      Tc      Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)  (DECIMAL)  (ACRES)  NODE
1           1925.95  34.70   1.432     0.30( 0.29) 0.98   1880.1   20100.00
2           1911.34  40.31   1.320     0.30( 0.29) 0.98   2067.1   13600.00
3           1814.12  76.74   0.952     0.30( 0.29) 0.97   3046.7   13510.00
4           1708.80  85.99   0.900     0.30( 0.29) 0.97   3112.6   13500.00
NEW PEAK FLOW DATA ARE:
PEAK FLOW RATE (CFS) = 1925.95  Tc (MIN.) = 34.70
AREA-AVERAGED Fm (INCH/HR) = 0.29  AREA-AVERAGED Fp (INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.98  EFFECTIVE AREA (ACRES) = 1880.06

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*****
FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 81

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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc (MIN.) = 34.70
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.432
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/   SCS SOIL  AREA      Fp      Ap      SCS
LAND USE            GROUP  (ACRES)  (INCH/HR)  (DECIMAL)  CN
USER-DEFINED        -         0.11     0.30     1.000     -
USER-DEFINED        -         0.77     0.30     1.000     -
USER-DEFINED        -         0.22     0.30     1.000     -
USER-DEFINED        -         2.69     0.30     1.000     -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 3.79      SUBAREA RUNOFF (CFS) = 3.86
EFFECTIVE AREA (ACRES) = 1883.85  AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30  AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 3116.4      PEAK FLOW RATE (CFS) = 1929.81

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*****
FLOW PROCESS FROM NODE 13643.00 TO NODE 13660.00 IS CODE = 12

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>>>>CLEAR MEMORY BANK # 1 <<<<
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*****
FLOW PROCESS FROM NODE 13659.00 TO NODE 13659.00 IS CODE = 15.1

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>>>>DEFINE MEMORY BANK # 1 <<<<

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PEAK FLOWRATE TABLE FILE NAME: 2P25EVAA.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
STREAM      Q      Tc      Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)  (MIN.)  (INCH/HR)  (DECIMAL)  (ACRES)  NODE
1           479.23   14.36   0.30( 0.11) 0.36   173.1   110.00
2           481.39   16.87   0.30( 0.11) 0.37   203.9   100.00
3           473.65   18.15   0.30( 0.11) 0.38   213.8   100.00
4           419.54   21.27   0.30( 0.12) 0.40   221.1   130.00
TOTAL AREA (ACRES) = 221.1

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*****
FLOW PROCESS FROM NODE 13659.00 TO NODE 13660.00 IS CODE = 31

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>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<

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=====
ELEVATION DATA: UPSTREAM (FEET) = 338.00  DOWNSTREAM (FEET) = 300.00
FLOW LENGTH (FEET) = 881.07  MANNING'S N = 0.013
DEPTH OF FLOW IN 102.0 INCH PIPE IS 76.6 INCHES
PIPE-FLOW VELOCITY (FEET/SEC.) = 42.20
ESTIMATED PIPE DIAMETER (INCH) = 102.00  NUMBER OF PIPES = 1
PIPE-FLOW (CFS) = 1929.81
PIPE TRAVEL TIME (MIN.) = 0.35  Tc (MIN.) = 35.05
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13660.00 = 33256.64 FEET.

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FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 11

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>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<
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** MAIN STREAM CONFLUENCE DATA **
STREAM      Q      Tc      Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)  (DECIMAL)  (ACRES)  NODE
1           1929.81  35.05   1.425     0.30( 0.29) 0.98   1883.8   20100.00
2           1914.82  40.66   1.315     0.30( 0.29) 0.98   2070.9   13600.00
3           1816.34  77.09   0.950     0.30( 0.29) 0.97   3050.5   13510.00
4           1710.85  86.35   0.898     0.30( 0.29) 0.97   3116.4   13500.00
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13660.00 = 33256.64 FEET.

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** MEMORY BANK # 1 CONFLUENCE DATA **
STREAM      Q      Tc      Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)  (DECIMAL)  (ACRES)  NODE
1           479.23   14.36   2.487     0.30( 0.11) 0.36   173.1   110.00
2           481.39   16.87   2.242     0.30( 0.11) 0.37   203.9   100.00
3           473.65   18.15   2.137     0.30( 0.11) 0.38   213.8   100.00
4           419.54   21.27   1.922     0.30( 0.12) 0.40   221.1   130.00
LONGEST FLOWPATH FROM NODE 130.00 TO NODE 13660.00 = 6327.50 FEET.

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** PEAK FLOW RATE TABLE **
STREAM      Q      Tc      Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)  (MIN.)  (INCH/HR)  (INCH/HR)  (DECIMAL)  (ACRES)  NODE
1           2012.39  14.36   2.487     0.30( 0.26) 0.87   945.0   110.00
2           2080.98  16.87   2.242     0.30( 0.26) 0.87   1110.5   100.00
3           2102.39  18.15   2.137     0.30( 0.26) 0.87   1189.4   100.00
4           2105.76  21.27   1.922     0.30( 0.27) 0.88   1364.4   130.00
5           2233.52  35.05   1.425     0.30( 0.28) 0.92   2104.9   20100.00

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6	2193.00	40.66	1.315	0.30	(0.28)	0.92	2292.0	13600.00
7	2009.48	77.09	0.950	0.30	(0.28)	0.93	3271.6	13510.00
8	1891.84	86.35	0.898	0.30	(0.28)	0.93	3337.5	13500.00
TOTAL AREA (ACRES) =		3337.5						

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 2233.52 Tc (MIN.) = 35.049
EFFECTIVE AREA (ACRES) = 2104.95 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.87
TOTAL AREA (ACRES) = 3337.5
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13660.00 = 33256.64 FEET.

FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 35.05
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.425
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "FALLOW"	B	1.11	0.30	1.000	86
AGRICULTURAL POOR COVER "FALLOW"	B	0.44	0.30	1.000	86
NATURAL FAIR COVER "GRASS"	B	1.49	0.30	1.000	69
NATURAL FAIR COVER "GRASS"	B	1.70	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	1.09	0.30	1.000	66
NATURAL FAIR COVER "OPEN BRUSH"	B	18.57	0.30	1.000	66

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 24.40 SUBAREA RUNOFF (CFS) = 24.69
EFFECTIVE AREA (ACRES) = 2129.35 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA (ACRES) = 3361.9 PEAK FLOW RATE (CFS) = 2233.52
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 35.05
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.425
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL FAIR COVER "ORCHARDS"	B	12.39	0.30	1.000	65
AGRICULTURAL FAIR COVER "ORCHARDS"	B	2.30	0.30	1.000	65
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	5.19	0.30	1.000	79

AGRICULTURAL POOR COVER
"ROW CROPS, STRAIGHT ROW" B 28.71 0.30 1.000 81
NATURAL FAIR COVER
"WOODLAND, GRASS" B 0.17 0.30 1.000 65
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 48.76 SUBAREA RUNOFF (CFS) = 49.35
EFFECTIVE AREA (ACRES) = 2178.11 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA (ACRES) = 3410.7 PEAK FLOW RATE (CFS) = 2251.51

FLOW PROCESS FROM NODE 13660.00 TO NODE 13680.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 300.00 DOWNSTREAM (FEET) = 288.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 933.89 CHANNEL SLOPE = 0.0128
GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
* ESTIMATED CHANNEL HEIGHT (FEET) = 5.02
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.393
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.22	0.30	1.000	-
USER-DEFINED	-	9.23	0.30	1.000	-
USER-DEFINED	-	0.54	0.30	1.000	-
USER-DEFINED	-	5.66	0.30	1.000	-
USER-DEFINED	-	3.66	0.30	1.000	-
USER-DEFINED	-	0.67	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 2261.34
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 10.00
AVERAGE FLOW DEPTH (FEET) = 5.02 TRAVEL TIME (MIN.) = 1.56
Tc (MIN.) = 36.60
SUBAREA AREA (ACRES) = 19.98 SUBAREA RUNOFF (CFS) = 19.66
EFFECTIVE AREA (ACRES) = 2198.09 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA (ACRES) = 3430.6 PEAK FLOW RATE (CFS) = 2251.51
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
* ESTIMATED CHANNEL HEIGHT (FEET) = 5.01

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 5.01 FLOW VELOCITY (FEET/SEC.) = 9.99
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13680.00 = 34190.53 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2038.12	15.96	2.316	0.30 (0.26)	0.88	1038.1	110.00
2	2108.29	18.45	2.112	0.30 (0.26)	0.88	1203.7	100.00
3	2128.99	19.73	2.008	0.30 (0.26)	0.88	1282.5	100.00
4	2141.14	22.85	1.842	0.30 (0.27)	0.89	1457.6	130.00

5	2251.51	36.60	1.393	0.30	(0.28)	0.92	2198.1	20100.00
6	2209.48	42.23	1.291	0.30	(0.28)	0.92	2385.1	13600.00
7	2018.73	78.70	0.941	0.30	(0.28)	0.93	3364.7	13510.00
8	1899.14	87.98	0.888	0.30	(0.28)	0.93	3430.6	13500.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 2251.51 Tc(MIN.) = 36.60
 AREA-AVERAGED Fm(INCH/HR) = 0.28 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.92 EFFECTIVE AREA(ACRES) = 2198.09

FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 36.60
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.393

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	1.56	0.30	1.000	-
USER-DEFINED	-	9.40	0.30	1.000	-
USER-DEFINED	-	2.76	0.30	1.000	-
USER-DEFINED	-	17.38	0.30	1.000	-
USER-DEFINED	-	2.46	0.30	1.000	-
USER-DEFINED	-	5.56	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 39.12 SUBAREA RUNOFF(CFS) = 38.49
 EFFECTIVE AREA(ACRES) = 2237.21 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3469.8 PEAK FLOW RATE(CFS) = 2251.51
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 36.60
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.393

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.65	0.30	1.000	-
USER-DEFINED	-	1.70	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 2.35 SUBAREA RUNOFF(CFS) = 2.31
 EFFECTIVE AREA(ACRES) = 2239.56 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3472.1 PEAK FLOW RATE(CFS) = 2251.51
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13660.00 TO NODE 13680.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 36.60
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.393

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	5.29	0.30	1.000	-
USER-DEFINED	-	31.25	0.30	1.000	-
USER-DEFINED	-	0.22	0.30	1.000	-
USER-DEFINED	-	6.26	0.30	1.000	-
USER-DEFINED	-	0.07	0.30	1.000	-
USER-DEFINED	-	0.22	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 43.31 SUBAREA RUNOFF(CFS) = 42.62
 EFFECTIVE AREA(ACRES) = 2282.87 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3515.4 PEAK FLOW RATE(CFS) = 2293.29

FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 36.60
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.393

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	2.47	0.30	0.850	-
USER-DEFINED	-	3.06	0.30	0.850	-
USER-DEFINED	-	17.76	0.30	0.500	-
USER-DEFINED	-	7.31	0.30	0.500	-
USER-DEFINED	-	0.34	0.30	1.000	-
USER-DEFINED	-	8.22	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.659
 SUBAREA AREA(ACRES) = 39.16 SUBAREA RUNOFF(CFS) = 42.14
 EFFECTIVE AREA(ACRES) = 2322.03 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3554.6 PEAK FLOW RATE(CFS) = 2335.43

FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 36.60
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.393

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.53	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 0.53 SUBAREA RUNOFF(CFS) = 0.52
 EFFECTIVE AREA(ACRES) = 2322.56 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3555.1 PEAK FLOW RATE(CFS) = 2335.96

 FLOW PROCESS FROM NODE 13680.00 TO NODE 13682.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 288.00 DOWNSTREAM(FEET) = 242.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 2860.77 CHANNEL SLOPE = 0.0161
 GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 4.82
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.310

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.22	0.30	1.000	-
USER-DEFINED	-	5.28	0.30	1.000	-
USER-DEFINED	-	0.52	0.30	1.000	-
USER-DEFINED	-	3.61	0.30	1.000	-
USER-DEFINED	-	0.67	0.30	1.000	-
USER-DEFINED	-	1.37	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2341.26
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.93
 AVERAGE FLOW DEPTH(FEET) = 4.82 TRAVEL TIME(MIN.) = 4.36
 Tc(MIN.) = 40.96
 SUBAREA AREA(ACRES) = 11.67 SUBAREA RUNOFF(CFS) = 10.61
 EFFECTIVE AREA(ACRES) = 2334.23 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3566.8 PEAK FLOW RATE(CFS) = 2335.96

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 4.81
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 4.81 FLOW VELOCITY(FEET/SEC.) = 10.93
 LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13682.00 = 37051.30 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2146.96	20.42	1.965	0.30(0.26)	0.88	1174.3	110.00
2	2209.71	22.88	1.841	0.30(0.26)	0.88	1339.8	100.00
3	2208.12	24.16	1.776	0.30(0.26)	0.88	1418.7	100.00
4	2242.47	27.26	1.640	0.30(0.27)	0.89	1593.7	130.00
5	2335.96	40.96	1.310	0.30(0.28)	0.92	2334.2	20100.00
6	2291.37	46.61	1.225	0.30(0.28)	0.92	2521.3	13600.00
7	2078.40	83.21	0.915	0.30(0.28)	0.93	3500.9	13510.00
8	1950.98	92.58	0.867	0.30(0.28)	0.93	3566.8	13500.00

NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE(CFS) = 2335.96 Tc(MIN.) = 40.96
 AREA-AVERAGED Fm(INCH/HR) = 0.28 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.92 EFFECTIVE AREA(ACRES) = 2334.23

 FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 40.96
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.310
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	6.90	0.30	1.000	-
USER-DEFINED	-	23.04	0.30	1.000	-
USER-DEFINED	-	1.18	0.30	1.000	-
USER-DEFINED	-	1.56	0.30	1.000	-
USER-DEFINED	-	53.20	0.30	1.000	-
USER-DEFINED	-	2.08	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 87.96 SUBAREA RUNOFF(CFS) = 79.99
 EFFECTIVE AREA(ACRES) = 2422.19 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3654.7 PEAK FLOW RATE(CFS) = 2335.96
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 40.96
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.310
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.01	0.30	1.000	-
USER-DEFINED	-	0.18	0.30	1.000	-
USER-DEFINED	-	0.38	0.30	1.000	-
USER-DEFINED	-	0.22	0.30	1.000	-
USER-DEFINED	-	7.73	0.30	1.000	-
USER-DEFINED	-	4.37	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 12.89 SUBAREA RUNOFF(CFS) = 11.72
 EFFECTIVE AREA(ACRES) = 2435.08 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3667.6 PEAK FLOW RATE(CFS) = 2335.96
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 40.96
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.310
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "FALLOW"	B	2.57	0.30	1.000	86
AGRICULTURAL POOR COVER "FALLOW"	B	1.97	0.30	1.000	86
NATURAL FAIR COVER "GRASS"	B	1.00	0.30	1.000	69
NATURAL FAIR COVER "GRASS"	B	2.98	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	2.39	0.30	1.000	66
NATURAL FAIR COVER "OPEN BRUSH"	B	1.67	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 12.58 SUBAREA RUNOFF(CFS) = 11.44
 EFFECTIVE AREA(ACRES) = 2447.66 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3680.2 PEAK FLOW RATE(CFS) = 2335.96
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 40.96
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.310
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	0.44	0.30	1.000	66
PUBLIC PARK	B	2.65	0.30	0.850	56
PUBLIC PARK	B	1.16	0.30	0.850	56
RESIDENTIAL "5-7 DWELLINGS/ACRE"	B	0.47	0.30	0.500	56
RESIDENTIAL "5-7 DWELLINGS/ACRE"	B	0.25	0.30	0.500	56
AGRICULTURAL POOR COVER "ROW CROPS,STRAIGHT ROW"	B	20.24	0.30	1.000	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.963
 SUBAREA AREA(ACRES) = 25.21 SUBAREA RUNOFF(CFS) = 23.17
 EFFECTIVE AREA(ACRES) = 2472.87 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3705.4 PEAK FLOW RATE(CFS) = 2335.96
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 40.96
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.310
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	7.08	0.30	1.000	-
USER-DEFINED	-	6.75	0.30	1.000	-
USER-DEFINED	-	0.02	0.30	1.000	-
USER-DEFINED	-	0.93	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 14.78 SUBAREA RUNOFF(CFS) = 13.44
 EFFECTIVE AREA(ACRES) = 2487.65 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3720.2 PEAK FLOW RATE(CFS) = 2335.96
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13682.00 TO NODE 13683.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 242.00 DOWNSTREAM(FEET) = 208.53
 CHANNEL LENGTH THRU SUBAREA(FEET) = 2526.22 CHANNEL SLOPE = 0.0132
 GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 5.09
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.248
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	8.49	0.30	1.000	-
USER-DEFINED	-	13.31	0.30	1.000	-
USER-DEFINED	-	0.87	0.30	1.000	-
USER-DEFINED	-	20.26	0.30	1.000	-
USER-DEFINED	-	1.21	0.30	1.000	-
USER-DEFINED	-	0.05	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2354.81
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.24
 AVERAGE FLOW DEPTH(FEET) = 5.08 TRAVEL TIME(MIN.) = 4.11
 Tc(MIN.) = 45.08
 SUBAREA AREA(ACRES) = 44.19 SUBAREA RUNOFF(CFS) = 37.70
 EFFECTIVE AREA(ACRES) = 2531.84 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA(ACRES) = 3764.4 PEAK FLOW RATE(CFS) = 2335.96
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 5.06

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 5.06 FLOW VELOCITY(FEET/SEC.) = 10.21
 LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13683.00 = 39577.52 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2146.96	24.64	1.752	0.30(0.27)	0.90	1371.9	110.00
2	2209.71	27.06	1.648	0.30(0.27)	0.89	1537.4	100.00
3	2208.12	28.34	1.595	0.30(0.27)	0.90	1616.3	100.00
4	2242.47	31.42	1.497	0.30(0.27)	0.90	1791.3	130.00
5	2335.96	45.08	1.248	0.30(0.28)	0.93	2531.8	20100.00
6	2291.37	50.75	1.164	0.30(0.28)	0.93	2718.9	13600.00
7	2090.26	87.46	0.891	0.30(0.28)	0.93	3698.5	13510.00
8	1968.40	96.91	0.851	0.30(0.28)	0.93	3764.4	13500.00

NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE(CFS) = 2335.96 Tc(MIN.) = 45.08
 AREA-AVERAGED Fm(INCH/HR) = 0.28 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.93 EFFECTIVE AREA(ACRES) = 2531.84

 FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
 =====

MAINLINE Tc(MIN.) = 45.08
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.248
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ LAND USE SCS SOIL GROUP AREA (ACRES) Fp (INCH/HR) Ap (DECIMAL) SCS CN
 USER-DEFINED - 12.56 0.30 1.000 -
 USER-DEFINED - 0.81 0.30 1.000 -
 USER-DEFINED - 0.01 0.30 1.000 -
 USER-DEFINED - 1.11 0.30 1.000 -
 USER-DEFINED - 0.59 0.30 1.000 -
 USER-DEFINED - 3.04 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 18.12 SUBAREA RUNOFF(CFS) = 15.46
 EFFECTIVE AREA(ACRES) = 2549.96 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA(ACRES) = 3782.5 PEAK FLOW RATE(CFS) = 2335.96
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
 =====

MAINLINE Tc(MIN.) = 45.08
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.248
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ LAND USE SCS SOIL GROUP AREA (ACRES) Fp (INCH/HR) Ap (DECIMAL) SCS CN
 RESIDENTIAL
 "8-10 DWELLINGS/ACRE" B 0.10 0.30 0.400 56
 PUBLIC PARK B 1.30 0.30 0.850 56
 RESIDENTIAL
 "8-10 DWELLINGS/ACRE" B 0.10 0.30 0.400 56
 PUBLIC PARK B 1.70 0.30 0.850 56
 PUBLIC PARK B 0.10 0.30 0.850 56
 PUBLIC PARK B 2.90 0.30 0.850 56
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.835
 SUBAREA AREA(ACRES) = 6.20 SUBAREA RUNOFF(CFS) = 5.56
 EFFECTIVE AREA(ACRES) = 2556.16 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA(ACRES) = 3788.7 PEAK FLOW RATE(CFS) = 2335.96
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
 =====

MAINLINE Tc(MIN.) = 45.08
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.248
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ LAND USE SCS SOIL GROUP AREA (ACRES) Fp (INCH/HR) Ap (DECIMAL) SCS CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE" B 0.10 0.30 0.500 56
 CONDOMINIUMS B 0.10 0.30 0.350 56
 PUBLIC PARK B 6.90 0.30 0.850 56
 PUBLIC PARK B 0.40 0.30 0.850 56
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.839
 SUBAREA AREA(ACRES) = 7.50 SUBAREA RUNOFF(CFS) = 6.72
 EFFECTIVE AREA(ACRES) = 2563.66 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA(ACRES) = 3796.2 PEAK FLOW RATE(CFS) = 2335.96
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13682.00 TO NODE 13683.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<
 =====

MEMORY BANK # 3 IS EMPTY - PROCESS IGNORED.
 =====

 FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
 =====

MAINLINE Tc(MIN.) = 45.08
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.248
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ LAND USE SCS SOIL GROUP AREA (ACRES) Fp (INCH/HR) Ap (DECIMAL) SCS CN
 AGRICULTURAL POOR COVER
 "FALLOW" B 2.55 0.30 1.000 86
 AGRICULTURAL POOR COVER
 "FALLOW" B 0.01 0.30 1.000 86
 AGRICULTURAL POOR COVER
 "FALLOW" B 1.35 0.30 1.000 86
 NATURAL FAIR COVER
 "GRASS" B 0.44 0.30 1.000 69
 NATURAL FAIR COVER
 "GRASS" B 0.67 0.30 1.000 69
 NATURAL FAIR COVER

"OPEN BRUSH" B 1.06 0.30 1.000 66
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 6.08 SUBAREA RUNOFF (CFS) = 5.19
 EFFECTIVE AREA (ACRES) = 2569.74 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA (ACRES) = 3802.3 PEAK FLOW RATE (CFS) = 2335.96
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 45.08
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.248
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 NATURAL FAIR COVER
 "OPEN BRUSH" B 2.16 0.30 1.000 66
 NATURAL FAIR COVER
 "OPEN BRUSH" B 2.45 0.30 1.000 66
 NATURAL FAIR COVER
 "OPEN BRUSH" B 6.15 0.30 1.000 66
 AGRICULTURAL POOR COVER
 "ROW CROPS, STRAIGHT ROW" B 1.34 0.30 1.000 81
 AGRICULTURAL POOR COVER
 "ROW CROPS, STRAIGHT ROW" B 18.46 0.30 1.000 81
 AGRICULTURAL POOR COVER
 "ROW CROPS, STRAIGHT ROW" B 4.13 0.30 1.000 81
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 34.69 SUBAREA RUNOFF (CFS) = 29.59
 EFFECTIVE AREA (ACRES) = 2604.43 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA (ACRES) = 3837.0 PEAK FLOW RATE (CFS) = 2335.96
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 45.08
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.248
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 AGRICULTURAL POOR COVER
 "ROW CROPS, STRAIGHT ROW" B 8.69 0.30 1.000 81
 NATURAL FAIR COVER
 "WOODLAND, GRASS" B 0.73 0.30 1.000 65
 NATURAL FAIR COVER
 "WOODLAND, GRASS" B 0.41 0.30 1.000 65
 NATURAL FAIR COVER
 "WOODLAND, GRASS" B 1.37 0.30 1.000 65
 NATURAL FAIR COVER

"WOODLAND, GRASS" B 3.11 0.30 1.000 65
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 14.31 SUBAREA RUNOFF (CFS) = 12.21
 EFFECTIVE AREA (ACRES) = 2618.74 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA (ACRES) = 3851.3 PEAK FLOW RATE (CFS) = 2335.96
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13683.00 TO NODE 13685.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 208.53 DOWNSTREAM (FEET) = 194.24
 CHANNEL LENGTH THRU SUBAREA (FEET) = 289.01 CHANNEL SLOPE = 0.0494
 GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 3.54
 CHANNEL FLOW THRU SUBAREA (CFS) = 2335.96
 FLOW VELOCITY (FEET/SEC.) = 16.22 FLOW DEPTH (FEET) = 3.54
 TRAVEL TIME (MIN.) = 0.30 Tc (MIN.) = 45.38
 LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13685.00 = 39866.53 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2146.96	24.94	1.737	0.30 (0.27)	0.90	1458.8	110.00
2	2209.71	27.36	1.636	0.30 (0.27)	0.90	1624.3	100.00
3	2208.12	28.64	1.583	0.30 (0.27)	0.90	1703.2	100.00
4	2242.47	31.72	1.491	0.30 (0.27)	0.91	1878.2	130.00
5	2335.96	45.38	1.243	0.30 (0.28)	0.93	2618.7	20100.00
6	2291.37	51.04	1.160	0.30 (0.28)	0.93	2805.8	13600.00
7	2090.26	87.77	0.890	0.30 (0.28)	0.93	3785.4	13510.00
8	1979.94	97.22	0.850	0.30 (0.28)	0.93	3851.3	13500.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE (CFS) = 2335.96 Tc (MIN.) = 45.38
 AREA-AVERAGED Fm (INCH/HR) = 0.28 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.93 EFFECTIVE AREA (ACRES) = 2618.74

FLOW PROCESS FROM NODE 13685.00 TO NODE 13410.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 194.24 DOWNSTREAM (FEET) = 178.72
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1843.57 CHANNEL SLOPE = 0.0084
 GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 5.71
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.190
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 0.23 0.30 1.000 -
 USER-DEFINED - 1.52 0.30 1.000 -

USER-DEFINED - 0.06 0.30 1.000 -
 USER-DEFINED - 0.13 0.30 1.000 -
 USER-DEFINED - 6.45 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2339.32
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 8.69
 AVERAGE FLOW DEPTH(FEET) = 5.71 TRAVEL TIME(MIN.) = 3.54
 Tc(MIN.) = 48.91
 SUBAREA AREA(ACRES) = 8.39 SUBAREA RUNOFF(CFS) = 6.72
 EFFECTIVE AREA(ACRES) = 2627.13 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA(ACRES) = 3859.7 PEAK FLOW RATE(CFS) = 2335.96
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 5.70

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 5.70 FLOW VELOCITY(FEET/SEC.) = 8.69
 LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13410.00 = 41710.10 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2146.96	28.56	1.586	0.30(0.27)	0.90	1467.2	110.00
2	2209.71	30.95	1.507	0.30(0.27)	0.90	1632.7	100.00
3	2208.12	32.23	1.481	0.30(0.27)	0.90	1711.6	100.00
4	2242.47	35.30	1.420	0.30(0.27)	0.91	1886.6	130.00
5	2335.96	48.91	1.190	0.30(0.28)	0.93	2627.1	20100.00
6	2291.37	54.60	1.115	0.30(0.28)	0.93	2814.2	13600.00
7	2090.26	91.42	0.872	0.30(0.28)	0.93	3793.8	13510.00
8	1979.94	100.93	0.836	0.30(0.28)	0.93	3859.7	13500.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 2335.96 Tc(MIN.) = 48.91
 AREA-AVERAGED Fm(INCH/HR) = 0.28 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.93 EFFECTIVE AREA(ACRES) = 2627.13

=====
 END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 3859.7 TC(MIN.) = 48.91
 EFFECTIVE AREA(ACRES) = 2627.13 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.927
 PEAK FLOW RATE(CFS) = 2335.96

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2146.96	28.56	1.586	0.30(0.27)	0.90	1467.2	110.00
2	2209.71	30.95	1.507	0.30(0.27)	0.90	1632.7	100.00
3	2208.12	32.23	1.481	0.30(0.27)	0.90	1711.6	100.00
4	2242.47	35.30	1.420	0.30(0.27)	0.91	1886.6	130.00
5	2335.96	48.91	1.190	0.30(0.28)	0.93	2627.1	20100.00
6	2291.37	54.60	1.115	0.30(0.28)	0.93	2814.2	13600.00
7	2090.26	91.42	0.872	0.30(0.28)	0.93	3793.8	13510.00
8	1979.94	100.93	0.836	0.30(0.28)	0.93	3859.7	13500.00

=====
 END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 137 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 25-YR EV AUG 2023 ROKAMOTO *

FILE NAME: RI25EV37.DAT
TIME/DATE OF STUDY: 10:20 08/09/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 25.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 4.753
- 2) 10.00; 3.112
- 3) 15.00; 2.390
- 4) 20.00; 1.984
- 5) 25.00; 1.732
- 6) 30.00; 1.524
- 7) 40.00; 1.323
- 8) 50.00; 1.171
- 9) 60.00; 1.045
- 10) 90.00; 0.875
- 11) 120.00; 0.763
- 12) 180.00; 0.634
- 13) 360.00; 0.464
- 14) 1200.00; 0.203

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / SIDE / WAY	CURB HEIGHT (FT)	GUTTER WIDTH (FT)	GEOMETRIES: LIP (FT)	MANNING HIKE FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RI25EV34.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22680.88	22.21	0.30 (0.26)	0.86	5474.3	50700.00
2	24200.97	28.94	0.30 (0.26)	0.86	7545.8	110.00
3	26517.18	38.38	0.30 (0.26)	0.88	11389.1	10100.00
4	27564.83	43.29	0.30 (0.26)	0.88	13255.6	150.00
5	29144.63	51.26	0.30 (0.27)	0.89	16194.7	600.00
6	29844.70	56.48	0.30 (0.27)	0.90	18478.7	31100.00
7	31506.99	68.00	0.30 (0.28)	0.92	23484.5	40100.00
8	32918.65	75.62	0.30 (0.28)	0.92	26833.1	11801.00
9	35170.16	86.11	0.30 (0.28)	0.93	32154.8	11530.00
10	36420.96	94.66	0.30 (0.28)	0.94	37396.8	11910.00
11	38284.97	104.49	0.30 (0.28)	0.95	44069.9	11350.00
12	38724.26	109.17	0.30 (0.28)	0.95	47244.1	11130.00
13	38377.96	115.24	0.30 (0.29)	0.95	50170.7	12300.00
14	37689.52	124.00	0.30 (0.29)	0.96	54431.3	12400.00
15	36718.70	133.52	0.30 (0.29)	0.96	57832.9	12201.00
16	35795.64	141.01	0.30 (0.29)	0.96	59725.9	12231.00
17	34835.99	148.49	0.30 (0.29)	0.96	61278.6	10400.00
18	33325.21	157.95	0.30 (0.29)	0.96	62725.1	12010.00
19	32309.57	163.35	0.30 (0.29)	0.96	62987.6	10210.00
20	28101.89	193.79	0.30 (0.29)	0.96	63747.4	10100.00
TOTAL AREA (ACRES) =						63747.4

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 14.0

>>>>MEMORY BANK # 3 COPIED ONTO MAIN-STREAM MEMORY<<<<<

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MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22680.88	22.21	0.30 (0.26)	0.86	5474.3	50700.00
2	24200.97	28.94	0.30 (0.26)	0.86	7545.8	110.00
3	26517.18	38.38	0.30 (0.26)	0.88	11389.1	10100.00
4	27564.83	43.29	0.30 (0.26)	0.88	13255.6	150.00
5	29144.63	51.26	0.30 (0.27)	0.89	16194.7	600.00
6	29844.70	56.48	0.30 (0.27)	0.90	18478.7	31100.00
7	31506.99	68.00	0.30 (0.28)	0.92	23484.5	40100.00
8	32918.65	75.62	0.30 (0.28)	0.92	26833.1	11801.00
9	35170.16	86.11	0.30 (0.28)	0.93	32154.8	11530.00
10	36420.96	94.66	0.30 (0.28)	0.94	37396.8	11910.00
11	38284.97	104.49	0.30 (0.28)	0.95	44069.9	11350.00
12	38724.26	109.17	0.30 (0.28)	0.95	47244.1	11130.00
13	38377.96	115.24	0.30 (0.29)	0.95	50170.7	12300.00

14 37689.52 124.00 0.30(0.29) 0.96 54431.3 12400.00
 15 36718.70 133.52 0.30(0.29) 0.96 57832.9 12201.00
 16 35795.64 141.01 0.30(0.29) 0.96 59725.9 12231.00
 17 34835.99 148.49 0.30(0.29) 0.96 61278.6 10400.00
 18 33325.21 157.95 0.30(0.29) 0.96 62725.1 12010.00
 19 32309.57 163.35 0.30(0.29) 0.96 62987.6 10210.00
 20 28101.89 193.79 0.30(0.29) 0.96 63747.4 10100.00
 TOTAL AREA (ACRES) = 63747.4

FLOW PROCESS FROM NODE 13700.00 TO NODE 13720.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 170.00 DOWNSTREAM (FEET) = 165.51
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1891.83 CHANNEL SLOPE = 0.0024
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 12.86
 CHANNEL FLOW THRU SUBAREA (CFS) = 38724.26
 FLOW VELOCITY (FEET/SEC.) = 11.39 FLOW DEPTH (FEET) = 12.86
 TRAVEL TIME (MIN.) = 2.77 Tc (MIN.) = 111.93
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13720.00 = 126441.05 FEET.

FLOW PROCESS FROM NODE 13700.00 TO NODE 13720.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

FLOW PROCESS FROM NODE 13720.00 TO NODE 13720.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 0506102D.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	321.17	15.37	2.360	0.30(0.29)	0.96	192.9	10230.00
2	293.25	24.48	1.758	0.30(0.29)	0.95	241.2	10200.00
3	292.00	24.71	1.747	0.30(0.29)	0.95	241.7	10250.00
4	266.33	28.63	1.581	0.30(0.29)	0.95	246.3	10220.00
TOTAL AREA (ACRES) =							246.3

FLOW PROCESS FROM NODE 13720.00 TO NODE 13720.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22680.88	25.49	1.712	0.30(0.26)	0.86	5474.3	50700.00
2	24200.97	32.15	1.481	0.30(0.26)	0.86	7545.8	110.00
3	26517.18	41.50	1.300	0.30(0.26)	0.88	11389.1	10100.00

4	27564.83	46.37	1.226	0.30(0.26)	0.88	13255.6	150.00
5	29144.63	54.29	1.117	0.30(0.27)	0.89	16194.7	600.00
6	29844.70	59.49	1.051	0.30(0.27)	0.90	18478.7	31100.00
7	31506.99	70.96	0.983	0.30(0.28)	0.92	23484.5	40100.00
8	32918.65	78.53	0.940	0.30(0.28)	0.92	26833.1	11801.00
9	35170.16	88.96	0.881	0.30(0.28)	0.93	32154.8	11530.00
10	36420.96	97.48	0.847	0.30(0.28)	0.94	37396.8	11910.00
11	38284.97	107.26	0.811	0.30(0.28)	0.95	44069.9	11350.00
12	38724.26	111.93	0.793	0.30(0.28)	0.95	47244.1	11130.00
13	38377.96	118.01	0.770	0.30(0.29)	0.95	50170.7	12300.00
14	37689.52	126.79	0.748	0.30(0.29)	0.96	54431.3	12400.00
15	36718.70	136.33	0.728	0.30(0.29)	0.96	57832.9	12201.00
16	35795.64	143.84	0.712	0.30(0.29)	0.96	59725.9	12231.00
17	34835.99	151.35	0.696	0.30(0.29)	0.96	61278.6	10400.00
18	33325.21	160.85	0.675	0.30(0.29)	0.96	62725.1	12010.00
19	32309.57	166.28	0.664	0.30(0.29)	0.96	62987.6	10210.00
20	28101.89	196.85	0.618	0.30(0.29)	0.96	63747.4	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13720.00 = 126441.05 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	321.17	15.37	2.360	0.30(0.29)	0.96	192.9	10230.00
2	293.25	24.48	1.758	0.30(0.29)	0.95	241.2	10200.00
3	292.00	24.71	1.747	0.30(0.29)	0.95	241.7	10250.00
4	266.33	28.63	1.581	0.30(0.29)	0.95	246.3	10220.00

LONGEST FLOWPATH FROM NODE 10200.00 TO NODE 13720.00 = 9099.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20095.49	15.37	2.360	0.30(0.26)	0.86	3493.7	10230.00
2	22773.26	24.48	1.758	0.30(0.26)	0.86	5498.4	10200.00
3	22808.36	24.71	1.747	0.30(0.26)	0.86	5548.9	10250.00
4	22967.78	25.49	1.712	0.30(0.26)	0.86	5716.9	50700.00
5	23663.00	28.63	1.581	0.30(0.26)	0.86	6696.0	10220.00
6	24446.66	32.15	1.481	0.30(0.26)	0.86	7792.1	110.00
7	26725.74	41.50	1.300	0.30(0.26)	0.88	11635.4	10100.00
8	27758.17	46.37	1.226	0.30(0.27)	0.88	13501.9	150.00
9	29315.52	54.29	1.117	0.30(0.27)	0.89	16441.0	600.00
10	30002.11	59.49	1.051	0.30(0.27)	0.90	18725.0	31100.00
11	31650.31	70.96	0.983	0.30(0.28)	0.92	23730.8	40100.00
12	33053.14	78.53	0.940	0.30(0.28)	0.93	27079.3	11801.00
13	35292.49	88.96	0.881	0.30(0.28)	0.93	32401.1	11530.00
14	36536.33	97.48	0.847	0.30(0.28)	0.94	37643.0	11910.00
15	38392.83	107.26	0.811	0.30(0.28)	0.95	44316.2	11350.00
16	38828.54	111.93	0.793	0.30(0.28)	0.95	47490.4	11130.00
17	38477.57	118.01	0.770	0.30(0.29)	0.95	50417.0	12300.00
18	37784.61	126.79	0.748	0.30(0.29)	0.96	54677.6	12400.00
19	36809.56	136.33	0.728	0.30(0.29)	0.96	58079.2	12201.00
20	35883.18	143.84	0.712	0.30(0.29)	0.96	59972.2	12231.00
21	34920.21	151.35	0.696	0.30(0.29)	0.96	61524.9	10400.00
22	33405.23	160.85	0.675	0.30(0.29)	0.96	62971.3	12010.00
23	32387.20	166.28	0.664	0.30(0.29)	0.96	63233.9	10210.00
24	28170.17	196.85	0.618	0.30(0.29)	0.96	63993.7	10100.00
TOTAL AREA (ACRES) =							63993.7

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 38828.54 Tc(MIN.) = 111.933
 EFFECTIVE AREA(ACRES) = 47490.39 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA(ACRES) = 63993.7
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13720.00 = 126441.05 FEET.

 FLOW PROCESS FROM NODE 13720.00 TO NODE 13740.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 165.51 DOWNSTREAM(FEET) = 161.03
 CHANNEL LENGTH THRU SUBAREA(FEET) = 2067.54 CHANNEL SLOPE = 0.0022
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 13.20
 CHANNEL FLOW THRU SUBAREA(CFS) = 38828.54
 FLOW VELOCITY(FEET/SEC.) = 11.05 FLOW DEPTH(FEET) = 13.20
 TRAVEL TIME(MIN.) = 3.12 Tc(MIN.) = 115.05
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13740.00 = 128508.59 FEET.

 FLOW PROCESS FROM NODE 13720.00 TO NODE 13740.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

 FLOW PROCESS FROM NODE 13740.00 TO NODE 13740.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: 0506103D.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	651.40	18.38	0.30(0.23)	0.76	399.7	10300.00
2	652.99	19.22	0.30(0.23)	0.76	413.6	10380.00
3	641.00	21.63	0.30(0.23)	0.76	440.0	10320.00
4	618.06	23.73	0.30(0.23)	0.76	451.6	10360.00
5	581.15	26.62	0.30(0.23)	0.76	460.8	10340.00
TOTAL AREA(ACRES) =						460.8

 FLOW PROCESS FROM NODE 13740.00 TO NODE 13740.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

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** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20095.49	19.22	2.047	0.30(0.26)	0.86	3493.7	10230.00
2	22773.26	28.17	1.600	0.30(0.26)	0.86	5498.4	10200.00
3	22808.36	28.40	1.590	0.30(0.26)	0.86	5548.9	10250.00
4	22967.78	29.17	1.558	0.30(0.26)	0.86	5716.9	50700.00
5	23663.00	32.28	1.478	0.30(0.26)	0.86	6696.0	10220.00

6	24446.66	35.76	1.408	0.30(0.26)	0.86	7792.1	110.00
7	26725.74	45.01	1.247	0.30(0.26)	0.88	11635.4	10100.00
8	27758.17	49.84	1.173	0.30(0.27)	0.88	13501.9	150.00
9	29315.52	57.69	1.074	0.30(0.27)	0.89	16441.0	600.00
10	30002.11	62.87	1.029	0.30(0.27)	0.90	18725.0	31100.00
11	31650.31	74.28	0.964	0.30(0.28)	0.92	23730.8	40100.00
12	33053.14	81.81	0.921	0.30(0.28)	0.93	27079.3	11801.00
13	35292.49	92.17	0.867	0.30(0.28)	0.93	32401.1	11530.00
14	36536.33	100.66	0.835	0.30(0.28)	0.94	37643.0	11910.00
15	38392.83	110.39	0.799	0.30(0.28)	0.95	44316.2	11350.00
16	38828.54	115.05	0.781	0.30(0.28)	0.95	47490.4	11130.00
17	38477.57	121.14	0.761	0.30(0.29)	0.95	50417.0	12300.00
18	37784.61	129.94	0.742	0.30(0.29)	0.96	54677.6	12400.00
19	36809.56	139.50	0.721	0.30(0.29)	0.96	58079.2	12201.00
20	35883.18	147.04	0.705	0.30(0.29)	0.96	59972.2	12231.00
21	34920.21	154.58	0.689	0.30(0.29)	0.96	61524.9	10400.00
22	33405.23	164.12	0.668	0.30(0.29)	0.96	62971.3	12010.00
23	32387.20	169.58	0.656	0.30(0.29)	0.96	63233.9	10210.00
24	28170.17	200.30	0.615	0.30(0.29)	0.96	63993.7	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13740.00 = 128508.59 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	651.40	18.38	2.116	0.30(0.23)	0.76	399.7	10300.00
2	652.99	19.22	2.047	0.30(0.23)	0.76	413.6	10380.00
3	641.00	21.63	1.902	0.30(0.23)	0.76	440.0	10320.00
4	618.06	23.73	1.796	0.30(0.23)	0.76	451.6	10360.00
5	581.15	26.62	1.665	0.30(0.23)	0.76	460.8	10340.00

LONGEST FLOWPATH FROM NODE 10320.00 TO NODE 13740.00 = 8457.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20601.96	18.38	2.116	0.30(0.26)	0.85	3741.0	10300.00
2	20748.47	19.22	2.047	0.30(0.26)	0.85	3907.3	10230.00
3	20748.61	19.22	2.047	0.30(0.26)	0.85	3907.4	10380.00
4	21459.08	21.63	1.902	0.30(0.26)	0.85	4474.6	10320.00
5	22063.29	23.73	1.796	0.30(0.26)	0.85	4955.8	10360.00
6	22889.67	26.62	1.665	0.30(0.26)	0.86	5611.2	10340.00
7	23328.23	28.17	1.600	0.30(0.26)	0.86	5959.2	10200.00
8	23359.45	28.40	1.590	0.30(0.26)	0.86	6009.7	10250.00
9	23505.91	29.17	1.558	0.30(0.26)	0.86	6177.7	50700.00
10	24168.70	32.28	1.478	0.30(0.26)	0.86	7156.8	10220.00
11	24923.99	35.76	1.408	0.30(0.26)	0.86	8252.9	110.00
12	27137.76	45.01	1.247	0.30(0.26)	0.87	12096.2	10100.00
13	28140.51	49.84	1.173	0.30(0.26)	0.88	13962.7	150.00
14	29657.61	57.69	1.074	0.30(0.27)	0.89	16901.8	600.00
15	30325.85	62.87	1.029	0.30(0.27)	0.90	19185.8	31100.00
16	31947.87	74.28	0.964	0.30(0.27)	0.92	24191.6	40100.00
17	33333.42	81.81	0.921	0.30(0.28)	0.92	27540.1	11801.00
18	35550.71	92.17	0.867	0.30(0.28)	0.93	32861.9	11530.00
19	36781.71	100.66	0.835	0.30(0.28)	0.94	38103.8	11910.00
20	38623.51	110.39	0.799	0.30(0.28)	0.95	44777.0	11350.00
21	39052.18	115.05	0.781	0.30(0.28)	0.95	47951.2	11130.00
22	38692.74	121.14	0.761	0.30(0.29)	0.95	50877.8	12300.00
23	37992.12	129.94	0.742	0.30(0.29)	0.95	55138.4	12400.00
24	37008.74	139.50	0.721	0.30(0.29)	0.96	58540.0	12201.00

25 36075.81 147.04 0.705 0.30(0.29) 0.96 60433.0 12231.00
 26 35106.27 154.58 0.689 0.30(0.29) 0.96 61985.7 10400.00
 27 33582.99 164.12 0.668 0.30(0.29) 0.96 63432.1 12010.00
 28 32560.20 169.58 0.656 0.30(0.29) 0.96 63694.7 10210.00
 29 28326.35 200.30 0.615 0.30(0.29) 0.96 64454.5 10100.00
 TOTAL AREA (ACRES) = 64454.5

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 39052.18 Tc(MIN.) = 115.050
 EFFECTIVE AREA(ACRES) = 47951.19 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 64454.5
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13740.00 = 128508.59 FEET.

FLOW PROCESS FROM NODE 13740.00 TO NODE 13741.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 161.03 DOWNSTREAM(FEET) = 141.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 364.08 CHANNEL SLOPE = 0.0550
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 7.67
 CHANNEL FLOW THRU SUBAREA(CFS) = 39052.18
 FLOW VELOCITY(FEET/SEC.) = 38.96 FLOW DEPTH(FEET) = 7.67
 TRAVEL TIME(MIN.) = 0.16 Tc(MIN.) = 115.21
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13741.00 = 128872.66 FEET.

FLOW PROCESS FROM NODE 13740.00 TO NODE 13741.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

FLOW PROCESS FROM NODE 13741.00 TO NODE 13741.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 0506104D.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	65.97	19.78	0.30(0.24)	0.80	44.3	10400.00
TOTAL AREA(ACRES) =						44.3

FLOW PROCESS FROM NODE 13741.00 TO NODE 13741.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20601.96	18.57	2.100	0.30(0.26)	0.85	3741.0	10300.00

2	20748.47	19.41	2.032	0.30(0.26)	0.85	3907.3	10230.00
3	20748.61	19.41	2.032	0.30(0.26)	0.85	3907.4	10380.00
4	21459.08	21.82	1.892	0.30(0.26)	0.85	4474.6	10320.00
5	22063.29	23.92	1.786	0.30(0.26)	0.85	4955.8	10360.00
6	22889.67	26.80	1.657	0.30(0.26)	0.86	5611.2	10340.00
7	23328.23	28.36	1.592	0.30(0.26)	0.86	5959.2	10200.00
8	23359.45	28.59	1.583	0.30(0.26)	0.86	6009.7	10250.00
9	23505.91	29.36	1.551	0.30(0.26)	0.86	6177.7	50700.00
10	24168.70	32.46	1.475	0.30(0.26)	0.86	7156.8	10220.00
11	24923.99	35.94	1.405	0.30(0.26)	0.86	8252.9	110.00
12	27137.76	45.19	1.244	0.30(0.26)	0.87	12096.2	10100.00
13	28140.51	50.01	1.171	0.30(0.26)	0.88	13962.7	150.00
14	29657.61	57.86	1.072	0.30(0.27)	0.89	16901.8	600.00
15	30325.85	63.04	1.028	0.30(0.27)	0.90	19185.8	31100.00
16	31947.87	74.45	0.963	0.30(0.27)	0.92	24191.6	40100.00
17	33333.42	81.97	0.920	0.30(0.28)	0.92	27540.1	11801.00
18	35550.71	92.33	0.866	0.30(0.28)	0.93	32861.9	11530.00
19	36781.71	100.82	0.835	0.30(0.28)	0.94	38103.8	11910.00
20	38623.51	110.55	0.798	0.30(0.28)	0.95	44777.0	11350.00
21	39052.18	115.21	0.781	0.30(0.28)	0.95	47951.2	11130.00
22	38692.74	121.30	0.760	0.30(0.29)	0.95	50877.8	12300.00
23	37992.12	130.09	0.741	0.30(0.29)	0.95	55138.4	12400.00
24	37008.74	139.66	0.721	0.30(0.29)	0.96	58540.0	12201.00
25	36075.81	147.20	0.705	0.30(0.29)	0.96	60433.0	12231.00
26	35106.27	154.74	0.688	0.30(0.29)	0.96	61985.7	10400.00
27	33582.99	164.28	0.668	0.30(0.29)	0.96	63432.1	12010.00
28	32560.20	169.74	0.656	0.30(0.29)	0.96	63694.7	10210.00
29	28326.35	200.47	0.615	0.30(0.29)	0.96	64454.5	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13741.00 = 128872.66 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	65.97	19.78	2.002	0.30(0.24)	0.80	44.3	10400.00
LONGEST FLOWPATH FROM NODE 10400.00 TO NODE 13741.00 =							6237.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20667.35	18.57	2.100	0.30(0.26)	0.85	3782.6	10300.00
2	20814.31	19.41	2.032	0.30(0.26)	0.85	3950.7	10230.00
3	20814.45	19.41	2.032	0.30(0.26)	0.85	3950.8	10380.00
4	20923.41	19.78	2.002	0.30(0.26)	0.85	4038.6	10400.00
5	21520.94	21.82	1.892	0.30(0.26)	0.85	4518.9	10320.00
6	22121.20	23.92	1.786	0.30(0.26)	0.85	5000.1	10360.00
7	22942.73	26.80	1.657	0.30(0.26)	0.85	5655.5	10340.00
8	23378.87	28.36	1.592	0.30(0.26)	0.86	6003.5	10200.00
9	23409.73	28.59	1.583	0.30(0.26)	0.86	6054.0	10250.00
10	23554.99	29.36	1.551	0.30(0.26)	0.86	6222.0	50700.00
11	24214.93	32.46	1.475	0.30(0.26)	0.86	7201.1	10220.00
12	24967.60	35.94	1.405	0.30(0.26)	0.86	8297.2	110.00
13	27175.37	45.19	1.244	0.30(0.26)	0.87	12140.5	10100.00
14	28175.37	50.01	1.171	0.30(0.26)	0.88	14007.0	150.00
15	29688.78	57.86	1.072	0.30(0.27)	0.89	16946.1	600.00
16	30355.36	63.04	1.028	0.30(0.27)	0.90	19230.1	31100.00
17	31974.96	74.45	0.963	0.30(0.27)	0.92	24235.9	40100.00
18	33358.91	81.97	0.920	0.30(0.28)	0.92	27584.4	11801.00
19	35574.17	92.33	0.866	0.30(0.28)	0.93	32906.2	11530.00

20	36803.99	100.82	0.835	0.30	(0.28)	0.94	38148.1	11910.00
21	38644.43	110.55	0.798	0.30	(0.28)	0.94	44821.3	11350.00
22	39072.45	115.21	0.781	0.30	(0.28)	0.95	47995.5	11130.00
23	38712.23	121.30	0.760	0.30	(0.29)	0.95	50922.1	12300.00
24	38010.90	130.09	0.741	0.30	(0.29)	0.95	55182.7	12400.00
25	37026.76	139.66	0.721	0.30	(0.29)	0.96	58584.3	12201.00
26	36093.22	147.20	0.705	0.30	(0.29)	0.96	60477.3	12231.00
27	35123.07	154.74	0.688	0.30	(0.29)	0.96	62030.0	10400.00
28	33599.02	164.28	0.668	0.30	(0.29)	0.96	63476.4	12010.00
29	32575.80	169.74	0.656	0.30	(0.29)	0.96	63739.0	10210.00
30	28340.39	200.47	0.615	0.30	(0.29)	0.96	64498.8	10100.00

TOTAL AREA (ACRES) = 64498.8

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 39072.45 Tc (MIN.) = 115.205
EFFECTIVE AREA (ACRES) = 47995.49 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA (ACRES) = 64498.8
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13741.00 = 128872.66 FEET.

FLOW PROCESS FROM NODE 13741.00 TO NODE 13802.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 141.00 DOWNSTREAM (FEET) = 135.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1533.41 CHANNEL SLOPE = 0.0039
GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 15.61
CHANNEL FLOW THRU SUBAREA (CFS) = 39072.45
FLOW VELOCITY (FEET/SEC.) = 15.41 FLOW DEPTH (FEET) = 15.61
TRAVEL TIME (MIN.) = 1.66 Tc (MIN.) = 116.86
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13802.00 = 130406.07 FEET.

FLOW PROCESS FROM NODE 13802.00 TO NODE 13802.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<

FLOW PROCESS FROM NODE 13802.00 TO NODE 13802.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<

PEAK FLOWRATE TABLE FILE NAME: 0506105K.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	355.73	14.74	0.30 (0.27)	0.90	206.7	10520.00
2	414.68	31.61	0.30 (0.28)	0.93	403.6	10500.00
TOTAL AREA (ACRES) =						403.6

FLOW PROCESS FROM NODE 13802.00 TO NODE 13802.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20667.35	20.57	1.955	0.30 (0.26)	0.85	3782.6	10300.00
2	20814.31	21.40	1.913	0.30 (0.26)	0.85	3950.7	10230.00
3	20814.45	21.40	1.913	0.30 (0.26)	0.85	3950.8	10380.00
4	20923.41	21.77	1.895	0.30 (0.26)	0.85	4038.6	10400.00
5	21520.94	23.80	1.793	0.30 (0.26)	0.85	4518.9	10320.00
6	22121.20	25.88	1.696	0.30 (0.26)	0.85	5000.1	10360.00
7	22942.73	28.74	1.576	0.30 (0.26)	0.85	5655.5	10340.00
8	23378.87	30.28	1.518	0.30 (0.26)	0.86	6003.5	10200.00
9	23409.73	30.51	1.514	0.30 (0.26)	0.86	6054.0	10250.00
10	23554.99	31.28	1.498	0.30 (0.26)	0.86	6222.0	50700.00
11	24214.93	34.36	1.436	0.30 (0.26)	0.86	7201.1	10220.00
12	24967.60	37.83	1.367	0.30 (0.26)	0.86	8297.2	110.00
13	27175.37	47.03	1.216	0.30 (0.26)	0.87	12140.5	10100.00
14	28175.37	51.83	1.148	0.30 (0.26)	0.88	14007.0	150.00
15	29688.78	59.65	1.049	0.30 (0.27)	0.89	16946.1	600.00
16	30355.36	64.82	1.018	0.30 (0.27)	0.90	19230.1	31100.00
17	31974.96	76.20	0.953	0.30 (0.27)	0.92	24235.9	40100.00
18	33358.91	83.71	0.911	0.30 (0.28)	0.92	27584.4	11801.00
19	35574.17	94.04	0.860	0.30 (0.28)	0.93	32906.2	11530.00
20	36803.99	102.51	0.828	0.30 (0.28)	0.94	38148.1	11910.00
21	38644.43	112.21	0.792	0.30 (0.28)	0.94	44821.3	11350.00
22	39072.45	116.86	0.775	0.30 (0.28)	0.95	47995.5	11130.00
23	38712.23	122.96	0.757	0.30 (0.29)	0.95	50922.1	12300.00
24	38010.90	131.76	0.738	0.30 (0.29)	0.95	55182.7	12400.00
25	37026.76	141.34	0.717	0.30 (0.29)	0.96	58584.3	12201.00
26	36093.22	148.89	0.701	0.30 (0.29)	0.96	60477.3	12231.00
27	35123.07	156.45	0.685	0.30 (0.29)	0.96	62030.0	10400.00
28	33599.02	166.01	0.664	0.30 (0.29)	0.96	63476.4	12010.00
29	32575.80	171.49	0.652	0.30 (0.29)	0.96	63739.0	10210.00
30	28340.39	202.29	0.613	0.30 (0.29)	0.96	64498.8	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13802.00 = 130406.07 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	355.73	14.74	2.428	0.30 (0.27)	0.90	206.7	10520.00
2	414.68	31.61	1.492	0.30 (0.28)	0.93	403.6	10500.00

LONGEST FLOWPATH FROM NODE 10500.00 TO NODE 13802.00 = 12187.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19282.14	14.74	2.428	0.30 (0.26)	0.86	2917.2	10520.00
2	21043.44	20.57	1.955	0.30 (0.26)	0.86	4057.3	10300.00
3	21193.31	21.40	1.913	0.30 (0.26)	0.86	4235.1	10230.00
4	21193.46	21.40	1.913	0.30 (0.26)	0.86	4235.2	10380.00
5	21303.70	21.77	1.895	0.30 (0.26)	0.86	4327.3	10400.00
6	21908.30	23.80	1.793	0.30 (0.26)	0.86	4831.3	10320.00
7	22515.83	25.88	1.696	0.30 (0.26)	0.86	5336.7	10360.00
8	23347.36	28.74	1.576	0.30 (0.26)	0.86	6025.6	10340.00
9	23788.90	30.28	1.518	0.30 (0.26)	0.86	6391.5	10200.00
10	23820.56	30.51	1.514	0.30 (0.26)	0.86	6444.7	10250.00

11	23968.49	31.28	1.498	0.30	(0.26)	0.86	6621.7	50700.00
12	24041.67	31.61	1.492	0.30	(0.26)	0.86	6732.5	10500.00
13	24610.73	34.36	1.436	0.30	(0.26)	0.86	7604.7	10220.00
14	25339.59	37.83	1.367	0.30	(0.26)	0.86	8700.8	110.00
15	27495.95	47.03	1.216	0.30	(0.26)	0.87	12544.1	10100.00
16	28472.64	51.83	1.148	0.30	(0.26)	0.88	14410.6	150.00
17	29952.35	59.65	1.049	0.30	(0.27)	0.89	17349.7	600.00
18	30608.12	64.82	1.018	0.30	(0.27)	0.90	19633.7	31100.00
19	32205.67	76.20	0.953	0.30	(0.27)	0.92	24639.5	40100.00
20	33575.09	83.71	0.911	0.30	(0.28)	0.92	27988.0	11801.00
21	35773.02	94.04	0.860	0.30	(0.28)	0.93	33309.8	11530.00
22	36992.04	102.51	0.828	0.30	(0.28)	0.94	38551.7	11910.00
23	38820.09	112.21	0.792	0.30	(0.28)	0.94	45224.9	11350.00
24	39242.18	116.86	0.775	0.30	(0.28)	0.95	48399.1	11130.00
25	38875.79	122.96	0.757	0.30	(0.29)	0.95	51325.7	12300.00
26	38167.99	131.76	0.738	0.30	(0.29)	0.95	55586.3	12400.00
27	37176.80	141.34	0.717	0.30	(0.29)	0.96	58987.9	12201.00
28	36237.72	148.89	0.701	0.30	(0.29)	0.96	60880.9	12231.00
29	35262.03	156.45	0.685	0.30	(0.29)	0.96	62433.6	10400.00
30	33730.95	166.01	0.664	0.30	(0.29)	0.96	63880.0	12010.00
31	32703.70	171.49	0.652	0.30	(0.29)	0.96	64142.6	10210.00
32	28454.85	202.29	0.613	0.30	(0.29)	0.96	64902.4	10100.00

TOTAL AREA (ACRES) = 64902.4

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 39242.18 Tc (MIN.) = 116.864
EFFECTIVE AREA (ACRES) = 48399.09 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA (ACRES) = 64902.4
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13802.00 = 130406.07 FEET.

FLOW PROCESS FROM NODE 13802.00 TO NODE 13803.00 IS CODE = 56

>>>> COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>> TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 135.00 DOWNSTREAM (FEET) = 134.99
CHANNEL LENGTH THRU SUBAREA (FEET) = 207.23 CHANNEL SLOPE = 0.0000
GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 45.25
CHANNEL FLOW THRU SUBAREA (CFS) = 39242.18
FLOW VELOCITY (FEET/SEC.) = 3.09 FLOW DEPTH (FEET) = 45.25
TRAVEL TIME (MIN.) = 1.12 Tc (MIN.) = 117.98
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13803.00 = 130613.30 FEET.

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 81

>>>> ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 117.98
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.771
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
RESIDENTIAL

"1 DWELLING/ACRE" B 48.80 0.30 0.800 56
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.800
SUBAREA AREA (ACRES) = 48.80 SUBAREA RUNOFF (CFS) = 23.30
EFFECTIVE AREA (ACRES) = 48447.89 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 64951.2 PEAK FLOW RATE (CFS) = 39242.18
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13802.00 TO NODE 13803.00 IS CODE = 12

>>>> CLEAR MEMORY BANK # 3 <<<<<

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 15.1

>>>> DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 0506106D.DNA
MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	59.23	17.66	0.30 (0.20)	0.67	36.9	10600.00
TOTAL AREA (ACRES) =			36.9			

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 11

>>>> CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19282.14	16.08	2.302	0.30 (0.26)	0.86	2966.0	10520.00
2	21043.44	21.88	1.889	0.30 (0.26)	0.86	4106.1	10300.00
3	21193.31	22.71	1.847	0.30 (0.26)	0.86	4283.9	10230.00
4	21193.46	22.71	1.847	0.30 (0.26)	0.86	4284.0	10380.00
5	21303.70	23.08	1.829	0.30 (0.26)	0.86	4376.1	10400.00
6	21908.30	25.10	1.728	0.30 (0.26)	0.86	4880.1	10320.00
7	22515.83	27.17	1.642	0.30 (0.26)	0.86	5385.5	10360.00
8	23347.36	30.02	1.524	0.30 (0.26)	0.86	6074.4	10340.00
9	23788.90	31.56	1.493	0.30 (0.26)	0.86	6440.3	10200.00
10	23820.56	31.79	1.488	0.30 (0.26)	0.86	6493.5	10250.00
11	23968.49	32.55	1.473	0.30 (0.26)	0.86	6670.5	50700.00
12	24041.67	32.88	1.466	0.30 (0.26)	0.86	6781.3	10500.00
13	24610.73	35.63	1.411	0.30 (0.26)	0.86	7653.5	10220.00
14	25339.59	39.08	1.341	0.30 (0.26)	0.86	8749.6	110.00
15	27495.95	48.25	1.198	0.30 (0.26)	0.87	12592.9	10100.00
16	28472.64	53.05	1.133	0.30 (0.26)	0.88	14459.4	150.00
17	29952.35	60.85	1.040	0.30 (0.27)	0.89	17398.5	600.00
18	30608.12	66.01	1.011	0.30 (0.27)	0.90	19682.5	31100.00
19	32205.67	77.38	0.947	0.30 (0.27)	0.92	24688.3	40100.00
20	33575.09	84.87	0.904	0.30 (0.28)	0.92	28036.8	11801.00
21	35773.02	95.18	0.856	0.30 (0.28)	0.93	33358.6	11530.00
22	36992.04	103.64	0.824	0.30 (0.28)	0.94	38600.5	11910.00

23 38820.09 113.34 0.788 0.30(0.28) 0.94 45273.7 11350.00
 24 39242.18 117.98 0.771 0.30(0.28) 0.95 48447.9 11130.00
 25 38875.79 124.08 0.754 0.30(0.29) 0.95 51374.5 12300.00
 26 38167.99 132.89 0.735 0.30(0.29) 0.95 55635.1 12400.00
 27 37176.80 142.48 0.715 0.30(0.29) 0.96 59036.7 12201.00
 28 36237.72 150.04 0.698 0.30(0.29) 0.96 60929.7 12231.00
 29 35262.03 157.60 0.682 0.30(0.29) 0.96 62482.4 10400.00
 30 33730.95 167.18 0.662 0.30(0.29) 0.96 63928.8 12010.00
 31 32703.70 172.66 0.650 0.30(0.29) 0.96 64191.4 10210.00
 32 28454.85 203.51 0.612 0.30(0.29) 0.96 64951.2 10100.00
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13803.00 = 130613.30 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	59.23	17.66	2.174	0.30(0.20)	0.67	36.9	10600.00

LONGEST FLOWPATH FROM NODE 10600.00 TO NODE 13803.00 = 1713.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19339.59	16.08	2.302	0.30(0.26)	0.85	2999.6	10520.00
2	19819.59	17.66	2.174	0.30(0.26)	0.85	3312.5	10600.00
3	21094.12	21.88	1.889	0.30(0.26)	0.85	4143.0	10300.00
4	21242.73	22.71	1.847	0.30(0.26)	0.85	4320.8	10230.00
5	21242.88	22.71	1.847	0.30(0.26)	0.85	4320.9	10380.00
6	21352.56	23.08	1.829	0.30(0.26)	0.85	4413.0	10400.00
7	21954.14	25.10	1.728	0.30(0.26)	0.86	4917.0	10320.00
8	22559.09	27.17	1.642	0.30(0.26)	0.86	5422.4	10360.00
9	23387.07	30.02	1.524	0.30(0.26)	0.86	6111.3	10340.00
10	23827.68	31.56	1.493	0.30(0.26)	0.86	6477.2	10200.00
11	23859.20	31.79	1.488	0.30(0.26)	0.86	6530.4	10250.00
12	24006.67	32.55	1.473	0.30(0.26)	0.86	6707.4	50700.00
13	24079.65	32.88	1.466	0.30(0.26)	0.86	6818.2	10500.00
14	24647.05	35.63	1.411	0.30(0.26)	0.86	7690.4	10220.00
15	25373.82	39.08	1.341	0.30(0.26)	0.86	8786.5	110.00
16	27525.87	48.25	1.198	0.30(0.26)	0.87	12629.8	10100.00
17	28500.60	53.05	1.133	0.30(0.26)	0.88	14496.3	150.00
18	29977.54	60.85	1.040	0.30(0.27)	0.89	17435.4	600.00
19	30632.43	66.01	1.011	0.30(0.27)	0.90	19719.4	31100.00
20	32228.05	77.38	0.947	0.30(0.27)	0.92	24725.2	40100.00
21	33596.20	84.87	0.904	0.30(0.28)	0.92	28073.7	11801.00
22	35792.68	95.18	0.856	0.30(0.28)	0.93	33395.5	11530.00
23	37010.74	103.64	0.824	0.30(0.28)	0.94	38637.4	11910.00
24	38837.71	113.34	0.788	0.30(0.28)	0.94	45310.6	11350.00
25	39259.27	117.98	0.771	0.30(0.28)	0.95	48484.8	11130.00
26	38892.40	124.08	0.754	0.30(0.29)	0.95	51411.4	12300.00
27	38184.03	132.89	0.735	0.30(0.29)	0.95	55672.0	12400.00
28	37192.23	142.48	0.715	0.30(0.29)	0.95	59073.6	12201.00
29	36252.65	150.04	0.698	0.30(0.29)	0.96	60966.6	12231.00
30	35276.47	157.60	0.682	0.30(0.29)	0.96	62519.3	10400.00
31	33744.78	167.18	0.662	0.30(0.29)	0.96	63965.7	12010.00
32	32717.17	172.66	0.650	0.30(0.29)	0.96	64228.3	10210.00
33	28467.18	203.51	0.612	0.30(0.29)	0.96	64988.1	10100.00

TOTAL AREA (ACRES) = 64988.1

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 39259.27 Tc (MIN.) = 117.983

EFFECTIVE AREA (ACRES) = 48484.79 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
 TOTAL AREA (ACRES) = 64988.1
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13803.00 = 130613.30 FEET.

END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 64988.1 TC (MIN.) = 117.98
 EFFECTIVE AREA (ACRES) = 48484.79 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.948
 PEAK FLOW RATE (CFS) = 39259.27

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19339.59	16.08	2.302	0.30(0.26)	0.85	2999.6	10520.00
2	19819.59	17.66	2.174	0.30(0.26)	0.85	3312.5	10600.00
3	21094.12	21.88	1.889	0.30(0.26)	0.85	4143.0	10300.00
4	21242.73	22.71	1.847	0.30(0.26)	0.85	4320.8	10230.00
5	21242.88	22.71	1.847	0.30(0.26)	0.85	4320.9	10380.00
6	21352.56	23.08	1.829	0.30(0.26)	0.85	4413.0	10400.00
7	21954.14	25.10	1.728	0.30(0.26)	0.86	4917.0	10320.00
8	22559.09	27.17	1.642	0.30(0.26)	0.86	5422.4	10360.00
9	23387.07	30.02	1.524	0.30(0.26)	0.86	6111.3	10340.00
10	23827.68	31.56	1.493	0.30(0.26)	0.86	6477.2	10200.00
11	23859.20	31.79	1.488	0.30(0.26)	0.86	6530.4	10250.00
12	24006.67	32.55	1.473	0.30(0.26)	0.86	6707.4	50700.00
13	24079.65	32.88	1.466	0.30(0.26)	0.86	6818.2	10500.00
14	24647.05	35.63	1.411	0.30(0.26)	0.86	7690.4	10220.00
15	25373.82	39.08	1.341	0.30(0.26)	0.86	8786.5	110.00
16	27525.87	48.25	1.198	0.30(0.26)	0.87	12629.8	10100.00
17	28500.60	53.05	1.133	0.30(0.26)	0.88	14496.3	150.00
18	29977.54	60.85	1.040	0.30(0.27)	0.89	17435.4	600.00
19	30632.43	66.01	1.011	0.30(0.27)	0.90	19719.4	31100.00
20	32228.05	77.38	0.947	0.30(0.27)	0.92	24725.2	40100.00
21	33596.20	84.87	0.904	0.30(0.28)	0.92	28073.7	11801.00
22	35792.68	95.18	0.856	0.30(0.28)	0.93	33395.5	11530.00
23	37010.74	103.64	0.824	0.30(0.28)	0.94	38637.4	11910.00
24	38837.71	113.34	0.788	0.30(0.28)	0.94	45310.6	11350.00
25	39259.27	117.98	0.771	0.30(0.28)	0.95	48484.8	11130.00
26	38892.40	124.08	0.754	0.30(0.29)	0.95	51411.4	12300.00
27	38184.03	132.89	0.735	0.30(0.29)	0.95	55672.0	12400.00
28	37192.23	142.48	0.715	0.30(0.29)	0.95	59073.6	12201.00
29	36252.65	150.04	0.698	0.30(0.29)	0.96	60966.6	12231.00
30	35276.47	157.60	0.682	0.30(0.29)	0.96	62519.3	10400.00
31	33744.78	167.18	0.662	0.30(0.29)	0.96	63965.7	12010.00
32	32717.17	172.66	0.650	0.30(0.29)	0.96	64228.3	10210.00
33	28467.18	203.51	0.612	0.30(0.29)	0.96	64988.1	10100.00

END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 138 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 25-YR EV AUG 2023 ROKAMOTO *

FILE NAME: RI25EV38.DAT
TIME/DATE OF STUDY: 10:20 08/09/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 25.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 4.741
- 2) 10.00; 3.104
- 3) 15.00; 2.386
- 4) 20.00; 1.981
- 5) 25.00; 1.730
- 6) 30.00; 1.523
- 7) 40.00; 1.322
- 8) 50.00; 1.169
- 9) 60.00; 1.043
- 10) 90.00; 0.873
- 11) 120.00; 0.761
- 12) 180.00; 0.632
- 13) 360.00; 0.462
- 14) 1200.00; 0.202

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- 1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: RI25EV37.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19819.59	17.66	0.30 (0.26)	0.85	3312.5	10600.00
2	25373.82	39.08	0.30 (0.26)	0.86	8786.5	110.00
3	27525.87	48.25	0.30 (0.26)	0.87	12629.8	10100.00
4	28500.60	53.05	0.30 (0.26)	0.88	14496.3	150.00
5	29977.54	60.85	0.30 (0.27)	0.89	17435.4	600.00
6	30632.43	66.01	0.30 (0.27)	0.90	19719.4	31100.00
7	32228.05	77.38	0.30 (0.27)	0.92	24725.2	40100.00
8	33596.20	84.87	0.30 (0.28)	0.92	28073.7	11801.00
9	35792.68	95.18	0.30 (0.28)	0.93	33395.5	11530.00
10	37010.74	103.64	0.30 (0.28)	0.94	38637.4	11910.00
11	38837.71	113.34	0.30 (0.28)	0.94	45310.6	11350.00
12	39259.27	117.98	0.30 (0.28)	0.95	48484.8	11130.00
13	38892.40	124.08	0.30 (0.29)	0.95	51411.4	12300.00
14	38184.03	132.89	0.30 (0.29)	0.95	55672.0	12400.00
15	37192.23	142.48	0.30 (0.29)	0.95	59073.6	12201.00
16	36252.65	150.04	0.30 (0.29)	0.96	60966.6	12231.00
17	35276.47	157.60	0.30 (0.29)	0.96	62519.3	10400.00
18	33744.78	167.18	0.30 (0.29)	0.96	63965.7	12010.00
19	32717.17	172.66	0.30 (0.29)	0.96	64228.3	10210.00
20	28467.18	203.51	0.30 (0.29)	0.96	64988.1	10100.00
TOTAL AREA (ACRES) =						64988.1

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19819.59	17.66	0.30 (0.26)	0.85	3312.5	10600.00
2	25373.82	39.08	0.30 (0.26)	0.86	8786.5	110.00
3	27525.87	48.25	0.30 (0.26)	0.87	12629.8	10100.00
4	28500.60	53.05	0.30 (0.26)	0.88	14496.3	150.00
5	29977.54	60.85	0.30 (0.27)	0.89	17435.4	600.00
6	30632.43	66.01	0.30 (0.27)	0.90	19719.4	31100.00
7	32228.05	77.38	0.30 (0.27)	0.92	24725.2	40100.00
8	33596.20	84.87	0.30 (0.28)	0.92	28073.7	11801.00
9	35792.68	95.18	0.30 (0.28)	0.93	33395.5	11530.00
10	37010.74	103.64	0.30 (0.28)	0.94	38637.4	11910.00
11	38837.71	113.34	0.30 (0.28)	0.94	45310.6	11350.00
12	39259.27	117.98	0.30 (0.28)	0.95	48484.8	11130.00
13	38892.40	124.08	0.30 (0.29)	0.95	51411.4	12300.00

14 38184.03 132.89 0.30(0.29) 0.95 55672.0 12400.00
 15 37192.23 142.48 0.30(0.29) 0.95 59073.6 12201.00
 16 36252.65 150.04 0.30(0.29) 0.96 60966.6 12231.00
 17 35276.47 157.60 0.30(0.29) 0.96 62519.3 10400.00
 18 33744.78 167.18 0.30(0.29) 0.96 63965.7 12010.00
 19 32717.17 172.66 0.30(0.29) 0.96 64228.3 10210.00
 20 28467.18 203.51 0.30(0.29) 0.96 64988.1 10100.00
 TOTAL AREA (ACRES) = 64988.1

 FLOW PROCESS FROM NODE 13803.00 TO NODE 13820.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 134.99 DOWNSTREAM(FEET) = 134.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 926.91 CHANNEL SLOPE = 0.0011
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 21.75
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.763

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	31.44	0.30	0.983	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.983
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 39265.89
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.66
 AVERAGE FLOW DEPTH(FEET) = 21.75 TRAVEL TIME(MIN.) = 1.60
 Tc(MIN.) = 119.58

SUBAREA AREA(ACRES) = 31.44 SUBAREA RUNOFF(CFS) = 13.23
 EFFECTIVE AREA(ACRES) = 48516.23 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA(ACRES) = 65019.5 PEAK FLOW RATE(CFS) = 39259.27
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 21.75

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 21.75 FLOW VELOCITY(FEET/SEC.) = 9.65
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13820.00 = 131540.20 FEET.

 FLOW PROCESS FROM NODE 13803.00 TO NODE 13820.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

=====

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION(MIN.) = 119.58
 RAINFALL INTENSITY(INCH/HR) = 0.76
 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.95
 EFFECTIVE STREAM AREA(ACRES) = 48516.23
 TOTAL STREAM AREA(ACRES) = 65019.50

PEAK FLOW RATE(CFS) AT CONFLUENCE = 39259.27

FLOW PROCESS FROM NODE 13810.00 TO NODE 13811.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 648.54
 ELEVATION DATA: UPSTREAM(FEET) = 756.46 DOWNSTREAM(FEET) = 586.02

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 12.293
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.775

SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	-	5.58	0.30	1.000	56	12.29

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 12.43
 TOTAL AREA(ACRES) = 5.58 PEAK FLOW RATE(CFS) = 12.43

 FLOW PROCESS FROM NODE 13811.00 TO NODE 13811.50 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 586.02 DOWNSTREAM(FEET) = 437.69
 CHANNEL LENGTH THRU SUBAREA(FEET) = 696.28 CHANNEL SLOPE = 0.2130
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.43
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.497

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	14.79	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 27.10
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.00
 AVERAGE FLOW DEPTH(FEET) = 0.42 TRAVEL TIME(MIN.) = 1.93
 Tc(MIN.) = 14.23

SUBAREA AREA(ACRES) = 14.79 SUBAREA RUNOFF(CFS) = 29.25
 EFFECTIVE AREA(ACRES) = 20.37 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 20.4 PEAK FLOW RATE(CFS) = 40.28
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.53

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 0.53 FLOW VELOCITY(FEET/SEC.) = 6.88
 LONGEST FLOWPATH FROM NODE 13810.00 TO NODE 13811.50 = 1344.82 FEET.

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*****
FLOW PROCESS FROM NODE 13811.50 TO NODE 13812.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 437.69 DOWNSTREAM(FEET) = 402.36
CHANNEL LENGTH THRU SUBAREA(FEET) = 681.04 CHANNEL SLOPE = 0.0519
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.99
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.261
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA      Fp        Ap   SCS
LAND USE            GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED        -         18.41     0.30     1.000   -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 56.54
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.91
AVERAGE FLOW DEPTH(FEET) = 0.97 TRAVEL TIME(MIN.) = 2.31
Tc(MIN.) = 16.54
SUBAREA AREA(ACRES) = 18.41 SUBAREA RUNOFF(CFS) = 32.50
EFFECTIVE AREA(ACRES) = 38.78 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 38.8 PEAK FLOW RATE(CFS) = 68.45
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.08

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.08 FLOW VELOCITY(FEET/SEC.) = 5.21
LONGEST FLOWPATH FROM NODE 13810.00 TO NODE 13812.00 = 2025.86 FEET.

*****
FLOW PROCESS FROM NODE 13812.00 TO NODE 13813.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 402.36 DOWNSTREAM(FEET) = 259.72
CHANNEL LENGTH THRU SUBAREA(FEET) = 1282.56 CHANNEL SLOPE = 0.1112
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.03
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.027
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA      Fp        Ap   SCS
LAND USE            GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED        -         27.87     0.30     0.858   -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.858
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 90.67
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 7.39
AVERAGE FLOW DEPTH(FEET) = 1.02 TRAVEL TIME(MIN.) = 2.89
Tc(MIN.) = 19.43
SUBAREA AREA(ACRES) = 27.87 SUBAREA RUNOFF(CFS) = 44.38
EFFECTIVE AREA(ACRES) = 66.65 AREA-AVERAGED Fm(INCH/HR) = 0.28

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AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA(ACRES) = 66.7 PEAK FLOW RATE(CFS) = 104.66
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.11

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.11 FLOW VELOCITY(FEET/SEC.) = 7.72
LONGEST FLOWPATH FROM NODE 13810.00 TO NODE 13813.00 = 3308.42 FEET.

*****
FLOW PROCESS FROM NODE 13813.00 TO NODE 13820.00 IS CODE = 31
-----
>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 259.72 DOWNSTREAM(FEET) = 137.00
FLOW LENGTH(FEET) = 2412.88 MANNING'S N = 0.013
ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 36.000
DEPTH OF FLOW IN 36.0 INCH PIPE IS 22.9 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 22.06
ESTIMATED PIPE DIAMETER(INCH) = 36.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 104.66
PIPE TRAVEL TIME(MIN.) = 1.82 Tc(MIN.) = 21.26
LONGEST FLOWPATH FROM NODE 13810.00 TO NODE 13820.00 = 5721.30 FEET.

*****
FLOW PROCESS FROM NODE 13813.00 TO NODE 13820.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN.) = 21.26
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.918
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA      Fp        Ap   SCS
LAND USE            GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED        -         83.64     0.30     0.570   -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.570
SUBAREA AREA(ACRES) = 83.64 SUBAREA RUNOFF(CFS) = 131.50
EFFECTIVE AREA(ACRES) = 150.29 AREA-AVERAGED Fm(INCH/HR) = 0.22
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.73
TOTAL AREA(ACRES) = 150.3 PEAK FLOW RATE(CFS) = 229.62

*****
FLOW PROCESS FROM NODE 13813.00 TO NODE 13820.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 21.26
RAINFALL INTENSITY(INCH/HR) = 1.92
AREA-AVERAGED Fm(INCH/HR) = 0.22
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.73
EFFECTIVE STREAM AREA(ACRES) = 150.29

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TOTAL STREAM AREA(ACRES) = 150.29
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 229.62

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19819.59	19.59	2.014	0.30 (0.26)	0.85	3343.9	10600.00
1	25373.82	40.89	1.308	0.30 (0.26)	0.86	8817.9	110.00
1	27525.87	50.02	1.169	0.30 (0.26)	0.87	12661.2	10100.00
1	28500.60	54.79	1.109	0.30 (0.26)	0.88	14527.7	150.00
1	29977.54	62.58	1.028	0.30 (0.27)	0.89	17466.8	600.00
1	30632.43	67.73	0.999	0.30 (0.27)	0.90	19750.8	31100.00
1	32228.05	79.07	0.935	0.30 (0.27)	0.92	24756.6	40100.00
1	33596.20	86.54	0.893	0.30 (0.28)	0.92	28105.2	11801.00
1	35792.68	96.82	0.848	0.30 (0.28)	0.93	33426.9	11530.00
1	37010.74	105.27	0.816	0.30 (0.28)	0.94	38668.9	11910.00
1	38837.71	114.94	0.780	0.30 (0.28)	0.94	45342.0	11350.00
1	39259.27	119.58	0.763	0.30 (0.28)	0.95	48516.2	11130.00
1	38892.40	125.68	0.749	0.30 (0.29)	0.95	51442.8	12300.00
1	38184.03	134.50	0.730	0.30 (0.29)	0.95	55703.4	12400.00
1	37192.23	144.10	0.709	0.30 (0.29)	0.95	59105.0	12201.00
1	36252.65	151.67	0.693	0.30 (0.29)	0.96	60998.0	12231.00
1	35276.47	159.25	0.677	0.30 (0.29)	0.96	62550.7	10400.00
1	33744.78	168.84	0.656	0.30 (0.29)	0.96	63997.2	12010.00
1	32717.17	174.34	0.644	0.30 (0.29)	0.96	64259.7	10210.00
1	28467.18	205.26	0.608	0.30 (0.29)	0.96	65019.5	10100.00
2	229.62	21.26	1.918	0.30 (0.22)	0.73	150.3	13810.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20043.21	19.59	2.014	0.30 (0.25)	0.85	3482.4	10600.00
2	20483.38	21.26	1.918	0.30 (0.26)	0.85	3922.1	13810.00
3	25521.01	40.89	1.308	0.30 (0.26)	0.86	8968.2	110.00
4	27654.16	50.02	1.169	0.30 (0.26)	0.87	12811.5	10100.00
5	28620.76	54.79	1.109	0.30 (0.26)	0.88	14678.0	150.00
6	30086.85	62.58	1.028	0.30 (0.27)	0.89	17617.1	600.00
7	30737.79	67.73	0.999	0.30 (0.27)	0.90	19901.1	31100.00
8	32324.72	79.07	0.935	0.30 (0.27)	0.91	24906.9	40100.00
9	33687.14	86.54	0.893	0.30 (0.28)	0.92	28255.4	11801.00
10	35877.52	96.82	0.848	0.30 (0.28)	0.93	33577.2	11530.00
11	37091.32	105.27	0.816	0.30 (0.28)	0.94	38819.1	11910.00
12	38913.41	114.94	0.780	0.30 (0.28)	0.94	45492.3	11350.00
13	39332.62	119.58	0.763	0.30 (0.28)	0.95	48666.5	11130.00
14	38963.89	125.68	0.749	0.30 (0.28)	0.95	51593.1	12300.00
15	38252.95	134.50	0.730	0.30 (0.29)	0.95	55853.7	12400.00
16	37258.36	144.10	0.709	0.30 (0.29)	0.95	59255.3	12201.00
17	36316.58	151.67	0.693	0.30 (0.29)	0.96	61148.3	12231.00
18	35338.20	159.25	0.677	0.30 (0.29)	0.96	62701.0	10400.00
19	33803.71	168.84	0.656	0.30 (0.29)	0.96	64147.5	12010.00
20	32774.51	174.34	0.644	0.30 (0.29)	0.96	64410.0	10210.00
21	28519.65	205.26	0.608	0.30 (0.29)	0.96	65169.8	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 39332.62 Tc(MIN.) = 119.58

EFFECTIVE AREA(ACRES) = 48666.52 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA(ACRES) = 65169.8
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13820.00 = 131540.20 FEET.

FLOW PROCESS FROM NODE 13820.00 TO NODE 13840.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 137.00 DOWNSTREAM(FEET) = 133.00

CHANNEL LENGTH THRU SUBAREA(FEET) = 1261.34 CHANNEL SLOPE = 0.0032

GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 16.54

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.759

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	31.60	0.30	0.683	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.683

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 39340.50

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 14.32

AVERAGE FLOW DEPTH(FEET) = 16.54 TRAVEL TIME(MIN.) = 1.47

Tc(MIN.) = 121.05

SUBAREA AREA(ACRES) = 31.60 SUBAREA RUNOFF(CFS) = 15.75

EFFECTIVE AREA(ACRES) = 48698.12 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95

TOTAL AREA(ACRES) = 65201.4 PEAK FLOW RATE(CFS) = 39332.62

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 16.54

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 16.54 FLOW VELOCITY(FEET/SEC.) = 14.31

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13840.00 = 132801.55 FEET.

FLOW PROCESS FROM NODE 13820.00 TO NODE 13840.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

TOTAL NUMBER OF STREAMS = 2

CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:

TIME OF CONCENTRATION(MIN.) = 121.05

RAINFALL INTENSITY(INCH/HR) = 0.76

AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30

AREA-AVERAGED Ap = 0.95

EFFECTIVE STREAM AREA(ACRES) = 48698.12

TOTAL STREAM AREA(ACRES) = 65201.39

PEAK FLOW RATE(CFS) AT CONFLUENCE = 39332.62

FLOW PROCESS FROM NODE 13830.00 TO NODE 13831.00 IS CODE = 21


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>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
=====
INITIAL SUBAREA FLOW-LENGTH (FEET) = 744.71
ELEVATION DATA: UPSTREAM (FEET) = 1100.95 DOWNSTREAM (FEET) = 959.21

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc (MIN.) = 13.858
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.550
SUBAREA Tc AND LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" - 5.06 0.30 1.000 56 13.86
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF (CFS) = 10.25
TOTAL AREA (ACRES) = 5.06 PEAK FLOW RATE (CFS) = 10.25

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FLOW PROCESS FROM NODE 13831.00 TO NODE 13832.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
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ELEVATION DATA: UPSTREAM (FEET) = 959.21 DOWNSTREAM (FEET) = 832.83
CHANNEL LENGTH THRU SUBAREA (FEET) = 1076.71 CHANNEL SLOPE = 0.1174
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.65
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.219
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 32.57 0.30 1.000 -
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 38.54
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.60
AVERAGE FLOW DEPTH (FEET) = 0.61 TRAVEL TIME (MIN.) = 3.21
Tc (MIN.) = 17.06
SUBAREA AREA (ACRES) = 32.57 SUBAREA RUNOFF (CFS) = 56.25
EFFECTIVE AREA (ACRES) = 37.63 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 37.6 PEAK FLOW RATE (CFS) = 64.99
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.83

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END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.83 FLOW VELOCITY (FEET/SEC.) = 6.73
LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13832.00 = 1821.42 FEET.

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FLOW PROCESS FROM NODE 13832.00 TO NODE 13833.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

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>>>>TRAVELTIME THRU SUBAREA<<<<<
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ELEVATION DATA: UPSTREAM (FEET) = 832.83 DOWNSTREAM (FEET) = 572.49
CHANNEL LENGTH THRU SUBAREA (FEET) = 1883.58 CHANNEL SLOPE = 0.1382
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.97
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.928
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 32.23 0.30 1.000 -
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 88.65
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.85
AVERAGE FLOW DEPTH (FEET) = 0.95 TRAVEL TIME (MIN.) = 4.00
Tc (MIN.) = 21.06
SUBAREA AREA (ACRES) = 32.23 SUBAREA RUNOFF (CFS) = 47.22
EFFECTIVE AREA (ACRES) = 69.86 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 69.9 PEAK FLOW RATE (CFS) = 102.34
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 1.03

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END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 1.03 FLOW VELOCITY (FEET/SEC.) = 8.27
LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13833.00 = 3705.00 FEET.

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*****
FLOW PROCESS FROM NODE 13833.00 TO NODE 13834.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
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ELEVATION DATA: UPSTREAM (FEET) = 572.49 DOWNSTREAM (FEET) = 471.65
CHANNEL LENGTH THRU SUBAREA (FEET) = 943.78 CHANNEL SLOPE = 0.1068
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 1.23
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.829
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 27.51 0.30 1.000 -
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 121.28
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.01
AVERAGE FLOW DEPTH (FEET) = 1.22 TRAVEL TIME (MIN.) = 1.96
Tc (MIN.) = 23.03
SUBAREA AREA (ACRES) = 27.51 SUBAREA RUNOFF (CFS) = 37.86
EFFECTIVE AREA (ACRES) = 97.37 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 97.4 PEAK FLOW RATE (CFS) = 134.01
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

```

*ESTIMATED CHANNEL HEIGHT (FEET) = 1.29
END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 1.29 FLOW VELOCITY (FEET/SEC.) = 8.24
LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13834.00 = 4648.78 FEET.

FLOW PROCESS FROM NODE 13834.00 TO NODE 13835.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM (FEET) = 471.65 DOWNSTREAM (FEET) = 347.06
CHANNEL LENGTH THRU SUBAREA (FEET) = 1647.45 CHANNEL SLOPE = 0.0756
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 1.77
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.673

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	94.21	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 192.28
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.18
AVERAGE FLOW DEPTH (FEET) = 1.74 TRAVEL TIME (MIN.) = 3.36
Tc (MIN.) = 26.38

SUBAREA AREA (ACRES) = 94.21 SUBAREA RUNOFF (CFS) = 116.41
EFFECTIVE AREA (ACRES) = 191.58 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 191.6 PEAK FLOW RATE (CFS) = 236.72
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 1.95

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 1.95 FLOW VELOCITY (FEET/SEC.) = 8.73
LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13835.00 = 6296.23 FEET.

FLOW PROCESS FROM NODE 13835.00 TO NODE 13836.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 347.06 DOWNSTREAM (FEET) = 269.29
CHANNEL LENGTH THRU SUBAREA (FEET) = 1696.71 CHANNEL SLOPE = 0.0458
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 2.88
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.531

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	233.25	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 366.16
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.28
AVERAGE FLOW DEPTH (FEET) = 2.83 TRAVEL TIME (MIN.) = 3.42
Tc (MIN.) = 29.80

SUBAREA AREA (ACRES) = 233.25 SUBAREA RUNOFF (CFS) = 258.52
EFFECTIVE AREA (ACRES) = 424.83 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 424.8 PEAK FLOW RATE (CFS) = 470.85
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 3.22

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 3.22 FLOW VELOCITY (FEET/SEC.) = 8.89
LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13836.00 = 7992.94 FEET.

FLOW PROCESS FROM NODE 13836.00 TO NODE 13837.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 269.29 DOWNSTREAM (FEET) = 191.87
CHANNEL LENGTH THRU SUBAREA (FEET) = 2529.21 CHANNEL SLOPE = 0.0306
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 3.86
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.421

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	134.70	0.30	0.880	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.880
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 540.99
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.98
AVERAGE FLOW DEPTH (FEET) = 3.83 TRAVEL TIME (MIN.) = 5.28
Tc (MIN.) = 35.08

SUBAREA AREA (ACRES) = 134.70 SUBAREA RUNOFF (CFS) = 140.27
EFFECTIVE AREA (ACRES) = 559.53 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97
TOTAL AREA (ACRES) = 559.5 PEAK FLOW RATE (CFS) = 568.89
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 3.93

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 3.93 FLOW VELOCITY (FEET/SEC.) = 8.09
LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13837.00 = 10522.15 FEET.

FLOW PROCESS FROM NODE 13837.00 TO NODE 13840.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 191.87 DOWNSTREAM (FEET) = 133.00
FLOW LENGTH (FEET) = 1151.02 MANNING'S N = 0.013

DEPTH OF FLOW IN 63.0 INCH PIPE IS 46.5 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 33.24
 ESTIMATED PIPE DIAMETER (INCH) = 63.00 NUMBER OF PIPES = 1
 PIPE-FLOW (CFS) = 568.89
 PIPE TRAVEL TIME (MIN.) = 0.58 Tc (MIN.) = 35.65
 LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13840.00 = 11673.17 FEET.

 FLOW PROCESS FROM NODE 13837.00 TO NODE 13840.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 35.65
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.409
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCSSOIL AREA Fp Ap SCSS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 5.97 0.30 0.622 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.622
 SUBAREA AREA (ACRES) = 5.97 SUBAREA RUNOFF (CFS) = 6.57
 EFFECTIVE AREA (ACRES) = 565.50 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97
 TOTAL AREA (ACRES) = 565.5 PEAK FLOW RATE (CFS) = 569.62

 FLOW PROCESS FROM NODE 13837.00 TO NODE 13840.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 35.65
 RAINFALL INTENSITY (INCH/HR) = 1.41
 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.97
 EFFECTIVE STREAM AREA (ACRES) = 565.50
 TOTAL STREAM AREA (ACRES) = 565.50
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 569.62

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20043.21	21.37	1.912	0.30 (0.25)	0.85	3514.0	10600.00
1	20483.38	23.03	1.829	0.30 (0.25)	0.85	3953.7	13810.00
1	25521.01	42.55	1.283	0.30 (0.26)	0.86	8999.8	110.00
1	27654.16	51.64	1.148	0.30 (0.26)	0.87	12843.1	10100.00
1	28620.76	56.40	1.088	0.30 (0.26)	0.88	14709.6	150.00
1	30086.85	64.16	1.019	0.30 (0.27)	0.89	17648.7	600.00
1	30737.79	69.30	0.990	0.30 (0.27)	0.90	19932.7	31100.00
1	32324.72	80.62	0.926	0.30 (0.27)	0.91	24938.5	40100.00
1	33687.14	88.08	0.884	0.30 (0.28)	0.92	28287.0	11801.00
1	35877.52	98.33	0.842	0.30 (0.28)	0.93	33608.8	11530.00
1	37091.32	106.76	0.810	0.30 (0.28)	0.94	38850.8	11910.00
1	38913.41	116.41	0.774	0.30 (0.28)	0.94	45523.9	11350.00
1	39332.62	121.05	0.759	0.30 (0.28)	0.95	48698.1	11130.00

1	38963.89	127.16	0.746	0.30 (0.28)	0.95	51624.7	12300.00
1	38252.95	135.98	0.727	0.30 (0.29)	0.95	55885.3	12400.00
1	37258.36	145.59	0.706	0.30 (0.29)	0.95	59286.9	12201.00
1	36316.58	153.17	0.690	0.30 (0.29)	0.96	61179.9	12231.00
1	35338.20	160.76	0.673	0.30 (0.29)	0.96	62732.6	10400.00
1	33803.71	170.38	0.653	0.30 (0.29)	0.96	64179.1	12010.00
1	32774.51	175.89	0.641	0.30 (0.29)	0.96	64441.6	10210.00
1	28519.65	206.87	0.607	0.30 (0.29)	0.96	65201.4	10100.00
2	569.62	35.65	1.409	0.30 (0.29)	0.97	565.5	13830.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20538.07	21.37	1.912	0.30 (0.26)	0.86	3853.0	10600.00
2	20989.24	23.03	1.829	0.30 (0.26)	0.86	4318.9	13810.00
3	24311.03	35.65	1.409	0.30 (0.26)	0.86	7782.7	13830.00
4	26026.31	42.55	1.283	0.30 (0.26)	0.86	9565.3	110.00
5	28090.92	51.64	1.148	0.30 (0.26)	0.88	13408.6	10100.00
6	29026.99	56.40	1.088	0.30 (0.26)	0.88	15275.1	150.00
7	30458.01	64.16	1.019	0.30 (0.27)	0.89	18214.2	600.00
8	31094.12	69.30	0.990	0.30 (0.27)	0.90	20498.2	31100.00
9	32648.41	80.62	0.926	0.30 (0.27)	0.91	25504.0	40100.00
10	33989.31	88.08	0.884	0.30 (0.28)	0.92	28852.5	11801.00
11	36158.32	98.33	0.842	0.30 (0.28)	0.93	34174.3	11530.00
12	37356.10	106.76	0.810	0.30 (0.28)	0.94	39416.2	11910.00
13	39159.86	116.41	0.774	0.30 (0.28)	0.94	46089.4	11350.00
14	39571.11	121.05	0.759	0.30 (0.28)	0.95	49263.6	11130.00
15	39195.69	127.16	0.746	0.30 (0.28)	0.95	52190.2	12300.00
16	38475.09	135.98	0.727	0.30 (0.29)	0.95	56450.8	12400.00
17	37469.99	145.59	0.706	0.30 (0.29)	0.95	59852.4	12201.00
18	36519.91	153.17	0.690	0.30 (0.29)	0.96	61745.4	12231.00
19	35533.23	160.76	0.673	0.30 (0.29)	0.96	63298.1	10400.00
20	33988.22	170.38	0.653	0.30 (0.29)	0.96	64744.6	12010.00
21	32952.98	175.89	0.641	0.30 (0.29)	0.96	65007.1	10210.00
22	28680.71	206.87	0.607	0.30 (0.29)	0.96	65766.9	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 39571.11 Tc (MIN.) = 121.05
 EFFECTIVE AREA (ACRES) = 49263.62 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 65766.9
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13840.00 = 132801.55 FEET.

 FLOW PROCESS FROM NODE 13840.00 TO NODE 13860.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 133.00 DOWNSTREAM (FEET) = 130.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 654.44 CHANNEL SLOPE = 0.0046
 GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 15.08
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 0.757

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	6.61	0.30	0.975	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.975
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 39572.49
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 16.37
AVERAGE FLOW DEPTH(FEET) = 15.08 TRAVEL TIME(MIN.) = 0.67
Tc(MIN.) = 121.72
SUBAREA AREA(ACRES) = 6.61 SUBAREA RUNOFF(CFS) = 2.77
EFFECTIVE AREA(ACRES) = 49270.23 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 65773.5 PEAK FLOW RATE(CFS) = 39571.11
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 15.08

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 15.08 FLOW VELOCITY(FEET/SEC.) = 16.37
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13860.00 = 133455.98 FEET.

FLOW PROCESS FROM NODE 13840.00 TO NODE 13860.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
=====

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 121.72
RAINFALL INTENSITY(INCH/HR) = 0.76
AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.95
EFFECTIVE STREAM AREA(ACRES) = 49270.23
TOTAL STREAM AREA(ACRES) = 65773.50
PEAK FLOW RATE(CFS) AT CONFLUENCE = 39571.11

FLOW PROCESS FROM NODE 13850.00 TO NODE 13851.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 617.57
ELEVATION DATA: UPSTREAM(FEET) = 646.95 DOWNSTREAM(FEET) = 490.10

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 12.137
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.797

SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	-	4.95	0.30	1.000	56	12.14

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA RUNOFF(CFS) = 11.12
TOTAL AREA(ACRES) = 4.95 PEAK FLOW RATE(CFS) = 11.12

FLOW PROCESS FROM NODE 13851.00 TO NODE 13851.50 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 490.10 DOWNSTREAM(FEET) = 440.98
CHANNEL LENGTH THRU SUBAREA(FEET) = 351.14 CHANNEL SLOPE = 0.1399
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.34
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.598

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	4.02	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 15.29
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.23
AVERAGE FLOW DEPTH(FEET) = 0.34 TRAVEL TIME(MIN.) = 1.38
Tc(MIN.) = 13.52
SUBAREA AREA(ACRES) = 4.02 SUBAREA RUNOFF(CFS) = 8.32
EFFECTIVE AREA(ACRES) = 8.97 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 9.0 PEAK FLOW RATE(CFS) = 18.56
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.38

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 0.38 FLOW VELOCITY(FEET/SEC.) = 4.58
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13851.50 = 968.71 FEET.

FLOW PROCESS FROM NODE 13851.50 TO NODE 13852.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 440.98 DOWNSTREAM(FEET) = 395.76
CHANNEL LENGTH THRU SUBAREA(FEET) = 512.91 CHANNEL SLOPE = 0.0882
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.53
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.349

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	7.17	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 25.17
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.42
AVERAGE FLOW DEPTH(FEET) = 0.52 TRAVEL TIME(MIN.) = 1.93

Tc(MIN.) = 15.45
SUBAREA AREA(ACRES) = 7.17 SUBAREA RUNOFF(CFS) = 13.22
EFFECTIVE AREA(ACRES) = 16.14 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 16.1 PEAK FLOW RATE(CFS) = 29.77
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.57

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 0.57 FLOW VELOCITY(FEET/SEC.) = 4.69
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13852.00 = 1481.62 FEET.

FLOW PROCESS FROM NODE 13852.00 TO NODE 13853.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 395.76 DOWNSTREAM(FEET) = 354.94
CHANNEL LENGTH THRU SUBAREA(FEET) = 443.69 CHANNEL SLOPE = 0.0920
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.63

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.230
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 6.76 0.30 1.000 -
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 35.64
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.04
AVERAGE FLOW DEPTH(FEET) = 0.63 TRAVEL TIME(MIN.) = 1.47
Tc(MIN.) = 16.92
SUBAREA AREA(ACRES) = 6.76 SUBAREA RUNOFF(CFS) = 11.74
EFFECTIVE AREA(ACRES) = 22.90 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 22.9 PEAK FLOW RATE(CFS) = 39.79
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.67

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 0.67 FLOW VELOCITY(FEET/SEC.) = 5.25
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13853.00 = 1925.31 FEET.

FLOW PROCESS FROM NODE 13853.00 TO NODE 13854.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 354.94 DOWNSTREAM(FEET) = 263.57
CHANNEL LENGTH THRU SUBAREA(FEET) = 962.09 CHANNEL SLOPE = 0.0950
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.81

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.009
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 18.16 0.30 1.000 -
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 53.77
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.87
AVERAGE FLOW DEPTH(FEET) = 0.79 TRAVEL TIME(MIN.) = 2.73
Tc(MIN.) = 19.65

SUBAREA AREA(ACRES) = 18.16 SUBAREA RUNOFF(CFS) = 27.94
EFFECTIVE AREA(ACRES) = 41.06 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 41.1 PEAK FLOW RATE(CFS) = 63.16
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.87

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 0.87 FLOW VELOCITY(FEET/SEC.) = 6.21
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13854.00 = 2887.40 FEET.

FLOW PROCESS FROM NODE 13854.00 TO NODE 13855.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 263.57 DOWNSTREAM(FEET) = 188.74
CHANNEL LENGTH THRU SUBAREA(FEET) = 1228.77 CHANNEL SLOPE = 0.0609
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.23

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.828
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 38.75 0.30 0.879 -
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.879
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 90.46
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.02
AVERAGE FLOW DEPTH(FEET) = 1.21 TRAVEL TIME(MIN.) = 3.40
Tc(MIN.) = 23.06
SUBAREA AREA(ACRES) = 38.75 SUBAREA RUNOFF(CFS) = 54.54
EFFECTIVE AREA(ACRES) = 79.81 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA(ACRES) = 79.8 PEAK FLOW RATE(CFS) = 111.00
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.36

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.36 FLOW VELOCITY(FEET/SEC.) = 6.41
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13855.00 = 4116.17 FEET.

FLOW PROCESS FROM NODE 13855.00 TO NODE 13860.00 IS CODE = 31

 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

 ELEVATION DATA: UPSTREAM(FEET) = 188.74 DOWNSTREAM(FEET) = 130.00
 FLOW LENGTH(FEET) = 2092.67 MANNING'S N = 0.013
 DEPTH OF FLOW IN 39.0 INCH PIPE IS 27.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 17.74
 ESTIMATED PIPE DIAMETER(INCH) = 39.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 111.00
 PIPE TRAVEL TIME(MIN.) = 1.97 Tc(MIN.) = 25.02
 LONGEST FLOWPATH FROM NODE 13855.00 TO NODE 13860.00 = 6208.84 FEET.

 FLOW PROCESS FROM NODE 13855.00 TO NODE 13860.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

 MAINLINE Tc(MIN.) = 25.02
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.729
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 43.41 0.30 0.707 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.707
 SUBAREA AREA(ACRES) = 43.41 SUBAREA RUNOFF(CFS) = 59.27
 EFFECTIVE AREA(ACRES) = 123.22 AREA-AVERAGED Fm(INCH/HR) = 0.26
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.86
 TOTAL AREA(ACRES) = 123.2 PEAK FLOW RATE(CFS) = 163.19

 FLOW PROCESS FROM NODE 13855.00 TO NODE 13860.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION(MIN.) = 25.02
 RAINFALL INTENSITY(INCH/HR) = 1.73
 AREA-AVERAGED Fm(INCH/HR) = 0.26
 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.86
 EFFECTIVE STREAM AREA(ACRES) = 123.22
 TOTAL STREAM AREA(ACRES) = 123.22
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 163.19

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20538.07	22.18	1.871	0.30(0.26)	0.86	3859.7	10600.00
1	20989.24	23.83	1.789	0.30(0.26)	0.86	4325.6	13810.00
1	24311.03	36.42	1.394	0.30(0.26)	0.86	7789.3	13830.00
1	26026.31	43.30	1.271	0.30(0.26)	0.86	9571.9	110.00
1	28090.92	52.38	1.139	0.30(0.26)	0.88	13415.2	10100.00
1	29026.99	57.13	1.079	0.30(0.26)	0.88	15281.7	150.00

1	30458.01	64.88	1.015	0.30(0.27)	0.89	18220.8	600.00
1	31094.12	70.02	0.986	0.30(0.27)	0.90	20504.8	31100.00
1	32648.41	81.33	0.922	0.30(0.27)	0.91	25510.6	40100.00
1	33989.31	88.78	0.880	0.30(0.28)	0.92	28859.2	11801.00
1	36158.32	99.02	0.839	0.30(0.28)	0.93	34180.9	11530.00
1	37356.10	107.44	0.808	0.30(0.28)	0.94	39422.9	11910.00
1	39159.86	117.08	0.772	0.30(0.28)	0.94	46096.0	11350.00
1	39571.11	121.72	0.757	0.30(0.28)	0.95	49270.2	11130.00
1	39195.69	127.83	0.744	0.30(0.28)	0.95	52196.8	12300.00
1	38475.09	136.66	0.725	0.30(0.29)	0.95	56457.4	12400.00
1	37469.99	146.27	0.705	0.30(0.29)	0.95	59859.0	12201.00
1	36519.91	153.85	0.688	0.30(0.29)	0.96	61752.0	12231.00
1	35533.23	161.45	0.672	0.30(0.29)	0.96	63304.7	10400.00
1	33988.22	171.07	0.651	0.30(0.29)	0.96	64751.2	12010.00
1	32952.98	176.59	0.639	0.30(0.29)	0.96	65013.7	10210.00
1	28680.71	207.60	0.606	0.30(0.29)	0.96	65773.5	10100.00
2	163.19	25.02	1.729	0.30(0.26)	0.86	123.2	13850.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20696.74	22.18	1.871	0.30(0.26)	0.86	3968.9	10600.00
2	21150.96	23.83	1.789	0.30(0.26)	0.86	4442.9	13810.00
3	21466.47	25.02	1.729	0.30(0.26)	0.86	4776.2	13850.00
4	24437.05	36.42	1.394	0.30(0.26)	0.86	7912.5	13830.00
5	26138.75	43.30	1.271	0.30(0.26)	0.86	9695.1	110.00
6	28188.67	52.38	1.139	0.30(0.26)	0.88	13538.4	10100.00
7	29118.11	57.13	1.079	0.30(0.26)	0.88	15405.0	150.00
8	30542.04	64.88	1.015	0.30(0.27)	0.89	18344.0	600.00
9	31174.94	70.02	0.986	0.30(0.27)	0.90	20628.0	31100.00
10	32722.11	81.33	0.922	0.30(0.27)	0.91	25633.8	40100.00
11	34058.33	88.78	0.880	0.30(0.28)	0.92	28982.4	11801.00
12	36222.84	99.02	0.839	0.30(0.28)	0.93	34304.1	11530.00
13	37417.13	107.44	0.808	0.30(0.28)	0.94	39546.1	11910.00
14	39216.89	117.08	0.772	0.30(0.28)	0.94	46219.2	11350.00
15	39626.53	121.72	0.757	0.30(0.28)	0.95	49393.4	11130.00
16	39249.65	127.83	0.744	0.30(0.28)	0.95	52320.0	12300.00
17	38526.95	136.66	0.725	0.30(0.29)	0.95	56580.6	12400.00
18	37519.55	146.27	0.705	0.30(0.29)	0.95	59982.2	12201.00
19	36567.67	153.85	0.688	0.30(0.29)	0.95	61875.2	12231.00
20	35579.18	161.45	0.672	0.30(0.29)	0.96	63428.0	10400.00
21	34031.88	171.07	0.651	0.30(0.29)	0.96	64874.4	12010.00
22	32995.32	176.59	0.639	0.30(0.29)	0.96	65137.0	10210.00
23	28719.35	207.60	0.606	0.30(0.29)	0.96	65896.7	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) = 39626.53 Tc(MIN.) = 121.72
 EFFECTIVE AREA(ACRES) = 49393.45 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA(ACRES) = 65896.7
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13860.00 = 133455.98 FEET.

 FLOW PROCESS FROM NODE 13860.00 TO NODE 13880.00 IS CODE = 56

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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 130.00 DOWNSTREAM(FEET) = 120.57
CHANNEL LENGTH THRU SUBAREA(FEET) = 610.77 CHANNEL SLOPE = 0.0154
GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 10.95
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.756
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 4.89 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 39627.53
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 25.18
AVERAGE FLOW DEPTH(FEET) = 10.95 TRAVEL TIME(MIN.) = 0.40
Tc(MIN.) = 122.12
SUBAREA AREA(ACRES) = 4.89 SUBAREA RUNOFF(CFS) = 2.01
EFFECTIVE AREA(ACRES) = 49398.34 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 65901.6 PEAK FLOW RATE(CFS) = 39626.53
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 10.95

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 10.95 FLOW VELOCITY(FEET/SEC.) = 25.18
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13880.00 = 134066.75 FEET.

*****
FLOW PROCESS FROM NODE 13860.00 TO NODE 13880.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 122.12
RAINFALL INTENSITY(INCH/HR) = 0.76
AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.95
EFFECTIVE STREAM AREA(ACRES) = 49398.34
TOTAL STREAM AREA(ACRES) = 65901.61
PEAK FLOW RATE(CFS) AT CONFLUENCE = 39626.53

*****
FLOW PROCESS FROM NODE 13870.00 TO NODE 13871.00 IS CODE = 21
-----
>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
=====
INITIAL SUBAREA FLOW-LENGTH(FEET) = 872.65
ELEVATION DATA: UPSTREAM(FEET) = 558.52 DOWNSTREAM(FEET) = 436.47

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20

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SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 15.704
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.329
SUBAREA Tc AND LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"GRASS" - 7.32 0.30 1.000 56 15.70
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF(CFS) = 13.37
TOTAL AREA(ACRES) = 7.32 PEAK FLOW RATE(CFS) = 13.37

*****
FLOW PROCESS FROM NODE 13871.00 TO NODE 13872.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 436.47 DOWNSTREAM(FEET) = 337.62
CHANNEL LENGTH THRU SUBAREA(FEET) = 827.95 CHANNEL SLOPE = 0.1194
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.48
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.094
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 13.01 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 23.90
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.75
AVERAGE FLOW DEPTH(FEET) = 0.46 TRAVEL TIME(MIN.) = 2.91
Tc(MIN.) = 18.61
SUBAREA AREA(ACRES) = 13.01 SUBAREA RUNOFF(CFS) = 21.00
EFFECTIVE AREA(ACRES) = 20.33 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 20.3 PEAK FLOW RATE(CFS) = 32.82
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.55

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 0.55 FLOW VELOCITY(FEET/SEC.) = 5.33
LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13872.00 = 1700.60 FEET.

*****
FLOW PROCESS FROM NODE 13872.00 TO NODE 13873.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 337.62 DOWNSTREAM(FEET) = 253.88
CHANNEL LENGTH THRU SUBAREA(FEET) = 1049.16 CHANNEL SLOPE = 0.0798
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.88
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.895

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SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	32.99	0.30	0.923	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.923
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 56.89
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.65
AVERAGE FLOW DEPTH(FEET) = 0.86 TRAVEL TIME(MIN.) = 3.10
Tc(MIN.) = 21.70
SUBAREA AREA(ACRES) = 32.99 SUBAREA RUNOFF(CFS) = 48.06
EFFECTIVE AREA(ACRES) = 53.32 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 53.3 PEAK FLOW RATE(CFS) = 77.25
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.03

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.03 FLOW VELOCITY(FEET/SEC.) = 6.25
LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13873.00 = 2749.76 FEET.

FLOW PROCESS FROM NODE 13873.00 TO NODE 13874.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 253.88 DOWNSTREAM(FEET) = 160.73
CHANNEL LENGTH THRU SUBAREA(FEET) = 1518.60 CHANNEL SLOPE = 0.0613
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.01
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.739

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	30.94	0.30	0.900	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.900
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 97.73
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 8.12
AVERAGE FLOW DEPTH(FEET) = 1.00 TRAVEL TIME(MIN.) = 3.12
Tc(MIN.) = 24.82
SUBAREA AREA(ACRES) = 30.94 SUBAREA RUNOFF(CFS) = 40.91
EFFECTIVE AREA(ACRES) = 84.26 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
TOTAL AREA(ACRES) = 84.3 PEAK FLOW RATE(CFS) = 110.65
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.07

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.07 FLOW VELOCITY(FEET/SEC.) = 8.49
LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13874.00 = 4268.36 FEET.

FLOW PROCESS FROM NODE 13874.00 TO NODE 13875.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 160.73 DOWNSTREAM(FEET) = 158.14
CHANNEL LENGTH THRU SUBAREA(FEET) = 582.74 CHANNEL SLOPE = 0.0044
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.72
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.631

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	73.67	0.30	0.930	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.930
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 155.49
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 3.76
AVERAGE FLOW DEPTH(FEET) = 2.69 TRAVEL TIME(MIN.) = 2.58
Tc(MIN.) = 27.40
SUBAREA AREA(ACRES) = 73.67 SUBAREA RUNOFF(CFS) = 89.62
EFFECTIVE AREA(ACRES) = 157.93 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
TOTAL AREA(ACRES) = 157.9 PEAK FLOW RATE(CFS) = 192.04
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 3.00

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 3.00 FLOW VELOCITY(FEET/SEC.) = 4.00
LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13875.00 = 4851.10 FEET.

FLOW PROCESS FROM NODE 13875.00 TO NODE 13880.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 158.14 DOWNSTREAM(FEET) = 120.57
FLOW LENGTH(FEET) = 1855.67 MANNING'S N = 0.013
DEPTH OF FLOW IN 48.0 INCH PIPE IS 38.9 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 17.59
ESTIMATED PIPE DIAMETER(INCH) = 48.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 192.04
PIPE TRAVEL TIME(MIN.) = 1.76 Tc(MIN.) = 29.16
LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13880.00 = 6706.77 FEET.

FLOW PROCESS FROM NODE 13875.00 TO NODE 13880.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 29.16
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 1.558
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	34.90	0.30	0.743	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.743
 SUBAREA AREA(ACRES) = 34.90 SUBAREA RUNOFF(CFS) = 41.93
 EFFECTIVE AREA(ACRES) = 192.83 AREA-AVERAGED Fm(INCH/HR) = 0.27
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.90
 TOTAL AREA(ACRES) = 192.8 PEAK FLOW RATE(CFS) = 223.63

 FLOW PROCESS FROM NODE 13875.00 TO NODE 13880.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

=====

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION(MIN.) = 29.16
 RAINFALL INTENSITY(INCH/HR) = 1.56
 AREA-AVERAGED Fm(INCH/HR) = 0.27
 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.90
 EFFECTIVE STREAM AREA(ACRES) = 192.83
 TOTAL STREAM AREA(ACRES) = 192.83
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 223.63

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20696.74	22.67	1.847	0.30(0.26)	0.86	3973.8	10600.00
1	21150.96	24.32	1.764	0.30(0.26)	0.86	4447.8	13810.00
1	21466.47	25.51	1.709	0.30(0.26)	0.86	4781.1	13850.00
1	24437.05	36.89	1.385	0.30(0.26)	0.86	7917.4	13830.00
1	26138.75	43.76	1.264	0.30(0.26)	0.86	9700.0	110.00
1	28188.67	52.83	1.133	0.30(0.26)	0.88	13543.3	10100.00
1	29118.11	57.57	1.074	0.30(0.26)	0.88	15409.8	150.00
1	30542.04	65.32	1.013	0.30(0.27)	0.89	18348.9	600.00
1	31174.94	70.45	0.984	0.30(0.27)	0.90	20632.9	31100.00
1	32722.11	81.75	0.920	0.30(0.27)	0.91	25638.7	40100.00
1	34058.33	89.20	0.878	0.30(0.28)	0.92	28987.3	11801.00
1	36222.84	99.43	0.838	0.30(0.28)	0.93	34309.0	11530.00
1	37417.13	107.85	0.806	0.30(0.28)	0.94	39551.0	11910.00
1	39216.89	117.49	0.770	0.30(0.28)	0.94	46224.1	11350.00
1	39626.53	122.12	0.756	0.30(0.28)	0.95	49398.3	11130.00
1	39249.65	128.23	0.743	0.30(0.28)	0.95	52324.9	12300.00
1	38526.95	137.06	0.724	0.30(0.29)	0.95	56585.5	12400.00
1	37519.55	146.68	0.704	0.30(0.29)	0.95	59987.1	12201.00
1	36567.67	154.27	0.687	0.30(0.29)	0.95	61880.1	12231.00
1	35579.18	161.86	0.671	0.30(0.29)	0.96	63432.9	10400.00
1	34031.88	171.50	0.650	0.30(0.29)	0.96	64879.3	12010.00
1	32995.32	177.02	0.638	0.30(0.29)	0.96	65141.9	10210.00
1	28719.35	208.04	0.606	0.30(0.29)	0.96	65901.6	10100.00
2	223.63	29.16	1.558	0.30(0.27)	0.90	192.8	13870.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20696.74	22.67	1.847	0.30(0.26)	0.86	3973.8	10600.00
1	21150.96	24.32	1.764	0.30(0.26)	0.86	4447.8	13810.00
1	21466.47	25.51	1.709	0.30(0.26)	0.86	4781.1	13850.00
1	24437.05	36.89	1.385	0.30(0.26)	0.86	7917.4	13830.00
1	26138.75	43.76	1.264	0.30(0.26)	0.86	9700.0	110.00
1	28188.67	52.83	1.133	0.30(0.26)	0.88	13543.3	10100.00
1	29118.11	57.57	1.074	0.30(0.26)	0.88	15409.8	150.00
1	30542.04	65.32	1.013	0.30(0.27)	0.89	18348.9	600.00
1	31174.94	70.45	0.984	0.30(0.27)	0.90	20632.9	31100.00
1	32722.11	81.75	0.920	0.30(0.27)	0.91	25638.7	40100.00
1	34058.33	89.20	0.878	0.30(0.28)	0.92	28987.3	11801.00
1	36222.84	99.43	0.838	0.30(0.28)	0.93	34309.0	11530.00
1	37417.13	107.85	0.806	0.30(0.28)	0.94	39551.0	11910.00
1	39216.89	117.49	0.770	0.30(0.28)	0.94	46224.1	11350.00
1	39626.53	122.12	0.756	0.30(0.28)	0.95	49398.3	11130.00
1	39249.65	128.23	0.743	0.30(0.28)	0.95	52324.9	12300.00
1	38526.95	137.06	0.724	0.30(0.29)	0.95	56585.5	12400.00
1	37519.55	146.68	0.704	0.30(0.29)	0.95	59987.1	12201.00
1	36567.67	154.27	0.687	0.30(0.29)	0.95	61880.1	12231.00
1	35579.18	161.86	0.671	0.30(0.29)	0.96	63432.9	10400.00
1	34031.88	171.50	0.650	0.30(0.29)	0.96	64879.3	12010.00
1	32995.32	177.02	0.638	0.30(0.29)	0.96	65141.9	10210.00
1	28719.35	208.04	0.606	0.30(0.29)	0.96	65901.6	10100.00
2	223.63	29.16	1.558	0.30(0.27)	0.90	192.8	13870.00

1	20909.63	22.67	1.847	0.30(0.26)	0.86	4123.7	10600.00
2	21367.34	24.32	1.764	0.30(0.26)	0.86	4608.6	13810.00
3	21685.04	25.51	1.709	0.30(0.26)	0.86	4949.8	13850.00
4	22643.31	29.16	1.558	0.30(0.26)	0.86	5980.3	13870.00
5	24630.62	36.89	1.385	0.30(0.26)	0.86	8110.3	13830.00
6	26311.48	43.76	1.264	0.30(0.26)	0.86	9892.8	110.00
7	28338.65	52.83	1.133	0.30(0.26)	0.88	13736.1	10100.00
8	29257.70	57.57	1.074	0.30(0.26)	0.88	15602.7	150.00
9	30671.11	65.32	1.013	0.30(0.27)	0.89	18541.8	600.00
10	31298.95	70.45	0.984	0.30(0.27)	0.90	20825.8	31100.00
11	32835.01	81.75	0.920	0.30(0.27)	0.91	25831.6	40100.00
12	34163.91	89.20	0.878	0.30(0.28)	0.92	29180.1	11801.00
13	36321.52	99.43	0.838	0.30(0.28)	0.93	34501.9	11530.00
14	37510.36	107.85	0.806	0.30(0.28)	0.94	39743.8	11910.00
15	39303.88	117.49	0.770	0.30(0.28)	0.94	46416.9	11350.00
16	39711.09	122.12	0.756	0.30(0.28)	0.95	49591.2	11130.00
17	39331.93	128.23	0.743	0.30(0.28)	0.95	52517.8	12300.00
18	38605.94	137.06	0.724	0.30(0.29)	0.95	56778.3	12400.00
19	37594.95	146.68	0.704	0.30(0.29)	0.95	60179.9	12201.00
20	36640.24	154.27	0.687	0.30(0.29)	0.95	62073.0	12231.00
21	35648.91	161.86	0.671	0.30(0.29)	0.96	63625.7	10400.00
22	34098.01	171.50	0.650	0.30(0.29)	0.96	65072.1	12010.00
23	33059.39	177.02	0.638	0.30(0.29)	0.96	65334.7	10210.00
24	28777.71	208.04	0.606	0.30(0.29)	0.96	66094.4	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 39711.09 Tc(MIN.) = 122.12
 EFFECTIVE AREA(ACRES) = 49591.17 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA(ACRES) = 66094.4
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13880.00 = 134066.75 FEET.

 FLOW PROCESS FROM NODE 13880.00 TO NODE 13910.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 120.57 DOWNSTREAM(FEET) = 119.70
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1190.21 CHANNEL SLOPE = 0.0007
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 24.03
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.751
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
USER-DEFINED	-	117.69	0.30	0.724	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.724
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 39739.38
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 8.43
 AVERAGE FLOW DEPTH(FEET) = 24.03 TRAVEL TIME(MIN.) = 2.35
 Tc(MIN.) = 124.47
 SUBAREA AREA(ACRES) = 117.69 SUBAREA RUNOFF(CFS) = 56.59
 EFFECTIVE AREA(ACRES) = 49708.86 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA(ACRES) = 66212.1 PEAK FLOW RATE(CFS) = 39711.09

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 24.01

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 24.01 FLOW VELOCITY (FEET/SEC.) = 8.43
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13910.00 = 135256.95 FEET.

FLOW PROCESS FROM NODE 13880.00 TO NODE 13910.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<

=====

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION (MIN.) = 124.47
RAINFALL INTENSITY (INCH/HR) = 0.75
AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.95
EFFECTIVE STREAM AREA (ACRES) = 49708.86
TOTAL STREAM AREA (ACRES) = 66212.12
PEAK FLOW RATE (CFS) AT CONFLUENCE = 39711.09

FLOW PROCESS FROM NODE 13889.00 TO NODE 13890.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

=====

INITIAL SUBAREA FLOW-LENGTH (FEET) = 447.89
ELEVATION DATA: UPSTREAM (FEET) = 564.89 DOWNSTREAM (FEET) = 421.92

Tc = K * [(LENGTH ** 3.00) / (ELEVATION CHANGE)] ** 0.20
SUBAREA ANALYSIS USED MINIMUM Tc (MIN.) = 6.976
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 4.094
SUBAREA Tc AND LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
PUBLIC PARK	-	3.03	0.30	0.960	56	6.98

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.960
SUBAREA RUNOFF (CFS) = 10.38
TOTAL AREA (ACRES) = 3.03 PEAK FLOW RATE (CFS) = 10.38

FLOW PROCESS FROM NODE 13890.00 TO NODE 13891.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 421.92 DOWNSTREAM (FEET) = 392.64
CHANNEL LENGTH THRU SUBAREA (FEET) = 435.33 CHANNEL SLOPE = 0.0673
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.43
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.621

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	8.12	0.30	0.986	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.986
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 22.58
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.03
AVERAGE FLOW DEPTH (FEET) = 0.41 TRAVEL TIME (MIN.) = 1.44
Tc (MIN.) = 8.42

SUBAREA AREA (ACRES) = 8.12 SUBAREA RUNOFF (CFS) = 24.30
EFFECTIVE AREA (ACRES) = 11.15 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 11.1 PEAK FLOW RATE (CFS) = 33.40
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.52

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.52 FLOW VELOCITY (FEET/SEC.) = 5.80
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13891.00 = 883.22 FEET.

FLOW PROCESS FROM NODE 13891.00 TO NODE 13892.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 392.64 DOWNSTREAM (FEET) = 324.46
CHANNEL LENGTH THRU SUBAREA (FEET) = 662.40 CHANNEL SLOPE = 0.1029
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.60
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.151

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	12.50	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 49.47
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.69
AVERAGE FLOW DEPTH (FEET) = 0.58 TRAVEL TIME (MIN.) = 1.44
Tc (MIN.) = 9.86
SUBAREA AREA (ACRES) = 12.50 SUBAREA RUNOFF (CFS) = 32.08
EFFECTIVE AREA (ACRES) = 23.65 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 23.6 PEAK FLOW RATE (CFS) = 60.75
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.65

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.65 FLOW VELOCITY (FEET/SEC.) = 8.23
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13892.00 = 1545.62 FEET.

FLOW PROCESS FROM NODE 13892.00 TO NODE 13893.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 324.46 DOWNSTREAM(FEET) = 240.82
CHANNEL LENGTH THRU SUBAREA(FEET) = 980.03 CHANNEL SLOPE = 0.0853
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.82

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.847
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	15.87	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 78.96
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 8.46
AVERAGE FLOW DEPTH(FEET) = 0.80 TRAVEL TIME(MIN.) = 1.93
Tc(MIN.) = 11.79
SUBAREA AREA(ACRES) = 15.87 SUBAREA RUNOFF(CFS) = 36.39
EFFECTIVE AREA(ACRES) = 39.52 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA(ACRES) = 39.5 PEAK FLOW RATE(CFS) = 90.68
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.87

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 0.87 FLOW VELOCITY(FEET/SEC.) = 8.85
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13893.00 = 2525.65 FEET.

FLOW PROCESS FROM NODE 13893.00 TO NODE 13894.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 240.82 DOWNSTREAM(FEET) = 163.04
CHANNEL LENGTH THRU SUBAREA(FEET) = 1144.35 CHANNEL SLOPE = 0.0680
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.11

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.542
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	28.41	0.30	0.985	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.985
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 119.45
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 8.96
AVERAGE FLOW DEPTH(FEET) = 1.09 TRAVEL TIME(MIN.) = 2.13
Tc(MIN.) = 13.91
SUBAREA AREA(ACRES) = 28.41 SUBAREA RUNOFF(CFS) = 57.44
EFFECTIVE AREA(ACRES) = 67.93 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA(ACRES) = 67.9 PEAK FLOW RATE(CFS) = 137.24

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.18

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.18 FLOW VELOCITY(FEET/SEC.) = 9.41
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13894.00 = 3670.00 FEET.

FLOW PROCESS FROM NODE 13894.00 TO NODE 13910.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 163.04 DOWNSTREAM(FEET) = 119.70
FLOW LENGTH(FEET) = 1899.01 MANNING'S N = 0.013
DEPTH OF FLOW IN 42.0 INCH PIPE IS 32.7 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 17.06
ESTIMATED PIPE DIAMETER(INCH) = 42.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 137.24
PIPE TRAVEL TIME(MIN.) = 1.86 Tc(MIN.) = 15.77
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13910.00 = 5569.01 FEET.

FLOW PROCESS FROM NODE 13894.00 TO NODE 13910.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 15.77
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.324
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	11.69	0.30	0.634	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.634
SUBAREA AREA(ACRES) = 11.69 SUBAREA RUNOFF(CFS) = 22.45
EFFECTIVE AREA(ACRES) = 79.62 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA(ACRES) = 79.6 PEAK FLOW RATE(CFS) = 146.34

FLOW PROCESS FROM NODE 13894.00 TO NODE 13910.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<

=====

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 15.77
RAINFALL INTENSITY(INCH/HR) = 2.32
AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.94
EFFECTIVE STREAM AREA(ACRES) = 79.62
TOTAL STREAM AREA(ACRES) = 79.62
PEAK FLOW RATE(CFS) AT CONFLUENCE = 146.34

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20909.63	25.48	1.710	0.30 (0.26)	0.86	4241.4	10600.00
1	21367.34	27.11	1.643	0.30 (0.26)	0.86	4726.3	13810.00
1	21685.04	28.28	1.594	0.30 (0.26)	0.86	5067.5	13850.00
1	22643.31	31.90	1.485	0.30 (0.26)	0.86	6098.0	13870.00
1	24630.62	39.57	1.331	0.30 (0.26)	0.86	8227.9	13830.00
1	26311.48	46.39	1.224	0.30 (0.26)	0.86	10010.5	110.00
1	28338.65	55.40	1.101	0.30 (0.26)	0.87	13853.8	10100.00
1	29257.70	60.13	1.042	0.30 (0.26)	0.88	15720.4	150.00
1	30671.11	67.84	0.999	0.30 (0.27)	0.89	18659.4	600.00
1	31298.95	72.96	0.970	0.30 (0.27)	0.90	20943.4	31100.00
1	32835.01	84.23	0.906	0.30 (0.27)	0.91	25949.2	40100.00
1	34163.91	91.65	0.867	0.30 (0.28)	0.92	29297.8	11801.00
1	36321.52	101.84	0.829	0.30 (0.28)	0.93	34619.5	11530.00
1	37510.36	110.24	0.797	0.30 (0.28)	0.94	39861.5	11910.00
1	39303.88	119.85	0.762	0.30 (0.28)	0.94	46534.6	11350.00
1	39711.09	124.47	0.751	0.30 (0.28)	0.95	49708.9	11130.00
1	39331.93	130.59	0.738	0.30 (0.28)	0.95	52635.4	12300.00
1	38605.94	139.43	0.719	0.30 (0.29)	0.95	56896.0	12400.00
1	37594.95	149.07	0.699	0.30 (0.29)	0.95	60297.6	12201.00
1	36640.24	156.67	0.682	0.30 (0.29)	0.95	62190.6	12231.00
1	35648.91	164.29	0.666	0.30 (0.29)	0.96	63743.4	10400.00
1	34098.01	173.95	0.645	0.30 (0.29)	0.96	65189.8	12010.00
1	33059.39	179.49	0.633	0.30 (0.29)	0.96	65452.4	10210.00
1	28777.71	210.61	0.603	0.30 (0.29)	0.96	66212.1	10100.00
2	146.34	15.77	2.324	0.30 (0.28)	0.94	79.6	13889.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18552.19	15.77	2.324	0.30 (0.26)	0.86	2705.1	13889.00
2	21012.02	25.48	1.710	0.30 (0.26)	0.86	4321.0	10600.00
3	21464.90	27.11	1.643	0.30 (0.26)	0.86	4805.9	13810.00
4	21779.11	28.28	1.594	0.30 (0.26)	0.86	5147.1	13850.00
5	22729.55	31.90	1.485	0.30 (0.26)	0.86	6177.7	13870.00
6	24705.81	39.57	1.331	0.30 (0.26)	0.86	8307.6	13830.00
7	26379.04	46.39	1.224	0.30 (0.26)	0.86	10090.2	110.00
8	28397.38	55.40	1.101	0.30 (0.26)	0.88	13933.4	10100.00
9	29312.23	60.13	1.042	0.30 (0.26)	0.88	15800.0	150.00
10	30722.50	67.84	0.999	0.30 (0.27)	0.89	18739.1	600.00
11	31348.27	72.96	0.970	0.30 (0.27)	0.90	21023.1	31100.00
12	32879.75	84.23	0.906	0.30 (0.27)	0.91	26028.9	40100.00
13	34205.87	91.65	0.867	0.30 (0.28)	0.92	29377.4	11801.00
14	36360.75	101.84	0.829	0.30 (0.28)	0.93	34699.2	11530.00
15	37547.34	110.24	0.797	0.30 (0.28)	0.94	39941.1	11910.00
16	39338.29	119.85	0.762	0.30 (0.28)	0.94	46614.3	11350.00
17	39744.77	124.47	0.751	0.30 (0.28)	0.95	49788.5	11130.00
18	39364.68	130.59	0.738	0.30 (0.28)	0.95	52715.1	12300.00
19	38637.32	139.43	0.719	0.30 (0.29)	0.95	56975.7	12400.00
20	37624.84	149.07	0.699	0.30 (0.29)	0.95	60377.2	12201.00
21	36668.96	156.67	0.682	0.30 (0.29)	0.95	62270.3	12231.00
22	35676.46	164.29	0.666	0.30 (0.29)	0.96	63823.0	10400.00
23	34124.07	173.95	0.645	0.30 (0.29)	0.96	65269.4	12010.00

24	33084.60	179.49	0.633	0.30 (0.29)	0.96	65532.0	10210.00
25	28800.77	210.61	0.603	0.30 (0.29)	0.96	66291.7	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 39744.77 Tc(MIN.) = 124.47
EFFECTIVE AREA(ACRES) = 49788.48 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 66291.7
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13910.00 = 135256.95 FEET.

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 66291.7 TC(MIN.) = 124.47
EFFECTIVE AREA(ACRES) = 49788.48 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.946
PEAK FLOW RATE(CFS) = 39744.77

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18552.19	15.77	2.324	0.30 (0.26)	0.86	2705.1	13889.00
2	21012.02	25.48	1.710	0.30 (0.26)	0.86	4321.0	10600.00
3	21464.90	27.11	1.643	0.30 (0.26)	0.86	4805.9	13810.00
4	21779.11	28.28	1.594	0.30 (0.26)	0.86	5147.1	13850.00
5	22729.55	31.90	1.485	0.30 (0.26)	0.86	6177.7	13870.00
6	24705.81	39.57	1.331	0.30 (0.26)	0.86	8307.6	13830.00
7	26379.04	46.39	1.224	0.30 (0.26)	0.86	10090.2	110.00
8	28397.38	55.40	1.101	0.30 (0.26)	0.88	13933.4	10100.00
9	29312.23	60.13	1.042	0.30 (0.26)	0.88	15800.0	150.00
10	30722.50	67.84	0.999	0.30 (0.27)	0.89	18739.1	600.00
11	31348.27	72.96	0.970	0.30 (0.27)	0.90	21023.1	31100.00
12	32879.75	84.23	0.906	0.30 (0.27)	0.91	26028.9	40100.00
13	34205.87	91.65	0.867	0.30 (0.28)	0.92	29377.4	11801.00
14	36360.75	101.84	0.829	0.30 (0.28)	0.93	34699.2	11530.00
15	37547.34	110.24	0.797	0.30 (0.28)	0.94	39941.1	11910.00
16	39338.29	119.85	0.762	0.30 (0.28)	0.94	46614.3	11350.00
17	39744.77	124.47	0.751	0.30 (0.28)	0.95	49788.5	11130.00
18	39364.68	130.59	0.738	0.30 (0.28)	0.95	52715.1	12300.00
19	38637.32	139.43	0.719	0.30 (0.29)	0.95	56975.7	12400.00
20	37624.84	149.07	0.699	0.30 (0.29)	0.95	60377.2	12201.00
21	36668.96	156.67	0.682	0.30 (0.29)	0.95	62270.3	12231.00
22	35676.46	164.29	0.666	0.30 (0.29)	0.96	63823.0	10400.00
23	34124.07	173.95	0.645	0.30 (0.29)	0.96	65269.4	12010.00
24	33084.60	179.49	0.633	0.30 (0.29)	0.96	65532.0	10210.00
25	28800.77	210.61	0.603	0.30 (0.29)	0.96	66291.7	10100.00

END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 139 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 25-YR EV AUG 2023 ROKAMOTO *

FILE NAME: RI25EV39.DAT
TIME/DATE OF STUDY: 10:20 08/09/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 25.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 4.737
- 2) 10.00; 3.102
- 3) 15.00; 2.384
- 4) 20.00; 1.980
- 5) 25.00; 1.729
- 6) 30.00; 1.522
- 7) 40.00; 1.321
- 8) 50.00; 1.169
- 9) 60.00; 1.042
- 10) 90.00; 0.872
- 11) 120.00; 0.761
- 12) 180.00; 0.631
- 13) 360.00; 0.462
- 14) 1200.00; 0.201

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13900.00 TO NODE 13901.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 600.65
ELEVATION DATA: UPSTREAM(FEET) = 442.40 DOWNSTREAM(FEET) = 385.16

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 10.859
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.979
SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
AGRICULTURAL POOR COVER "FALLOW"	-	4.00	0.30	1.000	56	10.86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF(CFS) = 9.64
TOTAL AREA(ACRES) = 4.00 PEAK FLOW RATE(CFS) = 9.64

FLOW PROCESS FROM NODE 13901.00 TO NODE 13902.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 385.16 DOWNSTREAM(FEET) = 288.21
CHANNEL LENGTH THRU SUBAREA(FEET) = 647.42 CHANNEL SLOPE = 0.1497
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.30
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.725
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	8.47	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 18.90
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.10
AVERAGE FLOW DEPTH(FEET) = 0.29 TRAVEL TIME(MIN.) = 1.77
Tc(MIN.) = 12.63
SUBAREA AREA(ACRES) = 8.47 SUBAREA RUNOFF(CFS) = 18.48
EFFECTIVE AREA(ACRES) = 12.47 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 12.5 PEAK FLOW RATE(CFS) = 27.21
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.36

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.36 FLOW VELOCITY(FEET/SEC.) = 6.98
LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13902.00 = 1248.07 FEET.

FLOW PROCESS FROM NODE 13902.00 TO NODE 13903.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 288.21 DOWNSTREAM(FEET) = 184.89
CHANNEL LENGTH THRU SUBAREA(FEET) = 669.27 CHANNEL SLOPE = 0.1544
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 0.54

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.544

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	23.85	0.30	0.982	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.982

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 51.37

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 8.88

AVERAGE FLOW DEPTH(FEET) = 0.52 TRAVEL TIME(MIN.) = 1.26

Tc(MIN.) = 13.88

SUBAREA AREA(ACRES) = 23.85 SUBAREA RUNOFF(CFS) = 48.29

EFFECTIVE AREA(ACRES) = 36.32 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99

TOTAL AREA(ACRES) = 36.3 PEAK FLOW RATE(CFS) = 73.48

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 0.65

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.65 FLOW VELOCITY(FEET/SEC.) = 9.98

LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13903.00 = 1917.34 FEET.

FLOW PROCESS FROM NODE 13903.00 TO NODE 13904.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<

ELEVATION DATA: UPSTREAM(FEET) = 184.89 DOWNSTREAM(FEET) = 155.08

FLOW LENGTH(FEET) = 876.66 MANNING'S N = 0.013

ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 36.000

DEPTH OF FLOW IN 36.0 INCH PIPE IS 20.7 INCHES

PIPE-FLOW VELOCITY(FEET/SEC.) = 17.45

ESTIMATED PIPE DIAMETER(INCH) = 36.00 NUMBER OF PIPES = 1

PIPE-FLOW(CFS) = 73.48

PIPE TRAVEL TIME(MIN.) = 0.84 Tc(MIN.) = 14.72

LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13904.00 = 2794.00 FEET.

FLOW PROCESS FROM NODE 13903.00 TO NODE 13904.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 14.72

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.424

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	21.29	0.30	0.996	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.996

SUBAREA AREA(ACRES) = 21.29 SUBAREA RUNOFF(CFS) = 40.72

EFFECTIVE AREA(ACRES) = 57.61 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99

TOTAL AREA(ACRES) = 57.6 PEAK FLOW RATE(CFS) = 110.27

FLOW PROCESS FROM NODE 13904.00 TO NODE 13920.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<

ELEVATION DATA: UPSTREAM(FEET) = 155.08 DOWNSTREAM(FEET) = 118.00

FLOW LENGTH(FEET) = 1961.38 MANNING'S N = 0.013

DEPTH OF FLOW IN 42.0 INCH PIPE IS 29.5 INCHES

PIPE-FLOW VELOCITY(FEET/SEC.) = 15.28

ESTIMATED PIPE DIAMETER(INCH) = 42.00 NUMBER OF PIPES = 1

PIPE-FLOW(CFS) = 110.27

PIPE TRAVEL TIME(MIN.) = 2.14 Tc(MIN.) = 16.86

LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13920.00 = 4755.38 FEET.

FLOW PROCESS FROM NODE 13904.00 TO NODE 13920.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 16.86

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.234

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	43.53	0.30	0.649	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.649

SUBAREA AREA(ACRES) = 43.53 SUBAREA RUNOFF(CFS) = 79.88

EFFECTIVE AREA(ACRES) = 101.14 AREA-AVERAGED Fm(INCH/HR) = 0.25

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84

TOTAL AREA(ACRES) = 101.1 PEAK FLOW RATE(CFS) = 180.28

FLOW PROCESS FROM NODE 13904.00 TO NODE 13920.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<

FLOW PROCESS FROM NODE 13910.00 TO NODE 13910.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<

PEAK FLOWRATE TABLE FILE NAME: RI25EV38.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18552.19	15.77	0.30 (0.26)	0.86	2705.1	13889.00
2	22729.55	31.90	0.30 (0.26)	0.86	6177.7	13870.00
3	24705.81	39.57	0.30 (0.26)	0.86	8307.6	13830.00
4	26379.04	46.39	0.30 (0.26)	0.86	10090.2	110.00
5	29312.23	60.13	0.30 (0.26)	0.88	15800.0	150.00
6	30722.50	67.84	0.30 (0.27)	0.89	18739.1	600.00
7	31348.27	72.96	0.30 (0.27)	0.90	21023.1	31100.00
8	32879.75	84.23	0.30 (0.27)	0.91	26028.9	40100.00
9	34205.87	91.65	0.30 (0.28)	0.92	29377.4	11801.00
10	36360.75	101.84	0.30 (0.28)	0.93	34699.2	11530.00
11	37547.34	110.24	0.30 (0.28)	0.94	39941.1	11910.00
12	39744.77	124.47	0.30 (0.28)	0.95	49788.5	11130.00
13	39364.68	130.59	0.30 (0.28)	0.95	52715.1	12300.00
14	38637.32	139.43	0.30 (0.29)	0.95	56975.7	12400.00
15	37624.84	149.07	0.30 (0.29)	0.95	60377.2	12201.00
16	36668.96	156.67	0.30 (0.29)	0.95	62270.3	12231.00
17	35676.46	164.29	0.30 (0.29)	0.96	63823.0	10400.00
18	34124.07	173.95	0.30 (0.29)	0.96	65269.4	12010.00
19	33084.60	179.49	0.30 (0.29)	0.96	65532.0	10210.00
20	28800.77	210.61	0.30 (0.29)	0.96	66291.7	10100.00
TOTAL AREA (ACRES) =						66291.7

 FLOW PROCESS FROM NODE 13910.00 TO NODE 13910.00 IS CODE = 14.0

>>>>MEMORY BANK # 2 COPIED ONTO MAIN-STREAM MEMORY<<<<<

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18552.19	15.77	0.30 (0.26)	0.86	2705.1	13889.00
2	22729.55	31.90	0.30 (0.26)	0.86	6177.7	13870.00
3	24705.81	39.57	0.30 (0.26)	0.86	8307.6	13830.00
4	26379.04	46.39	0.30 (0.26)	0.86	10090.2	110.00
5	29312.23	60.13	0.30 (0.26)	0.88	15800.0	150.00
6	30722.50	67.84	0.30 (0.27)	0.89	18739.1	600.00
7	31348.27	72.96	0.30 (0.27)	0.90	21023.1	31100.00
8	32879.75	84.23	0.30 (0.27)	0.91	26028.9	40100.00
9	34205.87	91.65	0.30 (0.28)	0.92	29377.4	11801.00
10	36360.75	101.84	0.30 (0.28)	0.93	34699.2	11530.00
11	37547.34	110.24	0.30 (0.28)	0.94	39941.1	11910.00
12	39744.77	124.47	0.30 (0.28)	0.95	49788.5	11130.00
13	39364.68	130.59	0.30 (0.28)	0.95	52715.1	12300.00
14	38637.32	139.43	0.30 (0.29)	0.95	56975.7	12400.00
15	37624.84	149.07	0.30 (0.29)	0.95	60377.2	12201.00
16	36668.96	156.67	0.30 (0.29)	0.95	62270.3	12231.00
17	35676.46	164.29	0.30 (0.29)	0.96	63823.0	10400.00
18	34124.07	173.95	0.30 (0.29)	0.96	65269.4	12010.00
19	33084.60	179.49	0.30 (0.29)	0.96	65532.0	10210.00
20	28800.77	210.61	0.30 (0.29)	0.96	66291.7	10100.00
TOTAL AREA (ACRES) =						66291.7

 FLOW PROCESS FROM NODE 13910.00 TO NODE 13920.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 119.70 DOWNSTREAM(FEET) = 118.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1376.26 CHANNEL SLOPE = 0.0012
GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 21.12
* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.746
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 96.09 0.30 0.535 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.535
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 39770.11
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.21
AVERAGE FLOW DEPTH(FEET) = 21.11 TRAVEL TIME(MIN.) = 2.25
Tc(MIN.) = 126.72
SUBAREA AREA(ACRES) = 96.09 SUBAREA RUNOFF(CFS) = 50.68
EFFECTIVE AREA(ACRES) = 49884.57 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 66387.8 PEAK FLOW RATE(CFS) = 39744.77
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 21.11
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END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 21.11 FLOW VELOCITY(FEET/SEC.) = 10.21

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13920.00 = 136633.22 FEET.

 FLOW PROCESS FROM NODE 13904.00 TO NODE 13920.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18552.19	18.55	2.097	0.30 (0.25)	0.85	2801.1	13889.00
2	22729.55	34.52	1.431	0.30 (0.26)	0.86	6273.7	13870.00
3	24705.81	42.13	1.289	0.30 (0.26)	0.86	8403.7	13830.00
4	26379.04	48.90	1.186	0.30 (0.26)	0.86	10186.2	110.00
5	29312.23	62.57	1.027	0.30 (0.26)	0.88	15896.1	150.00
6	30722.50	70.25	0.984	0.30 (0.27)	0.89	18835.2	600.00
7	31348.27	75.36	0.955	0.30 (0.27)	0.90	21119.2	31100.00
8	32879.75	86.60	0.891	0.30 (0.27)	0.91	26125.0	40100.00
9	34205.87	93.99	0.857	0.30 (0.28)	0.92	29473.5	11801.00
10	36360.75	104.14	0.820	0.30 (0.28)	0.93	34795.3	11530.00
11	37547.34	112.52	0.789	0.30 (0.28)	0.93	40037.2	11910.00
12	39744.77	126.72	0.746	0.30 (0.28)	0.95	49884.6	11130.00
13	39364.68	132.84	0.733	0.30 (0.28)	0.95	52811.2	12300.00
14	38637.32	141.70	0.714	0.30 (0.29)	0.95	57071.8	12400.00
15	37624.84	151.35	0.693	0.30 (0.29)	0.95	60473.3	12201.00
16	36668.96	158.97	0.677	0.30 (0.29)	0.95	62366.4	12231.00

17 35676.46 166.60 0.660 0.30(0.29) 0.95 63919.1 10400.00
 18 34124.07 176.29 0.639 0.30(0.29) 0.96 65365.5 12010.00
 19 33084.60 181.85 0.629 0.30(0.29) 0.96 65628.1 10210.00
 20 28800.77 213.06 0.600 0.30(0.29) 0.96 66387.8 10100.00
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13920.00 = 136633.22 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	180.28	16.86	2.234	0.30(0.25)	0.84	101.1	13900.00

LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13920.00 = 4755.38 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18292.46	16.86	2.234	0.30(0.25)	0.85	2647.5	13900.00
2	18720.07	18.55	2.097	0.30(0.25)	0.85	2902.3	13889.00
3	22836.78	34.52	1.431	0.30(0.26)	0.86	6374.9	13870.00
4	24800.07	42.13	1.289	0.30(0.26)	0.86	8504.8	13830.00
5	26463.93	48.90	1.186	0.30(0.26)	0.86	10287.4	110.00
6	29382.71	62.57	1.027	0.30(0.26)	0.88	15997.2	150.00
7	30789.03	70.25	0.984	0.30(0.27)	0.89	18936.3	600.00
8	31412.16	75.36	0.955	0.30(0.27)	0.90	21220.3	31100.00
9	32937.84	86.60	0.891	0.30(0.27)	0.91	26226.1	40100.00
10	34260.86	93.99	0.857	0.30(0.28)	0.92	29574.6	11801.00
11	36412.33	104.14	0.820	0.30(0.28)	0.93	34896.4	11530.00
12	37596.09	112.52	0.789	0.30(0.28)	0.93	40138.3	11910.00
13	39789.68	126.72	0.746	0.30(0.28)	0.95	49985.7	11130.00
14	39408.38	132.84	0.733	0.30(0.28)	0.95	52912.3	12300.00
15	38679.27	141.70	0.714	0.30(0.29)	0.95	57172.9	12400.00
16	37664.89	151.35	0.693	0.30(0.29)	0.95	60574.5	12201.00
17	36707.51	158.97	0.677	0.30(0.29)	0.95	62467.5	12231.00
18	35713.50	166.60	0.660	0.30(0.29)	0.95	64020.2	10400.00
19	34159.21	176.29	0.639	0.30(0.29)	0.96	65466.7	12010.00
20	33118.84	181.85	0.629	0.30(0.29)	0.96	65729.2	10210.00
21	28832.34	213.06	0.600	0.30(0.29)	0.96	66489.0	10100.00

TOTAL AREA (ACRES) = 66489.0

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 39789.68 Tc(MIN.) = 126.721
 EFFECTIVE AREA(ACRES) = 49985.71 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA(ACRES) = 66489.0
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13920.00 = 136633.22 FEET.

 FLOW PROCESS FROM NODE 13920.00 TO NODE 13921.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 118.00 DOWNSTREAM(FEET) = 115.28
 CHANNEL LENGTH THRU SUBAREA(FEET) = 335.44 CHANNEL SLOPE = 0.0081
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 13.04
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.746
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	134.30	0.30	0.658	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.658
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 39822.82
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 20.08
 AVERAGE FLOW DEPTH(FEET) = 13.03 TRAVEL TIME(MIN.) = 0.28
 Tc(MIN.) = 127.00
 SUBAREA AREA(ACRES) = 134.30 SUBAREA RUNOFF(CFS) = 66.29
 EFFECTIVE AREA(ACRES) = 50120.01 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
 TOTAL AREA(ACRES) = 66623.3 PEAK FLOW RATE(CFS) = 39789.68
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 13.03

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 13.03 FLOW VELOCITY(FEET/SEC.) = 20.08
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13921.00 = 136968.66 FEET.

 FLOW PROCESS FROM NODE 13921.00 TO NODE 14010.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 115.28 DOWNSTREAM(FEET) = 100.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1396.08 CHANNEL SLOPE = 0.0109
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 12.04
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 0.744
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	96.27	0.30	0.723	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.723
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 39812.50
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 22.33
 AVERAGE FLOW DEPTH(FEET) = 12.03 TRAVEL TIME(MIN.) = 1.04
 Tc(MIN.) = 128.04
 SUBAREA AREA(ACRES) = 96.27 SUBAREA RUNOFF(CFS) = 45.64
 EFFECTIVE AREA(ACRES) = 50216.28 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
 TOTAL AREA(ACRES) = 66719.5 PEAK FLOW RATE(CFS) = 39789.68
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 12.03

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 12.03 FLOW VELOCITY(FEET/SEC.) = 22.33
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 14010.00 = 138364.73 FEET.

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END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 66719.5 TC (MIN.) = 128.04
 EFFECTIVE AREA (ACRES) = 50216.28 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.944
 PEAK FLOW RATE (CFS) = 39789.68

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18292.46	18.53	2.099	0.30 (0.25)	0.83	2878.1	13900.00
2	18720.07	20.20	1.970	0.30 (0.25)	0.84	3132.9	13889.00
3	22836.78	36.08	1.400	0.30 (0.25)	0.85	6605.5	13870.00
4	24800.07	43.65	1.266	0.30 (0.26)	0.85	8735.4	13830.00
5	26463.93	50.39	1.164	0.30 (0.26)	0.86	10518.0	110.00
6	29382.71	64.01	1.019	0.30 (0.26)	0.88	16227.8	150.00
7	30789.03	71.67	0.976	0.30 (0.27)	0.89	19166.9	600.00
8	31412.16	76.77	0.947	0.30 (0.27)	0.89	21450.9	31100.00
9	32937.84	87.99	0.883	0.30 (0.27)	0.91	26456.7	40100.00
10	34260.86	95.37	0.852	0.30 (0.28)	0.92	29805.2	11801.00
11	36412.33	105.50	0.815	0.30 (0.28)	0.93	35127.0	11530.00
12	37596.09	113.86	0.784	0.30 (0.28)	0.93	40368.9	11910.00
13	39789.68	128.04	0.744	0.30 (0.28)	0.94	50216.3	11130.00
14	39408.38	134.16	0.730	0.30 (0.28)	0.95	53142.9	12300.00
15	38679.27	143.03	0.711	0.30 (0.28)	0.95	57403.5	12400.00
16	37664.89	152.69	0.690	0.30 (0.29)	0.95	60805.0	12201.00
17	36707.51	160.32	0.674	0.30 (0.29)	0.95	62698.1	12231.00
18	35713.50	167.96	0.657	0.30 (0.29)	0.95	64250.8	10400.00
19	34159.21	177.67	0.636	0.30 (0.29)	0.95	65697.2	12010.00
20	33118.84	183.25	0.628	0.30 (0.29)	0.95	65959.8	10210.00
21	28832.34	214.52	0.599	0.30 (0.29)	0.96	66719.5	10100.00

=====
 END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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***** DESCRIPTION OF STUDY *****
* RANCHO MISSION VIEJO - PA3 & PA4 ROMP *
* REGIONAL WATERSHED S19 - COMPLEX - PHASE CONDITION NO PA5 *
* 50-YR RM EV APRIL 2019 FKAZI *

FILE NAME: RI50EV19.DAT
TIME/DATE OF STUDY: 11:51 04/01/2019

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 50.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 5.535
- 2) 10.00; 3.529
- 3) 15.00; 2.693
- 4) 20.00; 2.246
- 5) 25.00; 1.938
- 6) 30.00; 1.744
- 7) 40.00; 1.475
- 8) 50.00; 1.313
- 9) 60.00; 1.214
- 10) 90.00; 1.010
- 11) 120.00; 0.880
- 12) 180.00; 0.760
- 13) 360.00; 0.566
- 14) 1200.00; 0.250

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE/ WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0313	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 11900.00 TO NODE 11901.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

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INITIAL SUBAREA FLOW-LENGTH(FEET) = 295.79
ELEVATION DATA: UPSTREAM(FEET) = 2369.48 DOWNSTREAM(FEET) = 2332.92

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 7.203
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 4.651
SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
RESIDENTIAL ".4 DWELLING/ACRE"	-	1.62	0.30	0.999	56	7.20

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.999
SUBAREA RUNOFF(CFS) = 6.34
TOTAL AREA(ACRES) = 1.62 PEAK FLOW RATE(CFS) = 6.34

FLOW PROCESS FROM NODE 11901.00 TO NODE 11902.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 2332.92 DOWNSTREAM(FEET) = 2297.70
CHANNEL LENGTH THRU SUBAREA(FEET) = 664.26 CHANNEL SLOPE = 0.0530
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.57
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 3.443
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	8.35	0.30	0.906	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.906
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 18.40
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 3.34
AVERAGE FLOW DEPTH(FEET) = 0.50 TRAVEL TIME(MIN.) = 3.31
Tc(MIN.) = 10.52
SUBAREA AREA(ACRES) = 8.35 SUBAREA RUNOFF(CFS) = 23.83
EFFECTIVE AREA(ACRES) = 9.97 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA(ACRES) = 10.0 PEAK FLOW RATE(CFS) = 28.41
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.65

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.65 FLOW VELOCITY(FEET/SEC.) = 3.90
LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11902.00 = 960.05 FEET.

FLOW PROCESS FROM NODE 11902.00 TO NODE 11902.50 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2297.70 DOWNSTREAM(FEET) = 2263.40
CHANNEL LENGTH THRU SUBAREA(FEET) = 928.77 CHANNEL SLOPE = 0.0369
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.28
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.887

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	34.48	0.30	0.904	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.904
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 69.30
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.65
AVERAGE FLOW DEPTH(FEET) = 1.20 TRAVEL TIME(MIN.) = 3.33
Tc(MIN.) = 13.84

SUBAREA AREA(ACRES) = 34.48 SUBAREA RUNOFF(CFS) = 81.16
EFFECTIVE AREA(ACRES) = 44.45 AREA-AVERAGED Fm(INCH/HR) = 0.27
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.91
TOTAL AREA(ACRES) = 44.5 PEAK FLOW RATE(CFS) = 104.58
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.51

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.51 FLOW VELOCITY(FEET/SEC.) = 5.30
LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11902.50 = 1888.82 FEET.

FLOW PROCESS FROM NODE 11902.50 TO NODE 11903.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2263.40 DOWNSTREAM(FEET) = 2252.14
CHANNEL LENGTH THRU SUBAREA(FEET) = 895.50 CHANNEL SLOPE = 0.0126
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 2.32
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.451

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	23.65	0.30	0.958	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.958
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 127.65
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 3.87
AVERAGE FLOW DEPTH(FEET) = 2.27 TRAVEL TIME(MIN.) = 3.86

Tc(MIN.) = 17.70
SUBAREA AREA(ACRES) = 23.65 SUBAREA RUNOFF(CFS) = 46.06
EFFECTIVE AREA(ACRES) = 68.10 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
TOTAL AREA(ACRES) = 68.1 PEAK FLOW RATE(CFS) = 133.24
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.32

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 2.32 FLOW VELOCITY(FEET/SEC.) = 3.91
LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11903.00 = 2784.32 FEET.

FLOW PROCESS FROM NODE 11903.00 TO NODE 11904.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2252.14 DOWNSTREAM(FEET) = 2186.04
CHANNEL LENGTH THRU SUBAREA(FEET) = 1924.35 CHANNEL SLOPE = 0.0343
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 2.21
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.067

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	68.53	0.30	0.961	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.961
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 188.28
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.16
AVERAGE FLOW DEPTH(FEET) = 2.14 TRAVEL TIME(MIN.) = 5.20
Tc(MIN.) = 22.91

SUBAREA AREA(ACRES) = 68.53 SUBAREA RUNOFF(CFS) = 109.71
EFFECTIVE AREA(ACRES) = 136.63 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA(ACRES) = 136.6 PEAK FLOW RATE(CFS) = 219.39
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.32

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 2.32 FLOW VELOCITY(FEET/SEC.) = 6.45
LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11904.00 = 4708.67 FEET.

FLOW PROCESS FROM NODE 11904.00 TO NODE 11905.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2186.04 DOWNSTREAM(FEET) = 1957.34
CHANNEL LENGTH THRU SUBAREA(FEET) = 1926.87 CHANNEL SLOPE = 0.1187
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.86

* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.901
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	63.15	0.30	1.000	-

 SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 264.91
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 10.57
 AVERAGE FLOW DEPTH (FEET) = 1.83 TRAVEL TIME (MIN.) = 3.04
 Tc (MIN.) = 25.94
 SUBAREA AREA (ACRES) = 63.15 SUBAREA RUNOFF (CFS) = 91.02
 EFFECTIVE AREA (ACRES) = 199.78 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
 TOTAL AREA (ACRES) = 199.8 PEAK FLOW RATE (CFS) = 290.04
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.93
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.93 FLOW VELOCITY (FEET/SEC.) = 10.86
 LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11905.00 = 6635.54 FEET.

 FLOW PROCESS FROM NODE 11905.00 TO NODE 11906.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

 ELEVATION DATA: UPSTREAM (FEET) = 1957.34 DOWNSTREAM (FEET) = 1244.16
 CHANNEL LENGTH THRU SUBAREA (FEET) = 2498.96 CHANNEL SLOPE = 0.2854
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.68
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.797
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	84.87	0.30	1.000	-

 SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 347.25
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 15.54
 AVERAGE FLOW DEPTH (FEET) = 1.67 TRAVEL TIME (MIN.) = 2.68
 Tc (MIN.) = 28.62
 SUBAREA AREA (ACRES) = 84.87 SUBAREA RUNOFF (CFS) = 114.38
 EFFECTIVE AREA (ACRES) = 284.65 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97
 TOTAL AREA (ACRES) = 284.6 PEAK FLOW RATE (CFS) = 385.73
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.77
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.77 FLOW VELOCITY (FEET/SEC.) = 16.06
 LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11906.00 = 9134.50 FEET.

FLOW PROCESS FROM NODE 11906.00 TO NODE 11920.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

 ELEVATION DATA: UPSTREAM (FEET) = 1244.16 DOWNSTREAM (FEET) = 873.95
 CHANNEL LENGTH THRU SUBAREA (FEET) = 3370.75 CHANNEL SLOPE = 0.1098
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.70
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.659
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	199.43	0.30	1.000	-

 SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 507.80
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 12.43
 AVERAGE FLOW DEPTH (FEET) = 2.67 TRAVEL TIME (MIN.) = 4.52
 Tc (MIN.) = 33.14
 SUBAREA AREA (ACRES) = 199.43 SUBAREA RUNOFF (CFS) = 244.01
 EFFECTIVE AREA (ACRES) = 484.08 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 484.1 PEAK FLOW RATE (CFS) = 594.38
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.90
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 2.90 FLOW VELOCITY (FEET/SEC.) = 12.99
 LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11920.00 = 12505.25 FEET.

 FLOW PROCESS FROM NODE 11906.00 TO NODE 11920.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION (MIN.) = 33.14
 RAINFALL INTENSITY (INCH/HR) = 1.66
 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.98
 EFFECTIVE STREAM AREA (ACRES) = 484.08
 TOTAL STREAM AREA (ACRES) = 484.08
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 594.38

 FLOW PROCESS FROM NODE 11910.00 TO NODE 11911.00 IS CODE = 21

 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

 INITIAL SUBAREA FLOW-LENGTH (FEET) = 517.62
 ELEVATION DATA: UPSTREAM (FEET) = 2531.88 DOWNSTREAM (FEET) = 2441.33

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 12.185
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 3.164
 SUBAREA Tc AND LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF" - 3.46 0.30 1.000 56 12.19
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 8.92
 TOTAL AREA(ACRES) = 3.46 PEAK FLOW RATE(CFS) = 8.92

 FLOW PROCESS FROM NODE 11911.00 TO NODE 11912.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 2441.33 DOWNSTREAM(FEET) = 2382.20
 CHANNEL LENGTH THRU SUBAREA(FEET) = 397.30 CHANNEL SLOPE = 0.1488
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.35
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.909

SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 5.79 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 15.73
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.35
 AVERAGE FLOW DEPTH(FEET) = 0.34 TRAVEL TIME(MIN.) = 1.52
 Tc(MIN.) = 13.71
 SUBAREA AREA(ACRES) = 5.79 SUBAREA RUNOFF(CFS) = 13.60
 EFFECTIVE AREA(ACRES) = 9.25 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 9.2 PEAK FLOW RATE(CFS) = 21.72
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.41

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 0.41 FLOW VELOCITY(FEET/SEC.) = 4.93
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11912.00 = 914.92 FEET.

 FLOW PROCESS FROM NODE 11912.00 TO NODE 11913.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 2382.20 DOWNSTREAM(FEET) = 2263.77
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1891.47 CHANNEL SLOPE = 0.0626
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 1.16

* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.308
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 54.30 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 71.48
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.63
 AVERAGE FLOW DEPTH(FEET) = 1.05 TRAVEL TIME(MIN.) = 5.60
 Tc(MIN.) = 19.31
 SUBAREA AREA(ACRES) = 54.30 SUBAREA RUNOFF(CFS) = 98.12
 EFFECTIVE AREA(ACRES) = 63.55 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 63.5 PEAK FLOW RATE(CFS) = 114.83
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 1.38

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 1.38 FLOW VELOCITY(FEET/SEC.) = 6.54
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11913.00 = 2806.39 FEET.

 FLOW PROCESS FROM NODE 11913.00 TO NODE 11914.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 2263.77 DOWNSTREAM(FEET) = 1845.23
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1957.31 CHANNEL SLOPE = 0.2138
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 1.23
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.110

SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 65.14 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 167.95
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.26
 AVERAGE FLOW DEPTH(FEET) = 1.20 TRAVEL TIME(MIN.) = 2.90
 Tc(MIN.) = 22.21
 SUBAREA AREA(ACRES) = 65.14 SUBAREA RUNOFF(CFS) = 106.12
 EFFECTIVE AREA(ACRES) = 128.69 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 128.7 PEAK FLOW RATE(CFS) = 209.64
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 1.37

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 1.37 FLOW VELOCITY(FEET/SEC.) = 12.03
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11914.00 = 4763.70 FEET.

FLOW PROCESS FROM NODE 11914.00 TO NODE 11915.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1845.23 DOWNSTREAM(FEET) = 1557.21
CHANNEL LENGTH THRU SUBAREA(FEET) = 1686.78 CHANNEL SLOPE = 0.1708
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.69
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.966

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 78.52 0.30 1.000 -

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 268.54

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 12.02

AVERAGE FLOW DEPTH(FEET) = 1.67 TRAVEL TIME(MIN.) = 2.34

Tc(MIN.) = 24.55

SUBAREA AREA(ACRES) = 78.52 SUBAREA RUNOFF(CFS) = 117.73

EFFECTIVE AREA(ACRES) = 207.21 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 207.2 PEAK FLOW RATE(CFS) = 310.69

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.81

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.81 FLOW VELOCITY(FEET/SEC.) = 12.58

LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11915.00 = 6450.48 FEET.

FLOW PROCESS FROM NODE 11915.00 TO NODE 11916.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1557.21 DOWNSTREAM(FEET) = 1403.38
CHANNEL LENGTH THRU SUBAREA(FEET) = 1909.39 CHANNEL SLOPE = 0.0806
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 2.42
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.833

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 70.48 0.30 1.000 -

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 359.32

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.08

AVERAGE FLOW DEPTH(FEET) = 2.41 TRAVEL TIME(MIN.) = 3.16

Tc(MIN.) = 27.70

SUBAREA AREA(ACRES) = 70.48 SUBAREA RUNOFF(CFS) = 97.25

EFFECTIVE AREA(ACRES) = 277.69 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 277.7 PEAK FLOW RATE(CFS) = 383.17
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.49

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 2.49 FLOW VELOCITY(FEET/SEC.) = 10.27

LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11916.00 = 8359.87 FEET.

FLOW PROCESS FROM NODE 11916.00 TO NODE 11917.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1403.38 DOWNSTREAM(FEET) = 1079.99
CHANNEL LENGTH THRU SUBAREA(FEET) = 1945.82 CHANNEL SLOPE = 0.1662
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 2.47
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.747

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 232.20 0.30 1.000 -

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 534.42

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 14.62

AVERAGE FLOW DEPTH(FEET) = 2.45 TRAVEL TIME(MIN.) = 2.22

Tc(MIN.) = 29.92

SUBAREA AREA(ACRES) = 232.20 SUBAREA RUNOFF(CFS) = 302.42

EFFECTIVE AREA(ACRES) = 509.89 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 509.9 PEAK FLOW RATE(CFS) = 664.09

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 2.75

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 2.75 FLOW VELOCITY(FEET/SEC.) = 15.57

LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11917.00 = 10305.69 FEET.

FLOW PROCESS FROM NODE 11917.00 TO NODE 11920.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1079.99 DOWNSTREAM(FEET) = 873.95
CHANNEL LENGTH THRU SUBAREA(FEET) = 2563.91 CHANNEL SLOPE = 0.0804
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 3.51
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.653

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN

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USER-DEFINED          -      110.82      0.30      1.000      -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      731.56
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 12.30
AVERAGE FLOW DEPTH(FEET) = 3.50 TRAVEL TIME(MIN.) = 3.47
Tc(MIN.) = 33.40
SUBAREA AREA(ACRES) = 110.82 SUBAREA RUNOFF(CFS) = 134.92
EFFECTIVE AREA(ACRES) = 620.71 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 620.7 PEAK FLOW RATE(CFS) = 755.69
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 3.56

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 3.56 FLOW VELOCITY(FEET/SEC.) = 12.41
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11920.00 = 12869.60 FEET.

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FLOW PROCESS FROM NODE 11917.00 TO NODE 11920.00 IS CODE = 1
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>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
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TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 33.40
RAINFALL INTENSITY(INCH/HR) = 1.65
AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 620.71
TOTAL STREAM AREA(ACRES) = 620.71
PEAK FLOW RATE(CFS) AT CONFLUENCE = 755.69

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** CONFLUENCE DATA **

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STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	594.38	33.14	1.659	0.30(0.30)	0.98	484.1	11900.00
2	755.69	33.40	1.653	0.30(0.30)	1.00	620.7	11910.00

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RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

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** PEAK FLOW RATE TABLE **

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STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1348.14	33.14	1.659	0.30(0.30)	0.99	1100.1	11900.00
2	1347.14	33.40	1.653	0.30(0.30)	0.99	1104.8	11910.00

```

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 1348.14 Tc(MIN.) = 33.14
EFFECTIVE AREA(ACRES) = 1100.13 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA(ACRES) = 1104.8
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11920.00 = 12869.60 FEET.

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FLOW PROCESS FROM NODE 11920.00 TO NODE 11921.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
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ELEVATION DATA: UPSTREAM(FEET) = 873.95 DOWNSTREAM(FEET) = 827.94
CHANNEL LENGTH THRU SUBAREA(FEET) = 1417.25 CHANNEL SLOPE = 0.0325
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 6.07
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.599
SUBAREA LOSS RATE DATA(AMC II):

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DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN

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DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	107.47	0.30	1.000	-

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SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1410.97
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.52
AVERAGE FLOW DEPTH(FEET) = 6.06 TRAVEL TIME(MIN.) = 2.25
Tc(MIN.) = 35.39
SUBAREA AREA(ACRES) = 107.47 SUBAREA RUNOFF(CFS) = 125.65
EFFECTIVE AREA(ACRES) = 1207.60 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA(ACRES) = 1212.3 PEAK FLOW RATE(CFS) = 1413.99
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 6.07

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END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 6.07 FLOW VELOCITY(FEET/SEC.) = 10.52
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11921.00 = 14286.85 FEET.

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** PEAK FLOW RATE TABLE **

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STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1413.99	35.39	1.599	0.30(0.30)	0.99	1207.6	11900.00
2	1412.02	35.64	1.592	0.30(0.30)	0.99	1212.3	11910.00

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NEW PEAK FLOW DATA ARE:
PEAK FLOW RATE(CFS) = 1413.99 Tc(MIN.) = 35.39
AREA-AVERAGED Fm(INCH/HR) = 0.30 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.99 EFFECTIVE AREA(ACRES) = 1207.60

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FLOW PROCESS FROM NODE 11921.00 TO NODE 11922.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
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ELEVATION DATA: UPSTREAM(FEET) = 827.94 DOWNSTREAM(FEET) = 753.55
CHANNEL LENGTH THRU SUBAREA(FEET) = 1886.43 CHANNEL SLOPE = 0.0394
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 6.18
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.527
SUBAREA LOSS RATE DATA(AMC II):

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DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS

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DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap	SCS
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LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 344.27 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1604.04
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.68
 AVERAGE FLOW DEPTH(FEET) = 6.15 TRAVEL TIME(MIN.) = 2.69
 Tc(MIN.) = 38.08
 SUBAREA AREA(ACRES) = 344.27 SUBAREA RUNOFF(CFS) = 380.08
 EFFECTIVE AREA(ACRES) = 1551.87 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 1556.5 PEAK FLOW RATE(CFS) = 1715.40
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 6.35

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 6.35 FLOW VELOCITY(FEET/SEC.) = 11.89
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11922.00 = 16173.28 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1715.40	38.08	1.527	0.30(0.30)	1.00	1551.9	11900.00
2	1710.87	38.34	1.520	0.30(0.30)	1.00	1556.5	11910.00

NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE(CFS) = 1715.40 Tc(MIN.) = 38.08
 AREA-AVERAGED Fm(INCH/HR) = 0.30 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA(ACRES) = 1551.87

 FLOW PROCESS FROM NODE 11922.00 TO NODE 11923.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 753.55 DOWNSTREAM(FEET) = 641.58
 CHANNEL LENGTH THRU SUBAREA(FEET) = 2860.88 CHANNEL SLOPE = 0.0391
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 6.53
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.442
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	165.18	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1800.27
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 12.01
 AVERAGE FLOW DEPTH(FEET) = 6.51 TRAVEL TIME(MIN.) = 3.97
 Tc(MIN.) = 42.05
 SUBAREA AREA(ACRES) = 165.18 SUBAREA RUNOFF(CFS) = 169.74
 EFFECTIVE AREA(ACRES) = 1717.05 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 1721.7 PEAK FLOW RATE(CFS) = 1766.60
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 6.46

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 6.46 FLOW VELOCITY(FEET/SEC.) = 11.94
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11923.00 = 19034.16 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1766.60	42.05	1.442	0.30(0.30)	1.00	1717.1	11900.00
2	1764.86	42.31	1.438	0.30(0.30)	1.00	1721.7	11910.00

NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE(CFS) = 1766.60 Tc(MIN.) = 42.05
 AREA-AVERAGED Fm(INCH/HR) = 0.30 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA(ACRES) = 1717.05

 FLOW PROCESS FROM NODE 11923.00 TO NODE 11924.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 641.58 DOWNSTREAM(FEET) = 579.89
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1844.02 CHANNEL SLOPE = 0.0335
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 7.08
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.399
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	433.73	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1981.09
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.61
 AVERAGE FLOW DEPTH(FEET) = 7.07 TRAVEL TIME(MIN.) = 2.65
 Tc(MIN.) = 44.70
 SUBAREA AREA(ACRES) = 433.73 SUBAREA RUNOFF(CFS) = 428.97
 EFFECTIVE AREA(ACRES) = 2150.78 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 2155.4 PEAK FLOW RATE(CFS) = 2129.29
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 7.31

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 7.31 FLOW VELOCITY(FEET/SEC.) = 11.83
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11924.00 = 20878.18 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2129.29	44.70	1.399	0.30(0.30)	1.00	2150.8	11900.00
2	2125.66	44.96	1.395	0.30(0.30)	1.00	2155.4	11910.00

NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE(CFS) = 2129.29 Tc(MIN.) = 44.70
 AREA-AVERAGED Fm(INCH/HR) = 0.30 AREA-AVERAGED Fp(INCH/HR) = 0.30

AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA(ACRES) = 2150.78

FLOW PROCESS FROM NODE 11924.00 TO NODE 11925.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 579.89 DOWNSTREAM(FEET) = 494.12
CHANNEL LENGTH THRU SUBAREA(FEET) = 2756.15 CHANNEL SLOPE = 0.0311
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 7.65
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.335

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 265.42 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2252.94
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.68
AVERAGE FLOW DEPTH(FEET) = 7.63 TRAVEL TIME(MIN.) = 3.93
Tc(MIN.) = 48.63

SUBAREA AREA(ACRES) = 265.42 SUBAREA RUNOFF(CFS) = 247.29
EFFECTIVE AREA(ACRES) = 2416.20 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 2420.9 PEAK FLOW RATE(CFS) = 2253.25
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 7.63

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 7.63 FLOW VELOCITY(FEET/SEC.) = 11.68
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11925.00 = 23634.33 FEET.

** PEAK FLOW RATE TABLE **

STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 2253.25 48.63 1.335 0.30(0.30) 1.00 2416.2 11900.00
2 2248.30 48.90 1.331 0.30(0.30) 1.00 2420.9 11910.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 2253.25 Tc(MIN.) = 48.63
AREA-AVERAGED Fm(INCH/HR) = 0.30 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA(ACRES) = 2416.20

FLOW PROCESS FROM NODE 11925.00 TO NODE 11926.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 494.12 DOWNSTREAM(FEET) = 458.40
CHANNEL LENGTH THRU SUBAREA(FEET) = 1922.70 CHANNEL SLOPE = 0.0186
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 8.68
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.294

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 97.46 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2296.83
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.69
AVERAGE FLOW DEPTH(FEET) = 8.67 TRAVEL TIME(MIN.) = 3.31
Tc(MIN.) = 51.94

SUBAREA AREA(ACRES) = 97.46 SUBAREA RUNOFF(CFS) = 87.17
EFFECTIVE AREA(ACRES) = 2513.66 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 2518.3 PEAK FLOW RATE(CFS) = 2253.25
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 8.60

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 8.60 FLOW VELOCITY(FEET/SEC.) = 9.64
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11926.00 = 25557.03 FEET.

** PEAK FLOW RATE TABLE **

STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 2253.25 51.94 1.294 0.30(0.30) 1.00 2513.7 11900.00
2 2248.71 52.21 1.291 0.30(0.30) 1.00 2518.3 11910.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 2253.25 Tc(MIN.) = 51.94
AREA-AVERAGED Fm(INCH/HR) = 0.30 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA(ACRES) = 2513.66

FLOW PROCESS FROM NODE 11926.00 TO NODE 11927.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 458.40 DOWNSTREAM(FEET) = 399.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2170.13 CHANNEL SLOPE = 0.0274
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 7.90
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.262

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 53.83 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2276.54
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.17
AVERAGE FLOW DEPTH(FEET) = 7.90 TRAVEL TIME(MIN.) = 3.24
Tc(MIN.) = 55.18

SUBAREA AREA(ACRES) = 53.83 SUBAREA RUNOFF(CFS) = 46.60
EFFECTIVE AREA(ACRES) = 2567.49 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA (ACRES) = 2572.1 PEAK FLOW RATE (CFS) = 2253.25
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 7.86

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 7.86 FLOW VELOCITY (FEET/SEC.) = 11.14
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11927.00 = 27727.16 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2253.25	55.18	1.262	0.30 (0.30)	1.00	2567.5	11900.00
2	2248.71	55.45	1.259	0.30 (0.30)	1.00	2572.1	11910.00

NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE (CFS) = 2253.25 Tc (MIN.) = 55.18
 AREA-AVERAGED Fm (INCH/HR) = 0.30 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA (ACRES) = 2567.49

 FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<<
 =====

 FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<<
 =====

PEAK FLOWRATE TABLE FILE NAME: P401XX50.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	850.75	25.74	0.30 (0.30)	1.00	624.8	40130.00
2	844.35	27.56	0.30 (0.30)	1.00	654.2	40100.00
TOTAL AREA (ACRES) = 654.2						

 FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<<
 =====

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2253.25	55.18	1.262	0.30 (0.30)	1.00	2567.5	11900.00
2	2248.71	55.45	1.259	0.30 (0.30)	1.00	2572.1	11910.00
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11927.00 = 27727.16 FEET.							

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	850.75	25.74	1.909	0.30 (0.30)	1.00	624.8	40130.00
2	844.35	27.56	1.839	0.30 (0.30)	1.00	654.2	40100.00
LONGEST FLOWPATH FROM NODE 40100.00 TO NODE 11927.00 = 10245.00 FEET.							

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2608.92	25.74	1.909	0.30 (0.30)	1.00	1822.6	40130.00
2	2644.22	27.56	1.839	0.30 (0.30)	1.00	1936.6	40100.00
3	2781.01	55.18	1.262	0.30 (0.30)	1.00	3221.7	11900.00
4	2775.02	55.45	1.259	0.30 (0.30)	1.00	3226.4	11910.00
TOTAL AREA (ACRES) = 3226.4							

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 2781.01 Tc (MIN.) = 55.180
 EFFECTIVE AREA (ACRES) = 3221.69 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 3226.4
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11927.00 = 27727.16 FEET.

 FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<<
 =====

 FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.50 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<<
 =====

ELEVATION DATA: UPSTREAM (FEET) = 399.00 DOWNSTREAM (FEET) = 384.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 986.26 CHANNEL SLOPE = 0.0152
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 9.89
 CHANNEL FLOW THRU SUBAREA (CFS) = 2781.01
 FLOW VELOCITY (FEET/SEC.) = 9.44 FLOW DEPTH (FEET) = 9.89
 TRAVEL TIME (MIN.) = 1.74 Tc (MIN.) = 56.92
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11927.50 = 28713.42 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2608.92	27.51	1.841	0.30 (0.30)	1.00	1822.6	40130.00
2	2644.22	29.32	1.770	0.30 (0.30)	1.00	1936.6	40100.00
3	2781.01	56.92	1.244	0.30 (0.30)	1.00	3221.7	11900.00
4	2775.02	57.19	1.242	0.30 (0.30)	1.00	3226.4	11910.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE (CFS) = 2781.01 Tc (MIN.) = 56.92
 AREA-AVERAGED Fm (INCH/HR) = 0.30 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA (ACRES) = 3221.69

 FLOW PROCESS FROM NODE 11927.50 TO NODE 11927.50 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<<
 =====

MAINLINE Tc (MIN.) = 56.92

* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.244

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	2.40	0.30	1.000	65
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	1.70	0.30	1.000	65
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	1.50	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.30	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.90	0.30	1.000	66
NATURAL FAIR COVER					
"GRASS"	B	0.60	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 8.40 SUBAREA RUNOFF(CFS) = 7.14
EFFECTIVE AREA(ACRES) = 3230.09 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3234.8 PEAK FLOW RATE(CFS) = 2781.01
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 11927.50 TO NODE 11927.50 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN.) = 56.92
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.244

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.30	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.10	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.10	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 0.50 SUBAREA RUNOFF(CFS) = 0.43
EFFECTIVE AREA(ACRES) = 3230.59 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3235.2 PEAK FLOW RATE(CFS) = 2781.01
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 11927.50 TO NODE 11927.50 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN.) = 56.92
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.244

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					

"WOODLAND,GRASS"	B	0.80	0.30	1.000	65
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.70	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.20	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.20	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.10	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 2.00 SUBAREA RUNOFF(CFS) = 1.70
EFFECTIVE AREA(ACRES) = 3232.59 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3237.2 PEAK FLOW RATE(CFS) = 2781.01
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 11927.50 TO NODE 11928.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 384.00 DOWNSTREAM(FEET) = 359.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 647.19 CHANNEL SLOPE = 0.0386
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 8.05
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.237

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	78.01	0.30	0.984	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.984
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2814.06
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 13.40
AVERAGE FLOW DEPTH(FEET) = 8.05 TRAVEL TIME(MIN.) = 0.80
Tc(MIN.) = 57.73
SUBAREA AREA(ACRES) = 78.01 SUBAREA RUNOFF(CFS) = 66.09
EFFECTIVE AREA(ACRES) = 3310.60 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3315.3 PEAK FLOW RATE(CFS) = 2792.98
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 8.02

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 8.02 FLOW VELOCITY(FEET/SEC.) = 13.37
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11928.00 = 29360.61 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap (DECIMAL)	Ae (ACRES)	HEADWATER NODE
1	2608.92	28.33	1.809	0.30(0.30)	1.00	1911.5	40130.00
2	2644.22	30.14	1.740	0.30(0.30)	1.00	2025.5	40100.00
3	2792.98	57.73	1.237	0.30(0.30)	1.00	3310.6	11900.00
4	2789.01	57.99	1.234	0.30(0.30)	1.00	3315.3	11910.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 2792.98 Tc(MIN.) = 57.73
AREA-AVERAGED Fm(INCH/HR) = 0.30 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA(ACRES) = 3310.60

FLOW PROCESS FROM NODE 11928.00 TO NODE 11928.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 57.73

* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.237

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE SCS SOIL GROUP AREA (ACRES) Fp (INCH/HR) Ap (DECIMAL) SCS CN

NATURAL FAIR COVER "WOODLAND,GRASS" B 1.10 0.30 1.000 65
NATURAL FAIR COVER "OPEN BRUSH" B 0.60 0.30 1.000 66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 1.70 SUBAREA RUNOFF(CFS) = 1.43
EFFECTIVE AREA(ACRES) = 3312.30 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3317.0 PEAK FLOW RATE(CFS) = 2794.41

FLOW PROCESS FROM NODE 11928.00 TO NODE 11929.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 359.00 DOWNSTREAM(FEET) = 341.63
CHANNEL LENGTH THRU SUBAREA(FEET) = 1322.66 CHANNEL SLOPE = 0.0131
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 10.25

* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.213

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE SCS SOIL GROUP AREA (ACRES) Fp (INCH/HR) Ap (DECIMAL) SCS CN

USER-DEFINED - 8.18 0.30 0.890 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.890

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2797.90
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 8.95
AVERAGE FLOW DEPTH(FEET) = 10.25 TRAVEL TIME(MIN.) = 2.46
Tc(MIN.) = 60.19

SUBAREA AREA(ACRES) = 8.18 SUBAREA RUNOFF(CFS) = 6.96
EFFECTIVE AREA(ACRES) = 3320.48 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3325.1 PEAK FLOW RATE(CFS) = 2794.41

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 10.24

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 10.24 FLOW VELOCITY(FEET/SEC.) = 8.95
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11929.00 = 30683.27 FEET.

** PEAK FLOW RATE TABLE **

Table with 8 columns: STREAM NUMBER, Q (CFS), Tc (MIN.), Intensity (INCH/HR), Fp (Fm) (INCH/HR), Ap, Ae (ACRES), HEADWATER NODE. Rows 1-4.

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 2794.41 Tc(MIN.) = 60.19
AREA-AVERAGED Fm(INCH/HR) = 0.30 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA(ACRES) = 3320.48

FLOW PROCESS FROM NODE 11929.00 TO NODE 11929.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 60.19

* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.213

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE SCS SOIL GROUP AREA (ACRES) Fp (INCH/HR) Ap (DECIMAL) SCS CN

NATURAL FAIR COVER "OPEN BRUSH" B 1.90 0.30 1.000 66
NATURAL FAIR COVER "WOODLAND,GRASS" B 0.60 0.30 1.000 65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 2.50 SUBAREA RUNOFF(CFS) = 2.05
EFFECTIVE AREA(ACRES) = 3322.98 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3327.6 PEAK FLOW RATE(CFS) = 2794.41
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 11928.00 TO NODE 11929.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<

FLOW PROCESS FROM NODE 11841.00 TO NODE 12527.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<

PEAK FLOWRATE TABLE FILE NAME: S18X50.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

Table with 8 columns: STREAM NUMBER, Q (CFS), Tc (MIN.), Fp (Fm) (INCH/HR), Ap, Ae (ACRES), HEADWATER NODE. Rows 1-6.

7	24998.78	70.58	0.30	(0.30)	1.00	19900.2	10800.00
8	25620.24	74.96	0.30	(0.30)	1.00	22211.8	11130.00
9	25459.58	83.55	0.30	(0.30)	1.00	25307.4	11620.00
10	25389.29	85.79	0.30	(0.30)	1.00	26059.8	11600.00
11	25269.09	87.43	0.30	(0.30)	1.00	26526.1	10600.00
12	25052.94	92.79	0.30	(0.30)	1.00	28070.1	11201.00
13	24726.86	98.42	0.30	(0.30)	1.00	29254.4	10710.00
14	24565.08	100.41	0.30	(0.30)	1.00	29586.3	10410.00
15	24070.54	105.10	0.30	(0.30)	1.00	30247.3	10700.00
16	23353.04	112.10	0.30	(0.30)	1.00	31166.7	10400.00
17	23163.67	114.42	0.30	(0.30)	1.00	31437.3	10200.00
18	22543.84	120.36	0.30	(0.30)	1.00	32015.5	10300.00
19	21907.93	125.43	0.30	(0.30)	1.00	32220.3	10210.00
20	19363.37	152.55	0.30	(0.30)	1.00	32916.6	10100.00

TOTAL AREA (ACRES) = 32916.6

FLOW PROCESS FROM NODE 12526.00 TO NODE 12527.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<

PEAK FLOWRATE TABLE FILE NAME: S25X50.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	6814.52	66.91	0.30 (0.30)	0.99	6393.3	12500.00
2	7515.45	80.53	0.30 (0.30)	0.99	8363.5	12300.00
3	7623.90	81.91	0.30 (0.30)	0.98	8652.7	12330.00
4	7789.58	84.57	0.30 (0.30)	0.98	9163.3	12410.00
5	7994.43	88.75	0.30 (0.29)	0.98	9893.3	12400.00
6	8150.23	93.51	0.30 (0.29)	0.98	10584.1	12211.00
7	8242.61	97.70	0.30 (0.29)	0.98	11179.8	12201.00
8	8205.03	101.92	0.30 (0.29)	0.98	11654.1	12111.00
9	8180.32	104.56	0.30 (0.29)	0.98	11967.4	12231.00
10	8145.23	107.37	0.30 (0.29)	0.98	12265.9	12101.10
11	8125.55	108.34	0.30 (0.29)	0.98	12357.2	12261.00
12	7675.64	119.74	0.30 (0.29)	0.98	13113.0	12010.00
13	7214.09	128.35	0.30 (0.29)	0.98	13237.1	12000.00

TOTAL AREA (ACRES) = 13237.1

FLOW PROCESS FROM NODE 12526.00 TO NODE 12527.00 IS CODE = 14.0

>>>>MEMORY BANK # 2 COPIED ONTO MAIN-STREAM MEMORY<<<<<

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	6814.52	66.91	0.30 (0.30)	0.99	6393.3	12500.00
2	7515.45	80.53	0.30 (0.30)	0.99	8363.5	12300.00
3	7623.90	81.91	0.30 (0.30)	0.98	8652.7	12330.00
4	7789.58	84.57	0.30 (0.30)	0.98	9163.3	12410.00
5	7994.43	88.75	0.30 (0.29)	0.98	9893.3	12400.00
6	8150.23	93.51	0.30 (0.29)	0.98	10584.1	12211.00
7	8242.61	97.70	0.30 (0.29)	0.98	11179.8	12201.00
8	8205.03	101.92	0.30 (0.29)	0.98	11654.1	12111.00
9	8180.32	104.56	0.30 (0.29)	0.98	11967.4	12231.00

10	8145.23	107.37	0.30	(0.29)	0.98	12265.9	12101.10
11	8125.55	108.34	0.30	(0.29)	0.98	12357.2	12261.00
12	7675.64	119.74	0.30	(0.29)	0.98	13113.0	12010.00
13	7214.09	128.35	0.30	(0.29)	0.98	13237.1	12000.00

TOTAL AREA (ACRES) = 13237.1

FLOW PROCESS FROM NODE 11841.00 TO NODE 12527.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	6814.52	66.91	1.167	0.30 (0.30)	0.99	6393.3	12500.00
2	7515.45	80.53	1.074	0.30 (0.30)	0.99	8363.5	12300.00
3	7623.90	81.91	1.065	0.30 (0.30)	0.98	8652.7	12330.00
4	7789.58	84.57	1.047	0.30 (0.30)	0.98	9163.3	12410.00
5	7994.43	88.75	1.018	0.30 (0.29)	0.98	9893.3	12400.00
6	8150.23	93.51	0.995	0.30 (0.29)	0.98	10584.1	12211.00
7	8242.61	97.70	0.977	0.30 (0.29)	0.98	11179.8	12201.00
8	8205.03	101.92	0.958	0.30 (0.29)	0.98	11654.1	12111.00
9	8180.32	104.56	0.947	0.30 (0.29)	0.98	11967.4	12231.00
10	8145.23	107.37	0.935	0.30 (0.29)	0.98	12265.9	12101.10
11	8125.55	108.34	0.931	0.30 (0.29)	0.98	12357.2	12261.00
12	7675.64	119.74	0.881	0.30 (0.29)	0.98	13113.0	12010.00
13	7214.09	128.35	0.863	0.30 (0.29)	0.98	13237.1	12000.00

LONGEST FLOWPATH FROM NODE 12000.00 TO NODE 12527.00 = 77156.98 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18863.84	37.77	1.535	0.30 (0.30)	1.00	7696.5	11831.00
2	19171.93	40.18	1.472	0.30 (0.30)	1.00	8206.0	11801.00
3	20870.42	51.52	1.298	0.30 (0.30)	1.00	11178.6	11530.00
4	21741.74	56.15	1.252	0.30 (0.30)	1.00	12836.1	11701.00
5	22206.97	58.56	1.228	0.30 (0.30)	1.00	13761.0	11000.00
6	24578.79	68.37	1.157	0.30 (0.30)	1.00	18741.7	11330.00
7	24998.78	70.58	1.142	0.30 (0.30)	1.00	19900.2	10800.00
8	25620.24	74.96	1.112	0.30 (0.30)	1.00	22211.8	11130.00
9	25459.58	83.55	1.054	0.30 (0.30)	1.00	25307.4	11620.00
10	25389.29	85.79	1.039	0.30 (0.30)	1.00	26059.8	11600.00
11	25269.09	87.43	1.027	0.30 (0.30)	1.00	26526.1	10600.00
12	25052.94	92.79	0.998	0.30 (0.30)	1.00	28070.1	11201.00
13	24726.86	98.42	0.974	0.30 (0.30)	1.00	29254.4	10710.00
14	24565.08	100.41	0.965	0.30 (0.30)	1.00	29586.3	10410.00
15	24070.54	105.10	0.945	0.30 (0.30)	1.00	30247.3	10700.00
16	23353.04	112.10	0.914	0.30 (0.30)	1.00	31166.7	10400.00
17	23163.67	114.42	0.904	0.30 (0.30)	1.00	31437.3	10200.00
18	22543.84	120.36	0.879	0.30 (0.30)	1.00	32015.5	10300.00
19	21907.93	125.43	0.869	0.30 (0.30)	1.00	32220.3	10210.00
20	19363.37	152.55	0.815	0.30 (0.30)	1.00	32916.6	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12527.00 = 97868.13 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
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1	24335.68	37.77	1.535	0.30	(0.30)	0.99	11305.9	11831.00
2	24697.44	40.18	1.472	0.30	(0.30)	0.99	12045.5	11801.00
3	26906.53	51.52	1.298	0.30	(0.30)	0.99	16101.8	11530.00
4	28019.04	56.15	1.252	0.30	(0.30)	0.99	18201.1	11701.00
5	28590.34	58.56	1.228	0.30	(0.30)	0.99	19356.3	11000.00
6	31039.95	66.91	1.167	0.30	(0.30)	0.99	24392.9	12500.00
7	31468.57	68.37	1.157	0.30	(0.30)	0.99	25346.5	11330.00
8	32002.18	70.58	1.142	0.30	(0.30)	0.99	26824.3	10800.00
9	32849.10	74.96	1.112	0.30	(0.30)	0.99	29769.7	11130.00
10	33031.62	80.53	1.074	0.30	(0.30)	0.99	32580.5	12300.00
11	33114.20	81.91	1.065	0.30	(0.30)	0.99	33368.0	12330.00
12	33186.01	83.55	1.054	0.30	(0.30)	0.99	34276.0	11620.00
13	33217.38	84.57	1.047	0.30	(0.30)	0.99	34810.9	12410.00
14	33238.92	85.79	1.039	0.30	(0.30)	0.99	35437.1	11600.00
15	33199.04	87.43	1.027	0.30	(0.30)	0.99	36189.6	10600.00
16	33210.37	88.75	1.018	0.30	(0.30)	0.99	36799.1	12400.00
17	33179.69	92.79	0.998	0.30	(0.30)	0.99	38550.0	11201.00
18	33161.66	93.51	0.995	0.30	(0.30)	0.99	38804.9	12211.00
19	33011.46	97.70	0.977	0.30	(0.30)	0.99	40281.7	12201.00
20	32963.01	98.42	0.974	0.30	(0.30)	0.99	40515.8	10710.00
21	32783.54	100.41	0.965	0.30	(0.30)	0.99	41070.9	10410.00
22	32611.09	101.92	0.958	0.30	(0.30)	0.99	41453.0	12111.00
23	32307.60	104.56	0.947	0.30	(0.30)	0.99	42138.9	12231.00
24	32244.16	105.10	0.945	0.30	(0.30)	0.99	42271.8	10700.00
25	31982.44	107.37	0.935	0.30	(0.30)	0.99	42812.2	12101.10
26	31863.89	108.34	0.931	0.30	(0.30)	0.99	43030.2	12261.00
27	31330.23	112.10	0.914	0.30	(0.30)	0.99	43773.2	10400.00
28	31049.28	114.42	0.904	0.30	(0.30)	0.99	44197.6	10200.00
29	30284.07	119.74	0.881	0.30	(0.30)	0.99	45068.3	12010.00
30	30186.30	120.36	0.879	0.30	(0.30)	0.99	45137.4	10300.00
31	29278.79	125.43	0.869	0.30	(0.30)	0.99	45415.2	10210.00
32	28847.68	128.35	0.863	0.30	(0.30)	0.99	45532.4	12000.00
33	25964.49	152.55	0.815	0.30	(0.30)	0.99	46153.7	10100.00

TOTAL AREA (ACRES) = 46153.7

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 33238.92 Tc (MIN.) = 85.792
EFFECTIVE AREA (ACRES) = 35437.09 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 46153.7
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12527.00 = 97868.13 FEET.

FLOW PROCESS FROM NODE 12527.00 TO NODE 11929.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 347.47 DOWNSTREAM (FEET) = 341.63
CHANNEL LENGTH THRU SUBAREA (FEET) = 532.38 CHANNEL SLOPE = 0.0110
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 9.03
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.035
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	14.37	0.30	0.987	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.987
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 33243.70
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 15.02
AVERAGE FLOW DEPTH (FEET) = 9.03 TRAVEL TIME (MIN.) = 0.59
Tc (MIN.) = 86.38
SUBAREA AREA (ACRES) = 14.37 SUBAREA RUNOFF (CFS) = 9.55
EFFECTIVE AREA (ACRES) = 35451.46 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 46168.0 PEAK FLOW RATE (CFS) = 33238.92
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 9.03

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 9.03 FLOW VELOCITY (FEET/SEC.) = 15.01
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 11929.00 = 98400.52 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24335.68	38.43	1.517	0.30 (0.30)	0.99	11320.3	11831.00
2	24697.44	40.83	1.461	0.30 (0.30)	0.99	12059.9	11801.00
3	26906.53	52.16	1.292	0.30 (0.30)	0.99	16116.2	11530.00
4	28019.04	56.77	1.246	0.30 (0.30)	0.99	18215.4	11701.00
5	28590.34	59.18	1.222	0.30 (0.30)	0.99	19370.6	11000.00
6	31039.95	67.51	1.163	0.30 (0.30)	0.99	24407.3	12500.00
7	31468.57	68.97	1.153	0.30 (0.30)	0.99	25360.9	11330.00
8	32002.18	71.18	1.138	0.30 (0.30)	0.99	26838.7	10800.00
9	32849.10	75.55	1.108	0.30 (0.30)	0.99	29784.1	11130.00
10	33031.62	81.12	1.070	0.30 (0.30)	0.99	32594.9	12300.00
11	33114.20	82.50	1.061	0.30 (0.30)	0.99	33382.4	12330.00
12	33186.01	84.14	1.050	0.30 (0.30)	0.99	34290.4	11620.00
13	33217.38	85.16	1.043	0.30 (0.30)	0.99	34825.3	12410.00
14	33238.92	86.38	1.035	0.30 (0.30)	0.99	35451.5	11600.00
15	33199.04	88.02	1.023	0.30 (0.30)	0.99	36204.0	10600.00
16	33210.37	89.34	1.014	0.30 (0.30)	0.99	36813.4	12400.00
17	33179.69	93.38	0.995	0.30 (0.30)	0.99	38564.4	11201.00
18	33161.66	94.10	0.992	0.30 (0.30)	0.99	38819.3	12211.00
19	33011.46	98.29	0.974	0.30 (0.30)	0.99	40296.1	12201.00
20	32963.01	99.01	0.971	0.30 (0.30)	0.99	40530.1	10710.00
21	32783.54	101.00	0.962	0.30 (0.30)	0.99	41085.2	10410.00
22	32611.09	102.51	0.956	0.30 (0.30)	0.99	41467.3	12111.00
23	32307.60	105.16	0.944	0.30 (0.30)	0.99	42153.2	12231.00
24	32244.16	105.69	0.942	0.30 (0.30)	0.99	42286.1	10700.00
25	31982.44	107.97	0.932	0.30 (0.30)	0.99	42826.5	12101.10
26	31863.89	108.94	0.928	0.30 (0.30)	0.99	43044.6	12261.00
27	31330.23	112.70	0.912	0.30 (0.30)	0.99	43787.5	10400.00
28	31049.28	115.02	0.902	0.30 (0.30)	0.99	44211.9	10200.00
29	30284.07	120.35	0.879	0.30 (0.30)	0.99	45082.6	12010.00
30	30186.30	120.97	0.878	0.30 (0.30)	0.99	45151.8	10300.00
31	29278.79	126.04	0.868	0.30 (0.30)	0.99	45429.6	10210.00
32	28847.68	128.97	0.862	0.30 (0.30)	0.99	45546.8	12000.00
33	25964.49	153.19	0.814	0.30 (0.30)	0.99	46168.0	10100.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE (CFS) = 33238.92 Tc (MIN.) = 86.38
AREA-AVERAGED Fm (INCH/HR) = 0.30 AREA-AVERAGED Fp (INCH/HR) = 0.30

AREA-AVERAGED Ap = 0.99 EFFECTIVE AREA(ACRES) = 35451.46

FLOW PROCESS FROM NODE 11928.00 TO NODE 11929.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24335.68	38.43	1.517	0.30(0.30)	0.99	11320.3	11831.00
2	24697.44	40.83	1.461	0.30(0.30)	0.99	12059.9	11801.00
3	26906.53	52.16	1.292	0.30(0.30)	0.99	16116.2	11530.00
4	28019.04	56.77	1.246	0.30(0.30)	0.99	18215.4	11701.00
5	28590.34	59.18	1.222	0.30(0.30)	0.99	19370.6	11000.00
6	31039.95	67.51	1.163	0.30(0.30)	0.99	24407.3	12500.00
7	31468.57	68.97	1.153	0.30(0.30)	0.99	25360.9	11330.00
8	32002.18	71.18	1.138	0.30(0.30)	0.99	26838.7	10800.00
9	32849.10	75.55	1.108	0.30(0.30)	0.99	29784.1	11130.00
10	33031.62	81.12	1.070	0.30(0.30)	0.99	32594.9	12300.00
11	33114.20	82.50	1.061	0.30(0.30)	0.99	33382.4	12330.00
12	33186.01	84.14	1.050	0.30(0.30)	0.99	34290.4	11620.00
13	33217.38	85.16	1.043	0.30(0.30)	0.99	34825.3	12410.00
14	33238.92	86.38	1.035	0.30(0.30)	0.99	35451.5	11600.00
15	33199.04	88.02	1.023	0.30(0.30)	0.99	36204.0	10600.00
16	33210.37	89.34	1.014	0.30(0.30)	0.99	36813.4	12400.00
17	33179.69	93.38	0.995	0.30(0.30)	0.99	38564.4	11201.00
18	33161.66	94.10	0.992	0.30(0.30)	0.99	38819.3	12211.00
19	33011.46	98.29	0.974	0.30(0.30)	0.99	40296.1	12201.00
20	32963.01	99.01	0.971	0.30(0.30)	0.99	40530.1	10710.00
21	32783.54	101.00	0.962	0.30(0.30)	0.99	41085.2	10410.00
22	32611.09	102.51	0.956	0.30(0.30)	0.99	41467.3	12111.00
23	32307.60	105.16	0.944	0.30(0.30)	0.99	42153.2	12231.00
24	32244.16	105.69	0.942	0.30(0.30)	0.99	42286.1	10700.00
25	31982.44	107.97	0.932	0.30(0.30)	0.99	42826.5	12101.10
26	31863.89	108.94	0.928	0.30(0.30)	0.99	43044.6	12261.00
27	31330.23	112.70	0.912	0.30(0.30)	0.99	43787.5	10400.00
28	31049.28	115.02	0.902	0.30(0.30)	0.99	44211.9	10200.00
29	30284.07	120.35	0.879	0.30(0.30)	0.99	45082.6	12010.00
30	30186.30	120.97	0.878	0.30(0.30)	0.99	45151.8	10300.00
31	29278.79	126.04	0.868	0.30(0.30)	0.99	45429.6	10210.00
32	28847.68	128.97	0.862	0.30(0.30)	0.99	45546.8	12000.00
33	25964.49	153.19	0.814	0.30(0.30)	0.99	46168.0	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 11929.00 = 98400.52 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2608.92	30.83	1.722	0.30(0.30)	1.00	1923.9	40130.00
2	2644.22	32.64	1.673	0.30(0.30)	1.00	2037.9	40100.00
3	2794.41	60.19	1.213	0.30(0.30)	1.00	3323.0	11900.00
4	2790.44	60.46	1.211	0.30(0.30)	1.00	3327.6	11910.00

LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11929.00 = 30683.27 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2608.92	30.83	1.722	0.30(0.30)	1.00	1923.9	40130.00
2	2644.22	32.64	1.673	0.30(0.30)	1.00	2037.9	40100.00
3	2794.41	60.19	1.213	0.30(0.30)	1.00	3323.0	11900.00
4	2790.44	60.46	1.211	0.30(0.30)	1.00	3327.6	11910.00

1	25406.30	30.83	1.722	0.30(0.30)	0.99	11007.2	40130.00
2	25952.56	32.64	1.673	0.30(0.30)	0.99	11652.1	40100.00
3	27011.47	38.43	1.517	0.30(0.30)	0.99	13628.3	11831.00
4	27386.34	40.83	1.461	0.30(0.30)	0.99	14480.1	11801.00
5	29657.15	52.16	1.292	0.30(0.30)	0.99	19064.5	11530.00
6	30794.82	56.77	1.246	0.30(0.30)	0.99	21379.0	11701.00
7	31379.23	59.18	1.222	0.30(0.30)	0.99	22646.4	11000.00
8	31682.43	60.19	1.213	0.30(0.30)	0.99	23305.7	11900.00
9	31757.19	60.46	1.211	0.30(0.30)	0.99	23472.2	11910.00
10	33683.59	67.51	1.163	0.30(0.30)	0.99	27734.9	12500.00
11	34081.84	68.97	1.153	0.30(0.30)	0.99	28688.5	11330.00
12	34569.59	71.18	1.138	0.30(0.30)	0.99	30166.4	10800.00
13	35325.47	75.55	1.108	0.30(0.30)	0.99	33111.7	11130.00
14	35392.14	81.12	1.070	0.30(0.30)	0.99	35922.5	12300.00
15	35445.93	82.50	1.061	0.30(0.30)	0.99	36710.1	12330.00
16	35483.55	84.14	1.050	0.30(0.30)	0.99	37618.1	11620.00
17	35493.85	85.16	1.043	0.30(0.30)	0.99	38152.9	12410.00
18	35489.87	86.38	1.035	0.30(0.30)	0.99	38779.1	11600.00
19	35415.85	88.02	1.023	0.30(0.30)	0.99	39531.6	10600.00
20	35399.76	89.34	1.014	0.30(0.30)	0.99	40141.1	12400.00
21	35310.54	93.38	0.995	0.30(0.30)	0.99	41892.0	11201.00
22	35283.00	94.10	0.992	0.30(0.30)	0.99	42146.9	12211.00
23	35077.23	98.29	0.974	0.30(0.30)	0.99	43623.7	12201.00
24	35019.16	99.01	0.971	0.30(0.30)	0.99	43857.8	10710.00
25	34813.35	101.00	0.962	0.30(0.30)	0.99	44412.9	10410.00
26	34620.89	102.51	0.956	0.30(0.30)	0.99	44795.0	12111.00
27	34282.30	105.16	0.944	0.30(0.30)	0.99	45480.9	12231.00
28	34211.72	105.69	0.942	0.30(0.30)	0.99	45613.8	10700.00
29	33919.79	107.97	0.932	0.30(0.30)	0.99	46154.2	12101.10
30	33788.43	108.94	0.928	0.30(0.30)	0.99	46372.2	12261.00
31	33204.87	112.70	0.912	0.30(0.30)	0.99	47115.2	10400.00
32	32893.12	115.02	0.902	0.30(0.30)	0.99	47539.6	10200.00
33	32059.78	120.35	0.879	0.30(0.30)	0.99	48410.3	12010.00
34	31958.21	120.97	0.878	0.30(0.30)	0.99	48479.4	10300.00
35	31019.66	126.04	0.868	0.30(0.30)	0.99	48757.2	10210.00
36	30570.63	128.97	0.862	0.30(0.30)	0.99	48874.4	12000.00
37	27539.19	153.19	0.814	0.30(0.30)	0.99	49495.7	10100.00
TOTAL AREA(ACRES) =							49495.7

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 35493.85 Tc(MIN.) = 85.157
EFFECTIVE AREA(ACRES) = 38152.91 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA(ACRES) = 49495.7
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 11929.00 = 98400.52 FEET.

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 49495.7 TC(MIN.) = 85.16
EFFECTIVE AREA(ACRES) = 38152.91 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.994
PEAK FLOW RATE(CFS) = 35493.85

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25406.30	30.83	1.722	0.30(0.30)	0.99	11007.2	40130.00
2	25952.56	32.64	1.673	0.30(0.30)	0.99	11652.1	40100.00
3	27011.47	38.43	1.517	0.30(0.30)	0.99	13628.3	11831.00

4	27386.34	40.83	1.461	0.30	(0.30)	0.99	14480.1	11801.00
5	29657.15	52.16	1.292	0.30	(0.30)	0.99	19064.5	11530.00
6	30794.82	56.77	1.246	0.30	(0.30)	0.99	21379.0	11701.00
7	31379.23	59.18	1.222	0.30	(0.30)	0.99	22646.4	11000.00
8	31682.43	60.19	1.213	0.30	(0.30)	0.99	23305.7	11900.00
9	31757.19	60.46	1.211	0.30	(0.30)	0.99	23472.2	11910.00
10	33683.59	67.51	1.163	0.30	(0.30)	0.99	27734.9	12500.00
11	34081.84	68.97	1.153	0.30	(0.30)	0.99	28688.5	11330.00
12	34569.59	71.18	1.138	0.30	(0.30)	0.99	30166.4	10800.00
13	35325.47	75.55	1.108	0.30	(0.30)	0.99	33111.7	11130.00
14	35392.14	81.12	1.070	0.30	(0.30)	0.99	35922.5	12300.00
15	35445.93	82.50	1.061	0.30	(0.30)	0.99	36710.1	12330.00
16	35483.55	84.14	1.050	0.30	(0.30)	0.99	37618.1	11620.00
17	35493.85	85.16	1.043	0.30	(0.30)	0.99	38152.9	12410.00
18	35489.87	86.38	1.035	0.30	(0.30)	0.99	38779.1	11600.00
19	35415.85	88.02	1.023	0.30	(0.30)	0.99	39531.6	10600.00
20	35399.76	89.34	1.014	0.30	(0.30)	0.99	40141.1	12400.00
21	35310.54	93.38	0.995	0.30	(0.30)	0.99	41892.0	11201.00
22	35283.00	94.10	0.992	0.30	(0.30)	0.99	42146.9	12211.00
23	35077.23	98.29	0.974	0.30	(0.30)	0.99	43623.7	12201.00
24	35019.16	99.01	0.971	0.30	(0.30)	0.99	43857.8	10710.00
25	34813.35	101.00	0.962	0.30	(0.30)	0.99	44412.9	10410.00
26	34620.89	102.51	0.956	0.30	(0.30)	0.99	44795.0	12111.00
27	34282.30	105.16	0.944	0.30	(0.30)	0.99	45480.9	12231.00
28	34211.72	105.69	0.942	0.30	(0.30)	0.99	45613.8	10700.00
29	33919.79	107.97	0.932	0.30	(0.30)	0.99	46154.2	12101.10
30	33788.43	108.94	0.928	0.30	(0.30)	0.99	46372.2	12261.00
31	33204.87	112.70	0.912	0.30	(0.30)	0.99	47115.2	10400.00
32	32893.12	115.02	0.902	0.30	(0.30)	0.99	47539.6	10200.00
33	32059.78	120.35	0.879	0.30	(0.30)	0.99	48410.3	12010.00
34	31958.21	120.97	0.878	0.30	(0.30)	0.99	48479.4	10300.00
35	31019.66	126.04	0.868	0.30	(0.30)	0.99	48757.2	10210.00
36	30570.63	128.97	0.862	0.30	(0.30)	0.99	48874.4	12000.00
37	27539.19	153.19	0.814	0.30	(0.30)	0.99	49495.7	10100.00

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 END OF RATIONAL METHOD ANALYSIS
 =====

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 126 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 50-YR EV SEP 2023 ROKAMOTO *

FILE NAME: RI50EV26.DAT
TIME/DATE OF STUDY: 16:22 09/05/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 50.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 5.515
- 2) 10.00; 3.520
- 3) 15.00; 2.687
- 4) 20.00; 2.242
- 5) 25.00; 1.935
- 6) 30.00; 1.741
- 7) 40.00; 1.473
- 8) 50.00; 1.311
- 9) 60.00; 1.211
- 10) 90.00; 1.007
- 11) 120.00; 0.877
- 12) 180.00; 0.757
- 13) 360.00; 0.563
- 14) 1200.00; 0.248

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	(FT)	(FT)	SIDE / SIDE/ WAY	(FT)	(FT)	(FT)	(FT)	(n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 11929.00 TO NODE 11929.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RI50EV19.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25952.56	32.64	0.30 (0.30)	0.99	11652.1	40100.00
2	27386.34	40.83	0.30 (0.30)	0.99	14480.1	11801.00
3	29657.15	52.16	0.30 (0.30)	0.99	19064.5	11530.00
4	30794.82	56.77	0.30 (0.30)	0.99	21379.0	11701.00
5	31757.19	60.46	0.30 (0.30)	0.99	23472.2	11910.00
6	34569.59	71.18	0.30 (0.30)	0.99	30166.4	10800.00
7	35325.47	75.55	0.30 (0.30)	0.99	33111.7	11130.00
8	35445.93	82.50	0.30 (0.30)	0.99	36710.1	12330.00
9	35493.85	85.16	0.30 (0.30)	0.99	38152.9	12410.00
10	35415.85	88.02	0.30 (0.30)	0.99	39531.6	10600.00
11	35310.54	93.38	0.30 (0.30)	0.99	41892.0	11201.00
12	35077.23	98.29	0.30 (0.30)	0.99	43623.7	12201.00
13	34813.35	101.00	0.30 (0.30)	0.99	44412.9	10410.00
14	34282.30	105.16	0.30 (0.30)	0.99	45480.9	12231.00
15	33919.79	107.97	0.30 (0.30)	0.99	46154.2	12101.10
16	33204.87	112.70	0.30 (0.30)	0.99	47115.2	10400.00
17	32059.78	120.35	0.30 (0.30)	0.99	48410.3	12010.00
18	31019.66	126.04	0.30 (0.30)	0.99	48757.2	10210.00
19	30570.63	128.97	0.30 (0.30)	0.99	48874.4	12000.00
20	27539.19	153.19	0.30 (0.30)	0.99	49495.7	10100.00
TOTAL AREA (ACRES) =						49495.7

FLOW PROCESS FROM NODE 11929.00 TO NODE 11929.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

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MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25952.56	32.64	0.30 (0.30)	0.99	11652.1	40100.00
2	27386.34	40.83	0.30 (0.30)	0.99	14480.1	11801.00
3	29657.15	52.16	0.30 (0.30)	0.99	19064.5	11530.00
4	30794.82	56.77	0.30 (0.30)	0.99	21379.0	11701.00
5	31757.19	60.46	0.30 (0.30)	0.99	23472.2	11910.00
6	34569.59	71.18	0.30 (0.30)	0.99	30166.4	10800.00
7	35325.47	75.55	0.30 (0.30)	0.99	33111.7	11130.00
8	35445.93	82.50	0.30 (0.30)	0.99	36710.1	12330.00
9	35493.85	85.16	0.30 (0.30)	0.99	38152.9	12410.00
10	35415.85	88.02	0.30 (0.30)	0.99	39531.6	10600.00
11	35310.54	93.38	0.30 (0.30)	0.99	41892.0	11201.00
12	35077.23	98.29	0.30 (0.30)	0.99	43623.7	12201.00
13	34813.35	101.00	0.30 (0.30)	0.99	44412.9	10410.00

14	34282.30	105.16	0.30	(0.30)	0.99	45480.9	12231.00
15	33919.79	107.97	0.30	(0.30)	0.99	46154.2	12101.10
16	33204.87	112.70	0.30	(0.30)	0.99	47115.2	10400.00
17	32059.78	120.35	0.30	(0.30)	0.99	48410.3	12010.00
18	31019.66	126.04	0.30	(0.30)	0.99	48757.2	10210.00
19	30570.63	128.97	0.30	(0.30)	0.99	48874.4	12000.00
20	27539.19	153.19	0.30	(0.30)	0.99	49495.7	10100.00

TOTAL AREA (ACRES) = 49495.7

FLOW PROCESS FROM NODE 11929.00 TO NODE 12601.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 341.63 DOWNSTREAM (FEET) = 325.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1467.93 CHANNEL SLOPE = 0.0113
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 7.89
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.031

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.40	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.50	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	0.90	0.30	1.000	63
NATURAL FAIR COVER					
"GRASS"	B	0.50	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	11.50	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.30	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 35498.49
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 18.80
AVERAGE FLOW DEPTH (FEET) = 7.89 TRAVEL TIME (MIN.) = 1.30
Tc (MIN.) = 86.46
SUBAREA AREA (ACRES) = 14.10 SUBAREA RUNOFF (CFS) = 9.28
EFFECTIVE AREA (ACRES) = 38167.02 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 49509.8 PEAK FLOW RATE (CFS) = 35493.85

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 7.89

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 7.89 FLOW VELOCITY (FEET/SEC.) = 18.80
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12601.00 = 99868.45 FEET.

FLOW PROCESS FROM NODE 12601.00 TO NODE 12601.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 3050EVRL.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	103.71	16.55	0.30 (0.29)	0.98	51.1	600.00

TOTAL AREA (ACRES) = 51.1

FLOW PROCESS FROM NODE 12601.00 TO NODE 12601.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25952.56	34.08	1.632	0.30 (0.30)	0.99	11666.2	40100.00
2	27386.34	42.25	1.436	0.30 (0.30)	0.99	14494.2	11801.00
3	29657.15	53.54	1.276	0.30 (0.30)	0.99	19078.6	11530.00
4	30794.82	58.14	1.230	0.30 (0.30)	0.99	21393.1	11701.00
5	31757.19	61.81	1.199	0.30 (0.30)	0.99	23486.3	11910.00
6	34569.59	72.49	1.126	0.30 (0.30)	0.99	30180.5	10800.00
7	35325.47	76.85	1.096	0.30 (0.30)	0.99	33125.8	11130.00
8	35445.93	83.80	1.049	0.30 (0.30)	0.99	36724.2	12330.00
9	35493.85	86.46	1.031	0.30 (0.30)	0.99	38167.0	12410.00
10	35415.85	89.33	1.012	0.30 (0.30)	0.99	39545.7	10600.00
11	35310.54	94.68	0.987	0.30 (0.30)	0.99	41906.1	11201.00
12	35077.23	99.59	0.965	0.30 (0.30)	0.99	43637.8	12201.00
13	34813.35	102.31	0.954	0.30 (0.30)	0.99	44427.0	10410.00
14	34282.30	106.47	0.936	0.30 (0.30)	0.99	45495.0	12231.00
15	33919.79	109.29	0.923	0.30 (0.30)	0.99	46168.3	12101.10
16	33204.87	114.03	0.903	0.30 (0.30)	0.99	47129.3	10400.00
17	32059.78	121.70	0.874	0.30 (0.30)	0.99	48424.4	12010.00
18	31019.66	127.40	0.862	0.30 (0.30)	0.99	48771.3	10210.00
19	30570.63	130.34	0.856	0.30 (0.30)	0.99	48888.6	12000.00
20	27539.19	154.61	0.808	0.30 (0.30)	0.99	49509.8	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12601.00 = 99868.45 FEET.

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	103.71	16.55	2.549	0.30 (0.29)	0.98	51.1	600.00

LONGEST FLOWPATH FROM NODE 600.00 TO NODE 12601.00 = 4850.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21375.29	16.55	2.549	0.30 (0.30)	0.99	5716.0	600.00
2	26014.07	34.08	1.632	0.30 (0.30)	0.99	11717.3	40100.00
3	27438.89	42.25	1.436	0.30 (0.30)	0.99	14545.3	11801.00
4	29702.30	53.54	1.276	0.30 (0.30)	0.99	19129.7	11530.00
5	30837.85	58.14	1.230	0.30 (0.30)	0.99	21444.2	11701.00
6	31798.79	61.81	1.199	0.30 (0.30)	0.99	23537.4	11910.00
7	34607.86	72.49	1.126	0.30 (0.30)	0.99	30231.6	10800.00
8	35362.37	76.85	1.096	0.30 (0.30)	0.99	33176.9	11130.00
9	35480.66	83.80	1.049	0.30 (0.30)	0.99	36775.3	12330.00

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10 35527.75 86.46 1.031 0.30( 0.30) 0.99 38218.1 12410.00
11 35448.85 89.33 1.012 0.30( 0.30) 0.99 39596.8 10600.00
12 35342.40 94.68 0.987 0.30( 0.30) 0.99 41957.2 11201.00
13 35108.11 99.59 0.965 0.30( 0.30) 0.99 43688.9 12201.00
14 34843.69 102.31 0.954 0.30( 0.30) 0.99 44478.1 10410.00
15 34311.80 106.47 0.936 0.30( 0.30) 0.99 45546.1 12231.00
16 33948.73 109.29 0.923 0.30( 0.30) 0.99 46219.4 12101.10
17 33232.87 114.03 0.903 0.30( 0.30) 0.99 47180.4 10400.00
18 32086.44 121.70 0.874 0.30( 0.30) 0.99 48475.5 12010.00
19 31045.79 127.40 0.862 0.30( 0.30) 0.99 48822.4 10210.00
20 30596.49 130.34 0.856 0.30( 0.30) 0.99 48939.7 12000.00
21 27562.82 154.61 0.808 0.30( 0.30) 0.99 49560.9 10100.00
TOTAL AREA (ACRES) = 49560.9

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COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

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PEAK FLOW RATE(CFS) = 35527.75 Tc(MIN.) = 86.458
EFFECTIVE AREA(ACRES) = 38218.12 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 49560.9
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12601.00 = 99868.45 FEET.

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*****
FLOW PROCESS FROM NODE 12601.00 TO NODE 12603.00 IS CODE = 56

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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 325.00 DOWNSTREAM(FEET) = 310.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1690.00 CHANNEL SLOPE = 0.0089
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 8.46
CHANNEL FLOW THRU SUBAREA(CFS) = 35527.75
FLOW VELOCITY(FEET/SEC.) = 17.34 FLOW DEPTH(FEET) = 8.46
TRAVEL TIME(MIN.) = 1.62 Tc(MIN.) = 88.08
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12603.00 = 101558.45 FEET.

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*****
FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 12

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>>>>CLEAR MEMORY BANK # 1 <<<<

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*****
FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 1

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>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<

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TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 88.08
RAINFALL INTENSITY(INCH/HR) = 1.02
AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.99
EFFECTIVE STREAM AREA(ACRES) = 38218.12
TOTAL STREAM AREA(ACRES) = 49560.89
PEAK FLOW RATE(CFS) AT CONFLUENCE = 35527.75

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*****
FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 7

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>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<

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USER-SPECIFIED VALUES ARE AS FOLLOWS:
TC(MIN.) = 14.09 RAINFALL INTENSITY(INCH/HR) = 2.84
EFFECTIVE AREA(ACRES) = 99.30
TOTAL AREA(ACRES) = 171.00 PEAK FLOW RATE(CFS) = 208.20
AREA-AVERAGED Fm(INCH/HR) = 0.17 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.58
NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
CONFLUENCE ANALYSES.

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*****
FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 1

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>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<

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TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 14.09
RAINFALL INTENSITY(INCH/HR) = 2.84
AREA-AVERAGED Fm(INCH/HR) = 0.17
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.58
EFFECTIVE STREAM AREA(ACRES) = 99.30
TOTAL STREAM AREA(ACRES) = 171.00
PEAK FLOW RATE(CFS) AT CONFLUENCE = 208.20

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** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21375.29	18.48	2.377	0.30(0.30)	0.99	5716.0	600.00
1	26014.07	35.89	1.583	0.30(0.30)	0.99	11717.3	40100.00
1	27438.89	44.03	1.408	0.30(0.30)	0.99	14545.3	11801.00
1	29702.30	55.26	1.258	0.30(0.30)	0.99	19129.7	11530.00
1	30837.85	59.84	1.213	0.30(0.30)	0.99	21444.2	11701.00
1	31798.79	63.49	1.187	0.30(0.30)	0.99	23537.4	11910.00
1	34607.86	74.13	1.115	0.30(0.30)	0.99	30231.6	10800.00
1	35362.37	78.48	1.085	0.30(0.30)	0.99	33176.9	11130.00
1	35480.66	85.43	1.038	0.30(0.30)	0.99	36775.3	12330.00
1	35527.75	88.08	1.020	0.30(0.30)	0.99	38218.1	12410.00
1	35448.85	90.95	1.003	0.30(0.30)	0.99	39596.8	10600.00
1	35342.40	96.31	0.980	0.30(0.30)	0.99	41957.2	11201.00
1	35108.11	101.23	0.958	0.30(0.30)	0.99	43688.9	12201.00
1	34843.69	103.95	0.947	0.30(0.30)	0.99	44478.1	10410.00
1	34311.80	108.12	0.928	0.30(0.30)	0.99	45546.1	12231.00
1	33948.73	110.94	0.916	0.30(0.30)	0.99	46219.4	12101.10
1	33232.87	115.69	0.896	0.30(0.30)	0.99	47180.4	10400.00
1	32086.44	123.38	0.870	0.30(0.30)	0.99	48475.5	12010.00
1	31045.79	129.10	0.859	0.30(0.30)	0.99	48822.4	10210.00
1	30596.49	132.05	0.853	0.30(0.30)	0.99	48939.7	12000.00
1	27562.82	156.38	0.804	0.30(0.30)	0.99	49560.9	10100.00
2	208.20	14.09	2.839	0.30(0.17)	0.58	99.3	12603.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20121.55	14.09	2.839	0.30(0.30)	0.98	4457.6	12603.00
2	21547.45	18.48	2.377	0.30(0.30)	0.99	5815.3	600.00
3	26124.18	35.89	1.583	0.30(0.30)	0.99	11816.6	40100.00
4	27535.29	44.03	1.408	0.30(0.30)	0.99	14644.6	11801.00
5	29787.02	55.26	1.258	0.30(0.30)	0.99	19229.0	11530.00
6	30919.00	59.84	1.213	0.30(0.30)	0.99	21543.5	11701.00
7	31877.96	63.49	1.187	0.30(0.30)	0.99	23636.7	11910.00
8	34681.38	74.13	1.115	0.30(0.30)	0.99	30330.9	10800.00
9	35433.58	78.48	1.085	0.30(0.30)	0.99	33276.2	11130.00
10	35548.18	85.43	1.038	0.30(0.30)	0.99	36874.6	12330.00
11	35593.86	88.08	1.020	0.30(0.30)	0.99	38317.4	12410.00
12	35513.62	90.95	1.003	0.30(0.30)	0.99	39696.1	10600.00
13	35405.35	96.31	0.980	0.30(0.30)	0.99	42056.5	11201.00
14	35169.39	101.23	0.958	0.30(0.30)	0.99	43788.2	12201.00
15	34904.05	103.95	0.947	0.30(0.30)	0.99	44577.4	10410.00
16	34370.76	108.12	0.928	0.30(0.30)	0.99	45645.4	12231.00
17	34006.73	110.94	0.916	0.30(0.30)	0.99	46318.7	12101.10
18	33289.26	115.69	0.896	0.30(0.30)	0.99	47279.7	10400.00
19	32140.84	123.38	0.870	0.30(0.30)	0.99	48574.8	12010.00
20	31099.30	129.10	0.859	0.30(0.30)	0.99	48921.7	10210.00
21	30649.54	132.05	0.853	0.30(0.30)	0.99	49039.0	12000.00
22	27612.07	156.38	0.804	0.30(0.30)	0.99	49660.2	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 35593.86 Tc(MIN.) = 88.08
 EFFECTIVE AREA(ACRES) = 38317.42 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49731.9
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12603.00 = 101558.45 FEET.

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 88.08
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.020
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.20	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.30	0.30	1.000	66
PUBLIC PARK	B	1.30	0.30	0.850	56
COMMERCIAL	B	1.40	0.30	0.100	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	1.70	0.30	0.900	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	12.40	0.30	1.000	66

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.911

SUBAREA AREA(ACRES) = 18.30 SUBAREA RUNOFF(CFS) = 12.30
 EFFECTIVE AREA(ACRES) = 38335.72 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49750.2 PEAK FLOW RATE(CFS) = 35593.86
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 88.08
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.020
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	26.90	0.30	1.000	65

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 26.90 SUBAREA RUNOFF(CFS) = 17.43
 EFFECTIVE AREA(ACRES) = 38362.62 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49777.1 PEAK FLOW RATE(CFS) = 35593.86
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 88.08
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.020
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.50	0.30	1.000	63
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.40	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	0.40	0.30	1.000	72
NATURAL FAIR COVER					
"GRASS"	B	0.60	0.30	1.000	69
PUBLIC PARK	B	0.70	0.30	0.850	56
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	0.70	0.30	1.000	72

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.968
 SUBAREA AREA(ACRES) = 3.30 SUBAREA RUNOFF(CFS) = 2.17
 EFFECTIVE AREA(ACRES) = 38365.92 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49780.4 PEAK FLOW RATE(CFS) = 35593.86
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 88.08
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.020
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.00	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.20	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	1.70	0.30	0.900	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.90	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	2.10	0.30	0.900	56
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	2.90	0.30	1.000	72

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.965
 SUBAREA AREA(ACRES) = 10.80 SUBAREA RUNOFF(CFS) = 7.10
 EFFECTIVE AREA(ACRES) = 38376.72 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49791.2 PEAK FLOW RATE(CFS) = 35593.86
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 88.08
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.020
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	5.60	0.30	1.000	65
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	9.00	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 14.60 SUBAREA RUNOFF(CFS) = 9.46
 EFFECTIVE AREA(ACRES) = 38391.32 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49805.8 PEAK FLOW RATE(CFS) = 35593.86
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12603.00 TO NODE 12605.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 310.00 DOWNSTREAM(FEET) = 305.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 885.00 CHANNEL SLOPE = 0.0056
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 9.62
 CHANNEL FLOW THRU SUBAREA(CFS) = 35593.86
 FLOW VELOCITY(FEET/SEC.) = 14.91 FLOW DEPTH(FEET) = 9.62
 TRAVEL TIME(MIN.) = 0.99 Tc(MIN.) = 89.07
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12605.00 = 102443.45 FEET.

FLOW PROCESS FROM NODE 12605.00 TO NODE 12605.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 89.07
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.013
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,STRAIGHT ROW"	B	0.50	0.30	1.000	81
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.70	0.30	1.000	65
PUBLIC PARK	B	1.30	0.30	0.850	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	1.30	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS,STRAIGHT ROW"	B	1.90	0.30	1.000	81
PUBLIC PARK	B	2.10	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.918
 SUBAREA AREA(ACRES) = 7.80 SUBAREA RUNOFF(CFS) = 5.18
 EFFECTIVE AREA(ACRES) = 38399.12 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49813.6 PEAK FLOW RATE(CFS) = 35593.86
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12605.00 TO NODE 12605.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 89.07
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.013
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.20	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	3.50	0.30	1.000	65
PUBLIC PARK	B	6.10	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.929
 SUBAREA AREA(ACRES) = 12.80 SUBAREA RUNOFF(CFS) = 8.46
 EFFECTIVE AREA(ACRES) = 38411.92 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49826.4 PEAK FLOW RATE(CFS) = 35593.86
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

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*****
FLOW PROCESS FROM NODE 12605.00 TO NODE 12606.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 305.00 DOWNSTREAM(FEET) = 286.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2159.47 CHANNEL SLOPE = 0.0088
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 8.49
CHANNEL FLOW THRU SUBAREA(CFS) = 35593.86
FLOW VELOCITY(FEET/SEC.) = 17.30 FLOW DEPTH(FEET) = 8.49
TRAVEL TIME(MIN.) = 2.08 Tc(MIN.) = 91.15
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12606.00 = 104602.91 FEET.
*****
FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 91.15
RAINFALL INTENSITY(INCH/HR) = 1.00
AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.99
EFFECTIVE STREAM AREA(ACRES) = 38411.92
TOTAL STREAM AREA(ACRES) = 49826.39
PEAK FLOW RATE(CFS) AT CONFLUENCE = 35593.86

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*****
FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 7
-----
>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<
=====
USER-SPECIFIED VALUES ARE AS FOLLOWS:
TC(MIN.) = 16.81 RAINFALL INTENSITY(INCH/HR) = 2.53
EFFECTIVE AREA(ACRES) = 457.00
TOTAL AREA(ACRES) = 553.80 PEAK FLOW RATE(CFS) = 824.90
AREA-AVERAGED Fm(INCH/HR) = 0.26 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.85
NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
CONFLUENCE ANALYSES.

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*****
FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 16.81
RAINFALL INTENSITY(INCH/HR) = 2.53
AREA-AVERAGED Fm(INCH/HR) = 0.26
AREA-AVERAGED Fp(INCH/HR) = 0.30

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AREA-AVERAGED Ap = 0.85
EFFECTIVE STREAM AREA(ACRES) = 457.00
TOTAL STREAM AREA(ACRES) = 553.80
PEAK FLOW RATE(CFS) AT CONFLUENCE = 824.90

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** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20121.55	17.81	2.437	0.30(0.29)	0.98	4552.1	12603.00
1	21547.45	22.11	2.112	0.30(0.30)	0.99	5909.8	600.00
1	26124.18	39.29	1.492	0.30(0.30)	0.99	11911.1	40100.00
1	27535.29	47.37	1.354	0.30(0.30)	0.99	14739.1	11801.00
1	29787.02	58.52	1.226	0.30(0.30)	0.99	19323.5	11530.00
1	30919.00	63.06	1.190	0.30(0.30)	0.99	21638.0	11701.00
1	31877.96	66.68	1.166	0.30(0.30)	0.99	23731.2	11910.00
1	34681.38	77.23	1.094	0.30(0.30)	0.99	30425.4	10800.00
1	35433.58	81.56	1.064	0.30(0.30)	0.99	33370.7	11130.00
1	35548.18	88.50	1.017	0.30(0.30)	0.99	36969.1	12330.00
1	35593.86	91.15	1.002	0.30(0.30)	0.99	38411.9	12410.00
1	35513.62	94.03	0.990	0.30(0.30)	0.99	39790.6	10600.00
1	35405.35	99.39	0.966	0.30(0.30)	0.99	42151.0	11201.00
1	35169.39	104.31	0.945	0.30(0.30)	0.99	43882.7	12201.00
1	34904.05	107.04	0.933	0.30(0.30)	0.99	44671.9	10410.00
1	34370.76	111.22	0.915	0.30(0.30)	0.99	45739.9	12231.00
1	34006.73	114.06	0.903	0.30(0.30)	0.99	46413.2	12101.10
1	33289.26	118.83	0.882	0.30(0.30)	0.99	47374.2	10400.00
1	32140.84	126.55	0.864	0.30(0.30)	0.99	48669.3	12010.00
1	31099.30	132.32	0.852	0.30(0.30)	0.99	49016.2	10210.00
1	30649.54	135.27	0.846	0.30(0.30)	0.99	49133.5	12000.00
1	27612.07	159.72	0.798	0.30(0.30)	0.99	49754.7	10100.00
2	824.90	16.81	2.526	0.30(0.26)	0.85	457.0	12606.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20606.08	16.81	2.526	0.30(0.29)	0.97	4753.8	12606.00
2	20914.15	17.81	2.437	0.30(0.29)	0.97	5009.1	12603.00
3	22222.09	22.11	2.112	0.30(0.29)	0.98	6366.8	600.00
4	26573.51	39.29	1.492	0.30(0.30)	0.98	12368.1	40100.00
5	27934.36	47.37	1.354	0.30(0.30)	0.99	15196.1	11801.00
6	30139.66	58.52	1.226	0.30(0.30)	0.99	19780.5	11530.00
7	31258.71	63.06	1.190	0.30(0.30)	0.99	22095.0	11701.00
8	32208.73	66.68	1.166	0.30(0.30)	0.99	24188.2	11910.00
9	34986.09	77.23	1.094	0.30(0.30)	0.99	30882.4	10800.00
10	35727.60	81.56	1.064	0.30(0.30)	0.99	33827.7	11130.00
11	35825.05	88.50	1.017	0.30(0.30)	0.99	37426.1	12330.00
12	35865.20	91.15	1.002	0.30(0.30)	0.99	38868.9	12410.00
13	35780.44	94.03	0.990	0.30(0.30)	0.99	40247.6	10600.00
14	35663.73	99.39	0.966	0.30(0.30)	0.99	42608.0	11201.00
15	35420.03	104.31	0.945	0.30(0.30)	0.99	44339.7	12201.00
16	35150.39	107.04	0.933	0.30(0.30)	0.99	45128.9	10410.00
17	34610.52	111.22	0.915	0.30(0.30)	0.99	46196.9	12231.00
18	34242.01	114.06	0.903	0.30(0.30)	0.99	46870.2	12101.10
19	33517.04	118.83	0.882	0.30(0.30)	0.99	47831.2	10400.00
20	32362.02	126.55	0.864	0.30(0.30)	0.99	49126.3	12010.00

21 31316.29 132.32 0.852 0.30(0.30) 0.99 49473.2 10210.00
 22 30864.38 135.27 0.846 0.30(0.30) 0.99 49590.5 12000.00
 23 27809.15 159.72 0.798 0.30(0.30) 0.99 50211.7 10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 35865.20 Tc(MIN.) = 91.15
 EFFECTIVE AREA(ACRES) = 38868.92 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 50380.2
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12606.00 = 104602.91 FEET.

 FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 91.15
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.002
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.30	0.30	1.000	63
NATURAL FAIR COVER					
"GRASS"	B	0.30	0.30	1.000	69
PUBLIC PARK	B	0.40	0.30	0.850	56
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	0.60	0.30	1.000	72
COMMERCIAL	B	1.10	0.30	0.100	56
PUBLIC PARK	B	0.80	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.666
 SUBAREA AREA(ACRES) = 3.50 SUBAREA RUNOFF(CFS) = 2.53
 EFFECTIVE AREA(ACRES) = 38872.42 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 50383.7 PEAK FLOW RATE(CFS) = 35865.20
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 91.15
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.002
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	0.80	0.30	1.000	69
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.90	0.30	1.000	65
AGRICULTURAL POOR COVER					
"ROW CROPS,STRAIGHT ROW"	B	1.50	0.30	1.000	81
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.60	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.80	0.30	1.000	66

NATURAL FAIR COVER
 "WOODLAND,GRASS" B 1.90 0.30 1.000 65
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 8.50 SUBAREA RUNOFF(CFS) = 5.37
 EFFECTIVE AREA(ACRES) = 38880.92 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 50392.2 PEAK FLOW RATE(CFS) = 35865.20
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 91.15
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.002
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.30	0.30	1.000	66
PUBLIC PARK	B	3.70	0.30	0.850	56
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	3.90	0.30	1.000	72
PUBLIC PARK	B	5.90	0.30	0.850	56
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	9.10	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	20.60	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.969
 SUBAREA AREA(ACRES) = 46.50 SUBAREA RUNOFF(CFS) = 29.77
 EFFECTIVE AREA(ACRES) = 38927.42 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 50438.7 PEAK FLOW RATE(CFS) = 35865.20
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

=====

END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 50438.7 TC(MIN.) = 91.15
 EFFECTIVE AREA(ACRES) = 38927.42 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.991
 PEAK FLOW RATE(CFS) = 35865.20

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20606.08	16.81	2.526	0.30(0.29)	0.97	4812.3	12606.00
2	20914.15	17.81	2.437	0.30(0.29)	0.97	5067.6	12603.00
3	22222.09	22.11	2.112	0.30(0.29)	0.98	6425.3	600.00
4	26573.51	39.29	1.492	0.30(0.30)	0.98	12426.6	40100.00
5	27934.36	47.37	1.354	0.30(0.30)	0.99	15254.6	11801.00
6	30139.66	58.52	1.226	0.30(0.30)	0.99	19839.0	11530.00
7	31258.71	63.06	1.190	0.30(0.30)	0.99	22153.5	11701.00
8	32208.73	66.68	1.166	0.30(0.30)	0.99	24246.7	11910.00
9	34986.09	77.23	1.094	0.30(0.30)	0.99	30940.9	10800.00
10	35727.60	81.56	1.064	0.30(0.30)	0.99	33886.2	11130.00
11	35825.05	88.50	1.017	0.30(0.30)	0.99	37484.6	12330.00

12	35865.20	91.15	1.002	0.30	(0.30)	0.99	38927.4	12410.00
13	35780.44	94.03	0.990	0.30	(0.30)	0.99	40306.1	10600.00
14	35663.73	99.39	0.966	0.30	(0.30)	0.99	42666.5	11201.00
15	35420.03	104.31	0.945	0.30	(0.30)	0.99	44398.2	12201.00
16	35150.39	107.04	0.933	0.30	(0.30)	0.99	45187.4	10410.00
17	34610.52	111.22	0.915	0.30	(0.30)	0.99	46255.4	12231.00
18	34242.01	114.06	0.903	0.30	(0.30)	0.99	46928.7	12101.10
19	33517.04	118.83	0.882	0.30	(0.30)	0.99	47889.7	10400.00
20	32362.02	126.55	0.864	0.30	(0.30)	0.99	49184.8	12010.00
21	31316.29	132.32	0.852	0.30	(0.30)	0.99	49531.8	10210.00
22	30864.38	135.27	0.846	0.30	(0.30)	0.99	49649.0	12000.00
23	27809.15	159.72	0.798	0.30	(0.30)	0.99	50270.2	10100.00

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END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 127 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 50-YR EV SEP 2023 ROKAMOTO *

FILE NAME: RI50EV27.DAT
TIME/DATE OF STUDY: 16:22 09/05/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 50.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 5.453
- 2) 10.00; 3.490
- 3) 15.00; 2.670
- 4) 20.00; 2.230
- 5) 25.00; 1.926
- 6) 30.00; 1.733
- 7) 40.00; 1.467
- 8) 50.00; 1.305
- 9) 60.00; 1.202
- 10) 90.00; 0.999
- 11) 120.00; 0.869
- 12) 180.00; 0.747
- 13) 360.00; 0.555
- 14) 1200.00; 0.244

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT-/PARK- SIDE / SIDE/ WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: RI50EV26.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20914.15	17.81	0.30 (0.29)	0.97	5067.6	12603.00
2	22222.09	22.11	0.30 (0.29)	0.98	6425.3	600.00
3	26573.51	39.29	0.30 (0.30)	0.98	12426.6	40100.00
4	27934.36	47.37	0.30 (0.30)	0.99	15254.6	11801.00
5	30139.66	58.52	0.30 (0.30)	0.99	19839.0	11530.00
6	31258.71	63.06	0.30 (0.30)	0.99	22153.5	11701.00
7	32208.73	66.68	0.30 (0.30)	0.99	24246.7	11910.00
8	34986.09	77.23	0.30 (0.30)	0.99	30940.9	10800.00
9	35727.60	81.56	0.30 (0.30)	0.99	33886.2	11130.00
10	35865.20	91.15	0.30 (0.30)	0.99	38927.4	12410.00
11	35663.73	99.39	0.30 (0.30)	0.99	42666.5	11201.00
12	35420.03	104.31	0.30 (0.30)	0.99	44398.2	12201.00
13	35150.39	107.04	0.30 (0.30)	0.99	45187.4	10410.00
14	34610.52	111.22	0.30 (0.30)	0.99	46255.4	12231.00
15	34242.01	114.06	0.30 (0.30)	0.99	46928.7	12101.10
16	33517.04	118.83	0.30 (0.30)	0.99	47889.7	10400.00
17	32362.02	126.55	0.30 (0.30)	0.99	49184.8	12010.00
18	31316.29	132.32	0.30 (0.30)	0.99	49531.8	10210.00
19	30864.38	135.27	0.30 (0.30)	0.99	49649.0	12000.00
20	27809.15	159.72	0.30 (0.30)	0.99	50270.2	10100.00
TOTAL AREA (ACRES) =						50270.2

FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20914.15	17.81	0.30 (0.29)	0.97	5067.6	12603.00
2	22222.09	22.11	0.30 (0.29)	0.98	6425.3	600.00
3	26573.51	39.29	0.30 (0.30)	0.98	12426.6	40100.00
4	27934.36	47.37	0.30 (0.30)	0.99	15254.6	11801.00
5	30139.66	58.52	0.30 (0.30)	0.99	19839.0	11530.00
6	31258.71	63.06	0.30 (0.30)	0.99	22153.5	11701.00
7	32208.73	66.68	0.30 (0.30)	0.99	24246.7	11910.00
8	34986.09	77.23	0.30 (0.30)	0.99	30940.9	10800.00
9	35727.60	81.56	0.30 (0.30)	0.99	33886.2	11130.00
10	35865.20	91.15	0.30 (0.30)	0.99	38927.4	12410.00
11	35663.73	99.39	0.30 (0.30)	0.99	42666.5	11201.00
12	35420.03	104.31	0.30 (0.30)	0.99	44398.2	12201.00
13	35150.39	107.04	0.30 (0.30)	0.99	45187.4	10410.00

14 34610.52 111.22 0.30(0.30) 0.99 46255.4 12231.00
 15 34242.01 114.06 0.30(0.30) 0.99 46928.7 12101.10
 16 33517.04 118.83 0.30(0.30) 0.99 47889.7 10400.00
 17 32362.02 126.55 0.30(0.30) 0.99 49184.8 12010.00
 18 31316.29 132.32 0.30(0.30) 0.99 49531.8 10210.00
 19 30864.38 135.27 0.30(0.30) 0.99 49649.0 12000.00
 20 27809.15 159.72 0.30(0.30) 0.99 50270.2 10100.00
 TOTAL AREA (ACRES) = 50270.2

FLOW PROCESS FROM NODE 12606.00 TO NODE 12701.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 286.00 DOWNSTREAM(FEET) = 276.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1260.19 CHANNEL SLOPE = 0.0079
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 8.78
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 0.989

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	B	0.70	0.30	0.500	56
PUBLIC PARK	B	0.90	0.30	0.850	56
COMMERCIAL	B	3.40	0.30	0.100	56
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	3.60	0.30	1.000	65
PUBLIC PARK	B	10.10	0.30	0.850	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	17.40	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.860

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 35877.07

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 16.76

AVERAGE FLOW DEPTH(FEET) = 8.78 TRAVEL TIME(MIN.) = 1.25

Tc(MIN.) = 92.41

SUBAREA AREA(ACRES) = 36.10 SUBAREA RUNOFF(CFS) = 23.74

EFFECTIVE AREA(ACRES) = 38963.52 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99

TOTAL AREA(ACRES) = 50306.3 PEAK FLOW RATE(CFS) = 35865.20

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 8.78

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 8.78 FLOW VELOCITY(FEET/SEC.) = 16.75

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12701.00 = 105863.10 FEET.

FLOW PROCESS FROM NODE 12701.00 TO NODE 12720.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 276.00 DOWNSTREAM(FEET) = 275.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 147.65 CHANNEL SLOPE = 0.0068
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 9.18
 CHANNEL FLOW THRU SUBAREA(CFS) = 35865.20
 FLOW VELOCITY(FEET/SEC.) = 15.88 FLOW DEPTH(FEET) = 9.18
 TRAVEL TIME(MIN.) = 0.15 Tc(MIN.) = 92.56
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12720.00 = 106010.75 FEET.

FLOW PROCESS FROM NODE 12701.00 TO NODE 12720.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION(MIN.) = 92.56
 RAINFALL INTENSITY(INCH/HR) = 0.99
 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.99
 EFFECTIVE STREAM AREA(ACRES) = 38963.52
 TOTAL STREAM AREA(ACRES) = 50306.29
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 35865.20

FLOW PROCESS FROM NODE 12710.00 TO NODE 12711.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

INITIAL SUBAREA FLOW-LENGTH(FEET) = 943.56
 ELEVATION DATA: UPSTREAM(FEET) = 940.78 DOWNSTREAM(FEET) = 657.79

Tc = K*(LENGTH** 3.00)/(ELEVATION CHANGE]**0.20

SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 13.910

* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.849

SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
NATURAL FAIR COVER						
"GRASS"	B	6.56	0.30	1.000	69	13.91
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30						
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000						
SUBAREA RUNOFF(CFS) = 15.05						
TOTAL AREA(ACRES) = 6.56 PEAK FLOW RATE(CFS) = 15.05						

FLOW PROCESS FROM NODE 12711.00 TO NODE 12712.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 657.79 DOWNSTREAM(FEET) = 585.63
 CHANNEL LENGTH THRU SUBAREA(FEET) = 766.00 CHANNEL SLOPE = 0.0942
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 0.72
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 2.559
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	26.94	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 42.49
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.42
 AVERAGE FLOW DEPTH (FEET) = 0.69 TRAVEL TIME (MIN.) = 2.36
 Tc (MIN.) = 16.27
 SUBAREA AREA (ACRES) = 26.94 SUBAREA RUNOFF (CFS) = 54.76
 EFFECTIVE AREA (ACRES) = 33.50 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 33.5 PEAK FLOW RATE (CFS) = 68.09
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 0.91

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 0.91 FLOW VELOCITY (FEET/SEC.) = 6.32
 LONGEST FLOWPATH FROM NODE 12710.00 TO NODE 12712.00 = 1709.56 FEET.

 FLOW PROCESS FROM NODE 12712.00 TO NODE 12713.00 IS CODE = 56

>>>> COMPUTE TRAPEZOIDAL CHANNEL FLOW <<<<<<
 >>>> TRAVELTIME THRU SUBAREA <<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 585.63 DOWNSTREAM (FEET) = 463.75
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1025.79 CHANNEL SLOPE = 0.1188
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 0.95
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 2.352
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	14.73	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 81.71
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.29
 AVERAGE FLOW DEPTH (FEET) = 0.94 TRAVEL TIME (MIN.) = 2.35
 Tc (MIN.) = 18.61
 SUBAREA AREA (ACRES) = 14.73 SUBAREA RUNOFF (CFS) = 27.20
 EFFECTIVE AREA (ACRES) = 48.23 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 48.2 PEAK FLOW RATE (CFS) = 89.08
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 0.99

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 0.99 FLOW VELOCITY (FEET/SEC.) = 7.52

LONGEST FLOWPATH FROM NODE 12710.00 TO NODE 12713.00 = 2735.35 FEET.

FLOW PROCESS FROM NODE 12713.00 TO NODE 12714.00 IS CODE = 56

>>>> COMPUTE TRAPEZOIDAL CHANNEL FLOW <<<<<<
 >>>> TRAVELTIME THRU SUBAREA <<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 463.75 DOWNSTREAM (FEET) = 360.30
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1148.54 CHANNEL SLOPE = 0.0901
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.63
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 2.178
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	105.64	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 178.43
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.52
 AVERAGE FLOW DEPTH (FEET) = 1.59 TRAVEL TIME (MIN.) = 2.25
 Tc (MIN.) = 20.86
 SUBAREA AREA (ACRES) = 105.64 SUBAREA RUNOFF (CFS) = 178.52
 EFFECTIVE AREA (ACRES) = 153.87 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 153.9 PEAK FLOW RATE (CFS) = 260.03
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.96

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.96 FLOW VELOCITY (FEET/SEC.) = 9.54
 LONGEST FLOWPATH FROM NODE 12710.00 TO NODE 12714.00 = 3883.89 FEET.

 FLOW PROCESS FROM NODE 12714.00 TO NODE 12720.00 IS CODE = 56

>>>> COMPUTE TRAPEZOIDAL CHANNEL FLOW <<<<<<
 >>>> TRAVELTIME THRU SUBAREA <<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 360.30 DOWNSTREAM (FEET) = 275.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1314.99 CHANNEL SLOPE = 0.0649
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.58
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 2.035
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	127.13	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 359.33
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 9.33

AVERAGE FLOW DEPTH (FEET) = 2.55 TRAVEL TIME (MIN.) = 2.35
 Tc (MIN.) = 23.21
 SUBAREA AREA (ACRES) = 127.13 SUBAREA RUNOFF (CFS) = 198.49
 EFFECTIVE AREA (ACRES) = 281.00 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 281.0 PEAK FLOW RATE (CFS) = 438.74
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.84

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 2.84 FLOW VELOCITY (FEET/SEC.) = 9.87
 LONGEST FLOWPATH FROM NODE 12710.00 TO NODE 12720.00 = 5198.88 FEET.

 FLOW PROCESS FROM NODE 12720.00 TO NODE 12720.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

=====
 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 23.21
 RAINFALL INTENSITY (INCH/HR) = 2.03
 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 1.00
 EFFECTIVE STREAM AREA (ACRES) = 281.00
 TOTAL STREAM AREA (ACRES) = 281.00
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 438.74

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20914.15	19.50	2.274	0.30 (0.29)	0.97	5103.7	12603.00
1	22222.09	23.77	2.001	0.30 (0.29)	0.98	6461.4	600.00
1	26573.51	40.85	1.453	0.30 (0.30)	0.98	12462.7	40100.00
1	27934.36	48.90	1.323	0.30 (0.30)	0.99	15290.7	11801.00
1	30139.66	60.01	1.202	0.30 (0.30)	0.99	19875.1	11530.00
1	31258.71	64.53	1.171	0.30 (0.30)	0.99	22189.6	11701.00
1	32208.73	68.14	1.147	0.30 (0.30)	0.99	24282.8	11910.00
1	34986.09	78.65	1.076	0.30 (0.30)	0.99	30977.0	10800.00
1	35727.60	82.97	1.047	0.30 (0.30)	0.99	33922.3	11130.00
1	35865.20	92.56	0.988	0.30 (0.30)	0.99	38963.5	12410.00
1	35663.73	100.80	0.952	0.30 (0.30)	0.99	42702.6	11201.00
1	35420.03	105.72	0.931	0.30 (0.30)	0.99	44434.3	12201.00
1	35150.39	108.45	0.919	0.30 (0.30)	0.99	45223.5	10410.00
1	34610.52	112.65	0.901	0.30 (0.30)	0.99	46291.5	12231.00
1	34242.01	115.49	0.889	0.30 (0.30)	0.99	46964.8	12101.10
1	33517.04	120.27	0.868	0.30 (0.30)	0.99	47925.8	10400.00
1	32362.02	128.01	0.853	0.30 (0.30)	0.99	49220.9	12010.00
1	31316.29	133.79	0.841	0.30 (0.30)	0.99	49567.9	10210.00
1	30864.38	136.75	0.835	0.30 (0.30)	0.99	49685.1	12000.00
1	27809.15	161.25	0.785	0.30 (0.30)	0.99	50306.3	10100.00
2	438.74	23.21	2.035	0.30 (0.30)	1.00	281.0	12710.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21333.57	19.50	2.274	0.30 (0.29)	0.97	5339.8	12603.00
2	22490.38	23.21	2.035	0.30 (0.29)	0.98	6565.5	12710.00
3	22652.27	23.77	2.001	0.30 (0.29)	0.98	6742.4	600.00
4	26865.16	40.85	1.453	0.30 (0.30)	0.98	12743.7	40100.00
5	28193.03	48.90	1.323	0.30 (0.30)	0.99	15571.7	11801.00
6	30367.75	60.01	1.202	0.30 (0.30)	0.99	20156.1	11530.00
7	31479.08	64.53	1.171	0.30 (0.30)	0.99	22470.6	11701.00
8	32422.92	68.14	1.147	0.30 (0.30)	0.99	24563.8	11910.00
9	35182.30	78.65	1.076	0.30 (0.30)	0.99	31258.0	10800.00
10	35916.41	82.97	1.047	0.30 (0.30)	0.99	34203.3	11130.00
11	36039.17	92.56	0.988	0.30 (0.30)	0.99	39244.5	12410.00
12	35828.67	100.80	0.952	0.30 (0.30)	0.99	42983.6	11201.00
13	35579.58	105.72	0.931	0.30 (0.30)	0.99	44715.3	12201.00
14	35306.95	108.45	0.919	0.30 (0.30)	0.99	45504.5	10410.00
15	34762.47	112.65	0.901	0.30 (0.30)	0.99	46572.5	12231.00
16	34390.85	115.49	0.889	0.30 (0.30)	0.99	47245.8	12101.10
17	33660.80	120.27	0.868	0.30 (0.30)	0.99	48206.8	10400.00
18	32501.79	128.01	0.853	0.30 (0.30)	0.99	49501.9	12010.00
19	31453.10	133.79	0.841	0.30 (0.30)	0.99	49848.9	10210.00
20	30999.67	136.75	0.835	0.30 (0.30)	0.99	49966.1	12000.00
21	27931.84	161.25	0.785	0.30 (0.30)	0.99	50587.3	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE (CFS) = 36039.17 Tc (MIN.) = 92.56
 EFFECTIVE AREA (ACRES) = 39244.52 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA (ACRES) = 50587.3
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12720.00 = 10610.75 FEET.

 FLOW PROCESS FROM NODE 12720.00 TO NODE 12720.50 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====
 ELEVATION DATA: UPSTREAM (FEET) = 275.00 DOWNSTREAM (FEET) = 258.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 2669.21 CHANNEL SLOPE = 0.0064
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 9.37
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.976
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	0.20	0.30	1.000	86
NATURAL POOR COVER					
"BARREN"	B	0.20	0.30	1.000	86
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.20	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.30	0.30	1.000	65
COMMERCIAL	B	0.30	0.30	0.100	56
NATURAL FAIR COVER					

"MEADOWS" B 0.50 0.30 1.000 70
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.841
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 36039.73
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 15.58
 AVERAGE FLOW DEPTH (FEET) = 9.37 TRAVEL TIME (MIN.) = 2.86
 Tc (MIN.) = 95.42
 SUBAREA AREA (ACRES) = 1.70 SUBAREA RUNOFF (CFS) = 1.11
 EFFECTIVE AREA (ACRES) = 39246.22 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA (ACRES) = 50589.0 PEAK FLOW RATE (CFS) = 36039.17
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 9.37

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 9.37 FLOW VELOCITY (FEET/SEC.) = 15.58
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12720.50 = 108679.96 FEET.

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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MAINLINE Tc (MIN.) = 95.42
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.976
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
PUBLIC PARK	B	0.50	0.30	0.850	56
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.70	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.50	0.30	1.000	66
COMMERCIAL	B	1.40	0.30	0.100	56
COMMERCIAL	B	2.30	0.30	0.100	56
NATURAL FAIR COVER					
"GRASS"	B	9.30	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.783
 SUBAREA AREA (ACRES) = 15.70 SUBAREA RUNOFF (CFS) = 10.46
 EFFECTIVE AREA (ACRES) = 39261.92 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA (ACRES) = 50604.7 PEAK FLOW RATE (CFS) = 36039.17
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc (MIN.) = 95.42
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.976
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					

"WOODLAND, GRASS" B 11.20 0.30 1.000 65
 NATURAL FAIR COVER
 "WOODLAND, GRASS" B 11.40 0.30 1.000 65
 NATURAL FAIR COVER
 "CHAPARRAL, NARROWLEAF" B 11.80 0.30 1.000 72
 NATURAL FAIR COVER
 "OPEN BRUSH" B 27.70 0.30 1.000 66
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 62.10 SUBAREA RUNOFF (CFS) = 37.76
 EFFECTIVE AREA (ACRES) = 39324.02 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA (ACRES) = 50666.8 PEAK FLOW RATE (CFS) = 36039.17
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

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TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION (MIN.) = 95.42
 RAINFALL INTENSITY (INCH/HR) = 0.98
 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.99
 EFFECTIVE STREAM AREA (ACRES) = 39324.02
 TOTAL STREAM AREA (ACRES) = 50666.79
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 36039.17

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 7

>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<

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USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC (MIN.) = 22.12 RAINFALL INTENSITY (INCH/HR) = 2.10
 EFFECTIVE AREA (ACRES) = 665.90
 TOTAL AREA (ACRES) = 1292.30 PEAK FLOW RATE (CFS) = 1078.00
 AREA-AVERAGED Fm (INCH/HR) = 0.13 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.43
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
 CONFLUENCE ANALYSES.

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

=====

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 22.12
 RAINFALL INTENSITY (INCH/HR) = 2.10
 AREA-AVERAGED Fm (INCH/HR) = 0.13
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.43

EFFECTIVE STREAM AREA(ACRES) = 665.90
 TOTAL STREAM AREA(ACRES) = 1292.30
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 1078.00

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21333.57	22.90	2.054	0.30(0.29)	0.97	5419.3	12603.00
1	22490.38	26.55	1.866	0.30(0.29)	0.98	6645.0	12710.00
1	22652.27	27.10	1.845	0.30(0.29)	0.98	6821.9	600.00
1	26865.16	44.00	1.402	0.30(0.30)	0.98	12823.2	40100.00
1	28193.03	52.00	1.284	0.30(0.30)	0.99	15651.2	11801.00
1	30367.75	63.03	1.181	0.30(0.30)	0.99	20235.6	11530.00
1	31479.08	67.52	1.151	0.30(0.30)	0.99	22550.1	11701.00
1	32422.92	71.09	1.127	0.30(0.30)	0.99	24643.3	11910.00
1	35182.30	81.52	1.056	0.30(0.30)	0.99	31337.5	10800.00
1	35916.41	85.82	1.027	0.30(0.30)	0.99	34282.8	11130.00
1	36039.17	95.42	0.976	0.30(0.30)	0.99	39324.0	12410.00
1	35828.67	103.66	0.940	0.30(0.30)	0.99	43063.1	11201.00
1	35579.58	108.59	0.918	0.30(0.30)	0.99	44794.8	12201.00
1	35306.95	111.33	0.907	0.30(0.30)	0.99	45584.0	10410.00
1	34762.47	115.54	0.888	0.30(0.30)	0.99	46652.0	12231.00
1	34390.85	118.39	0.876	0.30(0.30)	0.99	47325.3	12101.10
1	33660.80	123.19	0.863	0.30(0.30)	0.99	48286.3	10400.00
1	32501.79	130.97	0.847	0.30(0.30)	0.99	49581.4	12010.00
1	31453.10	136.77	0.835	0.30(0.30)	0.99	49928.4	10210.00
1	30999.67	139.75	0.829	0.30(0.30)	0.99	50045.6	12000.00
1	27931.84	164.36	0.779	0.30(0.30)	0.99	50666.8	10100.00
2	1078.00	22.12	2.101	0.30(0.13)	0.43	665.9	12720.50

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22239.92	22.12	2.101	0.30(0.27)	0.91	5901.1	12720.50
2	22385.72	22.90	2.054	0.30(0.27)	0.91	6085.2	12603.00
3	23439.95	26.55	1.866	0.30(0.28)	0.93	7310.9	12710.00
4	23590.29	27.10	1.845	0.30(0.28)	0.93	7487.8	600.00
5	27561.16	44.00	1.402	0.30(0.29)	0.96	13489.1	40100.00
6	28824.62	52.00	1.284	0.30(0.29)	0.96	16317.1	11801.00
7	30943.05	63.03	1.181	0.30(0.29)	0.97	20901.5	11530.00
8	32037.81	67.52	1.151	0.30(0.29)	0.97	23216.0	11701.00
9	32968.41	71.09	1.127	0.30(0.29)	0.97	25309.2	11910.00
10	35689.21	81.52	1.056	0.30(0.29)	0.98	32003.4	10800.00
11	36407.42	85.82	1.027	0.30(0.29)	0.98	34948.7	11130.00
12	36501.90	95.42	0.976	0.30(0.29)	0.98	39989.9	12410.00
13	36271.88	103.66	0.940	0.30(0.29)	0.98	43729.0	11201.00
14	36011.10	108.59	0.918	0.30(0.29)	0.98	45460.7	12201.00
15	35731.99	111.33	0.907	0.30(0.29)	0.98	46249.9	10410.00
16	35177.55	115.54	0.888	0.30(0.29)	0.98	47317.9	12231.00
17	34799.17	118.39	0.876	0.30(0.29)	0.98	47991.2	12101.10
18	34061.75	123.19	0.863	0.30(0.29)	0.98	48952.2	10400.00
19	32894.11	130.97	0.847	0.30(0.29)	0.98	50247.3	12010.00
20	31838.96	136.77	0.835	0.30(0.29)	0.98	50594.2	10210.00
21	31382.21	139.75	0.829	0.30(0.29)	0.98	50711.5	12000.00
22	28287.04	164.36	0.779	0.30(0.29)	0.98	51332.7	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 36501.90 Tc(MIN.) = 95.42
 EFFECTIVE AREA(ACRES) = 39989.92 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA(ACRES) = 51959.1
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12720.50 = 108679.96 FEET.

FLOW PROCESS FROM NODE 12720.50 TO NODE 12722.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 258.00 DOWNSTREAM(FEET) = 255.00

CHANNEL LENGTH THRU SUBAREA(FEET) = 1269.00 CHANNEL SLOPE = 0.0024

GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 12.46

* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 0.967

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
PUBLIC PARK	B	0.10	0.30	0.850	56
NATURAL FAIR COVER "GRASS"	B	0.10	0.30	1.000	69
NATURAL FAIR COVER "GRASS"	B	0.20	0.30	1.000	69
NATURAL FAIR COVER "GRASS"	B	0.30	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	0.30	0.30	1.000	66
COMMERCIAL	B	0.40	0.30	0.100	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.732

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 36502.38

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.17

AVERAGE FLOW DEPTH(FEET) = 12.46 TRAVEL TIME(MIN.) = 1.89

Tc(MIN.) = 97.31

SUBAREA AREA(ACRES) = 1.40 SUBAREA RUNOFF(CFS) = 0.94

EFFECTIVE AREA(ACRES) = 39991.32 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98

TOTAL AREA(ACRES) = 51960.5 PEAK FLOW RATE(CFS) = 36501.90

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 12.46

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 12.46 FLOW VELOCITY(FEET/SEC.) = 11.17

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12722.00 = 109948.96 FEET.

FLOW PROCESS FROM NODE 12722.00 TO NODE 12722.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 97.31

* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.967
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	0.50	0.30	0.100	56
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.60	0.30	1.000	65
NATURAL POOR COVER "BARREN"	B	0.60	0.30	1.000	86
COMMERCIAL	B	0.60	0.30	0.100	56
NATURAL FAIR COVER "OPEN BRUSH"	B	0.90	0.30	1.000	66
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	B	1.00	0.30	1.000	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.764
 SUBAREA AREA (ACRES) = 4.20 SUBAREA RUNOFF (CFS) = 2.79
 EFFECTIVE AREA (ACRES) = 39995.52 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 51964.7 PEAK FLOW RATE (CFS) = 36501.90
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12722.00 TO NODE 12722.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 97.31
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.967
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND, GRASS"	B	1.30	0.30	1.000	65
NATURAL FAIR COVER "MEADOWS"	B	3.20	0.30	1.000	70
NATURAL FAIR COVER "WOODLAND, GRASS"	B	3.70	0.30	1.000	65
NATURAL FAIR COVER "OPEN BRUSH"	B	12.00	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 20.20 SUBAREA RUNOFF (CFS) = 12.13
 EFFECTIVE AREA (ACRES) = 40015.72 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 51984.9 PEAK FLOW RATE (CFS) = 36501.90
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12722.00 TO NODE 12740.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 255.00 DOWNSTREAM (FEET) = 252.10
 CHANNEL LENGTH THRU SUBAREA (FEET) = 624.00 CHANNEL SLOPE = 0.0046
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT (FEET) = 10.31
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.964
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	0.10	0.30	1.000	81
PUBLIC PARK	B	0.50	0.30	0.850	56
NATURAL FAIR COVER "GRASS"	B	0.50	0.30	1.000	69
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	B	0.80	0.30	1.000	63
NATURAL FAIR COVER "WOODLAND, GRASS"	B	1.20	0.30	1.000	65
COMMERCIAL	B	1.50	0.30	0.100	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.690
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 36503.47
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 14.07
 AVERAGE FLOW DEPTH (FEET) = 10.31 TRAVEL TIME (MIN.) = 0.74
 Tc (MIN.) = 98.05
 SUBAREA AREA (ACRES) = 4.60 SUBAREA RUNOFF (CFS) = 3.13
 EFFECTIVE AREA (ACRES) = 40020.32 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 51989.5 PEAK FLOW RATE (CFS) = 36501.90
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 10.31

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 10.31 FLOW VELOCITY (FEET/SEC.) = 14.07
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12740.00 = 110572.96 FEET.

 FLOW PROCESS FROM NODE 12740.00 TO NODE 12740.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 98.05
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.964
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	2.50	0.30	0.100	56
NATURAL FAIR COVER "GRASS"	B	2.60	0.30	1.000	69
NATURAL FAIR COVER "GRASS"	B	2.80	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	5.40	0.30	1.000	66
NATURAL FAIR COVER "WOODLAND, GRASS"	B	6.20	0.30	1.000	65
NATURAL FAIR COVER "WOODLAND, GRASS"	B	6.50	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.913
 SUBAREA AREA (ACRES) = 26.00 SUBAREA RUNOFF (CFS) = 16.15

EFFECTIVE AREA(ACRES) = 40046.32 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 52015.5 PEAK FLOW RATE(CFS) = 36501.90
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12740.00 TO NODE 12740.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) =	98.05
* 50 YEAR RAINFALL INTENSITY(INCH/HR) =	0.964

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	6.70	0.30	1.000	66
NATURAL FAIR COVER "OPEN BRUSH"	B	12.00	0.30	1.000	66
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	20.30	0.30	1.000	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 39.00 SUBAREA RUNOFF(CFS) = 23.31
EFFECTIVE AREA(ACRES) = 40085.32 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 52054.5 PEAK FLOW RATE(CFS) = 36501.90
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12740.00 TO NODE 12740.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

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TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 98.05
RAINFALL INTENSITY(INCH/HR) = 0.96
AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.98
EFFECTIVE STREAM AREA(ACRES) = 40085.32
TOTAL STREAM AREA(ACRES) = 52054.49
PEAK FLOW RATE(CFS) AT CONFLUENCE = 36501.90

FLOW PROCESS FROM NODE 12730.00 TO NODE 12731.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 561.54
ELEVATION DATA: UPSTREAM(FEET) = 613.29 DOWNSTREAM(FEET) = 551.75

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 13.823
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.863
SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	6.33	0.30	1.000	63	13.82

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF(CFS) = 14.60
TOTAL AREA(ACRES) = 6.33 PEAK FLOW RATE(CFS) = 14.60

FLOW PROCESS FROM NODE 12731.00 TO NODE 12732.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 551.75 DOWNSTREAM(FEET) = 494.40
CHANNEL LENGTH THRU SUBAREA(FEET) = 971.91 CHANNEL SLOPE = 0.0590
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.91
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.480
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	34.62	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 48.74
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.85
AVERAGE FLOW DEPTH(FEET) = 0.86 TRAVEL TIME(MIN.) = 3.34
Tc(MIN.) = 17.16
SUBAREA AREA(ACRES) = 34.62 SUBAREA RUNOFF(CFS) = 67.92
EFFECTIVE AREA(ACRES) = 40.95 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 40.9 PEAK FLOW RATE(CFS) = 80.34
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.14

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.14 FLOW VELOCITY(FEET/SEC.) = 5.73
LONGEST FLOWPATH FROM NODE 12730.00 TO NODE 12732.00 = 1533.45 FEET.

FLOW PROCESS FROM NODE 12732.00 TO NODE 12733.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 494.40 DOWNSTREAM(FEET) = 431.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1156.41 CHANNEL SLOPE = 0.0548
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.59
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.223
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
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LAND USE      GROUP  (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"OPEN BRUSH"      B      59.52    0.30      1.000      66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 131.91
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.53
AVERAGE FLOW DEPTH(FEET) = 1.54 TRAVEL TIME(MIN.) = 2.95
Tc(MIN.) = 20.11
SUBAREA AREA(ACRES) = 59.52 SUBAREA RUNOFF(CFS) = 103.02
EFFECTIVE AREA(ACRES) = 100.47 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 100.5 PEAK FLOW RATE(CFS) = 173.89
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.80

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.80 FLOW VELOCITY(FEET/SEC.) = 7.12
LONGEST FLOWPATH FROM NODE 12730.00 TO NODE 12733.00 = 2689.86 FEET.

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FLOW PROCESS FROM NODE 12733.00 TO NODE 12734.00 IS CODE = 56

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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
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ELEVATION DATA: UPSTREAM(FEET) = 431.00 DOWNSTREAM(FEET) = 367.10
CHANNEL LENGTH THRU SUBAREA(FEET) = 1654.48 CHANNEL SLOPE = 0.0386
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.30
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.975
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH"      B      64.05    0.30      1.000      66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 222.24
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.76
AVERAGE FLOW DEPTH(FEET) = 2.26 TRAVEL TIME(MIN.) = 4.08
Tc(MIN.) = 24.19
SUBAREA AREA(ACRES) = 64.05 SUBAREA RUNOFF(CFS) = 96.56
EFFECTIVE AREA(ACRES) = 164.52 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 164.5 PEAK FLOW RATE(CFS) = 248.03
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.40

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 2.40 FLOW VELOCITY(FEET/SEC.) = 6.98
LONGEST FLOWPATH FROM NODE 12730.00 TO NODE 12734.00 = 4344.34 FEET.

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FLOW PROCESS FROM NODE 12734.00 TO NODE 12740.00 IS CODE = 56

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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
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ELEVATION DATA: UPSTREAM(FEET) = 367.11 DOWNSTREAM(FEET) = 252.10
CHANNEL LENGTH THRU SUBAREA(FEET) = 1880.98 CHANNEL SLOPE = 0.0611
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.21
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.813
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH"      B      26.02    0.30      1.000      66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 265.75
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 8.38
AVERAGE FLOW DEPTH(FEET) = 2.20 TRAVEL TIME(MIN.) = 3.74
Tc(MIN.) = 27.93
SUBAREA AREA(ACRES) = 26.02 SUBAREA RUNOFF(CFS) = 35.43
EFFECTIVE AREA(ACRES) = 190.54 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 190.5 PEAK FLOW RATE(CFS) = 259.42
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.18

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 2.18 FLOW VELOCITY(FEET/SEC.) = 8.30
LONGEST FLOWPATH FROM NODE 12730.00 TO NODE 12740.00 = 6225.32 FEET.

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FLOW PROCESS FROM NODE 12740.00 TO NODE 12740.00 IS CODE = 1

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>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
-----
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 27.93
RAINFALL INTENSITY(INCH/HR) = 1.81
AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 1.00
EFFECTIVE STREAM AREA(ACRES) = 190.54
TOTAL STREAM AREA(ACRES) = 190.54
PEAK FLOW RATE(CFS) AT CONFLUENCE = 259.42

** CONFLUENCE DATA **
STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 22239.92 25.21 1.918 0.30( 0.27) 0.91 5996.5 12720.50
1 22385.72 25.98 1.888 0.30( 0.27) 0.91 6180.6 12603.00
1 23439.95 29.59 1.749 0.30( 0.28) 0.93 7406.3 12710.00
1 23590.29 30.13 1.730 0.30( 0.28) 0.93 7583.2 600.00
1 27561.16 46.88 1.356 0.30( 0.29) 0.96 13584.5 40100.00

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1	28824.62	54.84	1.255	0.30	(0.29)	0.96	16412.5	11801.00
1	30943.05	65.81	1.163	0.30	(0.29)	0.97	20996.9	11530.00
1	32037.81	70.26	1.133	0.30	(0.29)	0.97	23311.4	11701.00
1	32968.41	73.81	1.109	0.30	(0.29)	0.97	25404.6	11910.00
1	35689.21	84.17	1.038	0.30	(0.29)	0.98	32098.8	10800.00
1	36407.42	88.46	1.009	0.30	(0.29)	0.98	35044.1	11130.00
1	36501.90	98.05	0.964	0.30	(0.29)	0.98	40085.3	12410.00
1	36271.88	106.30	0.928	0.30	(0.29)	0.98	43824.4	11201.00
1	36011.10	111.24	0.907	0.30	(0.29)	0.98	45556.1	12201.00
1	35731.99	113.98	0.895	0.30	(0.29)	0.98	46345.3	10410.00
1	35177.55	118.20	0.877	0.30	(0.29)	0.98	47413.3	12231.00
1	34799.17	121.06	0.867	0.30	(0.29)	0.98	48086.6	12101.10
1	34061.75	125.88	0.857	0.30	(0.29)	0.98	49047.6	10400.00
1	32894.11	133.69	0.841	0.30	(0.29)	0.98	50342.7	12010.00
1	31838.96	139.52	0.829	0.30	(0.29)	0.98	50689.6	10210.00
1	31382.21	142.52	0.823	0.30	(0.29)	0.98	50806.9	12000.00
1	28287.04	167.21	0.773	0.30	(0.29)	0.98	51428.1	10100.00
2	259.42	27.93	1.813	0.30	(0.30)	1.00	190.5	12730.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22490.31	25.21	1.918	0.30 (0.27)	0.91	6168.5	12720.50
2	22639.02	25.98	1.888	0.30 (0.27)	0.92	6357.8	12603.00
3	23216.41	27.93	1.813	0.30 (0.28)	0.92	7035.3	12730.00
4	23688.43	29.59	1.749	0.30 (0.28)	0.93	7596.8	12710.00
5	23835.45	30.13	1.730	0.30 (0.28)	0.93	7773.8	600.00
6	27742.19	46.88	1.356	0.30 (0.29)	0.96	13775.1	40100.00
7	28988.42	54.84	1.255	0.30 (0.29)	0.96	16603.0	11801.00
8	31090.99	65.81	1.163	0.30 (0.29)	0.97	21187.4	11530.00
9	32180.58	70.26	1.133	0.30 (0.29)	0.97	23501.9	11701.00
10	33107.07	73.81	1.109	0.30 (0.29)	0.97	25595.1	11910.00
11	35815.84	84.17	1.038	0.30 (0.29)	0.98	32289.3	10800.00
12	36529.07	88.46	1.009	0.30 (0.29)	0.98	35234.7	11130.00
13	36615.79	98.05	0.964	0.30 (0.29)	0.98	40275.9	12410.00
14	36379.63	106.30	0.928	0.30 (0.29)	0.98	44015.0	11201.00
15	36115.19	111.24	0.907	0.30 (0.29)	0.98	45746.7	12201.00
16	35834.04	113.98	0.895	0.30 (0.29)	0.98	46535.8	10410.00
17	35276.46	118.20	0.877	0.30 (0.29)	0.98	47603.8	12231.00
18	34896.38	121.06	0.867	0.30 (0.29)	0.98	48277.1	12101.10
19	34157.27	125.88	0.857	0.30 (0.29)	0.98	49238.1	10400.00
20	32986.91	133.69	0.841	0.30 (0.29)	0.98	50533.2	12010.00
21	31929.73	139.52	0.829	0.30 (0.29)	0.98	50880.2	10210.00
22	31471.94	142.52	0.823	0.30 (0.29)	0.98	50997.4	12000.00
23	28368.15	167.21	0.773	0.30 (0.29)	0.98	51618.6	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 36615.79 Tc (MIN.) = 98.05
EFFECTIVE AREA (ACRES) = 40275.86 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52245.0
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12740.00 = 110572.96 FEET.

FLOW PROCESS FROM NODE 12740.00 TO NODE 12800.00 IS CODE = 56

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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 252.10 DOWNSTREAM(FEET) = 240.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1220.00 CHANNEL SLOPE = 0.0099
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 8.34
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.959
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
AGRICULTURAL POOR COVER
"ROW CROPS, STRAIGHT ROW" B 0.30 0.30 1.000 81
NATURAL FAIR COVER
"WOODLAND, GRASS" B 0.40 0.30 1.000 65
COMMERCIAL B 0.40 0.30 0.100 56
COMMERCIAL B 0.60 0.30 0.100 56
NATURAL FAIR COVER
"OPEN BRUSH" B 1.50 0.30 1.000 66
PUBLIC PARK B 3.20 0.30 0.850 56
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.784
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 36617.88
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 18.18
AVERAGE FLOW DEPTH (FEET) = 8.34 TRAVEL TIME (MIN.) = 1.12
Tc (MIN.) = 99.17
SUBAREA AREA (ACRES) = 6.40 SUBAREA RUNOFF (CFS) = 4.17
EFFECTIVE AREA (ACRES) = 40282.26 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52251.4 PEAK FLOW RATE (CFS) = 36615.79
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 8.34

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 8.34 FLOW VELOCITY (FEET/SEC.) = 18.17
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12800.00 = 111792.96 FEET.

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FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc (MIN.) = 99.17
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.959
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"GRASS" B 3.90 0.30 1.000 69
NATURAL FAIR COVER
"GRASS" B 8.70 0.30 1.000 69
NATURAL FAIR COVER
"WOODLAND, GRASS" B 10.30 0.30 1.000 65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

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SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 22.90 SUBAREA RUNOFF (CFS) = 13.59
 EFFECTIVE AREA (ACRES) = 40305.16 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 52274.3 PEAK FLOW RATE (CFS) = 36615.79
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

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END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 52274.3 TC (MIN.) = 99.17
 EFFECTIVE AREA (ACRES) = 40305.16 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.982
 PEAK FLOW RATE (CFS) = 36615.79

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22490.31	26.53	1.867	0.30 (0.27)	0.91	6197.8	12720.50
2	22639.02	27.30	1.837	0.30 (0.27)	0.92	6387.1	12603.00
3	23216.41	29.24	1.762	0.30 (0.28)	0.92	7064.6	12730.00
4	23688.43	30.88	1.710	0.30 (0.28)	0.93	7626.1	12710.00
5	23835.45	31.42	1.695	0.30 (0.28)	0.93	7803.1	600.00
6	27742.19	48.10	1.336	0.30 (0.29)	0.96	13804.4	40100.00
7	28988.42	56.05	1.243	0.30 (0.29)	0.96	16632.3	11801.00
8	31090.99	66.99	1.155	0.30 (0.29)	0.97	21216.7	11530.00
9	32180.58	71.43	1.125	0.30 (0.29)	0.97	23531.2	11701.00
10	33107.07	74.97	1.101	0.30 (0.29)	0.97	25624.4	11910.00
11	35815.84	85.30	1.031	0.30 (0.29)	0.98	32318.6	10800.00
12	36529.07	89.58	1.002	0.30 (0.29)	0.98	35264.0	11130.00
13	36615.79	99.17	0.959	0.30 (0.29)	0.98	40305.2	12410.00
14	36379.63	107.42	0.924	0.30 (0.29)	0.98	44044.3	11201.00
15	36115.19	112.36	0.902	0.30 (0.29)	0.98	45776.0	12201.00
16	35834.04	115.10	0.890	0.30 (0.29)	0.98	46565.1	10410.00
17	35276.46	119.33	0.872	0.30 (0.29)	0.98	47633.1	12231.00
18	34896.38	122.20	0.865	0.30 (0.29)	0.98	48306.4	12101.10
19	34157.27	127.03	0.855	0.30 (0.29)	0.98	49267.4	10400.00
20	32986.91	134.84	0.839	0.30 (0.29)	0.98	50562.5	12010.00
21	31929.73	140.69	0.827	0.30 (0.29)	0.98	50909.5	10210.00
22	31471.94	143.69	0.821	0.30 (0.29)	0.98	51026.7	12000.00
23	28368.15	168.43	0.771	0.30 (0.29)	0.98	51647.9	10100.00

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END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 128 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 50-YR EV SEP 2023 ROKAMOTO *

FILE NAME: RI50EV28.DAT
TIME/DATE OF STUDY: 16:23 09/05/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 50.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 5.453
- 2) 10.00; 3.490
- 3) 15.00; 2.670
- 4) 20.00; 2.230
- 5) 25.00; 1.926
- 6) 30.00; 1.733
- 7) 40.00; 1.467
- 8) 50.00; 1.305
- 9) 60.00; 1.202
- 10) 90.00; 0.999
- 11) 120.00; 0.869
- 12) 180.00; 0.747
- 13) 360.00; 0.555
- 14) 1200.00; 0.244

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RI50EV27.DNA
MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	23216.41	29.24	0.30 (0.28)	0.92	7064.6	12730.00
2	23835.45	31.42	0.30 (0.28)	0.93	7803.1	600.00
3	27742.19	48.10	0.30 (0.29)	0.96	13804.4	40100.00
4	28988.42	56.05	0.30 (0.29)	0.96	16632.3	11801.00
5	31090.99	66.99	0.30 (0.29)	0.97	21216.7	11530.00
6	32180.58	71.43	0.30 (0.29)	0.97	23531.2	11701.00
7	33107.07	74.97	0.30 (0.29)	0.97	25624.4	11910.00
8	35815.84	85.30	0.30 (0.29)	0.98	32318.6	10800.00
9	36529.07	89.58	0.30 (0.29)	0.98	35264.0	11130.00
10	36615.79	99.17	0.30 (0.29)	0.98	40305.2	12410.00
11	36379.63	107.42	0.30 (0.29)	0.98	44044.3	11201.00
12	36115.19	112.36	0.30 (0.29)	0.98	45776.0	12201.00
13	35834.04	115.10	0.30 (0.29)	0.98	46565.1	10410.00
14	35276.46	119.33	0.30 (0.29)	0.98	47633.1	12231.00
15	34896.38	122.20	0.30 (0.29)	0.98	48306.4	12101.10
16	34157.27	127.03	0.30 (0.29)	0.98	49267.4	10400.00
17	32986.91	134.84	0.30 (0.29)	0.98	50562.5	12010.00
18	31929.73	140.69	0.30 (0.29)	0.98	50909.5	10210.00
19	31471.94	143.69	0.30 (0.29)	0.98	51026.7	12000.00
20	28368.15	168.43	0.30 (0.29)	0.98	51647.9	10100.00
TOTAL AREA (ACRES) =						51647.9

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: 0610501X.DNA
MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1506.93	25.94	0.30 (0.29)	0.98	1025.8	50120.00
2	1480.85	27.19	0.30 (0.29)	0.98	1040.8	50150.00
3	1382.53	30.77	0.30 (0.29)	0.98	1063.4	50100.00
TOTAL AREA (ACRES) =						1063.4

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 14.0

>>>>MEMORY BANK # 3 COPIED ONTO MAIN-STREAM MEMORY<<<<<

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MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM	Q	Tc	Fp (Fm)	Ap	Ae	HEADWATER
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NUMBER	(CFS)	(MIN.)	(INCH/HR)	(ACRES)	NODE
1	23216.41	29.24	0.30 (0.28) 0.92	7064.6	12730.00
2	23835.45	31.42	0.30 (0.28) 0.93	7803.1	600.00
3	27742.19	48.10	0.30 (0.29) 0.96	13804.4	40100.00
4	28988.42	56.05	0.30 (0.29) 0.96	16632.3	11801.00
5	31090.99	66.99	0.30 (0.29) 0.97	21216.7	11530.00
6	32180.58	71.43	0.30 (0.29) 0.97	23531.2	11701.00
7	33107.07	74.97	0.30 (0.29) 0.97	25624.4	11910.00
8	35815.84	85.30	0.30 (0.29) 0.98	32318.6	10800.00
9	36529.07	89.58	0.30 (0.29) 0.98	35264.0	11130.00
10	36615.79	99.17	0.30 (0.29) 0.98	40305.2	12410.00
11	36379.63	107.42	0.30 (0.29) 0.98	44044.3	11201.00
12	36115.19	112.36	0.30 (0.29) 0.98	45776.0	12201.00
13	35834.04	115.10	0.30 (0.29) 0.98	46565.1	10410.00
14	35276.46	119.33	0.30 (0.29) 0.98	47633.1	12231.00
15	34896.38	122.20	0.30 (0.29) 0.98	48306.4	12101.10
16	34157.27	127.03	0.30 (0.29) 0.98	49267.4	10400.00
17	32986.91	134.84	0.30 (0.29) 0.98	50562.5	12010.00
18	31929.73	140.69	0.30 (0.29) 0.98	50909.5	10210.00
19	31471.94	143.69	0.30 (0.29) 0.98	51026.7	12000.00
20	28368.15	168.43	0.30 (0.29) 0.98	51647.9	10100.00
TOTAL AREA (ACRES) =		51647.9			

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	23216.41	29.24	1.762	0.30 (0.28) 0.92	7064.6	12730.00	
2	23835.45	31.42	1.695	0.30 (0.28) 0.93	7803.1	600.00	
3	27742.19	48.10	1.336	0.30 (0.29) 0.96	13804.4	40100.00	
4	28988.42	56.05	1.243	0.30 (0.29) 0.96	16632.3	11801.00	
5	31090.99	66.99	1.155	0.30 (0.29) 0.97	21216.7	11530.00	
6	32180.58	71.43	1.125	0.30 (0.29) 0.97	23531.2	11701.00	
7	33107.07	74.97	1.101	0.30 (0.29) 0.97	25624.4	11910.00	
8	35815.84	85.30	1.031	0.30 (0.29) 0.98	32318.6	10800.00	
9	36529.07	89.58	1.002	0.30 (0.29) 0.98	35264.0	11130.00	
10	36615.79	99.17	0.959	0.30 (0.29) 0.98	40305.2	12410.00	
11	36379.63	107.42	0.924	0.30 (0.29) 0.98	44044.3	11201.00	
12	36115.19	112.36	0.902	0.30 (0.29) 0.98	45776.0	12201.00	
13	35834.04	115.10	0.890	0.30 (0.29) 0.98	46565.1	10410.00	
14	35276.46	119.33	0.872	0.30 (0.29) 0.98	47633.1	12231.00	
15	34896.38	122.20	0.865	0.30 (0.29) 0.98	48306.4	12101.10	
16	34157.27	127.03	0.855	0.30 (0.29) 0.98	49267.4	10400.00	
17	32986.91	134.84	0.839	0.30 (0.29) 0.98	50562.5	12010.00	
18	31929.73	140.69	0.827	0.30 (0.29) 0.98	50909.5	10210.00	
19	31471.94	143.69	0.821	0.30 (0.29) 0.98	51026.7	12000.00	
20	28368.15	168.43	0.771	0.30 (0.29) 0.98	51647.9	10100.00	
LONGEST FLOWPATH FROM NODE		10100.00 TO NODE 12800.00 = 111792.96 FEET.					

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1506.93	25.94	1.890	0.30 (0.29) 0.98	1025.8	50120.00	

2	1480.85	27.19	1.841	0.30 (0.29) 0.98	1040.8	50150.00
3	1382.53	30.77	1.713	0.30 (0.29) 0.98	1063.4	50100.00
LONGEST FLOWPATH FROM NODE		50150.00 TO NODE 12800.00 = 11349.00 FEET.				

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	23868.56	25.94	1.890	0.30 (0.28) 0.93	7292.8	50120.00	
2	24219.78	27.19	1.841	0.30 (0.28) 0.93	7610.5	50150.00	
3	24641.00	29.24	1.762	0.30 (0.28) 0.93	8118.3	12730.00	
4	25033.54	30.77	1.713	0.30 (0.28) 0.93	8646.4	50100.00	
5	25201.12	31.42	1.695	0.30 (0.28) 0.94	8866.5	600.00	
6	28757.37	48.10	1.336	0.30 (0.29) 0.96	14867.8	40100.00	
7	29912.93	56.05	1.243	0.30 (0.29) 0.96	17695.7	11801.00	
8	31929.68	66.99	1.155	0.30 (0.29) 0.97	22280.1	11530.00	
9	32990.00	71.43	1.125	0.30 (0.29) 0.97	24594.6	11701.00	
10	33893.12	74.97	1.101	0.30 (0.29) 0.97	26687.8	11910.00	
11	36533.73	85.30	1.031	0.30 (0.29) 0.98	33382.0	10800.00	
12	37218.75	89.58	1.002	0.30 (0.29) 0.98	36327.3	11130.00	
13	37263.95	99.17	0.959	0.30 (0.29) 0.98	41368.5	12410.00	
14	36992.93	107.42	0.924	0.30 (0.29) 0.98	45107.7	11201.00	
15	36707.62	112.36	0.902	0.30 (0.29) 0.98	46839.4	12201.00	
16	36414.87	115.10	0.890	0.30 (0.29) 0.98	47628.5	10410.00	
17	35839.43	119.33	0.872	0.30 (0.29) 0.98	48696.5	12231.00	
18	35452.16	122.20	0.865	0.30 (0.29) 0.98	49369.8	12101.10	
19	34703.49	127.03	0.855	0.30 (0.29) 0.98	50330.8	10400.00	
20	33517.63	134.84	0.839	0.30 (0.29) 0.98	51625.9	12010.00	
21	32448.85	140.69	0.827	0.30 (0.29) 0.98	51972.9	10210.00	
22	31985.12	143.69	0.821	0.30 (0.29) 0.98	52090.1	12000.00	
23	28832.29	168.43	0.771	0.30 (0.29) 0.98	52711.3	10100.00	
TOTAL AREA (ACRES) =		52711.3					

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 37263.95 Tc(MIN.) = 99.168
EFFECTIVE AREA(ACRES) = 41368.54 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97
TOTAL AREA(ACRES) = 52711.3
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12800.00 = 111792.96 FEET.

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 52711.3 TC(MIN.) = 99.17
EFFECTIVE AREA(ACRES) = 41368.54 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.982
PEAK FLOW RATE(CFS) = 37263.95

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	23868.56	25.94	1.890	0.30 (0.28) 0.93	7292.8	50120.00	
2	24219.78	27.19	1.841	0.30 (0.28) 0.93	7610.5	50150.00	
3	24641.00	29.24	1.762	0.30 (0.28) 0.93	8118.3	12730.00	
4	25033.54	30.77	1.713	0.30 (0.28) 0.93	8646.4	50100.00	
5	25201.12	31.42	1.695	0.30 (0.28) 0.94	8866.5	600.00	
6	28757.37	48.10	1.336	0.30 (0.29) 0.96	14867.8	40100.00	
7	29912.93	56.05	1.243	0.30 (0.29) 0.96	17695.7	11801.00	
8	31929.68	66.99	1.155	0.30 (0.29) 0.97	22280.1	11530.00	
9	32990.00	71.43	1.125	0.30 (0.29) 0.97	24594.6	11701.00	
10	33893.12	74.97	1.101	0.30 (0.29) 0.97	26687.8	11910.00	

11	36533.73	85.30	1.031	0.30 (0.29)	0.98	33382.0	10800.00
12	37218.75	89.58	1.002	0.30 (0.29)	0.98	36327.3	11130.00
13	37263.95	99.17	0.959	0.30 (0.29)	0.98	41368.5	12410.00
14	36992.93	107.42	0.924	0.30 (0.29)	0.98	45107.7	11201.00
15	36707.62	112.36	0.902	0.30 (0.29)	0.98	46839.4	12201.00
16	36414.87	115.10	0.890	0.30 (0.29)	0.98	47628.5	10410.00
17	35839.43	119.33	0.872	0.30 (0.29)	0.98	48696.5	12231.00
18	35452.16	122.20	0.865	0.30 (0.29)	0.98	49369.8	12101.10
19	34703.49	127.03	0.855	0.30 (0.29)	0.98	50330.8	10400.00
20	33517.63	134.84	0.839	0.30 (0.29)	0.98	51625.9	12010.00
21	32448.85	140.69	0.827	0.30 (0.29)	0.98	51972.9	10210.00
22	31985.12	143.69	0.821	0.30 (0.29)	0.98	52090.1	12000.00
23	28832.29	168.43	0.771	0.30 (0.29)	0.98	52711.3	10100.00

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END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 17.0 Release Date: 07/01/2010 License ID 1527

Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 129 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 50-YR EV SEP 2023 ROKAMOTO *

FILE NAME: RI50EV29.DAT
TIME/DATE OF STUDY: 16:23 09/05/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 50.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 5.437
- 2) 10.00; 3.483
- 3) 15.00; 2.666
- 4) 20.00; 2.227
- 5) 25.00; 1.924
- 6) 30.00; 1.731
- 7) 40.00; 1.465
- 8) 50.00; 1.303
- 9) 60.00; 1.200
- 10) 90.00; 0.997
- 11) 120.00; 0.867
- 12) 180.00; 0.745
- 13) 360.00; 0.552
- 14) 1200.00; 0.243

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RI50EV28.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24641.00	29.24	0.30 (0.28)	0.93	8118.3	12730.00
2	25201.12	31.42	0.30 (0.28)	0.94	8866.5	600.00
3	28757.37	48.10	0.30 (0.29)	0.96	14867.8	40100.00
4	29912.93	56.05	0.30 (0.29)	0.96	17695.7	11801.00
5	31929.68	66.99	0.30 (0.29)	0.97	22280.1	11530.00
6	32990.00	71.43	0.30 (0.29)	0.97	24594.6	11701.00
7	33893.12	74.97	0.30 (0.29)	0.97	26687.8	11910.00
8	36533.73	85.30	0.30 (0.29)	0.98	33382.0	10800.00
9	37218.75	89.58	0.30 (0.29)	0.98	36327.3	11130.00
10	37263.95	99.17	0.30 (0.29)	0.98	41368.5	12410.00
11	36992.93	107.42	0.30 (0.29)	0.98	45107.7	11201.00
12	36707.62	112.36	0.30 (0.29)	0.98	46839.4	12201.00
13	36414.87	115.10	0.30 (0.29)	0.98	47628.5	10410.00
14	35839.43	119.33	0.30 (0.29)	0.98	48696.5	12231.00
15	35452.16	122.20	0.30 (0.29)	0.98	49369.8	12101.10
16	34703.49	127.03	0.30 (0.29)	0.98	50330.8	10400.00
17	33517.63	134.84	0.30 (0.29)	0.98	51625.9	12010.00
18	32448.85	140.69	0.30 (0.29)	0.98	51972.9	10210.00
19	31985.12	143.69	0.30 (0.29)	0.98	52090.1	12000.00
20	28832.29	168.43	0.30 (0.29)	0.98	52711.3	10100.00
TOTAL AREA (ACRES) =						52711.3

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24641.00	29.24	0.30 (0.28)	0.93	8118.3	12730.00
2	25201.12	31.42	0.30 (0.28)	0.94	8866.5	600.00
3	28757.37	48.10	0.30 (0.29)	0.96	14867.8	40100.00
4	29912.93	56.05	0.30 (0.29)	0.96	17695.7	11801.00
5	31929.68	66.99	0.30 (0.29)	0.97	22280.1	11530.00
6	32990.00	71.43	0.30 (0.29)	0.97	24594.6	11701.00
7	33893.12	74.97	0.30 (0.29)	0.97	26687.8	11910.00
8	36533.73	85.30	0.30 (0.29)	0.98	33382.0	10800.00
9	37218.75	89.58	0.30 (0.29)	0.98	36327.3	11130.00
10	37263.95	99.17	0.30 (0.29)	0.98	41368.5	12410.00
11	36992.93	107.42	0.30 (0.29)	0.98	45107.7	11201.00
12	36707.62	112.36	0.30 (0.29)	0.98	46839.4	12201.00
13	36414.87	115.10	0.30 (0.29)	0.98	47628.5	10410.00

14	35839.43	119.33	0.30	(0.29)	0.98	48696.5	12231.00
15	35452.16	122.20	0.30	(0.29)	0.98	49369.8	12101.10
16	34703.49	127.03	0.30	(0.29)	0.98	50330.8	10400.00
17	33517.63	134.84	0.30	(0.29)	0.98	51625.9	12010.00
18	32448.85	140.69	0.30	(0.29)	0.98	51972.9	10210.00
19	31985.12	143.69	0.30	(0.29)	0.98	52090.1	12000.00
20	28832.29	168.43	0.30	(0.29)	0.98	52711.3	10100.00
TOTAL AREA (ACRES) =							52711.3

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 12800.00 TO NODE 12901.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 240.00 DOWNSTREAM (FEET) = 216.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 3120.28 CHANNEL SLOPE = 0.0077
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 9.05
CHANNEL FLOW THRU SUBAREA (CFS) = 37263.95
FLOW VELOCITY (FEET/SEC.) = 16.79 FLOW DEPTH (FEET) = 9.05
TRAVEL TIME (MIN.) = 3.10 Tc (MIN.) = 102.27
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12901.00 = 114913.24 FEET.

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 102.27
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.944
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	14.30	0.30	0.100	56
PUBLIC PARK	B	9.40	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.397
SUBAREA AREA (ACRES) = 23.70 SUBAREA RUNOFF (CFS) = 17.59
EFFECTIVE AREA (ACRES) = 41392.24 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52735.0 PEAK FLOW RATE (CFS) = 37263.95
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 102.27
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.944

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	0.20	0.30	0.100	56
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	B	0.40	0.30	0.500	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.50	0.30	0.900	56
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.60	0.30	1.000	65
COMMERCIAL	B	0.70	0.30	0.100	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.70	0.30	0.900	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.635
SUBAREA AREA (ACRES) = 3.10 SUBAREA RUNOFF (CFS) = 2.10
EFFECTIVE AREA (ACRES) = 41395.34 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52738.1 PEAK FLOW RATE (CFS) = 37263.95
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 102.27
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.944
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
PUBLIC PARK	B	0.70	0.30	0.850	56
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	1.00	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.40	0.30	1.000	66
NATURAL FAIR COVER					
"GRASS"	B	1.50	0.30	1.000	69
COMMERCIAL	B	1.70	0.30	0.100	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.90	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.822
SUBAREA AREA (ACRES) = 9.20 SUBAREA RUNOFF (CFS) = 5.77
EFFECTIVE AREA (ACRES) = 41404.54 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52747.3 PEAK FLOW RATE (CFS) = 37263.95
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 102.27
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.944
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
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LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
NATURAL FAIR COVER "WOODLAND, GRASS"	B	3.60	0.30	1.000	65
RESIDENTIAL "5-7 DWELLINGS/ACRE"	B	3.70	0.30	0.500	56
RESIDENTIAL "5-7 DWELLINGS/ACRE"	B	4.10	0.30	0.500	56
RESIDENTIAL ".4 DWELLING/ACRE"	B	5.40	0.30	0.900	56
NATURAL FAIR COVER "OPEN BRUSH"	B	6.70	0.30	1.000	66
NATURAL POOR COVER "BARREN"	B	12.00	0.30	1.000	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.875
SUBAREA AREA (ACRES) = 35.50 SUBAREA RUNOFF (CFS) = 21.77
EFFECTIVE AREA (ACRES) = 41440.04 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52782.8 PEAK FLOW RATE (CFS) = 37263.95
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 102.27
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.944
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "GRASS"	B	12.90	0.30	1.000	69
PUBLIC PARK	B	38.60	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.888
SUBAREA AREA (ACRES) = 51.50 SUBAREA RUNOFF (CFS) = 31.41
EFFECTIVE AREA (ACRES) = 41491.54 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52834.3 PEAK FLOW RATE (CFS) = 37263.95
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12902.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 216.00 DOWNSTREAM (FEET) = 215.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 122.04 CHANNEL SLOPE = 0.0082
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 8.89
CHANNEL FLOW THRU SUBAREA (CFS) = 37263.95
FLOW VELOCITY (FEET/SEC.) = 17.14 FLOW DEPTH (FEET) = 8.89
TRAVEL TIME (MIN.) = 0.12 Tc (MIN.) = 102.38
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: E502XX50.DNA
MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	66.04	11.15	0.30 (0.27)	0.91	28.7	50200.00
TOTAL AREA (ACRES) =			28.7			

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24641.00	32.93	1.653	0.30 (0.28)	0.93	8241.3	12730.00
2	25201.12	35.09	1.596	0.30 (0.28)	0.93	8989.5	600.00
3	28757.37	51.61	1.286	0.30 (0.29)	0.96	14990.8	40100.00
4	29912.93	59.50	1.205	0.30 (0.29)	0.96	17818.7	11801.00
5	31929.68	70.38	1.130	0.30 (0.29)	0.97	22403.1	11530.00
6	32990.00	74.78	1.100	0.30 (0.29)	0.97	24717.6	11701.00
7	33893.12	78.29	1.076	0.30 (0.29)	0.97	26810.8	11910.00
8	36533.73	88.54	1.007	0.30 (0.29)	0.98	33505.0	10800.00
9	37218.75	92.80	0.985	0.30 (0.29)	0.98	36450.3	11130.00
10	37263.95	102.38	0.943	0.30 (0.29)	0.98	41491.5	12410.00
11	36992.93	110.65	0.908	0.30 (0.29)	0.98	45230.7	11201.00
12	36707.62	115.59	0.886	0.30 (0.29)	0.98	46962.4	12201.00
13	36414.87	118.35	0.874	0.30 (0.29)	0.98	47751.5	10410.00
14	35839.43	122.59	0.862	0.30 (0.29)	0.98	48819.5	12231.00
15	35452.16	125.47	0.856	0.30 (0.29)	0.98	49492.8	12101.10
16	34703.49	130.32	0.846	0.30 (0.29)	0.98	50453.8	10400.00
17	33517.63	138.18	0.830	0.30 (0.29)	0.98	51748.9	12010.00
18	32448.85	144.06	0.818	0.30 (0.29)	0.98	52095.9	10210.00
19	31985.12	147.08	0.812	0.30 (0.29)	0.98	52213.1	12000.00
20	28832.29	171.94	0.761	0.30 (0.29)	0.98	52834.3	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	66.04	11.15	3.296	0.30 (0.27)	0.91	28.7	50200.00

LONGEST FLOWPATH FROM NODE 50200.00 TO NODE 12902.00 = 1426.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18371.65	11.15	3.296	0.30 (0.28)	0.93	2818.1	50200.00
2	24671.15	32.93	1.653	0.30 (0.28)	0.93	8270.0	12730.00
3	25230.02	35.09	1.596	0.30 (0.28)	0.93	9018.2	600.00
4	28779.51	51.61	1.286	0.30 (0.29)	0.96	15019.5	40100.00
5	29933.30	59.50	1.205	0.30 (0.29)	0.96	17847.4	11801.00
6	31948.40	70.38	1.130	0.30 (0.29)	0.97	22431.8	11530.00

7	33008.07	74.78	1.100	0.30	(0.29)	0.97	24746.3	11701.00
8	33910.66	78.29	1.076	0.30	(0.29)	0.97	26839.5	11910.00
9	36549.77	88.54	1.007	0.30	(0.29)	0.98	33533.7	10800.00
10	37234.30	92.80	0.985	0.30	(0.29)	0.98	36479.0	11130.00
11	37278.59	102.38	0.943	0.30	(0.29)	0.98	41520.2	12410.00
12	37006.79	110.65	0.908	0.30	(0.29)	0.98	45259.4	11201.00
13	36721.02	115.59	0.886	0.30	(0.29)	0.98	46991.1	12201.00
14	36428.00	118.35	0.874	0.30	(0.29)	0.98	47780.2	10410.00
15	35852.29	122.59	0.862	0.30	(0.29)	0.98	48848.2	12231.00
16	35464.90	125.47	0.856	0.30	(0.29)	0.98	49521.5	12101.10
17	34716.01	130.32	0.846	0.30	(0.29)	0.98	50482.5	10400.00
18	33529.80	138.18	0.830	0.30	(0.29)	0.98	51777.6	12010.00
19	32460.76	144.06	0.818	0.30	(0.29)	0.98	52124.6	10210.00
20	31996.89	147.08	0.812	0.30	(0.29)	0.98	52241.8	12000.00
21	28842.96	171.94	0.761	0.30	(0.29)	0.98	52863.0	10100.00

TOTAL AREA (ACRES) = 52863.0

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 37278.59 Tc (MIN.) = 102.385
EFFECTIVE AREA (ACRES) = 41520.24 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52863.0
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<<
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FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<<
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PEAK FLOWRATE TABLE FILE NAME: E503XX50.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	496.69	24.76	0.30 (0.30)	0.99	366.4	50300.00

TOTAL AREA (ACRES) = 366.4

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<<
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** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18371.65	11.15	3.296	0.30 (0.28)	0.93	2818.1	50200.00
2	24671.15	32.93	1.653	0.30 (0.28)	0.93	8270.0	12730.00
3	25230.02	35.09	1.596	0.30 (0.28)	0.93	9018.2	600.00
4	28779.51	51.61	1.286	0.30 (0.29)	0.96	15019.5	40100.00
5	29933.30	59.50	1.205	0.30 (0.29)	0.96	17847.4	11801.00
6	31948.40	70.38	1.130	0.30 (0.29)	0.97	22431.8	11530.00
7	33008.07	74.78	1.100	0.30 (0.29)	0.97	24746.3	11701.00

8	33910.66	78.29	1.076	0.30	(0.29)	0.97	26839.5	11910.00
9	36549.77	88.54	1.007	0.30	(0.29)	0.98	33533.7	10800.00
10	37234.30	92.80	0.985	0.30	(0.29)	0.98	36479.0	11130.00
11	37278.59	102.38	0.943	0.30	(0.29)	0.98	41520.2	12410.00
12	37006.79	110.65	0.908	0.30	(0.29)	0.98	45259.4	11201.00
13	36721.02	115.59	0.886	0.30	(0.29)	0.98	46991.1	12201.00
14	36428.00	118.35	0.874	0.30	(0.29)	0.98	47780.2	10410.00
15	35852.29	122.59	0.862	0.30	(0.29)	0.98	48848.2	12231.00
16	35464.90	125.47	0.856	0.30	(0.29)	0.98	49521.5	12101.10
17	34716.01	130.32	0.846	0.30	(0.29)	0.98	50482.5	10400.00
18	33529.80	138.18	0.830	0.30	(0.29)	0.98	51777.6	12010.00
19	32460.76	144.06	0.818	0.30	(0.29)	0.98	52124.6	10210.00
20	31996.89	147.08	0.812	0.30	(0.29)	0.98	52241.8	12000.00
21	28842.96	171.94	0.761	0.30	(0.29)	0.98	52863.0	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	496.69	24.76	1.939	0.30 (0.30)	0.99	366.4	50300.00

LONGEST FLOWPATH FROM NODE 50300.00 TO NODE 12902.00 = 8614.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18779.94	11.15	3.296	0.30 (0.28)	0.93	2983.1	50200.00
2	22804.04	24.76	1.939	0.30 (0.28)	0.93	6590.7	50300.00
3	25081.48	32.93	1.653	0.30 (0.28)	0.93	8636.4	12730.00
4	25623.02	35.09	1.596	0.30 (0.28)	0.94	9384.6	600.00
5	29079.02	51.61	1.286	0.30 (0.29)	0.96	15385.9	40100.00
6	30208.23	59.50	1.205	0.30 (0.29)	0.96	18213.8	11801.00
7	32200.56	70.38	1.130	0.30 (0.29)	0.97	22798.2	11530.00
8	33251.23	74.78	1.100	0.30 (0.29)	0.97	25112.7	11701.00
9	34146.65	78.29	1.076	0.30 (0.29)	0.97	27205.9	11910.00
10	36764.79	88.54	1.007	0.30 (0.29)	0.98	33900.1	10800.00
11	37442.67	92.80	0.985	0.30 (0.29)	0.98	36845.4	11130.00
12	37474.40	102.38	0.943	0.30 (0.29)	0.98	41886.6	12410.00
13	37191.78	110.65	0.908	0.30 (0.29)	0.98	45625.8	11201.00
14	36899.53	115.59	0.886	0.30 (0.29)	0.98	47357.5	12201.00
15	36602.91	118.35	0.874	0.30 (0.29)	0.98	48146.6	10410.00
16	36023.44	122.59	0.862	0.30 (0.29)	0.98	49214.6	12231.00
17	35634.27	125.47	0.856	0.30 (0.29)	0.98	49887.9	12101.10
18	34882.40	130.32	0.846	0.30 (0.29)	0.98	50848.9	10400.00
19	33691.37	138.18	0.830	0.30 (0.29)	0.98	52144.0	12010.00
20	32618.71	144.06	0.818	0.30 (0.29)	0.98	52491.0	10210.00
21	32152.99	147.08	0.812	0.30 (0.29)	0.98	52608.2	12000.00
22	28983.78	171.94	0.761	0.30 (0.29)	0.98	53229.4	10100.00

TOTAL AREA (ACRES) = 53229.4

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 37474.40 Tc (MIN.) = 102.385
EFFECTIVE AREA (ACRES) = 41886.64 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 53229.4
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 12
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>>>>CLEAR MEMORY BANK # 1 <<<<<
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FLOW PROCESS FROM NODE 12902.00 TO NODE 12903.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
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ELEVATION DATA: UPSTREAM(FEET) = 215.00 DOWNSTREAM(FEET) = 214.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 895.53 CHANNEL SLOPE = 0.0011
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 15.53
CHANNEL FLOW THRU SUBAREA(CFS) = 37474.40
FLOW VELOCITY(FEET/SEC.) = 8.69 FLOW DEPTH(FEET) = 15.53
TRAVEL TIME(MIN.) = 1.72 Tc(MIN.) = 104.10
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12903.00 = 115930.81 FEET.
*****
FLOW PROCESS FROM NODE 12903.00 TO NODE 12903.00 IS CODE = 15.1
-----
>>>>DEFINE MEMORY BANK # 2 <<<<<
=====
PEAK FLOWRATE TABLE FILE NAME: E504XX50.DNA
MEMORY BANK # 2 DEFINED AS FOLLOWS:
STREAM Q Tc Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 123.35 17.17 0.30( 0.29) 0.97 70.5 50400.00
TOTAL AREA(ACRES) = 70.5
*****
FLOW PROCESS FROM NODE 12903.00 TO NODE 12903.00 IS CODE = 11
-----
>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
=====
** MAIN STREAM CONFLUENCE DATA **
STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 18779.94 13.28 2.947 0.30( 0.28) 0.93 2983.1 50200.00
2 22804.04 26.76 1.856 0.30( 0.28) 0.93 6590.7 50300.00
3 25081.48 34.87 1.601 0.30( 0.28) 0.93 8636.4 12730.00
4 25623.02 37.02 1.544 0.30( 0.28) 0.94 9384.6 600.00
5 29079.02 53.46 1.267 0.30( 0.29) 0.96 15385.9 40100.00
6 30208.23 61.34 1.191 0.30( 0.29) 0.96 18213.8 11801.00
7 32200.56 72.17 1.118 0.30( 0.29) 0.97 22798.2 11530.00
8 33251.23 76.56 1.088 0.30( 0.29) 0.97 25112.7 11701.00
9 34146.65 80.06 1.064 0.30( 0.29) 0.97 27205.9 11910.00
10 36764.79 90.27 0.996 0.30( 0.29) 0.98 33900.1 10800.00
11 37442.67 94.51 0.977 0.30( 0.29) 0.98 36845.4 11130.00
12 37474.40 104.10 0.936 0.30( 0.29) 0.98 41886.6 12410.00
13 37191.78 112.37 0.900 0.30( 0.29) 0.98 45625.8 11201.00
14 36899.53 117.32 0.879 0.30( 0.29) 0.98 47357.5 12201.00
15 36602.91 120.08 0.867 0.30( 0.29) 0.98 48146.6 10410.00
16 36023.44 124.33 0.858 0.30( 0.29) 0.98 49214.6 12231.00
17 35634.27 127.21 0.852 0.30( 0.29) 0.98 49887.9 12101.10

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18 34882.40 132.08 0.842 0.30( 0.29) 0.98 50848.9 10400.00
19 33691.37 139.95 0.826 0.30( 0.29) 0.98 52144.0 12010.00
20 32618.71 145.85 0.814 0.30( 0.29) 0.98 52491.0 10210.00
21 32152.99 148.88 0.808 0.30( 0.29) 0.98 52608.2 12000.00
22 28983.78 173.79 0.758 0.30( 0.29) 0.98 53229.4 10100.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12903.00 = 115930.81 FEET.
** MEMORY BANK # 2 CONFLUENCE DATA **
STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 123.35 17.17 2.476 0.30( 0.29) 0.97 70.5 50400.00
LONGEST FLOWPATH FROM NODE 50400.00 TO NODE 12903.00 = 3607.00 FEET.
** PEAK FLOW RATE TABLE **
STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 18895.94 13.28 2.947 0.30( 0.28) 0.93 3037.6 50200.00
2 20063.86 17.17 2.476 0.30( 0.28) 0.93 4094.0 50400.00
3 22892.42 26.76 1.856 0.30( 0.28) 0.93 6661.2 50300.00
4 25155.48 34.87 1.601 0.30( 0.28) 0.93 8706.9 12730.00
5 25693.80 37.02 1.544 0.30( 0.28) 0.94 9455.1 600.00
6 29134.18 53.46 1.267 0.30( 0.29) 0.96 15456.4 40100.00
7 30259.07 61.34 1.191 0.30( 0.29) 0.96 18284.3 11801.00
8 32247.27 72.17 1.118 0.30( 0.29) 0.97 22868.7 11530.00
9 33296.26 76.56 1.088 0.30( 0.29) 0.97 25183.2 11701.00
10 34190.34 80.06 1.064 0.30( 0.29) 0.97 27276.4 11910.00
11 36804.62 90.27 0.996 0.30( 0.29) 0.98 33970.6 10800.00
12 37481.46 94.51 0.977 0.30( 0.29) 0.98 36915.9 11130.00
13 37510.85 104.10 0.936 0.30( 0.29) 0.98 41957.1 12410.00
14 37226.21 112.37 0.900 0.30( 0.29) 0.98 45696.3 11201.00
15 36932.75 117.32 0.879 0.30( 0.29) 0.98 47428.0 12201.00
16 36635.46 120.08 0.867 0.30( 0.29) 0.98 48217.1 10410.00
17 36055.50 124.33 0.858 0.30( 0.29) 0.98 49285.1 12231.00
18 35666.01 127.21 0.852 0.30( 0.29) 0.98 49958.4 12101.10
19 34913.58 132.08 0.842 0.30( 0.29) 0.98 50919.4 10400.00
20 33721.64 139.95 0.826 0.30( 0.29) 0.98 52214.5 12010.00
21 32648.31 145.85 0.814 0.30( 0.29) 0.98 52561.5 10210.00
22 32182.24 148.88 0.808 0.30( 0.29) 0.98 52678.7 12000.00
23 29010.17 173.79 0.758 0.30( 0.29) 0.98 53299.9 10100.00
TOTAL AREA(ACRES) = 53299.9
COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 37510.85 Tc(MIN.) = 104.102
EFFECTIVE AREA(ACRES) = 41957.14 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 53299.9
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12903.00 = 115930.81 FEET.
*****
FLOW PROCESS FROM NODE 12903.00 TO NODE 12903.00 IS CODE = 12
-----
>>>>CLEAR MEMORY BANK # 2 <<<<<
=====
*****
FLOW PROCESS FROM NODE 12903.00 TO NODE 12904.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

```

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 214.00 DOWNSTREAM(FEET) = 213.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 767.57 CHANNEL SLOPE = 0.0013
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 14.90
CHANNEL FLOW THRU SUBAREA(CFS) = 37510.85
FLOW VELOCITY(FEET/SEC.) = 9.17 FLOW DEPTH(FEET) = 14.90
TRAVEL TIME(MIN.) = 1.39 Tc(MIN.) = 105.50
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12904.00 = 116698.38 FEET.

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 105.50
RAINFALL INTENSITY(INCH/HR) = 0.93
AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.98
EFFECTIVE STREAM AREA(ACRES) = 41957.14
TOTAL STREAM AREA(ACRES) = 53299.91
PEAK FLOW RATE(CFS) AT CONFLUENCE = 37510.85

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 7

>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<

USER-SPECIFIED VALUES ARE AS FOLLOWS:
TC(MIN.) = 19.50 RAINFALL INTENSITY(INCH/HR) = 2.27
EFFECTIVE AREA(ACRES) = 38.60
TOTAL AREA(ACRES) = 213.70 PEAK FLOW RATE(CFS) = 67.40
AREA-AVERAGED Fm(INCH/HR) = 0.13 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.43
NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
CONFLUENCE ANALYSES.

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 19.50
RAINFALL INTENSITY(INCH/HR) = 2.27
AREA-AVERAGED Fm(INCH/HR) = 0.13
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.43
EFFECTIVE STREAM AREA(ACRES) = 38.60
TOTAL STREAM AREA(ACRES) = 213.70
PEAK FLOW RATE(CFS) AT CONFLUENCE = 67.40

** CONFLUENCE DATA **

Table with 8 columns: STREAM NUMBER, Q (CFS), Tc (MIN.), Intensity (INCH/HR), Fp(Fm) (INCH/HR), Ap, Ae (ACRES), HEADWATER NODE. It lists 23 rows of stream data.

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

Table with 8 columns: STREAM NUMBER, Q (CFS), Tc (MIN.), Intensity (INCH/HR), Fp(Fm) (INCH/HR), Ap, Ae (ACRES), HEADWATER NODE. It lists 23 rows of peak flow rate data.

24 29029.85 175.30 0.755 0.30(0.29) 0.98 53338.5 10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 37536.05 Tc(MIN.) = 105.50
EFFECTIVE AREA(ACRES) = 41995.74 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 53513.6
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12904.00 = 116698.38 FEET.

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 105.50

* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 0.930

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"4 DWELLING/ACRE"	B	0.10	0.30	0.900	56
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.20	0.30	1.000	65
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.80	0.30	1.000	65
COMMERCIAL	B	1.20	0.30	0.100	56
COMMERCIAL	B	1.50	0.30	0.100	56
NATURAL FAIR COVER					
"GRASS"	B	3.00	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.641

SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 4.51

EFFECTIVE AREA(ACRES) = 42002.54 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98

TOTAL AREA(ACRES) = 53520.4 PEAK FLOW RATE(CFS) = 37536.05

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 105.50

* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 0.930

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	3.60	0.30	1.000	69
PUBLIC PARK	B	15.10	0.30	0.850	56
NATURAL FAIR COVER					
"GRASS"	B	20.00	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.941

SUBAREA AREA(ACRES) = 38.70 SUBAREA RUNOFF(CFS) = 22.55

EFFECTIVE AREA(ACRES) = 42041.24 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98

TOTAL AREA(ACRES) = 53559.1 PEAK FLOW RATE(CFS) = 37536.05

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 53559.1 TC(MIN.) = 105.50

EFFECTIVE AREA(ACRES) = 42041.24 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.980

PEAK FLOW RATE(CFS) = 37536.05

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18957.36	15.01	2.665	0.30(0.28)	0.93	3112.8	50200.00
2	20130.76	18.86	2.327	0.30(0.28)	0.93	4176.9	50400.00
3	20320.63	19.50	2.271	0.30(0.28)	0.93	4350.0	12904.00
4	22944.79	28.39	1.793	0.30(0.28)	0.93	6745.3	50300.00
5	25200.49	36.45	1.559	0.30(0.28)	0.93	8791.0	12730.00
6	25737.03	38.58	1.503	0.30(0.28)	0.93	9539.2	600.00
7	29169.51	54.97	1.252	0.30(0.29)	0.96	15540.5	40100.00
8	30292.17	62.83	1.181	0.30(0.29)	0.96	18368.4	11801.00
9	32278.07	73.64	1.108	0.30(0.29)	0.97	22952.8	11530.00
10	33326.13	78.00	1.078	0.30(0.29)	0.97	25267.3	11701.00
11	34219.47	81.49	1.055	0.30(0.29)	0.97	27360.5	11910.00
12	36831.71	91.67	0.990	0.30(0.29)	0.98	34054.7	10800.00
13	37507.97	95.91	0.971	0.30(0.29)	0.98	37000.0	11130.00
14	37536.05	105.50	0.930	0.30(0.29)	0.98	42041.2	12410.00
15	37250.29	113.77	0.894	0.30(0.29)	0.98	45780.4	11201.00
16	36956.14	118.72	0.873	0.30(0.29)	0.98	47512.1	12201.00
17	36658.59	121.48	0.864	0.30(0.29)	0.98	48301.2	10410.00
18	36078.36	125.74	0.855	0.30(0.29)	0.98	49369.2	12231.00
19	35688.68	128.63	0.849	0.30(0.29)	0.98	50042.5	12101.10
20	34935.94	133.50	0.840	0.30(0.29)	0.98	51003.5	10400.00
21	33743.50	141.39	0.824	0.30(0.29)	0.98	52298.6	12010.00
22	32669.78	147.31	0.811	0.30(0.29)	0.98	52645.6	10210.00
23	32203.52	150.34	0.805	0.30(0.29)	0.98	52762.8	12000.00
24	29029.85	175.30	0.755	0.30(0.29)	0.98	53384.0	10100.00

END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 133 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 50-YR EV SEP 2023 ROKAMOTO *

FILE NAME: RI50EV33.DAT
TIME/DATE OF STUDY: 16:23 09/05/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 50.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 5.329
- 2) 10.00; 3.431
- 3) 15.00; 2.636
- 4) 20.00; 2.205
- 5) 25.00; 1.909
- 6) 30.00; 1.717
- 7) 40.00; 1.455
- 8) 50.00; 1.293
- 9) 60.00; 1.185
- 10) 90.00; 0.982
- 11) 120.00; 0.852
- 12) 180.00; 0.728
- 13) 360.00; 0.537
- 14) 1200.00; 0.235

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT-/PARK- SIDE / SIDE/ WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13222.00 TO NODE 13222.00 IS CODE = 7

>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<

=====

USER-SPECIFIED VALUES ARE AS FOLLOWS:

TC(MIN.) = 61.54 RAINFALL INTENSITY(INCH/HR) = 1.17
EFFECTIVE AREA(ACRES) = 3144.20
TOTAL AREA(ACRES) = 4924.40 PEAK FLOW RATE(CFS) = 2281.80
AREA-AVERAGED Fm(INCH/HR) = 0.25 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.82
NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
CONFLUENCE ANALYSES.

FLOW PROCESS FROM NODE 13222.00 TO NODE 13301.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 427.51 DOWNSTREAM(FEET) = 382.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2533.33 CHANNEL SLOPE = 0.0180
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 3.63
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.147

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	1.40	0.30	0.100	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	15.60	0.30	1.000	66
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	B	0.10	0.30	0.600	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	5.30	0.30	1.000	79
NATURAL POOR COVER					
"BARREN"	B	0.20	0.30	1.000	86
COMMERCIAL	B	22.60	0.30	0.100	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.521

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2301.95

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.42

AVERAGE FLOW DEPTH(FEET) = 3.63 TRAVEL TIME(MIN.) = 4.05

Tc(MIN.) = 65.59

SUBAREA AREA(ACRES) = 45.20 SUBAREA RUNOFF(CFS) = 40.31

EFFECTIVE AREA(ACRES) = 3189.40 AREA-AVERAGED Fm(INCH/HR) = 0.24

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.82

TOTAL AREA(ACRES) = 4969.6 PEAK FLOW RATE(CFS) = 2590.38

GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 3.88

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 3.88 FLOW VELOCITY(FEET/SEC.) = 10.83
 LONGEST FLOWPATH FROM NODE 13222.00 TO NODE 13301.00 = 2533.33 FEET.

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 65.59
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.147
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	1.00	0.30	1.000	79
NATURAL POOR COVER					
"BARREN"	B	0.50	0.30	1.000	86
COMMERCIAL	B	7.40	0.30	0.100	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	4.70	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	2.90	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.596
 SUBAREA AREA(ACRES) = 16.50 SUBAREA RUNOFF(CFS) = 14.38
 EFFECTIVE AREA(ACRES) = 3205.90 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.81
 TOTAL AREA(ACRES) = 4986.1 PEAK FLOW RATE(CFS) = 2604.76

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 65.59
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.147
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	1.30	0.30	1.000	86
COMMERCIAL	B	0.20	0.30	0.100	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	5.30	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.30	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	0.20	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.60	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.977
 SUBAREA AREA(ACRES) = 7.90 SUBAREA RUNOFF(CFS) = 6.07
 EFFECTIVE AREA(ACRES) = 3213.80 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.82
 TOTAL AREA(ACRES) = 4994.0 PEAK FLOW RATE(CFS) = 2610.83

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 65.59
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.147
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	4.30	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.80	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	1.10	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	6.90	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	7.90	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	1.00	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 22.00 SUBAREA RUNOFF(CFS) = 16.77
 EFFECTIVE AREA(ACRES) = 3235.80 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.82
 TOTAL AREA(ACRES) = 5016.0 PEAK FLOW RATE(CFS) = 2627.61

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 65.59
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.147
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.40	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	14.60	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 15.00 SUBAREA RUNOFF(CFS) = 11.44
 EFFECTIVE AREA(ACRES) = 3250.80 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.82
 TOTAL AREA(ACRES) = 5031.0 PEAK FLOW RATE(CFS) = 2639.04

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<

 FLOW PROCESS FROM NODE 31100.00 TO NODE 31101.00 IS CODE = 21

=====
>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
=====

INITIAL SUBAREA FLOW-LENGTH (FEET) = 317.00
ELEVATION DATA: UPSTREAM (FEET) = 801.00 DOWNSTREAM (FEET) = 685.00

Tc = K * [(LENGTH** 3.00) / (ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc (MIN.) = 8.641
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 3.947
SUBAREA Tc AND LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" B 0.50 0.30 1.000 63 8.64
NATURAL FAIR COVER
"OPEN BRUSH" B 0.30 0.30 1.000 66 8.64
NATURAL FAIR COVER
"OPEN BRUSH" B 0.30 0.30 1.000 66 8.64
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF (CFS) = 3.61
TOTAL AREA (ACRES) = 1.10 PEAK FLOW RATE (CFS) = 3.61

FLOW PROCESS FROM NODE 31101.00 TO NODE 31102.00 IS CODE = 51
=====

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 685.00 DOWNSTREAM (FEET) = 655.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 135.00 CHANNEL SLOPE = 0.2222
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 3.823
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" B 0.50 0.30 1.000 63
NATURAL FAIR COVER
"OPEN BRUSH" B 0.10 0.30 1.000 66
NATURAL FAIR COVER
"OPEN BRUSH" B 0.70 0.30 1.000 66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 5.67
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.90
AVERAGE FLOW DEPTH (FEET) = 0.52 TRAVEL TIME (MIN.) = 0.33
Tc (MIN.) = 8.97
SUBAREA AREA (ACRES) = 1.30 SUBAREA RUNOFF (CFS) = 4.12
EFFECTIVE AREA (ACRES) = 2.40 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 2.4 PEAK FLOW RATE (CFS) = 7.61

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.58 FLOW VELOCITY (FEET/SEC.) = 7.42
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31102.00 = 452.00 FEET.

FLOW PROCESS FROM NODE 31102.00 TO NODE 31103.00 IS CODE = 51
=====

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 655.00 DOWNSTREAM (FEET) = 630.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 203.00 CHANNEL SLOPE = 0.1232
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.030 MAXIMUM DEPTH (FEET) = 10.00
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 3.665
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" B 0.30 0.30 1.000 63
NATURAL FAIR COVER
"OPEN BRUSH" B 0.10 0.30 1.000 66
NATURAL FAIR COVER
"OPEN BRUSH" B 1.90 0.30 1.000 66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 11.09
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.13
AVERAGE FLOW DEPTH (FEET) = 0.67 TRAVEL TIME (MIN.) = 0.42
Tc (MIN.) = 9.38
SUBAREA AREA (ACRES) = 2.30 SUBAREA RUNOFF (CFS) = 6.97
EFFECTIVE AREA (ACRES) = 4.70 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 4.7 PEAK FLOW RATE (CFS) = 14.24

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.74 FLOW VELOCITY (FEET/SEC.) = 8.60
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31103.00 = 655.00 FEET.

FLOW PROCESS FROM NODE 31103.00 TO NODE 31104.00 IS CODE = 51
=====

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 630.00 DOWNSTREAM (FEET) = 605.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 321.00 CHANNEL SLOPE = 0.0779
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 3.395
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH" B 1.10 0.30 1.000 66
NATURAL FAIR COVER
"OPEN BRUSH" B 2.50 0.30 1.000 66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 19.25
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.36

AVERAGE FLOW DEPTH(FEET) = 1.00 TRAVEL TIME(MIN.) = 0.84
Tc(MIN.) = 10.22
SUBAREA AREA(ACRES) = 3.60 SUBAREA RUNOFF(CFS) = 10.03
EFFECTIVE AREA(ACRES) = 8.30 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 8.3 PEAK FLOW RATE(CFS) = 23.12

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.08 FLOW VELOCITY(FEET/SEC.) = 6.63
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31104.00 = 976.00 FEET.

FLOW PROCESS FROM NODE 31104.00 TO NODE 31105.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 605.00 DOWNSTREAM(FEET) = 585.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 288.00 CHANNEL SLOPE = 0.0694
CHANNEL BASE(FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 3.284

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.70	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.60	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.00	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.10	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 31.72
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.87
AVERAGE FLOW DEPTH(FEET) = 1.24 TRAVEL TIME(MIN.) = 0.70
Tc(MIN.) = 10.92
SUBAREA AREA(ACRES) = 6.40 SUBAREA RUNOFF(CFS) = 17.19
EFFECTIVE AREA(ACRES) = 14.70 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 14.7 PEAK FLOW RATE(CFS) = 39.48

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.35 FLOW VELOCITY(FEET/SEC.) = 7.27
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31105.00 = 1264.00 FEET.

FLOW PROCESS FROM NODE 31105.00 TO NODE 31106.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 585.00 DOWNSTREAM(FEET) = 560.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 344.00 CHANNEL SLOPE = 0.0727
CHANNEL BASE(FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00

* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 3.170

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.60	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	2.80	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.60	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.10	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.60	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	4.10	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 53.43
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 8.00
AVERAGE FLOW DEPTH(FEET) = 1.49 TRAVEL TIME(MIN.) = 0.72
Tc(MIN.) = 11.64
SUBAREA AREA(ACRES) = 10.80 SUBAREA RUNOFF(CFS) = 27.90
EFFECTIVE AREA(ACRES) = 25.50 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 25.5 PEAK FLOW RATE(CFS) = 65.87

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.62 FLOW VELOCITY(FEET/SEC.) = 8.36
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31106.00 = 1608.00 FEET.

FLOW PROCESS FROM NODE 31106.00 TO NODE 31107.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 560.00 DOWNSTREAM(FEET) = 530.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 619.00 CHANNEL SLOPE = 0.0485
CHANNEL BASE(FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.956

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.80	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	1.90	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.50	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	8.20	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.70	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 83.93

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.67
AVERAGE FLOW DEPTH (FEET) = 1.91 TRAVEL TIME (MIN.) = 1.35
Tc (MIN.) = 12.99
SUBAREA AREA (ACRES) = 15.10 SUBAREA RUNOFF (CFS) = 36.10
EFFECTIVE AREA (ACRES) = 40.60 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 40.6 PEAK FLOW RATE (CFS) = 97.06

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 2.02 FLOW VELOCITY (FEET/SEC.) = 7.94
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31107.00 = 2227.00 FEET.

FLOW PROCESS FROM NODE 31107.00 TO NODE 31108.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<

ELEVATION DATA: UPSTREAM (FEET) = 530.00 DOWNSTREAM (FEET) = 515.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 377.00 CHANNEL SLOPE = 0.0398
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 2.827

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	0.50	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	6.50	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	1.30	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.10	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	5.50	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.40	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 117.88
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.74
AVERAGE FLOW DEPTH (FEET) = 2.25 TRAVEL TIME (MIN.) = 0.81
Tc (MIN.) = 13.80
SUBAREA AREA (ACRES) = 18.30 SUBAREA RUNOFF (CFS) = 41.62
EFFECTIVE AREA (ACRES) = 58.90 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 58.9 PEAK FLOW RATE (CFS) = 133.97

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 2.36 FLOW VELOCITY (FEET/SEC.) = 8.00
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31108.00 = 2604.00 FEET.

FLOW PROCESS FROM NODE 31108.00 TO NODE 31109.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<

ELEVATION DATA: UPSTREAM (FEET) = 515.00 DOWNSTREAM (FEET) = 490.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 520.00 CHANNEL SLOPE = 0.0481
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 2.671

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	0.70	0.30	1.000	63
NATURAL FAIR COVER					
"GRASS"	B	2.20	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.10	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.90	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	7.40	0.30	1.000	63
NATURAL FAIR COVER					
"GRASS"	B	0.30	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 149.55
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.82
AVERAGE FLOW DEPTH (FEET) = 2.38 TRAVEL TIME (MIN.) = 0.98
Tc (MIN.) = 14.78
SUBAREA AREA (ACRES) = 14.60 SUBAREA RUNOFF (CFS) = 31.15
EFFECTIVE AREA (ACRES) = 73.50 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 73.5 PEAK FLOW RATE (CFS) = 156.84

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 2.42 FLOW VELOCITY (FEET/SEC.) = 8.92
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31109.00 = 3124.00 FEET.

FLOW PROCESS FROM NODE 31109.00 TO NODE 31109.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 14.78
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 2.671
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	11.40	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	8.90	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	1.90	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	9.20	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	1.40	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA (ACRES) = 32.80 SUBAREA RUNOFF (CFS) = 69.99
EFFECTIVE AREA (ACRES) = 106.30 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 106.3 PEAK FLOW RATE (CFS) = 226.83

FLOW PROCESS FROM NODE 31109.00 TO NODE 31110.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 490.00 DOWNSTREAM (FEET) = 432.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1420.00 CHANNEL SLOPE = 0.0408
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 2.435

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	0.80	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.60	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.10	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	1.30	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	4.00	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	1.50	0.30	1.000	63
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30					
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.999					
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 234.81					
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 9.29					
AVERAGE FLOW DEPTH (FEET) = 2.90 TRAVEL TIME (MIN.) = 2.55					
Tc (MIN.) = 17.33					
SUBAREA AREA (ACRES) = 8.30 SUBAREA RUNOFF (CFS) = 15.95					
EFFECTIVE AREA (ACRES) = 114.60 AREA-AVERAGED Fm (INCH/HR) = 0.30					
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00					
TOTAL AREA (ACRES) = 114.6 PEAK FLOW RATE (CFS) = 226.83					
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE					

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 2.87 FLOW VELOCITY (FEET/SEC.) = 9.21
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31110.00 = 4544.00 FEET.

FLOW PROCESS FROM NODE 31110.00 TO NODE 31110.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 17.33
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 2.435

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					

"GRASS"	B	0.30	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	9.60	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.40	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	6.20	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	3.90	0.30	1.000	65
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	1.40	0.30	1.000	79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30					
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.998					
SUBAREA AREA (ACRES) = 21.80 SUBAREA RUNOFF (CFS) = 41.91					
EFFECTIVE AREA (ACRES) = 136.40 AREA-AVERAGED Fm (INCH/HR) = 0.30					
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00					
TOTAL AREA (ACRES) = 136.4 PEAK FLOW RATE (CFS) = 262.16					

FLOW PROCESS FROM NODE 31110.00 TO NODE 13301.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 432.00 DOWNSTREAM (FEET) = 382.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1847.00 CHANNEL SLOPE = 0.0271
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 2.144

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	4.90	0.30	1.000	86
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	1.50	0.30	1.000	79
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.60	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	2.50	0.30	1.000	79
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	5.30	0.30	1.000	79
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	3.30	0.30	1.000	79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30					
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.997					
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 277.19					
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.30					
AVERAGE FLOW DEPTH (FEET) = 3.34 TRAVEL TIME (MIN.) = 3.71					
Tc (MIN.) = 21.04					
SUBAREA AREA (ACRES) = 18.10 SUBAREA RUNOFF (CFS) = 30.05					
EFFECTIVE AREA (ACRES) = 154.50 AREA-AVERAGED Fm (INCH/HR) = 0.30					
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00					
TOTAL AREA (ACRES) = 154.5 PEAK FLOW RATE (CFS) = 262.16					
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE					

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 3.27 FLOW VELOCITY (FEET/SEC.) = 8.18

LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13301.00 = 6391.00 FEET.

FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	262.16	21.04	2.144	0.30 (0.30)	1.00	154.5	31100.00

LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13301.00 = 6391.00 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2639.04	65.59	1.147	0.30 (0.25)	0.82	3250.8	13222.00

LONGEST FLOWPATH FROM NODE 13222.00 TO NODE 13301.00 = 2533.33 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2043.56	21.04	2.144	0.30 (0.25)	0.84	1197.1	31100.00
2	2759.52	65.59	1.147	0.30 (0.25)	0.83	3405.3	13222.00

TOTAL AREA (ACRES) = 5185.5

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 2759.52 Tc(MIN.) = 65.592
EFFECTIVE AREA(ACRES) = 3405.30 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
TOTAL AREA(ACRES) = 5185.5
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13301.00 = 6391.00 FEET.

FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 13301.00 TO NODE 13302.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 382.00 DOWNSTREAM(FEET) = 375.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1141.09 CHANNEL SLOPE = 0.0061
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 5.44
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.130
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	1.20	0.30	1.000	86
AGRICULTURAL POOR COVER					

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
"ROW CROPS, STRAIGHT ROW"	B	0.60	0.30	1.000	81
NATURAL POOR COVER "BARREN"	B	0.90	0.30	1.000	86
NATURAL FAIR COVER "OPEN BRUSH"	B	4.80	0.30	1.000	66
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	1.90	0.30	1.000	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2763.04
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 7.66
AVERAGE FLOW DEPTH(FEET) = 5.44 TRAVEL TIME(MIN.) = 2.48
Tc(MIN.) = 68.07
SUBAREA AREA(ACRES) = 9.40 SUBAREA RUNOFF(CFS) = 7.02
EFFECTIVE AREA(ACRES) = 3414.70 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
TOTAL AREA(ACRES) = 5194.9 PEAK FLOW RATE(CFS) = 2759.52
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 5.43

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 5.43 FLOW VELOCITY(FEET/SEC.) = 7.66
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13302.00 = 7532.09 FEET.

FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 68.07
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.130
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	13.80	0.30	1.000	86
NATURAL POOR COVER "BARREN"	B	2.60	0.30	1.000	86
COMMERCIAL RESIDENTIAL ".4 DWELLING/ACRE"	B	1.10	0.30	0.100	56
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	3.50	0.30	0.900	56
NATURAL POOR COVER "BARREN"	B	6.90	0.30	1.000	79
NATURAL POOR COVER "BARREN"	B	0.20	0.30	1.000	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.952
SUBAREA AREA(ACRES) = 28.10 SUBAREA RUNOFF(CFS) = 21.36
EFFECTIVE AREA(ACRES) = 3442.80 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
TOTAL AREA(ACRES) = 5223.0 PEAK FLOW RATE(CFS) = 2759.52
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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MAINLINE Tc(MIN.) = 68.07
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.130
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	0.10	0.30	1.000	79
COMMERCIAL	B	0.10	0.30	0.100	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	2.40	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	0.50	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.894
 SUBAREA AREA(ACRES) = 3.10 SUBAREA RUNOFF(CFS) = 2.41
 EFFECTIVE AREA(ACRES) = 3445.90 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
 TOTAL AREA(ACRES) = 5226.1 PEAK FLOW RATE(CFS) = 2759.52
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 68.07
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.130
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	0.10	0.30	1.000	86
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.60	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	3.10	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.40	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.20	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	13.80	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 20.20 SUBAREA RUNOFF(CFS) = 15.10
 EFFECTIVE AREA(ACRES) = 3466.10 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
 TOTAL AREA(ACRES) = 5246.3 PEAK FLOW RATE(CFS) = 2759.52
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 68.07

* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.130
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	34.60	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	2.40	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	22.60	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	11.60	0.30	1.000	79
APARTMENTS	B	0.40	0.30	0.200	56
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	4.80	0.30	1.000	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.996
 SUBAREA AREA(ACRES) = 76.40 SUBAREA RUNOFF(CFS) = 57.18
 EFFECTIVE AREA(ACRES) = 3542.50 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
 TOTAL AREA(ACRES) = 5322.7 PEAK FLOW RATE(CFS) = 2808.48

 FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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MAINLINE Tc(MIN.) = 68.07
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.130
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	1.60	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	46.40	0.30	1.000	66
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	B	0.10	0.30	0.200	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	60.70	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	5.80	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.999
 SUBAREA AREA(ACRES) = 114.60 SUBAREA RUNOFF(CFS) = 85.67
 EFFECTIVE AREA(ACRES) = 3657.10 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5437.3 PEAK FLOW RATE(CFS) = 2894.14

 FLOW PROCESS FROM NODE 13302.00 TO NODE 13303.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 375.00 DOWNSTREAM(FEET) = 355.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 2193.96 CHANNEL SLOPE = 0.0091
 GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 5.00
 CHANNEL FLOW THRU SUBAREA (CFS) = 2894.14
 FLOW VELOCITY (FEET/SEC.) = 8.90 FLOW DEPTH (FEET) = 5.00
 TRAVEL TIME (MIN.) = 4.11 Tc (MIN.) = 72.18
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13303.00 = 9726.05 FEET.

 FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc (MIN.) = 72.18
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.103
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	0.20	0.30	1.000	86
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.40	0.30	1.000	65
NATURAL POOR COVER "BARREN"	B	0.80	0.30	1.000	86
COMMERCIAL	B	1.40	0.30	0.100	56
NATURAL FAIR COVER "GRASS"	B	2.60	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	2.20	0.30	1.000	66

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.834
 SUBAREA AREA (ACRES) = 7.60 SUBAREA RUNOFF (CFS) = 5.83
 EFFECTIVE AREA (ACRES) = 3664.70 AREA-AVERAGED Fm (INCH/HR) = 0.25
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA (ACRES) = 5444.9 PEAK FLOW RATE (CFS) = 2894.14
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc (MIN.) = 72.18
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.103
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	3.10	0.30	1.000	79
NATURAL FAIR COVER "WOODLAND, GRASS"	B	3.40	0.30	1.000	65
NATURAL POOR COVER "BARREN"	B	0.50	0.30	1.000	86
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	B	0.20	0.30	1.000	63
COMMERCIAL	B	3.60	0.30	0.100	56
NATURAL FAIR COVER "GRASS"	B	4.00	0.30	1.000	69

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.781
 SUBAREA AREA (ACRES) = 14.80 SUBAREA RUNOFF (CFS) = 11.57
 EFFECTIVE AREA (ACRES) = 3679.50 AREA-AVERAGED Fm (INCH/HR) = 0.25
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA (ACRES) = 5459.7 PEAK FLOW RATE (CFS) = 2894.14
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc (MIN.) = 72.18
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.103
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	14.60	0.30	1.000	66
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	6.30	0.30	1.000	79
NATURAL FAIR COVER "WOODLAND, GRASS"	B	3.70	0.30	1.000	65

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 24.60 SUBAREA RUNOFF (CFS) = 17.77
 EFFECTIVE AREA (ACRES) = 3704.10 AREA-AVERAGED Fm (INCH/HR) = 0.25
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA (ACRES) = 5484.3 PEAK FLOW RATE (CFS) = 2894.14
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc (MIN.) = 72.18
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.103
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	0.50	0.30	1.000	86
COMMERCIAL	B	0.30	0.30	0.100	56
NATURAL FAIR COVER "OPEN BRUSH"	B	0.20	0.30	1.000	66
RESIDENTIAL ".4 DWELLING/ACRE"	B	0.80	0.30	0.900	56
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	1.60	0.30	1.000	79
NATURAL POOR COVER "BARREN"	B	31.90	0.30	1.000	86

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.990
 SUBAREA AREA (ACRES) = 35.30 SUBAREA RUNOFF (CFS) = 25.59
 EFFECTIVE AREA (ACRES) = 3739.40 AREA-AVERAGED Fm (INCH/HR) = 0.25
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA (ACRES) = 5519.6 PEAK FLOW RATE (CFS) = 2894.14

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 72.18
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.103
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	1.70	0.30	0.100	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.30	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	2.60	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	5.50	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.20	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.20	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.830
 SUBAREA AREA(ACRES) = 10.50 SUBAREA RUNOFF(CFS) = 8.07
 EFFECTIVE AREA(ACRES) = 3749.90 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5530.1 PEAK FLOW RATE(CFS) = 2894.14
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 72.18
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.103
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
".4 DWELLING/ACRE"	B	1.30	0.30	0.900	56
NATURAL POOR COVER					
"BARREN"	B	0.30	0.30	1.000	86
COMMERCIAL	B	0.20	0.30	0.100	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.30	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	6.50	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	3.00	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.917
 SUBAREA AREA(ACRES) = 11.60 SUBAREA RUNOFF(CFS) = 8.64
 EFFECTIVE AREA(ACRES) = 3761.50 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5541.7 PEAK FLOW RATE(CFS) = 2894.14

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13303.00 TO NODE 13304.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 355.00 DOWNSTREAM(FEET) = 350.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 925.40 CHANNEL SLOPE = 0.0054
 GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 5.78
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.089
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	0.20	0.30	1.000	86
AGRICULTURAL POOR COVER					
"ROW CROPS,STRAIGHT ROW"	B	0.50	0.30	1.000	81
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	1.10	0.30	1.000	65
NATURAL POOR COVER					
"BARREN"	B	0.30	0.30	1.000	86
NATURAL FAIR COVER					
"GRASS"	B	1.10	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.50	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2896.52
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 7.44
 AVERAGE FLOW DEPTH(FEET) = 5.78 TRAVEL TIME(MIN.) = 2.07
 Tc(MIN.) = 74.25
 SUBAREA AREA(ACRES) = 6.70 SUBAREA RUNOFF(CFS) = 4.75
 EFFECTIVE AREA(ACRES) = 3768.20 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5548.4 PEAK FLOW RATE(CFS) = 2894.14
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 5.78

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 5.78 FLOW VELOCITY(FEET/SEC.) = 7.44
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13304.00 = 10651.45 FEET.

FLOW PROCESS FROM NODE 13304.00 TO NODE 13304.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 74.25
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.089
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
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AGRICULTURAL POOR COVER
"ROW CROPS,STRAIGHT ROW" B 1.40 0.30 1.000 81
NATURAL FAIR COVER
"OPEN BRUSH" B 4.80 0.30 1.000 66
AGRICULTURAL POOR COVER
"ROW CROPS,STRAIGHT ROW" B 0.90 0.30 1.000 81
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 7.10 SUBAREA RUNOFF (CFS) = 5.04
EFFECTIVE AREA (ACRES) = 3775.30 AREA-AVERAGED Fm (INCH/HR) = 0.25
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA (ACRES) = 5555.5 PEAK FLOW RATE (CFS) = 2894.14
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13304.00 TO NODE 13304.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 74.25
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.089
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL POOR COVER
"BARREN" B 7.80 0.30 1.000 86
AGRICULTURAL POOR COVER
"ROW CROPS,CONTOURED" B 1.70 0.30 1.000 79
NATURAL POOR COVER
"BARREN" B 9.40 0.30 1.000 86
NATURAL FAIR COVER
"OPEN BRUSH" B 1.20 0.30 1.000 66
RESIDENTIAL
".4 DWELLING/ACRE" B 0.10 0.30 0.900 56
AGRICULTURAL POOR COVER
"ROW CROPS,CONTOURED" B 2.60 0.30 1.000 79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 22.80 SUBAREA RUNOFF (CFS) = 16.18
EFFECTIVE AREA (ACRES) = 3798.10 AREA-AVERAGED Fm (INCH/HR) = 0.25
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA (ACRES) = 5578.3 PEAK FLOW RATE (CFS) = 2894.14
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13304.00 TO NODE 13304.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 74.25
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.089
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"WOODLAND,GRASS" B 0.20 0.30 1.000 65
NATURAL FAIR COVER
"OPEN BRUSH" B 0.30 0.30 1.000 66

RESIDENTIAL
".4 DWELLING/ACRE" B 0.20 0.30 0.900 56
AGRICULTURAL POOR COVER
"ROW CROPS,CONTOURED" B 2.70 0.30 1.000 79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.994
SUBAREA AREA (ACRES) = 3.40 SUBAREA RUNOFF (CFS) = 2.42
EFFECTIVE AREA (ACRES) = 3801.50 AREA-AVERAGED Fm (INCH/HR) = 0.25
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA (ACRES) = 5581.7 PEAK FLOW RATE (CFS) = 2894.14
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13304.00 TO NODE 13305.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 350.00 DOWNSTREAM (FEET) = 315.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 2966.27 CHANNEL SLOPE = 0.0118
GIVEN CHANNEL BASE (FEET) = 50.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 4.65
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.054
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL POOR COVER
"BARREN" B 1.70 0.30 1.000 86
NATURAL FAIR COVER
"GRASS" B 0.60 0.30 1.000 69
NATURAL FAIR COVER
"OPEN BRUSH" B 0.10 0.30 1.000 66
NATURAL FAIR COVER
"WOODLAND,GRASS" B 0.40 0.30 1.000 65
NATURAL POOR COVER
"BARREN" B 2.20 0.30 1.000 86
NATURAL FAIR COVER
"GRASS" B 4.20 0.30 1.000 69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 2897.27
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 9.74
AVERAGE FLOW DEPTH (FEET) = 4.65 TRAVEL TIME (MIN.) = 5.08
Tc (MIN.) = 79.33
SUBAREA AREA (ACRES) = 9.20 SUBAREA RUNOFF (CFS) = 6.24
EFFECTIVE AREA (ACRES) = 3810.70 AREA-AVERAGED Fm (INCH/HR) = 0.25
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA (ACRES) = 5590.9 PEAK FLOW RATE (CFS) = 2894.14
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE (FEET) = 50.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 4.65

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 4.65 FLOW VELOCITY (FEET/SEC.) = 9.73
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13305.00 = 13617.72 FEET.

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 79.33
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.054
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	8.10	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	2.30	0.30	1.000	65
NATURAL FAIR COVER					
"GRASS"	B	0.20	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	6.90	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.70	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 18.20 SUBAREA RUNOFF(CFS) = 12.35
 EFFECTIVE AREA(ACRES) = 3828.90 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5609.1 PEAK FLOW RATE(CFS) = 2894.14
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 79.33
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.054
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	18.40	0.30	1.000	86
NATURAL FAIR COVER					
"MEADOWS"	B	1.20	0.30	1.000	70
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.10	0.30	1.000	65
NATURAL POOR COVER					
"BARREN"	B	26.60	0.30	1.000	86
COMMERCIAL	B	3.90	0.30	0.100	56
AGRICULTURAL POOR COVER					
"FALLOW"	B	3.00	0.30	1.000	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.934
 SUBAREA AREA(ACRES) = 53.20 SUBAREA RUNOFF(CFS) = 37.06
 EFFECTIVE AREA(ACRES) = 3882.10 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5662.3 PEAK FLOW RATE(CFS) = 2894.14
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 79.33
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.054
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	1.10	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.20	0.30	1.000	65
NATURAL POOR COVER					
"BARREN"	B	14.00	0.30	1.000	86
COMMERCIAL	B	4.30	0.30	0.100	56
AGRICULTURAL POOR COVER					
"FALLOW"	B	5.30	0.30	1.000	86
NATURAL FAIR COVER					
"GRASS"	B	2.70	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.860
 SUBAREA AREA(ACRES) = 27.60 SUBAREA RUNOFF(CFS) = 19.78
 EFFECTIVE AREA(ACRES) = 3909.70 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5689.9 PEAK FLOW RATE(CFS) = 2894.14
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 79.33
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.054
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"MEADOWS"	B	3.20	0.30	1.000	70
NATURAL FAIR COVER					
"OPEN BRUSH"	B	6.10	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	7.50	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	5.40	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	1.60	0.30	1.000	65
NATURAL POOR COVER					
"BARREN"	B	1.90	0.30	1.000	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.971
 SUBAREA AREA(ACRES) = 25.70 SUBAREA RUNOFF(CFS) = 17.65
 EFFECTIVE AREA(ACRES) = 3935.40 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5715.6 PEAK FLOW RATE(CFS) = 2894.14
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

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FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN.) = 79.33
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.054
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA      Fp        Ap      SCS
LAND USE            GROUP   (ACRES) (INCH/HR) (DECIMAL) CN
COMMERCIAL          B        2.00     0.30     0.100    56
AGRICULTURAL POOR COVER
"ALLOW"            B        3.70     0.30     1.000    86
NATURAL FAIR COVER
"OPEN BRUSH"       B        2.10     0.30     1.000    66
RESIDENTIAL
".4 DWELLING/ACRE" B        2.60     0.30     0.900    56
AGRICULTURAL POOR COVER
"ROW CROPS,CONTOURED" B        0.20     0.30     1.000    79
NATURAL FAIR COVER
"WOODLAND,GRASS"  B        0.10     0.30     1.000    65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.807
SUBAREA AREA(ACRES) = 10.70      SUBAREA RUNOFF(CFS) = 7.82
EFFECTIVE AREA(ACRES) = 3946.10  AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30  AREA-AVERAGED Ap = 0.84
TOTAL AREA(ACRES) = 5726.3      PEAK FLOW RATE(CFS) = 2894.14
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

*****
FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN.) = 79.33
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.054
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA      Fp        Ap      SCS
LAND USE            GROUP   (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH"       B        0.50     0.30     1.000    66
RESIDENTIAL
".4 DWELLING/ACRE" B        8.20     0.30     0.900    56
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.906
SUBAREA AREA(ACRES) = 8.70      SUBAREA RUNOFF(CFS) = 6.13
EFFECTIVE AREA(ACRES) = 3954.80  AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30  AREA-AVERAGED Ap = 0.84
TOTAL AREA(ACRES) = 5735.0      PEAK FLOW RATE(CFS) = 2894.14
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

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FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 15.1
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>>>>DEFINE MEMORY BANK # 1 <<<<
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PEAK FLOWRATE TABLE FILE NAME: 3A50EVRL.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:

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STREAM      Q      Tc      Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS) (MIN.) (INCH/HR)      (ACRES)  NODE
1      1087.20  13.49  0.30( 0.13) 0.43  436.1  120.00
2      1086.73  13.53  0.30( 0.13) 0.43  436.7  110.00
3      930.63   20.54  0.30( 0.13) 0.43  504.3  100.00
4      870.49   23.19  0.30( 0.13) 0.43  510.2  150.00
TOTAL AREA(ACRES) = 510.2

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FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 11
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>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<
=====
** MAIN STREAM CONFLUENCE DATA **
STREAM      Q      Tc      Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS) (MIN.) (INCH/HR) (INCH/HR)      (ACRES)  NODE
1      2245.75  35.96  1.561  0.30( 0.26) 0.88  1746.6  31100.00
2      2894.14  79.33  1.054  0.30( 0.25) 0.84  3954.8  13222.00
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13305.00 = 13617.72 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **
STREAM      Q      Tc      Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS) (MIN.) (INCH/HR) (INCH/HR)      (ACRES)  NODE
1      1087.20  13.49  2.876  0.30( 0.13) 0.43  436.1  120.00
2      1086.73  13.53  2.870  0.30( 0.13) 0.43  436.7  110.00
3      930.63   20.54  2.173  0.30( 0.13) 0.43  504.3  100.00
4      870.49   23.19  2.016  0.30( 0.13) 0.43  510.2  150.00
LONGEST FLOWPATH FROM NODE 150.00 TO NODE 13305.00 = 9867.00 FEET.

** PEAK FLOW RATE TABLE **
STREAM      Q      Tc      Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS) (MIN.) (INCH/HR) (INCH/HR)      (ACRES)  NODE
1      2783.91  13.49  2.876  0.30( 0.21) 0.70  1091.4  120.00
2      2784.27  13.53  2.870  0.30( 0.21) 0.70  1093.8  110.00
3      2818.82  20.54  2.173  0.30( 0.22) 0.73  1502.0  100.00
4      2827.03  23.19  2.016  0.30( 0.22) 0.74  1636.5  150.00
5      2906.08  35.96  1.561  0.30( 0.23) 0.78  2256.8  31100.00
6      3320.67  79.33  1.054  0.30( 0.24) 0.80  4465.0  13222.00
TOTAL AREA(ACRES) = 6245.2

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 3320.67 Tc(MIN.) = 79.328
EFFECTIVE AREA(ACRES) = 4465.00 AREA-AVERAGED Fm(INCH/HR) = 0.24
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.70
TOTAL AREA(ACRES) = 6245.2
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13305.00 = 13617.72 FEET.

*****
FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 12
-----
>>>>CLEAR MEMORY BANK # 1 <<<<
=====
*****
FLOW PROCESS FROM NODE 13305.00 TO NODE 13306.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

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>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 315.00 DOWNSTREAM(FEET) = 245.50
CHANNEL LENGTH THRU SUBAREA(FEET) = 4408.41 CHANNEL SLOPE = 0.0158
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 4.64
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.010
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp   Ap   SCS
LAND USE           GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL POOR COVER
"BARREN"           B         0.40   0.30  1.000  86
NATURAL FAIR COVER
"GRASS"           B         9.20   0.30  1.000  69
NATURAL FAIR COVER
"OPEN BRUSH"      B         1.00   0.30  1.000  66
NATURAL FAIR COVER
"WOODLAND,GRASS" B         1.30   0.30  1.000  65
NATURAL POOR COVER
"BARREN"           B         2.40   0.30  1.000  86
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" B       4.10   0.30  1.000  63
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 3326.54
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.23
AVERAGE FLOW DEPTH(FEET) = 4.64 TRAVEL TIME(MIN.) = 6.54
Tc(MIN.) = 85.87
SUBAREA AREA(ACRES) = 18.40 SUBAREA RUNOFF(CFS) = 11.76
EFFECTIVE AREA(ACRES) = 4483.40 AREA-AVERAGED Fm(INCH/HR) = 0.24
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA(ACRES) = 6263.6 PEAK FLOW RATE(CFS) = 3320.67
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 4.63

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END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 4.63 FLOW VELOCITY(FEET/SEC.) = 11.23
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13306.00 = 18026.13 FEET.

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*****
FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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=====
MAINLINE Tc(MIN.) = 85.87
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.010
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp   Ap   SCS
LAND USE           GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"GRASS"           B        19.20   0.30  1.000  69
NATURAL FAIR COVER
"OPEN BRUSH"      B        20.90   0.30  1.000  66
NATURAL FAIR COVER
"WOODLAND,GRASS" B         4.10   0.30  1.000  65

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NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF" B         0.50   0.30  1.000  63
NATURAL FAIR COVER
"GRASS"           B         4.30   0.30  1.000  69
NATURAL FAIR COVER
"OPEN BRUSH"      B         0.60   0.30  1.000  66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 49.60 SUBAREA RUNOFF(CFS) = 31.69
EFFECTIVE AREA(ACRES) = 4533.00 AREA-AVERAGED Fm(INCH/HR) = 0.24
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA(ACRES) = 6313.2 PEAK FLOW RATE(CFS) = 3320.67
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

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*****
FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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=====
MAINLINE Tc(MIN.) = 85.87
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.010
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp   Ap   SCS
LAND USE           GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"WOODLAND,GRASS" B         0.80   0.30  1.000  65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 0.80 SUBAREA RUNOFF(CFS) = 0.51
EFFECTIVE AREA(ACRES) = 4533.80 AREA-AVERAGED Fm(INCH/HR) = 0.24
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA(ACRES) = 6314.0 PEAK FLOW RATE(CFS) = 3320.67
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

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*****
FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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=====
MAINLINE Tc(MIN.) = 85.87
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.010
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/   SCS SOIL   AREA   Fp   Ap   SCS
LAND USE           GROUP (ACRES) (INCH/HR) (DECIMAL) CN
PUBLIC PARK        B         0.10   0.30  0.850  56
NATURAL FAIR COVER
"OPEN BRUSH"      B         0.10   0.30  1.000  66
NATURAL FAIR COVER
"WOODLAND,GRASS" B         0.10   0.30  1.000  65
NATURAL POOR COVER
"BARREN"           B         0.20   0.30  1.000  86
PUBLIC PARK        B         0.40   0.30  0.850  56
NATURAL FAIR COVER
"GRASS"           B         0.40   0.30  1.000  69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.942
SUBAREA AREA(ACRES) = 1.30 SUBAREA RUNOFF(CFS) = 0.85
EFFECTIVE AREA(ACRES) = 4535.10 AREA-AVERAGED Fm(INCH/HR) = 0.24

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AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA (ACRES) = 6315.3 PEAK FLOW RATE (CFS) = 3320.67
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 85.87
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.010
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
RESIDENTIAL
".4 DWELLING/ACRE" B 0.80 0.30 0.900 56
NATURAL FAIR COVER
"GRASS" B 0.80 0.30 1.000 69
NATURAL FAIR COVER
"OPEN BRUSH" B 1.00 0.30 1.000 66
NATURAL FAIR COVER
"WOODLAND, GRASS" B 1.10 0.30 1.000 65
COMMERCIAL B 1.10 0.30 0.100 56
RESIDENTIAL
".4 DWELLING/ACRE" B 2.80 0.30 0.900 56
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.822
SUBAREA AREA (ACRES) = 7.60 SUBAREA RUNOFF (CFS) = 5.22
EFFECTIVE AREA (ACRES) = 4542.70 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA (ACRES) = 6322.9 PEAK FLOW RATE (CFS) = 3320.67
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 85.87
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.010
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
COMMERCIAL B 3.50 0.30 0.100 56
NATURAL FAIR COVER
"GRASS" B 5.00 0.30 1.000 69
RESIDENTIAL
".4 DWELLING/ACRE" B 6.70 0.30 0.900 56
NATURAL FAIR COVER
"WOODLAND, GRASS" B 7.80 0.30 1.000 65
NATURAL FAIR COVER
"OPEN BRUSH" B 10.80 0.30 1.000 66
COMMERCIAL B 13.80 0.30 0.100 56
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.659
SUBAREA AREA (ACRES) = 47.60 SUBAREA RUNOFF (CFS) = 34.80
EFFECTIVE AREA (ACRES) = 4590.30 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80

TOTAL AREA (ACRES) = 6370.5 PEAK FLOW RATE (CFS) = 3320.67
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 85.87
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.010
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL POOR COVER
"BARREN" B 21.54 0.30 1.000 86
NATURAL POOR COVER
"BARREN" B 36.64 0.30 1.000 86
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 58.18 SUBAREA RUNOFF (CFS) = 37.17
EFFECTIVE AREA (ACRES) = 4648.48 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA (ACRES) = 6428.7 PEAK FLOW RATE (CFS) = 3320.67
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13306.00 TO NODE 13307.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 245.50 DOWNSTREAM (FEET) = 220.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1543.21 CHANNEL SLOPE = 0.0165
GIVEN CHANNEL BASE (FEET) = 50.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
* ESTIMATED CHANNEL HEIGHT (FEET) = 4.57
CHANNEL FLOW THRU SUBAREA (CFS) = 3320.67
FLOW VELOCITY (FEET/SEC.) = 11.40 FLOW DEPTH (FEET) = 4.57
TRAVEL TIME (MIN.) = 2.26 Tc (MIN.) = 88.13
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13307.00 = 19569.34 FEET.

FLOW PROCESS FROM NODE 13307.00 TO NODE 13307.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 88.13
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.995
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
COMMERCIAL B 0.20 0.30 0.100 56
NATURAL FAIR COVER
"GRASS" B 0.10 0.30 1.000 69
AGRICULTURAL FAIR COVER
"ORCHARDS" B 0.20 0.30 1.000 65
NATURAL POOR COVER
"BARREN" B 3.70 0.30 1.000 86

COMMERCIAL B 0.30 0.30 0.100 56
 NATURAL FAIR COVER
 "GRASS" B 3.20 0.30 1.000 69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.942
 SUBAREA AREA (ACRES) = 7.70 SUBAREA RUNOFF (CFS) = 4.94
 EFFECTIVE AREA (ACRES) = 4656.18 AREA-AVERAGED Fm (INCH/HR) = 0.24
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA (ACRES) = 6436.4 PEAK FLOW RATE (CFS) = 3320.67
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13307.00 TO NODE 13307.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 88.13
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.995
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	3.60	0.30	1.000	65
NATURAL FAIR COVER					
"GRASS"	B	1.90	0.30	1.000	69
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.60	0.30	1.000	65

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 6.10 SUBAREA RUNOFF (CFS) = 3.81
 EFFECTIVE AREA (ACRES) = 4662.28 AREA-AVERAGED Fm (INCH/HR) = 0.24
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA (ACRES) = 6442.5 PEAK FLOW RATE (CFS) = 3320.67
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13307.00 TO NODE 13308.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 220.00 DOWNSTREAM (FEET) = 212.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 925.62 CHANNEL SLOPE = 0.0086
 GIVEN CHANNEL BASE (FEET) = 50.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 5.48
 CHANNEL FLOW THRU SUBAREA (CFS) = 3320.67
 FLOW VELOCITY (FEET/SEC.) = 9.13 FLOW DEPTH (FEET) = 5.48
 TRAVEL TIME (MIN.) = 1.69 Tc (MIN.) = 89.82
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13308.00 = 20494.96 FEET.

 FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 89.82
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.983

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	0.10	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.20	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	5.00	0.30	1.000	65
COMMERCIAL	B	3.20	0.30	0.100	56
NATURAL FAIR COVER					
"GRASS"	B	0.10	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.90	0.30	1.000	66

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.697
 SUBAREA AREA (ACRES) = 9.50 SUBAREA RUNOFF (CFS) = 6.62
 EFFECTIVE AREA (ACRES) = 4671.78 AREA-AVERAGED Fm (INCH/HR) = 0.24
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA (ACRES) = 6452.0 PEAK FLOW RATE (CFS) = 3320.67
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 89.82
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.983
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
APARTMENTS	B	0.30	0.30	0.200	56
NATURAL POOR COVER					
"BARREN"	B	0.20	0.30	1.000	86
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	1.00	0.30	1.000	63
COMMERCIAL	B	41.90	0.30	0.100	56
NATURAL FAIR COVER					
"GRASS"	B	7.20	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	25.00	0.30	1.000	66

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.498
 SUBAREA AREA (ACRES) = 75.60 SUBAREA RUNOFF (CFS) = 56.73
 EFFECTIVE AREA (ACRES) = 4747.38 AREA-AVERAGED Fm (INCH/HR) = 0.24
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA (ACRES) = 6527.6 PEAK FLOW RATE (CFS) = 3320.67
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 89.82
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.983
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
PUBLIC PARK	B	0.10	0.30	0.850	56
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	0.90	0.30	1.000	79
SCHOOL	B	0.30	0.30	0.600	56
NATURAL FAIR COVER "WOODLAND, GRASS"	B	13.20	0.30	1.000	65
APARTMENTS	B	0.50	0.30	0.200	56
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	B	0.60	0.30	1.000	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.966
SUBAREA AREA (ACRES) = 15.60 SUBAREA RUNOFF (CFS) = 9.74
EFFECTIVE AREA (ACRES) = 4762.98 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA (ACRES) = 6543.2 PEAK FLOW RATE (CFS) = 3320.67
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 89.82
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.983
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	33.90	0.30	0.100	56
NATURAL FAIR COVER "GRASS"	B	17.60	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	16.80	0.30	1.000	66
RESIDENTIAL "11+ DWELLINGS/ACRE"	B	0.60	0.30	0.200	56
RESIDENTIAL "8-10 DWELLINGS/ACRE"	B	1.50	0.30	0.400	56
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	10.00	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.603
SUBAREA AREA (ACRES) = 80.40 SUBAREA RUNOFF (CFS) = 58.05
EFFECTIVE AREA (ACRES) = 4843.38 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.79
TOTAL AREA (ACRES) = 6623.6 PEAK FLOW RATE (CFS) = 3320.67
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 89.82
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.983
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	33.90	0.30	0.100	56
NATURAL FAIR COVER "GRASS"	B	17.60	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	16.80	0.30	1.000	66
PUBLIC PARK	B	1.70	0.30	0.850	56
NATURAL FAIR COVER "WOODLAND, GRASS"	B	7.20	0.30	1.000	65
NATURAL FAIR COVER "GRASS"	B	1.00	0.30	1.000	69

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
SCHOOL	B	0.30	0.30	0.600	56
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.70	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.880
SUBAREA AREA (ACRES) = 1.00 SUBAREA RUNOFF (CFS) = 0.65
EFFECTIVE AREA (ACRES) = 4844.38 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.79
TOTAL AREA (ACRES) = 6624.6 PEAK FLOW RATE (CFS) = 3320.67
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 89.82
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.983
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "GRASS"	B	0.30	0.30	1.000	69
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.80	0.30	1.000	65
NATURAL FAIR COVER "GRASS"	B	0.50	0.30	1.000	69
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.20	0.30	1.000	65
NATURAL FAIR COVER "GRASS"	B	0.30	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 2.10 SUBAREA RUNOFF (CFS) = 1.29
EFFECTIVE AREA (ACRES) = 4846.48 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.79
TOTAL AREA (ACRES) = 6626.7 PEAK FLOW RATE (CFS) = 3320.67
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 89.82
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.983
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "GRASS"	B	1.20	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	0.50	0.30	1.000	66
PUBLIC PARK	B	1.70	0.30	0.850	56
NATURAL FAIR COVER "WOODLAND, GRASS"	B	7.20	0.30	1.000	65
NATURAL FAIR COVER "GRASS"	B	1.00	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.978
 SUBAREA AREA(ACRES) = 11.60 SUBAREA RUNOFF(CFS) = 7.20
 EFFECTIVE AREA(ACRES) = 4858.08 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.79
 TOTAL AREA(ACRES) = 6638.3 PEAK FLOW RATE(CFS) = 3320.67
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<

 FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<

PEAK FLOWRATE TABLE FILE NAME: RI50EV29.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18957.36	15.01	0.30 (0.28)	0.93	3112.8	50200.00
2	20320.63	19.50	0.30 (0.28)	0.93	4350.0	12904.00
3	22944.79	28.39	0.30 (0.28)	0.93	6745.3	50300.00
4	25737.03	38.58	0.30 (0.28)	0.93	9539.2	600.00
5	29169.51	54.97	0.30 (0.29)	0.96	15540.5	40100.00
6	30292.17	62.83	0.30 (0.29)	0.96	18368.4	11801.00
7	32278.07	73.64	0.30 (0.29)	0.97	22952.8	11530.00
8	33326.13	78.00	0.30 (0.29)	0.97	25267.3	11701.00
9	34219.47	81.49	0.30 (0.29)	0.97	27360.5	11910.00
10	36831.71	91.67	0.30 (0.29)	0.98	34054.7	10800.00
11	37507.97	95.91	0.30 (0.29)	0.98	37000.0	11130.00
12	37536.05	105.50	0.30 (0.29)	0.98	42041.2	12410.00
13	37250.29	113.77	0.30 (0.29)	0.98	45780.4	11201.00
14	36956.14	118.72	0.30 (0.29)	0.98	47512.1	12201.00
15	36078.36	125.74	0.30 (0.29)	0.98	49369.2	12231.00
16	34935.94	133.50	0.30 (0.29)	0.98	51003.5	10400.00
17	33743.50	141.39	0.30 (0.29)	0.98	52298.6	12010.00
18	32669.78	147.31	0.30 (0.29)	0.98	52645.6	10210.00
19	32203.52	150.34	0.30 (0.29)	0.98	52762.8	12000.00
20	29029.85	175.30	0.30 (0.29)	0.98	53384.0	10100.00
TOTAL AREA(ACRES) =						53384.0

 FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 14.0

>>>>MEMORY BANK # 2 COPIED ONTO MAIN-STREAM MEMORY<<<<<

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18957.36	15.01	0.30 (0.28)	0.93	3112.8	50200.00
2	20320.63	19.50	0.30 (0.28)	0.93	4350.0	12904.00
3	22944.79	28.39	0.30 (0.28)	0.93	6745.3	50300.00
4	25737.03	38.58	0.30 (0.28)	0.93	9539.2	600.00

5	29169.51	54.97	0.30 (0.29)	0.96	15540.5	40100.00
6	30292.17	62.83	0.30 (0.29)	0.96	18368.4	11801.00
7	32278.07	73.64	0.30 (0.29)	0.97	22952.8	11530.00
8	33326.13	78.00	0.30 (0.29)	0.97	25267.3	11701.00
9	34219.47	81.49	0.30 (0.29)	0.97	27360.5	11910.00
10	36831.71	91.67	0.30 (0.29)	0.98	34054.7	10800.00
11	37507.97	95.91	0.30 (0.29)	0.98	37000.0	11130.00
12	37536.05	105.50	0.30 (0.29)	0.98	42041.2	12410.00
13	37250.29	113.77	0.30 (0.29)	0.98	45780.4	11201.00
14	36956.14	118.72	0.30 (0.29)	0.98	47512.1	12201.00
15	36078.36	125.74	0.30 (0.29)	0.98	49369.2	12231.00
16	34935.94	133.50	0.30 (0.29)	0.98	51003.5	10400.00
17	33743.50	141.39	0.30 (0.29)	0.98	52298.6	12010.00
18	32669.78	147.31	0.30 (0.29)	0.98	52645.6	10210.00
19	32203.52	150.34	0.30 (0.29)	0.98	52762.8	12000.00
20	29029.85	175.30	0.30 (0.29)	0.98	53384.0	10100.00
TOTAL AREA(ACRES) =						53384.0

 FLOW PROCESS FROM NODE 12904.00 TO NODE 13308.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 213.00 DOWNSTREAM(FEET) = 212.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1389.52 CHANNEL SLOPE = 0.0007
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 17.50
 CHANNEL FLOW THRU SUBAREA(CFS) = 37536.05
 FLOW VELOCITY(FEET/SEC.) = 7.46 FLOW DEPTH(FEET) = 17.50
 TRAVEL TIME(MIN.) = 3.11 Tc(MIN.) = 108.60
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13308.00 = 118087.91 FEET.

 FLOW PROCESS FROM NODE 13307.00 TO NODE 13308.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18957.36	18.84	2.305	0.30 (0.28)	0.93	3112.8	50200.00
2	20320.63	23.25	2.013	0.30 (0.28)	0.93	4350.0	12904.00
3	22944.79	31.99	1.665	0.30 (0.28)	0.93	6745.3	50300.00
4	25737.03	42.07	1.422	0.30 (0.28)	0.93	9539.2	600.00
5	29169.51	58.32	1.203	0.30 (0.29)	0.96	15540.5	40100.00
6	30292.17	66.14	1.143	0.30 (0.29)	0.96	18368.4	11801.00
7	32278.07	76.88	1.071	0.30 (0.29)	0.97	22952.8	11530.00
8	33326.13	81.22	1.041	0.30 (0.29)	0.97	25267.3	11701.00
9	34219.47	84.68	1.018	0.30 (0.29)	0.97	27360.5	11910.00
10	36831.71	94.79	0.961	0.30 (0.29)	0.98	34054.7	10800.00
11	37507.97	99.01	0.943	0.30 (0.29)	0.98	37000.0	11130.00
12	37536.05	108.60	0.901	0.30 (0.29)	0.98	42041.2	12410.00
13	37250.29	116.88	0.866	0.30 (0.29)	0.98	45780.4	11201.00
14	36956.14	121.84	0.848	0.30 (0.29)	0.98	47512.1	12201.00
15	36078.36	128.88	0.834	0.30 (0.29)	0.98	49369.2	12231.00

16 34935.94 136.67 0.818 0.30(0.29) 0.98 51003.5 10400.00
 17 33743.50 144.60 0.801 0.30(0.29) 0.98 52298.6 12010.00
 18 32669.78 150.55 0.789 0.30(0.29) 0.98 52645.6 10210.00
 19 32203.52 153.59 0.783 0.30(0.29) 0.98 52762.8 12000.00
 20 29029.85 178.66 0.731 0.30(0.29) 0.98 53384.0 10100.00
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13308.00 = 118087.91 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2783.91	24.58	1.934	0.30(0.22)	0.72	1484.4	120.00
2	2784.27	24.61	1.932	0.30(0.22)	0.72	1486.9	110.00
3	2818.82	31.58	1.676	0.30(0.22)	0.74	1895.1	100.00
4	2827.03	34.22	1.606	0.30(0.22)	0.75	2029.6	150.00
5	2906.08	46.90	1.343	0.30(0.23)	0.78	2649.9	31100.00
6	3320.67	89.82	0.983	0.30(0.24)	0.79	4858.1	13222.00

LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13308.00 = 20494.96 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21551.88	18.84	2.305	0.30(0.26)	0.87	4250.5	50200.00
2	23074.48	23.25	2.013	0.30(0.26)	0.88	5754.0	12904.00
3	23504.14	24.58	1.934	0.30(0.26)	0.88	6199.2	120.00
4	23515.14	24.61	1.932	0.30(0.26)	0.88	6211.4	110.00
5	25640.82	31.58	1.676	0.30(0.27)	0.89	8528.3	100.00
6	25764.88	31.99	1.665	0.30(0.27)	0.89	8661.3	50300.00
7	26390.30	34.22	1.606	0.30(0.27)	0.89	9393.7	150.00
8	28612.95	42.07	1.422	0.30(0.27)	0.90	11952.4	600.00
9	29664.50	46.90	1.343	0.30(0.27)	0.91	13974.8	31100.00
10	32185.90	58.32	1.203	0.30(0.28)	0.93	18777.9	40100.00
11	33384.10	66.14	1.143	0.30(0.28)	0.93	22008.2	11801.00
12	35473.78	76.88	1.071	0.30(0.28)	0.94	27145.3	11530.00
13	36563.75	81.22	1.041	0.30(0.28)	0.94	29683.1	11701.00
14	37490.52	84.68	1.018	0.30(0.28)	0.95	31954.3	11910.00
15	38867.32	89.82	0.983	0.30(0.29)	0.95	35619.7	13222.00
16	40054.32	94.79	0.961	0.30(0.29)	0.95	38912.8	10800.00
17	40648.98	99.01	0.943	0.30(0.29)	0.96	41858.1	11130.00
18	40491.82	108.60	0.901	0.30(0.29)	0.96	46899.3	12410.00
19	40046.17	116.88	0.866	0.30(0.29)	0.96	50638.4	11201.00
20	39674.73	121.84	0.848	0.30(0.29)	0.96	52370.1	12201.00
21	38732.05	128.88	0.834	0.30(0.29)	0.96	54227.3	12231.00
22	37517.82	136.67	0.818	0.30(0.29)	0.96	55861.6	10400.00
23	36252.36	144.60	0.801	0.30(0.29)	0.97	57156.7	12010.00
24	35123.85	150.55	0.789	0.30(0.29)	0.97	57503.7	10210.00
25	34629.51	153.59	0.783	0.30(0.29)	0.97	57620.9	12000.00
26	31224.85	178.66	0.731	0.30(0.29)	0.97	58242.1	10100.00

TOTAL AREA (ACRES) = 60022.3

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 40648.98 Tc (MIN.) = 99.014
 EFFECTIVE AREA (ACRES) = 41858.12 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA (ACRES) = 60022.3
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13308.00 = 118087.91 FEET.

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 END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 60022.3 TC (MIN.) = 99.01

EFFECTIVE AREA (ACRES) = 41858.12 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.957
 PEAK FLOW RATE (CFS) = 40648.98

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21551.88	18.84	2.305	0.30(0.26)	0.87	4250.5	50200.00
2	23074.48	23.25	2.013	0.30(0.26)	0.88	5754.0	12904.00
3	23504.14	24.58	1.934	0.30(0.26)	0.88	6199.2	120.00
4	23515.14	24.61	1.932	0.30(0.26)	0.88	6211.4	110.00
5	25640.82	31.58	1.676	0.30(0.27)	0.89	8528.3	100.00
6	25764.88	31.99	1.665	0.30(0.27)	0.89	8661.3	50300.00
7	26390.30	34.22	1.606	0.30(0.27)	0.89	9393.7	150.00
8	28612.95	42.07	1.422	0.30(0.27)	0.90	11952.4	600.00
9	29664.50	46.90	1.343	0.30(0.27)	0.91	13974.8	31100.00
10	32185.90	58.32	1.203	0.30(0.28)	0.93	18777.9	40100.00
11	33384.10	66.14	1.143	0.30(0.28)	0.93	22008.2	11801.00
12	35473.78	76.88	1.071	0.30(0.28)	0.94	27145.3	11530.00
13	36563.75	81.22	1.041	0.30(0.28)	0.94	29683.1	11701.00
14	37490.52	84.68	1.018	0.30(0.28)	0.95	31954.3	11910.00
15	38867.32	89.82	0.983	0.30(0.29)	0.95	35619.7	13222.00
16	40054.32	94.79	0.961	0.30(0.29)	0.95	38912.8	10800.00
17	40648.98	99.01	0.943	0.30(0.29)	0.96	41858.1	11130.00
18	40491.82	108.60	0.901	0.30(0.29)	0.96	46899.3	12410.00
19	40046.17	116.88	0.866	0.30(0.29)	0.96	50638.4	11201.00
20	39674.73	121.84	0.848	0.30(0.29)	0.96	52370.1	12201.00
21	38732.05	128.88	0.834	0.30(0.29)	0.96	54227.3	12231.00
22	37517.82	136.67	0.818	0.30(0.29)	0.96	55861.6	10400.00
23	36252.36	144.60	0.801	0.30(0.29)	0.97	57156.7	12010.00
24	35123.85	150.55	0.789	0.30(0.29)	0.97	57503.7	10210.00
25	34629.51	153.59	0.783	0.30(0.29)	0.97	57620.9	12000.00
26	31224.85	178.66	0.731	0.30(0.29)	0.97	58242.1	10100.00

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 END OF RATIONAL METHOD ANALYSIS
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RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 134 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 50-YR EV SEP 2023 ROKAMOTO *

FILE NAME: RI50EV34.DAT
TIME/DATE OF STUDY: 16:23 09/05/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 50.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED

NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 5.305
- 2) 10.00; 3.420
- 3) 15.00; 2.629
- 4) 20.00; 2.200
- 5) 25.00; 1.906
- 6) 30.00; 1.714
- 7) 40.00; 1.452
- 8) 50.00; 1.290
- 9) 60.00; 1.181
- 10) 90.00; 0.979
- 11) 120.00; 0.849
- 12) 180.00; 0.725
- 13) 360.00; 0.534
- 14) 1200.00; 0.233

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	(FT)	(FT)	SIDE / SIDE/ WAY	(FT)	(FT)	(FT)	(FT)	(n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- 1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RI50EV33.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21551.88	18.84	0.30 (0.26)	0.87	4250.5	50200.00
2	23515.14	24.61	0.30 (0.26)	0.88	6211.4	110.00
3	26390.30	34.22	0.30 (0.27)	0.89	9393.7	150.00
4	28612.95	42.07	0.30 (0.27)	0.90	11952.4	600.00
5	29664.50	46.90	0.30 (0.27)	0.91	13974.8	31100.00
6	32185.90	58.32	0.30 (0.28)	0.93	18777.9	40100.00
7	33384.10	66.14	0.30 (0.28)	0.93	22008.2	11801.00
8	35473.78	76.88	0.30 (0.28)	0.94	27145.3	11530.00
9	37490.52	84.68	0.30 (0.28)	0.95	31954.3	11910.00
10	38867.32	89.82	0.30 (0.29)	0.95	35619.7	13222.00
11	40054.32	94.79	0.30 (0.29)	0.95	38912.8	10800.00
12	40648.98	99.01	0.30 (0.29)	0.96	41858.1	11130.00
13	40491.82	108.60	0.30 (0.29)	0.96	46899.3	12010.00
14	40046.17	116.88	0.30 (0.29)	0.96	50638.4	11201.00
15	39674.73	121.84	0.30 (0.29)	0.96	52370.1	12201.00
16	38732.05	128.88	0.30 (0.29)	0.96	54227.3	12231.00
17	37517.82	136.67	0.30 (0.29)	0.96	55861.6	10400.00
18	36252.36	144.60	0.30 (0.29)	0.97	57156.7	12010.00
19	35123.85	150.55	0.30 (0.29)	0.97	57503.7	10210.00
20	31224.85	178.66	0.30 (0.29)	0.97	58242.1	10100.00
TOTAL AREA (ACRES) =						58242.1

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

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MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21551.88	18.84	0.30 (0.26)	0.87	4250.5	50200.00
2	23515.14	24.61	0.30 (0.26)	0.88	6211.4	110.00
3	26390.30	34.22	0.30 (0.27)	0.89	9393.7	150.00
4	28612.95	42.07	0.30 (0.27)	0.90	11952.4	600.00
5	29664.50	46.90	0.30 (0.27)	0.91	13974.8	31100.00
6	32185.90	58.32	0.30 (0.28)	0.93	18777.9	40100.00
7	33384.10	66.14	0.30 (0.28)	0.93	22008.2	11801.00
8	35473.78	76.88	0.30 (0.28)	0.94	27145.3	11530.00
9	37490.52	84.68	0.30 (0.28)	0.95	31954.3	11910.00
10	38867.32	89.82	0.30 (0.29)	0.95	35619.7	13222.00
11	40054.32	94.79	0.30 (0.29)	0.95	38912.8	10800.00
12	40648.98	99.01	0.30 (0.29)	0.96	41858.1	11130.00
13	40491.82	108.60	0.30 (0.29)	0.96	46899.3	12410.00

14	40046.17	116.88	0.30	(0.29)	0.96	50638.4	11201.00
15	39674.73	121.84	0.30	(0.29)	0.96	52370.1	12201.00
16	38732.05	128.88	0.30	(0.29)	0.96	54227.3	12231.00
17	37517.82	136.67	0.30	(0.29)	0.96	55861.6	10400.00
18	36252.36	144.60	0.30	(0.29)	0.97	57156.7	12010.00
19	35123.85	150.55	0.30	(0.29)	0.97	57503.7	10210.00
20	31224.85	178.66	0.30	(0.29)	0.97	58242.1	10100.00

TOTAL AREA (ACRES) = 58242.1

FLOW PROCESS FROM NODE 13308.00 TO NODE 13402.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 212.00 DOWNSTREAM(FEET) = 209.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 623.02 CHANNEL SLOPE = 0.0048
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 10.85
 CHANNEL FLOW THRU SUBAREA(CFS) = 40648.98
 FLOW VELOCITY(FEET/SEC.) = 14.74 FLOW DEPTH(FEET) = 10.85
 TRAVEL TIME(MIN.) = 0.70 Tc(MIN.) = 99.72
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13402.00 = 118710.93 FEET.

FLOW PROCESS FROM NODE 13402.00 TO NODE 13402.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<

PEAK FLOWRATE TABLE FILE NAME: 0610505X.DNA
 MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	265.16	19.79	0.30(0.30)	0.99	153.2	50500.00

 TOTAL AREA (ACRES) = 153.2

FLOW PROCESS FROM NODE 13402.00 TO NODE 13402.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21551.88	19.70	2.225	0.30(0.26)	0.87	4250.5	50200.00
2	23515.14	25.46	1.888	0.30(0.26)	0.88	6211.4	110.00
3	26390.30	35.04	1.582	0.30(0.27)	0.89	9393.7	150.00
4	28612.95	42.86	1.406	0.30(0.27)	0.90	11952.4	600.00
5	29664.50	47.68	1.328	0.30(0.27)	0.91	13974.8	31100.00
6	32185.90	59.08	1.191	0.30(0.28)	0.93	18777.9	40100.00
7	33384.10	66.89	1.135	0.30(0.28)	0.93	22008.2	11801.00
8	35473.78	77.62	1.062	0.30(0.28)	0.94	27145.3	11530.00
9	37490.52	85.41	1.010	0.30(0.28)	0.95	31954.3	11910.00
10	38867.32	90.53	0.977	0.30(0.29)	0.95	35619.7	13222.00
11	40054.32	95.50	0.955	0.30(0.29)	0.95	38912.8	10800.00
12	40648.98	99.72	0.937	0.30(0.29)	0.96	41858.1	11130.00

13	40491.82	109.31	0.895	0.30(0.29)	0.96	46899.3	12410.00
14	40046.17	117.58	0.859	0.30(0.29)	0.96	50638.4	11201.00
15	39674.73	122.55	0.844	0.30(0.29)	0.96	52370.1	12201.00
16	38732.05	129.60	0.829	0.30(0.29)	0.96	54227.3	12231.00
17	37517.82	137.40	0.813	0.30(0.29)	0.96	55861.6	10400.00
18	36252.36	145.33	0.797	0.30(0.29)	0.97	57156.7	12010.00
19	35123.85	151.28	0.784	0.30(0.29)	0.97	57503.7	10210.00
20	31224.85	179.43	0.726	0.30(0.29)	0.97	58242.1	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13402.00 = 118710.93 FEET.

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	265.16	19.79	2.218	0.30(0.30)	0.99	153.2	50500.00

LONGEST FLOWPATH FROM NODE 50500.00 TO NODE 13402.00 = 6247.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21816.91	19.70	2.225	0.30(0.26)	0.87	4403.0	50200.00
2	21845.29	19.79	2.218	0.30(0.26)	0.87	4431.9	50500.00
3	23734.81	25.46	1.888	0.30(0.26)	0.88	6364.5	110.00
4	26567.70	35.04	1.582	0.30(0.27)	0.89	9546.9	150.00
5	28766.03	42.86	1.406	0.30(0.27)	0.90	12105.6	600.00
6	29806.80	47.68	1.328	0.30(0.27)	0.91	14128.0	31100.00
7	32309.36	59.08	1.191	0.30(0.28)	0.93	18931.1	40100.00
8	33499.78	66.89	1.135	0.30(0.28)	0.93	22161.3	11801.00
9	35579.50	77.62	1.062	0.30(0.28)	0.94	27298.5	11530.00
10	37589.01	85.41	1.010	0.30(0.28)	0.95	32107.5	11910.00
11	38961.22	90.53	0.977	0.30(0.29)	0.95	35772.9	13222.00
12	40145.25	95.50	0.955	0.30(0.29)	0.95	39065.9	10800.00
13	40737.39	99.72	0.937	0.30(0.29)	0.96	42011.3	11130.00
14	40574.50	109.31	0.895	0.30(0.29)	0.96	47052.5	12410.00
15	40123.91	117.58	0.859	0.30(0.29)	0.96	50791.6	11201.00
16	39750.30	122.55	0.844	0.30(0.29)	0.96	52523.3	12201.00
17	38805.61	129.60	0.829	0.30(0.29)	0.96	54380.5	12231.00
18	37589.16	137.40	0.813	0.30(0.29)	0.96	56014.8	10400.00
19	36321.44	145.33	0.797	0.30(0.29)	0.97	57309.9	12010.00
20	35191.23	151.28	0.784	0.30(0.29)	0.97	57656.8	10210.00
21	31284.20	179.43	0.726	0.30(0.29)	0.97	58395.3	10100.00

TOTAL AREA (ACRES) = 58395.3

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 40737.39 Tc(MIN.) = 99.719
 EFFECTIVE AREA(ACRES) = 42011.30 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA(ACRES) = 58395.3
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13402.00 = 118710.93 FEET.

FLOW PROCESS FROM NODE 13402.00 TO NODE 13404.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 209.00 DOWNSTREAM(FEET) = 207.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 395.35 CHANNEL SLOPE = 0.0051
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 10.71
 CHANNEL FLOW THRU SUBAREA(CFS) = 40737.39
 FLOW VELOCITY(FEET/SEC.) = 14.99 FLOW DEPTH(FEET) = 10.71
 TRAVEL TIME(MIN.) = 0.44 Tc(MIN.) = 100.16
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13404.00 = 119106.28 FEET.

 FLOW PROCESS FROM NODE 13404.00 TO NODE 13404.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: 0610506X.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	94.69	17.43	0.30	(0.30)	1.00	49.6	50600.00
TOTAL AREA(ACRES) =							49.6

 FLOW PROCESS FROM NODE 13404.00 TO NODE 13404.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21816.91	20.24	2.186	0.30(0.26)	0.87	4403.0	50200.00
2	21845.29	20.33	2.181	0.30(0.26)	0.87	4431.9	50500.00
3	23734.81	25.98	1.868	0.30(0.26)	0.88	6364.5	110.00
4	26567.70	35.54	1.569	0.30(0.27)	0.89	9546.9	150.00
5	28766.03	43.35	1.398	0.30(0.27)	0.90	12105.6	600.00
6	29806.80	48.17	1.320	0.30(0.27)	0.91	14128.0	31100.00
7	32309.36	59.56	1.186	0.30(0.28)	0.93	18931.1	40100.00
8	33499.78	67.36	1.131	0.30(0.28)	0.93	22161.3	11801.00
9	35579.50	78.08	1.059	0.30(0.28)	0.94	27298.5	11530.00
10	37589.01	85.86	1.007	0.30(0.28)	0.95	32107.5	11910.00
11	38961.22	90.98	0.975	0.30(0.29)	0.95	35772.9	13222.00
12	40145.25	95.94	0.953	0.30(0.29)	0.95	39065.9	10800.00
13	40737.39	100.16	0.935	0.30(0.29)	0.96	42011.3	11130.00
14	40574.50	109.75	0.893	0.30(0.29)	0.96	47052.5	12410.00
15	40123.91	118.03	0.858	0.30(0.29)	0.96	50791.6	11201.00
16	39750.30	122.99	0.843	0.30(0.29)	0.96	52523.3	12201.00
17	38805.61	130.04	0.828	0.30(0.29)	0.96	54380.5	12231.00
18	37589.16	137.85	0.812	0.30(0.29)	0.96	56014.8	10400.00
19	36321.44	145.78	0.796	0.30(0.29)	0.97	57309.9	12010.00
20	35191.23	151.74	0.783	0.30(0.29)	0.97	57656.8	10210.00
21	31284.20	179.90	0.725	0.30(0.29)	0.97	58395.3	10100.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13404.00 =							119106.28 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	94.69	17.43	2.420	0.30(0.30)	1.00	49.6	50600.00
LONGEST FLOWPATH FROM NODE 50600.00 TO NODE 13404.00 =							4378.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21173.34	17.43	2.420	0.30(0.26)	0.88	3841.0	50600.00
2	21901.11	20.24	2.186	0.30(0.26)	0.88	4452.6	50200.00
3	21929.27	20.33	2.181	0.30(0.26)	0.88	4481.5	50500.00
4	23804.84	25.98	1.868	0.30(0.26)	0.88	6414.1	110.00
5	26624.36	35.54	1.569	0.30(0.27)	0.89	9596.4	150.00
6	28815.05	43.35	1.398	0.30(0.27)	0.90	12155.1	600.00
7	29852.33	48.17	1.320	0.30(0.27)	0.91	14177.6	31100.00
8	32348.92	59.56	1.186	0.30(0.28)	0.93	18980.7	40100.00
9	33536.91	67.36	1.131	0.30(0.28)	0.93	22210.9	11801.00
10	35613.41	78.08	1.059	0.30(0.28)	0.94	27348.1	11530.00
11	37620.57	85.86	1.007	0.30(0.28)	0.95	32157.1	11910.00
12	38991.36	90.98	0.975	0.30(0.29)	0.95	35822.4	13222.00
13	40174.43	95.94	0.953	0.30(0.29)	0.95	39115.5	10800.00
14	40765.75	100.16	0.935	0.30(0.29)	0.96	42060.9	11130.00
15	40601.00	109.75	0.893	0.30(0.29)	0.96	47102.1	12410.00
16	40148.80	118.03	0.858	0.30(0.29)	0.96	50841.2	11201.00
17	39774.54	122.99	0.843	0.30(0.29)	0.96	52572.9	12201.00
18	38829.20	130.04	0.828	0.30(0.29)	0.96	54430.1	12231.00
19	37612.03	137.85	0.812	0.30(0.29)	0.96	56064.4	10400.00
20	36343.57	145.78	0.796	0.30(0.29)	0.97	57359.5	12010.00
21	35212.81	151.74	0.783	0.30(0.29)	0.97	57706.4	10210.00
22	31303.19	179.90	0.725	0.30(0.29)	0.97	58444.9	10100.00
TOTAL AREA(ACRES) =							58444.9

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 40765.75 Tc(MIN.) = 100.158
 EFFECTIVE AREA(ACRES) = 42060.89 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA(ACRES) = 58444.9
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13404.00 = 119106.28 FEET.

 FLOW PROCESS FROM NODE 13404.00 TO NODE 13406.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 207.00 DOWNSTREAM(FEET) = 195.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1601.97 CHANNEL SLOPE = 0.0075
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 9.59
 CHANNEL FLOW THRU SUBAREA(CFS) = 40765.75
 FLOW VELOCITY(FEET/SEC.) = 17.13 FLOW DEPTH(FEET) = 9.59
 TRAVEL TIME(MIN.) = 1.56 Tc(MIN.) = 101.72
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13406.00 = 120708.25 FEET.

 FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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MAINLINE Tc(MIN.) = 101.72
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 0.928
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS

LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
NATURAL FAIR COVER					
"GRASS"	B	0.20	0.30	1.000	69
NATURAL FAIR COVER					
"GRASS"	B	4.00	0.30	1.000	69
NATURAL FAIR COVER					
"GRASS"	B	2.00	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	9.70	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.60	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS, STRAIGHT ROW"	B	1.80	0.30	1.000	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 20.30 SUBAREA RUNOFF (CFS) = 11.48
EFFECTIVE AREA (ACRES) = 42081.20 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
TOTAL AREA (ACRES) = 58465.2 PEAK FLOW RATE (CFS) = 40765.75
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 101.72
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.928
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS, STRAIGHT ROW"	B	3.50	0.30	1.000	81
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	7.20	0.30	1.000	65
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	5.80	0.30	1.000	65
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.10	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 16.60 SUBAREA RUNOFF (CFS) = 9.39
EFFECTIVE AREA (ACRES) = 42097.80 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
TOTAL AREA (ACRES) = 58481.8 PEAK FLOW RATE (CFS) = 40765.75
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 2p50evbb.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	748.33	9.86	0.30 (0.11)	0.38	244.2	429.00
2	793.01	11.37	0.30 (0.11)	0.38	281.3	425.00
3	804.73	11.79	0.30 (0.11)	0.38	291.7	400.00
4	836.36	13.23	0.30 (0.11)	0.38	327.6	300.00
5	892.30	18.33	0.30 (0.11)	0.38	440.3	210.00
6	879.40	20.37	0.30 (0.11)	0.38	466.7	410.00
7	872.79	21.37	0.30 (0.11)	0.38	479.4	200.00
8	870.12	21.98	0.30 (0.11)	0.38	486.6	230.00
9	849.67	23.09	0.30 (0.11)	0.37	491.2	220.50
TOTAL AREA (ACRES) =			491.2			

FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21173.34	19.37	2.254	0.30 (0.26)	0.88	3877.9	50600.00
2	21901.11	22.16	2.073	0.30 (0.26)	0.88	4489.5	50200.00
3	21929.27	22.24	2.068	0.30 (0.26)	0.88	4518.4	50500.00
4	23804.84	27.84	1.797	0.30 (0.26)	0.88	6451.0	110.00
5	26624.36	37.33	1.522	0.30 (0.27)	0.89	9633.3	150.00
6	28815.05	45.10	1.369	0.30 (0.27)	0.90	12192.0	600.00
7	29852.33	49.90	1.292	0.30 (0.27)	0.91	14214.5	31100.00
8	32348.92	61.24	1.173	0.30 (0.28)	0.93	19017.6	40100.00
9	33536.91	69.02	1.120	0.30 (0.28)	0.93	22247.8	11801.00
10	35613.41	79.71	1.048	0.30 (0.28)	0.94	27385.0	11530.00
11	37620.57	87.46	0.996	0.30 (0.28)	0.95	32194.0	11910.00
12	38991.36	92.56	0.968	0.30 (0.29)	0.95	35859.3	13222.00
13	40174.43	97.51	0.946	0.30 (0.29)	0.95	39152.4	10800.00
14	40765.75	101.72	0.928	0.30 (0.29)	0.96	42097.8	11130.00
15	40601.00	111.31	0.887	0.30 (0.29)	0.96	47139.0	12410.00
16	40148.80	119.59	0.851	0.30 (0.29)	0.96	50878.1	11201.00
17	39774.54	124.56	0.840	0.30 (0.29)	0.96	52609.8	12201.00
18	38829.20	131.63	0.825	0.30 (0.29)	0.96	54467.0	12231.00
19	37612.03	139.45	0.809	0.30 (0.29)	0.96	56101.3	10400.00
20	36343.57	147.40	0.792	0.30 (0.29)	0.97	57396.4	12010.00
21	35212.81	153.38	0.780	0.30 (0.29)	0.97	57743.3	10210.00
22	31303.19	181.60	0.723	0.30 (0.29)	0.97	58481.8	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13406.00 = 120708.25 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	748.33	9.86	3.472	0.30 (0.11)	0.38	244.2	429.00
2	793.01	11.37	3.204	0.30 (0.11)	0.38	281.3	425.00
3	804.73	11.79	3.137	0.30 (0.11)	0.38	291.7	400.00
4	836.36	13.23	2.909	0.30 (0.11)	0.38	327.6	300.00
5	892.30	18.33	2.343	0.30 (0.11)	0.38	440.3	210.00
6	879.40	20.37	2.178	0.30 (0.11)	0.38	466.7	410.00
7	872.79	21.37	2.119	0.30 (0.11)	0.38	479.4	200.00

8 870.12 21.98 2.083 0.30(0.11) 0.38 486.6 230.00
 9 849.67 23.09 2.018 0.30(0.11) 0.37 491.2 220.50
 LONGEST FLOWPATH FROM NODE 230.00 TO NODE 13406.00 = 11903.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18123.29	9.86	3.472	0.30(0.25)	0.82	2218.4	429.00
2	19145.68	11.37	3.204	0.30(0.25)	0.82	2557.1	425.00
3	19405.35	11.79	3.137	0.30(0.25)	0.82	2651.5	400.00
4	20055.97	13.23	2.909	0.30(0.25)	0.82	2976.5	300.00
5	21827.16	18.33	2.343	0.30(0.25)	0.82	4110.2	210.00
6	22059.06	19.37	2.254	0.30(0.25)	0.82	4331.6	50600.00
7	22313.88	20.37	2.178	0.30(0.25)	0.83	4564.1	410.00
8	22567.72	21.37	2.119	0.30(0.25)	0.83	4795.7	200.00
9	22725.18	21.98	2.083	0.30(0.25)	0.83	4937.4	230.00
10	22767.96	22.16	2.073	0.30(0.25)	0.83	4976.9	50200.00
11	22794.63	22.24	2.068	0.30(0.25)	0.83	5006.1	50500.00
12	23062.32	23.09	2.018	0.30(0.25)	0.83	5301.6	220.50
13	24555.70	27.84	1.797	0.30(0.25)	0.85	6942.2	110.00
14	27252.66	37.33	1.522	0.30(0.26)	0.87	10124.5	150.00
15	29375.41	45.10	1.369	0.30(0.26)	0.88	12683.2	600.00
16	30378.01	49.90	1.292	0.30(0.27)	0.89	14705.7	31100.00
17	32821.55	61.24	1.173	0.30(0.27)	0.91	19508.8	40100.00
18	33986.18	69.02	1.120	0.30(0.28)	0.92	22739.0	11801.00
19	36030.60	79.71	1.048	0.30(0.28)	0.93	27876.2	11530.00
20	38014.52	87.46	0.996	0.30(0.28)	0.94	32685.2	11910.00
21	39372.71	92.56	0.968	0.30(0.28)	0.94	36350.5	13222.00
22	40546.23	97.51	0.946	0.30(0.28)	0.95	39643.6	10800.00
23	41129.42	101.72	0.928	0.30(0.29)	0.95	42589.0	11130.00
24	40946.15	111.31	0.887	0.30(0.29)	0.96	47630.2	12410.00
25	40477.95	119.59	0.851	0.30(0.29)	0.96	51369.3	11201.00
26	40098.69	124.56	0.840	0.30(0.29)	0.96	53101.0	12201.00
27	39146.84	131.63	0.825	0.30(0.29)	0.96	54958.2	12231.00
28	37922.46	139.45	0.809	0.30(0.29)	0.96	56592.5	10400.00
29	36646.68	147.40	0.792	0.30(0.29)	0.96	57887.6	12010.00
30	35510.41	153.38	0.780	0.30(0.29)	0.96	58234.5	10210.00
31	31575.50	181.60	0.723	0.30(0.29)	0.96	58973.0	10100.00
TOTAL AREA (ACRES) =		58973.0					

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) = 41129.42 Tc(MIN.) = 101.717
 EFFECTIVE AREA(ACRES) = 42589.00 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.87
 TOTAL AREA(ACRES) = 58973.0
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13406.00 = 120708.25 FEET.

 FLOW PROCESS FROM NODE 13406.00 TO NODE 13408.00 IS CODE = 56

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<
 =====

ELEVATION DATA: UPSTREAM(FEET) = 195.00 DOWNSTREAM(FEET) = 182.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 2458.36 CHANNEL SLOPE = 0.0053
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 10.64

* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 0.917
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 7.00 0.30 1.000 -
 USER-DEFINED - 3.30 0.30 1.000 -
 USER-DEFINED - 0.40 0.30 0.100 -
 USER-DEFINED - 1.40 0.30 1.000 -
 USER-DEFINED - 0.30 0.30 0.100 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.949
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 41132.95
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 15.27
 AVERAGE FLOW DEPTH(FEET) = 10.64 TRAVEL TIME(MIN.) = 2.68
 Tc(MIN.) = 104.40
 SUBAREA AREA(ACRES) = 12.40 SUBAREA RUNOFF(CFS) = 7.05
 EFFECTIVE AREA(ACRES) = 42601.39 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA(ACRES) = 58985.4 PEAK FLOW RATE(CFS) = 41129.42
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 10.64
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 10.64 FLOW VELOCITY(FEET/SEC.) = 15.27
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13408.00 = 123166.61 FEET.

 FLOW PROCESS FROM NODE 13408.00 TO NODE 13408.00 IS CODE = 12

 >>>>CLEAR MEMORY BANK # 2 <<<<<
 =====

 FLOW PROCESS FROM NODE 13408.00 TO NODE 13408.00 IS CODE = 15.1

 >>>>DEFINE MEMORY BANK # 2 <<<<<
 =====

PEAK FLOWRATE TABLE FILE NAME: 0610507X.DNA
 MEMORY BANK # 2 DEFINED AS FOLLOWS:
 STREAM Q Tc Fp(Fm) Ap Ae HEADWATER
 NUMBER (CFS) (MIN.) (INCH/HR) (ACRES) NODE
 1 406.61 19.94 0.30(0.30) 0.99 236.8 50700.00
 TOTAL AREA(ACRES) = 236.8

 FLOW PROCESS FROM NODE 13408.00 TO NODE 13408.00 IS CODE = 11

 >>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
 =====

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18123.29	13.38	2.885	0.30(0.25)	0.82	2230.8	429.00
2	19145.68	14.82	2.657	0.30(0.25)	0.82	2569.5	425.00
3	19405.35	15.22	2.610	0.30(0.25)	0.82	2663.9	400.00

4	20055.97	16.63	2.489	0.30 (0.25)	0.82	2988.9	300.00
5	21827.16	21.64	2.104	0.30 (0.25)	0.82	4122.6	210.00
6	22059.06	22.66	2.043	0.30 (0.25)	0.83	4344.0	50600.00
7	22313.88	23.65	1.985	0.30 (0.25)	0.83	4576.5	410.00
8	22567.72	24.64	1.927	0.30 (0.25)	0.83	4808.1	200.00
9	22725.18	25.24	1.897	0.30 (0.25)	0.83	4949.8	230.00
10	22767.96	25.42	1.890	0.30 (0.25)	0.83	4989.3	50200.00
11	22794.63	25.50	1.887	0.30 (0.25)	0.83	5018.5	50500.00
12	23062.32	26.33	1.855	0.30 (0.25)	0.83	5314.0	220.50
13	24555.70	31.02	1.687	0.30 (0.25)	0.85	6954.6	110.00
14	27252.66	40.40	1.446	0.30 (0.26)	0.87	10136.9	150.00
15	29375.41	48.09	1.321	0.30 (0.26)	0.88	12695.6	600.00
16	30378.01	52.86	1.259	0.30 (0.27)	0.89	14718.1	31100.00
17	32821.55	64.12	1.153	0.30 (0.27)	0.91	19521.2	40100.00
18	33986.18	71.87	1.101	0.30 (0.28)	0.92	22751.4	11801.00
19	36030.60	82.51	1.029	0.30 (0.28)	0.93	27888.6	11530.00
20	38014.52	90.21	0.978	0.30 (0.28)	0.94	32697.6	11910.00
21	39372.71	95.28	0.956	0.30 (0.28)	0.94	36362.9	13222.00
22	40546.23	100.20	0.935	0.30 (0.28)	0.95	39656.0	10800.00
23	41129.42	104.40	0.917	0.30 (0.29)	0.95	42601.4	11130.00
24	40946.15	113.99	0.875	0.30 (0.29)	0.96	47642.6	12410.00
25	40477.95	122.29	0.844	0.30 (0.29)	0.96	51381.7	11201.00
26	40098.69	127.27	0.834	0.30 (0.29)	0.96	53113.4	12201.00
27	39146.84	134.35	0.819	0.30 (0.29)	0.96	54970.6	12231.00
28	37922.46	142.20	0.803	0.30 (0.29)	0.96	56604.9	10400.00
29	36646.68	150.19	0.787	0.30 (0.29)	0.96	57900.0	12010.00
30	35510.41	156.19	0.774	0.30 (0.29)	0.96	58246.9	10210.00
31	31575.50	184.53	0.720	0.30 (0.29)	0.96	58985.4	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13408.00 = 123166.61 FEET.

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	406.61	19.94	2.205	0.30 (0.30)	0.99	236.8	50700.00

LONGEST FLOWPATH FROM NODE 50700.00 TO NODE 13408.00 = 7903.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18493.42	13.38	2.885	0.30 (0.25)	0.83	2389.6	429.00
2	19519.54	14.82	2.657	0.30 (0.25)	0.83	2745.5	425.00
3	19781.66	15.22	2.610	0.30 (0.25)	0.83	2844.7	400.00
4	20445.59	16.63	2.489	0.30 (0.25)	0.83	3186.4	300.00
5	21634.60	19.94	2.205	0.30 (0.25)	0.83	3975.9	50700.00
6	22212.23	21.64	2.104	0.30 (0.25)	0.83	4359.4	210.00
7	22431.25	22.66	2.043	0.30 (0.25)	0.83	4580.8	50600.00
8	22673.68	23.65	1.985	0.30 (0.25)	0.83	4813.3	410.00
9	22915.14	24.64	1.927	0.30 (0.25)	0.83	5044.8	200.00
10	23066.06	25.24	1.897	0.30 (0.25)	0.84	5186.6	230.00
11	23107.42	25.42	1.890	0.30 (0.25)	0.84	5226.1	50200.00
12	23133.45	25.50	1.887	0.30 (0.25)	0.84	5255.2	50500.00
13	23394.31	26.33	1.855	0.30 (0.25)	0.84	5550.8	220.50
14	24851.95	31.02	1.687	0.30 (0.26)	0.85	7191.4	110.00
15	27497.37	40.40	1.446	0.30 (0.26)	0.87	10373.7	150.00
16	29593.56	48.09	1.321	0.30 (0.26)	0.88	12932.4	600.00
17	30582.92	52.86	1.259	0.30 (0.27)	0.89	14954.9	31100.00
18	33003.95	64.12	1.153	0.30 (0.27)	0.91	19757.9	40100.00
19	34157.45	71.87	1.101	0.30 (0.28)	0.92	22988.2	11801.00

20	36186.60	82.51	1.029	0.30 (0.28)	0.93	28125.4	11530.00
21	38159.57	90.21	0.978	0.30 (0.28)	0.94	32934.4	11910.00
22	39513.09	95.28	0.956	0.30 (0.28)	0.94	36599.7	13222.00
23	40682.05	100.20	0.935	0.30 (0.28)	0.95	39892.8	10800.00
24	41261.36	104.40	0.917	0.30 (0.29)	0.95	42838.2	11130.00
25	41069.23	113.99	0.875	0.30 (0.29)	0.96	47879.4	12410.00
26	40594.47	122.29	0.844	0.30 (0.29)	0.96	51618.5	11201.00
27	40213.02	127.27	0.834	0.30 (0.29)	0.96	53350.2	12201.00
28	39258.05	134.35	0.819	0.30 (0.29)	0.96	55207.3	12231.00
29	38030.21	142.20	0.803	0.30 (0.29)	0.96	56841.6	10400.00
30	36750.91	150.19	0.787	0.30 (0.29)	0.96	58136.7	12010.00
31	35612.00	156.19	0.774	0.30 (0.29)	0.96	58483.7	10210.00
32	31665.57	184.53	0.720	0.30 (0.29)	0.96	59222.2	10100.00

TOTAL AREA (ACRES) = 59222.2

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 41261.36 Tc (MIN.) = 104.400
EFFECTIVE AREA (ACRES) = 42838.18 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 59222.2
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13408.00 = 123166.61 FEET.

FLOW PROCESS FROM NODE 13408.00 TO NODE 13410.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 182.00 DOWNSTREAM (FEET) = 178.72
CHANNEL LENGTH THRU SUBAREA (FEET) = 952.73 CHANNEL SLOPE = 0.0034
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 12.01
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.911

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.40	0.30	1.000	-
USER-DEFINED	-	2.90	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 41262.27
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 13.21
AVERAGE FLOW DEPTH (FEET) = 12.01 TRAVEL TIME (MIN.) = 1.20
Tc (MIN.) = 105.60
SUBAREA AREA (ACRES) = 3.30 SUBAREA RUNOFF (CFS) = 1.82
EFFECTIVE AREA (ACRES) = 42841.48 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 59225.5 PEAK FLOW RATE (CFS) = 41261.36
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 12.01

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 12.01 FLOW VELOCITY (FEET/SEC.) = 13.21
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13410.00 = 124119.34 FEET.

 FLOW PROCESS FROM NODE 13410.00 TO NODE 13410.00 IS CODE = 12

 >>>>CLEAR MEMORY BANK # 3 <<<<<<
 =====

 FLOW PROCESS FROM NODE 13410.00 TO NODE 13410.00 IS CODE = 15.1

 >>>>DEFINE MEMORY BANK # 3 <<<<<<
 =====

PEAK FLOWRATE TABLE FILE NAME: RI50EV36.DNA
 MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap (INCH/HR)	Ae (ACRES)	HEADWATER NODE
1	2426.61	27.79	0.30 (0.27)	0.90	1478.1	110.00
2	2523.08	30.18	0.30 (0.27)	0.90	1650.5	100.00
3	2535.23	31.37	0.30 (0.27)	0.90	1727.1	100.00
4	2565.50	34.38	0.30 (0.27)	0.91	1904.1	130.00
5	2700.64	47.40	0.30 (0.28)	0.93	2638.7	20100.00
6	2620.76	52.90	0.30 (0.28)	0.93	2824.4	13600.00
7	2498.72	87.84	0.30 (0.28)	0.93	3795.6	13510.00
8	2354.93	96.73	0.30 (0.28)	0.93	3859.7	13500.00
TOTAL AREA (ACRES) =						3859.7

 FLOW PROCESS FROM NODE 13410.00 TO NODE 13410.00 IS CODE = 11

 >>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<<
 =====

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap (INCH/HR)	Ae (ACRES)	HEADWATER NODE
1	18493.42	14.94	2.638	0.30 (0.25)	0.83	2392.9	429.00
2	19519.54	16.35	2.513	0.30 (0.25)	0.83	2748.8	425.00
3	19781.66	16.75	2.479	0.30 (0.25)	0.83	2848.0	400.00
4	20445.59	18.14	2.359	0.30 (0.25)	0.83	3189.7	300.00
5	21634.60	21.42	2.116	0.30 (0.25)	0.83	3979.2	50700.00
6	22212.23	23.10	2.017	0.30 (0.25)	0.83	4362.7	210.00
7	22431.25	24.13	1.957	0.30 (0.25)	0.83	4584.1	50600.00
8	22673.68	25.11	1.902	0.30 (0.25)	0.83	4816.6	410.00
9	22915.14	26.09	1.864	0.30 (0.25)	0.83	5048.1	200.00
10	23066.06	26.70	1.841	0.30 (0.25)	0.84	5189.9	230.00
11	23107.42	26.87	1.834	0.30 (0.25)	0.84	5229.4	50200.00
12	23133.45	26.95	1.831	0.30 (0.25)	0.84	5258.5	50500.00
13	23394.31	27.78	1.799	0.30 (0.25)	0.84	5554.1	220.50
14	24851.95	32.44	1.650	0.30 (0.26)	0.85	7194.7	110.00
15	27497.37	41.77	1.423	0.30 (0.26)	0.87	10377.0	150.00
16	29593.56	49.43	1.299	0.30 (0.26)	0.88	12935.7	600.00
17	30582.92	54.18	1.244	0.30 (0.27)	0.89	14958.2	31100.00
18	33003.95	65.41	1.145	0.30 (0.27)	0.91	19761.2	40100.00
19	34157.45	73.15	1.092	0.30 (0.28)	0.92	22991.5	11801.00
20	36186.60	83.76	1.021	0.30 (0.28)	0.93	28128.7	11530.00
21	38159.57	91.44	0.973	0.30 (0.28)	0.94	32937.7	11910.00
22	39513.09	96.50	0.951	0.30 (0.28)	0.94	36603.0	13222.00
23	40682.05	101.41	0.930	0.30 (0.28)	0.95	39896.1	10800.00
24	41261.36	105.60	0.911	0.30 (0.29)	0.95	42841.5	11130.00

25	41069.23	115.20	0.870	0.30 (0.29)	0.96	47882.7	12410.00
26	40594.47	123.50	0.842	0.30 (0.29)	0.96	51621.8	11201.00
27	40213.02	128.48	0.831	0.30 (0.29)	0.96	53353.5	12201.00
28	39258.05	135.57	0.817	0.30 (0.29)	0.96	55210.6	12231.00
29	38030.21	143.44	0.801	0.30 (0.29)	0.96	56844.9	10400.00
30	36750.91	151.43	0.784	0.30 (0.29)	0.96	58140.0	12010.00
31	35612.00	157.45	0.772	0.30 (0.29)	0.96	58487.0	10210.00
32	31665.57	185.84	0.719	0.30 (0.29)	0.96	59225.5	10100.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13410.00 =							124119.34 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap (INCH/HR)	Ae (ACRES)	HEADWATER NODE
1	2426.61	27.79	1.799	0.30 (0.27)	0.90	1478.1	110.00
2	2523.08	30.18	1.709	0.30 (0.27)	0.90	1650.5	100.00
3	2535.23	31.37	1.678	0.30 (0.27)	0.90	1727.1	100.00
4	2565.50	34.38	1.599	0.30 (0.27)	0.91	1904.1	130.00
5	2700.64	47.40	1.332	0.30 (0.28)	0.93	2638.7	20100.00
6	2620.76	52.90	1.258	0.30 (0.28)	0.93	2824.4	13600.00
7	2498.72	87.84	0.994	0.30 (0.28)	0.93	3795.6	13510.00
8	2354.93	96.73	0.950	0.30 (0.28)	0.93	3859.7	13500.00
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13410.00 =							41710.10 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap (INCH/HR)	Ae (ACRES)	HEADWATER NODE
1	20514.74	14.94	2.638	0.30 (0.26)	0.85	3187.5	429.00
2	21614.75	16.35	2.513	0.30 (0.26)	0.85	3618.6	425.00
3	21895.14	16.75	2.479	0.30 (0.25)	0.85	3739.0	400.00
4	22610.80	18.14	2.359	0.30 (0.25)	0.85	4154.6	300.00
5	23893.91	21.42	2.116	0.30 (0.25)	0.85	5118.7	50700.00
6	24518.28	23.10	2.017	0.30 (0.25)	0.85	5591.6	210.00
7	24756.47	24.13	1.957	0.30 (0.25)	0.85	5867.4	50600.00
8	25013.92	25.11	1.902	0.30 (0.25)	0.85	6152.1	410.00
9	25290.70	26.09	1.864	0.30 (0.25)	0.85	6435.9	200.00
10	25461.20	26.70	1.841	0.30 (0.25)	0.85	6609.8	230.00
11	25507.88	26.87	1.834	0.30 (0.25)	0.85	6658.4	50200.00
12	25536.26	26.95	1.831	0.30 (0.25)	0.85	6691.7	50500.00
13	25820.52	27.78	1.799	0.30 (0.26)	0.85	7031.4	220.50
14	25825.57	27.79	1.799	0.30 (0.26)	0.85	7037.4	110.00
15	26668.88	30.18	1.709	0.30 (0.26)	0.86	8050.4	100.00
16	27052.81	31.37	1.678	0.30 (0.26)	0.86	8545.5	100.00
17	27397.93	32.44	1.650	0.30 (0.26)	0.86	8984.7	110.00
18	27968.07	34.38	1.599	0.30 (0.26)	0.86	9761.2	130.00
19	30139.57	41.77	1.423	0.30 (0.26)	0.88	12698.1	150.00
20	31739.87	47.40	1.332	0.30 (0.27)	0.89	14897.8	20100.00
21	32264.78	49.43	1.299	0.30 (0.27)	0.89	15642.8	600.00
22	32937.09	52.90	1.258	0.30 (0.27)	0.90	17237.6	13600.00
23	33199.21	54.18	1.244	0.30 (0.27)	0.90	17818.2	31100.00
24	35581.00	65.41	1.145	0.30 (0.27)	0.92	22933.5	40100.00
25	36707.48	73.15	1.092	0.30 (0.28)	0.92	26378.8	11801.00
26	38699.56	83.76	1.021	0.30 (0.28)	0.93	31811.0	11530.00
27	39733.20	87.84	0.994	0.30 (0.28)	0.94	34478.4	13510.00
28	40600.09	91.44	0.973	0.30 (0.28)	0.94	36759.2	11910.00
29	41871.79	96.50	0.951	0.30 (0.28)	0.94	40461.0	13222.00
30	41923.48	96.73	0.950	0.30 (0.28)	0.94	40619.0	13500.00
31	42965.71	101.41	0.930	0.30 (0.28)	0.95	43755.8	10800.00
32	43481.16	105.60	0.911	0.30 (0.28)	0.95	46701.2	11130.00

Stream Number	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
33	43142.84	115.20	0.870	0.30 (0.29)	0.95	51742.4	12410.00
34	42569.50	123.50	0.842	0.30 (0.29)	0.96	55481.5	11201.00
35	42151.85	128.48	0.831	0.30 (0.29)	0.96	57213.2	12201.00
36	41145.32	135.57	0.817	0.30 (0.29)	0.96	59070.3	12231.00
37	39860.35	143.44	0.801	0.30 (0.29)	0.96	60704.6	10400.00
38	38522.93	151.43	0.784	0.30 (0.29)	0.96	61999.7	12010.00
39	37340.30	157.45	0.772	0.30 (0.29)	0.96	62346.7	10210.00
40	33208.26	185.84	0.719	0.30 (0.29)	0.96	63085.1	10100.00
TOTAL AREA (ACRES) =							63085.1

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 43481.16 Tc (MIN.) = 105.602
EFFECTIVE AREA (ACRES) = 46701.16 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA (ACRES) = 63085.1
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13410.00 = 124119.34 FEET.

FLOW PROCESS FROM NODE 13410.00 TO NODE 13412.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 178.72 DOWNSTREAM (FEET) = 176.93
CHANNEL LENGTH THRU SUBAREA (FEET) = 169.78 CHANNEL SLOPE = 0.0105
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 9.04
CHANNEL FLOW THRU SUBAREA (CFS) = 43481.16
FLOW VELOCITY (FEET/SEC.) = 19.63 FLOW DEPTH (FEET) = 9.04
TRAVEL TIME (MIN.) = 0.14 Tc (MIN.) = 105.75
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13412.00 = 124289.12 FEET.

FLOW PROCESS FROM NODE 13412.00 TO NODE 13412.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 13412.00 TO NODE 13412.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 0506101C.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	570.78	37.58	0.30 (0.30)	0.98	591.0	10100.00
TOTAL AREA (ACRES) =						591.0

FLOW PROCESS FROM NODE 13412.00 TO NODE 13412.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20514.74	15.13	2.618	0.30 (0.26)	0.85	3187.5	429.00
2	21614.75	16.54	2.497	0.30 (0.26)	0.85	3618.6	425.00
3	21895.14	16.93	2.463	0.30 (0.25)	0.85	3739.0	400.00
4	22610.80	18.32	2.344	0.30 (0.25)	0.85	4154.6	300.00
5	23893.91	21.60	2.106	0.30 (0.25)	0.85	5118.7	50700.00
6	24518.28	23.28	2.007	0.30 (0.25)	0.85	5591.6	210.00
7	24756.47	24.30	1.947	0.30 (0.25)	0.85	5867.4	50600.00
8	25013.92	25.28	1.895	0.30 (0.25)	0.85	6152.1	410.00
9	25290.70	26.27	1.857	0.30 (0.25)	0.85	6435.9	200.00
10	25461.20	26.87	1.834	0.30 (0.25)	0.85	6609.8	230.00
11	25507.88	27.04	1.828	0.30 (0.25)	0.85	6658.4	50200.00
12	25536.26	27.12	1.825	0.30 (0.25)	0.85	6691.7	50500.00
13	25820.52	27.95	1.793	0.30 (0.26)	0.85	7031.4	220.50
14	25825.57	27.96	1.792	0.30 (0.26)	0.85	7037.4	110.00
15	26668.88	30.35	1.705	0.30 (0.26)	0.86	8050.4	100.00
16	27052.81	31.54	1.674	0.30 (0.26)	0.86	8545.5	100.00
17	27397.93	32.60	1.646	0.30 (0.26)	0.86	8984.7	110.00
18	27968.07	34.55	1.595	0.30 (0.26)	0.86	9761.2	130.00
19	30139.57	41.93	1.421	0.30 (0.26)	0.88	12698.1	150.00
20	31739.87	47.56	1.329	0.30 (0.27)	0.89	14897.8	20100.00
21	32264.78	49.59	1.297	0.30 (0.27)	0.89	15642.8	600.00
22	32937.09	53.06	1.257	0.30 (0.27)	0.90	17237.6	13600.00
23	33199.21	54.34	1.243	0.30 (0.27)	0.90	17818.2	31100.00
24	35581.00	65.57	1.144	0.30 (0.27)	0.92	22933.5	40100.00
25	36707.48	73.30	1.091	0.30 (0.28)	0.92	26378.8	11801.00
26	38699.56	83.91	1.020	0.30 (0.28)	0.93	31811.0	11530.00
27	39733.20	87.99	0.993	0.30 (0.28)	0.94	34478.4	13510.00
28	40600.09	91.59	0.972	0.30 (0.28)	0.94	36759.2	11910.00
29	41871.79	96.65	0.950	0.30 (0.28)	0.94	40461.0	13222.00
30	41923.48	96.88	0.949	0.30 (0.28)	0.94	40619.0	13500.00
31	42965.71	101.55	0.929	0.30 (0.28)	0.95	43755.8	10800.00
32	43481.16	105.75	0.911	0.30 (0.28)	0.95	46701.2	11130.00
33	43142.84	115.34	0.869	0.30 (0.29)	0.95	51742.4	12410.00
34	42569.50	123.64	0.841	0.30 (0.29)	0.96	55481.5	11201.00
35	42151.85	128.63	0.831	0.30 (0.29)	0.96	57213.2	12201.00
36	41145.32	135.72	0.817	0.30 (0.29)	0.96	59070.3	12231.00
37	39860.35	143.58	0.800	0.30 (0.29)	0.96	60704.6	10400.00
38	38522.93	151.59	0.784	0.30 (0.29)	0.96	61999.7	12010.00
39	37340.30	157.60	0.771	0.30 (0.29)	0.96	62346.7	10210.00
40	33208.26	185.99	0.719	0.30 (0.29)	0.96	63085.1	10100.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13412.00 =							124289.12 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	570.78	37.58	1.515	0.30 (0.30)	0.98	591.0	10100.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13412.00 =							14677.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20952.08	15.13	2.618	0.30 (0.26)	0.86	3425.4	429.00
2	22067.97	16.54	2.497	0.30 (0.26)	0.86	3878.7	425.00
3	22352.05	16.93	2.463	0.30 (0.26)	0.86	4005.3	400.00
4	23078.02	18.32	2.344	0.30 (0.26)	0.86	4442.7	300.00
5	24380.73	21.60	2.106	0.30 (0.26)	0.86	5458.4	50700.00

6	25014.34	23.28	2.007	0.30	(0.26)	0.86	5957.7	210.00
7	25256.13	24.30	1.947	0.30	(0.26)	0.86	6249.6	50600.00
8	25517.42	25.28	1.895	0.30	(0.26)	0.86	6549.7	410.00
9	25801.43	26.27	1.857	0.30	(0.26)	0.86	6849.0	200.00
10	25975.90	26.87	1.834	0.30	(0.26)	0.86	7032.3	230.00
11	26023.67	27.04	1.828	0.30	(0.26)	0.86	7083.7	50200.00
12	26052.52	27.12	1.825	0.30	(0.26)	0.86	7118.2	50500.00
13	26341.49	27.95	1.793	0.30	(0.26)	0.86	7470.9	220.50
14	26346.62	27.96	1.792	0.30	(0.26)	0.86	7477.2	110.00
15	27201.38	30.35	1.705	0.30	(0.26)	0.86	8527.7	100.00
16	27593.95	31.54	1.674	0.30	(0.26)	0.87	9041.4	100.00
17	27946.04	32.60	1.646	0.30	(0.26)	0.87	9497.4	110.00
18	28526.96	34.55	1.595	0.30	(0.26)	0.87	10304.5	130.00
19	29430.14	37.58	1.515	0.30	(0.26)	0.88	11557.7	10100.00
20	30666.03	41.93	1.421	0.30	(0.27)	0.88	13289.1	150.00
21	32223.68	47.56	1.329	0.30	(0.27)	0.89	15488.8	20100.00
22	32733.26	49.59	1.297	0.30	(0.27)	0.89	16233.8	600.00
23	33386.84	53.06	1.257	0.30	(0.27)	0.90	17828.6	13600.00
24	33642.43	54.34	1.243	0.30	(0.27)	0.90	18409.2	31100.00
25	35977.83	65.57	1.144	0.30	(0.28)	0.92	23524.5	40100.00
26	37079.95	73.30	1.091	0.30	(0.28)	0.92	26969.8	11801.00
27	39038.62	83.91	1.020	0.30	(0.28)	0.93	32402.0	11530.00
28	40059.42	87.99	0.993	0.30	(0.28)	0.94	35069.4	13510.00
29	40916.77	91.59	0.972	0.30	(0.28)	0.94	37350.2	11910.00
30	42178.21	96.65	0.950	0.30	(0.28)	0.94	41052.0	13222.00
31	42229.43	96.88	0.949	0.30	(0.28)	0.94	41210.0	13500.00
32	43262.19	101.55	0.929	0.30	(0.28)	0.95	44346.8	10800.00
33	43769.14	105.75	0.911	0.30	(0.28)	0.95	47292.2	11130.00
34	43411.37	115.34	0.869	0.30	(0.29)	0.95	52333.4	12410.00
35	42825.07	123.64	0.841	0.30	(0.29)	0.96	56072.5	11201.00
36	42402.60	128.63	0.831	0.30	(0.29)	0.96	57804.2	12201.00
37	41389.22	135.72	0.817	0.30	(0.29)	0.96	59661.3	12231.00
38	40096.64	143.58	0.800	0.30	(0.29)	0.96	61295.6	10400.00
39	38751.50	151.59	0.784	0.30	(0.29)	0.96	62590.7	12010.00
40	37563.04	157.60	0.771	0.30	(0.29)	0.96	62937.7	10210.00
41	33406.38	185.99	0.719	0.30	(0.29)	0.96	63676.1	10100.00

TOTAL AREA (ACRES) = 63676.1

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 43769.14 Tc (MIN.) = 105.746
EFFECTIVE AREA (ACRES) = 47292.16 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 63676.1
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13412.00 = 124289.12 FEET.

FLOW PROCESS FROM NODE 13412.00 TO NODE 13700.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 176.93 DOWNSTREAM (FEET) = 170.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 260.10 CHANNEL SLOPE = 0.0266
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 6.96
CHANNEL FLOW THRU SUBAREA (CFS) = 43769.14
FLOW VELOCITY (FEET/SEC.) = 26.78 FLOW DEPTH (FEET) = 6.96

TRAVEL TIME (MIN.) = 0.16 Tc (MIN.) = 105.91
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13700.00 = 124549.22 FEET.

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 2 <<<<<
=====

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: 0610508X.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	219.66	20.77	0.30 (0.30)	0.99	131.3	50800.00
TOTAL AREA (ACRES) =			131.3			

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
=====

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20952.08	15.33	2.600	0.30 (0.26)	0.86	3425.4	429.00
2	22067.97	16.74	2.480	0.30 (0.26)	0.86	3878.7	425.00
3	22352.05	17.14	2.446	0.30 (0.26)	0.86	4005.3	400.00
4	23078.02	18.52	2.327	0.30 (0.26)	0.86	4442.7	300.00
5	24380.73	21.80	2.094	0.30 (0.26)	0.86	5458.4	50700.00
6	25014.34	23.48	1.996	0.30 (0.26)	0.86	5957.7	210.00
7	25256.13	24.50	1.936	0.30 (0.26)	0.86	6249.6	50600.00
8	25517.42	25.48	1.888	0.30 (0.26)	0.86	6549.7	410.00
9	25801.43	26.46	1.850	0.30 (0.26)	0.86	6849.0	200.00
10	25975.90	27.06	1.827	0.30 (0.26)	0.86	7032.3	230.00
11	26023.67	27.23	1.820	0.30 (0.26)	0.86	7083.7	50200.00
12	26052.52	27.31	1.817	0.30 (0.26)	0.86	7118.2	50500.00
13	26341.49	28.14	1.785	0.30 (0.26)	0.86	7470.9	220.50
14	26346.62	28.15	1.785	0.30 (0.26)	0.86	7477.2	110.00
15	27201.38	30.54	1.700	0.30 (0.26)	0.86	8527.7	100.00
16	27593.95	31.73	1.669	0.30 (0.26)	0.87	9041.4	100.00
17	27946.04	32.79	1.641	0.30 (0.26)	0.87	9497.4	110.00
18	28526.96	34.73	1.590	0.30 (0.26)	0.87	10304.5	130.00
19	29430.14	37.76	1.511	0.30 (0.26)	0.88	11557.7	10100.00
20	30666.03	42.12	1.418	0.30 (0.27)	0.88	13289.1	150.00
21	32223.68	47.74	1.327	0.30 (0.27)	0.89	15488.8	20100.00
22	32733.26	49.77	1.294	0.30 (0.27)	0.89	16233.8	600.00
23	33386.84	53.24	1.255	0.30 (0.27)	0.90	17828.6	13600.00
24	33642.43	54.52	1.241	0.30 (0.27)	0.90	18409.2	31100.00
25	35977.83	65.74	1.142	0.30 (0.28)	0.92	23524.5	40100.00
26	37079.95	73.47	1.090	0.30 (0.28)	0.92	26969.8	11801.00
27	39038.62	84.08	1.019	0.30 (0.28)	0.93	32402.0	11530.00
28	40059.42	88.15	0.991	0.30 (0.28)	0.94	35069.4	13510.00

29	40916.77	91.75	0.971	0.30 (0.28)	0.94	37350.2	11910.00
30	42178.21	96.81	0.949	0.30 (0.28)	0.94	41052.0	13222.00
31	42229.43	97.04	0.948	0.30 (0.28)	0.94	41210.0	13500.00
32	43262.19	101.72	0.928	0.30 (0.28)	0.95	44346.8	10800.00
33	43769.14	105.91	0.910	0.30 (0.28)	0.95	47292.2	11130.00
34	43411.37	115.50	0.868	0.30 (0.29)	0.95	52333.4	12410.00
35	42825.07	123.80	0.841	0.30 (0.29)	0.96	56072.5	11201.00
36	42402.60	128.79	0.831	0.30 (0.29)	0.96	57804.2	12201.00
37	41389.22	135.89	0.816	0.30 (0.29)	0.96	59661.3	12231.00
38	40096.64	143.75	0.800	0.30 (0.29)	0.96	61295.6	10400.00
39	38751.50	151.75	0.783	0.30 (0.29)	0.96	62590.7	12010.00
40	37563.04	157.77	0.771	0.30 (0.29)	0.96	62937.7	10210.00
41	33406.38	186.17	0.718	0.30 (0.29)	0.96	63676.1	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13700.00 = 124549.22 FEET.

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	219.66	20.77	2.155	0.30 (0.30)	0.99	131.3	50800.00

LONGEST FLOWPATH FROM NODE 50800.00 TO NODE 13700.00 = 5946.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21153.15	15.33	2.600	0.30 (0.26)	0.86	3522.4	429.00
2	22275.99	16.74	2.480	0.30 (0.26)	0.86	3984.5	425.00
3	22561.68	17.14	2.446	0.30 (0.26)	0.86	4113.6	400.00
4	23292.06	18.52	2.327	0.30 (0.26)	0.86	4559.8	300.00
5	24189.59	20.77	2.155	0.30 (0.26)	0.86	5269.4	50800.00
6	24593.21	21.80	2.094	0.30 (0.26)	0.86	5589.7	50700.00
7	25215.16	23.48	1.996	0.30 (0.26)	0.86	6089.0	210.00
8	25449.86	24.50	1.936	0.30 (0.26)	0.86	6380.9	50600.00
9	25705.48	25.48	1.888	0.30 (0.26)	0.86	6681.0	410.00
10	25985.04	26.46	1.850	0.30 (0.26)	0.86	6980.3	200.00
11	26156.78	27.06	1.827	0.30 (0.26)	0.86	7163.6	230.00
12	26203.76	27.23	1.820	0.30 (0.26)	0.86	7215.0	50200.00
13	26232.26	27.31	1.817	0.30 (0.26)	0.86	7249.5	50500.00
14	26517.47	28.14	1.785	0.30 (0.26)	0.86	7602.2	220.50
15	26522.53	28.15	1.785	0.30 (0.26)	0.86	7608.4	110.00
16	27367.25	30.54	1.700	0.30 (0.26)	0.86	8659.0	100.00
17	27756.14	31.73	1.669	0.30 (0.26)	0.87	9172.7	100.00
18	28104.93	32.79	1.641	0.30 (0.26)	0.87	9628.7	110.00
19	28679.83	34.73	1.590	0.30 (0.26)	0.87	10435.8	130.00
20	29573.64	37.76	1.511	0.30 (0.26)	0.88	11688.9	10100.00
21	30798.54	42.12	1.418	0.30 (0.27)	0.88	13420.4	150.00
22	32345.43	47.74	1.327	0.30 (0.27)	0.89	15620.1	20100.00
23	32851.13	49.77	1.294	0.30 (0.27)	0.89	16365.1	600.00
24	33500.09	53.24	1.255	0.30 (0.27)	0.90	17959.8	13600.00
25	33754.04	54.52	1.241	0.30 (0.27)	0.90	18540.4	31100.00
26	36077.80	65.74	1.142	0.30 (0.28)	0.92	23655.8	40100.00
27	37173.77	73.47	1.090	0.30 (0.28)	0.93	27101.1	11801.00
28	39124.00	84.08	1.019	0.30 (0.28)	0.93	32533.2	11530.00
29	40141.56	88.15	0.991	0.30 (0.28)	0.94	35200.7	13510.00
30	40996.54	91.75	0.971	0.30 (0.28)	0.94	37481.5	11910.00
31	42255.39	96.81	0.949	0.30 (0.28)	0.94	41183.3	13222.00
32	42306.50	97.04	0.948	0.30 (0.28)	0.94	41341.2	13500.00
33	43336.86	101.72	0.928	0.30 (0.28)	0.95	44478.1	10800.00
34	43841.66	105.91	0.910	0.30 (0.29)	0.95	47423.4	11130.00

35	43478.98	115.50	0.868	0.30 (0.29)	0.95	52464.6	12410.00
36	42889.45	123.80	0.841	0.30 (0.29)	0.96	56203.7	11201.00
37	42465.76	128.79	0.831	0.30 (0.29)	0.96	57935.4	12201.00
38	41450.64	135.89	0.816	0.30 (0.29)	0.96	59792.6	12231.00
39	40156.15	143.75	0.800	0.30 (0.29)	0.96	61426.9	10400.00
40	38809.04	151.75	0.783	0.30 (0.29)	0.96	62722.0	12010.00
41	37619.12	157.77	0.771	0.30 (0.29)	0.96	63069.0	10210.00
42	33456.26	186.17	0.718	0.30 (0.29)	0.96	63807.4	10100.00

TOTAL AREA (ACRES) = 63807.4

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) =	43841.66	Tc(MIN.) =	105.908
EFFECTIVE AREA(ACRES) =	47423.43	AREA-AVERAGED Fm(INCH/HR) =	0.29
AREA-AVERAGED Fp(INCH/HR) =	0.30	AREA-AVERAGED Ap =	0.95
TOTAL AREA (ACRES) =	63807.4		
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13700.00 =	124549.22 FEET.		

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) =	63807.4	TC(MIN.) =	105.91
EFFECTIVE AREA(ACRES) =	47423.43	AREA-AVERAGED Fm(INCH/HR) =	0.29
AREA-AVERAGED Fp(INCH/HR) =	0.30	AREA-AVERAGED Ap =	0.950
PEAK FLOW RATE(CFS) =	43841.66		

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21153.15	15.33	2.600	0.30 (0.26)	0.86	3522.4	429.00
2	22275.99	16.74	2.480	0.30 (0.26)	0.86	3984.5	425.00
3	22561.68	17.14	2.446	0.30 (0.26)	0.86	4113.6	400.00
4	23292.06	18.52	2.327	0.30 (0.26)	0.86	4559.8	300.00
5	24189.59	20.77	2.155	0.30 (0.26)	0.86	5269.4	50800.00
6	24593.21	21.80	2.094	0.30 (0.26)	0.86	5589.7	50700.00
7	25215.16	23.48	1.996	0.30 (0.26)	0.86	6089.0	210.00
8	25449.86	24.50	1.936	0.30 (0.26)	0.86	6380.9	50600.00
9	25705.48	25.48	1.888	0.30 (0.26)	0.86	6681.0	410.00
10	25985.04	26.46	1.850	0.30 (0.26)	0.86	6980.3	200.00
11	26156.78	27.06	1.827	0.30 (0.26)	0.86	7163.6	230.00
12	26203.76	27.23	1.820	0.30 (0.26)	0.86	7215.0	50200.00
13	26232.26	27.31	1.817	0.30 (0.26)	0.86	7249.5	50500.00
14	26517.47	28.14	1.785	0.30 (0.26)	0.86	7602.2	220.50
15	26522.53	28.15	1.785	0.30 (0.26)	0.86	7608.4	110.00
16	27367.25	30.54	1.700	0.30 (0.26)	0.86	8659.0	100.00
17	27756.14	31.73	1.669	0.30 (0.26)	0.87	9172.7	100.00
18	28104.93	32.79	1.641	0.30 (0.26)	0.87	9628.7	110.00
19	28679.83	34.73	1.590	0.30 (0.26)	0.87	10435.8	130.00
20	29573.64	37.76	1.511	0.30 (0.26)	0.88	11688.9	10100.00
21	30798.54	42.12	1.418	0.30 (0.27)	0.88	13420.4	150.00
22	32345.43	47.74	1.327	0.30 (0.27)	0.89	15620.1	20100.00
23	32851.13	49.77	1.294	0.30 (0.27)	0.89	16365.1	600.00
24	33500.09	53.24	1.255	0.30 (0.27)	0.90	17959.8	13600.00
25	33754.04	54.52	1.241	0.30 (0.27)	0.90	18540.4	31100.00
26	36077.80	65.74	1.142	0.30 (0.28)	0.92	23655.8	40100.00
27	37173.77	73.47	1.090	0.30 (0.28)	0.93	27101.1	11801.00
28	39124.00	84.08	1.019	0.30 (0.28)	0.93	32533.2	11530.00
29	40141.56	88.15	0.991	0.30 (0.28)	0.94	35200.7	13510.00
30	40996.54	91.75	0.971	0.30 (0.28)	0.94	37481.5	11910.00
31	42255.39	96.81	0.949	0.30 (0.28)	0.94	41183.3	13222.00
32	42306.50	97.04	0.948	0.30 (0.28)	0.94	41341.2	13500.00

33	43336.86	101.72	0.928	0.30 (0.28)	0.95	44478.1	10800.00
34	43841.66	105.91	0.910	0.30 (0.29)	0.95	47423.4	11130.00
35	43478.98	115.50	0.868	0.30 (0.29)	0.95	52464.6	12410.00
36	42889.45	123.80	0.841	0.30 (0.29)	0.96	56203.7	11201.00
37	42465.76	128.79	0.831	0.30 (0.29)	0.96	57935.4	12201.00
38	41450.64	135.89	0.816	0.30 (0.29)	0.96	59792.6	12231.00
39	40156.15	143.75	0.800	0.30 (0.29)	0.96	61426.9	10400.00
40	38809.04	151.75	0.783	0.30 (0.29)	0.96	62722.0	12010.00
41	37619.12	157.77	0.771	0.30 (0.29)	0.96	63069.0	10210.00
42	33456.26	186.17	0.718	0.30 (0.29)	0.96	63807.4	10100.00

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END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 136 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 50-YR EV MAY 2023 ROKAMOTO *

FILE NAME: RI50EV36.DAT
TIME/DATE OF STUDY: 09:37 05/11/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 50.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 5.255
- 2) 10.00; 3.396
- 3) 15.00; 2.615
- 4) 20.00; 2.190
- 5) 25.00; 1.899
- 6) 30.00; 1.707
- 7) 40.00; 1.447
- 8) 50.00; 1.285
- 9) 60.00; 1.174
- 10) 90.00; 0.972
- 11) 120.00; 0.842
- 12) 180.00; 0.717
- 13) 360.00; 0.527
- 14) 1200.00; 0.230

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0313	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13600.00 TO NODE 13600.50 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 488.61
ELEVATION DATA: UPSTREAM(FEET) = 872.12 DOWNSTREAM(FEET) = 744.80

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 10.995
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 3.241
SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
NATURAL FAIR COVER "OPEN BRUSH"	-	3.39	0.30	1.000	56	11.00

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF(CFS) = 8.97
TOTAL AREA(ACRES) = 3.39 PEAK FLOW RATE(CFS) = 8.97

FLOW PROCESS FROM NODE 13600.50 TO NODE 13601.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 744.80 DOWNSTREAM(FEET) = 707.32
CHANNEL LENGTH THRU SUBAREA(FEET) = 418.30 CHANNEL SLOPE = 0.0896
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.43
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.962
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	7.45	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 17.92
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 3.91
AVERAGE FLOW DEPTH(FEET) = 0.42 TRAVEL TIME(MIN.) = 1.78
Tc(MIN.) = 12.78
SUBAREA AREA(ACRES) = 7.45 SUBAREA RUNOFF(CFS) = 17.85
EFFECTIVE AREA(ACRES) = 10.84 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 10.8 PEAK FLOW RATE(CFS) = 25.97
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.52

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.52 FLOW VELOCITY(FEET/SEC.) = 4.49
LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13601.00 = 906.91 FEET.

FLOW PROCESS FROM NODE 13601.00 TO NODE 13602.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 707.32 DOWNSTREAM(FEET) = 657.12
CHANNEL LENGTH THRU SUBAREA(FEET) = 777.60 CHANNEL SLOPE = 0.0646
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.97
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.596

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.32	0.30	1.000	-
USER-DEFINED	-	4.70	0.30	1.000	-
USER-DEFINED	-	25.05	0.30	1.000	-
USER-DEFINED	-	0.45	0.30	1.000	-
USER-DEFINED	-	0.44	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 58.05

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.29

AVERAGE FLOW DEPTH(FEET) = 0.93 TRAVEL TIME(MIN.) = 2.45

Tc(MIN.) = 15.23

SUBAREA AREA(ACRES) = 30.96 SUBAREA RUNOFF(CFS) = 63.97
EFFECTIVE AREA(ACRES) = 41.80 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 41.8 PEAK FLOW RATE(CFS) = 86.36
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.16

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.16 FLOW VELOCITY(FEET/SEC.) = 6.03

LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13602.00 = 1684.51 FEET.

FLOW PROCESS FROM NODE 13602.00 TO NODE 13603.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 657.12 DOWNSTREAM(FEET) = 584.58
CHANNEL LENGTH THRU SUBAREA(FEET) = 1186.54 CHANNEL SLOPE = 0.0611
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.36
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.331

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	7.03	0.30	1.000	-
USER-DEFINED	-	2.51	0.30	1.000	-

USER-DEFINED - 1.52 0.30 1.000 -
USER-DEFINED - 12.30 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 107.74

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.35

AVERAGE FLOW DEPTH(FEET) = 1.34 TRAVEL TIME(MIN.) = 3.11

Tc(MIN.) = 18.34

SUBAREA AREA(ACRES) = 23.36 SUBAREA RUNOFF(CFS) = 42.70

EFFECTIVE AREA(ACRES) = 65.16 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 65.2 PEAK FLOW RATE(CFS) = 119.11

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.41

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.41 FLOW VELOCITY(FEET/SEC.) = 6.56

LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13603.00 = 2871.05 FEET.

FLOW PROCESS FROM NODE 13603.00 TO NODE 13620.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 584.58 DOWNSTREAM(FEET) = 544.91
CHANNEL LENGTH THRU SUBAREA(FEET) = 860.98 CHANNEL SLOPE = 0.0461
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.67
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.152

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	10.22	0.30	1.000	-
USER-DEFINED	-	4.19	0.30	1.000	-
USER-DEFINED	-	0.07	0.30	1.000	-
USER-DEFINED	-	1.11	0.30	1.000	-
USER-DEFINED	-	5.56	0.30	1.000	-
USER-DEFINED	-	0.09	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 136.82

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.22

AVERAGE FLOW DEPTH(FEET) = 1.65 TRAVEL TIME(MIN.) = 2.31

Tc(MIN.) = 20.65

SUBAREA AREA(ACRES) = 21.24 SUBAREA RUNOFF(CFS) = 35.41

EFFECTIVE AREA(ACRES) = 86.40 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 86.4 PEAK FLOW RATE(CFS) = 144.04

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.70

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.70 FLOW VELOCITY(FEET/SEC.) = 6.30

LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13620.00 = 3732.03 FEET.


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*****
FLOW PROCESS FROM NODE 13603.00 TO NODE 13620.00 IS CODE = 10
-----
>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
=====
*****
FLOW PROCESS FROM NODE 13522.00 TO NODE 13522.00 IS CODE = 15.1
-----
>>>>DEFINE MEMORY BANK # 2 <<<<<
=====
PEAK FLOWRATE TABLE FILE NAME: S35X50.DNA
MEMORY BANK # 2 DEFINED AS FOLLOWS:
STREAM      Q      Tc      Fp(Fm)    Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.)  (INCH/HR) (ACRES)  NODE
  1      1198.50  52.93  0.30( 0.28) 0.95    1515.8  13510.00
  2      1092.68  61.25  0.30( 0.28) 0.94    1579.8  13500.00
TOTAL AREA(ACRES) =      1579.8

*****
FLOW PROCESS FROM NODE 13522.00 TO NODE 13522.00 IS CODE = 14.0
-----
>>>>MEMORY BANK # 2 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====
MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
STREAM      Q      Tc      Fp(Fm)    Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.)  (INCH/HR) (ACRES)  NODE
  1      1198.50  52.93  0.30( 0.28) 0.95    1515.8  13510.00
  2      1092.68  61.25  0.30( 0.28) 0.94    1579.8  13500.00
TOTAL AREA(ACRES) =      1579.8

*****
FLOW PROCESS FROM NODE 13522.00 TO NODE 13620.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 632.19 DOWNSTREAM(FEET) = 544.91
CHANNEL LENGTH THRU SUBAREA(FEET) = 2062.96 CHANNEL SLOPE = 0.0423
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.57
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.222
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp      Ap      SCS
LAND USE              GROUP  (ACRES)  (INCH/HR) (DECIMAL) CN
USER-DEFINED          -      17.68    0.30    1.000  -
USER-DEFINED          -      2.36    0.30    1.000  -
USER-DEFINED          -      0.60    0.30    1.000  -
USER-DEFINED          -      0.22    0.30    1.000  -
USER-DEFINED          -      2.22    0.30    1.000  -
USER-DEFINED          -      3.42    0.30    1.000  -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1209.50
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 12.50

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AVERAGE FLOW DEPTH(FEET) = 2.57 TRAVEL TIME(MIN.) = 2.75
Tc(MIN.) = 55.68
SUBAREA AREA(ACRES) = 26.50 SUBAREA RUNOFF(CFS) = 22.00
EFFECTIVE AREA(ACRES) = 1542.26 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 1606.3 PEAK FLOW RATE(CFS) = 1301.65
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.68

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 2.68 FLOW VELOCITY(FEET/SEC.) = 12.80
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13620.00 = 20677.72 FEET.

*****
FLOW PROCESS FROM NODE 13620.00 TO NODE 13620.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====
MAINLINE Tc(MIN.) = 55.68
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.222
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp      Ap      SCS
LAND USE              GROUP  (ACRES)  (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"WOODLAND,GRASS"      B      1.44    0.30    1.000  65
NATURAL FAIR COVER
"WOODLAND,GRASS"      B      0.01    0.30    1.000  65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 1.45 SUBAREA RUNOFF(CFS) = 1.20
EFFECTIVE AREA(ACRES) = 1543.71 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 1607.8 PEAK FLOW RATE(CFS) = 1302.85

*****
FLOW PROCESS FROM NODE 13603.00 TO NODE 13620.00 IS CODE = 11
-----
>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
=====
** MAIN STREAM CONFLUENCE DATA **
STREAM      Q      Tc  Intensity  Fp(Fm)    Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.) (INCH/HR) (INCH/HR) (ACRES)  NODE
  1      1302.85  55.68  1.222  0.30( 0.28) 0.95    1543.7  13510.00
  2      1248.68  64.08  1.147  0.30( 0.28) 0.95    1607.8  13500.00
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13620.00 = 20677.72 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **
STREAM      Q      Tc  Intensity  Fp(Fm)    Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.) (INCH/HR) (INCH/HR) (ACRES)  NODE
  1      144.04  20.65  2.152  0.30( 0.30) 1.00     86.4  13600.00
LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13620.00 = 3732.03 FEET.

** PEAK FLOW RATE TABLE **
STREAM      Q      Tc  Intensity  Fp(Fm)    Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.) (INCH/HR) (INCH/HR) (ACRES)  NODE
  1      1106.54  20.65  2.152  0.30( 0.29) 0.95    658.9  13600.00

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2 1374.55 55.68 1.222 0.30(0.29) 0.95 1630.1 13510.00
3 1314.51 64.08 1.147 0.30(0.28) 0.95 1694.2 13500.00
TOTAL AREA(ACRES) = 1694.2

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 1374.55 Tc(MIN.) = 55.676
EFFECTIVE AREA(ACRES) = 1630.11 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 1694.2
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13620.00 = 20677.72 FEET.

FLOW PROCESS FROM NODE 13620.00 TO NODE 13640.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 544.91 DOWNSTREAM(FEET) = 489.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1384.37 CHANNEL SLOPE = 0.0404
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.82
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.202

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	5.39	0.30	1.000	-
USER-DEFINED	-	16.30	0.30	1.000	-
USER-DEFINED	-	4.08	0.30	1.000	-
USER-DEFINED	-	12.36	0.30	1.000	-
USER-DEFINED	-	11.23	0.30	1.000	-
USER-DEFINED	-	5.16	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1396.69
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 12.88
AVERAGE FLOW DEPTH(FEET) = 2.82 TRAVEL TIME(MIN.) = 1.79
Tc(MIN.) = 57.47

SUBAREA AREA(ACRES) = 54.52 SUBAREA RUNOFF(CFS) = 44.27
EFFECTIVE AREA(ACRES) = 1684.63 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 1748.7 PEAK FLOW RATE(CFS) = 1389.65
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.81

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 2.81 FLOW VELOCITY(FEET/SEC.) = 12.87
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13640.00 = 22062.09 FEET.

FLOW PROCESS FROM NODE 13640.00 TO NODE 13640.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 57.47
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.202
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	53.93	0.30	1.000	-
USER-DEFINED	-	0.45	0.30	1.000	-
USER-DEFINED	-	3.98	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 58.36 SUBAREA RUNOFF(CFS) = 47.39
EFFECTIVE AREA(ACRES) = 1742.99 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 1807.1 PEAK FLOW RATE(CFS) = 1437.03

FLOW PROCESS FROM NODE 13640.00 TO NODE 13640.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: P201XX50.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	238.49	17.13	0.30(0.26)	0.85	133.8	20100.00
TOTAL AREA(ACRES) =		133.8				

FLOW PROCESS FROM NODE 13640.00 TO NODE 13640.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1217.61	22.55	2.041	0.30(0.29)	0.96	771.8	13600.00
2	1437.03	57.47	1.202	0.30(0.29)	0.95	1743.0	13510.00
3	1380.61	65.90	1.134	0.30(0.29)	0.95	1807.1	13500.00
LONGEST FLOWPATH FROM NODE		13500.00 TO NODE 13640.00 = 22062.09 FEET.					

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	238.49	17.13	2.434	0.30(0.26)	0.85	133.8	20100.00
LONGEST FLOWPATH FROM NODE		20100.00 TO NODE 13640.00 = 5247.00 FEET.					

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1370.34	17.13	2.434	0.30(0.28)	0.94	719.9	20100.00
2	1413.09	22.55	2.041	0.30(0.28)	0.95	905.6	13600.00
3	1540.61	57.47	1.202	0.30(0.28)	0.95	1876.8	13510.00
4	1476.77	65.90	1.134	0.30(0.28)	0.94	1940.9	13500.00
TOTAL AREA(ACRES) =		1940.9					

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 1540.61 Tc(MIN.) = 57.467
EFFECTIVE AREA(ACRES) = 1876.79 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 1940.9

LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13640.00 = 22062.09 FEET.

FLOW PROCESS FROM NODE 13640.00 TO NODE 13641.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 489.00 DOWNSTREAM(FEET) = 436.89
CHANNEL LENGTH THRU SUBAREA(FEET) = 2994.52 CHANNEL SLOPE = 0.0174
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 3.79

* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.157

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.96	0.30	1.000	-
USER-DEFINED	-	0.01	0.30	1.000	-
USER-DEFINED	-	1.56	0.30	1.000	-
USER-DEFINED	-	10.45	0.30	1.000	-
USER-DEFINED	-	44.94	0.30	1.000	-
USER-DEFINED	-	9.66	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1566.69

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.98

AVERAGE FLOW DEPTH(FEET) = 3.79 TRAVEL TIME(MIN.) = 5.00

Tc(MIN.) = 62.47

SUBAREA AREA(ACRES) = 67.58 SUBAREA RUNOFF(CFS) = 52.15

EFFECTIVE AREA(ACRES) = 1944.37 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95

TOTAL AREA(ACRES) = 2008.4 PEAK FLOW RATE(CFS) = 1540.61

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 3.76

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 3.76 FLOW VELOCITY(FEET/SEC.) = 9.93

LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13641.00 = 25056.61 FEET.

FLOW PROCESS FROM NODE 13641.00 TO NODE 13641.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 62.47

* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.157

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	16.49	0.30	1.000	-
USER-DEFINED	-	20.39	0.30	1.000	-
USER-DEFINED	-	7.02	0.30	1.000	-
USER-DEFINED	-	12.58	0.30	1.000	-
USER-DEFINED	-	42.49	0.30	1.000	-
USER-DEFINED	-	5.73	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA(ACRES) = 104.70 SUBAREA RUNOFF(CFS) = 80.80

EFFECTIVE AREA(ACRES) = 2049.07 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95

TOTAL AREA(ACRES) = 2113.1 PEAK FLOW RATE(CFS) = 1608.30

FLOW PROCESS FROM NODE 13641.00 TO NODE 13641.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 62.47

* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.157

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	1.78	0.30	1.000	-
USER-DEFINED	-	6.25	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA(ACRES) = 8.03 SUBAREA RUNOFF(CFS) = 6.20

EFFECTIVE AREA(ACRES) = 2057.10 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95

TOTAL AREA(ACRES) = 2121.2 PEAK FLOW RATE(CFS) = 1614.50

FLOW PROCESS FROM NODE 13641.00 TO NODE 13642.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 436.89 DOWNSTREAM(FEET) = 394.80
CHANNEL LENGTH THRU SUBAREA(FEET) = 2814.16 CHANNEL SLOPE = 0.0150
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 4.13
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.125

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.67	0.30	1.000	-
USER-DEFINED	-	24.24	0.30	1.000	-
USER-DEFINED	-	1.34	0.30	1.000	-
USER-DEFINED	-	74.98	0.30	1.000	-
USER-DEFINED	-	101.12	0.30	1.000	-
USER-DEFINED	-	16.90	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1695.89

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.70

AVERAGE FLOW DEPTH(FEET) = 4.12 TRAVEL TIME(MIN.) = 4.83

Tc(MIN.) = 67.30

SUBAREA AREA(ACRES) = 219.25 SUBAREA RUNOFF(CFS) = 162.77

EFFECTIVE AREA(ACRES) = 2276.35 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96

TOTAL AREA(ACRES) = 2340.4 PEAK FLOW RATE(CFS) = 1717.01

GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 4.16

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 4.16 FLOW VELOCITY(FEET/SEC.) = 9.73
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13642.00 = 27870.77 FEET.

FLOW PROCESS FROM NODE 13642.00 TO NODE 13642.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 67.30
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.125
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	9.95	0.30	1.000	-
USER-DEFINED	-	10.02	0.30	1.000	-
USER-DEFINED	-	4.45	0.30	1.000	-
USER-DEFINED	-	179.37	0.30	1.000	-
USER-DEFINED	-	11.47	0.30	1.000	-
USER-DEFINED	-	0.17	0.30	0.850	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 215.43 SUBAREA RUNOFF(CFS) = 159.94
EFFECTIVE AREA(ACRES) = 2491.78 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
TOTAL AREA(ACRES) = 2555.9 PEAK FLOW RATE(CFS) = 1876.96

FLOW PROCESS FROM NODE 13642.00 TO NODE 13642.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 67.30
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.125
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.03	0.30	0.850	-
USER-DEFINED	-	5.14	0.30	1.000	-
USER-DEFINED	-	11.22	0.30	1.000	-
USER-DEFINED	-	0.33	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 16.72 SUBAREA RUNOFF(CFS) = 12.41
EFFECTIVE AREA(ACRES) = 2508.50 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
TOTAL AREA(ACRES) = 2572.6 PEAK FLOW RATE(CFS) = 1889.37

FLOW PROCESS FROM NODE 13642.00 TO NODE 13643.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 394.80 DOWNSTREAM(FEET) = 342.39

CHANNEL LENGTH THRU SUBAREA(FEET) = 2913.57 CHANNEL SLOPE = 0.0180
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 4.23
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.094

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.22	0.30	1.000	-
USER-DEFINED	-	2.17	0.30	1.000	-
USER-DEFINED	-	9.19	0.30	1.000	-
USER-DEFINED	-	67.57	0.30	1.000	-
USER-DEFINED	-	35.19	0.30	1.000	-
USER-DEFINED	-	30.67	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1941.22
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.77
AVERAGE FLOW DEPTH(FEET) = 4.22 TRAVEL TIME(MIN.) = 4.51
Tc(MIN.) = 71.81
SUBAREA AREA(ACRES) = 145.01 SUBAREA RUNOFF(CFS) = 103.69
EFFECTIVE AREA(ACRES) = 2653.51 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
TOTAL AREA(ACRES) = 2717.6 PEAK FLOW RATE(CFS) = 1924.53
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 4.21

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 4.21 FLOW VELOCITY(FEET/SEC.) = 10.73
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13643.00 = 30784.34 FEET.

FLOW PROCESS FROM NODE 13643.00 TO NODE 13643.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 71.81
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.094
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.89	0.30	1.000	-
USER-DEFINED	-	20.65	0.30	1.000	-
USER-DEFINED	-	2.69	0.30	1.000	-
USER-DEFINED	-	8.45	0.30	1.000	-
USER-DEFINED	-	96.93	0.30	1.000	-
USER-DEFINED	-	13.19	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 142.80 SUBAREA RUNOFF(CFS) = 102.11
EFFECTIVE AREA(ACRES) = 2796.31 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
TOTAL AREA(ACRES) = 2860.4 PEAK FLOW RATE(CFS) = 2026.64

FLOW PROCESS FROM NODE 13643.00 TO NODE 13643.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 71.81
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.094
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 42.54 0.30 1.000 -
USER-DEFINED - 16.96 0.30 1.000 -
USER-DEFINED - 80.60 0.30 1.000 -
USER-DEFINED - 1.56 0.30 1.000 -
USER-DEFINED - 2.00 0.30 1.000 -
USER-DEFINED - 3.11 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 146.77 SUBAREA RUNOFF(CFS) = 104.95
EFFECTIVE AREA(ACRES) = 2943.08 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97
TOTAL AREA(ACRES) = 3007.2 PEAK FLOW RATE(CFS) = 2131.59

** PEAK FLOW RATE TABLE **

Table with 8 columns: STREAM NUMBER, Q (CFS), Tc (MIN.), Intensity (INCH/HR), Fp(Fm) (INCH/HR), Ap, Ae (ACRES), HEADWATER NODE. Rows 1-4 show data for different stream segments.

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 2201.63 Tc(MIN.) = 31.72
AREA-AVERAGED Fm(INCH/HR) = 0.29 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.98 EFFECTIVE AREA(ACRES) = 1786.18

FLOW PROCESS FROM NODE 13643.00 TO NODE 13660.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 342.39 DOWNSTREAM(FEET) = 300.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1591.23 CHANNEL SLOPE = 0.0266
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 4.10
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.609
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.89 0.30 1.000 -
USER-DEFINED - 23.73 0.30 1.000 -
USER-DEFINED - 0.27 0.30 1.000 -
USER-DEFINED - 19.87 0.30 1.000 -
USER-DEFINED - 6.40 0.30 1.000 -
USER-DEFINED - 3.14 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2233.62
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 12.88
AVERAGE FLOW DEPTH(FEET) = 4.10 TRAVEL TIME(MIN.) = 2.06

Tc(MIN.) = 33.78
SUBAREA AREA(ACRES) = 54.30 SUBAREA RUNOFF(CFS) = 63.97
EFFECTIVE AREA(ACRES) = 1840.48 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 3061.5 PEAK FLOW RATE(CFS) = 2201.63
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 4.06

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 4.06 FLOW VELOCITY(FEET/SEC.) = 12.84
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13660.00 = 32375.57 FEET.

FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 33.78
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.609
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.67 0.30 1.000 -
USER-DEFINED - 9.52 0.30 1.000 -
USER-DEFINED - 0.71 0.30 1.000 -
USER-DEFINED - 0.22 0.30 1.000 -
USER-DEFINED - 39.42 0.30 1.000 -
USER-DEFINED - 0.62 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 51.16 SUBAREA RUNOFF(CFS) = 60.27
EFFECTIVE AREA(ACRES) = 1891.64 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 3112.6 PEAK FLOW RATE(CFS) = 2239.80

FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 33.78
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.609
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.11 0.30 1.000 -
USER-DEFINED - 0.77 0.30 1.000 -
USER-DEFINED - 0.22 0.30 1.000 -
USER-DEFINED - 2.69 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 3.79 SUBAREA RUNOFF(CFS) = 4.46
EFFECTIVE AREA(ACRES) = 1895.43 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 3116.4 PEAK FLOW RATE(CFS) = 2244.27

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*****
FLOW PROCESS FROM NODE 13643.00 TO NODE 13660.00 IS CODE = 12
-----
>>>>CLEAR MEMORY BANK # 1 <<<<<
=====
*****
FLOW PROCESS FROM NODE 13659.00 TO NODE 13659.00 IS CODE = 15.1
-----
>>>>DEFINE MEMORY BANK # 1 <<<<<
=====
PEAK FLOWRATE TABLE FILE NAME: 2P50EVAA.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:
STREAM      Q      Tc      Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.) (INCH/HR)    (ACRES)  NODE
1           528.88   14.09   0.30( 0.11) 0.36    173.1   110.00
2           529.33   16.63   0.30( 0.11) 0.37    204.3   100.00
3           521.87   17.83   0.30( 0.11) 0.38    213.9   100.00
4           463.87   20.89   0.30( 0.12) 0.40    221.1   130.00
TOTAL AREA (ACRES) =      221.1
*****
FLOW PROCESS FROM NODE 13659.00 TO NODE 13660.00 IS CODE = 31
-----
>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 338.00 DOWNSTREAM(FEET) = 300.00
FLOW LENGTH(FEET) = 881.07 MANNING'S N = 0.013
DEPTH OF FLOW IN 108.0 INCH PIPE IS 81.0 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 43.83
ESTIMATED PIPE DIAMETER(INCH) = 108.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 2244.27
PIPE TRAVEL TIME(MIN.) = 0.34 Tc(MIN.) = 34.11
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13660.00 = 33256.64 FEET.
*****
FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 11
-----
>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
=====
** MAIN STREAM CONFLUENCE DATA **
STREAM      Q      Tc      Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.) (INCH/HR) (INCH/HR)    (ACRES)  NODE
1           2244.27   34.11   1.600 0.30( 0.29) 0.98    1895.4  20100.00
2           2202.96   39.49   1.460 0.30( 0.29) 0.98    2081.1  13600.00
3           2171.20   74.23   1.078 0.30( 0.29) 0.97    3052.3  13510.00
4           2054.87   82.88   1.020 0.30( 0.29) 0.97    3116.4  13500.00
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13660.00 = 33256.64 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **
STREAM      Q      Tc      Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.) (INCH/HR) (INCH/HR)    (ACRES)  NODE
1           528.88   14.09   2.758 0.30( 0.11) 0.36    173.1   110.00
2           529.33   16.63   2.477 0.30( 0.11) 0.37    204.3   100.00
3           521.87   17.83   2.374 0.30( 0.11) 0.38    213.9   100.00
4           463.87   20.89   2.138 0.30( 0.12) 0.40    221.1   130.00

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LONGEST FLOWPATH FROM NODE 130.00 TO NODE 13660.00 = 6327.50 FEET.

** PEAK FLOW RATE TABLE **
STREAM      Q      Tc      Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.) (INCH/HR) (INCH/HR)    (ACRES)  NODE
1           2276.62   14.09   2.758 0.30( 0.26) 0.87    955.9   110.00
2           2357.12   16.63   2.477 0.30( 0.26) 0.87    1128.4   100.00
3           2390.18   17.83   2.374 0.30( 0.26) 0.87    1204.9   100.00
4           2404.22   20.89   2.138 0.30( 0.27) 0.89    1381.9   130.00
5           2584.45   34.11   1.600 0.30( 0.28) 0.92    2116.5  20100.00
6           2510.99   39.49   1.460 0.30( 0.28) 0.92    2302.2  13600.00
7           2391.39   74.23   1.078 0.30( 0.28) 0.93    3273.4  13510.00
8           2261.67   82.88   1.020 0.30( 0.28) 0.93    3337.5  13500.00
TOTAL AREA (ACRES) =      3337.5

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 2584.45 Tc(MIN.) = 34.110
EFFECTIVE AREA(ACRES) = 2116.53 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.87
TOTAL AREA (ACRES) = 3337.5
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13660.00 = 33256.64 FEET.

*****
FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====
MAINLINE Tc(MIN.) = 34.11
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.600
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL      AREA      Fp      Ap      SCS
LAND USE                GROUP (ACRES) (INCH/HR) (DECIMAL) CN
AGRICULTURAL POOR COVER
"FALLOW"                B           1.11    0.30    1.000   86
AGRICULTURAL POOR COVER
"FALLOW"                B           0.44    0.30    1.000   86
NATURAL FAIR COVER
"GRASS"                  B           1.49    0.30    1.000   69
NATURAL FAIR COVER
"GRASS"                  B           1.70    0.30    1.000   69
NATURAL FAIR COVER
"OPEN BRUSH"            B           1.09    0.30    1.000   66
NATURAL FAIR COVER
"OPEN BRUSH"            B           18.57   0.30    1.000   66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 24.40 SUBAREA RUNOFF(CFS) = 28.55
EFFECTIVE AREA(ACRES) = 2140.93 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA (ACRES) = 3361.9 PEAK FLOW RATE(CFS) = 2584.45
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

*****
FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====
MAINLINE Tc(MIN.) = 34.11

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* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.600
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL FAIR COVER "ORCHARDS"	B	12.39	0.30	1.000	65
AGRICULTURAL FAIR COVER "ORCHARDS"	B	2.30	0.30	1.000	65
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	5.19	0.30	1.000	79
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	28.71	0.30	1.000	81
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.17	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 48.76 SUBAREA RUNOFF (CFS) = 57.06
 EFFECTIVE AREA (ACRES) = 2189.69 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA (ACRES) = 3410.7 PEAK FLOW RATE (CFS) = 2609.48

 FLOW PROCESS FROM NODE 13660.00 TO NODE 13680.00 IS CODE = 56

>>>> COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>> TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 300.00 DOWNSTREAM (FEET) = 288.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 933.89 CHANNEL SLOPE = 0.0128
 GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 * ESTIMATED CHANNEL HEIGHT (FEET) = 5.43
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.561
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.22	0.30	1.000	-
USER-DEFINED	-	9.23	0.30	1.000	-
USER-DEFINED	-	0.54	0.30	1.000	-
USER-DEFINED	-	5.66	0.30	1.000	-
USER-DEFINED	-	3.66	0.30	1.000	-
USER-DEFINED	-	0.67	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 2620.82
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 10.43
 AVERAGE FLOW DEPTH (FEET) = 5.43 TRAVEL TIME (MIN.) = 1.49
 Tc (MIN.) = 35.60
 SUBAREA AREA (ACRES) = 19.98 SUBAREA RUNOFF (CFS) = 22.68
 EFFECTIVE AREA (ACRES) = 2209.67 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA (ACRES) = 3430.6 PEAK FLOW RATE (CFS) = 2609.48
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 * ESTIMATED CHANNEL HEIGHT (FEET) = 5.41

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 5.41 FLOW VELOCITY (FEET/SEC.) = 10.43
 LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13680.00 = 34190.53 FEET.

 FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81

>>>> ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 35.60
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.561
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	1.56	0.30	1.000	-
USER-DEFINED	-	9.40	0.30	1.000	-
USER-DEFINED	-	2.76	0.30	1.000	-
USER-DEFINED	-	17.38	0.30	1.000	-
USER-DEFINED	-	2.46	0.30	1.000	-
USER-DEFINED	-	5.56	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 39.12 SUBAREA RUNOFF (CFS) = 44.41
 EFFECTIVE AREA (ACRES) = 2248.79 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA (ACRES) = 3469.8 PEAK FLOW RATE (CFS) = 2609.48
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81

>>>> ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 35.60
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.561
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.65	0.30	1.000	-
USER-DEFINED	-	1.70	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 2.35 SUBAREA RUNOFF (CFS) = 2.67
 EFFECTIVE AREA (ACRES) = 2251.14 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA (ACRES) = 3472.1 PEAK FLOW RATE (CFS) = 2609.48
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13660.00 TO NODE 13680.00 IS CODE = 12

>>>> CLEAR MEMORY BANK # 3 <<<<<

 FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81

>>>> ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 35.60
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.561
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	5.29	0.30	1.000	-
USER-DEFINED	-	31.25	0.30	1.000	-
USER-DEFINED	-	0.22	0.30	1.000	-
USER-DEFINED	-	6.26	0.30	1.000	-
USER-DEFINED	-	0.07	0.30	1.000	-
USER-DEFINED	-	0.22	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 43.31 SUBAREA RUNOFF(CFS) = 49.17
 EFFECTIVE AREA(ACRES) = 2294.45 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3515.4 PEAK FLOW RATE(CFS) = 2651.97

 FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 35.60
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.561
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	2.47	0.30	0.850	-
USER-DEFINED	-	3.06	0.30	0.850	-
USER-DEFINED	-	17.76	0.30	0.500	-
USER-DEFINED	-	7.31	0.30	0.500	-
USER-DEFINED	-	0.34	0.30	1.000	-
USER-DEFINED	-	8.22	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.659
 SUBAREA AREA(ACRES) = 39.16 SUBAREA RUNOFF(CFS) = 48.07
 EFFECTIVE AREA(ACRES) = 2333.61 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3554.6 PEAK FLOW RATE(CFS) = 2700.04

 FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 35.60
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.561
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.53	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 0.53 SUBAREA RUNOFF(CFS) = 0.60
 EFFECTIVE AREA(ACRES) = 2334.14 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3555.1 PEAK FLOW RATE(CFS) = 2700.64

 FLOW PROCESS FROM NODE 13680.00 TO NODE 13682.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 288.00 DOWNSTREAM(FEET) = 242.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 2860.77 CHANNEL SLOPE = 0.0161
 GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 5.20
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.453

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.22	0.30	1.000	-
USER-DEFINED	-	5.28	0.30	1.000	-
USER-DEFINED	-	0.52	0.30	1.000	-
USER-DEFINED	-	3.61	0.30	1.000	-
USER-DEFINED	-	0.67	0.30	1.000	-
USER-DEFINED	-	1.37	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2706.69
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.41
 AVERAGE FLOW DEPTH(FEET) = 5.20 TRAVEL TIME(MIN.) = 4.18
 Tc(MIN.) = 39.78
 SUBAREA AREA(ACRES) = 11.67 SUBAREA RUNOFF(CFS) = 12.11
 EFFECTIVE AREA(ACRES) = 2345.81 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 3566.8 PEAK FLOW RATE(CFS) = 2700.64
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 5.19

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 5.19 FLOW VELOCITY(FEET/SEC.) = 11.41
 LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13682.00 = 37051.30 FEET.

 FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 39.78
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.453
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	6.90	0.30	1.000	-
USER-DEFINED	-	23.04	0.30	1.000	-
USER-DEFINED	-	1.18	0.30	1.000	-
USER-DEFINED	-	1.56	0.30	1.000	-
USER-DEFINED	-	53.20	0.30	1.000	-
USER-DEFINED	-	2.08	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 87.96 SUBAREA RUNOFF (CFS) = 91.26
 EFFECTIVE AREA (ACRES) = 2433.77 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA (ACRES) = 3654.7 PEAK FLOW RATE (CFS) = 2700.64
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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MAINLINE Tc (MIN.) = 39.78
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.453
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.01	0.30	1.000	-
USER-DEFINED	-	0.18	0.30	1.000	-
USER-DEFINED	-	0.38	0.30	1.000	-
USER-DEFINED	-	0.22	0.30	1.000	-
USER-DEFINED	-	7.73	0.30	1.000	-
USER-DEFINED	-	4.37	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 12.89 SUBAREA RUNOFF (CFS) = 13.37
 EFFECTIVE AREA (ACRES) = 2446.66 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA (ACRES) = 3667.6 PEAK FLOW RATE (CFS) = 2700.64
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc (MIN.) = 39.78
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.453
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "FALLOW"	B	2.57	0.30	1.000	86
AGRICULTURAL POOR COVER "FALLOW"	B	1.97	0.30	1.000	86
NATURAL FAIR COVER "GRASS"	B	1.00	0.30	1.000	69
NATURAL FAIR COVER "GRASS"	B	2.98	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	2.39	0.30	1.000	66
NATURAL FAIR COVER "OPEN BRUSH"	B	1.67	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 12.58 SUBAREA RUNOFF (CFS) = 13.05
 EFFECTIVE AREA (ACRES) = 2459.24 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92

TOTAL AREA (ACRES) = 3680.2 PEAK FLOW RATE (CFS) = 2700.64
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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MAINLINE Tc (MIN.) = 39.78
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.453
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	0.44	0.30	1.000	66
PUBLIC PARK	B	2.65	0.30	0.850	56
PUBLIC PARK	B	1.16	0.30	0.850	56
RESIDENTIAL "5-7 DWELLINGS/ACRE"	B	0.47	0.30	0.500	56
RESIDENTIAL "5-7 DWELLINGS/ACRE"	B	0.25	0.30	0.500	56
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	20.24	0.30	1.000	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.963
 SUBAREA AREA (ACRES) = 25.21 SUBAREA RUNOFF (CFS) = 26.41
 EFFECTIVE AREA (ACRES) = 2484.45 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA (ACRES) = 3705.4 PEAK FLOW RATE (CFS) = 2700.64
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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MAINLINE Tc (MIN.) = 39.78
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.453
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	7.08	0.30	1.000	-
USER-DEFINED	-	6.75	0.30	1.000	-
USER-DEFINED	-	0.02	0.30	1.000	-
USER-DEFINED	-	0.93	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 14.78 SUBAREA RUNOFF (CFS) = 15.33
 EFFECTIVE AREA (ACRES) = 2499.23 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA (ACRES) = 3720.2 PEAK FLOW RATE (CFS) = 2700.64
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13682.00 TO NODE 13683.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 242.00 DOWNSTREAM(FEET) = 208.53
CHANNEL LENGTH THRU SUBAREA(FEET) = 2526.22 CHANNEL SLOPE = 0.0132
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 5.49
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.387
SUBAREA LOSS RATE DATA(AMC II):
  DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp      Ap      SCS
    LAND USE            GROUP  (ACRES)  (INCH/HR)  (DECIMAL)  CN
USER-DEFINED            -         8.49     0.30     1.000     -
USER-DEFINED            -        13.31     0.30     1.000     -
USER-DEFINED            -         0.87     0.30     1.000     -
USER-DEFINED            -        20.26     0.30     1.000     -
USER-DEFINED            -         1.21     0.30     1.000     -
USER-DEFINED            -         0.05     0.30     1.000     -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2722.25
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.67
AVERAGE FLOW DEPTH(FEET) = 5.49 TRAVEL TIME(MIN.) = 3.95
Tc(MIN.) = 43.73
SUBAREA AREA(ACRES) = 44.19 SUBAREA RUNOFF(CFS) = 43.22
EFFECTIVE AREA(ACRES) = 2543.42 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
TOTAL AREA(ACRES) = 3764.4 PEAK FLOW RATE(CFS) = 2700.64
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 5.47

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END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 5.47 FLOW VELOCITY(FEET/SEC.) = 10.64
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13683.00 = 39577.52 FEET.

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FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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MAINLINE Tc(MIN.) = 43.73
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.387
SUBAREA LOSS RATE DATA(AMC II):
  DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp      Ap      SCS
    LAND USE            GROUP  (ACRES)  (INCH/HR)  (DECIMAL)  CN
USER-DEFINED            -        12.56     0.30     1.000     -
USER-DEFINED            -         0.81     0.30     1.000     -
USER-DEFINED            -         0.01     0.30     1.000     -
USER-DEFINED            -         1.11     0.30     1.000     -
USER-DEFINED            -         0.59     0.30     1.000     -
USER-DEFINED            -         3.04     0.30     1.000     -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 18.12 SUBAREA RUNOFF(CFS) = 17.72
EFFECTIVE AREA(ACRES) = 2561.54 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
TOTAL AREA(ACRES) = 3782.5 PEAK FLOW RATE(CFS) = 2700.64
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

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FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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=====
MAINLINE Tc(MIN.) = 43.73
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.387
SUBAREA LOSS RATE DATA(AMC II):
  DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp      Ap      SCS
    LAND USE            GROUP  (ACRES)  (INCH/HR)  (DECIMAL)  CN
RESIDENTIAL
"8-10 DWELLINGS/ACRE"  B         0.10     0.30     0.400     56
PUBLIC PARK             B         1.30     0.30     0.850     56
RESIDENTIAL
"8-10 DWELLINGS/ACRE"  B         0.10     0.30     0.400     56
PUBLIC PARK             B         1.70     0.30     0.850     56
PUBLIC PARK             B         0.10     0.30     0.850     56
PUBLIC PARK             B         2.90     0.30     0.850     56
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.835
SUBAREA AREA(ACRES) = 6.20 SUBAREA RUNOFF(CFS) = 6.34
EFFECTIVE AREA(ACRES) = 2567.74 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
TOTAL AREA(ACRES) = 3788.7 PEAK FLOW RATE(CFS) = 2700.64
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

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FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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MAINLINE Tc(MIN.) = 43.73
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.387
SUBAREA LOSS RATE DATA(AMC II):
  DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp      Ap      SCS
    LAND USE            GROUP  (ACRES)  (INCH/HR)  (DECIMAL)  CN
RESIDENTIAL
"5-7 DWELLINGS/ACRE"  B         0.10     0.30     0.500     56
CONDOMINIUMS           B         0.10     0.30     0.350     56
PUBLIC PARK             B         6.90     0.30     0.850     56
PUBLIC PARK             B         0.40     0.30     0.850     56
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.839
SUBAREA AREA(ACRES) = 7.50 SUBAREA RUNOFF(CFS) = 7.66
EFFECTIVE AREA(ACRES) = 2575.24 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
TOTAL AREA(ACRES) = 3796.2 PEAK FLOW RATE(CFS) = 2700.64
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

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*****
FLOW PROCESS FROM NODE 13682.00 TO NODE 13683.00 IS CODE = 12

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>>>>CLEAR MEMORY BANK # 3 <<<<

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***MEMORY BANK # 3 IS EMPTY - PROCESS IGNORED.***

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FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 43.73
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.387
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "FALLOW"	B	2.55	0.30	1.000	86
AGRICULTURAL POOR COVER "FALLOW"	B	0.01	0.30	1.000	86
AGRICULTURAL POOR COVER "FALLOW"	B	1.35	0.30	1.000	86
NATURAL FAIR COVER "GRASS"	B	0.44	0.30	1.000	69
NATURAL FAIR COVER "GRASS"	B	0.67	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	1.06	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 6.08 SUBAREA RUNOFF(CFS) = 5.95
 EFFECTIVE AREA(ACRES) = 2581.32 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA(ACRES) = 3802.3 PEAK FLOW RATE(CFS) = 2700.64
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 43.73
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.387
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	2.16	0.30	1.000	66
NATURAL FAIR COVER "OPEN BRUSH"	B	2.45	0.30	1.000	66
NATURAL FAIR COVER "OPEN BRUSH"	B	6.15	0.30	1.000	66
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	1.34	0.30	1.000	81
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	18.46	0.30	1.000	81
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	4.13	0.30	1.000	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 34.69 SUBAREA RUNOFF(CFS) = 33.93
 EFFECTIVE AREA(ACRES) = 2616.01 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA(ACRES) = 3837.0 PEAK FLOW RATE(CFS) = 2700.64
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 43.73
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.387
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	8.69	0.30	1.000	81
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.73	0.30	1.000	65
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.41	0.30	1.000	65
NATURAL FAIR COVER "WOODLAND, GRASS"	B	1.37	0.30	1.000	65
NATURAL FAIR COVER "WOODLAND, GRASS"	B	3.11	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 14.31 SUBAREA RUNOFF(CFS) = 13.99
 EFFECTIVE AREA(ACRES) = 2630.32 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA(ACRES) = 3851.3 PEAK FLOW RATE(CFS) = 2700.64
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13683.00 TO NODE 13685.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 208.53 DOWNSTREAM(FEET) = 194.24
 CHANNEL LENGTH THRU SUBAREA(FEET) = 289.01 CHANNEL SLOPE = 0.0494
 GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 3.84
 CHANNEL FLOW THRU SUBAREA(CFS) = 2700.64
 FLOW VELOCITY(FEET/SEC.) = 16.94 FLOW DEPTH(FEET) = 3.84
 TRAVEL TIME(MIN.) = 0.28 Tc(MIN.) = 44.01
 LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13685.00 = 39866.53 FEET.

FLOW PROCESS FROM NODE 13685.00 TO NODE 13410.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 194.24 DOWNSTREAM(FEET) = 178.72
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1843.57 CHANNEL SLOPE = 0.0084
 GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 6.16
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.327
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE SCS SOIL GROUP AREA (ACRES) Fp (INCH/HR) Ap (DECIMAL) SCS CN
 USER-DEFINED - 0.23 0.30 1.000 -
 USER-DEFINED - 1.52 0.30 1.000 -
 USER-DEFINED - 0.06 0.30 1.000 -
 USER-DEFINED - 0.13 0.30 1.000 -
 USER-DEFINED - 6.45 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2704.52
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.06
 AVERAGE FLOW DEPTH(FEET) = 6.16 TRAVEL TIME(MIN.) = 3.39
 Tc(MIN.) = 47.40
 SUBAREA AREA(ACRES) = 8.39 SUBAREA RUNOFF(CFS) = 7.76
 EFFECTIVE AREA(ACRES) = 2638.71 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA(ACRES) = 3859.7 PEAK FLOW RATE(CFS) = 2700.64
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 6.15

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 6.15 FLOW VELOCITY(FEET/SEC.) = 9.06
 LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13410.00 = 41710.10 FEET.

=====
 END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 3859.7 TC(MIN.) = 47.40
 EFFECTIVE AREA(ACRES) = 2638.71 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.928
 PEAK FLOW RATE(CFS) = 2700.64

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2426.61	27.79	1.792	0.30(0.27)	0.90	1478.1	110.00
2	2523.08	30.18	1.702	0.30(0.27)	0.90	1650.5	100.00
3	2535.23	31.37	1.671	0.30(0.27)	0.90	1727.1	100.00
4	2565.50	34.38	1.593	0.30(0.27)	0.91	1904.1	130.00
5	2700.64	47.40	1.327	0.30(0.28)	0.93	2638.7	20100.00
6	2620.76	52.90	1.253	0.30(0.28)	0.93	2824.4	13600.00
7	2498.72	87.84	0.987	0.30(0.28)	0.93	3795.6	13510.00
8	2354.93	96.73	0.943	0.30(0.28)	0.93	3859.7	13500.00

=====
 END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 17.0 Release Date: 07/01/2010 License ID 1527

Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 137 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 50-YR EV SEP 2023 ROKAMOTO *

FILE NAME: RI50EV37.DAT
TIME/DATE OF STUDY: 16:24 09/05/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 50.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 5.240
- 2) 10.00; 3.389
- 3) 15.00; 2.611
- 4) 20.00; 2.187
- 5) 25.00; 1.897
- 6) 30.00; 1.705
- 7) 40.00; 1.446
- 8) 50.00; 1.284
- 9) 60.00; 1.172
- 10) 90.00; 0.970
- 11) 120.00; 0.840
- 12) 180.00; 0.715
- 13) 360.00; 0.524
- 14) 1200.00; 0.229

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RI50EV34.DNA
MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	23292.06	18.52	0.30 (0.26)	0.86	4559.8	300.00
2	25215.16	23.48	0.30 (0.26)	0.86	6089.0	210.00
3	26522.53	28.15	0.30 (0.26)	0.86	7608.4	110.00
4	30798.54	42.12	0.30 (0.27)	0.88	13420.4	150.00
5	32851.13	49.77	0.30 (0.27)	0.89	16365.1	600.00
6	33754.04	54.52	0.30 (0.27)	0.90	18540.4	31100.00
7	36077.80	65.74	0.30 (0.28)	0.92	23655.8	40100.00
8	37173.77	73.47	0.30 (0.28)	0.93	27101.1	11801.00
9	39124.00	84.08	0.30 (0.28)	0.93	32533.2	11530.00
10	40996.54	91.75	0.30 (0.28)	0.94	37481.5	11910.00
11	42306.50	97.04	0.30 (0.28)	0.94	41341.2	13500.00
12	43841.66	105.91	0.30 (0.29)	0.95	47423.4	11130.00
13	43478.98	115.50	0.30 (0.29)	0.95	52464.6	12410.00
14	42889.45	123.80	0.30 (0.29)	0.96	56203.7	11201.00
15	42465.76	128.79	0.30 (0.29)	0.96	57935.4	12201.00
16	41450.64	135.89	0.30 (0.29)	0.96	59792.6	12231.00
17	40156.15	143.75	0.30 (0.29)	0.96	61426.9	10400.00
18	38809.04	151.75	0.30 (0.29)	0.96	62722.0	12010.00
19	37619.12	157.77	0.30 (0.29)	0.96	63069.0	10210.00
20	33456.26	186.17	0.30 (0.29)	0.96	63807.4	10100.00
TOTAL AREA (ACRES) =						63807.4

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 14.0

>>>>MEMORY BANK # 3 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	23292.06	18.52	0.30 (0.26)	0.86	4559.8	300.00
2	25215.16	23.48	0.30 (0.26)	0.86	6089.0	210.00
3	26522.53	28.15	0.30 (0.26)	0.86	7608.4	110.00
4	30798.54	42.12	0.30 (0.27)	0.88	13420.4	150.00
5	32851.13	49.77	0.30 (0.27)	0.89	16365.1	600.00
6	33754.04	54.52	0.30 (0.27)	0.90	18540.4	31100.00
7	36077.80	65.74	0.30 (0.28)	0.92	23655.8	40100.00
8	37173.77	73.47	0.30 (0.28)	0.93	27101.1	11801.00
9	39124.00	84.08	0.30 (0.28)	0.93	32533.2	11530.00
10	40996.54	91.75	0.30 (0.28)	0.94	37481.5	11910.00
11	42306.50	97.04	0.30 (0.28)	0.94	41341.2	13500.00
12	43841.66	105.91	0.30 (0.29)	0.95	47423.4	11130.00
13	43478.98	115.50	0.30 (0.29)	0.95	52464.6	12410.00

14 42889.45 123.80 0.30(0.29) 0.96 56203.7 11201.00
 15 42465.76 128.79 0.30(0.29) 0.96 57935.4 12201.00
 16 41450.64 135.89 0.30(0.29) 0.96 59792.6 12231.00
 17 40156.15 143.75 0.30(0.29) 0.96 61426.9 10400.00
 18 38809.04 151.75 0.30(0.29) 0.96 62722.0 12010.00
 19 37619.12 157.77 0.30(0.29) 0.96 63069.0 10210.00
 20 33456.26 186.17 0.30(0.29) 0.96 63807.4 10100.00
 TOTAL AREA (ACRES) = 63807.4

FLOW PROCESS FROM NODE 13700.00 TO NODE 13720.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 170.00 DOWNSTREAM (FEET) = 165.51
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1891.83 CHANNEL SLOPE = 0.0024
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 13.77
 CHANNEL FLOW THRU SUBAREA (CFS) = 43841.66
 FLOW VELOCITY (FEET/SEC.) = 11.84 FLOW DEPTH (FEET) = 13.77
 TRAVEL TIME (MIN.) = 2.66 Tc (MIN.) = 108.57
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13720.00 = 126441.05 FEET.

FLOW PROCESS FROM NODE 13700.00 TO NODE 13720.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

FLOW PROCESS FROM NODE 13720.00 TO NODE 13720.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 0506102C.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	368.04	14.55	2.681	0.30(0.29)	0.96	189.6	10230.00
2	334.70	24.11	1.948	0.30(0.29)	0.95	240.8	10200.00
3	332.42	24.51	1.925	0.30(0.29)	0.95	241.8	10250.00
4	305.13	28.32	1.769	0.30(0.29)	0.95	246.3	10220.00
TOTAL AREA (ACRES) =							246.3

FLOW PROCESS FROM NODE 13720.00 TO NODE 13720.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	23292.06	21.78	2.084	0.30(0.26)	0.86	4559.8	300.00
2	25215.16	26.65	1.834	0.30(0.26)	0.86	6089.0	210.00
3	26522.53	31.27	1.672	0.30(0.26)	0.86	7608.4	110.00

4	30798.54	45.09	1.364	0.30(0.27)	0.88	13420.4	150.00
5	32851.13	52.68	1.254	0.30(0.27)	0.89	16365.1	600.00
6	33754.04	57.40	1.201	0.30(0.27)	0.90	18540.4	31100.00
7	36077.80	68.57	1.114	0.30(0.28)	0.92	23655.8	40100.00
8	37173.77	76.28	1.062	0.30(0.28)	0.93	27101.1	11801.00
9	39124.00	86.84	0.991	0.30(0.28)	0.93	32533.2	11530.00
10	40996.54	94.47	0.951	0.30(0.28)	0.94	37481.5	11910.00
11	42306.50	99.73	0.928	0.30(0.28)	0.94	41341.2	13500.00
12	43841.66	108.57	0.890	0.30(0.29)	0.95	47423.4	11130.00
13	43478.98	118.17	0.848	0.30(0.29)	0.95	52464.6	12410.00
14	42889.45	126.48	0.826	0.30(0.29)	0.96	56203.7	11201.00
15	42465.76	131.48	0.816	0.30(0.29)	0.96	57935.4	12201.00
16	41450.64	138.59	0.801	0.30(0.29)	0.96	59792.6	12231.00
17	40156.15	146.49	0.785	0.30(0.29)	0.96	61426.9	10400.00
18	38809.04	154.52	0.768	0.30(0.29)	0.96	62722.0	12010.00
19	37619.12	160.57	0.755	0.30(0.29)	0.96	63069.0	10210.00
20	33456.26	189.07	0.705	0.30(0.29)	0.96	63807.4	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13720.00 = 126441.05 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	368.04	14.55	2.681	0.30(0.29)	0.96	189.6	10230.00
2	334.70	24.11	1.948	0.30(0.29)	0.95	240.8	10200.00
3	332.42	24.51	1.925	0.30(0.29)	0.95	241.8	10250.00
4	305.13	28.32	1.769	0.30(0.29)	0.95	246.3	10220.00

LONGEST FLOWPATH FROM NODE 10200.00 TO NODE 13720.00 = 9099.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21020.18	14.55	2.681	0.30(0.26)	0.87	3235.7	10230.00
2	23634.90	21.78	2.084	0.30(0.26)	0.87	4788.1	300.00
3	24549.92	24.11	1.948	0.30(0.26)	0.86	5534.7	10200.00
4	24703.95	24.51	1.925	0.30(0.26)	0.86	5659.9	10250.00
5	25532.28	26.65	1.834	0.30(0.26)	0.86	6333.3	210.00
6	25993.05	28.32	1.769	0.30(0.26)	0.86	6884.7	10220.00
7	26807.61	31.27	1.672	0.30(0.26)	0.86	7854.7	110.00
8	31020.17	45.09	1.364	0.30(0.27)	0.89	13666.6	150.00
9	33050.23	52.68	1.254	0.30(0.27)	0.90	16611.3	600.00
10	33942.25	57.40	1.201	0.30(0.27)	0.90	18786.7	31100.00
11	36248.16	68.57	1.114	0.30(0.28)	0.92	23902.0	40100.00
12	37333.45	76.28	1.062	0.30(0.28)	0.93	27347.4	11801.00
13	39269.06	86.84	0.991	0.30(0.28)	0.93	32779.5	11530.00
14	41133.23	94.47	0.951	0.30(0.28)	0.94	37727.8	11910.00
15	42438.50	99.73	0.928	0.30(0.28)	0.94	41587.5	13500.00
16	43965.79	108.57	0.890	0.30(0.29)	0.95	47669.7	11130.00
17	43594.55	118.17	0.848	0.30(0.29)	0.95	52710.9	12410.00
18	43000.61	126.48	0.826	0.30(0.29)	0.96	56450.0	11201.00
19	42574.78	131.48	0.816	0.30(0.29)	0.96	58181.7	12201.00
20	41556.61	138.59	0.801	0.30(0.29)	0.96	60038.9	12231.00
21	40258.74	146.49	0.785	0.30(0.29)	0.96	61673.1	10400.00
22	38908.19	154.52	0.768	0.30(0.29)	0.96	62968.3	12010.00
23	37715.68	160.57	0.755	0.30(0.29)	0.96	63315.2	10210.00
24	33542.51	189.07	0.705	0.30(0.29)	0.96	64053.7	10100.00
TOTAL AREA (ACRES) =							64053.7

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 43965.79 Tc(MIN.) = 108.570
 EFFECTIVE AREA(ACRES) = 47669.69 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA(ACRES) = 64053.7
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13720.00 = 126441.05 FEET.

 FLOW PROCESS FROM NODE 13720.00 TO NODE 13740.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 165.51 DOWNSTREAM(FEET) = 161.03
 CHANNEL LENGTH THRU SUBAREA(FEET) = 2067.54 CHANNEL SLOPE = 0.0022
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 14.14
 CHANNEL FLOW THRU SUBAREA(CFS) = 43965.79
 FLOW VELOCITY(FEET/SEC.) = 11.49 FLOW DEPTH(FEET) = 14.14
 TRAVEL TIME(MIN.) = 3.00 Tc(MIN.) = 111.57
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13740.00 = 128508.59 FEET.

 FLOW PROCESS FROM NODE 13720.00 TO NODE 13740.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

 FLOW PROCESS FROM NODE 13740.00 TO NODE 13740.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: 0506103C.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	702.74	18.17	0.30(0.23)	0.76	400.0	10300.00
2	704.90	18.97	0.30(0.23)	0.76	413.4	10380.00
3	693.05	21.35	0.30(0.23)	0.76	439.7	10320.00
4	668.71	23.48	0.30(0.23)	0.76	451.6	10360.00
5	629.78	26.35	0.30(0.23)	0.76	460.8	10340.00
TOTAL AREA(ACRES) =						460.8

 FLOW PROCESS FROM NODE 13740.00 TO NODE 13740.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21020.18	18.34	2.328	0.30(0.26)	0.87	3235.7	10230.00
2	23634.90	25.43	1.881	0.30(0.26)	0.87	4788.1	300.00
3	24549.92	27.72	1.793	0.30(0.26)	0.86	5534.7	10200.00
4	24703.95	28.11	1.778	0.30(0.26)	0.86	5659.9	10250.00
5	25532.28	30.21	1.700	0.30(0.26)	0.86	6333.3	210.00

6	25993.05	31.86	1.657	0.30(0.26)	0.86	6884.7	10220.00
7	26807.61	34.78	1.581	0.30(0.26)	0.86	7854.7	110.00
8	31020.17	48.44	1.309	0.30(0.27)	0.89	13666.6	150.00
9	33050.23	55.96	1.217	0.30(0.27)	0.90	16611.3	600.00
10	33942.25	60.66	1.168	0.30(0.27)	0.90	18786.7	31100.00
11	36248.16	71.76	1.093	0.30(0.28)	0.92	23902.0	40100.00
12	37333.45	79.43	1.041	0.30(0.28)	0.93	27347.4	11801.00
13	39269.06	89.94	0.970	0.30(0.28)	0.93	32779.5	11530.00
14	41133.23	97.53	0.937	0.30(0.28)	0.94	37727.8	11910.00
15	42438.50	102.77	0.915	0.30(0.28)	0.94	41587.5	13500.00
16	43965.79	111.57	0.877	0.30(0.29)	0.95	47669.7	11130.00
17	43594.55	121.18	0.838	0.30(0.29)	0.95	52710.9	12410.00
18	43000.61	129.50	0.820	0.30(0.29)	0.96	56450.0	11201.00
19	42574.78	134.51	0.810	0.30(0.29)	0.96	58181.7	12201.00
20	41556.61	141.65	0.795	0.30(0.29)	0.96	60038.9	12231.00
21	40258.74	149.57	0.778	0.30(0.29)	0.96	61673.1	10400.00
22	38908.19	157.63	0.762	0.30(0.29)	0.96	62968.3	12010.00
23	37715.68	163.71	0.749	0.30(0.29)	0.96	63315.2	10210.00
24	33542.51	192.33	0.702	0.30(0.29)	0.96	64053.7	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13740.00 = 128508.59 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	702.74	18.17	2.342	0.30(0.23)	0.76	400.0	10300.00
2	704.90	18.97	2.274	0.30(0.23)	0.76	413.4	10380.00
3	693.05	21.35	2.109	0.30(0.23)	0.76	439.7	10320.00
4	668.71	23.48	1.985	0.30(0.23)	0.76	451.6	10360.00
5	629.78	26.35	1.845	0.30(0.23)	0.76	460.8	10340.00

LONGEST FLOWPATH FROM NODE 10320.00 TO NODE 13740.00 = 8457.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21672.60	18.17	2.342	0.30(0.26)	0.86	3605.3	10300.00
2	21723.39	18.34	2.328	0.30(0.26)	0.86	3638.5	10230.00
3	21957.84	18.97	2.274	0.30(0.26)	0.86	3787.3	10380.00
4	22823.14	21.35	2.109	0.30(0.26)	0.86	4334.3	10320.00
5	23584.01	23.48	1.985	0.30(0.26)	0.86	4812.4	10360.00
6	24277.23	25.43	1.881	0.30(0.26)	0.86	5245.9	300.00
7	24634.66	26.35	1.845	0.30(0.26)	0.86	5550.8	10340.00
8	25159.26	27.72	1.793	0.30(0.26)	0.86	5995.5	10200.00
9	25307.47	28.11	1.778	0.30(0.26)	0.86	6120.7	10250.00
10	26105.41	30.21	1.700	0.30(0.26)	0.86	6794.1	210.00
11	26549.50	31.86	1.657	0.30(0.26)	0.86	7345.5	10220.00
12	27334.59	34.78	1.581	0.30(0.26)	0.86	8315.5	110.00
13	31441.19	48.44	1.309	0.30(0.26)	0.88	14127.4	150.00
14	33435.36	55.96	1.217	0.30(0.27)	0.89	17072.1	600.00
15	34308.02	60.66	1.168	0.30(0.27)	0.90	19247.5	31100.00
16	36584.81	71.76	1.093	0.30(0.27)	0.92	24362.8	40100.00
17	37649.95	79.43	1.041	0.30(0.28)	0.92	27808.2	11801.00
18	39557.98	89.94	0.970	0.30(0.28)	0.93	33240.3	11530.00
19	41409.29	97.53	0.937	0.30(0.28)	0.94	38188.6	11910.00
20	42705.71	102.77	0.915	0.30(0.28)	0.94	42048.3	13500.00
21	44218.13	111.57	0.877	0.30(0.28)	0.95	48130.5	11130.00
22	43831.70	121.18	0.838	0.30(0.29)	0.95	53171.7	12410.00
23	43231.00	129.50	0.820	0.30(0.29)	0.95	56910.8	11201.00
24	42801.11	134.51	0.810	0.30(0.29)	0.96	58642.5	12201.00

25 41777.14 141.65 0.795 0.30(0.29) 0.96 60499.7 12231.00
 26 40472.84 149.57 0.778 0.30(0.29) 0.96 62133.9 10400.00
 27 39115.74 157.63 0.762 0.30(0.29) 0.96 63429.1 12010.00
 28 37918.29 163.71 0.749 0.30(0.29) 0.96 63776.0 10210.00
 29 33726.80 192.33 0.702 0.30(0.29) 0.96 64514.5 10100.00
 TOTAL AREA (ACRES) = 64514.5

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 44218.13 Tc(MIN.) = 111.570
 EFFECTIVE AREA(ACRES) = 48130.49 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 64514.5
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13740.00 = 128508.59 FEET.

FLOW PROCESS FROM NODE 13740.00 TO NODE 13741.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 161.03 DOWNSTREAM(FEET) = 141.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 364.08 CHANNEL SLOPE = 0.0550
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 8.21
 CHANNEL FLOW THRU SUBAREA(CFS) = 44218.13
 FLOW VELOCITY(FEET/SEC.) = 40.52 FLOW DEPTH(FEET) = 8.21
 TRAVEL TIME(MIN.) = 0.15 Tc(MIN.) = 111.72
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13741.00 = 128872.66 FEET.

FLOW PROCESS FROM NODE 13740.00 TO NODE 13741.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

FLOW PROCESS FROM NODE 13741.00 TO NODE 13741.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 0506104C.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	71.30	19.53	0.30(0.24)	0.80	44.3	10400.00
TOTAL AREA(ACRES) =						44.3

FLOW PROCESS FROM NODE 13741.00 TO NODE 13741.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21672.60	18.36	2.326	0.30(0.26)	0.86	3605.3	10300.00

2	21723.39	18.53	2.312	0.30(0.26)	0.86	3638.5	10230.00
3	21957.84	19.16	2.258	0.30(0.26)	0.86	3787.3	10380.00
4	22823.14	21.53	2.098	0.30(0.26)	0.86	4334.3	10320.00
5	23584.01	23.66	1.975	0.30(0.26)	0.86	4812.4	10360.00
6	24277.23	25.61	1.874	0.30(0.26)	0.86	5245.9	300.00
7	24634.66	26.53	1.838	0.30(0.26)	0.86	5550.8	10340.00
8	25159.26	27.90	1.786	0.30(0.26)	0.86	5995.5	10200.00
9	25307.47	28.29	1.771	0.30(0.26)	0.86	6120.7	10250.00
10	26105.41	30.38	1.695	0.30(0.26)	0.86	6794.1	210.00
11	26549.50	32.04	1.652	0.30(0.26)	0.86	7345.5	10220.00
12	27334.59	34.95	1.577	0.30(0.26)	0.86	8315.5	110.00
13	31441.19	48.60	1.307	0.30(0.26)	0.88	14127.4	150.00
14	33435.36	56.12	1.215	0.30(0.27)	0.89	17072.1	600.00
15	34308.02	60.82	1.166	0.30(0.27)	0.90	19247.5	31100.00
16	36584.81	71.91	1.092	0.30(0.27)	0.92	24362.8	40100.00
17	37649.95	79.59	1.040	0.30(0.28)	0.92	27808.2	11801.00
18	39557.98	90.10	0.970	0.30(0.28)	0.93	33240.3	11530.00
19	41409.29	97.69	0.937	0.30(0.28)	0.94	38188.6	11910.00
20	42705.71	102.92	0.914	0.30(0.28)	0.94	42048.3	13500.00
21	44218.13	111.72	0.876	0.30(0.28)	0.95	48130.5	11130.00
22	43831.70	121.33	0.837	0.30(0.29)	0.95	53171.7	12410.00
23	43231.00	129.65	0.820	0.30(0.29)	0.95	56910.8	11201.00
24	42801.11	134.66	0.809	0.30(0.29)	0.96	58642.5	12201.00
25	41777.14	141.80	0.795	0.30(0.29)	0.96	60499.7	12231.00
26	40472.84	149.72	0.778	0.30(0.29)	0.96	62133.9	10400.00
27	39115.74	157.79	0.761	0.30(0.29)	0.96	63429.1	12010.00
28	37918.29	163.87	0.749	0.30(0.29)	0.96	63776.0	10210.00
29	33726.80	192.50	0.702	0.30(0.29)	0.96	64514.5	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13741.00 = 128872.66 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	71.30	19.53	2.227	0.30(0.24)	0.80	44.3	10400.00
LONGEST FLOWPATH FROM NODE 10400.00 TO NODE 13741.00 =							6237.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21742.97	18.36	2.326	0.30(0.26)	0.85	3646.9	10300.00
2	21793.92	18.53	2.312	0.30(0.26)	0.85	3680.6	10230.00
3	22028.89	19.16	2.258	0.30(0.26)	0.85	3830.7	10380.00
4	22165.83	19.53	2.227	0.30(0.26)	0.85	3918.0	10400.00
5	22889.83	21.53	2.098	0.30(0.26)	0.86	4378.6	10320.00
6	23646.28	23.66	1.975	0.30(0.26)	0.86	4856.7	10360.00
7	24335.87	25.61	1.874	0.30(0.26)	0.86	5290.2	300.00
8	24692.03	26.53	1.838	0.30(0.26)	0.86	5595.1	10340.00
9	25214.74	27.90	1.786	0.30(0.26)	0.86	6039.8	10200.00
10	25362.42	28.29	1.771	0.30(0.26)	0.86	6165.0	10250.00
11	26157.65	30.38	1.695	0.30(0.26)	0.86	6838.4	210.00
12	26600.19	32.04	1.652	0.30(0.26)	0.86	7389.8	10220.00
13	27382.57	34.95	1.577	0.30(0.26)	0.86	8359.8	110.00
14	31479.49	48.60	1.307	0.30(0.26)	0.88	14171.7	150.00
15	33470.38	56.12	1.215	0.30(0.27)	0.89	17116.4	600.00
16	34341.29	60.82	1.166	0.30(0.27)	0.90	19291.8	31100.00
17	36615.39	71.91	1.092	0.30(0.27)	0.92	24407.1	40100.00
18	37678.68	79.59	1.040	0.30(0.28)	0.92	27852.5	11801.00
19	39584.18	90.10	0.970	0.30(0.28)	0.93	33284.6	11530.00

20	41434.30	97.69	0.937	0.30	(0.28)	0.94	38232.9	11910.00
21	42729.92	102.92	0.914	0.30	(0.28)	0.94	42092.6	13500.00
22	44240.97	111.72	0.876	0.30	(0.28)	0.95	48174.8	11130.00
23	43853.14	121.33	0.837	0.30	(0.29)	0.95	53216.0	12410.00
24	43251.82	129.65	0.820	0.30	(0.29)	0.95	56955.1	11201.00
25	42821.56	134.66	0.809	0.30	(0.29)	0.96	58686.8	12201.00
26	41797.07	141.80	0.795	0.30	(0.29)	0.96	60544.0	12231.00
27	40492.16	149.72	0.778	0.30	(0.29)	0.96	62178.2	10400.00
28	39134.46	157.79	0.761	0.30	(0.29)	0.96	63473.4	12010.00
29	37936.56	163.87	0.749	0.30	(0.29)	0.96	63820.3	10210.00
30	33743.39	192.50	0.702	0.30	(0.29)	0.96	64558.8	10100.00

TOTAL AREA (ACRES) = 64558.8

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 44240.97 Tc (MIN.) = 111.720
EFFECTIVE AREA (ACRES) = 48174.79 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA (ACRES) = 64558.8
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13741.00 = 128872.66 FEET.

FLOW PROCESS FROM NODE 13741.00 TO NODE 13802.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 141.00 DOWNSTREAM (FEET) = 135.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1533.41 CHANNEL SLOPE = 0.0039
GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 16.64
CHANNEL FLOW THRU SUBAREA (CFS) = 44240.97
FLOW VELOCITY (FEET/SEC.) = 15.96 FLOW DEPTH (FEET) = 16.64
TRAVEL TIME (MIN.) = 1.60 Tc (MIN.) = 113.32
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13802.00 = 130406.07 FEET.

FLOW PROCESS FROM NODE 13802.00 TO NODE 13802.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<

FLOW PROCESS FROM NODE 13802.00 TO NODE 13802.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<

PEAK FLOWRATE TABLE FILE NAME: 0506105J.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	385.37	14.62	0.30 (0.27)	0.90	207.5	10520.00
2	453.34	31.20	0.30 (0.28)	0.93	403.6	10500.00
TOTAL AREA (ACRES) =						403.6

FLOW PROCESS FROM NODE 13802.00 TO NODE 13802.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21742.97	20.32	2.168	0.30 (0.26)	0.85	3646.9	10300.00
2	21793.92	20.49	2.158	0.30 (0.26)	0.85	3680.6	10230.00
3	22028.89	21.12	2.122	0.30 (0.26)	0.85	3830.7	10380.00
4	22165.83	21.49	2.101	0.30 (0.26)	0.85	3918.0	10400.00
5	22889.83	23.47	1.986	0.30 (0.26)	0.86	4378.6	10320.00
6	23646.28	25.58	1.875	0.30 (0.26)	0.86	4856.7	10360.00
7	24335.87	27.51	1.801	0.30 (0.26)	0.86	5290.2	300.00
8	24692.03	28.43	1.765	0.30 (0.26)	0.86	5595.1	10340.00
9	25214.74	29.78	1.713	0.30 (0.26)	0.86	6039.8	10200.00
10	25362.42	30.17	1.701	0.30 (0.26)	0.86	6165.0	10250.00
11	26157.65	32.25	1.647	0.30 (0.26)	0.86	6838.4	210.00
12	26600.19	33.89	1.604	0.30 (0.26)	0.86	7389.8	10220.00
13	27382.57	36.79	1.529	0.30 (0.26)	0.86	8359.8	110.00
14	31479.49	50.37	1.280	0.30 (0.26)	0.88	14171.7	150.00
15	33470.38	57.86	1.196	0.30 (0.27)	0.89	17116.4	600.00
16	34341.29	62.54	1.155	0.30 (0.27)	0.90	19291.8	31100.00
17	36615.39	73.60	1.080	0.30 (0.27)	0.92	24407.1	40100.00
18	37678.68	81.27	1.029	0.30 (0.28)	0.92	27852.5	11801.00
19	39584.18	91.75	0.962	0.30 (0.28)	0.93	33284.6	11530.00
20	41434.30	99.32	0.930	0.30 (0.28)	0.94	38232.9	11910.00
21	42729.92	104.54	0.907	0.30 (0.28)	0.94	42092.6	13500.00
22	44240.97	113.32	0.869	0.30 (0.28)	0.95	48174.8	11130.00
23	43853.14	122.94	0.834	0.30 (0.29)	0.95	53216.0	12410.00
24	43251.82	131.27	0.817	0.30 (0.29)	0.95	56955.1	11201.00
25	42821.56	136.27	0.806	0.30 (0.29)	0.96	58686.8	12201.00
26	41797.07	143.43	0.791	0.30 (0.29)	0.96	60544.0	12231.00
27	40492.16	151.37	0.775	0.30 (0.29)	0.96	62178.2	10400.00
28	39134.46	159.45	0.758	0.30 (0.29)	0.96	63473.4	12010.00
29	37936.56	165.54	0.745	0.30 (0.29)	0.96	63820.3	10210.00
30	33743.39	194.23	0.700	0.30 (0.29)	0.96	64558.8	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13802.00 = 130406.07 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	385.37	14.62	2.670	0.30 (0.27)	0.90	207.5	10520.00
2	453.34	31.20	1.674	0.30 (0.28)	0.93	403.6	10500.00

LONGEST FLOWPATH FROM NODE 10500.00 TO NODE 13802.00 = 12187.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20133.17	14.62	2.670	0.30 (0.26)	0.86	2831.3	10520.00
2	22151.71	20.32	2.168	0.30 (0.26)	0.86	3921.8	10300.00
3	22203.37	20.49	2.158	0.30 (0.26)	0.86	3957.5	10230.00
4	22440.89	21.12	2.122	0.30 (0.26)	0.86	4115.1	10380.00
5	22579.36	21.49	2.101	0.30 (0.26)	0.86	4206.7	10400.00
6	23311.47	23.47	1.986	0.30 (0.26)	0.86	4690.8	10320.00
7	24076.56	25.58	1.875	0.30 (0.26)	0.86	5193.8	10360.00
8	24774.07	27.51	1.801	0.30 (0.26)	0.86	5650.2	300.00
9	25133.99	28.43	1.765	0.30 (0.26)	0.86	5965.9	10340.00
10	25662.26	29.78	1.713	0.30 (0.26)	0.86	6426.6	10200.00

11	25811.51	30.17	1.701	0.30	(0.26)	0.86	6556.4	10250.00		
12	26212.61	31.20	1.674	0.30	(0.26)	0.86	6904.7	10500.00		
13	26602.23	32.25	1.647	0.30	(0.26)	0.86	7242.0	210.00		
14	27030.95	33.89	1.604	0.30	(0.26)	0.86	7793.4	10220.00		
15	27788.93	36.79	1.529	0.30	(0.26)	0.86	8763.4	110.00		
16	31804.89	50.37	1.280	0.30	(0.26)	0.88	14575.3	150.00		
17	33768.54	57.86	1.196	0.30	(0.27)	0.89	17520.0	600.00		
18	34626.09	62.54	1.155	0.30	(0.27)	0.90	19695.4	31100.00		
19	36876.00	73.60	1.080	0.30	(0.27)	0.92	24810.7	40100.00		
20	37922.54	81.27	1.029	0.30	(0.28)	0.92	28256.1	11801.00		
21	39806.46	91.75	0.962	0.30	(0.28)	0.93	33688.2	11530.00		
22	41645.95	99.32	0.930	0.30	(0.28)	0.94	38636.5	11910.00		
23	42934.21	104.54	0.907	0.30	(0.28)	0.94	42496.2	13500.00		
24	44432.90	113.32	0.869	0.30	(0.28)	0.95	48578.4	11130.00		
25	44033.69	122.94	0.834	0.30	(0.29)	0.95	53619.6	12410.00		
26	43426.73	131.27	0.817	0.30	(0.29)	0.95	57358.7	11201.00		
27	42993.08	136.27	0.806	0.30	(0.29)	0.96	59090.4	12201.00		
28	41963.75	143.43	0.791	0.30	(0.29)	0.96	60947.6	12231.00		
29	40653.47	151.37	0.775	0.30	(0.29)	0.96	62581.9	10400.00		
30	39290.30	159.45	0.758	0.30	(0.29)	0.96	63877.0	12010.00		
31	38088.27	165.54	0.745	0.30	(0.29)	0.96	64223.9	10210.00		
32	33880.42	194.23	0.700	0.30	(0.29)	0.96	64962.4	10100.00		
TOTAL AREA (ACRES) =		64962.4								

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 44432.90 Tc (MIN.) = 113.322
EFFECTIVE AREA (ACRES) = 48578.39 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA (ACRES) = 64962.4
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13802.00 = 130406.07 FEET.

FLOW PROCESS FROM NODE 13802.00 TO NODE 13803.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 135.00 DOWNSTREAM (FEET) = 134.99
CHANNEL LENGTH THRU SUBAREA (FEET) = 207.23 CHANNEL SLOPE = 0.0000
GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 47.85
CHANNEL FLOW THRU SUBAREA (CFS) = 44432.90
FLOW VELOCITY (FEET/SEC.) = 3.19 FLOW DEPTH (FEET) = 47.85
TRAVEL TIME (MIN.) = 1.08 Tc (MIN.) = 114.41
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13803.00 = 130613.30 FEET.

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 114.41
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.864
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
RESIDENTIAL

"1 DWELLING/ACRE" B 48.80 0.30 0.800 56
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.800
SUBAREA AREA (ACRES) = 48.80 SUBAREA RUNOFF (CFS) = 27.42
EFFECTIVE AREA (ACRES) = 48627.19 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 65011.2 PEAK FLOW RATE (CFS) = 44432.90
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13802.00 TO NODE 13803.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 0506106C.DNA
MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	63.85	17.52	0.30 (0.20)	0.67	36.9	10600.00
TOTAL AREA (ACRES) =		36.9				

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20133.17	15.95	2.530	0.30 (0.26)	0.86	2880.1	10520.00
2	22151.71	21.62	2.093	0.30 (0.26)	0.86	3970.6	10300.00
3	22203.37	21.79	2.083	0.30 (0.26)	0.86	4006.3	10230.00
4	22440.89	22.41	2.047	0.30 (0.26)	0.86	4163.9	10380.00
5	22579.36	22.78	2.026	0.30 (0.26)	0.86	4255.5	10400.00
6	23311.47	24.75	1.911	0.30 (0.26)	0.86	4739.6	10320.00
7	24076.56	26.85	1.826	0.30 (0.26)	0.86	5242.6	10360.00
8	24774.07	28.77	1.752	0.30 (0.26)	0.86	5699.0	300.00
9	25133.99	29.68	1.717	0.30 (0.26)	0.86	6014.7	10340.00
10	25662.26	31.03	1.678	0.30 (0.26)	0.86	6475.4	10200.00
11	25811.51	31.41	1.668	0.30 (0.26)	0.86	6605.2	10250.00
12	26212.61	32.45	1.642	0.30 (0.26)	0.86	6953.5	10500.00
13	26602.23	33.48	1.615	0.30 (0.26)	0.86	7290.8	210.00
14	27030.95	35.12	1.572	0.30 (0.26)	0.86	7842.2	10220.00
15	27788.93	38.01	1.497	0.30 (0.26)	0.86	8812.2	110.00
16	31804.89	51.55	1.267	0.30 (0.26)	0.88	14624.1	150.00
17	33768.54	59.02	1.183	0.30 (0.27)	0.89	17568.8	600.00
18	34626.09	63.70	1.147	0.30 (0.27)	0.90	19744.2	31100.00
19	36876.00	74.74	1.073	0.30 (0.27)	0.92	24859.5	40100.00
20	37922.54	82.40	1.021	0.30 (0.28)	0.92	28304.9	11801.00
21	39806.46	92.87	0.958	0.30 (0.28)	0.93	33737.0	11530.00
22	41645.95	100.42	0.925	0.30 (0.28)	0.94	38685.3	11910.00

23 42934.21 105.63 0.902 0.30(0.28) 0.94 42545.0 13500.00
 24 44432.90 114.41 0.864 0.30(0.28) 0.95 48627.2 11130.00
 25 44033.69 124.02 0.832 0.30(0.29) 0.95 53668.4 12410.00
 26 43426.73 132.36 0.814 0.30(0.29) 0.95 57407.5 11201.00
 27 42993.08 137.37 0.804 0.30(0.29) 0.96 59139.2 12201.00
 28 41963.75 144.53 0.789 0.30(0.29) 0.96 60996.4 12231.00
 29 40653.47 152.47 0.772 0.30(0.29) 0.96 62630.7 10400.00
 30 39290.30 160.57 0.755 0.30(0.29) 0.96 63925.8 12010.00
 31 38088.27 166.67 0.743 0.30(0.29) 0.96 64272.7 10210.00
 32 33880.42 195.39 0.699 0.30(0.29) 0.96 65011.2 10100.00
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13803.00 = 130613.30 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	63.85	17.52	2.397	0.30(0.20)	0.67	36.9	10600.00

LONGEST FLOWPATH FROM NODE 10600.00 TO NODE 13803.00 = 1713.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20194.82	15.95	2.530	0.30(0.26)	0.86	2913.6	10520.00
2	20755.91	17.52	2.397	0.30(0.26)	0.86	3218.9	10600.00
3	22206.71	21.62	2.093	0.30(0.26)	0.86	4007.5	10300.00
4	22258.08	21.79	2.083	0.30(0.26)	0.86	4043.2	10230.00
5	22494.56	22.41	2.047	0.30(0.26)	0.86	4200.8	10380.00
6	22632.40	22.78	2.026	0.30(0.26)	0.86	4292.4	10400.00
7	23361.20	24.75	1.911	0.30(0.26)	0.86	4776.5	10320.00
8	24123.80	26.85	1.826	0.30(0.26)	0.86	5279.5	10360.00
9	24819.16	28.77	1.752	0.30(0.26)	0.86	5735.9	300.00
10	25178.07	29.68	1.717	0.30(0.26)	0.86	6051.6	10340.00
11	25705.21	31.03	1.678	0.30(0.26)	0.86	6512.3	10200.00
12	25854.17	31.41	1.668	0.30(0.26)	0.86	6642.1	10250.00
13	26254.49	32.45	1.642	0.30(0.26)	0.86	6990.4	10500.00
14	26643.33	33.48	1.615	0.30(0.26)	0.86	7327.7	210.00
15	27070.81	35.12	1.572	0.30(0.26)	0.86	7879.1	10220.00
16	27826.62	38.01	1.497	0.30(0.26)	0.86	8849.1	110.00
17	31835.87	51.55	1.267	0.30(0.26)	0.88	14661.0	150.00
18	33797.09	59.02	1.183	0.30(0.27)	0.89	17605.7	600.00
19	34653.60	63.70	1.147	0.30(0.27)	0.90	19781.1	31100.00
20	36901.35	74.74	1.073	0.30(0.27)	0.92	24896.4	40100.00
21	37946.38	82.40	1.021	0.30(0.28)	0.92	28341.8	11801.00
22	39828.46	92.87	0.958	0.30(0.28)	0.93	33773.9	11530.00
23	41666.99	100.42	0.925	0.30(0.28)	0.94	38722.2	11910.00
24	42954.60	105.63	0.902	0.30(0.28)	0.94	42581.9	13500.00
25	44452.18	114.41	0.864	0.30(0.28)	0.95	48664.1	11130.00
26	44052.02	124.02	0.832	0.30(0.29)	0.95	53705.3	12410.00
27	43444.56	132.36	0.814	0.30(0.29)	0.95	57444.4	11201.00
28	43010.61	137.37	0.804	0.30(0.29)	0.95	59176.1	12201.00
29	41980.84	144.53	0.789	0.30(0.29)	0.96	61033.3	12231.00
30	40670.08	152.47	0.772	0.30(0.29)	0.96	62667.6	10400.00
31	39306.43	160.57	0.755	0.30(0.29)	0.96	63962.7	12010.00
32	38104.02	166.67	0.743	0.30(0.29)	0.96	64309.6	10210.00
33	33894.89	195.39	0.699	0.30(0.29)	0.96	65048.1	10100.00

TOTAL AREA (ACRES) = 65048.1

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 44452.18 Tc (MIN.) = 114.405

EFFECTIVE AREA (ACRES) = 48664.09 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
 TOTAL AREA (ACRES) = 65048.1
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13803.00 = 130613.30 FEET.

=====
 END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 65048.1 TC (MIN.) = 114.41
 EFFECTIVE AREA (ACRES) = 48664.09 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.948
 PEAK FLOW RATE (CFS) = 44452.18

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20194.82	15.95	2.530	0.30(0.26)	0.86	2913.6	10520.00
2	20755.91	17.52	2.397	0.30(0.26)	0.86	3218.9	10600.00
3	22206.71	21.62	2.093	0.30(0.26)	0.86	4007.5	10300.00
4	22258.08	21.79	2.083	0.30(0.26)	0.86	4043.2	10230.00
5	22494.56	22.41	2.047	0.30(0.26)	0.86	4200.8	10380.00
6	22632.40	22.78	2.026	0.30(0.26)	0.86	4292.4	10400.00
7	23361.20	24.75	1.911	0.30(0.26)	0.86	4776.5	10320.00
8	24123.80	26.85	1.826	0.30(0.26)	0.86	5279.5	10360.00
9	24819.16	28.77	1.752	0.30(0.26)	0.86	5735.9	300.00
10	25178.07	29.68	1.717	0.30(0.26)	0.86	6051.6	10340.00
11	25705.21	31.03	1.678	0.30(0.26)	0.86	6512.3	10200.00
12	25854.17	31.41	1.668	0.30(0.26)	0.86	6642.1	10250.00
13	26254.49	32.45	1.642	0.30(0.26)	0.86	6990.4	10500.00
14	26643.33	33.48	1.615	0.30(0.26)	0.86	7327.7	210.00
15	27070.81	35.12	1.572	0.30(0.26)	0.86	7879.1	10220.00
16	27826.62	38.01	1.497	0.30(0.26)	0.86	8849.1	110.00
17	31835.87	51.55	1.267	0.30(0.26)	0.88	14661.0	150.00
18	33797.09	59.02	1.183	0.30(0.27)	0.89	17605.7	600.00
19	34653.60	63.70	1.147	0.30(0.27)	0.90	19781.1	31100.00
20	36901.35	74.74	1.073	0.30(0.27)	0.92	24896.4	40100.00
21	37946.38	82.40	1.021	0.30(0.28)	0.92	28341.8	11801.00
22	39828.46	92.87	0.958	0.30(0.28)	0.93	33773.9	11530.00
23	41666.99	100.42	0.925	0.30(0.28)	0.94	38722.2	11910.00
24	42954.60	105.63	0.902	0.30(0.28)	0.94	42581.9	13500.00
25	44452.18	114.41	0.864	0.30(0.28)	0.95	48664.1	11130.00
26	44052.02	124.02	0.832	0.30(0.29)	0.95	53705.3	12410.00
27	43444.56	132.36	0.814	0.30(0.29)	0.95	57444.4	11201.00
28	43010.61	137.37	0.804	0.30(0.29)	0.95	59176.1	12201.00
29	41980.84	144.53	0.789	0.30(0.29)	0.96	61033.3	12231.00
30	40670.08	152.47	0.772	0.30(0.29)	0.96	62667.6	10400.00
31	39306.43	160.57	0.755	0.30(0.29)	0.96	63962.7	12010.00
32	38104.02	166.67	0.743	0.30(0.29)	0.96	64309.6	10210.00
33	33894.89	195.39	0.699	0.30(0.29)	0.96	65048.1	10100.00

=====
 END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 17.0 Release Date: 07/01/2010 License ID 1527

Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 138 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 50-YR EV SEP 2023 ROKAMOTO *

FILE NAME: RI50EV38.DAT
TIME/DATE OF STUDY: 16:24 09/05/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 50.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 5.225
- 2) 10.00; 3.382
- 3) 15.00; 2.607
- 4) 20.00; 2.184
- 5) 25.00; 1.895
- 6) 30.00; 1.703
- 7) 40.00; 1.444
- 8) 50.00; 1.282
- 9) 60.00; 1.170
- 10) 90.00; 0.968
- 11) 120.00; 0.838
- 12) 180.00; 0.713
- 13) 360.00; 0.522
- 14) 1200.00; 0.227

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: RI50EV37.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20755.91	17.52	0.30 (0.26)	0.86	3218.9	10600.00
2	25178.07	29.68	0.30 (0.26)	0.86	6051.6	10340.00
3	27826.62	38.01	0.30 (0.26)	0.86	8849.1	110.00
4	31835.87	51.55	0.30 (0.26)	0.88	14661.0	150.00
5	33797.09	59.02	0.30 (0.27)	0.89	17605.7	600.00
6	34653.60	63.70	0.30 (0.27)	0.90	19781.1	31100.00
7	36901.35	74.74	0.30 (0.27)	0.92	24896.4	40100.00
8	37946.38	82.40	0.30 (0.28)	0.92	28341.8	11801.00
9	39828.46	92.87	0.30 (0.28)	0.93	33773.9	11530.00
10	41666.99	100.42	0.30 (0.28)	0.94	38722.2	11910.00
11	42954.60	105.63	0.30 (0.28)	0.94	42581.9	13500.00
12	44452.18	114.41	0.30 (0.28)	0.95	48664.1	11130.00
13	44052.02	124.02	0.30 (0.29)	0.95	53705.3	12410.00
14	43444.56	132.36	0.30 (0.29)	0.95	57444.4	11201.00
15	43010.61	137.37	0.30 (0.29)	0.95	59176.1	12201.00
16	41980.84	144.53	0.30 (0.29)	0.96	61033.3	12231.00
17	40670.08	152.47	0.30 (0.29)	0.96	62667.6	10400.00
18	39306.43	160.57	0.30 (0.29)	0.96	63962.7	12010.00
19	38104.02	166.67	0.30 (0.29)	0.96	64309.6	10210.00
20	33894.89	195.39	0.30 (0.29)	0.96	65048.1	10100.00
TOTAL AREA (ACRES) =						65048.1

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20755.91	17.52	0.30 (0.26)	0.86	3218.9	10600.00
2	25178.07	29.68	0.30 (0.26)	0.86	6051.6	10340.00
3	27826.62	38.01	0.30 (0.26)	0.86	8849.1	110.00
4	31835.87	51.55	0.30 (0.26)	0.88	14661.0	150.00
5	33797.09	59.02	0.30 (0.27)	0.89	17605.7	600.00
6	34653.60	63.70	0.30 (0.27)	0.90	19781.1	31100.00
7	36901.35	74.74	0.30 (0.27)	0.92	24896.4	40100.00
8	37946.38	82.40	0.30 (0.28)	0.92	28341.8	11801.00
9	39828.46	92.87	0.30 (0.28)	0.93	33773.9	11530.00
10	41666.99	100.42	0.30 (0.28)	0.94	38722.2	11910.00
11	42954.60	105.63	0.30 (0.28)	0.94	42581.9	13500.00
12	44452.18	114.41	0.30 (0.28)	0.95	48664.1	11130.00
13	44052.02	124.02	0.30 (0.29)	0.95	53705.3	12410.00

14 43444.56 132.36 0.30(0.29) 0.95 57444.4 11201.00
 15 43010.61 137.37 0.30(0.29) 0.95 59176.1 12201.00
 16 41980.84 144.53 0.30(0.29) 0.96 61033.3 12231.00
 17 40670.08 152.47 0.30(0.29) 0.96 62667.6 10400.00
 18 39306.43 160.57 0.30(0.29) 0.96 63962.7 12010.00
 19 38104.02 166.67 0.30(0.29) 0.96 64309.6 10210.00
 20 33894.89 195.39 0.30(0.29) 0.96 65048.1 10100.00
 TOTAL AREA (ACRES) = 65048.1

 FLOW PROCESS FROM NODE 13803.00 TO NODE 13820.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 134.99 DOWNSTREAM(FEET) = 134.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 926.91 CHANNEL SLOPE = 0.0011
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 23.13
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 0.856

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	31.44	0.30	0.983	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.983
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 44460.11
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.98
 AVERAGE FLOW DEPTH(FEET) = 23.13 TRAVEL TIME(MIN.) = 1.55
 Tc(MIN.) = 115.95

SUBAREA AREA(ACRES) = 31.44 SUBAREA RUNOFF(CFS) = 15.87
 EFFECTIVE AREA(ACRES) = 48695.53 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95

TOTAL AREA(ACRES) = 65079.5 PEAK FLOW RATE(CFS) = 44452.18
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 23.13

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 23.13 FLOW VELOCITY(FEET/SEC.) = 9.98
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13820.00 = 131540.20 FEET.

 FLOW PROCESS FROM NODE 13803.00 TO NODE 13820.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

=====

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION(MIN.) = 115.95
 RAINFALL INTENSITY(INCH/HR) = 0.86
 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.95
 EFFECTIVE STREAM AREA(ACRES) = 48695.53
 TOTAL STREAM AREA(ACRES) = 65079.50

PEAK FLOW RATE(CFS) AT CONFLUENCE = 44452.18

 FLOW PROCESS FROM NODE 13810.00 TO NODE 13811.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 648.54
 ELEVATION DATA: UPSTREAM(FEET) = 756.46 DOWNSTREAM(FEET) = 586.02

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 12.293
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 3.027

SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	-	5.58	0.30	1.000	56	12.29

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 13.69
 TOTAL AREA(ACRES) = 5.58 PEAK FLOW RATE(CFS) = 13.69

 FLOW PROCESS FROM NODE 13811.00 TO NODE 13811.50 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 586.02 DOWNSTREAM(FEET) = 437.69
 CHANNEL LENGTH THRU SUBAREA(FEET) = 696.28 CHANNEL SLOPE = 0.2130
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.46
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.739

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	14.79	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 29.95
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.26
 AVERAGE FLOW DEPTH(FEET) = 0.44 TRAVEL TIME(MIN.) = 1.85
 Tc(MIN.) = 14.15

SUBAREA AREA(ACRES) = 14.79 SUBAREA RUNOFF(CFS) = 32.47
 EFFECTIVE AREA(ACRES) = 20.37 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 20.4 PEAK FLOW RATE(CFS) = 44.72
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.56

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 0.56 FLOW VELOCITY(FEET/SEC.) = 7.18
 LONGEST FLOWPATH FROM NODE 13810.00 TO NODE 13811.50 = 1344.82 FEET.

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*****
FLOW PROCESS FROM NODE 13811.50 TO NODE 13812.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 437.69 DOWNSTREAM(FEET) = 402.36
CHANNEL LENGTH THRU SUBAREA(FEET) = 681.04 CHANNEL SLOPE = 0.0519
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.05
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.490
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 18.41 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 62.88
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.08
AVERAGE FLOW DEPTH(FEET) = 1.03 TRAVEL TIME(MIN.) = 2.23
Tc(MIN.) = 16.38
SUBAREA AREA(ACRES) = 18.41 SUBAREA RUNOFF(CFS) = 36.29
EFFECTIVE AREA(ACRES) = 38.78 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 38.8 PEAK FLOW RATE(CFS) = 76.44
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.15

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.15 FLOW VELOCITY(FEET/SEC.) = 5.41
LONGEST FLOWPATH FROM NODE 13810.00 TO NODE 13812.00 = 2025.86 FEET.

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*****
FLOW PROCESS FROM NODE 13812.00 TO NODE 13813.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 402.36 DOWNSTREAM(FEET) = 259.72
CHANNEL LENGTH THRU SUBAREA(FEET) = 1282.56 CHANNEL SLOPE = 0.1112
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.10
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.254
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 27.87 0.30 0.858 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.858
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 101.51
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 7.66
AVERAGE FLOW DEPTH(FEET) = 1.09 TRAVEL TIME(MIN.) = 2.79
Tc(MIN.) = 19.17
SUBAREA AREA(ACRES) = 27.87 SUBAREA RUNOFF(CFS) = 50.08
EFFECTIVE AREA(ACRES) = 66.65 AREA-AVERAGED Fm(INCH/HR) = 0.28

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AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA(ACRES) = 66.7 PEAK FLOW RATE(CFS) = 118.29
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.19

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END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.19 FLOW VELOCITY(FEET/SEC.) = 8.05
LONGEST FLOWPATH FROM NODE 13810.00 TO NODE 13813.00 = 3308.42 FEET.

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*****
FLOW PROCESS FROM NODE 13813.00 TO NODE 13820.00 IS CODE = 31
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>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<
=====

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ELEVATION DATA: UPSTREAM(FEET) = 259.72 DOWNSTREAM(FEET) = 137.00
FLOW LENGTH(FEET) = 2412.88 MANNING'S N = 0.013
DEPTH OF FLOW IN 36.0 INCH PIPE IS 25.0 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 22.57
ESTIMATED PIPE DIAMETER(INCH) = 36.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 118.29
PIPE TRAVEL TIME(MIN.) = 1.78 Tc(MIN.) = 20.95
LONGEST FLOWPATH FROM NODE 13810.00 TO NODE 13820.00 = 5721.30 FEET.

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*****
FLOW PROCESS FROM NODE 13813.00 TO NODE 13820.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN.) = 20.95

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* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.129
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 83.64 0.30 0.570 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.570
SUBAREA AREA(ACRES) = 83.64 SUBAREA RUNOFF(CFS) = 147.39
EFFECTIVE AREA(ACRES) = 150.29 AREA-AVERAGED Fm(INCH/HR) = 0.22
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.73
TOTAL AREA(ACRES) = 150.3 PEAK FLOW RATE(CFS) = 258.17

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*****
FLOW PROCESS FROM NODE 13813.00 TO NODE 13820.00 IS CODE = 1
-----

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>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
=====

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TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 20.95
RAINFALL INTENSITY(INCH/HR) = 2.13
AREA-AVERAGED Fm(INCH/HR) = 0.22
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.73
EFFECTIVE STREAM AREA(ACRES) = 150.29
TOTAL STREAM AREA(ACRES) = 150.29

```

PEAK FLOW RATE(CFS) AT CONFLUENCE = 258.17

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20755.91	19.43	2.232	0.30(0.26)	0.86	3250.4	10600.00
1	25178.07	31.49	1.664	0.30(0.26)	0.86	6083.0	10340.00
1	27826.62	39.77	1.450	0.30(0.26)	0.86	8880.5	110.00
1	31835.87	53.24	1.246	0.30(0.26)	0.88	14692.4	150.00
1	33797.09	60.69	1.165	0.30(0.27)	0.89	17637.2	600.00
1	34653.60	65.35	1.134	0.30(0.27)	0.90	19812.5	31100.00
1	36901.35	76.37	1.060	0.30(0.27)	0.92	24927.9	40100.00
1	37946.38	84.01	1.008	0.30(0.28)	0.92	28373.2	11801.00
1	39828.46	94.46	0.949	0.30(0.28)	0.93	33805.3	11530.00
1	41666.99	101.99	0.916	0.30(0.28)	0.94	38753.6	11910.00
1	42954.60	107.19	0.894	0.30(0.28)	0.94	42613.3	13500.00
1	44452.18	115.95	0.856	0.30(0.28)	0.95	48695.5	11130.00
1	44052.02	125.57	0.826	0.30(0.29)	0.95	53736.7	12410.00
1	43444.56	133.91	0.809	0.30(0.29)	0.95	57475.8	11201.00
1	43010.61	138.93	0.799	0.30(0.29)	0.95	59207.5	12201.00
1	41980.84	146.10	0.784	0.30(0.29)	0.96	61064.7	12231.00
1	40670.08	154.06	0.767	0.30(0.29)	0.96	62699.0	10400.00
1	39306.43	162.17	0.750	0.30(0.29)	0.96	63994.1	12010.00
1	38104.02	168.28	0.737	0.30(0.29)	0.96	64341.1	10210.00
1	33894.89	197.05	0.695	0.30(0.29)	0.96	65079.5	10100.00
2	258.17	20.95	2.129	0.30(0.22)	0.73	150.3	13810.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21008.27	19.43	2.232	0.30(0.26)	0.85	3389.7	10600.00
2	21572.48	20.95	2.129	0.30(0.26)	0.85	3758.3	13810.00
3	25373.39	31.49	1.664	0.30(0.26)	0.86	6233.3	10340.00
4	27992.94	39.77	1.450	0.30(0.26)	0.86	9030.8	110.00
5	31974.57	53.24	1.246	0.30(0.26)	0.88	14842.7	150.00
6	33924.93	60.69	1.165	0.30(0.27)	0.89	17787.5	600.00
7	34777.19	65.35	1.134	0.30(0.27)	0.90	19962.8	31100.00
8	37014.90	76.37	1.060	0.30(0.27)	0.91	25078.1	40100.00
9	38052.97	84.01	1.008	0.30(0.28)	0.92	28523.5	11801.00
10	39926.98	94.46	0.949	0.30(0.28)	0.93	33955.6	11530.00
11	41761.10	101.99	0.916	0.30(0.28)	0.94	38903.9	11910.00
12	43045.67	107.19	0.894	0.30(0.28)	0.94	42763.6	13500.00
13	44538.11	115.95	0.856	0.30(0.28)	0.95	48845.8	11130.00
14	44134.00	125.57	0.826	0.30(0.29)	0.95	53887.0	12410.00
15	43524.20	133.91	0.809	0.30(0.29)	0.95	57626.1	11201.00
16	43088.83	138.93	0.799	0.30(0.29)	0.95	59357.8	12201.00
17	42057.04	146.10	0.784	0.30(0.29)	0.96	61215.0	12231.00
18	40744.04	154.06	0.767	0.30(0.29)	0.96	62849.3	10400.00
19	39378.10	162.17	0.750	0.30(0.29)	0.96	64144.4	12010.00
20	38173.97	168.28	0.737	0.30(0.29)	0.96	64491.4	10210.00
21	33959.09	197.05	0.695	0.30(0.29)	0.96	65229.8	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 44538.11 Tc(MIN.) = 115.95
EFFECTIVE AREA(ACRES) = 48845.82 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 65229.8
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13820.00 = 131540.20 FEET.

FLOW PROCESS FROM NODE 13820.00 TO NODE 13840.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 137.00 DOWNSTREAM(FEET) = 133.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1261.34 CHANNEL SLOPE = 0.0032
GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 17.63
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 0.849

SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 31.60 0.30 0.683 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.683
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 44547.27
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 14.82
AVERAGE FLOW DEPTH(FEET) = 17.63 TRAVEL TIME(MIN.) = 1.42
Tc(MIN.) = 117.37

SUBAREA AREA(ACRES) = 31.60 SUBAREA RUNOFF(CFS) = 18.33
EFFECTIVE AREA(ACRES) = 48877.42 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 65261.4 PEAK FLOW RATE(CFS) = 44538.11
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 17.62

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 17.62 FLOW VELOCITY(FEET/SEC.) = 14.83
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13840.00 = 132801.55 FEET.

FLOW PROCESS FROM NODE 13820.00 TO NODE 13840.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 117.37
RAINFALL INTENSITY(INCH/HR) = 0.85
AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.95
EFFECTIVE STREAM AREA(ACRES) = 48877.42
TOTAL STREAM AREA(ACRES) = 65261.39
PEAK FLOW RATE(CFS) AT CONFLUENCE = 44538.11

FLOW PROCESS FROM NODE 13830.00 TO NODE 13831.00 IS CODE = 21

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 1.38 FLOW VELOCITY (FEET/SEC.) = 8.58
LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13834.00 = 4648.78 FEET.

FLOW PROCESS FROM NODE 13834.00 TO NODE 13835.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 471.65 DOWNSTREAM (FEET) = 347.06
CHANNEL LENGTH THRU SUBAREA (FEET) = 1647.45 CHANNEL SLOPE = 0.0756
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 1.90
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.861

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	94.21	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 217.79

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.51

AVERAGE FLOW DEPTH (FEET) = 1.86 TRAVEL TIME (MIN.) = 3.23

Tc (MIN.) = 25.90

SUBAREA AREA (ACRES) = 94.21 SUBAREA RUNOFF (CFS) = 132.32

EFFECTIVE AREA (ACRES) = 191.58 AREA-AVERAGED Fm (INCH/HR) = 0.30

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA (ACRES) = 191.6 PEAK FLOW RATE (CFS) = 269.08

GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 2.09

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 2.09 FLOW VELOCITY (FEET/SEC.) = 9.06

LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13835.00 = 6296.23 FEET.

FLOW PROCESS FROM NODE 13835.00 TO NODE 13836.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM (FEET) = 347.06 DOWNSTREAM (FEET) = 269.29
CHANNEL LENGTH THRU SUBAREA (FEET) = 1696.71 CHANNEL SLOPE = 0.0458
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 3.09

* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.734

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	233.25	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 419.75

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.61
AVERAGE FLOW DEPTH (FEET) = 3.03 TRAVEL TIME (MIN.) = 3.28
Tc (MIN.) = 29.18
SUBAREA AREA (ACRES) = 233.25 SUBAREA RUNOFF (CFS) = 301.14
EFFECTIVE AREA (ACRES) = 424.83 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 424.8 PEAK FLOW RATE (CFS) = 548.48
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 3.48

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 3.48 FLOW VELOCITY (FEET/SEC.) = 9.28

LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13836.00 = 7992.94 FEET.

FLOW PROCESS FROM NODE 13836.00 TO NODE 13837.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 269.29 DOWNSTREAM (FEET) = 191.87
CHANNEL LENGTH THRU SUBAREA (FEET) = 2529.21 CHANNEL SLOPE = 0.0306
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 4.16

* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.593

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	134.70	0.30	0.880	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.880

TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 629.05

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.31

AVERAGE FLOW DEPTH (FEET) = 4.14 TRAVEL TIME (MIN.) = 5.07

Tc (MIN.) = 34.25

SUBAREA AREA (ACRES) = 134.70 SUBAREA RUNOFF (CFS) = 161.11

EFFECTIVE AREA (ACRES) = 559.53 AREA-AVERAGED Fm (INCH/HR) = 0.29

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97

TOTAL AREA (ACRES) = 559.5 PEAK FLOW RATE (CFS) = 655.45

GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 4.23

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 4.23 FLOW VELOCITY (FEET/SEC.) = 8.40

LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13837.00 = 10522.15 FEET.

FLOW PROCESS FROM NODE 13837.00 TO NODE 13840.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 191.87 DOWNSTREAM (FEET) = 133.00
FLOW LENGTH (FEET) = 1151.02 MANNING'S N = 0.013
DEPTH OF FLOW IN 66.0 INCH PIPE IS 49.4 INCHES

PIPE-FLOW VELOCITY (FEET/SEC.) = 34.36
 ESTIMATED PIPE DIAMETER (INCH) = 66.00 NUMBER OF PIPES = 1
 PIPE-FLOW (CFS) = 655.45
 PIPE TRAVEL TIME (MIN.) = 0.56 Tc (MIN.) = 34.81
 LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13840.00 = 11673.17 FEET.

 FLOW PROCESS FROM NODE 13837.00 TO NODE 13840.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 34.81
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.578
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 5.97 0.30 0.622 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.622
 SUBAREA AREA (ACRES) = 5.97 SUBAREA RUNOFF (CFS) = 7.48
 EFFECTIVE AREA (ACRES) = 565.50 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97
 TOTAL AREA (ACRES) = 565.5 PEAK FLOW RATE (CFS) = 655.65

 FLOW PROCESS FROM NODE 13837.00 TO NODE 13840.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 34.81
 RAINFALL INTENSITY (INCH/HR) = 1.58
 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.97
 EFFECTIVE STREAM AREA (ACRES) = 565.50
 TOTAL STREAM AREA (ACRES) = 565.50
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 655.65

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21008.27	21.19	2.115	0.30 (0.25)	0.85	3421.3	10600.00
1	21572.48	22.70	2.028	0.30 (0.26)	0.85	3789.9	13810.00
1	25373.39	33.16	1.621	0.30 (0.26)	0.86	6264.9	10340.00
1	27992.94	41.39	1.421	0.30 (0.26)	0.86	9062.4	110.00
1	31974.57	54.80	1.228	0.30 (0.26)	0.88	14874.3	150.00
1	33924.93	62.22	1.155	0.30 (0.27)	0.89	17819.1	600.00
1	34777.19	66.87	1.124	0.30 (0.27)	0.90	19994.4	31100.00
1	37014.90	77.86	1.050	0.30 (0.27)	0.91	25109.7	40100.00
1	38052.97	85.49	0.998	0.30 (0.28)	0.92	28555.1	11801.00
1	39926.98	95.92	0.942	0.30 (0.28)	0.93	33987.2	11530.00
1	41761.10	103.44	0.910	0.30 (0.28)	0.94	38935.5	11910.00
1	43045.67	108.62	0.887	0.30 (0.28)	0.94	42795.2	13500.00
1	44538.11	117.37	0.849	0.30 (0.28)	0.95	48877.4	11130.00
1	44134.00	127.00	0.823	0.30 (0.29)	0.95	53918.6	12410.00

1	43524.20	135.34	0.806	0.30 (0.29)	0.95	57657.7	11201.00
1	43088.83	140.36	0.796	0.30 (0.29)	0.95	59389.4	12201.00
1	42057.04	147.54	0.781	0.30 (0.29)	0.96	61246.6	12231.00
1	40744.04	155.51	0.764	0.30 (0.29)	0.96	62880.9	10400.00
1	39378.10	163.63	0.747	0.30 (0.29)	0.96	64176.0	12010.00
1	38173.97	169.76	0.734	0.30 (0.29)	0.96	64523.0	10210.00
1	33959.09	198.58	0.693	0.30 (0.29)	0.96	65261.4	10100.00
2	655.65	34.81	1.578	0.30 (0.29)	0.97	565.5	13830.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21573.67	21.19	2.115	0.30 (0.26)	0.86	3765.5	10600.00
2	22149.21	22.70	2.028	0.30 (0.26)	0.86	4158.7	13810.00
3	26018.66	33.16	1.621	0.30 (0.26)	0.86	6803.5	10340.00
4	26555.12	34.81	1.578	0.30 (0.26)	0.86	7392.2	13830.00
5	28568.72	41.39	1.421	0.30 (0.26)	0.86	9627.9	110.00
6	32452.00	54.80	1.228	0.30 (0.27)	0.88	15439.8	150.00
7	34365.12	62.22	1.155	0.30 (0.27)	0.89	18384.6	600.00
8	35201.44	66.87	1.124	0.30 (0.27)	0.90	20559.9	31100.00
9	37401.48	77.86	1.050	0.30 (0.27)	0.92	25675.2	40100.00
10	38413.40	85.49	0.998	0.30 (0.28)	0.92	29120.6	11801.00
11	40258.90	95.92	0.942	0.30 (0.28)	0.93	34552.7	11530.00
12	42076.45	103.44	0.910	0.30 (0.28)	0.94	39501.0	11910.00
13	43349.59	108.62	0.887	0.30 (0.28)	0.94	43360.7	13500.00
14	44822.73	117.37	0.849	0.30 (0.28)	0.95	49442.9	11130.00
15	44405.41	127.00	0.823	0.30 (0.29)	0.95	54484.1	12410.00
16	43786.75	135.34	0.806	0.30 (0.29)	0.95	58223.2	11201.00
17	43346.07	140.36	0.796	0.30 (0.29)	0.95	59954.9	12201.00
18	42306.66	147.54	0.781	0.30 (0.29)	0.96	61812.1	12231.00
19	40985.21	155.51	0.764	0.30 (0.29)	0.96	63446.4	10400.00
20	39610.66	163.63	0.747	0.30 (0.29)	0.96	64741.5	12010.00
21	38400.03	169.76	0.734	0.30 (0.29)	0.96	65088.5	10210.00
22	34164.26	198.58	0.693	0.30 (0.29)	0.96	65826.9	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 44822.73 Tc (MIN.) = 117.37
 EFFECTIVE AREA (ACRES) = 49442.92 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 65826.9
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13840.00 = 132801.55 FEET.

 FLOW PROCESS FROM NODE 13840.00 TO NODE 13860.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 133.00 DOWNSTREAM (FEET) = 130.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 654.44 CHANNEL SLOPE = 0.0046
 GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 16.09
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.847
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 6.61 0.30 0.975 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.975
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 44824.38
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 16.95
 AVERAGE FLOW DEPTH(FEET) = 16.09 TRAVEL TIME (MIN.) = 0.64
 Tc(MIN.) = 118.01
 SUBAREA AREA(ACRES) = 6.61 SUBAREA RUNOFF(CFS) = 3.30
 EFFECTIVE AREA(ACRES) = 49449.53 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA(ACRES) = 65833.5 PEAK FLOW RATE(CFS) = 44822.73
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 16.09

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 16.09 FLOW VELOCITY(FEET/SEC.) = 16.95
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13860.00 = 133455.98 FEET.

 FLOW PROCESS FROM NODE 13840.00 TO NODE 13860.00 IS CODE = 1

 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION(MIN.) = 118.01
 RAINFALL INTENSITY(INCH/HR) = 0.85
 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.95
 EFFECTIVE STREAM AREA(ACRES) = 49449.53
 TOTAL STREAM AREA(ACRES) = 65833.50
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 44822.73

 FLOW PROCESS FROM NODE 13850.00 TO NODE 13851.00 IS CODE = 21

 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

INITIAL SUBAREA FLOW-LENGTH(FEET) = 617.57
 ELEVATION DATA: UPSTREAM(FEET) = 646.95 DOWNSTREAM(FEET) = 490.10

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 12.137
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 3.051
 SUBAREA Tc AND LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF" - 4.95 0.30 1.000 56 12.14
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 12.25

TOTAL AREA(ACRES) = 4.95 PEAK FLOW RATE(CFS) = 12.25

 FLOW PROCESS FROM NODE 13851.00 TO NODE 13851.50 IS CODE = 56

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 490.10 DOWNSTREAM(FEET) = 440.98
 CHANNEL LENGTH THRU SUBAREA(FEET) = 351.14 CHANNEL SLOPE = 0.1399
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.36
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.846
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 4.02 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 16.86
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.43
 AVERAGE FLOW DEPTH(FEET) = 0.36 TRAVEL TIME (MIN.) = 1.32
 Tc(MIN.) = 13.46

SUBAREA AREA(ACRES) = 4.02 SUBAREA RUNOFF(CFS) = 9.21
 EFFECTIVE AREA(ACRES) = 8.97 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 9.0 PEAK FLOW RATE(CFS) = 20.55
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.40

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 0.40 FLOW VELOCITY(FEET/SEC.) = 4.74
 LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13851.50 = 968.71 FEET.

 FLOW PROCESS FROM NODE 13851.50 TO NODE 13852.00 IS CODE = 56

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 440.98 DOWNSTREAM(FEET) = 395.76
 CHANNEL LENGTH THRU SUBAREA(FEET) = 512.91 CHANNEL SLOPE = 0.0882
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.56
 * 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.578
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 7.17 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 27.91
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.55
 AVERAGE FLOW DEPTH(FEET) = 0.55 TRAVEL TIME (MIN.) = 1.88
 Tc(MIN.) = 15.34

SUBAREA AREA (ACRES) = 7.17 SUBAREA RUNOFF (CFS) = 14.70
EFFECTIVE AREA (ACRES) = 16.14 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 16.1 PEAK FLOW RATE (CFS) = 33.10
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.61

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.61 FLOW VELOCITY (FEET/SEC.) = 4.86
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13852.00 = 1481.62 FEET.

FLOW PROCESS FROM NODE 13852.00 TO NODE 13853.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 395.76 DOWNSTREAM (FEET) = 354.94
CHANNEL LENGTH THRU SUBAREA (FEET) = 443.69 CHANNEL SLOPE = 0.0920
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.67
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 2.459

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	6.76	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 39.67
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.23
AVERAGE FLOW DEPTH (FEET) = 0.67 TRAVEL TIME (MIN.) = 1.41
Tc (MIN.) = 16.75

SUBAREA AREA (ACRES) = 6.76 SUBAREA RUNOFF (CFS) = 13.14
EFFECTIVE AREA (ACRES) = 22.90 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 22.9 PEAK FLOW RATE (CFS) = 44.50
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.71

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.71 FLOW VELOCITY (FEET/SEC.) = 5.45
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13853.00 = 1925.31 FEET.

FLOW PROCESS FROM NODE 13853.00 TO NODE 13854.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 354.94 DOWNSTREAM (FEET) = 263.57
CHANNEL LENGTH THRU SUBAREA (FEET) = 962.09 CHANNEL SLOPE = 0.0950
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.86
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 2.237

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	18.16	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 60.34
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.12
AVERAGE FLOW DEPTH (FEET) = 0.84 TRAVEL TIME (MIN.) = 2.62
Tc (MIN.) = 19.37

SUBAREA AREA (ACRES) = 18.16 SUBAREA RUNOFF (CFS) = 31.66
EFFECTIVE AREA (ACRES) = 41.06 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 41.1 PEAK FLOW RATE (CFS) = 71.59
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.93

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.93 FLOW VELOCITY (FEET/SEC.) = 6.46
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13854.00 = 2887.40 FEET.

FLOW PROCESS FROM NODE 13854.00 TO NODE 13855.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 263.57 DOWNSTREAM (FEET) = 188.74
CHANNEL LENGTH THRU SUBAREA (FEET) = 1228.77 CHANNEL SLOPE = 0.0609
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 1.32
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 2.031

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	38.75	0.30	0.879	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.879
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 102.43
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.25
AVERAGE FLOW DEPTH (FEET) = 1.30 TRAVEL TIME (MIN.) = 3.27
Tc (MIN.) = 22.65

SUBAREA AREA (ACRES) = 38.75 SUBAREA RUNOFF (CFS) = 61.64
EFFECTIVE AREA (ACRES) = 79.81 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA (ACRES) = 79.8 PEAK FLOW RATE (CFS) = 125.61
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 1.46

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 1.46 FLOW VELOCITY (FEET/SEC.) = 6.66
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13855.00 = 4116.17 FEET.

FLOW PROCESS FROM NODE 13855.00 TO NODE 13860.00 IS CODE = 31

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>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 188.74 DOWNSTREAM(FEET) = 130.00
FLOW LENGTH(FEET) = 2092.67 MANNING'S N = 0.013
DEPTH OF FLOW IN 39.0 INCH PIPE IS 30.6 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 18.01
ESTIMATED PIPE DIAMETER(INCH) = 39.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 125.61
PIPE TRAVEL TIME(MIN.) = 1.94 Tc(MIN.) = 24.58
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13860.00 = 6208.84 FEET.

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FLOW PROCESS FROM NODE 13855.00 TO NODE 13860.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN.) = 24.58
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 1.919
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 43.41 0.30 0.707 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.707
SUBAREA AREA(ACRES) = 43.41 SUBAREA RUNOFF(CFS) = 66.69
EFFECTIVE AREA(ACRES) = 123.22 AREA-AVERAGED Fm(INCH/HR) = 0.26
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.86
TOTAL AREA(ACRES) = 123.2 PEAK FLOW RATE(CFS) = 184.26

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FLOW PROCESS FROM NODE 13855.00 TO NODE 13860.00 IS CODE = 1
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>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 24.58
RAINFALL INTENSITY(INCH/HR) = 1.92
AREA-AVERAGED Fm(INCH/HR) = 0.26
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.86
EFFECTIVE STREAM AREA(ACRES) = 123.22
TOTAL STREAM AREA(ACRES) = 123.22
PEAK FLOW RATE(CFS) AT CONFLUENCE = 184.26

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** CONFLUENCE DATA **

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STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21573.67	21.98	2.069	0.30(0.26)	0.86	3772.1	10600.00
1	22149.21	23.49	1.982	0.30(0.26)	0.86	4165.3	13810.00
1	26018.66	33.91	1.602	0.30(0.26)	0.86	6810.2	10340.00
1	26555.12	35.56	1.559	0.30(0.26)	0.86	7398.8	13830.00
1	28568.72	42.12	1.410	0.30(0.26)	0.86	9634.5	110.00
1	32452.00	55.51	1.220	0.30(0.27)	0.88	15446.4	150.00
1	34365.12	62.91	1.150	0.30(0.27)	0.89	18391.2	600.00

1	35201.44	67.56	1.119	0.30(0.27)	0.90	20566.5	31100.00
1	37401.48	78.54	1.045	0.30(0.27)	0.92	25681.9	40100.00
1	38413.40	86.17	0.994	0.30(0.28)	0.92	29127.2	11801.00
1	40258.90	96.59	0.939	0.30(0.28)	0.93	34559.3	11530.00
1	42076.45	104.09	0.907	0.30(0.28)	0.94	39507.6	11910.00
1	43349.59	109.27	0.884	0.30(0.28)	0.94	43367.3	13500.00
1	44822.73	118.01	0.847	0.30(0.28)	0.95	49449.5	11130.00
1	44405.41	127.64	0.822	0.30(0.29)	0.95	54490.7	12410.00
1	43786.75	135.99	0.805	0.30(0.29)	0.95	58229.8	11201.00
1	43346.07	141.01	0.794	0.30(0.29)	0.95	59961.5	12201.00
1	42306.66	148.19	0.779	0.30(0.29)	0.96	61818.7	12231.00
1	40985.21	156.17	0.763	0.30(0.29)	0.96	63453.0	10400.00
1	39610.66	164.30	0.746	0.30(0.29)	0.96	64748.1	12010.00
1	38400.03	170.44	0.733	0.30(0.29)	0.96	65095.1	10210.00
1	34164.26	199.28	0.693	0.30(0.29)	0.96	65833.5	10100.00
2	184.26	24.58	1.919	0.30(0.26)	0.86	123.2	13850.00

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RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

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** PEAK FLOW RATE TABLE **

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STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21753.35	21.98	2.069	0.30(0.26)	0.86	3882.3	10600.00
2	22331.97	23.49	1.982	0.30(0.26)	0.86	4283.0	13810.00
3	22740.44	24.58	1.919	0.30(0.26)	0.86	4566.7	13850.00
4	26167.73	33.91	1.602	0.30(0.26)	0.86	6933.4	10340.00
5	26699.45	35.56	1.559	0.30(0.26)	0.86	7522.0	13830.00
6	28696.48	42.12	1.410	0.30(0.26)	0.86	9757.8	110.00
7	32558.77	55.51	1.220	0.30(0.26)	0.88	15569.7	150.00
8	34464.14	62.91	1.150	0.30(0.27)	0.89	18514.4	600.00
9	35296.98	67.56	1.119	0.30(0.27)	0.90	20689.8	31100.00
10	37488.82	78.54	1.045	0.30(0.27)	0.92	25805.1	40100.00
11	38495.05	86.17	0.994	0.30(0.28)	0.92	29250.4	11801.00
12	40334.52	96.59	0.939	0.30(0.28)	0.93	34682.5	11530.00
13	42148.46	104.09	0.907	0.30(0.28)	0.94	39630.8	11910.00
14	43419.11	109.27	0.884	0.30(0.28)	0.94	43490.6	13500.00
15	44888.05	118.01	0.847	0.30(0.28)	0.95	49572.8	11130.00
16	44468.02	127.64	0.822	0.30(0.29)	0.95	54614.0	12410.00
17	43847.43	135.99	0.805	0.30(0.29)	0.95	58353.1	11201.00
18	43405.58	141.01	0.794	0.30(0.29)	0.95	60084.8	12201.00
19	42364.52	148.19	0.779	0.30(0.29)	0.95	61941.9	12231.00
20	41041.22	156.17	0.763	0.30(0.29)	0.96	63576.2	10400.00
21	39664.79	164.30	0.746	0.30(0.29)	0.96	64871.3	12010.00
22	38452.75	170.44	0.733	0.30(0.29)	0.96	65218.3	10210.00
23	34212.50	199.28	0.693	0.30(0.29)	0.96	65956.7	10100.00

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COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 44888.05 Tc(MIN.) = 118.01
EFFECTIVE AREA(ACRES) = 49572.75 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 65956.7
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13860.00 = 133455.98 FEET.

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FLOW PROCESS FROM NODE 13860.00 TO NODE 13880.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

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>>>>TRAVELTIME THRU SUBAREA<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 130.00 DOWNSTREAM(FEET) = 120.57
CHANNEL LENGTH THRU SUBAREA(FEET) = 610.77 CHANNEL SLOPE = 0.0154
GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 11.71
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 0.845
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	4.89	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 44889.25
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 26.12
AVERAGE FLOW DEPTH(FEET) = 11.71 TRAVEL TIME(MIN.) = 0.39
Tc(MIN.) = 118.40
SUBAREA AREA(ACRES) = 4.89 SUBAREA RUNOFF(CFS) = 2.40
EFFECTIVE AREA(ACRES) = 49577.64 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 65961.6 PEAK FLOW RATE(CFS) = 44888.05
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 11.71

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 11.71 FLOW VELOCITY(FEET/SEC.) = 26.12
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13880.00 = 134066.75 FEET.

FLOW PROCESS FROM NODE 13860.00 TO NODE 13880.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<

=====

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 118.40
RAINFALL INTENSITY(INCH/HR) = 0.84
AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.95
EFFECTIVE STREAM AREA(ACRES) = 49577.64
TOTAL STREAM AREA(ACRES) = 65961.61
PEAK FLOW RATE(CFS) AT CONFLUENCE = 44888.05

FLOW PROCESS FROM NODE 13870.00 TO NODE 13871.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 872.65
ELEVATION DATA: UPSTREAM(FEET) = 558.52 DOWNSTREAM(FEET) = 436.47

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 15.704

* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.547
SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
NATURAL FAIR COVER						
"GRASS"	-	7.32	0.30	1.000	56	15.70

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF(CFS) = 14.81
TOTAL AREA(ACRES) = 7.32 PEAK FLOW RATE(CFS) = 14.81

FLOW PROCESS FROM NODE 13871.00 TO NODE 13872.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 436.47 DOWNSTREAM(FEET) = 337.62
CHANNEL LENGTH THRU SUBAREA(FEET) = 827.95 CHANNEL SLOPE = 0.1194
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.51
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.311
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	13.01	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 26.60
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.93
AVERAGE FLOW DEPTH(FEET) = 0.49 TRAVEL TIME(MIN.) = 2.80
Tc(MIN.) = 18.50
SUBAREA AREA(ACRES) = 13.01 SUBAREA RUNOFF(CFS) = 23.54
EFFECTIVE AREA(ACRES) = 20.33 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 20.3 PEAK FLOW RATE(CFS) = 36.79
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.59

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 0.59 FLOW VELOCITY(FEET/SEC.) = 5.55
LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13872.00 = 1700.60 FEET.

FLOW PROCESS FROM NODE 13872.00 TO NODE 13873.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 337.62 DOWNSTREAM(FEET) = 253.88
CHANNEL LENGTH THRU SUBAREA(FEET) = 1049.16 CHANNEL SLOPE = 0.0798
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.94
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.099
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 32.99 0.30 0.923 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.923
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 63.87
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.88
 AVERAGE FLOW DEPTH (FEET) = 0.92 TRAVEL TIME (MIN.) = 2.98
 Tc (MIN.) = 21.48
 SUBAREA AREA (ACRES) = 32.99 SUBAREA RUNOFF (CFS) = 54.09
 EFFECTIVE AREA (ACRES) = 53.32 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 53.3 PEAK FLOW RATE (CFS) = 87.00
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.10

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.10 FLOW VELOCITY (FEET/SEC.) = 6.51
 LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13873.00 = 2749.76 FEET.

 FLOW PROCESS FROM NODE 13873.00 TO NODE 13874.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<
 =====
 ELEVATION DATA: UPSTREAM (FEET) = 253.88 DOWNSTREAM (FEET) = 160.73
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1518.60 CHANNEL SLOPE = 0.0613
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.09
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.925
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 30.94 0.30 0.900 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.900
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 110.06
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.45
 AVERAGE FLOW DEPTH (FEET) = 1.07 TRAVEL TIME (MIN.) = 3.00
 Tc (MIN.) = 24.47
 SUBAREA AREA (ACRES) = 30.94 SUBAREA RUNOFF (CFS) = 46.10
 EFFECTIVE AREA (ACRES) = 84.26 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA (ACRES) = 84.3 PEAK FLOW RATE (CFS) = 124.79
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.15

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.15 FLOW VELOCITY (FEET/SEC.) = 8.78
 LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13874.00 = 4268.36 FEET.

 FLOW PROCESS FROM NODE 13874.00 TO NODE 13875.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<
 =====
 ELEVATION DATA: UPSTREAM (FEET) = 160.73 DOWNSTREAM (FEET) = 158.14
 CHANNEL LENGTH THRU SUBAREA (FEET) = 582.74 CHANNEL SLOPE = 0.0044
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.90
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.820
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 73.67 0.30 0.930 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.930
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 175.88
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 3.90
 AVERAGE FLOW DEPTH (FEET) = 2.87 TRAVEL TIME (MIN.) = 2.49
 Tc (MIN.) = 26.96
 SUBAREA AREA (ACRES) = 73.67 SUBAREA RUNOFF (CFS) = 102.15
 EFFECTIVE AREA (ACRES) = 157.93 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA (ACRES) = 157.9 PEAK FLOW RATE (CFS) = 218.91
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 3.21

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 3.21 FLOW VELOCITY (FEET/SEC.) = 4.14
 LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13875.00 = 4851.10 FEET.

 FLOW PROCESS FROM NODE 13875.00 TO NODE 13880.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
 =====
 ELEVATION DATA: UPSTREAM (FEET) = 158.14 DOWNSTREAM (FEET) = 120.57
 FLOW LENGTH (FEET) = 1855.67 MANNING'S N = 0.013
 DEPTH OF FLOW IN 51.0 INCH PIPE IS 40.1 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 18.30
 ESTIMATED PIPE DIAMETER (INCH) = 51.00 NUMBER OF PIPES = 1
 PIPE-FLOW (CFS) = 218.91
 PIPE TRAVEL TIME (MIN.) = 1.69 Tc (MIN.) = 28.65
 LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13880.00 = 6706.77 FEET.

 FLOW PROCESS FROM NODE 13875.00 TO NODE 13880.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====
 MAINLINE Tc (MIN.) = 28.65
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 1.755
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 34.90 0.30 0.743 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.743
 SUBAREA AREA (ACRES) = 34.90 SUBAREA RUNOFF (CFS) = 48.11
 EFFECTIVE AREA (ACRES) = 192.83 AREA-AVERAGED Fm (INCH/HR) = 0.27
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.90
 TOTAL AREA (ACRES) = 192.8 PEAK FLOW RATE (CFS) = 257.80

 FLOW PROCESS FROM NODE 13875.00 TO NODE 13880.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<

=====

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 28.65
 RAINFALL INTENSITY (INCH/HR) = 1.75
 AREA-AVERAGED Fm (INCH/HR) = 0.27
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.90
 EFFECTIVE STREAM AREA (ACRES) = 192.83
 TOTAL STREAM AREA (ACRES) = 192.83
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 257.80

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21753.35	22.47	2.041	0.30 (0.26)	0.86	3887.2	10600.00
1	22331.97	23.97	1.955	0.30 (0.26)	0.86	4287.9	13810.00
1	22740.44	25.06	1.893	0.30 (0.26)	0.86	4571.6	13850.00
1	26167.73	34.37	1.590	0.30 (0.26)	0.86	6938.3	10340.00
1	26699.45	36.01	1.547	0.30 (0.26)	0.86	7526.9	13830.00
1	28696.48	42.57	1.402	0.30 (0.26)	0.86	9762.6	110.00
1	32558.77	55.93	1.216	0.30 (0.26)	0.88	15574.6	150.00
1	34464.14	63.33	1.148	0.30 (0.27)	0.89	18519.3	600.00
1	35296.98	67.98	1.116	0.30 (0.27)	0.90	20694.6	31100.00
1	37488.82	78.95	1.042	0.30 (0.27)	0.92	25810.0	40100.00
1	38495.05	86.57	0.991	0.30 (0.28)	0.92	29255.3	11801.00
1	40334.52	96.99	0.938	0.30 (0.28)	0.93	34687.4	11530.00
1	42148.46	104.49	0.905	0.30 (0.28)	0.94	39635.7	11910.00
1	43419.11	109.66	0.883	0.30 (0.28)	0.94	43495.4	13500.00
1	44888.05	118.40	0.845	0.30 (0.28)	0.95	49577.6	11130.00
1	44468.02	128.03	0.821	0.30 (0.29)	0.95	54618.8	12410.00
1	43847.43	136.38	0.804	0.30 (0.29)	0.95	58358.0	11201.00
1	43405.58	141.40	0.793	0.30 (0.29)	0.95	60089.7	12201.00
1	42364.52	148.59	0.778	0.30 (0.29)	0.95	61946.8	12231.00
1	41041.22	156.57	0.762	0.30 (0.29)	0.96	63581.1	10400.00
1	39664.79	164.70	0.745	0.30 (0.29)	0.96	64876.2	12010.00
1	38452.75	170.84	0.732	0.30 (0.29)	0.96	65223.2	10210.00
1	34212.50	199.70	0.692	0.30 (0.29)	0.96	65961.6	10100.00
2	257.80	28.65	1.755	0.30 (0.27)	0.90	192.8	13870.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21994.51	22.47	2.041	0.30 (0.26)	0.86	4038.4	10600.00

2	22576.64	23.97	1.955	0.30 (0.26)	0.86	4449.2	13810.00
3	22986.86	25.06	1.893	0.30 (0.26)	0.86	4740.2	13850.00
4	24321.36	28.65	1.755	0.30 (0.26)	0.86	5678.1	13870.00
5	26396.93	34.37	1.590	0.30 (0.26)	0.87	7131.1	10340.00
6	26921.25	36.01	1.547	0.30 (0.26)	0.87	7719.8	13830.00
7	28893.14	42.57	1.402	0.30 (0.26)	0.87	9955.5	110.00
8	32723.01	55.93	1.216	0.30 (0.27)	0.88	15767.4	150.00
9	34616.58	63.33	1.148	0.30 (0.27)	0.89	18712.1	600.00
10	35443.99	67.98	1.116	0.30 (0.27)	0.90	20887.5	31100.00
11	37623.01	78.95	1.042	0.30 (0.27)	0.92	26002.8	40100.00
12	38620.33	86.57	0.991	0.30 (0.28)	0.92	29448.1	11801.00
13	40450.54	96.99	0.938	0.30 (0.28)	0.93	34880.3	11530.00
14	42258.84	104.49	0.905	0.30 (0.28)	0.94	39828.5	11910.00
15	43525.60	109.66	0.883	0.30 (0.28)	0.94	43688.3	13500.00
16	44987.97	118.40	0.845	0.30 (0.28)	0.95	49770.5	11130.00
17	44563.83	128.03	0.821	0.30 (0.29)	0.95	54811.7	12410.00
18	43940.22	136.38	0.804	0.30 (0.29)	0.95	58550.8	11201.00
19	43496.56	141.40	0.793	0.30 (0.29)	0.95	60282.5	12201.00
20	42452.90	148.59	0.778	0.30 (0.29)	0.95	62139.6	12231.00
21	41126.71	156.57	0.762	0.30 (0.29)	0.96	63773.9	10400.00
22	39747.34	164.70	0.745	0.30 (0.29)	0.96	65069.0	12010.00
23	38533.08	170.84	0.732	0.30 (0.29)	0.96	65416.0	10210.00
24	34285.89	199.70	0.692	0.30 (0.29)	0.96	66154.4	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 44987.97 Tc (MIN.) = 118.40
 EFFECTIVE AREA (ACRES) = 49770.47 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 66154.4
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13880.00 = 134066.75 FEET.

 FLOW PROCESS FROM NODE 13880.00 TO NODE 13910.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 120.57 DOWNSTREAM (FEET) = 119.70
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1190.21 CHANNEL SLOPE = 0.0007
 GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 25.54
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.837

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	117.69	0.30	0.724	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.724
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 45020.77
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.72
 AVERAGE FLOW DEPTH (FEET) = 25.53 TRAVEL TIME (MIN.) = 2.27
 Tc (MIN.) = 120.68

SUBAREA AREA (ACRES) = 117.69 SUBAREA RUNOFF (CFS) = 65.61
 EFFECTIVE AREA (ACRES) = 49888.16 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 66272.1 PEAK FLOW RATE (CFS) = 44987.97
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 25.53

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 25.53 FLOW VELOCITY (FEET/SEC.) = 8.72
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13910.00 = 135256.95 FEET.

FLOW PROCESS FROM NODE 13880.00 TO NODE 13910.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

=====

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION (MIN.) = 120.68
RAINFALL INTENSITY (INCH/HR) = 0.84
AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.95
EFFECTIVE STREAM AREA (ACRES) = 49888.16
TOTAL STREAM AREA (ACRES) = 66272.12
PEAK FLOW RATE (CFS) AT CONFLUENCE = 44987.97

FLOW PROCESS FROM NODE 13889.00 TO NODE 13890.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

=====

INITIAL SUBAREA FLOW-LENGTH (FEET) = 447.89
ELEVATION DATA: UPSTREAM (FEET) = 564.89 DOWNSTREAM (FEET) = 421.92

Tc = K * [(LENGTH** 3.00) / (ELEVATION CHANGE)] ** 0.20
SUBAREA ANALYSIS USED MINIMUM Tc (MIN.) = 6.976
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 4.497
SUBAREA Tc AND LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
PUBLIC PARK	-	3.03	0.30	0.960	56	6.98

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.960
SUBAREA RUNOFF (CFS) = 11.48
TOTAL AREA (ACRES) = 3.03 PEAK FLOW RATE (CFS) = 11.48

FLOW PROCESS FROM NODE 13890.00 TO NODE 13891.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 421.92 DOWNSTREAM (FEET) = 392.64
CHANNEL LENGTH THRU SUBAREA (FEET) = 435.33 CHANNEL SLOPE = 0.0673
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.46
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 3.985
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 8.12 0.30 0.986 -
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.986
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 25.00
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.23
AVERAGE FLOW DEPTH (FEET) = 0.44 TRAVEL TIME (MIN.) = 1.39
Tc (MIN.) = 8.36

SUBAREA AREA (ACRES) = 8.12 SUBAREA RUNOFF (CFS) = 26.96
EFFECTIVE AREA (ACRES) = 11.15 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 11.1 PEAK FLOW RATE (CFS) = 37.04
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.55

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.55 FLOW VELOCITY (FEET/SEC.) = 6.02
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13891.00 = 883.22 FEET.

FLOW PROCESS FROM NODE 13891.00 TO NODE 13892.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 392.64 DOWNSTREAM (FEET) = 324.46
CHANNEL LENGTH THRU SUBAREA (FEET) = 662.40 CHANNEL SLOPE = 0.1029
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.64
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 3.473

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	12.50	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 54.93
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.95
AVERAGE FLOW DEPTH (FEET) = 0.62 TRAVEL TIME (MIN.) = 1.39
Tc (MIN.) = 9.75
SUBAREA AREA (ACRES) = 12.50 SUBAREA RUNOFF (CFS) = 35.70
EFFECTIVE AREA (ACRES) = 23.65 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 23.6 PEAK FLOW RATE (CFS) = 67.61
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.70

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.70 FLOW VELOCITY (FEET/SEC.) = 8.51
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13892.00 = 1545.62 FEET.

FLOW PROCESS FROM NODE 13892.00 TO NODE 13893.00 IS CODE = 56

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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 324.46 DOWNSTREAM(FEET) = 240.82
CHANNEL LENGTH THRU SUBAREA(FEET) = 980.03 CHANNEL SLOPE = 0.0853
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.87
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 3.131
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 15.87 0.30 1.000 -
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 87.84
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 8.75
AVERAGE FLOW DEPTH(FEET) = 0.86 TRAVEL TIME(MIN.) = 1.87
Tc(MIN.) = 11.62
SUBAREA AREA(ACRES) = 15.87 SUBAREA RUNOFF(CFS) = 40.43
EFFECTIVE AREA(ACRES) = 39.52 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA(ACRES) = 39.5 PEAK FLOW RATE(CFS) = 100.75
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.93

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END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 0.93 FLOW VELOCITY(FEET/SEC.) = 9.18
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13893.00 = 2525.65 FEET.

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FLOW PROCESS FROM NODE 13893.00 TO NODE 13894.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 240.82 DOWNSTREAM(FEET) = 163.04
CHANNEL LENGTH THRU SUBAREA(FEET) = 1144.35 CHANNEL SLOPE = 0.0680
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.18
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.812
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 28.41 0.30 0.985 -
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.985
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 132.98
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.28
AVERAGE FLOW DEPTH(FEET) = 1.16 TRAVEL TIME(MIN.) = 2.05
Tc(MIN.) = 13.68
SUBAREA AREA(ACRES) = 28.41 SUBAREA RUNOFF(CFS) = 64.36
EFFECTIVE AREA(ACRES) = 67.93 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA(ACRES) = 67.9 PEAK FLOW RATE(CFS) = 153.78
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

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"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.26

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.26 FLOW VELOCITY(FEET/SEC.) = 9.73
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13894.00 = 3670.00 FEET.

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FLOW PROCESS FROM NODE 13894.00 TO NODE 13910.00 IS CODE = 31
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>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 163.04 DOWNSTREAM(FEET) = 119.70
FLOW LENGTH(FEET) = 1899.01 MANNING'S N = 0.013
DEPTH OF FLOW IN 45.0 INCH PIPE IS 33.0 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 17.73
ESTIMATED PIPE DIAMETER(INCH) = 45.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 153.78
PIPE TRAVEL TIME(MIN.) = 1.79 Tc(MIN.) = 15.46
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13910.00 = 5569.01 FEET.

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*****
FLOW PROCESS FROM NODE 13894.00 TO NODE 13910.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN.) = 15.46
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.568
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 11.69 0.30 0.634 -
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.634
SUBAREA AREA(ACRES) = 11.69 SUBAREA RUNOFF(CFS) = 25.02
EFFECTIVE AREA(ACRES) = 79.62 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA(ACRES) = 79.6 PEAK FLOW RATE(CFS) = 163.86

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*****
FLOW PROCESS FROM NODE 13894.00 TO NODE 13910.00 IS CODE = 1
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>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 15.46
RAINFALL INTENSITY(INCH/HR) = 2.57
AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.94
EFFECTIVE STREAM AREA(ACRES) = 79.62
TOTAL STREAM AREA(ACRES) = 79.62
PEAK FLOW RATE(CFS) AT CONFLUENCE = 163.86

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** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21994.51	25.23	1.886	0.30 (0.26)	0.86	4156.1	10600.00
1	22576.64	26.71	1.829	0.30 (0.26)	0.86	4566.9	13810.00
1	22986.86	27.79	1.788	0.30 (0.26)	0.86	4857.9	13850.00
1	24321.36	31.34	1.668	0.30 (0.26)	0.86	5795.8	13870.00
1	26396.93	37.00	1.522	0.30 (0.26)	0.86	7248.8	10340.00
1	26921.25	38.63	1.480	0.30 (0.26)	0.86	7837.5	13830.00
1	28893.14	45.13	1.361	0.30 (0.26)	0.86	10073.2	110.00
1	32723.01	58.41	1.188	0.30 (0.26)	0.88	15885.1	150.00
1	34616.58	65.77	1.131	0.30 (0.27)	0.89	18829.8	600.00
1	35443.99	70.40	1.100	0.30 (0.27)	0.90	21005.2	31100.00
1	37623.01	81.34	1.026	0.30 (0.27)	0.91	26120.5	40100.00
1	38620.33	88.94	0.975	0.30 (0.28)	0.92	29565.8	11801.00
1	40450.54	99.33	0.928	0.30 (0.28)	0.93	34998.0	11530.00
1	42258.84	106.80	0.895	0.30 (0.28)	0.94	39946.2	11910.00
1	43525.60	111.96	0.873	0.30 (0.28)	0.94	43806.0	13500.00
1	44987.97	120.68	0.837	0.30 (0.28)	0.95	49888.2	11130.00
1	44563.83	130.31	0.817	0.30 (0.29)	0.95	54929.4	12410.00
1	43940.22	138.67	0.799	0.30 (0.29)	0.95	58668.5	11201.00
1	43496.56	143.70	0.789	0.30 (0.29)	0.95	60400.2	12201.00
1	42452.90	150.90	0.774	0.30 (0.29)	0.95	62257.3	12231.00
1	41126.71	158.90	0.757	0.30 (0.29)	0.96	63891.6	10400.00
1	39747.34	167.06	0.740	0.30 (0.29)	0.96	65186.7	12010.00
1	38533.08	173.21	0.727	0.30 (0.29)	0.96	65533.7	10210.00
1	34285.89	202.15	0.689	0.30 (0.29)	0.96	66272.1	10100.00
2	163.86	15.46	2.568	0.30 (0.28)	0.94	79.6	13889.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19284.05	15.46	2.568	0.30 (0.26)	0.86	2626.3	13889.00
2	22109.50	25.23	1.886	0.30 (0.26)	0.86	4235.7	10600.00
3	22687.56	26.71	1.829	0.30 (0.26)	0.86	4646.5	13810.00
4	23094.81	27.79	1.788	0.30 (0.26)	0.86	4937.5	13850.00
5	24420.75	31.34	1.668	0.30 (0.26)	0.86	5875.4	13870.00
6	26485.82	37.00	1.522	0.30 (0.26)	0.86	7328.4	10340.00
7	27007.12	38.63	1.480	0.30 (0.26)	0.86	7917.1	13830.00
8	28970.50	45.13	1.361	0.30 (0.26)	0.86	10152.8	110.00
9	32787.96	58.41	1.188	0.30 (0.26)	0.88	15964.7	150.00
10	34677.47	65.77	1.131	0.30 (0.27)	0.89	18909.4	600.00
11	35502.65	70.40	1.100	0.30 (0.27)	0.90	21084.8	31100.00
12	37676.40	81.34	1.026	0.30 (0.27)	0.91	26200.1	40100.00
13	38670.05	88.94	0.975	0.30 (0.28)	0.92	29645.4	11801.00
14	40496.85	99.33	0.928	0.30 (0.28)	0.93	35077.6	11530.00
15	42302.83	106.80	0.895	0.30 (0.28)	0.94	40025.8	11910.00
16	43567.99	111.96	0.873	0.30 (0.28)	0.94	43885.6	13500.00
17	45027.76	120.68	0.837	0.30 (0.28)	0.95	49967.8	11130.00
18	44602.18	130.31	0.817	0.30 (0.29)	0.95	55009.0	12410.00
19	43977.32	138.67	0.799	0.30 (0.29)	0.95	58748.1	11201.00
20	43532.91	143.70	0.789	0.30 (0.29)	0.95	60479.8	12201.00
21	42488.18	150.90	0.774	0.30 (0.29)	0.95	62336.9	12231.00
22	41160.79	158.90	0.757	0.30 (0.29)	0.96	63971.2	10400.00
23	39780.21	167.06	0.740	0.30 (0.29)	0.96	65266.3	12010.00
24	38565.03	173.21	0.727	0.30 (0.29)	0.96	65613.3	10210.00

25 34315.14 202.15 0.689 0.30 (0.29) 0.96 66351.7 10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 45027.76 Tc(MIN.) = 120.68
EFFECTIVE AREA(ACRES) = 49967.78 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 66351.7
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13910.00 = 135256.95 FEET.

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 66351.7 TC(MIN.) = 120.68
EFFECTIVE AREA(ACRES) = 49967.78 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.946
PEAK FLOW RATE(CFS) = 45027.76

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19284.05	15.46	2.568	0.30 (0.26)	0.86	2626.3	13889.00
2	22109.50	25.23	1.886	0.30 (0.26)	0.86	4235.7	10600.00
3	22687.56	26.71	1.829	0.30 (0.26)	0.86	4646.5	13810.00
4	23094.81	27.79	1.788	0.30 (0.26)	0.86	4937.5	13850.00
5	24420.75	31.34	1.668	0.30 (0.26)	0.86	5875.4	13870.00
6	26485.82	37.00	1.522	0.30 (0.26)	0.86	7328.4	10340.00
7	27007.12	38.63	1.480	0.30 (0.26)	0.86	7917.1	13830.00
8	28970.50	45.13	1.361	0.30 (0.26)	0.86	10152.8	110.00
9	32787.96	58.41	1.188	0.30 (0.26)	0.88	15964.7	150.00
10	34677.47	65.77	1.131	0.30 (0.27)	0.89	18909.4	600.00
11	35502.65	70.40	1.100	0.30 (0.27)	0.90	21084.8	31100.00
12	37676.40	81.34	1.026	0.30 (0.27)	0.91	26200.1	40100.00
13	38670.05	88.94	0.975	0.30 (0.28)	0.92	29645.4	11801.00
14	40496.85	99.33	0.928	0.30 (0.28)	0.93	35077.6	11530.00
15	42302.83	106.80	0.895	0.30 (0.28)	0.94	40025.8	11910.00
16	43567.99	111.96	0.873	0.30 (0.28)	0.94	43885.6	13500.00
17	45027.76	120.68	0.837	0.30 (0.28)	0.95	49967.8	11130.00
18	44602.18	130.31	0.817	0.30 (0.29)	0.95	55009.0	12410.00
19	43977.32	138.67	0.799	0.30 (0.29)	0.95	58748.1	11201.00
20	43532.91	143.70	0.789	0.30 (0.29)	0.95	60479.8	12201.00
21	42488.18	150.90	0.774	0.30 (0.29)	0.95	62336.9	12231.00
22	41160.79	158.90	0.757	0.30 (0.29)	0.96	63971.2	10400.00
23	39780.21	167.06	0.740	0.30 (0.29)	0.96	65266.3	12010.00
24	38565.03	173.21	0.727	0.30 (0.29)	0.96	65613.3	10210.00
25	34315.14	202.15	0.689	0.30 (0.29)	0.96	66351.7	10100.00

END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 139 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 50-YR EV SEP 2023 ROKAMOTO *

FILE NAME: RI50EV39.DAT
TIME/DATE OF STUDY: 16:24 09/05/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 50.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 5.220
- 2) 10.00; 3.380
- 3) 15.00; 2.606
- 4) 20.00; 2.184
- 5) 25.00; 1.894
- 6) 30.00; 1.703
- 7) 40.00; 1.444
- 8) 50.00; 1.282
- 9) 60.00; 1.169
- 10) 90.00; 0.968
- 11) 120.00; 0.837
- 12) 180.00; 0.712
- 13) 360.00; 0.522
- 14) 1200.00; 0.227

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13900.00 TO NODE 13901.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 600.65
ELEVATION DATA: UPSTREAM(FEET) = 442.40 DOWNSTREAM(FEET) = 385.16

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 10.859
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 3.247
SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
AGRICULTURAL POOR COVER "FALLOW"	-	4.00	0.30	1.000	56	10.86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF(CFS) = 10.61
TOTAL AREA(ACRES) = 4.00 PEAK FLOW RATE(CFS) = 10.61

FLOW PROCESS FROM NODE 13901.00 TO NODE 13902.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 385.16 DOWNSTREAM(FEET) = 288.21
CHANNEL LENGTH THRU SUBAREA(FEET) = 647.42 CHANNEL SLOPE = 0.1497
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.32
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.983
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	8.47	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 20.86
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.34
AVERAGE FLOW DEPTH(FEET) = 0.31 TRAVEL TIME(MIN.) = 1.70
Tc(MIN.) = 12.56
SUBAREA AREA(ACRES) = 8.47 SUBAREA RUNOFF(CFS) = 20.46
EFFECTIVE AREA(ACRES) = 12.47 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 12.5 PEAK FLOW RATE(CFS) = 30.12
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.39

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.39 FLOW VELOCITY(FEET/SEC.) = 7.24
LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13902.00 = 1248.07 FEET.

FLOW PROCESS FROM NODE 13902.00 TO NODE 13903.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 288.21 DOWNSTREAM(FEET) = 184.89
CHANNEL LENGTH THRU SUBAREA(FEET) = 669.27 CHANNEL SLOPE = 0.1544
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.57
* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.795

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	23.85	0.30	0.982	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.982

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 56.98

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.15

AVERAGE FLOW DEPTH(FEET) = 0.56 TRAVEL TIME(MIN.) = 1.22

Tc(MIN.) = 13.78

SUBAREA AREA(ACRES) = 23.85 SUBAREA RUNOFF(CFS) = 53.67

EFFECTIVE AREA(ACRES) = 36.32 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99

TOTAL AREA(ACRES) = 36.3 PEAK FLOW RATE(CFS) = 81.67

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 0.69

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.69 FLOW VELOCITY(FEET/SEC.) = 10.38

LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13903.00 = 1917.34 FEET.

FLOW PROCESS FROM NODE 13903.00 TO NODE 13904.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 184.89 DOWNSTREAM(FEET) = 155.08

FLOW LENGTH(FEET) = 876.66 MANNING'S N = 0.013

ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 36.000

DEPTH OF FLOW IN 36.0 INCH PIPE IS 22.2 INCHES

PIPE-FLOW VELOCITY(FEET/SEC.) = 17.86

ESTIMATED PIPE DIAMETER(INCH) = 36.00 NUMBER OF PIPES = 1

PIPE-FLOW(CFS) = 81.67

PIPE TRAVEL TIME(MIN.) = 0.82 Tc(MIN.) = 14.60

LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13904.00 = 2794.00 FEET.

FLOW PROCESS FROM NODE 13903.00 TO NODE 13904.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 14.60

* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.668

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	21.29	0.30	0.996	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.996

SUBAREA AREA(ACRES) = 21.29 SUBAREA RUNOFF(CFS) = 45.40

EFFECTIVE AREA(ACRES) = 57.61 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99

TOTAL AREA(ACRES) = 57.6 PEAK FLOW RATE(CFS) = 122.93

FLOW PROCESS FROM NODE 13904.00 TO NODE 13920.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 155.08 DOWNSTREAM(FEET) = 118.00

FLOW LENGTH(FEET) = 1961.38 MANNING'S N = 0.013

DEPTH OF FLOW IN 42.0 INCH PIPE IS 32.3 INCHES

PIPE-FLOW VELOCITY(FEET/SEC.) = 15.50

ESTIMATED PIPE DIAMETER(INCH) = 42.00 NUMBER OF PIPES = 1

PIPE-FLOW(CFS) = 122.93

PIPE TRAVEL TIME(MIN.) = 2.11 Tc(MIN.) = 16.71

LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13920.00 = 4755.38 FEET.

FLOW PROCESS FROM NODE 13904.00 TO NODE 13920.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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MAINLINE Tc(MIN.) = 16.71

* 50 YEAR RAINFALL INTENSITY(INCH/HR) = 2.462

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	43.53	0.30	0.649	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.649

SUBAREA AREA(ACRES) = 43.53 SUBAREA RUNOFF(CFS) = 88.82

EFFECTIVE AREA(ACRES) = 101.14 AREA-AVERAGED Fm(INCH/HR) = 0.25

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84

TOTAL AREA(ACRES) = 101.1 PEAK FLOW RATE(CFS) = 201.06

FLOW PROCESS FROM NODE 13904.00 TO NODE 13920.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 13910.00 TO NODE 13910.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RI50EV38.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19284.05	15.46	0.30 (0.26)	0.86	2626.3	13889.00
2	24420.75	31.34	0.30 (0.26)	0.86	5875.4	13870.00
3	27007.12	38.63	0.30 (0.26)	0.86	7917.1	13830.00
4	28970.50	45.13	0.30 (0.26)	0.86	10152.8	110.00
5	32787.96	58.41	0.30 (0.26)	0.88	15964.7	150.00
6	35502.65	70.40	0.30 (0.27)	0.90	21084.8	31100.00
7	37676.40	81.34	0.30 (0.27)	0.91	26200.1	40100.00
8	38670.05	88.94	0.30 (0.28)	0.92	29645.4	11801.00
9	40496.85	99.33	0.30 (0.28)	0.93	35077.6	11530.00
10	42302.83	106.80	0.30 (0.28)	0.94	40025.8	11910.00
11	43567.99	111.96	0.30 (0.28)	0.94	43885.6	13500.00
12	45027.76	120.68	0.30 (0.28)	0.95	49967.8	11130.00
13	44602.18	130.31	0.30 (0.29)	0.95	55009.0	12410.00
14	43977.32	138.67	0.30 (0.29)	0.95	58748.1	11201.00
15	43532.91	143.70	0.30 (0.29)	0.95	60479.8	12201.00
16	42488.18	150.90	0.30 (0.29)	0.95	62336.9	12231.00
17	41160.79	158.90	0.30 (0.29)	0.96	63971.2	10400.00
18	39780.21	167.06	0.30 (0.29)	0.96	65266.3	12010.00
19	38565.03	173.21	0.30 (0.29)	0.96	65613.3	10210.00
20	34315.14	202.15	0.30 (0.29)	0.96	66351.7	10100.00
TOTAL AREA (ACRES) =						66351.7

FLOW PROCESS FROM NODE 13910.00 TO NODE 13910.00 IS CODE = 14.0

>>>>MEMORY BANK # 2 COPIED ONTO MAIN-STREAM MEMORY<<<<<

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19284.05	15.46	0.30 (0.26)	0.86	2626.3	13889.00
2	24420.75	31.34	0.30 (0.26)	0.86	5875.4	13870.00
3	27007.12	38.63	0.30 (0.26)	0.86	7917.1	13830.00
4	28970.50	45.13	0.30 (0.26)	0.86	10152.8	110.00
5	32787.96	58.41	0.30 (0.26)	0.88	15964.7	150.00
6	35502.65	70.40	0.30 (0.27)	0.90	21084.8	31100.00
7	37676.40	81.34	0.30 (0.27)	0.91	26200.1	40100.00
8	38670.05	88.94	0.30 (0.28)	0.92	29645.4	11801.00
9	40496.85	99.33	0.30 (0.28)	0.93	35077.6	11530.00
10	42302.83	106.80	0.30 (0.28)	0.94	40025.8	11910.00
11	43567.99	111.96	0.30 (0.28)	0.94	43885.6	13500.00
12	45027.76	120.68	0.30 (0.28)	0.95	49967.8	11130.00
13	44602.18	130.31	0.30 (0.29)	0.95	55009.0	12410.00
14	43977.32	138.67	0.30 (0.29)	0.95	58748.1	11201.00
15	43532.91	143.70	0.30 (0.29)	0.95	60479.8	12201.00
16	42488.18	150.90	0.30 (0.29)	0.95	62336.9	12231.00
17	41160.79	158.90	0.30 (0.29)	0.96	63971.2	10400.00
18	39780.21	167.06	0.30 (0.29)	0.96	65266.3	12010.00
19	38565.03	173.21	0.30 (0.29)	0.96	65613.3	10210.00
20	34315.14	202.15	0.30 (0.29)	0.96	66351.7	10100.00
TOTAL AREA (ACRES) =						66351.7

FLOW PROCESS FROM NODE 13910.00 TO NODE 13920.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 119.70 DOWNSTREAM(FEET) = 118.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1376.26 CHANNEL SLOPE = 0.0012
GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 22.47
* 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.831
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	96.09	0.30	0.535	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.535
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 45056.75
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 10.56
AVERAGE FLOW DEPTH (FEET) = 22.46 TRAVEL TIME (MIN.) = 2.17
Tc (MIN.) = 122.85
SUBAREA AREA (ACRES) = 96.09 SUBAREA RUNOFF (CFS) = 57.99
EFFECTIVE AREA (ACRES) = 50063.87 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 66447.8 PEAK FLOW RATE (CFS) = 45027.76
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 22.46

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 22.46 FLOW VELOCITY (FEET/SEC.) = 10.56

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13920.00 = 136633.22 FEET.

FLOW PROCESS FROM NODE 13904.00 TO NODE 13920.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19284.05	18.21	2.335	0.30 (0.25)	0.85	2722.4	13889.00
2	24420.75	33.91	1.602	0.30 (0.26)	0.86	5971.5	13870.00
3	27007.12	41.13	1.426	0.30 (0.26)	0.86	8013.2	13830.00
4	28970.50	47.58	1.321	0.30 (0.26)	0.86	10248.9	110.00
5	32787.96	60.78	1.164	0.30 (0.26)	0.88	16060.8	150.00
6	35502.65	72.72	1.084	0.30 (0.27)	0.90	21180.9	31100.00
7	37676.40	83.62	1.011	0.30 (0.27)	0.91	26296.2	40100.00
8	38670.05	91.20	0.963	0.30 (0.28)	0.92	29741.5	11801.00
9	40496.85	101.56	0.918	0.30 (0.28)	0.93	35173.7	11530.00
10	42302.83	109.01	0.885	0.30 (0.28)	0.93	40121.9	11910.00
11	43567.99	114.15	0.863	0.30 (0.28)	0.94	43981.7	13500.00
12	45027.76	122.85	0.831	0.30 (0.28)	0.95	50063.9	11130.00
13	44602.18	132.49	0.811	0.30 (0.28)	0.95	55105.1	12410.00
14	43977.32	140.85	0.794	0.30 (0.29)	0.95	58844.2	11201.00
15	43532.91	145.89	0.783	0.30 (0.29)	0.95	60575.9	12201.00
16	42488.18	153.10	0.768	0.30 (0.29)	0.95	62433.0	12231.00

17 41160.79 161.13 0.751 0.30(0.29) 0.95 64067.3 10400.00
 18 39780.21 169.30 0.734 0.30(0.29) 0.96 65362.4 12010.00
 19 38565.03 175.48 0.721 0.30(0.29) 0.96 65709.4 10210.00
 20 34315.14 204.49 0.686 0.30(0.29) 0.96 66447.8 10100.00
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13920.00 = 136633.22 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	201.06	16.71	2.462	0.30(0.25)	0.84	101.1	13900.00

LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13920.00 = 4755.38 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18973.42	16.71	2.462	0.30(0.25)	0.85	2599.4	13900.00
2	19473.59	18.21	2.335	0.30(0.25)	0.85	2823.5	13889.00
3	24543.50	33.91	1.602	0.30(0.26)	0.86	6072.6	13870.00
4	27113.86	41.13	1.426	0.30(0.26)	0.86	8114.3	13830.00
5	29067.72	47.58	1.321	0.30(0.26)	0.86	10350.0	110.00
6	32870.86	60.78	1.164	0.30(0.26)	0.88	16161.9	150.00
7	35578.26	72.72	1.084	0.30(0.27)	0.90	21282.0	31100.00
8	37745.37	83.62	1.011	0.30(0.27)	0.91	26397.3	40100.00
9	38734.64	91.20	0.963	0.30(0.28)	0.92	29842.7	11801.00
10	40557.33	101.56	0.918	0.30(0.28)	0.93	35274.8	11530.00
11	42360.35	109.01	0.885	0.30(0.28)	0.93	40223.1	11910.00
12	43623.46	114.15	0.863	0.30(0.28)	0.94	44082.8	13500.00
13	45080.37	122.85	0.831	0.30(0.28)	0.95	50165.0	11130.00
14	44652.96	132.49	0.811	0.30(0.28)	0.95	55206.2	12410.00
15	44026.52	140.85	0.794	0.30(0.29)	0.95	58945.3	11201.00
16	43581.15	145.89	0.783	0.30(0.29)	0.95	60677.0	12201.00
17	42535.05	153.10	0.768	0.30(0.29)	0.95	62534.2	12231.00
18	41206.14	161.13	0.751	0.30(0.29)	0.95	64168.5	10400.00
19	39824.01	169.30	0.734	0.30(0.29)	0.96	65463.6	12010.00
20	38607.66	175.48	0.721	0.30(0.29)	0.96	65810.5	10210.00
21	34354.56	204.49	0.686	0.30(0.29)	0.96	66549.0	10100.00

TOTAL AREA (ACRES) = 66549.0

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 45080.37 Tc (MIN.) = 122.849
 EFFECTIVE AREA (ACRES) = 50165.01 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
 TOTAL AREA (ACRES) = 66549.0
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13920.00 = 136633.22 FEET.

 FLOW PROCESS FROM NODE 13920.00 TO NODE 13921.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM (FEET) = 118.00 DOWNSTREAM (FEET) = 115.28
 CHANNEL LENGTH THRU SUBAREA (FEET) = 335.44 CHANNEL SLOPE = 0.0081
 GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 13.92
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.831
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	134.30	0.30	0.658	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.658
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 45118.63
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 20.82
 AVERAGE FLOW DEPTH (FEET) = 13.92 TRAVEL TIME (MIN.) = 0.27
 Tc (MIN.) = 123.12
 SUBAREA AREA (ACRES) = 134.30 SUBAREA RUNOFF (CFS) = 76.53
 EFFECTIVE AREA (ACRES) = 50299.31 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
 TOTAL AREA (ACRES) = 66683.3 PEAK FLOW RATE (CFS) = 45080.37
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 13.91

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 13.91 FLOW VELOCITY (FEET/SEC.) = 20.82
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13921.00 = 136968.66 FEET.

 FLOW PROCESS FROM NODE 13921.00 TO NODE 14010.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 115.28 DOWNSTREAM (FEET) = 100.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1396.08 CHANNEL SLOPE = 0.0109
 GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 12.86
 * 50 YEAR RAINFALL INTENSITY (INCH/HR) = 0.828
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	96.27	0.30	0.723	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.723
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 45106.86
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 23.17
 AVERAGE FLOW DEPTH (FEET) = 12.86 TRAVEL TIME (MIN.) = 1.00
 Tc (MIN.) = 124.12
 SUBAREA AREA (ACRES) = 96.27 SUBAREA RUNOFF (CFS) = 52.99
 EFFECTIVE AREA (ACRES) = 50395.58 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
 TOTAL AREA (ACRES) = 66779.5 PEAK FLOW RATE (CFS) = 45080.37
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 12.85

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 12.85 FLOW VELOCITY (FEET/SEC.) = 23.17
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 14010.00 = 138364.73 FEET.

=====

END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 66779.5 TC (MIN.) = 124.12
 EFFECTIVE AREA (ACRES) = 50395.58 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.944
 PEAK FLOW RATE (CFS) = 45080.37

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	18973.42	18.36	2.323	0.30 (0.25)	0.84	2830.0	13900.00
2	19473.59	19.84	2.197	0.30 (0.25)	0.84	3054.1	13889.00
3	24543.50	35.44	1.562	0.30 (0.26)	0.85	6303.2	13870.00
4	27113.86	42.60	1.402	0.30 (0.26)	0.86	8344.9	13830.00
5	29067.72	49.03	1.298	0.30 (0.26)	0.86	10580.6	110.00
6	32870.86	62.18	1.154	0.30 (0.26)	0.88	16392.5	150.00
7	35578.26	74.08	1.075	0.30 (0.27)	0.90	21512.6	31100.00
8	37745.37	84.96	1.002	0.30 (0.27)	0.91	26627.9	40100.00
9	38734.64	92.53	0.957	0.30 (0.28)	0.92	30073.2	11801.00
10	40557.33	102.88	0.912	0.30 (0.28)	0.93	35505.4	11530.00
11	42360.35	110.31	0.879	0.30 (0.28)	0.93	40453.6	11910.00
12	43623.46	115.43	0.857	0.30 (0.28)	0.94	44313.4	13500.00
13	45080.37	124.12	0.828	0.30 (0.28)	0.94	50395.6	11130.00
14	44652.96	133.76	0.808	0.30 (0.28)	0.95	55436.8	12410.00
15	44026.52	142.14	0.791	0.30 (0.29)	0.95	59175.9	11201.00
16	43581.15	147.17	0.780	0.30 (0.29)	0.95	60907.6	12201.00
17	42535.05	154.40	0.765	0.30 (0.29)	0.95	62764.8	12231.00
18	41206.14	162.43	0.749	0.30 (0.29)	0.95	64399.0	10400.00
19	39824.01	170.62	0.732	0.30 (0.29)	0.95	65694.1	12010.00
20	38607.66	176.81	0.719	0.30 (0.29)	0.95	66041.1	10210.00
21	34354.56	205.86	0.685	0.30 (0.29)	0.96	66779.5	10100.00

=====
 END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

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***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 119 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 100-YR RM EV MARCH 2019 FKAZI *

FILE NAME: RU00EV19.DAT
TIME/DATE OF STUDY: 11:52 03/29/2019

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 6.126
- 2) 10.00; 3.913
- 3) 15.00; 3.013
- 4) 20.00; 2.470
- 5) 25.00; 2.132
- 6) 30.00; 1.903
- 7) 40.00; 1.647
- 8) 50.00; 1.421
- 9) 60.00; 1.323
- 10) 90.00; 1.122
- 11) 120.00; 0.987
- 12) 180.00; 0.829
- 13) 360.00; 0.620
- 14) 1200.00; 0.273

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 11900.00 TO NODE 11901.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

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INITIAL SUBAREA FLOW-LENGTH(FEET) = 295.79
ELEVATION DATA: UPSTREAM(FEET) = 2369.48 DOWNSTREAM(FEET) = 2332.92

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 7.203
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 5.151
SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
RESIDENTIAL ".4 DWELLING/ACRE"	-	1.62	0.30	0.999	0	7.20

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.999
SUBAREA RUNOFF(CFS) = 7.07
TOTAL AREA(ACRES) = 1.62 PEAK FLOW RATE(CFS) = 7.07

FLOW PROCESS FROM NODE 11901.00 TO NODE 11902.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 2332.92 DOWNSTREAM(FEET) = 2297.70
CHANNEL LENGTH THRU SUBAREA(FEET) = 664.26 CHANNEL SLOPE = 0.0530
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.61
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.842
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	8.35	0.30	0.906	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.906
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 20.64
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 3.47
AVERAGE FLOW DEPTH(FEET) = 0.54 TRAVEL TIME(MIN.) = 3.19
Tc(MIN.) = 10.39
SUBAREA AREA(ACRES) = 8.35 SUBAREA RUNOFF(CFS) = 26.83
EFFECTIVE AREA(ACRES) = 9.97 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA(ACRES) = 10.0 PEAK FLOW RATE(CFS) = 32.00
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.69

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.69 FLOW VELOCITY(FEET/SEC.) = 4.07
LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11902.00 = 960.05 FEET.

FLOW PROCESS FROM NODE 11902.00 TO NODE 11902.50 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2297.70 DOWNSTREAM(FEET) = 2263.40
CHANNEL LENGTH THRU SUBAREA(FEET) = 928.77 CHANNEL SLOPE = 0.0369
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.37
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.267

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	34.48	0.30	0.904	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.904
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 78.78
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.84
AVERAGE FLOW DEPTH(FEET) = 1.29 TRAVEL TIME(MIN.) = 3.20
Tc(MIN.) = 13.59

SUBAREA AREA(ACRES) = 34.48 SUBAREA RUNOFF(CFS) = 92.97
EFFECTIVE AREA(ACRES) = 44.45 AREA-AVERAGED Fm(INCH/HR) = 0.27
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.91
TOTAL AREA(ACRES) = 44.5 PEAK FLOW RATE(CFS) = 119.81
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.64

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.64 FLOW VELOCITY(FEET/SEC.) = 5.52
LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11902.50 = 1888.82 FEET.

FLOW PROCESS FROM NODE 11902.50 TO NODE 11903.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2263.40 DOWNSTREAM(FEET) = 2252.14
CHANNEL LENGTH THRU SUBAREA(FEET) = 895.50 CHANNEL SLOPE = 0.0126
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 2.49
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.763

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	23.65	0.30	0.958	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.958
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 146.20
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.02
AVERAGE FLOW DEPTH(FEET) = 2.44 TRAVEL TIME(MIN.) = 3.71

Tc(MIN.) = 17.30
SUBAREA AREA(ACRES) = 23.65 SUBAREA RUNOFF(CFS) = 52.69
EFFECTIVE AREA(ACRES) = 68.10 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
TOTAL AREA(ACRES) = 68.1 PEAK FLOW RATE(CFS) = 152.33
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.50

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 2.50 FLOW VELOCITY(FEET/SEC.) = 4.06
LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11903.00 = 2784.32 FEET.

FLOW PROCESS FROM NODE 11903.00 TO NODE 11904.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2252.14 DOWNSTREAM(FEET) = 2186.04
CHANNEL LENGTH THRU SUBAREA(FEET) = 1924.35 CHANNEL SLOPE = 0.0343
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 2.38
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.315

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	68.53	0.30	0.961	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.961
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 215.00
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.43
AVERAGE FLOW DEPTH(FEET) = 2.29 TRAVEL TIME(MIN.) = 4.99
Tc(MIN.) = 22.29

SUBAREA AREA(ACRES) = 68.53 SUBAREA RUNOFF(CFS) = 125.00
EFFECTIVE AREA(ACRES) = 136.63 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA(ACRES) = 136.6 PEAK FLOW RATE(CFS) = 249.87
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.49

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 2.49 FLOW VELOCITY(FEET/SEC.) = 6.70
LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11904.00 = 4708.67 FEET.

FLOW PROCESS FROM NODE 11904.00 TO NODE 11905.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 2186.04 DOWNSTREAM(FEET) = 1957.34
CHANNEL LENGTH THRU SUBAREA(FEET) = 1926.87 CHANNEL SLOPE = 0.1187
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.99

* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.122
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 63.15 0.30 1.000 -
 SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 301.67
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 10.98
 AVERAGE FLOW DEPTH (FEET) = 1.97 TRAVEL TIME (MIN.) = 2.93
 Tc (MIN.) = 25.22
 SUBAREA AREA (ACRES) = 63.15 SUBAREA RUNOFF (CFS) = 103.55
 EFFECTIVE AREA (ACRES) = 199.78 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
 TOTAL AREA (ACRES) = 199.8 PEAK FLOW RATE (CFS) = 329.70
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.07

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 2.07 FLOW VELOCITY (FEET/SEC.) = 11.26
 LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11905.00 = 6635.54 FEET.

FLOW PROCESS FROM NODE 11905.00 TO NODE 11906.00 IS CODE = 56

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 1957.34 DOWNSTREAM (FEET) = 1244.16
 CHANNEL LENGTH THRU SUBAREA (FEET) = 2498.96 CHANNEL SLOPE = 0.2854
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.81
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.004
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 84.87 0.30 1.000 -
 SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 394.80
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 16.18
 AVERAGE FLOW DEPTH (FEET) = 1.80 TRAVEL TIME (MIN.) = 2.57
 Tc (MIN.) = 27.79
 SUBAREA AREA (ACRES) = 84.87 SUBAREA RUNOFF (CFS) = 130.16
 EFFECTIVE AREA (ACRES) = 284.65 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97
 TOTAL AREA (ACRES) = 284.6 PEAK FLOW RATE (CFS) = 438.66
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.90

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.90 FLOW VELOCITY (FEET/SEC.) = 16.70
 LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11906.00 = 9134.50 FEET.

FLOW PROCESS FROM NODE 11906.00 TO NODE 11920.00 IS CODE = 56

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 1244.16 DOWNSTREAM (FEET) = 873.95
 CHANNEL LENGTH THRU SUBAREA (FEET) = 3370.75 CHANNEL SLOPE = 0.1098
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.89
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.848
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 199.43 0.30 1.000 -
 SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 577.66
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 12.91
 AVERAGE FLOW DEPTH (FEET) = 2.85 TRAVEL TIME (MIN.) = 4.35
 Tc (MIN.) = 32.15
 SUBAREA AREA (ACRES) = 199.43 SUBAREA RUNOFF (CFS) = 277.86
 EFFECTIVE AREA (ACRES) = 484.08 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 484.1 PEAK FLOW RATE (CFS) = 676.56
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 3.10

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 3.10 FLOW VELOCITY (FEET/SEC.) = 13.47
 LONGEST FLOWPATH FROM NODE 11900.00 TO NODE 11920.00 = 12505.25 FEET.

FLOW PROCESS FROM NODE 11906.00 TO NODE 11920.00 IS CODE = 1

 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION (MIN.) = 32.15
 RAINFALL INTENSITY (INCH/HR) = 1.85
 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.98
 EFFECTIVE STREAM AREA (ACRES) = 484.08
 TOTAL STREAM AREA (ACRES) = 484.08
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 676.56

FLOW PROCESS FROM NODE 11910.00 TO NODE 11911.00 IS CODE = 21

 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

INITIAL SUBAREA FLOW-LENGTH (FEET) = 517.62
 ELEVATION DATA: UPSTREAM (FEET) = 2531.88 DOWNSTREAM (FEET) = 2441.33

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 12.185
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.520
 SUBAREA Tc AND LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF" - 3.46 0.30 1.000 0 12.19
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 10.03
 TOTAL AREA(ACRES) = 3.46 PEAK FLOW RATE(CFS) = 10.03

 FLOW PROCESS FROM NODE 11911.00 TO NODE 11912.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 2441.33 DOWNSTREAM(FEET) = 2382.20
 CHANNEL LENGTH THRU SUBAREA(FEET) = 397.30 CHANNEL SLOPE = 0.1488
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.37
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.259
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 5.79 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 17.75
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.58
 AVERAGE FLOW DEPTH(FEET) = 0.36 TRAVEL TIME(MIN.) = 1.45
 Tc(MIN.) = 13.63
 SUBAREA AREA(ACRES) = 5.79 SUBAREA RUNOFF(CFS) = 15.42
 EFFECTIVE AREA(ACRES) = 9.25 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 9.2 PEAK FLOW RATE(CFS) = 24.64
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.44

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 0.44 FLOW VELOCITY(FEET/SEC.) = 5.18
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11912.00 = 914.92 FEET.

 FLOW PROCESS FROM NODE 11912.00 TO NODE 11913.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 2382.20 DOWNSTREAM(FEET) = 2263.77
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1891.47 CHANNEL SLOPE = 0.0626
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 1.25

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.579
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 54.30 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 81.10
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.88
 AVERAGE FLOW DEPTH(FEET) = 1.13 TRAVEL TIME(MIN.) = 5.36
 Tc(MIN.) = 19.00
 SUBAREA AREA(ACRES) = 54.30 SUBAREA RUNOFF(CFS) = 111.38
 EFFECTIVE AREA(ACRES) = 63.55 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 63.5 PEAK FLOW RATE(CFS) = 130.36
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 1.48

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 1.48 FLOW VELOCITY(FEET/SEC.) = 6.81
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11913.00 = 2806.39 FEET.

 FLOW PROCESS FROM NODE 11913.00 TO NODE 11914.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 2263.77 DOWNSTREAM(FEET) = 1845.23
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1957.31 CHANNEL SLOPE = 0.2138
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 1.32
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.349
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 65.14 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 190.50
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.69
 AVERAGE FLOW DEPTH(FEET) = 1.29 TRAVEL TIME(MIN.) = 2.79
 Tc(MIN.) = 21.79
 SUBAREA AREA(ACRES) = 65.14 SUBAREA RUNOFF(CFS) = 120.15
 EFFECTIVE AREA(ACRES) = 128.69 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 128.7 PEAK FLOW RATE(CFS) = 237.36
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 1.47

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 1.47 FLOW VELOCITY(FEET/SEC.) = 12.50
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11914.00 = 4763.70 FEET.

FLOW PROCESS FROM NODE 11914.00 TO NODE 11915.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1845.23 DOWNSTREAM(FEET) = 1557.21
CHANNEL LENGTH THRU SUBAREA(FEET) = 1686.78 CHANNEL SLOPE = 0.1708
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.81
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.198

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 78.52 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 304.43

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 12.52

AVERAGE FLOW DEPTH(FEET) = 1.79 TRAVEL TIME(MIN.) = 2.24

Tc(MIN.) = 24.03

SUBAREA AREA(ACRES) = 78.52 SUBAREA RUNOFF(CFS) = 134.10

EFFECTIVE AREA(ACRES) = 207.21 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 207.2 PEAK FLOW RATE(CFS) = 353.89

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 1.95

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.95 FLOW VELOCITY(FEET/SEC.) = 13.07

LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11915.00 = 6450.48 FEET.

FLOW PROCESS FROM NODE 11915.00 TO NODE 11916.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1557.21 DOWNSTREAM(FEET) = 1403.38
CHANNEL LENGTH THRU SUBAREA(FEET) = 1909.39 CHANNEL SLOPE = 0.0806
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 2.60
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.037

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 70.48 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 409.00

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.45

AVERAGE FLOW DEPTH(FEET) = 2.58 TRAVEL TIME(MIN.) = 3.05

Tc(MIN.) = 27.08

SUBAREA AREA(ACRES) = 70.48 SUBAREA RUNOFF(CFS) = 110.18

EFFECTIVE AREA(ACRES) = 277.69 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 277.7 PEAK FLOW RATE(CFS) = 434.11
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.66

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 2.66 FLOW VELOCITY(FEET/SEC.) = 10.65

LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11916.00 = 8359.87 FEET.

FLOW PROCESS FROM NODE 11916.00 TO NODE 11917.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1403.38 DOWNSTREAM(FEET) = 1079.99
CHANNEL LENGTH THRU SUBAREA(FEET) = 1945.82 CHANNEL SLOPE = 0.1662
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 2.64
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.939

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 232.20 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 605.42

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 15.15

AVERAGE FLOW DEPTH(FEET) = 2.62 TRAVEL TIME(MIN.) = 2.14

Tc(MIN.) = 29.22

SUBAREA AREA(ACRES) = 232.20 SUBAREA RUNOFF(CFS) = 342.51

EFFECTIVE AREA(ACRES) = 509.89 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 509.9 PEAK FLOW RATE(CFS) = 752.12

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 2.94

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 2.94 FLOW VELOCITY(FEET/SEC.) = 16.11

LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11917.00 = 10305.69 FEET.

FLOW PROCESS FROM NODE 11917.00 TO NODE 11920.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 1079.99 DOWNSTREAM(FEET) = 873.95
CHANNEL LENGTH THRU SUBAREA(FEET) = 2563.91 CHANNEL SLOPE = 0.0804
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 3.74

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.837

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN

USER-DEFINED - 110.82 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 828.79
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 12.74
 AVERAGE FLOW DEPTH(FEET) = 3.73 TRAVEL TIME(MIN.) = 3.36
 Tc(MIN.) = 32.57
 SUBAREA AREA(ACRES) = 110.82 SUBAREA RUNOFF(CFS) = 153.32
 EFFECTIVE AREA(ACRES) = 620.71 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 620.7 PEAK FLOW RATE(CFS) = 858.76
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 3.80

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 3.80 FLOW VELOCITY(FEET/SEC.) = 12.86
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11920.00 = 12869.60 FEET.

 FLOW PROCESS FROM NODE 11917.00 TO NODE 11920.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
 =====

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION(MIN.) = 32.57
 RAINFALL INTENSITY(INCH/HR) = 1.84
 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 1.00
 EFFECTIVE STREAM AREA(ACRES) = 620.71
 TOTAL STREAM AREA(ACRES) = 620.71
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 858.76

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	676.56	32.15	1.848	0.30(0.30)	0.98	484.1	11900.00
2	858.76	32.57	1.837	0.30(0.30)	1.00	620.7	11910.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1530.12	32.15	1.848	0.30(0.30)	0.99	1096.7	11900.00
2	1530.59	32.57	1.837	0.30(0.30)	0.99	1104.8	11910.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) = 1530.59 Tc(MIN.) = 32.57
 EFFECTIVE AREA(ACRES) = 1104.79 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 1104.8
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11920.00 = 12869.60 FEET.

 FLOW PROCESS FROM NODE 11920.00 TO NODE 11921.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<
 =====

ELEVATION DATA: UPSTREAM(FEET) = 873.95 DOWNSTREAM(FEET) = 827.94
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1417.25 CHANNEL SLOPE = 0.0325
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 6.45
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.782

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	107.47	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1602.24
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.86
 AVERAGE FLOW DEPTH(FEET) = 6.44 TRAVEL TIME(MIN.) = 2.17
 Tc(MIN.) = 34.75
 SUBAREA AREA(ACRES) = 107.47 SUBAREA RUNOFF(CFS) = 143.30
 EFFECTIVE AREA(ACRES) = 1212.26 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 1212.3 PEAK FLOW RATE(CFS) = 1618.54
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 6.47

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 6.47 FLOW VELOCITY(FEET/SEC.) = 10.89
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11921.00 = 14286.85 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1619.54	34.32	1.792	0.30(0.30)	0.99	1204.2	11900.00
2	1618.54	34.75	1.782	0.30(0.30)	0.99	1212.3	11910.00

NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE(CFS) = 1619.54 Tc(MIN.) = 34.32
 AREA-AVERAGED Fm(INCH/HR) = 0.30 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.99 EFFECTIVE AREA(ACRES) = 1204.17

 FLOW PROCESS FROM NODE 11921.00 TO NODE 11922.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<
 =====

ELEVATION DATA: UPSTREAM(FEET) = 827.94 DOWNSTREAM(FEET) = 753.55
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1886.43 CHANNEL SLOPE = 0.0394
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 6.59
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.726

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	107.47	0.30	1.000	-

LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 344.27 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1840.46
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 12.10
 AVERAGE FLOW DEPTH(FEET) = 6.57 TRAVEL TIME(MIN.) = 2.60
 Tc(MIN.) = 36.92
 SUBAREA AREA(ACRES) = 344.27 SUBAREA RUNOFF(CFS) = 441.81
 EFFECTIVE AREA(ACRES) = 1548.44 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 1556.5 PEAK FLOW RATE(CFS) = 1989.26
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 6.82

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 6.82 FLOW VELOCITY(FEET/SEC.) = 12.35
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11922.00 = 16173.28 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1989.26	36.92	1.726	0.30(0.30)	0.99	1548.4	11900.00
2	1984.41	37.34	1.715	0.30(0.30)	1.00	1556.5	11910.00

 NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE(CFS) = 1989.26 Tc(MIN.) = 36.92
 AREA-AVERAGED Fm(INCH/HR) = 0.30 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.99 EFFECTIVE AREA(ACRES) = 1548.44

 FLOW PROCESS FROM NODE 11922.00 TO NODE 11923.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 753.55 DOWNSTREAM(FEET) = 641.58
 CHANNEL LENGTH THRU SUBAREA(FEET) = 2860.88 CHANNEL SLOPE = 0.0391
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 7.00
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.630
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	165.18	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2088.15
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 12.47
 AVERAGE FLOW DEPTH(FEET) = 6.99 TRAVEL TIME(MIN.) = 3.82
 Tc(MIN.) = 40.74
 SUBAREA AREA(ACRES) = 165.18 SUBAREA RUNOFF(CFS) = 197.76
 EFFECTIVE AREA(ACRES) = 1713.62 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 1721.7 PEAK FLOW RATE(CFS) = 2053.72
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 6.93
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 6.93 FLOW VELOCITY(FEET/SEC.) = 12.42
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11923.00 = 19034.16 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2053.72	40.74	1.630	0.30(0.30)	1.00	1713.6	11900.00
2	2048.46	41.17	1.621	0.30(0.30)	1.00	1721.7	11910.00

 NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE(CFS) = 2053.72 Tc(MIN.) = 40.74
 AREA-AVERAGED Fm(INCH/HR) = 0.30 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA(ACRES) = 1713.62

 FLOW PROCESS FROM NODE 11923.00 TO NODE 11924.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 641.58 DOWNSTREAM(FEET) = 579.89
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1844.02 CHANNEL SLOPE = 0.0335
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 7.60
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.573
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	433.73	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2302.13
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 12.07
 AVERAGE FLOW DEPTH(FEET) = 7.58 TRAVEL TIME(MIN.) = 2.55
 Tc(MIN.) = 43.29
 SUBAREA AREA(ACRES) = 433.73 SUBAREA RUNOFF(CFS) = 496.81
 EFFECTIVE AREA(ACRES) = 2147.35 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 2155.4 PEAK FLOW RATE(CFS) = 2461.77
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 7.82

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 7.82 FLOW VELOCITY(FEET/SEC.) = 12.27
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11924.00 = 20878.18 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2461.77	43.29	1.573	0.30(0.30)	1.00	2147.4	11900.00
2	2452.21	43.72	1.563	0.30(0.30)	1.00	2155.4	11910.00

 NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE(CFS) = 2461.77 Tc(MIN.) = 43.29
 AREA-AVERAGED Fm(INCH/HR) = 0.30 AREA-AVERAGED Fp(INCH/HR) = 0.30

AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA(ACRES) = 2147.35

FLOW PROCESS FROM NODE 11924.00 TO NODE 11925.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 579.89 DOWNSTREAM(FEET) = 494.12
CHANNEL LENGTH THRU SUBAREA(FEET) = 2756.15 CHANNEL SLOPE = 0.0311
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 8.18
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.487

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 265.42 0.30 1.000 -

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2603.57

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 12.12

AVERAGE FLOW DEPTH(FEET) = 8.16 TRAVEL TIME(MIN.) = 3.79

Tc(MIN.) = 47.08

SUBAREA AREA(ACRES) = 265.42 SUBAREA RUNOFF(CFS) = 283.56

EFFECTIVE AREA(ACRES) = 2412.77 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 2420.9 PEAK FLOW RATE(CFS) = 2579.81

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 8.13

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 8.13 FLOW VELOCITY(FEET/SEC.) = 12.09

LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11925.00 = 23634.33 FEET.

** PEAK FLOW RATE TABLE **

STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 2579.81 47.08 1.487 0.30(0.30) 1.00 2412.8 11900.00
2 2567.11 47.51 1.477 0.30(0.30) 1.00 2420.9 11910.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 2579.81 Tc(MIN.) = 47.08

AREA-AVERAGED Fm(INCH/HR) = 0.30 AREA-AVERAGED Fp(INCH/HR) = 0.30

AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA(ACRES) = 2412.77

FLOW PROCESS FROM NODE 11925.00 TO NODE 11926.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 494.12 DOWNSTREAM(FEET) = 458.40
CHANNEL LENGTH THRU SUBAREA(FEET) = 1922.70 CHANNEL SLOPE = 0.0186
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 9.23
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.418

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 97.46 0.30 1.000 -

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2628.86

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.03

AVERAGE FLOW DEPTH(FEET) = 9.22 TRAVEL TIME(MIN.) = 3.20

Tc(MIN.) = 50.28

SUBAREA AREA(ACRES) = 97.46 SUBAREA RUNOFF(CFS) = 98.10

EFFECTIVE AREA(ACRES) = 2510.23 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 2518.3 PEAK FLOW RATE(CFS) = 2579.81

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 9.14

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 9.14 FLOW VELOCITY(FEET/SEC.) = 9.98

LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11926.00 = 25557.03 FEET.

** PEAK FLOW RATE TABLE **

STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 2579.81 50.28 1.418 0.30(0.30) 1.00 2510.2 11900.00
2 2567.11 50.71 1.414 0.30(0.30) 1.00 2518.3 11910.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 2579.81 Tc(MIN.) = 50.28

AREA-AVERAGED Fm(INCH/HR) = 0.30 AREA-AVERAGED Fp(INCH/HR) = 0.30

AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA(ACRES) = 2510.23

FLOW PROCESS FROM NODE 11926.00 TO NODE 11927.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 458.40 DOWNSTREAM(FEET) = 399.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2170.13 CHANNEL SLOPE = 0.0274
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 8.41
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.388

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 53.83 0.30 1.000 -

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2606.16

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.55

AVERAGE FLOW DEPTH(FEET) = 8.41 TRAVEL TIME(MIN.) = 3.13

Tc(MIN.) = 53.41

SUBAREA AREA(ACRES) = 53.83 SUBAREA RUNOFF(CFS) = 52.70

EFFECTIVE AREA(ACRES) = 2564.06 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA (ACRES) = 2572.1 PEAK FLOW RATE (CFS) = 2579.81
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 8.37

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 8.37 FLOW VELOCITY (FEET/SEC.) = 11.52
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11927.00 = 27727.16 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2579.81	53.41	1.388	0.30 (0.30)	1.00	2564.1	11900.00
2	2567.11	53.85	1.383	0.30 (0.30)	1.00	2572.1	11910.00

NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE (CFS) = 2579.81 Tc (MIN.) = 53.41
 AREA-AVERAGED Fm (INCH/HR) = 0.30 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA (ACRES) = 2564.06

 FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<<
 =====

 FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<<
 =====

PEAK FLOWRATE TABLE FILE NAME: P401XXCE.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	944.38	25.32	0.30 (0.30)	1.00	624.3	40130.00
2	939.28	27.13	0.30 (0.30)	1.00	654.2	40100.00
TOTAL AREA (ACRES) = 654.2						

 FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<<
 =====

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2579.81	53.41	1.388	0.30 (0.30)	1.00	2564.1	11900.00
2	2567.11	53.85	1.383	0.30 (0.30)	1.00	2572.1	11910.00
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11927.00 = 27727.16 FEET.							

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	944.38	25.32	2.118	0.30 (0.30)	1.00	624.3	40130.00
2	939.28	27.13	2.034	0.30 (0.30)	1.00	654.2	40100.00
LONGEST FLOWPATH FROM NODE 40100.00 TO NODE 11927.00 = 10245.00 FEET.							

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2987.26	25.32	2.118	0.30 (0.30)	1.00	1839.8	40130.00
2	3028.60	27.13	2.034	0.30 (0.30)	1.00	1956.9	40100.00
3	3168.88	53.41	1.388	0.30 (0.30)	1.00	3218.3	11900.00
4	3153.84	53.85	1.383	0.30 (0.30)	1.00	3226.4	11910.00
TOTAL AREA (ACRES) = 3226.4							

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 3168.88 Tc (MIN.) = 53.406
 EFFECTIVE AREA (ACRES) = 3218.26 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 3226.4
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11927.00 = 27727.16 FEET.

 FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<<
 =====

 FLOW PROCESS FROM NODE 11927.00 TO NODE 11927.50 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<<
 =====

ELEVATION DATA: UPSTREAM (FEET) = 399.00 DOWNSTREAM (FEET) = 384.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 986.26 CHANNEL SLOPE = 0.0152
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 10.49
 CHANNEL FLOW THRU SUBAREA (CFS) = 3168.88
 FLOW VELOCITY (FEET/SEC.) = 9.76 FLOW DEPTH (FEET) = 10.49
 TRAVEL TIME (MIN.) = 1.68 Tc (MIN.) = 55.09
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11927.50 = 28713.42 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2987.26	27.03	2.039	0.30 (0.30)	1.00	1839.8	40130.00
2	3028.60	28.84	1.956	0.30 (0.30)	1.00	1956.9	40100.00
3	3168.88	55.09	1.371	0.30 (0.30)	1.00	3218.3	11900.00
4	3153.84	55.53	1.367	0.30 (0.30)	1.00	3226.4	11910.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE (CFS) = 3168.88 Tc (MIN.) = 55.09
 AREA-AVERAGED Fm (INCH/HR) = 0.30 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA (ACRES) = 3218.26

 FLOW PROCESS FROM NODE 11927.50 TO NODE 11927.50 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<<
 =====

MAINLINE Tc (MIN.) = 55.09

* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.371

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	2.40	0.30	1.000	65
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	1.70	0.30	1.000	65
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	1.50	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.30	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.90	0.30	1.000	66
NATURAL FAIR COVER					
"GRASS"	B	0.60	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 8.40 SUBAREA RUNOFF(CFS) = 8.10
EFFECTIVE AREA(ACRES) = 3226.66 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3234.8 PEAK FLOW RATE(CFS) = 3168.88
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 11927.50 TO NODE 11927.50 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN.) = 55.09
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.371

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.30	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.10	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.10	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 0.50 SUBAREA RUNOFF(CFS) = 0.48
EFFECTIVE AREA(ACRES) = 3227.16 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3235.2 PEAK FLOW RATE(CFS) = 3168.88
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 11927.50 TO NODE 11927.50 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc(MIN.) = 55.09
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.371

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					

"WOODLAND,GRASS"	B	0.80	0.30	1.000	65
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.70	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.20	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.20	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.10	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 2.00 SUBAREA RUNOFF(CFS) = 1.93
EFFECTIVE AREA(ACRES) = 3229.16 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3237.2 PEAK FLOW RATE(CFS) = 3168.88
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 11927.50 TO NODE 11928.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 384.00 DOWNSTREAM(FEET) = 359.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 647.19 CHANNEL SLOPE = 0.0386
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 8.55
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.363

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	78.01	0.30	0.984	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.984
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 3206.39
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 13.86
AVERAGE FLOW DEPTH(FEET) = 8.54 TRAVEL TIME(MIN.) = 0.78
Tc(MIN.) = 55.87

SUBAREA AREA(ACRES) = 78.01 SUBAREA RUNOFF(CFS) = 75.01
EFFECTIVE AREA(ACRES) = 3307.17 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 3315.3 PEAK FLOW RATE(CFS) = 3168.88
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 8.50

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 8.50 FLOW VELOCITY(FEET/SEC.) = 13.82
LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11928.00 = 29360.61 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap (DECIMAL)	Ae (ACRES)	HEADWATER NODE
1	2987.26	27.82	2.003	0.30(0.30)	1.00	1928.7	40130.00
2	3028.60	29.63	1.920	0.30(0.30)	1.00	2045.8	40100.00
3	3168.88	55.87	1.363	0.30(0.30)	1.00	3307.2	11900.00

4 3162.81 56.31 1.359 0.30(0.30) 1.00 3315.3 11910.00
 NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE(CFS) = 3168.88 Tc(MIN.) = 55.87
 AREA-AVERAGED Fm(INCH/HR) = 0.30 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA(ACRES) = 3307.17

 FLOW PROCESS FROM NODE 11928.00 TO NODE 11928.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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MAINLINE Tc(MIN.) = 55.87
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.363
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND,GRASS"	B	1.10	0.30	1.000	65
NATURAL FAIR COVER "OPEN BRUSH"	B	0.60	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 1.70 SUBAREA RUNOFF(CFS) = 1.63
 EFFECTIVE AREA(ACRES) = 3308.87 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 3317.0 PEAK FLOW RATE(CFS) = 3169.66

 FLOW PROCESS FROM NODE 11928.00 TO NODE 11929.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 359.00 DOWNSTREAM(FEET) = 341.63
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1322.66 CHANNEL SLOPE = 0.0131
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 10.84
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.340
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	8.18	0.30	0.890	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.890
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 3173.61
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.24
 AVERAGE FLOW DEPTH(FEET) = 10.84 TRAVEL TIME(MIN.) = 2.38
 Tc(MIN.) = 58.25
 SUBAREA AREA(ACRES) = 8.18 SUBAREA RUNOFF(CFS) = 7.90
 EFFECTIVE AREA(ACRES) = 3317.05 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 3325.1 PEAK FLOW RATE(CFS) = 3169.66
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 10.84

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 10.84 FLOW VELOCITY(FEET/SEC.) = 9.23
 LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11929.00 = 30683.27 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2987.26	30.24	1.897	0.30(0.30)	1.00	1938.6	40130.00
2	3028.60	32.04	1.851	0.30(0.30)	1.00	2055.7	40100.00
3	3169.66	58.25	1.340	0.30(0.30)	1.00	3317.1	11900.00
4	3164.43	58.70	1.336	0.30(0.30)	1.00	3325.1	11910.00

NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE(CFS) = 3169.66 Tc(MIN.) = 58.25
 AREA-AVERAGED Fm(INCH/HR) = 0.30 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 1.00 EFFECTIVE AREA(ACRES) = 3317.05

 FLOW PROCESS FROM NODE 11929.00 TO NODE 11929.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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MAINLINE Tc(MIN.) = 58.25
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.340
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	1.90	0.30	1.000	66
NATURAL FAIR COVER "WOODLAND,GRASS"	B	0.60	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 2.50 SUBAREA RUNOFF(CFS) = 2.34
 EFFECTIVE AREA(ACRES) = 3319.55 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 3327.6 PEAK FLOW RATE(CFS) = 3169.66
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 11928.00 TO NODE 11929.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 3 <<<<<

 FLOW PROCESS FROM NODE 11841.00 TO NODE 12527.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: S18X00.DNA
 MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22054.84	36.58	0.30(0.30)	1.00	7926.9	11831.00
2	22725.41	39.13	0.30(0.30)	1.00	8505.3	11801.00
3	25134.97	47.53	0.30(0.30)	1.00	10691.9	11500.00
4	25502.09	49.16	0.30(0.30)	1.00	11329.9	11530.00
5	26360.19	53.71	0.30(0.30)	1.00	13011.5	11701.00

6	26779.09	55.76	0.30	(0.30)	1.00	13818.6	11000.00
7	29291.04	65.53	0.30	(0.30)	1.00	18866.7	11330.00
8	30114.29	72.03	0.30	(0.30)	1.00	22317.4	11130.00
9	29645.18	80.38	0.30	(0.30)	1.00	25368.4	11620.00
10	29500.26	82.66	0.30	(0.30)	1.00	26144.7	11600.00
11	29052.00	88.60	0.30	(0.30)	1.00	27897.1	11111.00
12	28910.69	90.07	0.30	(0.30)	1.00	28280.6	11101.00
13	28571.47	94.86	0.30	(0.30)	1.00	29290.8	10710.00
14	28361.22	96.69	0.30	(0.30)	1.00	29594.6	10410.00
15	27934.24	101.05	0.30	(0.30)	1.00	30249.2	10700.00
16	27383.49	107.91	0.30	(0.30)	1.00	31215.0	10400.00
17	27137.20	109.87	0.30	(0.30)	1.00	31440.4	10200.00
18	26251.80	115.74	0.30	(0.30)	1.00	32001.9	10300.00
19	25289.37	121.31	0.30	(0.30)	1.00	32223.4	10210.00
20	23048.07	146.70	0.30	(0.30)	1.00	32916.6	10100.00

TOTAL AREA (ACRES) = 32916.6

FLOW PROCESS FROM NODE 12526.00 TO NODE 12527.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<

PEAK FLOWRATE TABLE FILE NAME: S25X00.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	7548.90	65.18	0.30 (0.30)	0.99	6431.3	12500.00
2	8477.91	78.32	0.30 (0.30)	0.99	8413.1	12300.00
3	8593.88	79.61	0.30 (0.30)	0.98	8691.0	12330.00
4	8774.49	82.20	0.30 (0.30)	0.98	9202.6	12410.00
5	9008.69	86.22	0.30 (0.29)	0.98	9924.8	12400.00
6	9221.87	90.84	0.30 (0.29)	0.98	10622.1	12211.00
7	9347.17	94.81	0.30 (0.29)	0.98	11209.1	12201.00
8	9384.46	98.70	0.30 (0.29)	0.98	11677.0	12111.00
9	9366.85	101.16	0.30 (0.29)	0.98	11977.9	12231.00
10	9319.62	103.97	0.30 (0.29)	0.98	12282.5	12101.10
11	9299.62	104.81	0.30 (0.29)	0.98	12363.8	12261.00
12	8916.90	115.67	0.30 (0.29)	0.98	13112.3	12010.00
13	8576.29	123.92	0.30 (0.29)	0.98	13237.1	12000.00

TOTAL AREA (ACRES) = 13237.1

FLOW PROCESS FROM NODE 12526.00 TO NODE 12527.00 IS CODE = 14.0

>>>>MEMORY BANK # 2 COPIED ONTO MAIN-STREAM MEMORY<<<<<

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	7548.90	65.18	0.30 (0.30)	0.99	6431.3	12500.00
2	8477.91	78.32	0.30 (0.30)	0.99	8413.1	12300.00
3	8593.88	79.61	0.30 (0.30)	0.98	8691.0	12330.00
4	8774.49	82.20	0.30 (0.30)	0.98	9202.6	12410.00
5	9008.69	86.22	0.30 (0.29)	0.98	9924.8	12400.00
6	9221.87	90.84	0.30 (0.29)	0.98	10622.1	12211.00
7	9347.17	94.81	0.30 (0.29)	0.98	11209.1	12201.00
8	9384.46	98.70	0.30 (0.29)	0.98	11677.0	12111.00

9	9366.85	101.16	0.30	(0.29)	0.98	11977.9	12231.00
10	9319.62	103.97	0.30	(0.29)	0.98	12282.5	12101.10
11	9299.62	104.81	0.30	(0.29)	0.98	12363.8	12261.00
12	8916.90	115.67	0.30	(0.29)	0.98	13112.3	12010.00
13	8576.29	123.92	0.30	(0.29)	0.98	13237.1	12000.00

TOTAL AREA (ACRES) = 13237.1

FLOW PROCESS FROM NODE 11841.00 TO NODE 12527.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	7548.90	65.18	1.288	0.30 (0.30)	0.99	6431.3	12500.00
2	8477.91	78.32	1.200	0.30 (0.30)	0.99	8413.1	12300.00
3	8593.88	79.61	1.192	0.30 (0.30)	0.98	8691.0	12330.00
4	8774.49	82.20	1.174	0.30 (0.30)	0.98	9202.6	12410.00
5	9008.69	86.22	1.147	0.30 (0.29)	0.98	9924.8	12400.00
6	9221.87	90.84	1.118	0.30 (0.29)	0.98	10622.1	12211.00
7	9347.17	94.81	1.100	0.30 (0.29)	0.98	11209.1	12201.00
8	9384.46	98.70	1.083	0.30 (0.29)	0.98	11677.0	12111.00
9	9366.85	101.16	1.072	0.30 (0.29)	0.98	11977.9	12231.00
10	9319.62	103.97	1.059	0.30 (0.29)	0.98	12282.5	12101.10
11	9299.62	104.81	1.055	0.30 (0.29)	0.98	12363.8	12261.00
12	8916.90	115.67	1.006	0.30 (0.29)	0.98	13112.3	12010.00
13	8576.29	123.92	0.977	0.30 (0.29)	0.98	13237.1	12000.00

LONGEST FLOWPATH FROM NODE 12000.00 TO NODE 12527.00 = 77156.98 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22054.84	36.58	1.735	0.30 (0.30)	1.00	7926.9	11831.00
2	22725.41	39.13	1.669	0.30 (0.30)	1.00	8505.3	11801.00
3	25134.97	47.53	1.477	0.30 (0.30)	1.00	10691.9	11500.00
4	25502.09	49.16	1.440	0.30 (0.30)	1.00	11329.9	11530.00
5	26360.19	53.71	1.385	0.30 (0.30)	1.00	13011.5	11701.00
6	26779.09	55.76	1.365	0.30 (0.30)	1.00	13818.6	11000.00
7	29291.04	65.53	1.286	0.30 (0.30)	1.00	18866.7	11330.00
8	30114.29	72.03	1.242	0.30 (0.30)	1.00	22317.4	11130.00
9	29645.18	80.38	1.186	0.30 (0.30)	1.00	25368.4	11620.00
10	29500.26	82.66	1.171	0.30 (0.30)	1.00	26144.7	11600.00
11	29052.00	88.60	1.131	0.30 (0.30)	1.00	27897.1	11111.00
12	28910.69	90.07	1.122	0.30 (0.30)	1.00	28280.6	11101.00
13	28571.47	94.86	1.100	0.30 (0.30)	1.00	29290.8	10710.00
14	28361.22	96.69	1.092	0.30 (0.30)	1.00	29594.6	10410.00
15	27934.24	101.05	1.072	0.30 (0.30)	1.00	30249.2	10700.00
16	27383.49	107.91	1.041	0.30 (0.30)	1.00	31215.0	10400.00
17	27137.20	109.87	1.033	0.30 (0.30)	1.00	31440.4	10200.00
18	26251.80	115.74	1.006	0.30 (0.30)	1.00	32001.9	10300.00
19	25289.37	121.31	0.984	0.30 (0.30)	1.00	32223.4	10210.00
20	23048.07	146.70	0.917	0.30 (0.30)	1.00	32916.6	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12527.00 = 97868.13 FEET.

** PEAK FLOW RATE TABLE **

STREAM	Q	Tc	Intensity	Fp (Fm)	Ap	Ae	HEADWATER
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NUMBER	(CFS)	(MIN.)	(INCH/HR)	(INCH/HR)	(ACRES)	NODE
1	28196.41	36.58	1.735	0.30 (0.30)	0.99	11536.0 11831.00
2	28997.24	39.13	1.669	0.30 (0.30)	0.99	12366.4 11801.00
3	31685.73	47.53	1.477	0.30 (0.30)	0.99	15382.2 11500.00
4	32066.13	49.16	1.440	0.30 (0.30)	0.99	16181.3 11530.00
5	33185.00	53.71	1.385	0.30 (0.30)	0.99	18311.7 11701.00
6	33733.33	55.76	1.365	0.30 (0.30)	0.99	19320.5 11000.00
7	36747.98	65.18	1.288	0.30 (0.30)	0.99	25113.1 12500.00
8	36865.25	65.53	1.286	0.30 (0.30)	0.99	25351.9 11330.00
9	38148.02	72.03	1.242	0.30 (0.30)	0.99	29783.0 11130.00
10	38239.23	78.32	1.200	0.30 (0.30)	0.99	33026.2 12300.00
11	38282.50	79.61	1.192	0.30 (0.30)	0.99	33776.9 12330.00
12	38292.96	80.38	1.186	0.30 (0.30)	0.99	34212.1 11620.00
13	38303.77	82.20	1.174	0.30 (0.30)	0.99	35191.7 12410.00
14	38301.27	82.66	1.171	0.30 (0.30)	0.99	35429.0 11600.00
15	38240.18	86.22	1.147	0.30 (0.30)	0.99	37120.1 12400.00
16	38170.52	88.60	1.131	0.30 (0.30)	0.99	38181.1 11111.00
17	38097.30	90.07	1.122	0.30 (0.30)	0.99	38787.4 11101.00
18	38078.45	90.84	1.118	0.30 (0.30)	0.99	39063.9 12211.00
19	37922.34	94.81	1.100	0.30 (0.30)	0.99	40488.9 12201.00
20	37919.14	94.86	1.100	0.30 (0.30)	0.99	40506.2 10710.00
21	37726.41	96.69	1.092	0.30 (0.30)	0.99	41029.8 10410.00
22	37548.75	98.70	1.083	0.30 (0.30)	0.99	41573.6 12111.00
23	37301.90	101.05	1.072	0.30 (0.30)	0.99	42213.4 10700.00
24	37292.05	101.16	1.072	0.30 (0.30)	0.99	42243.0 12231.00
25	37019.30	103.97	1.059	0.30 (0.30)	0.99	42943.0 12101.10
26	36931.54	104.81	1.055	0.30 (0.30)	0.99	43143.1 12261.00
27	36574.05	107.91	1.041	0.30 (0.30)	0.99	43792.1 10400.00
28	36258.75	109.87	1.033	0.30 (0.30)	0.99	44152.4 10200.00
29	35179.73	115.67	1.006	0.30 (0.30)	0.99	45107.2 12010.00
30	35165.68	115.74	1.006	0.30 (0.30)	0.99	45115.3 10300.00
31	33973.56	121.31	0.984	0.30 (0.30)	0.99	45420.9 10210.00
32	33634.95	123.92	0.977	0.30 (0.30)	0.99	45531.8 12000.00
33	30871.16	146.70	0.917	0.30 (0.30)	0.99	46153.7 10100.00
TOTAL AREA (ACRES) =		46153.7				

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 38303.77 Tc (MIN.) = 82.200
EFFECTIVE AREA (ACRES) = 35191.74 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 46153.7
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12527.00 = 97868.13 FEET.

FLOW PROCESS FROM NODE 12527.00 TO NODE 11929.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 347.47 DOWNSTREAM (FEET) = 341.63
CHANNEL LENGTH THRU SUBAREA (FEET) = 532.38 CHANNEL SLOPE = 0.0110
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 9.79
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.170
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCSSOIL AREA Fp Ap SCSS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN

USER-DEFINED - 14.37 0.30 0.987 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.987
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 38309.42
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 15.73
AVERAGE FLOW DEPTH (FEET) = 9.79 TRAVEL TIME (MIN.) = 0.56
Tc (MIN.) = 82.76
SUBAREA AREA (ACRES) = 14.37 SUBAREA RUNOFF (CFS) = 11.31
EFFECTIVE AREA (ACRES) = 35206.11 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 46168.0 PEAK FLOW RATE (CFS) = 38303.77
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 9.79

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 9.79 FLOW VELOCITY (FEET/SEC.) = 15.72
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 11929.00 = 98400.52 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	28196.41	37.20	1.719	0.30 (0.30)	0.99	11550.4	11831.00
2	28997.24	39.75	1.653	0.30 (0.30)	0.99	12380.8	11801.00
3	31685.73	48.13	1.463	0.30 (0.30)	0.99	15396.6	11500.00
4	32066.13	49.76	1.426	0.30 (0.30)	0.99	16195.7	11530.00
5	33185.00	54.30	1.379	0.30 (0.30)	0.99	18326.0	11701.00
6	33733.33	56.35	1.359	0.30 (0.30)	0.99	19334.9	11000.00
7	36747.98	65.75	1.284	0.30 (0.30)	0.99	25127.5	12500.00
8	36865.25	66.10	1.282	0.30 (0.30)	0.99	25366.3	11330.00
9	38148.02	72.60	1.239	0.30 (0.30)	0.99	29797.3	11130.00
10	38239.23	78.88	1.197	0.30 (0.30)	0.99	33040.6	12300.00
11	38282.50	80.17	1.188	0.30 (0.30)	0.99	33791.3	12330.00
12	38292.96	80.95	1.183	0.30 (0.30)	0.99	34226.1	11620.00
13	38303.77	82.76	1.170	0.30 (0.30)	0.99	35206.1	12410.00
14	38301.27	83.22	1.167	0.30 (0.30)	0.99	35443.4	11600.00
15	38240.18	86.78	1.144	0.30 (0.30)	0.99	37134.5	12400.00
16	38170.52	89.16	1.128	0.30 (0.30)	0.99	38195.5	11111.00
17	38097.30	90.64	1.119	0.30 (0.30)	0.99	38801.7	11101.00
18	38078.45	91.40	1.116	0.30 (0.30)	0.99	39078.2	12211.00
19	37922.34	95.38	1.098	0.30 (0.30)	0.99	40503.2	12201.00
20	37919.14	95.43	1.098	0.30 (0.30)	0.99	40520.6	10710.00
21	37726.41	97.26	1.089	0.30 (0.30)	0.99	41044.2	10410.00
22	37548.75	99.27	1.080	0.30 (0.30)	0.99	41587.9	12111.00
23	37301.90	101.62	1.070	0.30 (0.30)	0.99	42227.7	10700.00
24	37292.05	101.73	1.069	0.30 (0.30)	0.99	42257.4	12231.00
25	37019.30	104.54	1.057	0.30 (0.30)	0.99	42957.4	12101.10
26	36931.54	105.38	1.053	0.30 (0.30)	0.99	43157.5	12261.00
27	36574.05	108.48	1.039	0.30 (0.30)	0.99	43806.5	10400.00
28	36258.75	110.44	1.030	0.30 (0.30)	0.99	44166.8	10200.00
29	35179.73	116.25	1.004	0.30 (0.30)	0.99	45121.6	12010.00
30	35165.68	116.32	1.004	0.30 (0.30)	0.99	45129.7	10300.00
31	33973.56	121.90	0.982	0.30 (0.30)	0.99	45435.3	10210.00
32	33634.95	124.51	0.975	0.30 (0.30)	0.99	45546.2	12000.00
33	30871.16	147.31	0.915	0.30 (0.30)	0.99	46168.0	10100.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE (CFS) = 38303.77 Tc (MIN.) = 82.76

AREA-AVERAGED Fm(INCH/HR) = 0.30 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.99 EFFECTIVE AREA(ACRES) = 35206.11

FLOW PROCESS FROM NODE 11928.00 TO NODE 11929.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	28196.41	37.20	1.719	0.30(0.30)	0.99	11550.4	11831.00
2	28997.24	39.75	1.653	0.30(0.30)	0.99	12380.8	11801.00
3	31685.73	48.13	1.463	0.30(0.30)	0.99	15396.6	11500.00
4	32066.13	49.76	1.426	0.30(0.30)	0.99	16195.7	11530.00
5	33185.00	54.30	1.379	0.30(0.30)	0.99	18326.0	11701.00
6	33733.33	56.35	1.359	0.30(0.30)	0.99	19334.9	11000.00
7	36747.98	65.75	1.284	0.30(0.30)	0.99	25127.5	12500.00
8	36865.25	66.10	1.282	0.30(0.30)	0.99	25366.3	11330.00
9	38148.02	72.60	1.239	0.30(0.30)	0.99	29797.3	11130.00
10	38239.23	78.88	1.197	0.30(0.30)	0.99	33040.6	12300.00
11	38282.50	80.17	1.188	0.30(0.30)	0.99	33791.3	12330.00
12	38292.96	80.95	1.183	0.30(0.30)	0.99	34226.5	11620.00
13	38303.77	82.76	1.170	0.30(0.30)	0.99	35206.1	12410.00
14	38301.27	83.22	1.167	0.30(0.30)	0.99	35443.4	11600.00
15	38240.18	86.78	1.144	0.30(0.30)	0.99	37134.5	12400.00
16	38170.52	89.16	1.128	0.30(0.30)	0.99	38195.5	11111.00
17	38097.30	90.64	1.119	0.30(0.30)	0.99	38801.7	11101.00
18	38078.45	91.40	1.116	0.30(0.30)	0.99	39078.2	12211.00
19	37922.34	95.38	1.098	0.30(0.30)	0.99	40503.2	12201.00
20	37919.14	95.43	1.098	0.30(0.30)	0.99	40520.6	10710.00
21	37726.41	97.26	1.089	0.30(0.30)	0.99	41044.2	10410.00
22	37548.75	99.27	1.080	0.30(0.30)	0.99	41587.9	12111.00
23	37301.90	101.62	1.070	0.30(0.30)	0.99	42227.7	10700.00
24	37292.05	101.73	1.069	0.30(0.30)	0.99	42257.4	12231.00
25	37019.30	104.54	1.057	0.30(0.30)	0.99	42957.4	12101.10
26	36931.54	105.38	1.053	0.30(0.30)	0.99	43157.5	12261.00
27	36574.05	108.48	1.039	0.30(0.30)	0.99	43806.5	10400.00
28	36258.75	110.44	1.030	0.30(0.30)	0.99	44166.8	10200.00
29	35179.73	116.25	1.004	0.30(0.30)	0.99	45121.6	12010.00
30	35165.68	116.32	1.004	0.30(0.30)	0.99	45129.7	10300.00
31	33973.56	121.90	0.982	0.30(0.30)	0.99	45435.3	10210.00
32	33634.95	124.51	0.975	0.30(0.30)	0.99	45546.2	12000.00
33	30871.16	147.31	0.915	0.30(0.30)	0.99	46168.0	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 11929.00 = 98400.52 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2987.26	30.24	1.897	0.30(0.30)	1.00	1941.1	40130.00
2	3028.60	32.04	1.851	0.30(0.30)	1.00	2058.2	40100.00
3	3169.66	58.25	1.340	0.30(0.30)	1.00	3319.6	11900.00
4	3164.43	58.70	1.336	0.30(0.30)	1.00	3327.6	11910.00

LONGEST FLOWPATH FROM NODE 11910.00 TO NODE 11929.00 = 30683.27 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q	Tc	Intensity	Fp(Fm)	Ap	Ae	HEADWATER NODE
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NUMBER	(CFS)	(MIN.)	(INCH/HR)	(INCH/HR)	(ACRES)	NODE
1	28781.04	30.24	1.897	0.30(0.30)	0.99	11329.6 40130.00
2	29570.59	32.04	1.851	0.30(0.30)	0.99	12005.8 40100.00
3	31252.79	37.20	1.719	0.30(0.30)	0.99	13857.0 11831.00
4	32067.32	39.75	1.653	0.30(0.30)	0.99	14809.9 11801.00
5	34800.94	48.13	1.463	0.30(0.30)	0.99	18229.2 11500.00
6	35190.11	49.76	1.426	0.30(0.30)	0.99	19106.7 11530.00
7	36333.41	54.30	1.379	0.30(0.30)	0.99	21455.5 11701.00
8	36892.72	56.35	1.359	0.30(0.30)	0.99	22562.6 11000.00
9	37514.99	58.25	1.340	0.30(0.30)	0.99	23830.4 11900.00
10	37652.28	58.70	1.336	0.30(0.30)	0.99	24112.3 11910.00
11	39755.94	65.75	1.284	0.30(0.30)	0.99	28455.1 12500.00
12	39865.90	66.10	1.282	0.30(0.30)	0.99	28694.0 11330.00
13	41015.88	72.60	1.239	0.30(0.30)	0.99	33125.0 11130.00
14	40978.60	78.88	1.197	0.30(0.30)	0.99	36368.2 12300.00
15	40995.41	80.17	1.188	0.30(0.30)	0.99	37118.9 12330.00
16	40990.07	80.95	1.183	0.30(0.30)	0.99	37554.1 11620.00
17	40963.71	82.76	1.170	0.30(0.30)	0.99	38533.8 12410.00
18	40951.90	83.22	1.167	0.30(0.30)	0.99	38771.0 11600.00
19	40817.93	86.78	1.144	0.30(0.30)	0.99	40462.1 12400.00
20	40699.58	89.16	1.128	0.30(0.30)	0.99	41523.1 11111.00
21	40600.48	90.64	1.119	0.30(0.30)	0.99	42129.4 11101.00
22	40571.13	91.40	1.116	0.30(0.30)	0.99	42405.9 12211.00
23	40360.44	95.38	1.098	0.30(0.30)	0.99	43830.9 12201.00
24	40356.51	95.43	1.098	0.30(0.30)	0.99	43848.2 10710.00
25	40138.69	97.26	1.089	0.30(0.30)	0.99	44371.8 10410.00
26	39933.41	99.27	1.080	0.30(0.30)	0.99	44915.6 12111.00
27	39654.30	101.62	1.070	0.30(0.30)	0.99	45555.4 10700.00
28	39642.91	101.73	1.069	0.30(0.30)	0.99	45585.0 12231.00
29	39331.55	104.54	1.057	0.30(0.30)	0.99	46285.0 12101.10
30	39232.20	105.38	1.053	0.30(0.30)	0.99	46485.2 12261.00
31	38832.19	108.48	1.039	0.30(0.30)	0.99	47134.1 10400.00
32	38489.96	110.44	1.030	0.30(0.30)	0.99	47494.5 10200.00
33	37331.12	116.25	1.004	0.30(0.30)	0.99	48449.2 12010.00
34	37316.06	116.32	1.004	0.30(0.30)	0.99	48457.4 10300.00
35	36058.22	121.90	0.982	0.30(0.30)	0.99	48763.0 10210.00
36	35698.59	124.51	0.975	0.30(0.30)	0.99	48873.8 12000.00
37	32751.58	147.31	0.915	0.30(0.30)	0.99	49495.7 10100.00

TOTAL AREA(ACRES) = 49495.7

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 41015.88 Tc(MIN.) = 72.598
 EFFECTIVE AREA(ACRES) = 33124.96 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49495.7
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 11929.00 = 98400.52 FEET.

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 49495.7 TC(MIN.) = 72.60
 EFFECTIVE AREA(ACRES) = 33124.96 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.994
 PEAK FLOW RATE(CFS) = 41015.88

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	28781.04	30.24	1.897	0.30(0.30)	0.99	11329.6	40130.00
2	29570.59	32.04	1.851	0.30(0.30)	0.99	12005.8	40100.00

3	31252.79	37.20	1.719	0.30	(0.30)	0.99	13857.0	11831.00
4	32067.32	39.75	1.653	0.30	(0.30)	0.99	14809.9	11801.00
5	34800.94	48.13	1.463	0.30	(0.30)	0.99	18229.2	11500.00
6	35190.11	49.76	1.426	0.30	(0.30)	0.99	19106.7	11530.00
7	36333.41	54.30	1.379	0.30	(0.30)	0.99	21455.5	11701.00
8	36892.72	56.35	1.359	0.30	(0.30)	0.99	22562.6	11000.00
9	37514.99	58.25	1.340	0.30	(0.30)	0.99	23830.4	11900.00
10	37652.28	58.70	1.336	0.30	(0.30)	0.99	24112.3	11910.00
11	39755.94	65.75	1.284	0.30	(0.30)	0.99	28455.1	12500.00
12	39865.90	66.10	1.282	0.30	(0.30)	0.99	28694.0	11330.00
13	41015.88	72.60	1.239	0.30	(0.30)	0.99	33125.0	11130.00
14	40978.60	78.88	1.197	0.30	(0.30)	0.99	36368.2	12300.00
15	40995.41	80.17	1.188	0.30	(0.30)	0.99	37118.9	12330.00
16	40990.07	80.95	1.183	0.30	(0.30)	0.99	37554.1	11620.00
17	40963.71	82.76	1.170	0.30	(0.30)	0.99	38533.8	12410.00
18	40951.90	83.22	1.167	0.30	(0.30)	0.99	38771.0	11600.00
19	40817.93	86.78	1.144	0.30	(0.30)	0.99	40462.1	12400.00
20	40699.58	89.16	1.128	0.30	(0.30)	0.99	41523.1	11111.00
21	40600.48	90.64	1.119	0.30	(0.30)	0.99	42129.4	11101.00
22	40571.13	91.40	1.116	0.30	(0.30)	0.99	42405.9	12211.00
23	40360.44	95.38	1.098	0.30	(0.30)	0.99	43830.9	12201.00
24	40356.51	95.43	1.098	0.30	(0.30)	0.99	43848.2	10710.00
25	40138.69	97.26	1.089	0.30	(0.30)	0.99	44371.8	10410.00
26	39933.41	99.27	1.080	0.30	(0.30)	0.99	44915.6	12111.00
27	39654.30	101.62	1.070	0.30	(0.30)	0.99	45555.4	10700.00
28	39642.91	101.73	1.069	0.30	(0.30)	0.99	45585.0	12231.00
29	39331.55	104.54	1.057	0.30	(0.30)	0.99	46285.0	12101.10
30	39232.20	105.38	1.053	0.30	(0.30)	0.99	46485.2	12261.00
31	38832.19	108.48	1.039	0.30	(0.30)	0.99	47134.1	10400.00
32	38489.96	110.44	1.030	0.30	(0.30)	0.99	47494.5	10200.00
33	37331.12	116.25	1.004	0.30	(0.30)	0.99	48449.2	12010.00
34	37316.06	116.32	1.004	0.30	(0.30)	0.99	48457.4	10300.00
35	36058.22	121.90	0.982	0.30	(0.30)	0.99	48763.0	10210.00
36	35698.59	124.51	0.975	0.30	(0.30)	0.99	48873.8	12000.00
37	32751.58	147.31	0.915	0.30	(0.30)	0.99	49495.7	10100.00

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 END OF RATIONAL METHOD ANALYSIS
 =====

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 126 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 100-YR EV JULY 2023 ROKAMOTO *

FILE NAME: RU00EV26.DAT
TIME/DATE OF STUDY: 13:51 07/05/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 6.101
- 2) 10.00; 3.900
- 3) 15.00; 3.005
- 4) 20.00; 2.465
- 5) 25.00; 2.128
- 6) 30.00; 1.900
- 7) 40.00; 1.644
- 8) 50.00; 1.419
- 9) 60.00; 1.320
- 10) 90.00; 1.119
- 11) 120.00; 0.983
- 12) 180.00; 0.826
- 13) 360.00; 0.617
- 14) 1200.00; 0.271

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 11929.00 TO NODE 11929.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RU00EV19.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	29570.59	32.04	0.30 (0.30)	0.99	12005.8	40100.00
2	31252.79	37.20	0.30 (0.30)	0.99	13857.0	11831.00
3	32067.32	39.75	0.30 (0.30)	0.99	14809.9	11801.00
4	35190.11	49.76	0.30 (0.30)	0.99	19106.7	11530.00
5	37652.28	58.70	0.30 (0.30)	0.99	24112.3	11910.00
6	39865.90	66.10	0.30 (0.30)	0.99	28694.0	11330.00
7	41015.88	72.60	0.30 (0.30)	0.99	33125.0	11130.00
8	40995.41	80.17	0.30 (0.30)	0.99	37118.9	12330.00
9	40963.71	82.76	0.30 (0.30)	0.99	38533.8	12410.00
10	40817.93	86.78	0.30 (0.30)	0.99	40462.1	12400.00
11	40699.58	89.16	0.30 (0.30)	0.99	41523.1	11111.00
12	40360.44	95.38	0.30 (0.30)	0.99	43830.9	12201.00
13	39933.41	99.27	0.30 (0.30)	0.99	44915.6	12111.00
14	39654.30	101.62	0.30 (0.30)	0.99	45555.4	10700.00
15	39331.55	104.54	0.30 (0.30)	0.99	46285.0	12101.10
16	38832.19	108.48	0.30 (0.30)	0.99	47134.1	10400.00
17	37331.12	116.25	0.30 (0.30)	0.99	48449.2	12010.00
18	36058.22	121.90	0.30 (0.30)	0.99	48763.0	10210.00
19	35698.59	124.51	0.30 (0.30)	0.99	48873.8	12000.00
20	32751.58	147.31	0.30 (0.30)	0.99	49495.7	10100.00
TOTAL AREA (ACRES) =						49495.7

FLOW PROCESS FROM NODE 11929.00 TO NODE 11929.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

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MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	29570.59	32.04	0.30 (0.30)	0.99	12005.8	40100.00
2	31252.79	37.20	0.30 (0.30)	0.99	13857.0	11831.00
3	32067.32	39.75	0.30 (0.30)	0.99	14809.9	11801.00
4	35190.11	49.76	0.30 (0.30)	0.99	19106.7	11530.00
5	37652.28	58.70	0.30 (0.30)	0.99	24112.3	11910.00
6	39865.90	66.10	0.30 (0.30)	0.99	28694.0	11330.00
7	41015.88	72.60	0.30 (0.30)	0.99	33125.0	11130.00
8	40995.41	80.17	0.30 (0.30)	0.99	37118.9	12330.00
9	40963.71	82.76	0.30 (0.30)	0.99	38533.8	12410.00
10	40817.93	86.78	0.30 (0.30)	0.99	40462.1	12400.00
11	40699.58	89.16	0.30 (0.30)	0.99	41523.1	11111.00
12	40360.44	95.38	0.30 (0.30)	0.99	43830.9	12201.00
13	39933.41	99.27	0.30 (0.30)	0.99	44915.6	12111.00

14	39654.30	101.62	0.30	(0.30)	0.99	45555.4	10700.00
15	39331.55	104.54	0.30	(0.30)	0.99	46285.0	12101.10
16	38832.19	108.48	0.30	(0.30)	0.99	47134.1	10400.00
17	37331.12	116.25	0.30	(0.30)	0.99	48449.2	12010.00
18	36058.22	121.90	0.30	(0.30)	0.99	48763.0	10210.00
19	35698.59	124.51	0.30	(0.30)	0.99	48873.8	12000.00
20	32751.58	147.31	0.30	(0.30)	0.99	49495.7	10100.00

TOTAL AREA (ACRES) = 49495.7

FLOW PROCESS FROM NODE 11929.00 TO NODE 12601.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 341.63 DOWNSTREAM (FEET) = 325.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1467.93 CHANNEL SLOPE = 0.0113
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 8.56
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.227

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.40	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.50	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	0.90	0.30	1.000	63
NATURAL FAIR COVER					
"GRASS"	B	0.50	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	11.50	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.30	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 41021.76

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 19.73

AVERAGE FLOW DEPTH (FEET) = 8.56 TRAVEL TIME (MIN.) = 1.24

Tc (MIN.) = 73.84

SUBAREA AREA (ACRES) = 14.10 SUBAREA RUNOFF (CFS) = 11.77

EFFECTIVE AREA (ACRES) = 33139.07 AREA-AVERAGED Fm (INCH/HR) = 0.30

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99

TOTAL AREA (ACRES) = 49509.8 PEAK FLOW RATE (CFS) = 41015.88

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT (FEET) = 8.56

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 8.56 FLOW VELOCITY (FEET/SEC.) = 19.73

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12601.00 = 99868.45 FEET.

FLOW PROCESS FROM NODE 12601.00 TO NODE 12601.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 3000EVRL.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	117.77	16.39	0.30 (0.29)	0.98	51.1	600.00

TOTAL AREA (ACRES) = 51.1

FLOW PROCESS FROM NODE 12601.00 TO NODE 12601.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	29570.59	33.42	1.812	0.30 (0.30)	0.99	12019.9	40100.00
2	31252.79	38.56	1.681	0.30 (0.30)	0.99	13871.1	11831.00
3	32067.32	41.09	1.619	0.30 (0.30)	0.99	14824.0	11801.00
4	35190.11	51.07	1.408	0.30 (0.30)	0.99	19120.8	11530.00
5	37652.28	59.97	1.320	0.30 (0.30)	0.99	24126.4	11910.00
6	39865.90	67.36	1.271	0.30 (0.30)	0.99	28708.1	11330.00
7	41015.88	73.84	1.227	0.30 (0.30)	0.99	33139.1	11130.00
8	40995.41	81.41	1.177	0.30 (0.30)	0.99	37133.0	12330.00
9	40963.71	84.01	1.159	0.30 (0.30)	0.99	38547.9	12410.00
10	40817.93	88.03	1.132	0.30 (0.30)	0.99	40476.2	12400.00
11	40699.58	90.41	1.117	0.30 (0.30)	0.99	41537.2	11111.00
12	40360.44	96.63	1.089	0.30 (0.30)	0.99	43845.0	12201.00
13	39933.41	100.52	1.071	0.30 (0.30)	0.99	44929.7	12111.00
14	39654.30	102.87	1.061	0.30 (0.30)	0.99	45569.5	10700.00
15	39331.55	105.80	1.047	0.30 (0.30)	0.99	46299.1	12101.10
16	38832.19	109.74	1.029	0.30 (0.30)	0.99	47148.2	10400.00
17	37331.12	117.53	0.994	0.30 (0.30)	0.99	48463.4	12010.00
18	36058.22	123.19	0.975	0.30 (0.30)	0.99	48777.1	10210.00
19	35698.59	125.81	0.968	0.30 (0.30)	0.99	48887.9	12000.00
20	32751.58	148.64	0.908	0.30 (0.30)	0.99	49509.8	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12601.00 = 99868.45 FEET.

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	117.77	16.39	2.855	0.30 (0.29)	0.98	51.1	600.00

LONGEST FLOWPATH FROM NODE 600.00 TO NODE 12601.00 = 4850.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24602.09	16.39	2.855	0.30 (0.30)	0.99	5946.4	600.00
2	29640.42	33.42	1.812	0.30 (0.30)	0.99	12071.0	40100.00
3	31316.57	38.56	1.681	0.30 (0.30)	0.99	13922.2	11831.00
4	32128.28	41.09	1.619	0.30 (0.30)	0.99	14875.1	11801.00
5	35241.36	51.07	1.408	0.30 (0.30)	0.99	19171.9	11530.00
6	37699.48	59.97	1.320	0.30 (0.30)	0.99	24177.5	11910.00
7	39910.82	67.36	1.271	0.30 (0.30)	0.99	28759.2	11330.00
8	41058.80	73.84	1.227	0.30 (0.30)	0.99	33190.2	11130.00
9	41036.00	81.41	1.177	0.30 (0.30)	0.99	37184.1	12330.00

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10 41003.50 84.01 1.159 0.30( 0.30) 0.99 38599.0 12410.00
11 40856.48 88.03 1.132 0.30( 0.30) 0.99 40527.3 12400.00
12 40737.44 90.41 1.117 0.30( 0.30) 0.99 41588.3 11111.00
13 40397.00 96.63 1.089 0.30( 0.30) 0.99 43896.1 12201.00
14 39969.16 100.52 1.071 0.30( 0.30) 0.99 44980.8 12111.00
15 39689.56 102.87 1.061 0.30( 0.30) 0.99 45620.6 10700.00
16 39366.20 105.80 1.047 0.30( 0.30) 0.99 46350.2 12101.10
17 38866.02 109.74 1.029 0.30( 0.30) 0.99 47199.3 10400.00
18 37363.33 117.53 0.994 0.30( 0.30) 0.99 48514.5 12010.00
19 36089.53 123.19 0.975 0.30( 0.30) 0.99 48828.2 10210.00
20 35729.58 125.81 0.968 0.30( 0.30) 0.99 48939.0 12000.00
21 32779.82 148.64 0.908 0.30( 0.30) 0.99 49560.9 10100.00
TOTAL AREA (ACRES) = 49560.9

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COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

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PEAK FLOW RATE(CFS) = 41058.80 Tc(MIN.) = 73.838
EFFECTIVE AREA(ACRES) = 33190.17 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA(ACRES) = 49560.9
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12601.00 = 99868.45 FEET.

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FLOW PROCESS FROM NODE 12601.00 TO NODE 12603.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
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ELEVATION DATA: UPSTREAM(FEET) = 325.00 DOWNSTREAM(FEET) = 310.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1690.00 CHANNEL SLOPE = 0.0089
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 9.18
CHANNEL FLOW THRU SUBAREA(CFS) = 41058.80
FLOW VELOCITY(FEET/SEC.) = 18.18 FLOW DEPTH(FEET) = 9.18
TRAVEL TIME(MIN.) = 1.55 Tc(MIN.) = 75.39
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12603.00 = 101558.45 FEET.

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FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 12
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>>>>CLEAR MEMORY BANK # 1 <<<<
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FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 1
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>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
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TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 75.39
RAINFALL INTENSITY(INCH/HR) = 1.22
AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.99
EFFECTIVE STREAM AREA(ACRES) = 33190.17
TOTAL STREAM AREA(ACRES) = 49560.89
PEAK FLOW RATE(CFS) AT CONFLUENCE = 41058.80

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FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 7
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>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<
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USER-SPECIFIED VALUES ARE AS FOLLOWS:

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TC(MIN.) = 14.01 RAINFALL INTENSITY(INCH/HR) = 3.18
EFFECTIVE AREA(ACRES) = 102.60
TOTAL AREA(ACRES) = 171.00 PEAK FLOW RATE(CFS) = 232.50
AREA-AVERAGED Fm(INCH/HR) = 0.13 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.42
NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
CONFLUENCE ANALYSES.

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*****
FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 1
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>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
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TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 14.01
RAINFALL INTENSITY(INCH/HR) = 3.18
AREA-AVERAGED Fm(INCH/HR) = 0.13
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.42
EFFECTIVE STREAM AREA(ACRES) = 102.60
TOTAL STREAM AREA(ACRES) = 171.00
PEAK FLOW RATE(CFS) AT CONFLUENCE = 232.50

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** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24602.09	18.23	2.656	0.30(0.30)	0.99	5946.4	600.00
1	29640.42	35.15	1.768	0.30(0.30)	0.99	12071.0	40100.00
1	31316.57	40.25	1.638	0.30(0.30)	0.99	13922.2	11831.00
1	32128.28	42.77	1.582	0.30(0.30)	0.99	14875.1	11801.00
1	35241.36	52.70	1.392	0.30(0.30)	0.99	19171.9	11530.00
1	37699.48	61.57	1.309	0.30(0.30)	0.99	24177.5	11910.00
1	39910.82	68.92	1.260	0.30(0.30)	0.99	28759.2	11330.00
1	41058.80	75.39	1.217	0.30(0.30)	0.99	33190.2	11130.00
1	41036.00	82.96	1.166	0.30(0.30)	0.99	37184.1	12330.00
1	41003.50	85.55	1.149	0.30(0.30)	0.99	38599.0	12410.00
1	40856.48	89.58	1.122	0.30(0.30)	0.99	40527.3	12400.00
1	40737.44	91.96	1.110	0.30(0.30)	0.99	41588.3	11111.00
1	40397.00	98.18	1.082	0.30(0.30)	0.99	43896.1	12201.00
1	39969.16	102.08	1.064	0.30(0.30)	0.99	44980.8	12111.00
1	39689.56	104.44	1.054	0.30(0.30)	0.99	45620.6	10700.00
1	39366.20	107.37	1.040	0.30(0.30)	0.99	46350.2	12101.10
1	38866.02	111.32	1.022	0.30(0.30)	0.99	47199.3	10400.00
1	37363.33	119.13	0.987	0.30(0.30)	0.99	48514.5	12010.00
1	36089.53	124.81	0.970	0.30(0.30)	0.99	48828.2	10210.00
1	35729.58	127.43	0.964	0.30(0.30)	0.99	48939.0	12000.00
1	32779.82	150.31	0.904	0.30(0.30)	0.99	49560.9	10100.00
2	232.50	14.01	3.182	0.30(0.13)	0.42	102.6	12603.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	23356.96	14.01	3.182	0.30 (0.29)	0.98	4672.4	12603.00
2	24794.57	18.23	2.656	0.30 (0.29)	0.98	6049.0	600.00
3	29765.35	35.15	1.768	0.30 (0.30)	0.99	12173.6	40100.00
4	31431.62	40.25	1.638	0.30 (0.30)	0.99	14024.8	11831.00
5	32239.02	42.77	1.582	0.30 (0.30)	0.99	14977.7	11801.00
6	35337.70	52.70	1.392	0.30 (0.30)	0.99	19274.5	11530.00
7	37789.52	61.57	1.309	0.30 (0.30)	0.99	24280.1	11910.00
8	39997.11	68.92	1.260	0.30 (0.30)	0.99	28861.8	11330.00
9	41141.79	75.39	1.217	0.30 (0.30)	0.99	33292.8	11130.00
10	41115.13	82.96	1.166	0.30 (0.30)	0.99	37286.7	12330.00
11	41081.30	85.55	1.149	0.30 (0.30)	0.99	38701.6	12410.00
12	40932.23	89.58	1.122	0.30 (0.30)	0.99	40629.9	12400.00
13	40812.30	91.96	1.110	0.30 (0.30)	0.99	41690.9	11111.00
14	40469.72	98.18	1.082	0.30 (0.30)	0.99	43998.7	12201.00
15	40040.54	102.08	1.064	0.30 (0.30)	0.99	45083.4	12111.00
16	39760.12	104.44	1.054	0.30 (0.30)	0.99	45723.2	10700.00
17	39435.75	107.37	1.040	0.30 (0.30)	0.99	46452.8	12101.10
18	38934.21	111.32	1.022	0.30 (0.30)	0.99	47301.9	10400.00
19	37428.82	119.13	0.987	0.30 (0.30)	0.99	48617.1	12010.00
20	36153.77	124.81	0.970	0.30 (0.30)	0.99	48930.8	10210.00
21	35793.30	127.43	0.964	0.30 (0.30)	0.99	49041.6	12000.00
22	32838.98	150.31	0.904	0.30 (0.30)	0.99	49663.5	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 41141.79 Tc(MIN.) = 75.39
 EFFECTIVE AREA(ACRES) = 33292.77 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49731.9
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12603.00 = 101558.45 FEET.

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 75.39
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.217
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.20	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.30	0.30	1.000	66
PUBLIC PARK	B	1.30	0.30	0.850	56
COMMERCIAL	B	1.40	0.30	0.100	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	1.70	0.30	0.900	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	12.40	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.911

SUBAREA AREA(ACRES) = 18.30 SUBAREA RUNOFF(CFS) = 15.54
 EFFECTIVE AREA(ACRES) = 33311.07 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49750.2 PEAK FLOW RATE(CFS) = 41141.79
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 75.39
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.217
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	26.90	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 26.90 SUBAREA RUNOFF(CFS) = 22.20
 EFFECTIVE AREA(ACRES) = 33337.97 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49777.1 PEAK FLOW RATE(CFS) = 41141.79
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 75.39
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.217
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.50	0.30	1.000	63
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.40	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	0.40	0.30	1.000	72
NATURAL FAIR COVER					
"GRASS"	B	0.60	0.30	1.000	69
PUBLIC PARK	B	0.70	0.30	0.850	56
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	0.70	0.30	1.000	72

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.968
 SUBAREA AREA(ACRES) = 3.30 SUBAREA RUNOFF(CFS) = 2.75
 EFFECTIVE AREA(ACRES) = 33341.27 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49780.4 PEAK FLOW RATE(CFS) = 41141.79
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 75.39
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.217
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	1.00	0.30	1.000	66
NATURAL FAIR COVER "OPEN BRUSH"	B	1.20	0.30	1.000	66
RESIDENTIAL ".4 DWELLING/ACRE"	B	1.70	0.30	0.900	56
NATURAL FAIR COVER "OPEN BRUSH"	B	1.90	0.30	1.000	66
RESIDENTIAL ".4 DWELLING/ACRE"	B	2.10	0.30	0.900	56
NATURAL FAIR COVER "CHAPARRAL,NARROWLEAF"	B	2.90	0.30	1.000	72

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.965
 SUBAREA AREA(ACRES) = 10.80 SUBAREA RUNOFF(CFS) = 9.01
 EFFECTIVE AREA(ACRES) = 33352.07 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49791.2 PEAK FLOW RATE(CFS) = 41141.79
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12603.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 75.39
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.217
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND,GRASS"	B	5.60	0.30	1.000	65
NATURAL FAIR COVER "WOODLAND,GRASS"	B	9.00	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 14.60 SUBAREA RUNOFF(CFS) = 12.05
 EFFECTIVE AREA(ACRES) = 33366.67 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49805.8 PEAK FLOW RATE(CFS) = 41141.79
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12603.00 TO NODE 12605.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 310.00 DOWNSTREAM(FEET) = 305.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 885.00 CHANNEL SLOPE = 0.0056
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 10.44
 CHANNEL FLOW THRU SUBAREA(CFS) = 41141.79
 FLOW VELOCITY(FEET/SEC.) = 15.62 FLOW DEPTH(FEET) = 10.44
 TRAVEL TIME(MIN.) = 0.94 Tc(MIN.) = 76.33
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12605.00 = 102443.45 FEET.

 FLOW PROCESS FROM NODE 12605.00 TO NODE 12605.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 76.33
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.211
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "ROW CROPS,STRAIGHT ROW"	B	0.50	0.30	1.000	81
NATURAL FAIR COVER "WOODLAND,GRASS"	B	0.70	0.30	1.000	65
PUBLIC PARK	B	1.30	0.30	0.850	56
RESIDENTIAL ".4 DWELLING/ACRE"	B	1.30	0.30	0.900	56
AGRICULTURAL POOR COVER "ROW CROPS,STRAIGHT ROW"	B	1.90	0.30	1.000	81
PUBLIC PARK	B	2.10	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.918
 SUBAREA AREA(ACRES) = 7.80 SUBAREA RUNOFF(CFS) = 6.57
 EFFECTIVE AREA(ACRES) = 33374.47 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49813.6 PEAK FLOW RATE(CFS) = 41141.79
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12605.00 TO NODE 12605.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 76.33
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.211
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	3.20	0.30	1.000	66
NATURAL FAIR COVER "WOODLAND,GRASS"	B	3.50	0.30	1.000	65
PUBLIC PARK	B	6.10	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.929
 SUBAREA AREA(ACRES) = 12.80 SUBAREA RUNOFF(CFS) = 10.74
 EFFECTIVE AREA(ACRES) = 33387.27 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 49826.4 PEAK FLOW RATE(CFS) = 41141.79
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

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FLOW PROCESS FROM NODE 12605.00 TO NODE 12606.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 305.00 DOWNSTREAM(FEET) = 286.00
CHANNEL LENGTH THRU SUBAREA( FEET) = 2159.47 CHANNEL SLOPE = 0.0088
GIVEN CHANNEL BASE( FEET) = 200.00 CHANNEL FREEBOARD( FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT( FEET) = 9.21
CHANNEL FLOW THRU SUBAREA( CFS) = 41141.79
FLOW VELOCITY( FEET/SEC.) = 18.15 FLOW DEPTH( FEET) = 9.21
TRAVEL TIME( MIN.) = 1.98 Tc( MIN.) = 78.31
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12606.00 = 104602.91 FEET.
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FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION( MIN.) = 78.31
RAINFALL INTENSITY( INCH/HR) = 1.20
AREA-AVERAGED Fm( INCH/HR) = 0.30
AREA-AVERAGED Fp( INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.99
EFFECTIVE STREAM AREA( ACRES) = 33387.27
TOTAL STREAM AREA( ACRES) = 49826.39
PEAK FLOW RATE( CFS) AT CONFLUENCE = 41141.79
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FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 7
-----
>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<
=====
USER-SPECIFIED VALUES ARE AS FOLLOWS:
TC( MIN.) = 16.64 RAINFALL INTENSITY( INCH/HR) = 2.83
EFFECTIVE AREA( ACRES) = 463.30
TOTAL AREA( ACRES) = 553.80 PEAK FLOW RATE( CFS) = 912.70
AREA-AVERAGED Fm( INCH/HR) = 0.26 AREA-AVERAGED Fp( INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.85
NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
CONFLUENCE ANALYSES.
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AREA-AVERAGED Ap = 0.85
EFFECTIVE STREAM AREA( ACRES) = 463.30
TOTAL STREAM AREA( ACRES) = 553.80
PEAK FLOW RATE( CFS) AT CONFLUENCE = 912.70

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** CONFLUENCE DATA **

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STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	23356.96	17.55	2.730	0.30(0.29)	0.98	4766.9	12603.00
1	24794.57	21.70	2.351	0.30(0.29)	0.98	6143.5	600.00
1	29765.35	38.41	1.685	0.30(0.30)	0.99	12268.1	40100.00
1	31431.62	43.45	1.566	0.30(0.30)	0.99	14119.3	11831.00
1	32239.02	45.95	1.510	0.30(0.30)	0.99	15072.2	11801.00
1	35337.70	55.77	1.362	0.30(0.30)	0.99	19369.0	11530.00
1	37789.52	64.58	1.289	0.30(0.30)	0.99	24374.6	11910.00
1	39997.11	71.88	1.240	0.30(0.30)	0.99	28956.3	11330.00
1	41141.79	78.31	1.197	0.30(0.30)	0.99	33387.3	11130.00
1	41115.13	85.89	1.147	0.30(0.30)	0.99	37381.2	12330.00
1	41081.30	88.48	1.129	0.30(0.30)	0.99	38796.1	12410.00
1	40932.23	92.51	1.108	0.30(0.30)	0.99	40724.4	12400.00
1	40812.30	94.90	1.097	0.30(0.30)	0.99	41785.4	11111.00
1	40469.72	101.13	1.069	0.30(0.30)	0.99	44093.2	12201.00
1	40040.54	105.04	1.051	0.30(0.30)	0.99	45177.9	12111.00
1	39760.12	107.40	1.040	0.30(0.30)	0.99	45817.7	10700.00
1	39435.75	110.34	1.027	0.30(0.30)	0.99	46547.3	12101.10
1	38934.21	114.30	1.009	0.30(0.30)	0.99	47396.4	10400.00
1	37428.82	122.15	0.977	0.30(0.30)	0.99	48711.6	12010.00
1	36153.77	127.86	0.962	0.30(0.30)	0.99	49025.3	10210.00
1	35793.30	130.50	0.956	0.30(0.30)	0.99	49136.1	12000.00
1	32838.98	153.46	0.895	0.30(0.30)	0.99	49758.0	10100.00
2	912.70	16.64	2.828	0.30(0.26)	0.85	463.3	12606.00

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RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

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** PEAK FLOW RATE TABLE **

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STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	23953.25	16.64	2.828	0.30(0.29)	0.97	4984.0	12606.00
2	24234.94	17.55	2.730	0.30(0.29)	0.97	5230.2	12603.00
3	25538.01	21.70	2.351	0.30(0.29)	0.97	6606.8	600.00
4	30272.56	38.41	1.685	0.30(0.29)	0.98	12731.4	40100.00
5	31896.80	43.45	1.566	0.30(0.30)	0.98	14582.6	11831.00
6	32684.29	45.95	1.510	0.30(0.30)	0.98	15535.5	11801.00
7	35730.33	55.77	1.362	0.30(0.30)	0.99	19832.3	11530.00
8	38156.43	64.58	1.289	0.30(0.30)	0.99	24837.9	11910.00
9	40346.68	71.88	1.240	0.30(0.30)	0.99	29419.6	11330.00
10	41476.05	78.31	1.197	0.30(0.30)	0.99	33850.6	11130.00
11	41431.39	85.89	1.147	0.30(0.30)	0.99	37844.5	12330.00
12	41391.40	88.48	1.129	0.30(0.30)	0.99	39259.4	12410.00
13	41234.69	92.51	1.108	0.30(0.30)	0.99	41187.7	12400.00
14	41110.93	94.90	1.097	0.30(0.30)	0.99	42248.7	11111.00
15	40758.32	101.13	1.069	0.30(0.30)	0.99	44556.5	12201.00
16	40322.85	105.04	1.051	0.30(0.30)	0.99	45641.2	12111.00
17	40038.64	107.40	1.040	0.30(0.30)	0.99	46281.0	10700.00
18	39709.54	110.34	1.027	0.30(0.30)	0.99	47010.6	12101.10
19	39201.62	114.30	1.009	0.30(0.30)	0.99	47859.7	10400.00
20	37685.08	122.15	0.977	0.30(0.30)	0.99	49174.9	12010.00

21 36404.72 127.86 0.962 0.30(0.30) 0.99 49488.6 10210.00
 22 36041.80 130.50 0.956 0.30(0.30) 0.99 49599.4 12000.00
 23 33066.17 153.46 0.895 0.30(0.30) 0.99 50221.3 10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 41476.05 Tc(MIN.) = 78.31
 EFFECTIVE AREA(ACRES) = 33850.57 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 50380.2
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12606.00 = 104602.91 FEET.

 FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 78.31
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.197
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.30	0.30	1.000	63
NATURAL FAIR COVER					
"GRASS"	B	0.30	0.30	1.000	69
PUBLIC PARK	B	0.40	0.30	0.850	56
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	0.60	0.30	1.000	72
COMMERCIAL	B	1.10	0.30	0.100	56
PUBLIC PARK	B	0.80	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.666
 SUBAREA AREA(ACRES) = 3.50 SUBAREA RUNOFF(CFS) = 3.14
 EFFECTIVE AREA(ACRES) = 33854.07 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 50383.7 PEAK FLOW RATE(CFS) = 41476.05
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 78.31
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.197
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	0.80	0.30	1.000	69
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.90	0.30	1.000	65
AGRICULTURAL POOR COVER					
"ROW CROPS,STRAIGHT ROW"	B	1.50	0.30	1.000	81
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.60	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.80	0.30	1.000	66

NATURAL FAIR COVER
 "WOODLAND,GRASS" B 1.90 0.30 1.000 65
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 8.50 SUBAREA RUNOFF(CFS) = 6.86
 EFFECTIVE AREA(ACRES) = 33862.57 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 50392.2 PEAK FLOW RATE(CFS) = 41476.05
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 78.31
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.197
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.30	0.30	1.000	66
PUBLIC PARK	B	3.70	0.30	0.850	56
NATURAL FAIR COVER					
"CHAPARRAL,NARROWLEAF"	B	3.90	0.30	1.000	72
PUBLIC PARK	B	5.90	0.30	0.850	56
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	9.10	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	20.60	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.969
 SUBAREA AREA(ACRES) = 46.50 SUBAREA RUNOFF(CFS) = 37.94
 EFFECTIVE AREA(ACRES) = 33909.07 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 50438.7 PEAK FLOW RATE(CFS) = 41476.05
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

=====

END OF STUDY SUMMARY:
 TOTAL AREA(ACRES) = 50438.7 TC(MIN.) = 78.31
 EFFECTIVE AREA(ACRES) = 33909.07 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.990
 PEAK FLOW RATE(CFS) = 41476.05

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	23953.25	16.64	2.828	0.30(0.29)	0.97	5042.5	12606.00
2	24234.94	17.55	2.730	0.30(0.29)	0.97	5288.7	12603.00
3	25538.01	21.70	2.351	0.30(0.29)	0.97	6665.3	600.00
4	30272.56	38.41	1.685	0.30(0.29)	0.98	12789.9	40100.00
5	31896.80	43.45	1.566	0.30(0.30)	0.98	14641.1	11831.00
6	32684.29	45.95	1.510	0.30(0.30)	0.98	15594.0	11801.00
7	35730.33	55.77	1.362	0.30(0.30)	0.99	19890.8	11530.00
8	38156.43	64.58	1.289	0.30(0.30)	0.99	24896.4	11910.00
9	40346.68	71.88	1.240	0.30(0.30)	0.99	29478.1	11330.00
10	41476.05	78.31	1.197	0.30(0.30)	0.99	33909.1	11130.00
11	41431.39	85.89	1.147	0.30(0.30)	0.99	37903.0	12330.00

12	41391.40	88.48	1.129	0.30	(0.30)	0.99	39317.9	12410.00
13	41234.69	92.51	1.108	0.30	(0.30)	0.99	41246.2	12400.00
14	41110.93	94.90	1.097	0.30	(0.30)	0.99	42307.2	11111.00
15	40758.32	101.13	1.069	0.30	(0.30)	0.99	44615.0	12201.00
16	40322.85	105.04	1.051	0.30	(0.30)	0.99	45699.7	12111.00
17	40038.64	107.40	1.040	0.30	(0.30)	0.99	46339.5	10700.00
18	39709.54	110.34	1.027	0.30	(0.30)	0.99	47069.1	12101.10
19	39201.62	114.30	1.009	0.30	(0.30)	0.99	47918.2	10400.00
20	37685.08	122.15	0.977	0.30	(0.30)	0.99	49233.4	12010.00
21	36404.72	127.86	0.962	0.30	(0.30)	0.99	49547.1	10210.00
22	36041.80	130.50	0.956	0.30	(0.30)	0.99	49657.9	12000.00
23	33066.17	153.46	0.895	0.30	(0.30)	0.99	50279.8	10100.00

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END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 127 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 100-YR EV JULY 2023 ROKAMOTO *

FILE NAME: RU00EV27.DAT
TIME/DATE OF STUDY: 13:52 07/05/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 6.027
- 2) 10.00; 3.864
- 3) 15.00; 2.981
- 4) 20.00; 2.449
- 5) 25.00; 2.118
- 6) 30.00; 1.891
- 7) 40.00; 1.635
- 8) 50.00; 1.412
- 9) 60.00; 1.310
- 10) 90.00; 1.109
- 11) 120.00; 0.972
- 12) 180.00; 0.816
- 13) 360.00; 0.607
- 14) 1200.00; 0.266

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RU00EV26.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24234.94	17.55	0.30 (0.29)	0.97	5288.7	12603.00
2	25538.01	21.70	0.30 (0.29)	0.97	6665.3	600.00
3	30272.56	38.41	0.30 (0.29)	0.98	12789.9	40100.00
4	32684.29	45.95	0.30 (0.30)	0.98	15594.0	11801.00
5	35730.33	55.77	0.30 (0.30)	0.99	19890.8	11530.00
6	38156.43	64.58	0.30 (0.30)	0.99	24896.4	11910.00
7	40346.68	71.88	0.30 (0.30)	0.99	29478.1	11330.00
8	41476.05	78.31	0.30 (0.30)	0.99	33909.1	11130.00
9	41431.39	85.89	0.30 (0.30)	0.99	37903.0	12330.00
10	41391.40	88.48	0.30 (0.30)	0.99	39317.9	12410.00
11	41234.69	92.51	0.30 (0.30)	0.99	41246.2	12400.00
12	40758.32	101.13	0.30 (0.30)	0.99	44615.0	12201.00
13	40322.85	105.04	0.30 (0.30)	0.99	45699.7	12111.00
14	40038.64	107.40	0.30 (0.30)	0.99	46339.5	10700.00
15	39709.54	110.34	0.30 (0.30)	0.99	47069.1	12101.10
16	39201.62	114.30	0.30 (0.30)	0.99	47918.2	10400.00
17	37685.08	122.15	0.30 (0.30)	0.99	49233.4	12010.00
18	36404.72	127.86	0.30 (0.30)	0.99	49547.1	10210.00
19	36041.80	130.50	0.30 (0.30)	0.99	49657.9	12000.00
20	33066.17	153.46	0.30 (0.30)	0.99	50279.8	10100.00
TOTAL AREA (ACRES) =						50279.8

FLOW PROCESS FROM NODE 12606.00 TO NODE 12606.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

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MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24234.94	17.55	0.30 (0.29)	0.97	5288.7	12603.00
2	25538.01	21.70	0.30 (0.29)	0.97	6665.3	600.00
3	30272.56	38.41	0.30 (0.29)	0.98	12789.9	40100.00
4	32684.29	45.95	0.30 (0.30)	0.98	15594.0	11801.00
5	35730.33	55.77	0.30 (0.30)	0.99	19890.8	11530.00
6	38156.43	64.58	0.30 (0.30)	0.99	24896.4	11910.00
7	40346.68	71.88	0.30 (0.30)	0.99	29478.1	11330.00
8	41476.05	78.31	0.30 (0.30)	0.99	33909.1	11130.00
9	41431.39	85.89	0.30 (0.30)	0.99	37903.0	12330.00
10	41391.40	88.48	0.30 (0.30)	0.99	39317.9	12410.00
11	41234.69	92.51	0.30 (0.30)	0.99	41246.2	12400.00
12	40758.32	101.13	0.30 (0.30)	0.99	44615.0	12201.00
13	40322.85	105.04	0.30 (0.30)	0.99	45699.7	12111.00

14 40038.64 107.40 0.30(0.30) 0.99 46339.5 10700.00
 15 39709.54 110.34 0.30(0.30) 0.99 47069.1 12101.10
 16 39201.62 114.30 0.30(0.30) 0.99 47918.2 10400.00
 17 37685.08 122.15 0.30(0.30) 0.99 49233.4 12010.00
 18 36404.72 127.86 0.30(0.30) 0.99 49547.1 10210.00
 19 36041.80 130.50 0.30(0.30) 0.99 49657.9 12000.00
 20 33066.17 153.46 0.30(0.30) 0.99 50279.8 10100.00
 TOTAL AREA (ACRES) = 50279.8

FLOW PROCESS FROM NODE 12606.00 TO NODE 12701.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 286.00 DOWNSTREAM(FEET) = 276.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1260.19 CHANNEL SLOPE = 0.0079
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 9.53
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.179

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
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RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	B	0.70	0.30	0.500	56
PUBLIC PARK	B	0.90	0.30	0.850	56
COMMERCIAL	B	3.40	0.30	0.100	56
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	3.60	0.30	1.000	65
PUBLIC PARK	B	10.10	0.30	0.850	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	17.40	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.860

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 41491.02

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 17.57

AVERAGE FLOW DEPTH(FEET) = 9.53 TRAVEL TIME(MIN.) = 1.20

Tc(MIN.) = 79.51

SUBAREA AREA(ACRES) = 36.10 SUBAREA RUNOFF(CFS) = 29.93

EFFECTIVE AREA(ACRES) = 33945.18 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99

TOTAL AREA(ACRES) = 50315.9 PEAK FLOW RATE(CFS) = 41476.05

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 9.53

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 9.53 FLOW VELOCITY(FEET/SEC.) = 17.57

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12701.00 = 105863.10 FEET.

FLOW PROCESS FROM NODE 12701.00 TO NODE 12720.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 276.00 DOWNSTREAM(FEET) = 275.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 147.65 CHANNEL SLOPE = 0.0068
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 9.97
 CHANNEL FLOW THRU SUBAREA(CFS) = 41476.05
 FLOW VELOCITY(FEET/SEC.) = 16.65 FLOW DEPTH(FEET) = 9.97
 TRAVEL TIME(MIN.) = 0.15 Tc(MIN.) = 79.66
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12720.00 = 106010.75 FEET.

FLOW PROCESS FROM NODE 12701.00 TO NODE 12720.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION(MIN.) = 79.66
 RAINFALL INTENSITY(INCH/HR) = 1.18
 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.99
 EFFECTIVE STREAM AREA(ACRES) = 33945.18
 TOTAL STREAM AREA(ACRES) = 50315.89
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 41476.05

FLOW PROCESS FROM NODE 12710.00 TO NODE 12711.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

INITIAL SUBAREA FLOW-LENGTH(FEET) = 943.56
 ELEVATION DATA: UPSTREAM(FEET) = 940.78 DOWNSTREAM(FEET) = 657.79

Tc = K*(LENGTH** 3.00)/(ELEVATION CHANGE)**0.20

SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 13.910

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.174

SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
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NATURAL FAIR COVER						
"GRASS"	B	6.56	0.30	1.000	69	13.91
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30						
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000						
SUBAREA RUNOFF(CFS) = 16.97						
TOTAL AREA(ACRES) = 6.56 PEAK FLOW RATE(CFS) = 16.97						

FLOW PROCESS FROM NODE 12711.00 TO NODE 12712.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 657.79 DOWNSTREAM(FEET) = 585.63
 CHANNEL LENGTH THRU SUBAREA(FEET) = 766.00 CHANNEL SLOPE = 0.0942
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 0.78
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.856
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	26.94	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 48.03
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.63
 AVERAGE FLOW DEPTH (FEET) = 0.74 TRAVEL TIME (MIN.) = 2.27
 Tc (MIN.) = 16.18
 SUBAREA AREA (ACRES) = 26.94 SUBAREA RUNOFF (CFS) = 61.97
 EFFECTIVE AREA (ACRES) = 33.50 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 33.5 PEAK FLOW RATE (CFS) = 77.05
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 0.97

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 0.97 FLOW VELOCITY (FEET/SEC.) = 6.62
 LONGEST FLOWPATH FROM NODE 12710.00 TO NODE 12712.00 = 1709.56 FEET.

 FLOW PROCESS FROM NODE 12712.00 TO NODE 12713.00 IS CODE = 56

>>>> COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>> TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 585.63 DOWNSTREAM (FEET) = 463.75
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1025.79 CHANNEL SLOPE = 0.1188
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.03
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.616
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	14.73	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 92.41
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.60
 AVERAGE FLOW DEPTH (FEET) = 1.01 TRAVEL TIME (MIN.) = 2.25
 Tc (MIN.) = 18.43
 SUBAREA AREA (ACRES) = 14.73 SUBAREA RUNOFF (CFS) = 30.71
 EFFECTIVE AREA (ACRES) = 48.23 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 48.2 PEAK FLOW RATE (CFS) = 100.54
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.06

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.06 FLOW VELOCITY (FEET/SEC.) = 7.80

LONGEST FLOWPATH FROM NODE 12710.00 TO NODE 12713.00 = 2735.35 FEET.

 FLOW PROCESS FROM NODE 12713.00 TO NODE 12714.00 IS CODE = 56

>>>> COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>> TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 463.75 DOWNSTREAM (FEET) = 360.30
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1148.54 CHANNEL SLOPE = 0.0901
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.74
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.410
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	105.64	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 200.91
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.83
 AVERAGE FLOW DEPTH (FEET) = 1.70 TRAVEL TIME (MIN.) = 2.17
 Tc (MIN.) = 20.60
 SUBAREA AREA (ACRES) = 105.64 SUBAREA RUNOFF (CFS) = 200.56
 EFFECTIVE AREA (ACRES) = 153.87 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 153.9 PEAK FLOW RATE (CFS) = 292.13
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.09

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 2.09 FLOW VELOCITY (FEET/SEC.) = 9.87
 LONGEST FLOWPATH FROM NODE 12710.00 TO NODE 12714.00 = 3883.89 FEET.

 FLOW PROCESS FROM NODE 12714.00 TO NODE 12720.00 IS CODE = 56

>>>> COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>> TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 360.30 DOWNSTREAM (FEET) = 275.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1314.99 CHANNEL SLOPE = 0.0649
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.74
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.259
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	127.13	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 404.27
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 9.66

AVERAGE FLOW DEPTH (FEET) = 2.71 TRAVEL TIME (MIN.) = 2.27
 Tc (MIN.) = 22.87
 SUBAREA AREA (ACRES) = 127.13 SUBAREA RUNOFF (CFS) = 224.18
 EFFECTIVE AREA (ACRES) = 281.00 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 281.0 PEAK FLOW RATE (CFS) = 495.51
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 3.02

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 3.02 FLOW VELOCITY (FEET/SEC.) = 10.21
 LONGEST FLOWPATH FROM NODE 12710.00 TO NODE 12720.00 = 5198.88 FEET.

 FLOW PROCESS FROM NODE 12720.00 TO NODE 12720.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

=====
 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 22.87
 RAINFALL INTENSITY (INCH/HR) = 2.26
 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 1.00
 EFFECTIVE STREAM AREA (ACRES) = 281.00
 TOTAL STREAM AREA (ACRES) = 281.00
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 495.51

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24234.94	19.15	2.539	0.30 (0.29)	0.97	5324.8	12603.00
1	25538.01	23.27	2.232	0.30 (0.29)	0.97	6701.4	600.00
1	30272.56	39.90	1.638	0.30 (0.29)	0.98	12826.0	40100.00
1	32684.29	47.40	1.470	0.30 (0.30)	0.98	15630.1	11801.00
1	35730.33	57.19	1.339	0.30 (0.30)	0.99	19926.9	11530.00
1	38156.43	65.96	1.270	0.30 (0.30)	0.99	24932.5	11910.00
1	40346.68	73.23	1.221	0.30 (0.30)	0.99	29514.2	11330.00
1	41476.05	79.66	1.178	0.30 (0.30)	0.99	33945.2	11130.00
1	41431.39	87.24	1.128	0.30 (0.30)	0.99	37939.1	12330.00
1	41391.40	89.83	1.110	0.30 (0.30)	0.99	39354.0	12410.00
1	41234.69	93.86	1.091	0.30 (0.30)	0.99	41282.3	12400.00
1	40758.32	102.48	1.052	0.30 (0.30)	0.99	44651.1	12201.00
1	40322.85	106.39	1.034	0.30 (0.30)	0.99	45735.8	12111.00
1	40038.64	108.76	1.023	0.30 (0.30)	0.99	46375.6	10700.00
1	39709.54	111.70	1.010	0.30 (0.30)	0.99	47105.2	12101.10
1	39201.62	115.67	0.992	0.30 (0.30)	0.99	47954.3	10400.00
1	37685.08	123.53	0.963	0.30 (0.30)	0.99	49269.5	12010.00
1	36404.72	129.26	0.948	0.30 (0.30)	0.99	49583.2	10210.00
1	36041.80	131.90	0.941	0.30 (0.30)	0.99	49694.0	12000.00
1	33066.17	154.91	0.881	0.30 (0.30)	0.99	50315.9	10100.00
2	495.51	22.87	2.259	0.30 (0.30)	1.00	281.0	12710.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24709.27	19.15	2.539	0.30 (0.29)	0.97	5560.1	12603.00
2	25904.81	22.87	2.259	0.30 (0.29)	0.97	6846.4	12710.00
3	26026.70	23.27	2.232	0.30 (0.29)	0.97	6982.4	600.00
4	30610.86	39.90	1.638	0.30 (0.29)	0.98	13107.0	40100.00
5	32980.19	47.40	1.470	0.30 (0.30)	0.98	15911.1	11801.00
6	35993.02	57.19	1.339	0.30 (0.30)	0.99	20207.9	11530.00
7	38401.76	65.96	1.270	0.30 (0.30)	0.99	25213.5	11910.00
8	40579.70	73.23	1.221	0.30 (0.30)	0.99	29795.2	11330.00
9	41698.18	79.66	1.178	0.30 (0.30)	0.99	34226.2	11130.00
10	41640.66	87.24	1.128	0.30 (0.30)	0.99	38220.1	12330.00
11	41596.29	89.83	1.110	0.30 (0.30)	0.99	39635.0	12410.00
12	41434.84	93.86	1.091	0.30 (0.30)	0.99	41563.3	12400.00
13	40948.51	102.48	1.052	0.30 (0.30)	0.99	44932.1	12201.00
14	40508.51	106.39	1.034	0.30 (0.30)	0.99	46016.8	12111.00
15	40221.57	108.76	1.023	0.30 (0.30)	0.99	46656.6	10700.00
16	39889.08	111.70	1.010	0.30 (0.30)	0.99	47386.2	12101.10
17	39376.57	115.67	0.992	0.30 (0.30)	0.99	48235.3	10400.00
18	37852.71	123.53	0.963	0.30 (0.30)	0.99	49550.5	12010.00
19	36568.58	129.26	0.948	0.30 (0.30)	0.99	49864.2	10210.00
20	36203.92	131.90	0.941	0.30 (0.30)	0.99	49975.0	12000.00
21	33213.16	154.91	0.881	0.30 (0.30)	0.99	50596.9	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 41698.18 Tc (MIN.) = 79.66
 EFFECTIVE AREA (ACRES) = 34226.18 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA (ACRES) = 50596.9
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12720.00 = 10610.75 FEET.

 FLOW PROCESS FROM NODE 12720.00 TO NODE 12720.50 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====
 ELEVATION DATA: UPSTREAM (FEET) = 275.00 DOWNSTREAM (FEET) = 258.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 2669.21 CHANNEL SLOPE = 0.0064
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 10.17
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.160
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	0.20	0.30	1.000	86
NATURAL POOR COVER "BARREN"	B	0.20	0.30	1.000	86
NATURAL FAIR COVER "OPEN BRUSH"	B	0.20	0.30	1.000	66
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.30	0.30	1.000	65
COMMERCIAL	B	0.30	0.30	0.100	56
NATURAL FAIR COVER					

"MEADOWS" B 0.50 0.30 1.000 70
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.841
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 41698.87
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 16.34
 AVERAGE FLOW DEPTH (FEET) = 10.17 TRAVEL TIME (MIN.) = 2.72
 Tc (MIN.) = 82.38
 SUBAREA AREA (ACRES) = 1.70 SUBAREA RUNOFF (CFS) = 1.39
 EFFECTIVE AREA (ACRES) = 34227.88 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA (ACRES) = 50598.6 PEAK FLOW RATE (CFS) = 41698.18
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 10.17

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 10.17 FLOW VELOCITY (FEET/SEC.) = 16.34
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12720.50 = 108679.96 FEET.

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 81

>>>> ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 82.38
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.160
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER	B	0.50	0.30	0.850	56
"WOODLAND, GRASS"	B	0.70	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.50	0.30	1.000	66
COMMERCIAL	B	1.40	0.30	0.100	56
COMMERCIAL	B	2.30	0.30	0.100	56
NATURAL FAIR COVER					
"GRASS"	B	9.30	0.30	1.000	69

 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.783
 SUBAREA AREA (ACRES) = 15.70 SUBAREA RUNOFF (CFS) = 13.07
 EFFECTIVE AREA (ACRES) = 34243.57 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA (ACRES) = 50614.3 PEAK FLOW RATE (CFS) = 41698.18
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 81

>>>> ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 82.38
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.160
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					

"WOODLAND, GRASS" B 11.20 0.30 1.000 65
 NATURAL FAIR COVER
 "WOODLAND, GRASS" B 11.40 0.30 1.000 65
 NATURAL FAIR COVER
 "CHAPARRAL, NARROWLEAF" B 11.80 0.30 1.000 72
 NATURAL FAIR COVER
 "OPEN BRUSH" B 27.70 0.30 1.000 66
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 62.10 SUBAREA RUNOFF (CFS) = 48.07
 EFFECTIVE AREA (ACRES) = 34305.68 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
 TOTAL AREA (ACRES) = 50676.4 PEAK FLOW RATE (CFS) = 41698.18
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 1

>>>> DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION (MIN.) = 82.38
 RAINFALL INTENSITY (INCH/HR) = 1.16
 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.99
 EFFECTIVE STREAM AREA (ACRES) = 34305.68
 TOTAL STREAM AREA (ACRES) = 50676.39
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 41698.18

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 7

>>>> USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<

 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC (MIN.) = 21.87 RAINFALL INTENSITY (INCH/HR) = 2.33
 EFFECTIVE AREA (ACRES) = 641.70
 TOTAL AREA (ACRES) = 1292.30 PEAK FLOW RATE (CFS) = 1134.00
 AREA-AVERAGED Fm (INCH/HR) = 0.13 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.43
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
 CONFLUENCE ANALYSES.

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 1

>>>> DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>> AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 21.87
 RAINFALL INTENSITY (INCH/HR) = 2.33
 AREA-AVERAGED Fm (INCH/HR) = 0.13
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.43

EFFECTIVE STREAM AREA(ACRES) = 641.70
 TOTAL STREAM AREA(ACRES) = 1292.30
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 1134.00

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24709.27	22.39	2.291	0.30(0.29)	0.97	5639.6	12603.00
1	25904.81	26.05	2.070	0.30(0.29)	0.97	6925.9	12710.00
1	26026.70	26.45	2.052	0.30(0.29)	0.97	7061.9	600.00
1	30610.86	42.91	1.570	0.30(0.29)	0.98	13186.5	40100.00
1	32980.19	50.34	1.409	0.30(0.30)	0.98	15990.6	11801.00
1	35993.02	60.04	1.310	0.30(0.30)	0.99	20287.4	11530.00
1	38401.76	68.75	1.251	0.30(0.30)	0.99	25293.0	11910.00
1	40579.70	75.98	1.203	0.30(0.30)	0.99	29874.7	11330.00
1	41698.18	82.38	1.160	0.30(0.30)	0.99	34305.7	11130.00
1	41640.66	89.96	1.109	0.30(0.30)	0.99	38299.6	12330.00
1	41596.29	92.55	1.097	0.30(0.30)	0.99	39714.5	12410.00
1	41434.84	96.58	1.079	0.30(0.30)	0.99	41642.8	12400.00
1	40948.51	105.22	1.040	0.30(0.30)	0.99	45011.6	12201.00
1	40508.51	109.14	1.022	0.30(0.30)	0.99	46096.3	12111.00
1	40221.57	111.51	1.011	0.30(0.30)	0.99	46736.1	10700.00
1	39889.08	114.46	0.997	0.30(0.30)	0.99	47465.7	12101.10
1	39376.57	118.44	0.979	0.30(0.30)	0.99	48314.8	10400.00
1	37852.71	126.34	0.956	0.30(0.30)	0.99	49630.0	12010.00
1	36568.58	132.10	0.941	0.30(0.30)	0.99	49943.7	10210.00
1	36203.92	134.76	0.934	0.30(0.30)	0.99	50054.5	12000.00
1	33213.16	157.84	0.874	0.30(0.30)	0.99	50676.4	10100.00
2	1134.00	21.87	2.325	0.30(0.13)	0.43	641.7	12720.50

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25685.55	21.87	2.325	0.30(0.27)	0.91	6151.0	12720.50
2	25825.58	22.39	2.291	0.30(0.27)	0.91	6281.3	12603.00
3	26907.21	26.05	2.070	0.30(0.28)	0.93	7567.6	12710.00
4	27019.66	26.45	2.052	0.30(0.28)	0.93	7703.6	600.00
5	31355.00	42.91	1.570	0.30(0.29)	0.96	13828.2	40100.00
6	33640.89	50.34	1.409	0.30(0.29)	0.96	16632.3	11801.00
7	36602.67	60.04	1.310	0.30(0.29)	0.97	20929.1	11530.00
8	38981.28	68.75	1.251	0.30(0.29)	0.97	25934.7	11910.00
9	41134.22	75.98	1.203	0.30(0.29)	0.98	30516.4	11330.00
10	42230.55	82.38	1.160	0.30(0.29)	0.98	34947.4	11130.00
11	42146.82	89.96	1.109	0.30(0.29)	0.98	38941.3	12330.00
12	42096.29	92.55	1.097	0.30(0.29)	0.98	40356.2	12410.00
13	41925.33	96.58	1.079	0.30(0.29)	0.98	42284.5	12400.00
14	41418.65	105.22	1.040	0.30(0.29)	0.98	45653.3	12201.00
15	40969.40	109.14	1.022	0.30(0.29)	0.98	46738.0	12111.00
16	40676.86	111.51	1.011	0.30(0.29)	0.98	47377.8	10700.00
17	40337.42	114.46	0.997	0.30(0.29)	0.98	48107.4	12101.10
18	39815.52	118.44	0.979	0.30(0.29)	0.98	48956.5	10400.00
19	38279.47	126.34	0.956	0.30(0.29)	0.98	50271.7	12010.00
20	36987.61	132.10	0.941	0.30(0.29)	0.98	50585.4	10210.00
21	36619.39	134.76	0.934	0.30(0.29)	0.98	50696.2	12000.00
22	33597.64	157.84	0.874	0.30(0.29)	0.98	51318.1	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) = 42230.55 Tc(MIN.) = 82.38
 EFFECTIVE AREA(ACRES) = 34947.38 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA(ACRES) = 51968.7
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12720.50 = 108679.96 FEET.

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12720.50 IS CODE = 12

>>>>CLEAR MEMORY BANK # 2 <<<<<

 MEMORY BANK # 2 IS EMPTY - PROCESS IGNORED.

 FLOW PROCESS FROM NODE 12720.50 TO NODE 12722.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

 ELEVATION DATA: UPSTREAM(FEET) = 258.00 DOWNSTREAM(FEET) = 255.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1269.00 CHANNEL SLOPE = 0.0024
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 13.50
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.148

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
PUBLIC PARK	B	0.10	0.30	0.850	56
NATURAL FAIR COVER					
"GRASS"	B	0.10	0.30	1.000	69
NATURAL FAIR COVER					
"GRASS"	B	0.20	0.30	1.000	69
NATURAL FAIR COVER					
"GRASS"	B	0.30	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.30	0.30	1.000	66
COMMERCIAL	B	0.40	0.30	0.100	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.732
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 42231.14
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.69
 AVERAGE FLOW DEPTH(FEET) = 13.50 TRAVEL TIME(MIN.) = 1.81
 Tc(MIN.) = 84.19
 SUBAREA AREA(ACRES) = 1.40 SUBAREA RUNOFF(CFS) = 1.17
 EFFECTIVE AREA(ACRES) = 34948.77 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA(ACRES) = 51970.1 PEAK FLOW RATE(CFS) = 42230.55
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 13.50

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 13.50 FLOW VELOCITY(FEET/SEC.) = 11.69
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12722.00 = 109948.96 FEET.

FLOW PROCESS FROM NODE 12722.00 TO NODE 12722.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 84.19

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.148

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	0.50	0.30	0.100	56
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.60	0.30	1.000	65
NATURAL POOR COVER					
"BARREN"	B	0.60	0.30	1.000	86
COMMERCIAL	B	0.60	0.30	0.100	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.90	0.30	1.000	66
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	1.00	0.30	1.000	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.764

SUBAREA AREA(ACRES) = 4.20 SUBAREA RUNOFF(CFS) = 3.47

EFFECTIVE AREA(ACRES) = 34952.97 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98

TOTAL AREA(ACRES) = 51974.3 PEAK FLOW RATE(CFS) = 42230.55

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12722.00 TO NODE 12722.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 84.19

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.148

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	1.30	0.30	1.000	65
NATURAL FAIR COVER					
"MEADOWS"	B	3.20	0.30	1.000	70
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	3.70	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	12.00	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA(ACRES) = 20.20 SUBAREA RUNOFF(CFS) = 15.42

EFFECTIVE AREA(ACRES) = 34973.17 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98

TOTAL AREA(ACRES) = 51994.5 PEAK FLOW RATE(CFS) = 42230.55

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12722.00 TO NODE 12740.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 255.00 DOWNSTREAM(FEET) = 252.10
CHANNEL LENGTH THRU SUBAREA(FEET) = 624.00 CHANNEL SLOPE = 0.0046
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 11.20

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.143

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,STRAIGHT ROW"	B	0.10	0.30	1.000	81
PUBLIC PARK	B	0.50	0.30	0.850	56
NATURAL FAIR COVER					
"GRASS"	B	0.50	0.30	1.000	69
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.80	0.30	1.000	63
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	1.20	0.30	1.000	65
COMMERCIAL	B	1.50	0.30	0.100	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.690

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 42232.49

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 14.74

AVERAGE FLOW DEPTH(FEET) = 11.20 TRAVEL TIME(MIN.) = 0.71

Tc(MIN.) = 84.89

SUBAREA AREA(ACRES) = 4.60 SUBAREA RUNOFF(CFS) = 3.88

EFFECTIVE AREA(ACRES) = 34977.77 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98

TOTAL AREA(ACRES) = 51999.1 PEAK FLOW RATE(CFS) = 42230.55

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 11.20

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 11.20 FLOW VELOCITY(FEET/SEC.) = 14.74

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12740.00 = 110572.96 FEET.

FLOW PROCESS FROM NODE 12740.00 TO NODE 12740.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 84.89

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.143

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	2.50	0.30	0.100	56
NATURAL FAIR COVER					
"GRASS"	B	2.60	0.30	1.000	69
NATURAL FAIR COVER					
"GRASS"	B	2.80	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	5.40	0.30	1.000	66

NATURAL FAIR COVER
 "WOODLAND,GRASS" B 6.20 0.30 1.000 65
 NATURAL FAIR COVER
 "WOODLAND,GRASS" B 6.50 0.30 1.000 65
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.913
 SUBAREA AREA(ACRES) = 26.00 SUBAREA RUNOFF(CFS) = 20.34
 EFFECTIVE AREA(ACRES) = 35003.77 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA(ACRES) = 52025.1 PEAK FLOW RATE(CFS) = 42230.55
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12740.00 TO NODE 12740.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 84.89
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.143
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	6.70	0.30	1.000	66
NATURAL FAIR COVER "OPEN BRUSH"	B	12.00	0.30	1.000	66
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	20.30	0.30	1.000	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 39.00 SUBAREA RUNOFF(CFS) = 29.60
 EFFECTIVE AREA(ACRES) = 35042.77 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA(ACRES) = 52064.1 PEAK FLOW RATE(CFS) = 42230.55
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 12740.00 TO NODE 12740.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<

=====

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION(MIN.) = 84.89
 RAINFALL INTENSITY(INCH/HR) = 1.14
 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.98
 EFFECTIVE STREAM AREA(ACRES) = 35042.77
 TOTAL STREAM AREA(ACRES) = 52064.09
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 42230.55

 FLOW PROCESS FROM NODE 12730.00 TO NODE 12731.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

INITIAL SUBAREA FLOW-LENGTH(FEET) = 561.54
 ELEVATION DATA: UPSTREAM(FEET) = 613.29 DOWNSTREAM(FEET) = 551.75

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 13.823
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.189
 SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL AREA GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	6.33	0.30	1.000	63	13.82

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 16.46
 TOTAL AREA(ACRES) = 6.33 PEAK FLOW RATE(CFS) = 16.46

 FLOW PROCESS FROM NODE 12731.00 TO NODE 12732.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 551.75 DOWNSTREAM(FEET) = 494.40
 CHANNEL LENGTH THRU SUBAREA(FEET) = 971.91 CHANNEL SLOPE = 0.0590
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.98
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.766
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	34.62	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 55.06
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.06
 AVERAGE FLOW DEPTH(FEET) = 0.92 TRAVEL TIME(MIN.) = 3.20
 Tc(MIN.) = 17.02
 SUBAREA AREA(ACRES) = 34.62 SUBAREA RUNOFF(CFS) = 76.83
 EFFECTIVE AREA(ACRES) = 40.95 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 40.9 PEAK FLOW RATE(CFS) = 90.88
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 1.23

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 1.23 FLOW VELOCITY(FEET/SEC.) = 5.96
 LONGEST FLOWPATH FROM NODE 12730.00 TO NODE 12732.00 = 1533.45 FEET.

 FLOW PROCESS FROM NODE 12732.00 TO NODE 12733.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 494.40 DOWNSTREAM(FEET) = 431.00

CHANNEL LENGTH THRU SUBAREA (FEET) = 1156.41 CHANNEL SLOPE = 0.0548
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.70
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.463
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	59.52	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 148.97
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.77
 AVERAGE FLOW DEPTH (FEET) = 1.65 TRAVEL TIME (MIN.) = 2.85
 Tc (MIN.) = 19.87
 SUBAREA AREA (ACRES) = 59.52 SUBAREA RUNOFF (CFS) = 115.88
 EFFECTIVE AREA (ACRES) = 100.47 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 100.5 PEAK FLOW RATE (CFS) = 195.61
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.92

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.92 FLOW VELOCITY (FEET/SEC.) = 7.36
 LONGEST FLOWPATH FROM NODE 12730.00 TO NODE 12733.00 = 2689.86 FEET.

FLOW PROCESS FROM NODE 12733.00 TO NODE 12734.00 IS CODE = 56

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

 ELEVATION DATA: UPSTREAM (FEET) = 431.00 DOWNSTREAM (FEET) = 367.10
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1654.48 CHANNEL SLOPE = 0.0386
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.45
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.197
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	64.05	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 250.34
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.99
 AVERAGE FLOW DEPTH (FEET) = 2.41 TRAVEL TIME (MIN.) = 3.94
 Tc (MIN.) = 23.81
 SUBAREA AREA (ACRES) = 64.05 SUBAREA RUNOFF (CFS) = 109.35
 EFFECTIVE AREA (ACRES) = 164.52 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 164.5 PEAK FLOW RATE (CFS) = 280.87
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.57

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 2.57 FLOW VELOCITY (FEET/SEC.) = 7.23
 LONGEST FLOWPATH FROM NODE 12730.00 TO NODE 12734.00 = 4344.34 FEET.

FLOW PROCESS FROM NODE 12734.00 TO NODE 12740.00 IS CODE = 56

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

 ELEVATION DATA: UPSTREAM (FEET) = 367.11 DOWNSTREAM (FEET) = 252.10
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1880.98 CHANNEL SLOPE = 0.0611
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.36
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.008
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	26.02	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 300.87
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.69
 AVERAGE FLOW DEPTH (FEET) = 2.35 TRAVEL TIME (MIN.) = 3.61
 Tc (MIN.) = 27.42
 SUBAREA AREA (ACRES) = 26.02 SUBAREA RUNOFF (CFS) = 40.00
 EFFECTIVE AREA (ACRES) = 190.54 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 190.5 PEAK FLOW RATE (CFS) = 292.94
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 2.32

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 2.32 FLOW VELOCITY (FEET/SEC.) = 8.61
 LONGEST FLOWPATH FROM NODE 12730.00 TO NODE 12740.00 = 6225.32 FEET.

FLOW PROCESS FROM NODE 12740.00 TO NODE 12740.00 IS CODE = 1

 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 27.42
 RAINFALL INTENSITY (INCH/HR) = 2.01
 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 1.00
 EFFECTIVE STREAM AREA (ACRES) = 190.54
 TOTAL STREAM AREA (ACRES) = 190.54
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 292.94

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25685.55	24.82	2.130	0.30(0.27)	0.91	6246.4	12720.50
1	25825.58	25.33	2.103	0.30(0.27)	0.91	6376.7	12603.00
1	26907.21	28.95	1.939	0.30(0.28)	0.93	7663.0	12710.00
1	27019.66	29.35	1.920	0.30(0.28)	0.93	7799.0	600.00
1	31355.00	45.67	1.509	0.30(0.29)	0.96	13923.6	40100.00
1	33640.89	53.04	1.381	0.30(0.29)	0.96	16727.7	11801.00
1	36602.67	62.67	1.292	0.30(0.29)	0.97	21024.5	11530.00
1	38981.28	71.33	1.234	0.30(0.29)	0.97	26030.1	11910.00
1	41134.22	78.51	1.186	0.30(0.29)	0.98	30611.8	11330.00
1	42230.55	84.89	1.143	0.30(0.29)	0.98	35042.8	11130.00
1	42146.82	92.48	1.098	0.30(0.29)	0.98	39036.7	12330.00
1	42096.29	95.07	1.086	0.30(0.29)	0.98	40451.6	12410.00
1	41925.33	99.10	1.067	0.30(0.29)	0.98	42379.9	12400.00
1	41418.65	107.74	1.028	0.30(0.29)	0.98	45748.7	12201.00
1	40969.40	111.68	1.010	0.30(0.29)	0.98	46833.4	12111.00
1	40676.86	114.06	0.999	0.30(0.29)	0.98	47473.2	10700.00
1	40337.42	117.01	0.986	0.30(0.29)	0.98	48202.8	12101.10
1	39815.52	121.01	0.969	0.30(0.29)	0.98	49051.9	10400.00
1	38279.47	128.94	0.949	0.30(0.29)	0.98	50367.1	12010.00
1	36987.61	134.73	0.934	0.30(0.29)	0.98	50680.8	10210.00
1	36619.39	137.38	0.927	0.30(0.29)	0.98	50791.6	12000.00
1	33597.64	160.55	0.867	0.30(0.29)	0.98	51413.5	10100.00
2	292.94	27.42	2.008	0.30(0.30)	1.00	190.5	12730.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25969.62	24.82	2.130	0.30(0.27)	0.92	6418.9	12720.50
2	26111.23	25.33	2.103	0.30(0.27)	0.92	6552.8	12603.00
3	26742.08	27.42	2.008	0.30(0.28)	0.92	7308.8	12730.00
4	27188.21	28.95	1.939	0.30(0.28)	0.93	7853.6	12710.00
5	27297.55	29.35	1.920	0.30(0.28)	0.93	7989.6	600.00
6	31562.25	45.67	1.509	0.30(0.29)	0.96	14114.1	40100.00
7	33826.27	53.04	1.381	0.30(0.29)	0.96	16918.2	11801.00
8	36772.80	62.67	1.292	0.30(0.29)	0.97	21215.0	11530.00
9	39141.46	71.33	1.234	0.30(0.29)	0.97	26220.7	11910.00
10	41286.15	78.51	1.186	0.30(0.29)	0.98	30802.3	11330.00
11	42375.15	84.89	1.143	0.30(0.29)	0.98	35233.3	11130.00
12	42283.61	92.48	1.098	0.30(0.29)	0.98	39227.3	12330.00
13	42231.05	95.07	1.086	0.30(0.29)	0.98	40642.1	12410.00
14	42056.93	99.10	1.067	0.30(0.29)	0.98	42570.5	12400.00
15	41543.48	107.74	1.028	0.30(0.29)	0.98	45939.2	12201.00
16	41091.15	111.68	1.010	0.30(0.29)	0.98	47023.9	12111.00
17	40796.76	114.06	0.999	0.30(0.29)	0.98	47663.7	10700.00
18	40455.00	117.01	0.986	0.30(0.29)	0.98	48393.4	12101.10
19	39930.31	121.01	0.969	0.30(0.29)	0.98	49242.4	10400.00
20	38390.72	128.94	0.949	0.30(0.29)	0.98	50557.6	12010.00
21	37096.28	134.73	0.934	0.30(0.29)	0.98	50871.3	10210.00
22	36726.88	137.38	0.927	0.30(0.29)	0.98	50982.2	12000.00
23	33694.80	160.55	0.867	0.30(0.29)	0.98	51604.0	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 42375.15 Tc(MIN.) = 84.89

EFFECTIVE AREA(ACRES) = 35233.31 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA(ACRES) = 52254.6
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12740.00 = 110572.96 FEET.

FLOW PROCESS FROM NODE 12740.00 TO NODE 12800.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 252.10 DOWNSTREAM(FEET) = 240.00

CHANNEL LENGTH THRU SUBAREA(FEET) = 1220.00 CHANNEL SLOPE = 0.0099

GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 9.06

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.136

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
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AGRICULTURAL POOR COVER

"ROW CROPS,STRAIGHT ROW"	B	0.30	0.30	1.000	81
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NATURAL FAIR COVER

"WOODLAND,GRASS"	B	0.40	0.30	1.000	65
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COMMERCIAL

COMMERCIAL	B	0.40	0.30	0.100	56
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COMMERCIAL

COMMERCIAL	B	0.60	0.30	0.100	56
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NATURAL FAIR COVER

"OPEN BRUSH"	B	1.50	0.30	1.000	66
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PUBLIC PARK

PUBLIC PARK	B	3.20	0.30	0.850	56
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SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.784

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 42377.75

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 19.07

AVERAGE FLOW DEPTH(FEET) = 9.06 TRAVEL TIME(MIN.) = 1.07

Tc(MIN.) = 85.96

SUBAREA AREA(ACRES) = 6.40 SUBAREA RUNOFF(CFS) = 5.19

EFFECTIVE AREA(ACRES) = 35239.71 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98

TOTAL AREA(ACRES) = 52261.0 PEAK FLOW RATE(CFS) = 42375.15

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 9.06

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 9.06 FLOW VELOCITY(FEET/SEC.) = 19.07
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12800.00 = 111792.96 FEET.

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 85.96

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.136

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
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NATURAL FAIR COVER
 "GRASS" B 3.90 0.30 1.000 69
 NATURAL FAIR COVER
 "GRASS" B 8.70 0.30 1.000 69
 NATURAL FAIR COVER
 "WOODLAND,GRASS" B 10.30 0.30 1.000 65
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 22.90 SUBAREA RUNOFF(CFS) = 17.23
 EFFECTIVE AREA(ACRES) = 35262.61 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA(ACRES) = 52283.9 PEAK FLOW RATE(CFS) = 42375.15
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

=====
 END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 52283.9 TC(MIN.) = 85.96
 EFFECTIVE AREA(ACRES) = 35262.61 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.980
 PEAK FLOW RATE(CFS) = 42375.15

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25969.62	26.07	2.069	0.30(0.27)	0.92	6448.2	12720.50
2	26111.23	26.58	2.046	0.30(0.28)	0.92	6582.1	12603.00
3	26742.08	28.66	1.952	0.30(0.28)	0.92	7338.1	12730.00
4	27188.21	30.19	1.886	0.30(0.28)	0.93	7882.9	12710.00
5	27297.55	30.59	1.876	0.30(0.28)	0.93	8018.9	600.00
6	31562.25	46.85	1.482	0.30(0.29)	0.96	14143.4	40100.00
7	33826.27	54.19	1.369	0.30(0.29)	0.96	16947.5	11801.00
8	36772.80	63.79	1.285	0.30(0.29)	0.97	21244.3	11530.00
9	39141.46	72.43	1.227	0.30(0.29)	0.97	26250.0	11910.00
10	41286.15	79.59	1.179	0.30(0.29)	0.98	30831.6	11330.00
11	42375.15	85.96	1.136	0.30(0.29)	0.98	35262.6	11130.00
12	42283.61	93.54	1.093	0.30(0.29)	0.98	39256.6	12330.00
13	42231.05	96.14	1.081	0.30(0.29)	0.98	40671.4	12410.00
14	42056.93	100.17	1.063	0.30(0.29)	0.98	42599.8	12400.00
15	41543.48	108.82	1.023	0.30(0.29)	0.98	45968.5	12201.00
16	41091.15	112.76	1.005	0.30(0.29)	0.98	47053.2	12111.00
17	40796.76	115.14	0.994	0.30(0.29)	0.98	47693.0	10700.00
18	40455.00	118.10	0.981	0.30(0.29)	0.98	48422.7	12101.10
19	39930.31	122.09	0.967	0.30(0.29)	0.98	49271.7	10400.00
20	38390.72	130.04	0.946	0.30(0.29)	0.98	50586.9	12010.00
21	37096.28	135.84	0.931	0.30(0.29)	0.98	50900.6	10210.00
22	36726.88	138.50	0.924	0.30(0.29)	0.98	51011.5	12000.00
23	33694.80	161.70	0.864	0.30(0.29)	0.98	51633.3	10100.00

=====
 END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
(c) Copyright 1983-2010 Advanced Engineering Software (aes)
Ver. 17.0 Release Date: 07/01/2010 License ID 1527

Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 128 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 100-YR EV JULY 2023 ROKAMOTO *

FILE NAME: RU00EV28.DAT
TIME/DATE OF STUDY: 13:52 07/05/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 6.027
- 2) 10.00; 3.864
- 3) 15.00; 2.981
- 4) 20.00; 2.449
- 5) 25.00; 2.118
- 6) 30.00; 1.891
- 7) 40.00; 1.635
- 8) 50.00; 1.412
- 9) 60.00; 1.310
- 10) 90.00; 1.109
- 11) 120.00; 0.972
- 12) 180.00; 0.816
- 13) 360.00; 0.607
- 14) 1200.00; 0.266

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT-/PARK- SIDE / SIDE/ WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RU00EV27.DNA
MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	26111.23	26.58	0.30 (0.28)	0.92	6582.1	12603.00
2	27297.55	30.59	0.30 (0.28)	0.93	8018.9	600.00
3	31562.25	46.85	0.30 (0.29)	0.96	14143.4	40100.00
4	33826.27	54.19	0.30 (0.29)	0.96	16947.5	11801.00
5	36772.80	63.79	0.30 (0.29)	0.97	21244.3	11530.00
6	39141.46	72.43	0.30 (0.29)	0.97	26250.0	11910.00
7	41286.15	79.59	0.30 (0.29)	0.98	30831.6	11330.00
8	42375.15	85.96	0.30 (0.29)	0.98	35262.6	11130.00
9	42283.61	93.54	0.30 (0.29)	0.98	39256.6	12330.00
10	42231.05	96.14	0.30 (0.29)	0.98	40671.4	12410.00
11	42056.93	100.17	0.30 (0.29)	0.98	42599.8	12400.00
12	41543.48	108.82	0.30 (0.29)	0.98	45968.5	12201.00
13	41091.15	112.76	0.30 (0.29)	0.98	47053.2	12111.00
14	40796.76	115.14	0.30 (0.29)	0.98	47693.0	10700.00
15	40455.00	118.10	0.30 (0.29)	0.98	48422.7	12101.10
16	39930.31	122.09	0.30 (0.29)	0.98	49271.7	10400.00
17	38390.72	130.04	0.30 (0.29)	0.98	50586.9	12010.00
18	37096.28	135.84	0.30 (0.29)	0.98	50900.6	10210.00
19	36726.88	138.50	0.30 (0.29)	0.98	51011.5	12000.00
20	33694.80	161.70	0.30 (0.29)	0.98	51633.3	10100.00
TOTAL AREA (ACRES) =						51633.3

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: 0610501Y.DNA
MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1712.17	25.43	0.30 (0.29)	0.98	1025.4	50120.00
2	1673.65	26.63	0.30 (0.29)	0.98	1040.0	50150.00
3	1553.32	30.32	0.30 (0.29)	0.98	1063.4	50100.00
TOTAL AREA (ACRES) =						1063.4

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 14.0

>>>>MEMORY BANK # 3 COPIED ONTO MAIN-STREAM MEMORY<<<<<

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MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM	Q	Tc	Fp (Fm)	Ap	Ae	HEADWATER
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NUMBER	(CFS)	(MIN.)	(INCH/HR)	(ACRES)	NODE
1	1712.17	25.43	0.30 (0.29) 0.98	1025.4	50120.00
2	1673.65	26.63	0.30 (0.29) 0.98	1040.0	50150.00
3	1553.32	30.32	0.30 (0.29) 0.98	1063.4	50100.00
TOTAL AREA (ACRES) =			1063.4		

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	1712.17	25.43	2.098	0.30 (0.29) 0.98	0.98	1025.4	50120.00
2	1673.65	26.63	2.044	0.30 (0.29) 0.98	0.98	1040.0	50150.00
3	1553.32	30.32	1.883	0.30 (0.29) 0.98	0.98	1063.4	50100.00

LONGEST FLOWPATH FROM NODE 50150.00 TO NODE 12800.00 = 11349.00 FEET.

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	26111.23	26.58	2.046	0.30 (0.28) 0.92	0.92	6582.1	12603.00
2	27297.55	30.59	1.876	0.30 (0.28) 0.93	0.93	8018.9	600.00
3	31562.25	46.85	1.482	0.30 (0.29) 0.96	0.96	14143.4	40100.00
4	33826.27	54.19	1.369	0.30 (0.29) 0.96	0.96	16947.5	11801.00
5	36772.80	63.79	1.285	0.30 (0.29) 0.97	0.97	21244.3	11530.00
6	39141.46	72.43	1.227	0.30 (0.29) 0.97	0.97	26250.0	11910.00
7	41286.15	79.59	1.179	0.30 (0.29) 0.98	0.98	30831.6	11330.00
8	42375.15	85.96	1.136	0.30 (0.29) 0.98	0.98	35262.6	11130.00
9	42283.61	93.54	1.093	0.30 (0.29) 0.98	0.98	39256.6	12330.00
10	42231.05	96.14	1.081	0.30 (0.29) 0.98	0.98	40671.4	12410.00
11	42056.93	100.17	1.063	0.30 (0.29) 0.98	0.98	42599.8	12400.00
12	41543.48	108.82	1.023	0.30 (0.29) 0.98	0.98	45968.5	12201.00
13	41091.15	112.76	1.005	0.30 (0.29) 0.98	0.98	47053.2	12111.00
14	40796.76	115.14	0.994	0.30 (0.29) 0.98	0.98	47693.0	10700.00
15	40455.00	118.10	0.981	0.30 (0.29) 0.98	0.98	48422.7	12101.10
16	39930.31	122.09	0.967	0.30 (0.29) 0.98	0.98	49271.7	10400.00
17	38390.72	130.04	0.946	0.30 (0.29) 0.98	0.98	50586.9	12010.00
18	37096.28	135.84	0.931	0.30 (0.29) 0.98	0.98	50900.6	10210.00
19	36726.88	138.50	0.924	0.30 (0.29) 0.98	0.98	51011.5	12000.00
20	33694.80	161.70	0.864	0.30 (0.29) 0.98	0.98	51633.3	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12800.00 = 111792.96 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	27430.19	25.43	2.098	0.30 (0.28) 0.93	0.93	7322.8	50120.00
2	27786.39	26.58	2.046	0.30 (0.28) 0.93	0.93	7621.5	12603.00
3	27798.79	26.63	2.044	0.30 (0.28) 0.93	0.93	7638.9	50150.00
4	28771.01	30.32	1.883	0.30 (0.28) 0.94	0.94	8985.5	50100.00
5	28844.12	30.59	1.876	0.30 (0.28) 0.94	0.94	9082.2	600.00
6	32723.86	46.85	1.482	0.30 (0.29) 0.96	0.96	15206.8	40100.00
7	34877.33	54.19	1.369	0.30 (0.29) 0.96	0.96	18010.9	11801.00
8	37741.05	63.79	1.285	0.30 (0.29) 0.97	0.97	22307.7	11530.00
9	40053.11	72.43	1.227	0.30 (0.29) 0.97	0.97	27313.4	11910.00
10	42150.89	79.59	1.179	0.30 (0.29) 0.98	0.98	31895.0	11330.00

11	43198.14	85.96	1.136	0.30 (0.29) 0.98	0.98	36326.0	11130.00
12	43064.32	93.54	1.093	0.30 (0.29) 0.98	0.98	40320.0	12330.00
13	43000.17	96.14	1.081	0.30 (0.29) 0.98	0.98	41734.8	12410.00
14	42808.03	100.17	1.063	0.30 (0.29) 0.98	0.98	43663.1	12400.00
15	42255.98	108.82	1.023	0.30 (0.29) 0.98	0.98	47031.9	12201.00
16	41786.06	112.76	1.005	0.30 (0.29) 0.98	0.98	48116.6	12111.00
17	41481.04	115.14	0.994	0.30 (0.29) 0.98	0.98	48756.4	10700.00
18	41126.06	118.10	0.981	0.30 (0.29) 0.98	0.98	49486.1	12101.10
19	40587.55	122.09	0.967	0.30 (0.29) 0.98	0.98	50335.1	10400.00
20	39027.76	130.04	0.946	0.30 (0.29) 0.98	0.98	51650.3	12010.00
21	37718.57	135.84	0.931	0.30 (0.29) 0.98	0.98	51964.0	10210.00
22	37342.39	138.50	0.924	0.30 (0.29) 0.98	0.98	52074.9	12000.00
23	34251.34	161.70	0.864	0.30 (0.29) 0.98	0.98	52696.7	10100.00
TOTAL AREA (ACRES) =			52696.7				

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 43198.14 Tc(MIN.) = 85.961
EFFECTIVE AREA(ACRES) = 36326.00 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 52696.7
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12800.00 = 111792.96 FEET.

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 52696.7 TC(MIN.) = 85.96
EFFECTIVE AREA(ACRES) = 36326.00 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.980
PEAK FLOW RATE(CFS) = 43198.14

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	27430.19	25.43	2.098	0.30 (0.28) 0.93	0.93	7322.8	50120.00
2	27786.39	26.58	2.046	0.30 (0.28) 0.93	0.93	7621.5	12603.00
3	27798.79	26.63	2.044	0.30 (0.28) 0.93	0.93	7638.9	50150.00
4	28771.01	30.32	1.883	0.30 (0.28) 0.94	0.94	8985.5	50100.00
5	28844.12	30.59	1.876	0.30 (0.28) 0.94	0.94	9082.2	600.00
6	32723.86	46.85	1.482	0.30 (0.29) 0.96	0.96	15206.8	40100.00
7	34877.33	54.19	1.369	0.30 (0.29) 0.96	0.96	18010.9	11801.00
8	37741.05	63.79	1.285	0.30 (0.29) 0.97	0.97	22307.7	11530.00
9	40053.11	72.43	1.227	0.30 (0.29) 0.97	0.97	27313.4	11910.00
10	42150.89	79.59	1.179	0.30 (0.29) 0.98	0.98	31895.0	11330.00
11	43198.14	85.96	1.136	0.30 (0.29) 0.98	0.98	36326.0	11130.00
12	43064.32	93.54	1.093	0.30 (0.29) 0.98	0.98	40320.0	12330.00
13	43000.17	96.14	1.081	0.30 (0.29) 0.98	0.98	41734.8	12410.00
14	42808.03	100.17	1.063	0.30 (0.29) 0.98	0.98	43663.1	12400.00
15	42255.98	108.82	1.023	0.30 (0.29) 0.98	0.98	47031.9	12201.00
16	41786.06	112.76	1.005	0.30 (0.29) 0.98	0.98	48116.6	12111.00
17	41481.04	115.14	0.994	0.30 (0.29) 0.98	0.98	48756.4	10700.00
18	41126.06	118.10	0.981	0.30 (0.29) 0.98	0.98	49486.1	12101.10
19	40587.55	122.09	0.967	0.30 (0.29) 0.98	0.98	50335.1	10400.00
20	39027.76	130.04	0.946	0.30 (0.29) 0.98	0.98	51650.3	12010.00
21	37718.57	135.84	0.931	0.30 (0.29) 0.98	0.98	51964.0	10210.00
22	37342.39	138.50	0.924	0.30 (0.29) 0.98	0.98	52074.9	12000.00
23	34251.34	161.70	0.864	0.30 (0.29) 0.98	0.98	52696.7	10100.00

END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Ver. 17.0 Release Date: 07/01/2010 License ID 1527

Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 129 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 100-YR EV JULY 2023 ROKAMOTO *

FILE NAME: RU00EV29.DAT
TIME/DATE OF STUDY: 13:52 07/05/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 6.007
- 2) 10.00; 3.854
- 3) 15.00; 2.975
- 4) 20.00; 2.446
- 5) 25.00; 2.115
- 6) 30.00; 1.889
- 7) 40.00; 1.633
- 8) 50.00; 1.411
- 9) 60.00; 1.307
- 10) 90.00; 1.106
- 11) 120.00; 0.970
- 12) 180.00; 0.813
- 13) 360.00; 0.605
- 14) 1200.00; 0.265

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: RU00EV28.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	27798.79	26.63	0.30 (0.28)	0.93	7638.9	50150.00
2	28844.12	30.59	0.30 (0.28)	0.94	9082.2	600.00
3	32723.86	46.85	0.30 (0.29)	0.96	15206.8	40100.00
4	34877.33	54.19	0.30 (0.29)	0.96	18010.9	11801.00
5	37741.05	63.79	0.30 (0.29)	0.97	22307.7	11530.00
6	40053.11	72.43	0.30 (0.29)	0.97	27313.4	11910.00
7	42150.89	79.59	0.30 (0.29)	0.98	31895.0	11330.00
8	43198.14	85.96	0.30 (0.29)	0.98	36326.0	11130.00
9	43064.32	93.54	0.30 (0.29)	0.98	40320.0	12330.00
10	43000.17	96.14	0.30 (0.29)	0.98	41734.8	12410.00
11	42808.03	100.17	0.30 (0.29)	0.98	43663.1	12400.00
12	42255.98	108.82	0.30 (0.29)	0.98	47031.9	12201.00
13	41786.06	112.76	0.30 (0.29)	0.98	48116.6	12111.00
14	41481.04	115.14	0.30 (0.29)	0.98	48756.4	10700.00
15	41126.06	118.10	0.30 (0.29)	0.98	49486.1	12101.10
16	40587.55	122.09	0.30 (0.29)	0.98	50335.1	10400.00
17	39027.76	130.04	0.30 (0.29)	0.98	51650.3	12010.00
18	37718.57	135.84	0.30 (0.29)	0.98	51964.0	10210.00
19	37342.39	138.50	0.30 (0.29)	0.98	52074.9	12000.00
20	34251.34	161.70	0.30 (0.29)	0.98	52696.7	10100.00
TOTAL AREA (ACRES) =						52696.7

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	27798.79	26.63	0.30 (0.28)	0.93	7638.9	50150.00
2	28844.12	30.59	0.30 (0.28)	0.94	9082.2	600.00
3	32723.86	46.85	0.30 (0.29)	0.96	15206.8	40100.00
4	34877.33	54.19	0.30 (0.29)	0.96	18010.9	11801.00
5	37741.05	63.79	0.30 (0.29)	0.97	22307.7	11530.00
6	40053.11	72.43	0.30 (0.29)	0.97	27313.4	11910.00
7	42150.89	79.59	0.30 (0.29)	0.98	31895.0	11330.00
8	43198.14	85.96	0.30 (0.29)	0.98	36326.0	11130.00
9	43064.32	93.54	0.30 (0.29)	0.98	40320.0	12330.00
10	43000.17	96.14	0.30 (0.29)	0.98	41734.8	12410.00
11	42808.03	100.17	0.30 (0.29)	0.98	43663.1	12400.00
12	42255.98	108.82	0.30 (0.29)	0.98	47031.9	12201.00
13	41786.06	112.76	0.30 (0.29)	0.98	48116.6	12111.00

14	41481.04	115.14	0.30	(0.29)	0.98	48756.4	10700.00
15	41126.06	118.10	0.30	(0.29)	0.98	49486.1	12101.10
16	40587.55	122.09	0.30	(0.29)	0.98	50335.1	10400.00
17	39027.76	130.04	0.30	(0.29)	0.98	51650.3	12010.00
18	37718.57	135.84	0.30	(0.29)	0.98	51964.0	10210.00
19	37342.39	138.50	0.30	(0.29)	0.98	52074.9	12000.00
20	34251.34	161.70	0.30	(0.29)	0.98	52696.7	10100.00
TOTAL AREA (ACRES) =			52696.7				

FLOW PROCESS FROM NODE 12800.00 TO NODE 12800.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 12800.00 TO NODE 12901.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 240.00 DOWNSTREAM (FEET) = 216.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 3120.28 CHANNEL SLOPE = 0.0077
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 9.84
 CHANNEL FLOW THRU SUBAREA (CFS) = 43198.14
 FLOW VELOCITY (FEET/SEC.) = 17.62 FLOW DEPTH (FEET) = 9.84
 TRAVEL TIME (MIN.) = 2.95 Tc (MIN.) = 88.91
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12901.00 = 114913.24 FEET.

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 88.91
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.113
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	14.30	0.30	0.100	56
PUBLIC PARK	B	9.40	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.397
 SUBAREA AREA (ACRES) = 23.70 SUBAREA RUNOFF (CFS) = 21.20
 EFFECTIVE AREA (ACRES) = 36349.70 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 52720.4 PEAK FLOW RATE (CFS) = 43198.14
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 88.91
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.113

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	0.20	0.30	0.100	56
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	B	0.40	0.30	0.500	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.50	0.30	0.900	56
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.60	0.30	1.000	65
COMMERCIAL	B	0.70	0.30	0.100	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.70	0.30	0.900	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.635
 SUBAREA AREA (ACRES) = 3.10 SUBAREA RUNOFF (CFS) = 2.57
 EFFECTIVE AREA (ACRES) = 36352.80 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 52723.5 PEAK FLOW RATE (CFS) = 43198.14
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 88.91
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.113
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
PUBLIC PARK	B	0.70	0.30	0.850	56
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	1.00	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.40	0.30	1.000	66
NATURAL FAIR COVER					
"GRASS"	B	1.50	0.30	1.000	69
COMMERCIAL	B	1.70	0.30	0.100	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.90	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.822
 SUBAREA AREA (ACRES) = 9.20 SUBAREA RUNOFF (CFS) = 7.18
 EFFECTIVE AREA (ACRES) = 36362.00 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA (ACRES) = 52732.7 PEAK FLOW RATE (CFS) = 43198.14
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 88.91
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.113
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
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LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
NATURAL FAIR COVER "WOODLAND, GRASS"	B	3.60	0.30	1.000	65
RESIDENTIAL "5-7 DWELLINGS/ACRE"	B	3.70	0.30	0.500	56
RESIDENTIAL "5-7 DWELLINGS/ACRE"	B	4.10	0.30	0.500	56
RESIDENTIAL ".4 DWELLING/ACRE"	B	5.40	0.30	0.900	56
NATURAL FAIR COVER "OPEN BRUSH"	B	6.70	0.30	1.000	66
NATURAL POOR COVER "BARREN"	B	12.00	0.30	1.000	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.875
SUBAREA AREA (ACRES) = 35.50 SUBAREA RUNOFF (CFS) = 27.18
EFFECTIVE AREA (ACRES) = 36397.50 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52768.2 PEAK FLOW RATE (CFS) = 43198.14
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12901.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 88.91
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.113
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "GRASS"	B	12.90	0.30	1.000	69
PUBLIC PARK	B	38.60	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.888
SUBAREA AREA (ACRES) = 51.50 SUBAREA RUNOFF (CFS) = 39.26
EFFECTIVE AREA (ACRES) = 36449.00 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52819.7 PEAK FLOW RATE (CFS) = 43198.14
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12901.00 TO NODE 12902.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 216.00 DOWNSTREAM (FEET) = 215.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 122.04 CHANNEL SLOPE = 0.0082
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 9.66
CHANNEL FLOW THRU SUBAREA (CFS) = 43198.14
FLOW VELOCITY (FEET/SEC.) = 18.00 FLOW DEPTH (FEET) = 9.66
TRAVEL TIME (MIN.) = 0.11 Tc (MIN.) = 89.03
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: E502XXCE.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	72.40	11.09	0.30 (0.27)	0.91	28.7	50200.00
TOTAL AREA (ACRES) =			28.7			

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	27798.79	30.17	1.885	0.30 (0.28)	0.92	7761.9	50150.00
2	28844.12	34.09	1.784	0.30 (0.28)	0.93	9205.2	600.00
3	32723.86	50.20	1.409	0.30 (0.29)	0.96	15329.8	40100.00
4	34877.33	57.47	1.333	0.30 (0.29)	0.96	18133.9	11801.00
5	37741.05	66.99	1.260	0.30 (0.29)	0.97	22430.7	11530.00
6	40053.11	75.57	1.203	0.30 (0.29)	0.97	27436.4	11910.00
7	42150.89	82.68	1.155	0.30 (0.29)	0.98	32018.0	11330.00
8	43198.14	89.03	1.113	0.30 (0.29)	0.98	36449.0	11130.00
9	43064.32	96.61	1.076	0.30 (0.29)	0.98	40443.0	12330.00
10	43000.17	99.21	1.064	0.30 (0.29)	0.98	41857.8	12410.00
11	42808.03	103.25	1.046	0.30 (0.29)	0.98	43786.1	12400.00
12	42255.98	111.91	1.007	0.30 (0.29)	0.98	47154.9	12201.00
13	41786.06	115.85	0.989	0.30 (0.29)	0.98	48239.6	12111.00
14	41481.04	118.24	0.978	0.30 (0.29)	0.98	48879.4	10700.00
15	41126.06	121.21	0.967	0.30 (0.29)	0.98	49609.1	12101.10
16	40587.55	125.22	0.956	0.30 (0.29)	0.98	50458.1	10400.00
17	39027.76	133.21	0.935	0.30 (0.29)	0.98	51773.3	12010.00
18	37718.57	139.04	0.920	0.30 (0.29)	0.98	52087.0	10210.00
19	37342.39	141.72	0.913	0.30 (0.29)	0.98	52197.9	12000.00
20	34251.34	165.00	0.852	0.30 (0.29)	0.98	52819.7	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	72.40	11.09	3.662	0.30 (0.27)	0.91	28.7	50200.00

LONGEST FLOWPATH FROM NODE 50200.00 TO NODE 12902.00 = 1426.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21592.49	11.09	3.662	0.30 (0.28)	0.92	2882.6	50200.00
2	27833.22	30.17	1.885	0.30 (0.28)	0.92	7790.6	50150.00
3	28876.41	34.09	1.784	0.30 (0.28)	0.93	9233.9	600.00
4	32748.13	50.20	1.409	0.30 (0.29)	0.96	15358.5	40100.00
5	34899.98	57.47	1.333	0.30 (0.29)	0.96	18162.6	11801.00
6	37762.14	66.99	1.260	0.30 (0.29)	0.97	22459.4	11530.00

7	40072.98	75.57	1.203	0.30	(0.29)	0.97	27465.1	11910.00
8	42169.73	82.68	1.155	0.30	(0.29)	0.98	32046.7	11330.00
9	43216.08	89.03	1.113	0.30	(0.29)	0.98	36477.7	11130.00
10	43081.47	96.61	1.076	0.30	(0.29)	0.98	40471.7	12330.00
11	43017.08	99.21	1.064	0.30	(0.29)	0.98	41886.5	12410.00
12	42824.54	103.25	1.046	0.30	(0.29)	0.98	43814.8	12400.00
13	42271.65	111.91	1.007	0.30	(0.29)	0.98	47183.6	12201.00
14	41801.36	115.85	0.989	0.30	(0.29)	0.98	48268.3	12111.00
15	41496.10	118.24	0.978	0.30	(0.29)	0.98	48908.1	10700.00
16	41140.89	121.21	0.967	0.30	(0.29)	0.98	49637.8	12101.10
17	40602.15	125.22	0.956	0.30	(0.29)	0.98	50486.8	10400.00
18	39041.91	133.21	0.935	0.30	(0.29)	0.98	51802.0	12010.00
19	37732.40	139.04	0.920	0.30	(0.29)	0.98	52115.7	10210.00
20	37356.07	141.72	0.913	0.30	(0.29)	0.98	52226.6	12000.00
21	34263.71	165.00	0.852	0.30	(0.29)	0.98	52848.4	10100.00

TOTAL AREA (ACRES) = 52848.4

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 43216.08 Tc (MIN.) = 89.026
EFFECTIVE AREA (ACRES) = 36477.70 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 52848.4
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<<

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<<

PEAK FLOWRATE TABLE FILE NAME: E503XXCE.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	552.75	24.39	0.30 (0.30)	0.99	366.4	50300.00
TOTAL AREA (ACRES) = 366.4						

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21592.49	11.09	3.662	0.30 (0.28)	0.92	2882.6	50200.00
2	27833.22	30.17	1.885	0.30 (0.28)	0.92	7790.6	50150.00
3	28876.41	34.09	1.784	0.30 (0.28)	0.93	9233.9	600.00
4	32748.13	50.20	1.409	0.30 (0.29)	0.96	15358.5	40100.00
5	34899.98	57.47	1.333	0.30 (0.29)	0.96	18162.6	11801.00
6	37762.14	66.99	1.260	0.30 (0.29)	0.97	22459.4	11530.00
7	40072.98	75.57	1.203	0.30 (0.29)	0.97	27465.1	11910.00

8	42169.73	82.68	1.155	0.30	(0.29)	0.98	32046.7	11330.00
9	43216.08	89.03	1.113	0.30	(0.29)	0.98	36477.7	11130.00
10	43081.47	96.61	1.076	0.30	(0.29)	0.98	40471.7	12330.00
11	43017.08	99.21	1.064	0.30	(0.29)	0.98	41886.5	12410.00
12	42824.54	103.25	1.046	0.30	(0.29)	0.98	43814.8	12400.00
13	42271.65	111.91	1.007	0.30	(0.29)	0.98	47183.6	12201.00
14	41801.36	115.85	0.989	0.30	(0.29)	0.98	48268.3	12111.00
15	41496.10	118.24	0.978	0.30	(0.29)	0.98	48908.1	10700.00
16	41140.89	121.21	0.967	0.30	(0.29)	0.98	49637.8	12101.10
17	40602.15	125.22	0.956	0.30	(0.29)	0.98	50486.8	10400.00
18	39041.91	133.21	0.935	0.30	(0.29)	0.98	51802.0	12010.00
19	37732.40	139.04	0.920	0.30	(0.29)	0.98	52115.7	10210.00
20	37356.07	141.72	0.913	0.30	(0.29)	0.98	52226.6	12000.00
21	34263.71	165.00	0.852	0.30	(0.29)	0.98	52848.4	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	552.75	24.39	2.155	0.30 (0.30)	0.99	366.4	50300.00

LONGEST FLOWPATH FROM NODE 50300.00 TO NODE 12902.00 = 8614.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22047.54	11.09	3.662	0.30 (0.28)	0.93	3049.3	50200.00
2	26494.43	24.39	2.155	0.30 (0.28)	0.93	6669.4	50300.00
3	28305.49	30.17	1.885	0.30 (0.28)	0.93	8157.0	50150.00
4	29318.90	34.09	1.784	0.30 (0.28)	0.94	9600.3	600.00
5	33079.03	50.20	1.409	0.30 (0.29)	0.96	15724.9	40100.00
6	35208.41	57.47	1.333	0.30 (0.29)	0.96	18529.0	11801.00
7	38048.83	66.99	1.260	0.30 (0.29)	0.97	22825.8	11530.00
8	40342.59	75.57	1.203	0.30 (0.29)	0.97	27831.5	11910.00
9	42425.19	82.68	1.155	0.30 (0.29)	0.98	32413.1	11330.00
10	43458.90	89.03	1.113	0.30 (0.29)	0.98	36844.1	11130.00
11	43313.45	96.61	1.076	0.30 (0.29)	0.98	40838.1	12330.00
12	43245.55	99.21	1.064	0.30 (0.29)	0.98	42252.9	12410.00
13	43047.57	103.25	1.046	0.30 (0.29)	0.98	44181.2	12400.00
14	42483.02	111.91	1.007	0.30 (0.29)	0.98	47550.0	12201.00
15	42007.40	115.85	0.989	0.30 (0.29)	0.98	48634.7	12111.00
16	41698.93	118.24	0.978	0.30 (0.29)	0.98	49274.5	10700.00
17	41340.41	121.21	0.967	0.30 (0.29)	0.98	50004.2	12101.10
18	40798.55	125.22	0.956	0.30 (0.29)	0.98	50853.2	10400.00
19	39232.11	133.21	0.935	0.30 (0.29)	0.98	52168.4	12010.00
20	37918.05	139.04	0.920	0.30 (0.29)	0.98	52482.1	10210.00
21	37539.64	141.72	0.913	0.30 (0.29)	0.98	52593.0	12000.00
22	34429.18	165.00	0.852	0.30 (0.29)	0.98	53214.8	10100.00

TOTAL AREA (ACRES) = 53214.8

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 43458.90 Tc (MIN.) = 89.026
EFFECTIVE AREA (ACRES) = 36844.09 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 53214.8
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12902.00 = 115035.28 FEET.

FLOW PROCESS FROM NODE 12902.00 TO NODE 12902.00 IS CODE = 12

```

-----
>>>>CLEAR MEMORY BANK # 1 <<<<<
=====
*****
FLOW PROCESS FROM NODE 12902.00 TO NODE 12903.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 215.00 DOWNSTREAM(FEET) = 214.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 895.53 CHANNEL SLOPE = 0.0011
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 16.83
CHANNEL FLOW THRU SUBAREA(CFS) = 43458.90
FLOW VELOCITY(FEET/SEC.) = 9.09 FLOW DEPTH(FEET) = 16.83
TRAVEL TIME(MIN.) = 1.64 Tc(MIN.) = 90.67
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12903.00 = 115930.81 FEET.
*****
FLOW PROCESS FROM NODE 12903.00 TO NODE 12903.00 IS CODE = 15.1
-----
>>>>DEFINE MEMORY BANK # 2 <<<<<
=====
PEAK FLOWRATE TABLE FILE NAME: E504XXCE.DNA
MEMORY BANK # 2 DEFINED AS FOLLOWS:
STREAM      Q      Tc      Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS) (MIN.) (INCH/HR)      (ACRES)      NODE
1          136.04  17.00  0.30( 0.29) 0.97      70.5    50400.00
TOTAL AREA(ACRES) = 70.5
*****
FLOW PROCESS FROM NODE 12903.00 TO NODE 12903.00 IS CODE = 11
-----
>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
=====
** MAIN STREAM CONFLUENCE DATA **
STREAM      Q      Tc      Intensity      Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS) (MIN.) (INCH/HR)      (INCH/HR)      (ACRES)      NODE
1          22047.54  13.12  3.306  0.30( 0.28) 0.93      3049.3    50200.00
2          26494.43  26.30  2.056  0.30( 0.28) 0.93      6669.4    50300.00
3          28305.49  32.04  1.837  0.30( 0.28) 0.93      8157.0    50150.00
4          29318.90  35.94  1.737  0.30( 0.28) 0.94      9600.3    600.00
5          33079.03  51.99  1.390  0.30( 0.29) 0.96      15724.9   40100.00
6          35208.41  59.22  1.315  0.30( 0.29) 0.96      18529.0   11801.00
7          38048.83  68.70  1.249  0.30( 0.29) 0.97      22825.8   11530.00
8          40342.59  77.25  1.191  0.30( 0.29) 0.97      27831.5   11910.00
9          42425.19  84.33  1.144  0.30( 0.29) 0.98      32413.1   11330.00
10         43458.90  90.67  1.103  0.30( 0.29) 0.98      36844.1   11130.00
11         43313.45  98.26  1.069  0.30( 0.29) 0.98      40838.1   12330.00
12         43245.55  100.85 1.057  0.30( 0.29) 0.98      42252.9   12410.00
13         43047.57  104.89 1.038  0.30( 0.29) 0.98      44181.2   12400.00
14         42483.02  113.56 0.999  0.30( 0.29) 0.98      47550.0   12201.00
15         42007.40  117.51 0.981  0.30( 0.29) 0.98      48634.7   12111.00
16         41698.93  119.90 0.970  0.30( 0.29) 0.98      49274.5   10700.00
17         41340.41  122.88 0.962  0.30( 0.29) 0.98      50004.2   12101.10

```

```

18         40798.55  126.89 0.952  0.30( 0.29) 0.98      50853.2   10400.00
19         39232.11  134.90 0.931  0.30( 0.29) 0.98      52168.4   12010.00
20         37918.05  140.75 0.916  0.30( 0.29) 0.98      52482.1   10210.00
21         37539.64  143.43 0.909  0.30( 0.29) 0.98      52593.0   12000.00
22         34429.18  166.77 0.848  0.30( 0.29) 0.98      53214.8   10100.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12903.00 = 115930.81 FEET.
** MEMORY BANK # 2 CONFLUENCE DATA **
STREAM      Q      Tc      Intensity      Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS) (MIN.) (INCH/HR)      (INCH/HR)      (ACRES)      NODE
1          136.04  17.00  2.763  0.30( 0.29) 0.97      70.5    50400.00
LONGEST FLOWPATH FROM NODE 50400.00 TO NODE 12903.00 = 3607.00 FEET.
** PEAK FLOW RATE TABLE **
STREAM      Q      Tc      Intensity      Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS) (MIN.) (INCH/HR)      (INCH/HR)      (ACRES)      NODE
1          22175.54  13.12  3.306  0.30( 0.28) 0.93      3103.7    50200.00
2          23492.90  17.00  2.763  0.30( 0.28) 0.93      4185.7    50400.00
3          26591.58  26.30  2.056  0.30( 0.28) 0.93      6739.9    50300.00
4          28390.56  32.04  1.837  0.30( 0.28) 0.93      8227.5    50150.00
5          29398.48  35.94  1.737  0.30( 0.28) 0.94      9670.8    600.00
6          33139.55  51.99  1.390  0.30( 0.29) 0.96      15795.4   40100.00
7          35264.79  59.22  1.315  0.30( 0.29) 0.96      18599.5   11801.00
8          38101.56  68.70  1.249  0.30( 0.29) 0.97      22896.3   11530.00
9          40392.17  77.25  1.191  0.30( 0.29) 0.97      27902.0   11910.00
10         42472.16  84.33  1.144  0.30( 0.29) 0.98      32483.6   11330.00
11         43503.62  90.67  1.103  0.30( 0.29) 0.98      36914.6   11130.00
12         43356.27  98.26  1.069  0.30( 0.29) 0.98      40908.6   12330.00
13         43287.73  100.85 1.057  0.30( 0.29) 0.98      42323.4   12410.00
14         43088.74  104.89 1.038  0.30( 0.29) 0.98      44251.7   12400.00
15         42522.03  113.56 0.999  0.30( 0.29) 0.98      47620.5   12201.00
16         42045.43  117.51 0.981  0.30( 0.29) 0.98      48705.2   12111.00
17         41736.35  119.90 0.970  0.30( 0.29) 0.98      49345.0   10700.00
18         41377.39  122.88 0.962  0.30( 0.29) 0.98      50074.7   12101.10
19         40834.96  126.89 0.952  0.30( 0.29) 0.98      50923.7   10400.00
20         39267.36  134.90 0.931  0.30( 0.29) 0.98      52238.9   12010.00
21         37952.46  140.75 0.916  0.30( 0.29) 0.98      52552.6   10210.00
22         37573.67  143.43 0.909  0.30( 0.29) 0.98      52663.5   12000.00
23         34459.85  166.77 0.848  0.30( 0.29) 0.98      53285.3   10100.00
TOTAL AREA(ACRES) = 53285.3
COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 43503.62 Tc(MIN.) = 90.668
EFFECTIVE AREA(ACRES) = 36914.59 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 53285.3
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12903.00 = 115930.81 FEET.
*****
FLOW PROCESS FROM NODE 12903.00 TO NODE 12903.00 IS CODE = 12
-----
>>>>CLEAR MEMORY BANK # 2 <<<<<
=====
*****
FLOW PROCESS FROM NODE 12903.00 TO NODE 12904.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

```

>>>>TRAVELTIME THRU SUBAREA<<<<

```

=====
ELEVATION DATA: UPSTREAM(FEET) = 214.00 DOWNSTREAM(FEET) = 213.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 767.57 CHANNEL SLOPE = 0.0013
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 16.15
CHANNEL FLOW THRU SUBAREA(CFS) = 43503.62
FLOW VELOCITY(FEET/SEC.) = 9.60 FLOW DEPTH(FEET) = 16.15
TRAVEL TIME(MIN.) = 1.33 Tc(MIN.) = 92.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12904.00 = 116698.38 FEET.

```

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<

```

=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 92.00
RAINFALL INTENSITY(INCH/HR) = 1.10
AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.98
EFFECTIVE STREAM AREA(ACRES) = 36914.59
TOTAL STREAM AREA(ACRES) = 53285.31
PEAK FLOW RATE(CFS) AT CONFLUENCE = 43503.62

```

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 7

>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<

```

=====
USER-SPECIFIED VALUES ARE AS FOLLOWS:
TC(MIN.) = 19.26 RAINFALL INTENSITY(INCH/HR) = 2.52
EFFECTIVE AREA(ACRES) = 46.30
TOTAL AREA(ACRES) = 213.70 PEAK FLOW RATE(CFS) = 88.40
AREA-AVERAGED Fm(INCH/HR) = 0.13 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.43
NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
CONFLUENCE ANALYSES.

```

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<

```

=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 19.26
RAINFALL INTENSITY(INCH/HR) = 2.52
AREA-AVERAGED Fm(INCH/HR) = 0.13
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.43
EFFECTIVE STREAM AREA(ACRES) = 46.30
TOTAL STREAM AREA(ACRES) = 213.70
PEAK FLOW RATE(CFS) AT CONFLUENCE = 88.40

```

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22175.54	14.76	3.017	0.30(0.28)	0.93	3103.7	50200.00
1	23492.90	18.61	2.593	0.30(0.28)	0.93	4185.7	50400.00
1	26591.58	27.85	1.986	0.30(0.28)	0.93	6739.9	50300.00
1	28390.56	33.56	1.798	0.30(0.28)	0.93	8227.5	50150.00
1	29398.48	37.44	1.698	0.30(0.28)	0.94	9670.8	600.00
1	33139.55	53.43	1.375	0.30(0.29)	0.96	15795.4	40100.00
1	35264.79	60.65	1.303	0.30(0.29)	0.96	18599.5	11801.00
1	38101.56	70.09	1.239	0.30(0.29)	0.97	22896.3	11530.00
1	40392.17	78.61	1.182	0.30(0.29)	0.97	27902.0	11910.00
1	42472.16	85.68	1.135	0.30(0.29)	0.98	32483.6	11330.00
1	43503.62	92.00	1.097	0.30(0.29)	0.98	36914.6	11130.00
1	43356.27	99.59	1.063	0.30(0.29)	0.98	40908.6	12330.00
1	43287.73	102.19	1.051	0.30(0.29)	0.98	42323.4	12410.00
1	43088.74	106.23	1.032	0.30(0.29)	0.98	44251.7	12400.00
1	42522.03	114.90	0.993	0.30(0.29)	0.98	47620.5	12201.00
1	42045.43	118.86	0.975	0.30(0.29)	0.98	48705.2	12111.00
1	41736.35	121.25	0.967	0.30(0.29)	0.98	49345.0	10700.00
1	41377.39	124.23	0.959	0.30(0.29)	0.98	50074.7	12101.10
1	40834.96	128.25	0.948	0.30(0.29)	0.98	50923.7	10400.00
1	39267.36	136.27	0.927	0.30(0.29)	0.98	52238.9	12010.00
1	37952.46	142.14	0.912	0.30(0.29)	0.98	52552.6	10210.00
1	37573.67	144.83	0.905	0.30(0.29)	0.98	52663.5	12000.00
1	34459.85	168.20	0.844	0.30(0.29)	0.98	53285.3	10100.00
2	88.40	19.26	2.524	0.30(0.13)	0.43	46.3	12904.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22257.23	14.76	3.017	0.30(0.28)	0.92	3139.2	50200.00
2	23580.77	18.61	2.593	0.30(0.28)	0.92	4230.4	50400.00
3	23797.99	19.26	2.524	0.30(0.28)	0.92	4410.6	12904.00
4	26660.11	27.85	1.986	0.30(0.28)	0.92	6786.2	50300.00
5	28452.15	33.56	1.798	0.30(0.28)	0.92	8273.8	50150.00
6	29456.40	37.44	1.698	0.30(0.28)	0.93	9717.1	600.00
7	33185.54	53.43	1.375	0.30(0.29)	0.96	15841.7	40100.00
8	35308.10	60.65	1.303	0.30(0.29)	0.96	18645.8	11801.00
9	38142.54	70.09	1.239	0.30(0.29)	0.97	22942.6	11530.00
10	40431.04	78.61	1.182	0.30(0.29)	0.97	27948.3	11910.00
11	42509.29	85.68	1.135	0.30(0.29)	0.98	32529.9	11330.00
12	43539.34	92.00	1.097	0.30(0.29)	0.98	36960.9	11130.00
13	43390.72	99.59	1.063	0.30(0.29)	0.98	40954.9	12330.00
14	43321.75	102.19	1.051	0.30(0.29)	0.98	42369.7	12410.00
15	43122.08	106.23	1.032	0.30(0.29)	0.98	44298.0	12400.00
16	42553.92	114.90	0.993	0.30(0.29)	0.98	47666.8	12201.00
17	42076.66	118.86	0.975	0.30(0.29)	0.98	48751.5	12111.00
18	41767.27	121.25	0.967	0.30(0.29)	0.98	49391.3	10700.00
19	41408.02	124.23	0.959	0.30(0.29)	0.98	50121.0	12101.10
20	40865.20	128.25	0.948	0.30(0.29)	0.98	50970.0	10400.00
21	39296.83	136.27	0.927	0.30(0.29)	0.98	52285.2	12010.00
22	37981.36	142.14	0.912	0.30(0.29)	0.98	52598.9	10210.00
23	37602.31	144.83	0.905	0.30(0.29)	0.98	52709.8	12000.00

24 34486.23 168.20 0.844 0.30(0.29) 0.98 53331.6 10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 43539.34 Tc(MIN.) = 92.00
EFFECTIVE AREA(ACRES) = 36960.89 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 53499.0
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 12904.00 = 116698.38 FEET.

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 92.00
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.097

SUBAREA LOSS RATE DATA(AMC II):

Table with 6 columns: DEVELOPMENT TYPE/LAND USE, SCS SOIL GROUP, AREA (ACRES), Fp (INCH/HR), Ap (DECIMAL), SCS CN. Rows include RESIDENTIAL, COMMERCIAL, and GRASS with various values.

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.641
SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 5.54
EFFECTIVE AREA(ACRES) = 36967.70 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 53505.8 PEAK FLOW RATE(CFS) = 43539.34
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 92.00
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.097

SUBAREA LOSS RATE DATA(AMC II):

Table with 6 columns: DEVELOPMENT TYPE/LAND USE, SCS SOIL GROUP, AREA (ACRES), Fp (INCH/HR), Ap (DECIMAL), SCS CN. Rows include GRASS, PUBLIC PARK, and GRASS with various values.

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.941
SUBAREA AREA(ACRES) = 38.70 SUBAREA RUNOFF(CFS) = 28.37
EFFECTIVE AREA(ACRES) = 37006.39 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA(ACRES) = 53544.5 PEAK FLOW RATE(CFS) = 43539.34

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 53544.5 Tc(MIN.) = 92.00
EFFECTIVE AREA(ACRES) = 37006.39 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.979
PEAK FLOW RATE(CFS) = 43539.34

** PEAK FLOW RATE TABLE **

Table with 8 columns: STREAM NUMBER, Q (CFS), Tc (MIN.), Intensity (INCH/HR), Fp(Fm) (INCH/HR), Ap, Ae (ACRES), HEADWATER NODE. Contains 24 rows of data.

END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 133 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 100-YR EV JULY 2023 ROKAMOTO *

FILE NAME: RU00EV33.DAT
TIME/DATE OF STUDY: 09:55 07/06/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 5.876
- 2) 10.00; 3.789
- 3) 15.00; 2.933
- 4) 20.00; 2.419
- 5) 25.00; 2.096
- 6) 30.00; 1.873
- 7) 40.00; 1.617
- 8) 50.00; 1.400
- 9) 60.00; 1.290
- 10) 90.00; 1.088
- 11) 120.00; 0.951
- 12) 180.00; 0.795
- 13) 360.00; 0.588
- 14) 1200.00; 0.256

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13222.00 TO NODE 13222.00 IS CODE = 7

>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<

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USER-SPECIFIED VALUES ARE AS FOLLOWS:
TC(MIN.) = 59.66 RAINFALL INTENSITY(INCH/HR) = 1.29
EFFECTIVE AREA(ACRES) = 2982.70
TOTAL AREA(ACRES) = 4924.40 PEAK FLOW RATE(CFS) = 2529.80
AREA-AVERAGED Fm(INCH/HR) = 0.25 AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.82
NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
CONFLUENCE ANALYSES.

FLOW PROCESS FROM NODE 13222.00 TO NODE 13301.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 427.51 DOWNSTREAM(FEET) = 382.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 2533.33 CHANNEL SLOPE = 0.0180
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 3.84
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.266
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	1.40	0.30	0.100	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	15.60	0.30	1.000	66
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	B	0.10	0.30	0.600	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	5.30	0.30	1.000	79
NATURAL POOR COVER					
"BARREN"	B	0.20	0.30	1.000	86
COMMERCIAL	B	22.60	0.30	0.100	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.521
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2552.37
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.78
AVERAGE FLOW DEPTH(FEET) = 3.85 TRAVEL TIME(MIN.) = 3.92
Tc(MIN.) = 63.58
SUBAREA AREA(ACRES) = 45.20 SUBAREA RUNOFF(CFS) = 45.14
EFFECTIVE AREA(ACRES) = 3027.90 AREA-AVERAGED Fm(INCH/HR) = 0.24
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.82
TOTAL AREA(ACRES) = 4969.6 PEAK FLOW RATE(CFS) = 2783.01
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 4.04

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 4.04 FLOW VELOCITY(FEET/SEC.) = 11.09
 LONGEST FLOWPATH FROM NODE 13222.00 TO NODE 13301.00 = 2533.33 FEET.

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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MAINLINE Tc(MIN.) = 63.58
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.266
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	1.00	0.30	1.000	79
NATURAL POOR COVER					
"BARREN"	B	0.50	0.30	1.000	86
COMMERCIAL	B	7.40	0.30	0.100	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	4.70	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	2.90	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.596
 SUBAREA AREA(ACRES) = 16.50 SUBAREA RUNOFF(CFS) = 16.14
 EFFECTIVE AREA(ACRES) = 3044.40 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.81
 TOTAL AREA(ACRES) = 4986.1 PEAK FLOW RATE(CFS) = 2799.16

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 63.58
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.266
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	1.30	0.30	1.000	86
COMMERCIAL	B	0.20	0.30	0.100	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	5.30	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.30	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.20	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.60	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.977
 SUBAREA AREA(ACRES) = 7.90 SUBAREA RUNOFF(CFS) = 6.92
 EFFECTIVE AREA(ACRES) = 3052.30 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.81
 TOTAL AREA(ACRES) = 4994.0 PEAK FLOW RATE(CFS) = 2806.07

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 63.58
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.266
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	4.30	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.80	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	1.10	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	6.90	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	7.90	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	1.00	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 22.00 SUBAREA RUNOFF(CFS) = 19.13
 EFFECTIVE AREA(ACRES) = 3074.30 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.82
 TOTAL AREA(ACRES) = 5016.0 PEAK FLOW RATE(CFS) = 2825.20

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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MAINLINE Tc(MIN.) = 63.58
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.266
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.40	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	14.60	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 15.00 SUBAREA RUNOFF(CFS) = 13.04
 EFFECTIVE AREA(ACRES) = 3089.30 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.82
 TOTAL AREA(ACRES) = 5031.0 PEAK FLOW RATE(CFS) = 2838.24

 FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<

 FLOW PROCESS FROM NODE 31100.00 TO NODE 31101.00 IS CODE = 21

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>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
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INITIAL SUBAREA FLOW-LENGTH (FEET) = 317.00
ELEVATION DATA: UPSTREAM (FEET) = 801.00 DOWNSTREAM (FEET) = 685.00

Tc = K * [(LENGTH** 3.00) / (ELEVATION CHANGE)] ** 0.20
SUBAREA ANALYSIS USED MINIMUM Tc (MIN.) = 8.641
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.356
SUBAREA Tc AND LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" B 0.50 0.30 1.000 63 8.64
NATURAL FAIR COVER
"OPEN BRUSH" B 0.30 0.30 1.000 66 8.64
NATURAL FAIR COVER
"OPEN BRUSH" B 0.30 0.30 1.000 66 8.64
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF (CFS) = 4.02
TOTAL AREA (ACRES) = 1.10 PEAK FLOW RATE (CFS) = 4.02

FLOW PROCESS FROM NODE 31101.00 TO NODE 31102.00 IS CODE = 51
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
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ELEVATION DATA: UPSTREAM (FEET) = 685.00 DOWNSTREAM (FEET) = 655.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 135.00 CHANNEL SLOPE = 0.2222
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.224
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" B 0.50 0.30 1.000 63
NATURAL FAIR COVER
"OPEN BRUSH" B 0.10 0.30 1.000 66
NATURAL FAIR COVER
"OPEN BRUSH" B 0.70 0.30 1.000 66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 6.31
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.10
AVERAGE FLOW DEPTH (FEET) = 0.54 TRAVEL TIME (MIN.) = 0.32
Tc (MIN.) = 8.96
SUBAREA AREA (ACRES) = 1.30 SUBAREA RUNOFF (CFS) = 4.59
EFFECTIVE AREA (ACRES) = 2.40 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 2.4 PEAK FLOW RATE (CFS) = 8.48

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.61 FLOW VELOCITY (FEET/SEC.) = 7.66
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31102.00 = 452.00 FEET.

FLOW PROCESS FROM NODE 31102.00 TO NODE 31103.00 IS CODE = 51
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
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ELEVATION DATA: UPSTREAM (FEET) = 655.00 DOWNSTREAM (FEET) = 630.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 203.00 CHANNEL SLOPE = 0.1232
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.030 MAXIMUM DEPTH (FEET) = 10.00
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.054
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" B 0.30 0.30 1.000 63
NATURAL FAIR COVER
"OPEN BRUSH" B 0.10 0.30 1.000 66
NATURAL FAIR COVER
"OPEN BRUSH" B 1.90 0.30 1.000 66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 12.36
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.30
AVERAGE FLOW DEPTH (FEET) = 0.70 TRAVEL TIME (MIN.) = 0.41
Tc (MIN.) = 9.37
SUBAREA AREA (ACRES) = 2.30 SUBAREA RUNOFF (CFS) = 7.77
EFFECTIVE AREA (ACRES) = 4.70 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 4.7 PEAK FLOW RATE (CFS) = 15.88

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.77 FLOW VELOCITY (FEET/SEC.) = 8.85
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31103.00 = 655.00 FEET.

FLOW PROCESS FROM NODE 31103.00 TO NODE 31104.00 IS CODE = 51
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
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ELEVATION DATA: UPSTREAM (FEET) = 630.00 DOWNSTREAM (FEET) = 605.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 321.00 CHANNEL SLOPE = 0.0779
CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.757
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH" B 1.10 0.30 1.000 66
NATURAL FAIR COVER
"OPEN BRUSH" B 2.50 0.30 1.000 66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 21.48
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.52

AVERAGE FLOW DEPTH(FEET) = 1.05 TRAVEL TIME(MIN.) = 0.82
Tc(MIN.) = 10.19
SUBAREA AREA(ACRES) = 3.60 SUBAREA RUNOFF(CFS) = 11.20
EFFECTIVE AREA(ACRES) = 8.30 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 8.3 PEAK FLOW RATE(CFS) = 25.82

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.12 FLOW VELOCITY(FEET/SEC.) = 6.81
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31104.00 = 976.00 FEET.

FLOW PROCESS FROM NODE 31104.00 TO NODE 31105.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 605.00 DOWNSTREAM(FEET) = 585.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 288.00 CHANNEL SLOPE = 0.0694
CHANNEL BASE(FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.641

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.70	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.60	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.00	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.10	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 35.45
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 7.08
AVERAGE FLOW DEPTH(FEET) = 1.29 TRAVEL TIME(MIN.) = 0.68
Tc(MIN.) = 10.86
SUBAREA AREA(ACRES) = 6.40 SUBAREA RUNOFF(CFS) = 19.24
EFFECTIVE AREA(ACRES) = 14.70 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 14.7 PEAK FLOW RATE(CFS) = 44.20

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.41 FLOW VELOCITY(FEET/SEC.) = 7.45
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31105.00 = 1264.00 FEET.

FLOW PROCESS FROM NODE 31105.00 TO NODE 31106.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 585.00 DOWNSTREAM(FEET) = 560.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 344.00 CHANNEL SLOPE = 0.0727
CHANNEL BASE(FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.521

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.60	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	2.80	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.60	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.10	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.60	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	4.10	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 59.86
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 8.19
AVERAGE FLOW DEPTH(FEET) = 1.56 TRAVEL TIME(MIN.) = 0.70
Tc(MIN.) = 11.57
SUBAREA AREA(ACRES) = 10.80 SUBAREA RUNOFF(CFS) = 31.31
EFFECTIVE AREA(ACRES) = 25.50 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 25.5 PEAK FLOW RATE(CFS) = 73.92

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.69 FLOW VELOCITY(FEET/SEC.) = 8.64
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31106.00 = 1608.00 FEET.

FLOW PROCESS FROM NODE 31106.00 TO NODE 31107.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 560.00 DOWNSTREAM(FEET) = 530.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 619.00 CHANNEL SLOPE = 0.0485
CHANNEL BASE(FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 10.00
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.297

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.80	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	1.90	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.50	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	8.20	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.70	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 94.29

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.89
 AVERAGE FLOW DEPTH (FEET) = 2.00 TRAVEL TIME (MIN.) = 1.31
 Tc (MIN.) = 12.87
 SUBAREA AREA (ACRES) = 15.10 SUBAREA RUNOFF (CFS) = 40.73
 EFFECTIVE AREA (ACRES) = 40.60 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 40.6 PEAK FLOW RATE (CFS) = 109.52

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 2.11 FLOW VELOCITY (FEET/SEC.) = 8.20
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31107.00 = 2227.00 FEET.

 FLOW PROCESS FROM NODE 31107.00 TO NODE 31108.00 IS CODE = 51

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 530.00 DOWNSTREAM (FEET) = 515.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 377.00 CHANNEL SLOPE = 0.0398
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.163

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	0.50	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	6.50	0.30	1.000	63
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	1.30	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.10	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	5.50	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.40	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 133.09
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.00
 AVERAGE FLOW DEPTH (FEET) = 2.35 TRAVEL TIME (MIN.) = 0.79
 Tc (MIN.) = 13.66
 SUBAREA AREA (ACRES) = 18.30 SUBAREA RUNOFF (CFS) = 47.15
 EFFECTIVE AREA (ACRES) = 58.90 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 58.9 PEAK FLOW RATE (CFS) = 151.75

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 2.48 FLOW VELOCITY (FEET/SEC.) = 8.25
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31108.00 = 2604.00 FEET.

 FLOW PROCESS FROM NODE 31108.00 TO NODE 31109.00 IS CODE = 51

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 515.00 DOWNSTREAM (FEET) = 490.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 520.00 CHANNEL SLOPE = 0.0481
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.000

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	0.70	0.30	1.000	63
NATURAL FAIR COVER					
"GRASS"	B	2.20	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.10	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.90	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	7.40	0.30	1.000	63
NATURAL FAIR COVER					
"GRASS"	B	0.30	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 169.49
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 9.10
 AVERAGE FLOW DEPTH (FEET) = 2.49 TRAVEL TIME (MIN.) = 0.95
 Tc (MIN.) = 14.61
 SUBAREA AREA (ACRES) = 14.60 SUBAREA RUNOFF (CFS) = 35.47
 EFFECTIVE AREA (ACRES) = 73.50 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 73.5 PEAK FLOW RATE (CFS) = 178.58

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 2.54 FLOW VELOCITY (FEET/SEC.) = 9.24
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31109.00 = 3124.00 FEET.

 FLOW PROCESS FROM NODE 31109.00 TO NODE 31109.00 IS CODE = 81

 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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MAINLINE Tc (MIN.) = 14.61
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.000
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	11.40	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	8.90	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	1.90	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	9.20	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	1.40	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA (ACRES) = 32.80 SUBAREA RUNOFF (CFS) = 79.69
 EFFECTIVE AREA (ACRES) = 106.30 AREA-AVERAGED Fm (INCH/HR) = 0.30
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 106.3 PEAK FLOW RATE (CFS) = 258.28

FLOW PROCESS FROM NODE 31109.00 TO NODE 31110.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<

ELEVATION DATA: UPSTREAM (FEET) = 490.00 DOWNSTREAM (FEET) = 432.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1420.00 CHANNEL SLOPE = 0.0408
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.720

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	0.80	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.60	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.10	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	1.30	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	4.00	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	B	1.50	0.30	1.000	63
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30					
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.999					
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 267.32					
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 9.60					
AVERAGE FLOW DEPTH (FEET) = 3.05 TRAVEL TIME (MIN.) = 2.47					
Tc (MIN.) = 17.08					
SUBAREA AREA (ACRES) = 8.30 SUBAREA RUNOFF (CFS) = 18.08					
EFFECTIVE AREA (ACRES) = 114.60 AREA-AVERAGED Fm (INCH/HR) = 0.30					
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00					
TOTAL AREA (ACRES) = 114.6 PEAK FLOW RATE (CFS) = 258.28					
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE					

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 3.01 FLOW VELOCITY (FEET/SEC.) = 9.51
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 31110.00 = 4544.00 FEET.

FLOW PROCESS FROM NODE 31110.00 TO NODE 31110.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 17.08
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.720

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
"GRASS"	B	0.30	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	9.60	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.40	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	6.20	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	3.90	0.30	1.000	65
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	1.40	0.30	1.000	79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30					
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.998					
SUBAREA AREA (ACRES) = 21.80 SUBAREA RUNOFF (CFS) = 47.48					
EFFECTIVE AREA (ACRES) = 136.40 AREA-AVERAGED Fm (INCH/HR) = 0.30					
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00					
TOTAL AREA (ACRES) = 136.4 PEAK FLOW RATE (CFS) = 297.03					

FLOW PROCESS FROM NODE 31110.00 TO NODE 13301.00 IS CODE = 51

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<

ELEVATION DATA: UPSTREAM (FEET) = 432.00 DOWNSTREAM (FEET) = 382.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1847.00 CHANNEL SLOPE = 0.0271
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 10.00
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.375

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	4.90	0.30	1.000	86
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	1.50	0.30	1.000	79
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.60	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	2.50	0.30	1.000	79
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	5.30	0.30	1.000	79
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	3.30	0.30	1.000	79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30					
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.997					
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 313.95					
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.56					
AVERAGE FLOW DEPTH (FEET) = 3.50 TRAVEL TIME (MIN.) = 3.60					
Tc (MIN.) = 20.67					
SUBAREA AREA (ACRES) = 18.10 SUBAREA RUNOFF (CFS) = 33.83					
EFFECTIVE AREA (ACRES) = 154.50 AREA-AVERAGED Fm (INCH/HR) = 0.30					
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00					
TOTAL AREA (ACRES) = 154.5 PEAK FLOW RATE (CFS) = 297.03					
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE					

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 3.42 FLOW VELOCITY (FEET/SEC.) = 8.45

LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13301.00 = 6391.00 FEET.

FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	297.03	20.67	2.375	0.30 (0.30)	1.00	154.5	31100.00

LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13301.00 = 6391.00 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2838.24	63.58	1.266	0.30 (0.25)	0.82	3089.3	13222.00

LONGEST FLOWPATH FROM NODE 13222.00 TO NODE 13301.00 = 2533.33 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2223.12	20.67	2.375	0.30 (0.25)	0.84	1159.1	31100.00
2	2976.49	63.58	1.266	0.30 (0.25)	0.83	3243.8	13222.00

TOTAL AREA (ACRES) = 5185.5

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 2976.49 Tc(MIN.) = 63.578
EFFECTIVE AREA(ACRES) = 3243.80 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
TOTAL AREA(ACRES) = 5185.5
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13301.00 = 6391.00 FEET.

FLOW PROCESS FROM NODE 13301.00 TO NODE 13301.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 13301.00 TO NODE 13302.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 382.00 DOWNSTREAM(FEET) = 375.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1141.09 CHANNEL SLOPE = 0.0061
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 5.67
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.250
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	1.20	0.30	1.000	86
AGRICULTURAL POOR COVER					

"ROW CROPS,STRAIGHT ROW"	B	0.60	0.30	1.000	81
NATURAL POOR COVER "BARREN"	B	0.90	0.30	1.000	86
NATURAL FAIR COVER "OPEN BRUSH"	B	4.80	0.30	1.000	66
AGRICULTURAL POOR COVER "ROW CROPS,STRAIGHT ROW"	B	1.90	0.30	1.000	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2980.51
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 7.84
AVERAGE FLOW DEPTH(FEET) = 5.67 TRAVEL TIME(MIN.) = 2.43
Tc(MIN.) = 66.00
SUBAREA AREA(ACRES) = 9.40 SUBAREA RUNOFF(CFS) = 8.03
EFFECTIVE AREA(ACRES) = 3253.20 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
TOTAL AREA(ACRES) = 5194.9 PEAK FLOW RATE(CFS) = 2976.49
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 5.67

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 5.67 FLOW VELOCITY(FEET/SEC.) = 7.84
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13302.00 = 7532.09 FEET.

FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 66.00
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.250
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	13.80	0.30	1.000	86
NATURAL POOR COVER "BARREN"	B	2.60	0.30	1.000	86
COMMERCIAL RESIDENTIAL	B	1.10	0.30	0.100	56
".4 DWELLING/ACRE"	B	3.50	0.30	0.900	56
AGRICULTURAL POOR COVER "ROW CROPS,CONTOURED"	B	6.90	0.30	1.000	79
NATURAL POOR COVER "BARREN"	B	0.20	0.30	1.000	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.952
SUBAREA AREA(ACRES) = 28.10 SUBAREA RUNOFF(CFS) = 24.38
EFFECTIVE AREA(ACRES) = 3281.30 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
TOTAL AREA(ACRES) = 5223.0 PEAK FLOW RATE(CFS) = 2976.49
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 66.00
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.250

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	0.10	0.30	1.000	79
COMMERCIAL	B	0.10	0.30	0.100	56
RESIDENTIAL					
".4 DWELLING/ACRE"	B	2.40	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	0.50	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.894
 SUBAREA AREA(ACRES) = 3.10 SUBAREA RUNOFF(CFS) = 2.74
 EFFECTIVE AREA(ACRES) = 3284.40 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
 TOTAL AREA(ACRES) = 5226.1 PEAK FLOW RATE(CFS) = 2976.49

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 66.00
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.250

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	0.10	0.30	1.000	86
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.60	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	3.10	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.40	0.30	1.000	65
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	0.20	0.30	1.000	63
NATURAL FAIR COVER					
"OPEN BRUSH"	B	13.80	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 20.20 SUBAREA RUNOFF(CFS) = 17.26
 EFFECTIVE AREA(ACRES) = 3304.60 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
 TOTAL AREA(ACRES) = 5246.3 PEAK FLOW RATE(CFS) = 2977.32

FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 66.00
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.250

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	34.60	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	2.40	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	22.60	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	11.60	0.30	1.000	79
APARTMENTS	B	0.40	0.30	0.200	56
NATURAL FAIR COVER					
"CHAPARRAL,BROADLEAF"	B	4.80	0.30	1.000	63

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.996
 SUBAREA AREA(ACRES) = 76.40 SUBAREA RUNOFF(CFS) = 65.38
 EFFECTIVE AREA(ACRES) = 3381.00 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.83
 TOTAL AREA(ACRES) = 5322.7 PEAK FLOW RATE(CFS) = 3042.69

FLOW PROCESS FROM NODE 13302.00 TO NODE 13302.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

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MAINLINE Tc(MIN.) = 66.00
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.250

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"GRASS"	B	1.60	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	46.40	0.30	1.000	66
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	B	0.10	0.30	0.200	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	60.70	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	5.80	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.999
 SUBAREA AREA(ACRES) = 114.60 SUBAREA RUNOFF(CFS) = 97.96
 EFFECTIVE AREA(ACRES) = 3495.60 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5437.3 PEAK FLOW RATE(CFS) = 3140.66

FLOW PROCESS FROM NODE 13302.00 TO NODE 13303.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 375.00 DOWNSTREAM(FEET) = 355.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 2193.96 CHANNEL SLOPE = 0.0091
 GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT (FEET) = 5.23
CHANNEL FLOW THRU SUBAREA (CFS) = 3140.66
FLOW VELOCITY (FEET/SEC.) = 9.14 FLOW DEPTH (FEET) = 5.23
TRAVEL TIME (MIN.) = 4.00 Tc (MIN.) = 70.00
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13303.00 = 9726.05 FEET.

FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc (MIN.) = 70.00
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.223
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	0.20	0.30	1.000	86
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.40	0.30	1.000	65
NATURAL POOR COVER "BARREN"	B	0.80	0.30	1.000	86
COMMERCIAL	B	1.40	0.30	0.100	56
NATURAL FAIR COVER "GRASS"	B	2.60	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	2.20	0.30	1.000	66

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.834
SUBAREA AREA (ACRES) = 7.60 SUBAREA RUNOFF (CFS) = 6.65
EFFECTIVE AREA (ACRES) = 3503.20 AREA-AVERAGED Fm (INCH/HR) = 0.25
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA (ACRES) = 5444.9 PEAK FLOW RATE (CFS) = 3140.66
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc (MIN.) = 70.00
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.223
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	3.10	0.30	1.000	79
NATURAL FAIR COVER "WOODLAND, GRASS"	B	3.40	0.30	1.000	65
NATURAL POOR COVER "BARREN"	B	0.50	0.30	1.000	86
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	B	0.20	0.30	1.000	63
COMMERCIAL	B	3.60	0.30	0.100	56
NATURAL FAIR COVER "GRASS"	B	4.00	0.30	1.000	69

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.781

SUBAREA AREA (ACRES) = 14.80 SUBAREA RUNOFF (CFS) = 13.16
EFFECTIVE AREA (ACRES) = 3518.00 AREA-AVERAGED Fm (INCH/HR) = 0.25
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA (ACRES) = 5459.7 PEAK FLOW RATE (CFS) = 3140.66
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc (MIN.) = 70.00
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.223
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	14.60	0.30	1.000	66
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	6.30	0.30	1.000	79
NATURAL FAIR COVER "WOODLAND, GRASS"	B	3.70	0.30	1.000	65

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 24.60 SUBAREA RUNOFF (CFS) = 20.43
EFFECTIVE AREA (ACRES) = 3542.60 AREA-AVERAGED Fm (INCH/HR) = 0.25
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA (ACRES) = 5484.3 PEAK FLOW RATE (CFS) = 3140.66
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc (MIN.) = 70.00
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.223
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	0.50	0.30	1.000	86
COMMERCIAL	B	0.30	0.30	0.100	56
NATURAL FAIR COVER "OPEN BRUSH"	B	0.20	0.30	1.000	66
RESIDENTIAL ".4 DWELLING/ACRE"	B	0.80	0.30	0.900	56
AGRICULTURAL POOR COVER "ROW CROPS, CONTOURED"	B	1.60	0.30	1.000	79
NATURAL POOR COVER "BARREN"	B	31.90	0.30	1.000	86

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.990
SUBAREA AREA (ACRES) = 35.30 SUBAREA RUNOFF (CFS) = 29.41
EFFECTIVE AREA (ACRES) = 3577.90 AREA-AVERAGED Fm (INCH/HR) = 0.25
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA (ACRES) = 5519.6 PEAK FLOW RATE (CFS) = 3140.66
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 70.00
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.223
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	1.70	0.30	0.100	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.30	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	2.60	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	5.50	0.30	1.000	79
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.20	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.20	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.830
 SUBAREA AREA(ACRES) = 10.50 SUBAREA RUNOFF(CFS) = 9.20
 EFFECTIVE AREA(ACRES) = 3588.40 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5530.1 PEAK FLOW RATE(CFS) = 3140.66
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13303.00 TO NODE 13303.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 70.00
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.223
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
".4 DWELLING/ACRE"	B	1.30	0.30	0.900	56
NATURAL POOR COVER					
"BARREN"	B	0.30	0.30	1.000	86
COMMERCIAL	B	0.20	0.30	0.100	56
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.30	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	6.50	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS,CONTOURED"	B	3.00	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.917
 SUBAREA AREA(ACRES) = 11.60 SUBAREA RUNOFF(CFS) = 9.89
 EFFECTIVE AREA(ACRES) = 3600.00 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5541.7 PEAK FLOW RATE(CFS) = 3144.65

FLOW PROCESS FROM NODE 13303.00 TO NODE 13304.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 355.00 DOWNSTREAM(FEET) = 350.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 925.40 CHANNEL SLOPE = 0.0054
 GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 6.05
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.209
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	0.20	0.30	1.000	86
AGRICULTURAL POOR COVER					
"ROW CROPS,STRAIGHT ROW"	B	0.50	0.30	1.000	81
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	1.10	0.30	1.000	65
NATURAL POOR COVER					
"BARREN"	B	0.30	0.30	1.000	86
NATURAL FAIR COVER					
"GRASS"	B	1.10	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	3.50	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 3147.39
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 7.63
 AVERAGE FLOW DEPTH(FEET) = 6.05 TRAVEL TIME(MIN.) = 2.02
 Tc(MIN.) = 72.03
 SUBAREA AREA(ACRES) = 6.70 SUBAREA RUNOFF(CFS) = 5.48
 EFFECTIVE AREA(ACRES) = 3606.70 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5548.4 PEAK FLOW RATE(CFS) = 3144.65
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 6.05

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 6.05 FLOW VELOCITY(FEET/SEC.) = 7.63
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13304.00 = 10651.45 FEET.

FLOW PROCESS FROM NODE 13304.00 TO NODE 13304.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 72.03
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.209
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,STRAIGHT ROW"	B	1.40	0.30	1.000	81

NATURAL FAIR COVER
 "OPEN BRUSH" B 4.80 0.30 1.000 66
 AGRICULTURAL POOR COVER
 "ROW CROPS, STRAIGHT ROW" B 0.90 0.30 1.000 81
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 7.10 SUBAREA RUNOFF(CFS) = 5.81
 EFFECTIVE AREA(ACRES) = 3613.80 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5555.5 PEAK FLOW RATE(CFS) = 3144.65
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13304.00 TO NODE 13304.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 72.03
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.209
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	7.80	0.30	1.000	86
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	1.70	0.30	1.000	79
NATURAL POOR COVER					
"BARREN"	B	9.40	0.30	1.000	86
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.20	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.10	0.30	0.900	56
AGRICULTURAL POOR COVER					
"ROW CROPS, CONTOURED"	B	2.60	0.30	1.000	79

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 22.80 SUBAREA RUNOFF(CFS) = 18.66
 EFFECTIVE AREA(ACRES) = 3636.60 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5578.3 PEAK FLOW RATE(CFS) = 3144.65
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13304.00 TO NODE 13304.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 72.03
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.209
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.20	0.30	1.000	65
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.30	0.30	1.000	66
RESIDENTIAL					
".4 DWELLING/ACRE"	B	0.20	0.30	0.900	56

AGRICULTURAL POOR COVER
 "ROW CROPS, CONTOURED" B 2.70 0.30 1.000 79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.994
 SUBAREA AREA(ACRES) = 3.40 SUBAREA RUNOFF(CFS) = 2.79
 EFFECTIVE AREA(ACRES) = 3640.00 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5581.7 PEAK FLOW RATE(CFS) = 3144.65
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13304.00 TO NODE 13305.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 350.00 DOWNSTREAM(FEET) = 315.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 2966.27 CHANNEL SLOPE = 0.0118
 GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 4.87
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.176
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER					
"BARREN"	B	1.70	0.30	1.000	86
NATURAL FAIR COVER					
"GRASS"	B	0.60	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	0.10	0.30	1.000	66
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.40	0.30	1.000	65
NATURAL POOR COVER					
"BARREN"	B	2.20	0.30	1.000	86
NATURAL FAIR COVER					
"GRASS"	B	4.20	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 3148.27
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.00
 AVERAGE FLOW DEPTH(FEET) = 4.87 TRAVEL TIME(MIN.) = 4.94
 Tc(MIN.) = 76.97
 SUBAREA AREA(ACRES) = 9.20 SUBAREA RUNOFF(CFS) = 7.25
 EFFECTIVE AREA(ACRES) = 3649.20 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 5590.9 PEAK FLOW RATE(CFS) = 3144.65
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 4.87

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 4.87 FLOW VELOCITY(FEET/SEC.) = 9.99
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13305.00 = 13617.72 FEET.

 FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 76.97
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.176
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	8.10	0.30	1.000	66
NATURAL FAIR COVER "WOODLAND,GRASS"	B	2.30	0.30	1.000	65
NATURAL FAIR COVER "GRASS"	B	0.20	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	6.90	0.30	1.000	66
NATURAL FAIR COVER "WOODLAND,GRASS"	B	0.70	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 18.20 SUBAREA RUNOFF(CFS) = 14.34
EFFECTIVE AREA(ACRES) = 3667.40 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA(ACRES) = 5609.1 PEAK FLOW RATE(CFS) = 3144.65
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 76.97
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.176
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	18.40	0.30	1.000	86
NATURAL FAIR COVER "MEADOWS"	B	1.20	0.30	1.000	70
NATURAL FAIR COVER "WOODLAND,GRASS"	B	0.10	0.30	1.000	65
NATURAL POOR COVER "BARREN"	B	26.60	0.30	1.000	86
COMMERCIAL AGRICULTURAL POOR COVER "FALLOW"	B	3.90	0.30	0.100	56
	B	3.00	0.30	1.000	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.934
SUBAREA AREA(ACRES) = 53.20 SUBAREA RUNOFF(CFS) = 42.88
EFFECTIVE AREA(ACRES) = 3720.60 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA(ACRES) = 5662.3 PEAK FLOW RATE(CFS) = 3144.65
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 76.97
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.176
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "ROW CROPS,CONTOURED"	B	1.10	0.30	1.000	79
NATURAL FAIR COVER "WOODLAND,GRASS"	B	0.20	0.30	1.000	65
NATURAL POOR COVER "BARREN"	B	14.00	0.30	1.000	86
COMMERCIAL AGRICULTURAL POOR COVER "FALLOW"	B	4.30	0.30	0.100	56
	B	5.30	0.30	1.000	86
NATURAL FAIR COVER "GRASS"	B	2.70	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.860
SUBAREA AREA(ACRES) = 27.60 SUBAREA RUNOFF(CFS) = 22.80
EFFECTIVE AREA(ACRES) = 3748.20 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA(ACRES) = 5689.9 PEAK FLOW RATE(CFS) = 3144.65
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 76.97
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.176
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "MEADOWS"	B	3.20	0.30	1.000	70
NATURAL FAIR COVER "OPEN BRUSH"	B	6.10	0.30	1.000	66
RESIDENTIAL ".4 DWELLING/ACRE"	B	7.50	0.30	0.900	56
AGRICULTURAL POOR COVER "ROW CROPS,CONTOURED"	B	5.40	0.30	1.000	79
NATURAL FAIR COVER "WOODLAND,GRASS"	B	1.60	0.30	1.000	65
NATURAL POOR COVER "BARREN"	B	1.90	0.30	1.000	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.971
SUBAREA AREA(ACRES) = 25.70 SUBAREA RUNOFF(CFS) = 20.46
EFFECTIVE AREA(ACRES) = 3773.90 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.85
TOTAL AREA(ACRES) = 5715.6 PEAK FLOW RATE(CFS) = 3144.65
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81

=====
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====

MAINLINE Tc(MIN.) = 76.97
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.176
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
COMMERCIAL B 2.00 0.30 0.100 56
AGRICULTURAL POOR COVER
"FALLOW" B 3.70 0.30 1.000 86
NATURAL FAIR COVER
"OPEN BRUSH" B 2.10 0.30 1.000 66
RESIDENTIAL
".4 DWELLING/ACRE" B 2.60 0.30 0.900 56
AGRICULTURAL POOR COVER
"ROW CROPS,CONTOURED" B 0.20 0.30 1.000 79
NATURAL FAIR COVER
"WOODLAND,GRASS" B 0.10 0.30 1.000 65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.807
SUBAREA AREA(ACRES) = 10.70 SUBAREA RUNOFF(CFS) = 8.99
EFFECTIVE AREA(ACRES) = 3784.60 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.85
TOTAL AREA(ACRES) = 5726.3 PEAK FLOW RATE(CFS) = 3144.65
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====

MAINLINE Tc(MIN.) = 76.97
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.176
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"OPEN BRUSH" B 0.50 0.30 1.000 66
RESIDENTIAL
".4 DWELLING/ACRE" B 8.20 0.30 0.900 56
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.906
SUBAREA AREA(ACRES) = 8.70 SUBAREA RUNOFF(CFS) = 7.08
EFFECTIVE AREA(ACRES) = 3793.30 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.85
TOTAL AREA(ACRES) = 5735.0 PEAK FLOW RATE(CFS) = 3148.02

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<
=====

PEAK FLOWRATE TABLE FILE NAME: 3A00EVRL.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap (DECIMAL)	Ae (ACRES)	HEADWATER NODE
1	1221.20	13.34	0.30 (0.13)	0.43	436.8	120.00

2	1221.18	13.34	0.30 (0.13)	0.43	436.8	110.00
3	1039.13	20.29	0.30 (0.13)	0.43	504.5	100.00
4	976.70	22.82	0.30 (0.13)	0.43	510.2	150.00

TOTAL AREA(ACRES) = 510.2

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<
=====

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap (DECIMAL)	Ae (ACRES)	HEADWATER NODE
1	2468.01	35.17	1.741	0.30 (0.26)	0.88	1708.6	31100.00
2	3148.02	76.97	1.176	0.30 (0.25)	0.85	3793.3	13222.00

LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13305.00 = 13617.72 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap (DECIMAL)	Ae (ACRES)	HEADWATER NODE
1	1221.20	13.34	3.218	0.30 (0.13)	0.43	436.8	120.00
2	1221.18	13.34	3.218	0.30 (0.13)	0.43	436.8	110.00
3	1039.13	20.29	2.401	0.30 (0.13)	0.43	504.5	100.00
4	976.70	22.82	2.237	0.30 (0.13)	0.43	510.2	150.00

LONGEST FLOWPATH FROM NODE 150.00 TO NODE 13305.00 = 9867.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap (DECIMAL)	Ae (ACRES)	HEADWATER NODE
1	3093.36	13.34	3.218	0.30 (0.21)	0.70	1084.7	120.00
2	3093.39	13.34	3.218	0.30 (0.21)	0.70	1084.8	110.00
3	3098.93	20.29	2.401	0.30 (0.22)	0.73	1490.1	100.00
4	3116.20	22.82	2.237	0.30 (0.22)	0.74	1618.8	150.00
5	3214.65	35.17	1.741	0.30 (0.23)	0.78	2218.8	31100.00
6	3632.74	76.97	1.176	0.30 (0.24)	0.80	4303.5	13222.00

TOTAL AREA(ACRES) = 6245.2

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 3632.74 Tc(MIN.) = 76.969
EFFECTIVE AREA(ACRES) = 4303.50 AREA-AVERAGED Fm(INCH/HR) = 0.24
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.70
TOTAL AREA(ACRES) = 6245.2
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13305.00 = 13617.72 FEET.

FLOW PROCESS FROM NODE 13305.00 TO NODE 13305.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<
=====

FLOW PROCESS FROM NODE 13305.00 TO NODE 13306.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<
=====

ELEVATION DATA: UPSTREAM(FEET) = 315.00 DOWNSTREAM(FEET) = 245.50

CHANNEL LENGTH THRU SUBAREA (FEET) = 4408.41 CHANNEL SLOPE = 0.0158
 GIVEN CHANNEL BASE (FEET) = 50.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 4.88
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.133
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	0.40	0.30	1.000	86
NATURAL FAIR COVER "GRASS"	B	9.20	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	1.00	0.30	1.000	66
NATURAL FAIR COVER "WOODLAND, GRASS"	B	1.30	0.30	1.000	65
NATURAL POOR COVER "BARREN"	B	2.40	0.30	1.000	86
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	B	4.10	0.30	1.000	63

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 3639.64
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 11.56
 AVERAGE FLOW DEPTH (FEET) = 4.87 TRAVEL TIME (MIN.) = 6.36
 Tc (MIN.) = 83.32
 SUBAREA AREA (ACRES) = 18.40 SUBAREA RUNOFF (CFS) = 13.79
 EFFECTIVE AREA (ACRES) = 4321.90 AREA-AVERAGED Fm (INCH/HR) = 0.24
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA (ACRES) = 6263.6 PEAK FLOW RATE (CFS) = 3632.74
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE (FEET) = 50.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 4.87

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 4.87 FLOW VELOCITY (FEET/SEC.) = 11.54
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13306.00 = 18026.13 FEET.

 FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81

 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====
 MAINLINE Tc (MIN.) = 83.32
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.133
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "GRASS"	B	19.20	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	20.90	0.30	1.000	66
NATURAL FAIR COVER "WOODLAND, GRASS"	B	4.10	0.30	1.000	65
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	B	0.50	0.30	1.000	63
NATURAL FAIR COVER					

"GRASS" B 4.30 0.30 1.000 69
 NATURAL FAIR COVER
 "OPEN BRUSH" B 0.60 0.30 1.000 66
 SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 49.60 SUBAREA RUNOFF (CFS) = 37.18
 EFFECTIVE AREA (ACRES) = 4371.50 AREA-AVERAGED Fm (INCH/HR) = 0.24
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA (ACRES) = 6313.2 PEAK FLOW RATE (CFS) = 3632.74
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81

 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====
 MAINLINE Tc (MIN.) = 83.32
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.133
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.80	0.30	1.000	65
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30					
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000					
SUBAREA AREA (ACRES) = 0.80 SUBAREA RUNOFF (CFS) = 0.60					
EFFECTIVE AREA (ACRES) = 4372.30 AREA-AVERAGED Fm (INCH/HR) = 0.24					
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80					
TOTAL AREA (ACRES) = 6314.0 PEAK FLOW RATE (CFS) = 3632.74					
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE					

 FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81

 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 =====
 MAINLINE Tc (MIN.) = 83.32
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.133
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
PUBLIC PARK	B	0.10	0.30	0.850	56
NATURAL FAIR COVER "OPEN BRUSH"	B	0.10	0.30	1.000	66
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.10	0.30	1.000	65
NATURAL POOR COVER "BARREN"	B	0.20	0.30	1.000	86
PUBLIC PARK	B	0.40	0.30	0.850	56
NATURAL FAIR COVER "GRASS"	B	0.40	0.30	1.000	69
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30					
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.942					
SUBAREA AREA (ACRES) = 1.30 SUBAREA RUNOFF (CFS) = 0.99					
EFFECTIVE AREA (ACRES) = 4373.60 AREA-AVERAGED Fm (INCH/HR) = 0.24					
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80					
TOTAL AREA (ACRES) = 6315.3 PEAK FLOW RATE (CFS) = 3632.74					
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE					

FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 83.32
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.133
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL ".4 DWELLING/ACRE"	B	0.80	0.30	0.900	56
NATURAL FAIR COVER "GRASS"	B	0.80	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	1.00	0.30	1.000	66
NATURAL FAIR COVER "WOODLAND,GRASS"	B	1.10	0.30	1.000	65
COMMERCIAL	B	1.10	0.30	0.100	56
RESIDENTIAL ".4 DWELLING/ACRE"	B	2.80	0.30	0.900	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.822
SUBAREA AREA(ACRES) = 7.60 SUBAREA RUNOFF(CFS) = 6.06
EFFECTIVE AREA(ACRES) = 4381.20 AREA-AVERAGED Fm(INCH/HR) = 0.24
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA(ACRES) = 6322.9 PEAK FLOW RATE(CFS) = 3632.74
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 83.32
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.133
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	3.50	0.30	0.100	56
NATURAL FAIR COVER "GRASS"	B	5.00	0.30	1.000	69
RESIDENTIAL ".4 DWELLING/ACRE"	B	6.70	0.30	0.900	56
NATURAL FAIR COVER "WOODLAND,GRASS"	B	7.80	0.30	1.000	65
NATURAL FAIR COVER "OPEN BRUSH"	B	10.80	0.30	1.000	66
COMMERCIAL	B	13.80	0.30	0.100	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.659
SUBAREA AREA(ACRES) = 47.60 SUBAREA RUNOFF(CFS) = 40.07
EFFECTIVE AREA(ACRES) = 4428.80 AREA-AVERAGED Fm(INCH/HR) = 0.24
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA(ACRES) = 6370.5 PEAK FLOW RATE(CFS) = 3632.74
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13306.00 TO NODE 13306.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 83.32
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.133
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL POOR COVER "BARREN"	B	21.54	0.30	1.000	86
NATURAL POOR COVER "BARREN"	B	36.64	0.30	1.000	86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 58.18 SUBAREA RUNOFF(CFS) = 43.61
EFFECTIVE AREA(ACRES) = 4486.98 AREA-AVERAGED Fm(INCH/HR) = 0.24
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA(ACRES) = 6428.7 PEAK FLOW RATE(CFS) = 3632.74
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13306.00 TO NODE 13307.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 245.50 DOWNSTREAM(FEET) = 220.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1543.21 CHANNEL SLOPE = 0.0165
GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 4.80
CHANNEL FLOW THRU SUBAREA(CFS) = 3632.74
FLOW VELOCITY(FEET/SEC.) = 11.74 FLOW DEPTH(FEET) = 4.80
TRAVEL TIME(MIN.) = 2.19 Tc(MIN.) = 85.52
LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13307.00 = 19569.34 FEET.

FLOW PROCESS FROM NODE 13307.00 TO NODE 13307.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 85.52
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.118
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
COMMERCIAL	B	0.20	0.30	0.100	56
NATURAL FAIR COVER "GRASS"	B	0.10	0.30	1.000	69
AGRICULTURAL FAIR COVER "ORCHARDS"	B	0.20	0.30	1.000	65
NATURAL POOR COVER "BARREN"	B	3.70	0.30	1.000	86
COMMERCIAL	B	0.30	0.30	0.100	56
NATURAL FAIR COVER "GRASS"	B	3.20	0.30	1.000	69

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.942
 SUBAREA AREA(ACRES) = 7.70 SUBAREA RUNOFF(CFS) = 5.79
 EFFECTIVE AREA(ACRES) = 4494.68 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA(ACRES) = 6436.4 PEAK FLOW RATE(CFS) = 3632.74
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13307.00 TO NODE 13307.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 85.52
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.118
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND,GRASS"	B	3.60	0.30	1.000	65
NATURAL FAIR COVER "GRASS"	B	1.90	0.30	1.000	69
NATURAL FAIR COVER "WOODLAND,GRASS"	B	0.60	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 6.10 SUBAREA RUNOFF(CFS) = 4.49
 EFFECTIVE AREA(ACRES) = 4500.78 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA(ACRES) = 6442.5 PEAK FLOW RATE(CFS) = 3632.74
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13307.00 TO NODE 13308.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 220.00 DOWNSTREAM(FEET) = 212.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 925.62 CHANNEL SLOPE = 0.0086
 GIVEN CHANNEL BASE(FEET) = 50.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 5.76
 CHANNEL FLOW THRU SUBAREA(CFS) = 3632.74
 FLOW VELOCITY(FEET/SEC.) = 9.38 FLOW DEPTH(FEET) = 5.76
 TRAVEL TIME(MIN.) = 1.64 Tc(MIN.) = 87.16
 LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13308.00 = 20494.96 FEET.

 FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 87.16
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.107
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "WOODLAND,GRASS"	B	3.60	0.30	1.000	65
NATURAL FAIR COVER "GRASS"	B	1.90	0.30	1.000	69
NATURAL FAIR COVER "WOODLAND,GRASS"	B	0.60	0.30	1.000	65

NATURAL FAIR COVER
 "GRASS" B 0.10 0.30 1.000 69
 NATURAL FAIR COVER
 "OPEN BRUSH" B 0.20 0.30 1.000 66
 NATURAL FAIR COVER
 "WOODLAND,GRASS" B 5.00 0.30 1.000 65
 COMMERCIAL B 3.20 0.30 0.100 56
 NATURAL FAIR COVER
 "GRASS" B 0.10 0.30 1.000 69
 NATURAL FAIR COVER
 "OPEN BRUSH" B 0.90 0.30 1.000 66
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.697
 SUBAREA AREA(ACRES) = 9.50 SUBAREA RUNOFF(CFS) = 7.68
 EFFECTIVE AREA(ACRES) = 4510.28 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA(ACRES) = 6452.0 PEAK FLOW RATE(CFS) = 3632.74
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 87.16
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.107
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
APARTMENTS	B	0.30	0.30	0.200	56
NATURAL POOR COVER "BARREN"	B	0.20	0.30	1.000	86
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	B	1.00	0.30	1.000	63
COMMERCIAL	B	41.90	0.30	0.100	56
NATURAL FAIR COVER "GRASS"	B	7.20	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	25.00	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.498
 SUBAREA AREA(ACRES) = 75.60 SUBAREA RUNOFF(CFS) = 65.16
 EFFECTIVE AREA(ACRES) = 4585.88 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
 TOTAL AREA(ACRES) = 6527.6 PEAK FLOW RATE(CFS) = 3632.74
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

 FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

=====

MAINLINE Tc(MIN.) = 87.16
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.107
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
PUBLIC PARK	B	0.10	0.30	0.850	56

AGRICULTURAL POOR COVER
"ROW CROPS, CONTOURED" B 0.90 0.30 1.000 79
SCHOOL B 0.30 0.30 0.600 56
NATURAL FAIR COVER
"WOODLAND, GRASS" B 13.20 0.30 1.000 65
APARTMENTS B 0.50 0.30 0.200 56
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" B 0.60 0.30 1.000 63
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.966
SUBAREA AREA (ACRES) = 15.60 SUBAREA RUNOFF (CFS) = 11.48
EFFECTIVE AREA (ACRES) = 4601.48 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.80
TOTAL AREA (ACRES) = 6543.2 PEAK FLOW RATE (CFS) = 3632.74
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 87.16
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.107
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
COMMERCIAL B 33.90 0.30 0.100 56
NATURAL FAIR COVER
"GRASS" B 17.60 0.30 1.000 69
NATURAL FAIR COVER
"OPEN BRUSH" B 16.80 0.30 1.000 66
RESIDENTIAL
"11+ DWELLINGS/ACRE" B 0.60 0.30 0.200 56
RESIDENTIAL
"8-10 DWELLINGS/ACRE" B 1.50 0.30 0.400 56
AGRICULTURAL POOR COVER
"ROW CROPS, CONTOURED" B 10.00 0.30 1.000 79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.603
SUBAREA AREA (ACRES) = 80.40 SUBAREA RUNOFF (CFS) = 67.01
EFFECTIVE AREA (ACRES) = 4681.88 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.79
TOTAL AREA (ACRES) = 6623.6 PEAK FLOW RATE (CFS) = 3661.95

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 87.16
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.107
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
SCHOOL B 0.30 0.30 0.600 56
NATURAL FAIR COVER
"WOODLAND, GRASS" B 0.70 0.30 1.000 65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.880
SUBAREA AREA (ACRES) = 1.00 SUBAREA RUNOFF (CFS) = 0.76
EFFECTIVE AREA (ACRES) = 4682.88 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.79
TOTAL AREA (ACRES) = 6624.6 PEAK FLOW RATE (CFS) = 3662.70

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 87.16
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.107
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"GRASS" B 0.30 0.30 1.000 69
NATURAL FAIR COVER
"WOODLAND, GRASS" B 0.80 0.30 1.000 65
NATURAL FAIR COVER
"GRASS" B 0.50 0.30 1.000 69
NATURAL FAIR COVER
"WOODLAND, GRASS" B 0.20 0.30 1.000 65
NATURAL FAIR COVER
"GRASS" B 0.30 0.30 1.000 69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 2.10 SUBAREA RUNOFF (CFS) = 1.53
EFFECTIVE AREA (ACRES) = 4684.98 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.79
TOTAL AREA (ACRES) = 6626.7 PEAK FLOW RATE (CFS) = 3664.23

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 87.16
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.107
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER
"GRASS" B 1.20 0.30 1.000 69
NATURAL FAIR COVER
"OPEN BRUSH" B 0.50 0.30 1.000 66
PUBLIC PARK B 1.70 0.30 0.850 56
NATURAL FAIR COVER
"WOODLAND, GRASS" B 7.20 0.30 1.000 65
NATURAL FAIR COVER
"GRASS" B 1.00 0.30 1.000 69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.978
SUBAREA AREA (ACRES) = 11.60 SUBAREA RUNOFF (CFS) = 8.50
EFFECTIVE AREA (ACRES) = 4696.58 AREA-AVERAGED Fm (INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.79
TOTAL AREA (ACRES) = 6638.3 PEAK FLOW RATE (CFS) = 3672.73


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FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 10
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>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
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*****
FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 15.1
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>>>>DEFINE MEMORY BANK # 2 <<<<<
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PEAK FLOWRATE TABLE FILE NAME: RU00EV29.DNA
MEMORY BANK # 2 DEFINED AS FOLLOWS:

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STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22257.23	14.76	0.30 (0.28)	0.92	3184.7	50200.00
2	23797.99	19.26	0.30 (0.28)	0.92	4456.1	12904.00
3	26660.11	27.85	0.30 (0.28)	0.92	6831.7	50300.00
4	28452.15	33.56	0.30 (0.28)	0.92	8319.3	50150.00
5	29456.40	37.44	0.30 (0.28)	0.93	9762.6	600.00
6	33185.54	53.43	0.30 (0.29)	0.96	15887.2	40100.00
7	35308.10	60.65	0.30 (0.29)	0.96	18691.3	11801.00
8	38142.54	70.09	0.30 (0.29)	0.97	22988.1	11530.00
9	40431.04	78.61	0.30 (0.29)	0.97	27993.8	11910.00
10	42509.29	85.68	0.30 (0.29)	0.98	32575.4	11330.00
11	43539.34	92.00	0.30 (0.29)	0.98	37006.4	11130.00
12	43390.72	99.59	0.30 (0.29)	0.98	41000.4	12330.00
13	43122.08	106.23	0.30 (0.29)	0.98	44343.5	12400.00
14	42553.92	114.90	0.30 (0.29)	0.98	47712.3	12201.00
15	42076.66	118.86	0.30 (0.29)	0.98	48797.0	12111.00
16	41408.02	124.23	0.30 (0.29)	0.98	50166.5	12101.10
17	40865.20	128.25	0.30 (0.29)	0.98	51015.5	10400.00
18	39296.83	136.27	0.30 (0.29)	0.98	52330.7	12010.00
19	37981.36	142.14	0.30 (0.29)	0.98	52644.4	10210.00
20	34486.23	168.20	0.30 (0.29)	0.98	53377.1	10100.00

TOTAL AREA (ACRES) = 53377.1

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*****
FLOW PROCESS FROM NODE 12904.00 TO NODE 12904.00 IS CODE = 14.0
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>>>>MEMORY BANK # 2 COPIED ONTO MAIN-STREAM MEMORY<<<<<
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MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

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STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22257.23	14.76	0.30 (0.28)	0.92	3184.7	50200.00
2	23797.99	19.26	0.30 (0.28)	0.92	4456.1	12904.00
3	26660.11	27.85	0.30 (0.28)	0.92	6831.7	50300.00
4	28452.15	33.56	0.30 (0.28)	0.92	8319.3	50150.00
5	29456.40	37.44	0.30 (0.28)	0.93	9762.6	600.00
6	33185.54	53.43	0.30 (0.29)	0.96	15887.2	40100.00
7	35308.10	60.65	0.30 (0.29)	0.96	18691.3	11801.00
8	38142.54	70.09	0.30 (0.29)	0.97	22988.1	11530.00
9	40431.04	78.61	0.30 (0.29)	0.97	27993.8	11910.00
10	42509.29	85.68	0.30 (0.29)	0.98	32575.4	11330.00
11	43539.34	92.00	0.30 (0.29)	0.98	37006.4	11130.00

12	43390.72	99.59	0.30 (0.29)	0.98	41000.4	12330.00
13	43122.08	106.23	0.30 (0.29)	0.98	44343.5	12400.00
14	42553.92	114.90	0.30 (0.29)	0.98	47712.3	12201.00
15	42076.66	118.86	0.30 (0.29)	0.98	48797.0	12111.00
16	41408.02	124.23	0.30 (0.29)	0.98	50166.5	12101.10
17	40865.20	128.25	0.30 (0.29)	0.98	51015.5	10400.00
18	39296.83	136.27	0.30 (0.29)	0.98	52330.7	12010.00
19	37981.36	142.14	0.30 (0.29)	0.98	52644.4	10210.00
20	34486.23	168.20	0.30 (0.29)	0.98	53377.1	10100.00

TOTAL AREA (ACRES) = 53377.1

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*****
FLOW PROCESS FROM NODE 12904.00 TO NODE 13308.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 213.00 DOWNSTREAM(FEET) = 212.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1389.52 CHANNEL SLOPE = 0.0007
GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 18.95
CHANNEL FLOW THRU SUBAREA(CFS) = 43539.34
FLOW VELOCITY(FEET/SEC.) = 7.80 FLOW DEPTH(FEET) = 18.95
TRAVEL TIME(MIN.) = 2.97 Tc(MIN.) = 94.97
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13308.00 = 118087.91 FEET.

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FLOW PROCESS FROM NODE 13307.00 TO NODE 13308.00 IS CODE = 11
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>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
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** MAIN STREAM CONFLUENCE DATA **

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STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	22257.23	18.40	2.583	0.30 (0.28)	0.92	3184.7	50200.00
2	23797.99	22.83	2.236	0.30 (0.28)	0.92	4456.1	12904.00
3	26660.11	31.30	1.840	0.30 (0.28)	0.92	6831.7	50300.00
4	28452.15	36.94	1.695	0.30 (0.28)	0.92	8319.3	50150.00
5	29456.40	40.78	1.600	0.30 (0.28)	0.93	9762.6	600.00
6	33185.54	56.66	1.327	0.30 (0.29)	0.96	15887.2	40100.00
7	35308.10	63.81	1.264	0.30 (0.29)	0.96	18691.3	11801.00
8	38142.54	73.18	1.201	0.30 (0.29)	0.97	22988.1	11530.00
9	40431.04	81.65	1.144	0.30 (0.29)	0.97	27993.8	11910.00
10	42509.29	88.67	1.097	0.30 (0.29)	0.98	32575.4	11330.00
11	43539.34	94.97	1.065	0.30 (0.29)	0.98	37006.4	11130.00
12	43390.72	102.56	1.031	0.30 (0.29)	0.98	41000.4	12330.00
13	43122.08	109.21	1.000	0.30 (0.29)	0.98	44343.5	12400.00
14	42553.92	117.89	0.961	0.30 (0.29)	0.98	47712.3	12201.00
15	42076.66	121.86	0.946	0.30 (0.29)	0.98	48797.0	12111.00
16	41408.02	127.25	0.932	0.30 (0.29)	0.98	50166.5	12101.10
17	40865.20	131.28	0.922	0.30 (0.29)	0.98	51015.5	10400.00
18	39296.83	139.34	0.901	0.30 (0.29)	0.98	52330.7	12010.00
19	37981.36	145.24	0.885	0.30 (0.29)	0.98	52644.4	10210.00
20	34486.23	171.38	0.817	0.30 (0.29)	0.98	53377.1	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13308.00 = 118087.91 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	3093.36	24.06	2.157	0.30 (0.22)	0.72	1477.8	120.00
2	3093.39	24.06	2.157	0.30 (0.22)	0.72	1477.9	110.00
3	3098.93	31.00	1.847	0.30 (0.22)	0.74	1883.2	100.00
4	3116.20	33.52	1.783	0.30 (0.22)	0.74	2011.9	150.00
5	3214.65	45.76	1.492	0.30 (0.23)	0.78	2611.9	31100.00
6	3672.72	87.16	1.107	0.30 (0.24)	0.79	4696.6	13222.00

LONGEST FLOWPATH FROM NODE 31100.00 TO NODE 13308.00 = 20494.96 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25143.05	18.40	2.583	0.30 (0.26)	0.87	4315.2	50200.00
2	26853.25	22.83	2.236	0.30 (0.26)	0.87	5858.2	12904.00
3	27307.65	24.06	2.157	0.30 (0.26)	0.87	6279.4	120.00
4	27308.08	24.06	2.157	0.30 (0.26)	0.87	6279.8	110.00
5	29659.15	31.00	1.847	0.30 (0.26)	0.88	8632.0	100.00
6	29761.07	31.30	1.840	0.30 (0.26)	0.88	8730.0	50300.00
7	30481.61	33.52	1.783	0.30 (0.27)	0.89	9429.0	150.00
8	31595.87	36.94	1.695	0.30 (0.27)	0.89	10498.9	50150.00
9	32631.03	40.78	1.600	0.30 (0.27)	0.90	12130.6	600.00
10	33840.65	45.76	1.492	0.30 (0.27)	0.91	14295.4	31100.00
11	36520.75	56.66	1.327	0.30 (0.28)	0.93	19047.7	40100.00
12	38722.43	63.81	1.264	0.30 (0.28)	0.93	22211.9	11801.00
13	41660.58	73.18	1.201	0.30 (0.28)	0.94	26980.7	11530.00
14	44042.79	81.65	1.144	0.30 (0.28)	0.95	32412.8	11910.00
15	45735.17	87.16	1.107	0.30 (0.29)	0.95	36286.9	13222.00
16	46139.05	88.67	1.097	0.30 (0.29)	0.95	37272.0	11330.00
17	47035.26	94.97	1.065	0.30 (0.29)	0.96	41703.0	11130.00
18	46740.09	102.56	1.031	0.30 (0.29)	0.96	45696.9	12330.00
19	46343.12	109.21	1.000	0.30 (0.29)	0.96	49040.1	12400.00
20	45607.41	117.89	0.961	0.30 (0.29)	0.96	52408.9	12201.00
21	45069.00	121.86	0.946	0.30 (0.29)	0.96	53493.6	12111.00
22	44341.18	127.25	0.932	0.30 (0.29)	0.96	54863.0	12101.10
23	43754.00	131.28	0.922	0.30 (0.29)	0.97	55712.1	10400.00
24	42097.11	139.34	0.901	0.30 (0.29)	0.97	57027.3	12010.00
25	40716.80	145.24	0.885	0.30 (0.29)	0.97	57341.0	10210.00
26	36934.34	171.38	0.817	0.30 (0.29)	0.97	58073.7	10100.00

TOTAL AREA (ACRES) = 60015.4

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 47035.26 Tc (MIN.) = 94.972
 EFFECTIVE AREA (ACRES) = 41702.98 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA (ACRES) = 60015.4
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13308.00 = 118087.91 FEET.

END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 60015.4 TC (MIN.) = 94.97
 EFFECTIVE AREA (ACRES) = 41702.98 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.958
 PEAK FLOW RATE (CFS) = 47035.26

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
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1	25143.05	18.40	2.583	0.30 (0.26)	0.87	4315.2	50200.00
2	26853.25	22.83	2.236	0.30 (0.26)	0.87	5858.2	12904.00
3	27307.65	24.06	2.157	0.30 (0.26)	0.87	6279.4	120.00
4	27308.08	24.06	2.157	0.30 (0.26)	0.87	6279.8	110.00
5	29659.15	31.00	1.847	0.30 (0.26)	0.88	8632.0	100.00
6	29761.07	31.30	1.840	0.30 (0.26)	0.88	8730.0	50300.00
7	30481.61	33.52	1.783	0.30 (0.27)	0.89	9429.0	150.00
8	31595.87	36.94	1.695	0.30 (0.27)	0.89	10498.9	50150.00
9	32631.03	40.78	1.600	0.30 (0.27)	0.90	12130.6	600.00
10	33840.65	45.76	1.492	0.30 (0.27)	0.91	14295.4	31100.00
11	36520.75	56.66	1.327	0.30 (0.28)	0.93	19047.7	40100.00
12	38722.43	63.81	1.264	0.30 (0.28)	0.93	22211.9	11801.00
13	41660.58	73.18	1.201	0.30 (0.28)	0.94	26980.7	11530.00
14	44042.79	81.65	1.144	0.30 (0.28)	0.95	32412.8	11910.00
15	45735.17	87.16	1.107	0.30 (0.29)	0.95	36286.9	13222.00
16	46139.05	88.67	1.097	0.30 (0.29)	0.95	37272.0	11330.00
17	47035.26	94.97	1.065	0.30 (0.29)	0.96	41703.0	11130.00
18	46740.09	102.56	1.031	0.30 (0.29)	0.96	45696.9	12330.00
19	46343.12	109.21	1.000	0.30 (0.29)	0.96	49040.1	12400.00
20	45607.41	117.89	0.961	0.30 (0.29)	0.96	52408.9	12201.00
21	45069.00	121.86	0.946	0.30 (0.29)	0.96	53493.6	12111.00
22	44341.18	127.25	0.932	0.30 (0.29)	0.96	54863.0	12101.10
23	43754.00	131.28	0.922	0.30 (0.29)	0.97	55712.1	10400.00
24	42097.11	139.34	0.901	0.30 (0.29)	0.97	57027.3	12010.00
25	40716.80	145.24	0.885	0.30 (0.29)	0.97	57341.0	10210.00
26	36934.34	171.38	0.817	0.30 (0.29)	0.97	58073.7	10100.00

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 END OF RATIONAL METHOD ANALYSIS
 =====

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 134 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 100-YR EV AUG 2023 ROKAMOTO *

FILE NAME: RU00EV34.DAT
TIME/DATE OF STUDY: 08:51 08/09/2023

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USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 5.847
- 2) 10.00; 3.775
- 3) 15.00; 2.924
- 4) 20.00; 2.413
- 5) 25.00; 2.092
- 6) 30.00; 1.869
- 7) 40.00; 1.613
- 8) 50.00; 1.397
- 9) 60.00; 1.287
- 10) 90.00; 1.084
- 11) 120.00; 0.947
- 12) 180.00; 0.791
- 13) 360.00; 0.584
- 14) 1200.00; 0.255

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RU00EV33.DNA
MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25143.05	18.40	0.30 (0.26)	0.87	4315.2	50200.00
2	27308.08	24.06	0.30 (0.26)	0.87	6279.8	110.00
3	31595.87	36.94	0.30 (0.27)	0.89	10498.9	50150.00
4	32631.03	40.78	0.30 (0.27)	0.90	12130.6	600.00
5	33840.65	45.76	0.30 (0.27)	0.91	14295.4	31100.00
6	36520.75	56.66	0.30 (0.28)	0.93	19047.7	40100.00
7	38722.43	63.81	0.30 (0.28)	0.93	22211.9	11801.00
8	41660.58	73.18	0.30 (0.28)	0.94	26980.7	11530.00
9	44042.79	81.65	0.30 (0.28)	0.95	32412.8	11910.00
10	46139.05	88.67	0.30 (0.29)	0.95	37272.0	11330.00
11	47035.26	94.97	0.30 (0.29)	0.96	41703.0	11130.00
12	46740.09	102.56	0.30 (0.29)	0.96	45696.9	12330.00
13	46343.12	109.21	0.30 (0.29)	0.96	49040.1	12400.00
14	45607.41	117.89	0.30 (0.29)	0.96	52408.9	12201.00
15	45069.00	121.86	0.30 (0.29)	0.96	53493.6	12111.00
16	44341.18	127.25	0.30 (0.29)	0.96	54863.0	12101.10
17	43754.00	131.28	0.30 (0.29)	0.97	55712.1	10400.00
18	42097.11	139.34	0.30 (0.29)	0.97	57027.3	12010.00
19	40716.80	145.24	0.30 (0.29)	0.97	57341.0	10210.00
20	36934.34	171.38	0.30 (0.29)	0.97	58073.7	10100.00
TOTAL AREA (ACRES) =						58073.7

FLOW PROCESS FROM NODE 13308.00 TO NODE 13308.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

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MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25143.05	18.40	0.30 (0.26)	0.87	4315.2	50200.00
2	27308.08	24.06	0.30 (0.26)	0.87	6279.8	110.00
3	31595.87	36.94	0.30 (0.27)	0.89	10498.9	50150.00
4	32631.03	40.78	0.30 (0.27)	0.90	12130.6	600.00
5	33840.65	45.76	0.30 (0.27)	0.91	14295.4	31100.00
6	36520.75	56.66	0.30 (0.28)	0.93	19047.7	40100.00
7	38722.43	63.81	0.30 (0.28)	0.93	22211.9	11801.00
8	41660.58	73.18	0.30 (0.28)	0.94	26980.7	11530.00
9	44042.79	81.65	0.30 (0.28)	0.95	32412.8	11910.00
10	46139.05	88.67	0.30 (0.29)	0.95	37272.0	11330.00
11	47035.26	94.97	0.30 (0.29)	0.96	41703.0	11130.00
12	46740.09	102.56	0.30 (0.29)	0.96	45696.9	12330.00
13	46343.12	109.21	0.30 (0.29)	0.96	49040.1	12400.00

14	45607.41	117.89	0.30	(0.29)	0.96	52408.9	12201.00
15	45069.00	121.86	0.30	(0.29)	0.96	53493.6	12111.00
16	44341.18	127.25	0.30	(0.29)	0.96	54863.0	12101.10
17	43754.00	131.28	0.30	(0.29)	0.97	55712.1	10400.00
18	42097.11	139.34	0.30	(0.29)	0.97	57027.3	12010.00
19	40716.80	145.24	0.30	(0.29)	0.97	57341.0	10210.00
20	36934.34	171.38	0.30	(0.29)	0.97	58073.7	10100.00

TOTAL AREA (ACRES) = 58073.7

FLOW PROCESS FROM NODE 13308.00 TO NODE 13402.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 212.00 DOWNSTREAM (FEET) = 209.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 623.02 CHANNEL SLOPE = 0.0048
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 11.77
 CHANNEL FLOW THRU SUBAREA (CFS) = 47035.26
 FLOW VELOCITY (FEET/SEC.) = 15.44 FLOW DEPTH (FEET) = 11.77
 TRAVEL TIME (MIN.) = 0.67 Tc (MIN.) = 95.64
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13402.00 = 118710.93 FEET.

FLOW PROCESS FROM NODE 13402.00 TO NODE 13402.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 0610505Y.DNA
 MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	299.75	19.45	0.30 (0.30)	0.99	153.2	50500.00

TOTAL AREA (ACRES) = 153.2

FLOW PROCESS FROM NODE 13402.00 TO NODE 13402.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25143.05	19.23	2.492	0.30 (0.26)	0.87	4315.2	50200.00
2	27308.08	24.86	2.101	0.30 (0.26)	0.87	6279.8	110.00
3	31595.87	37.70	1.672	0.30 (0.27)	0.89	10498.9	50150.00
4	32631.03	41.54	1.580	0.30 (0.27)	0.90	12130.6	600.00
5	33840.65	46.51	1.472	0.30 (0.27)	0.91	14295.4	31100.00
6	36520.75	57.39	1.316	0.30 (0.28)	0.93	19047.7	40100.00
7	38722.43	64.52	1.256	0.30 (0.28)	0.93	22211.9	11801.00
8	41660.58	73.88	1.193	0.30 (0.28)	0.94	26980.7	11530.00
9	44042.79	82.34	1.136	0.30 (0.28)	0.95	32412.8	11910.00
10	46139.05	89.35	1.088	0.30 (0.29)	0.95	37272.0	11330.00
11	47035.26	95.64	1.058	0.30 (0.29)	0.96	41703.0	11130.00
12	46740.09	103.24	1.024	0.30 (0.29)	0.96	45696.9	12330.00

13	46343.12	109.89	0.993	0.30 (0.29)	0.96	49040.1	12400.00
14	45607.41	118.57	0.954	0.30 (0.29)	0.96	52408.9	12201.00
15	45069.00	122.54	0.940	0.30 (0.29)	0.96	53493.6	12111.00
16	44341.18	127.93	0.926	0.30 (0.29)	0.96	54863.0	12101.10
17	43754.00	131.97	0.916	0.30 (0.29)	0.97	55712.1	10400.00
18	42097.11	140.03	0.895	0.30 (0.29)	0.97	57027.3	12010.00
19	40716.80	145.94	0.880	0.30 (0.29)	0.97	57341.0	10210.00
20	36934.34	172.11	0.812	0.30 (0.29)	0.97	58073.7	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13402.00 = 118710.93 FEET.

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	299.75	19.45	2.469	0.30 (0.30)	0.99	153.2	50500.00

LONGEST FLOWPATH FROM NODE 50500.00 TO NODE 13402.00 = 6247.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25442.48	19.23	2.492	0.30 (0.26)	0.87	4466.6	50200.00
2	25527.36	19.45	2.469	0.30 (0.26)	0.87	4545.1	50500.00
3	27557.01	24.86	2.101	0.30 (0.26)	0.88	6433.0	110.00
4	31785.62	37.70	1.672	0.30 (0.27)	0.89	10652.0	50150.00
5	32808.09	41.54	1.580	0.30 (0.27)	0.90	12283.7	600.00
6	34002.90	46.51	1.472	0.30 (0.27)	0.91	14448.6	31100.00
7	36661.40	57.39	1.316	0.30 (0.28)	0.93	19200.9	40100.00
8	38854.89	64.52	1.256	0.30 (0.28)	0.93	22365.1	11801.00
9	41784.32	73.88	1.193	0.30 (0.28)	0.94	27133.9	11530.00
10	44158.64	82.34	1.136	0.30 (0.28)	0.95	32566.0	11910.00
11	46248.36	89.35	1.088	0.30 (0.29)	0.95	37425.1	11330.00
12	47140.39	95.64	1.058	0.30 (0.29)	0.96	41856.2	11130.00
13	46840.44	103.24	1.024	0.30 (0.29)	0.96	45850.1	12330.00
14	46439.29	109.89	0.993	0.30 (0.29)	0.96	49193.3	12400.00
15	45698.11	118.57	0.954	0.30 (0.29)	0.96	52562.1	12201.00
16	45157.89	122.54	0.940	0.30 (0.29)	0.96	53646.8	12111.00
17	44428.14	127.93	0.926	0.30 (0.29)	0.96	55016.2	12101.10
18	43839.51	131.97	0.916	0.30 (0.29)	0.97	55865.3	10400.00
19	42179.73	140.03	0.895	0.30 (0.29)	0.97	57180.4	12010.00
20	40797.29	145.94	0.880	0.30 (0.29)	0.97	57494.1	10210.00
21	37005.46	172.11	0.812	0.30 (0.29)	0.97	58226.9	10100.00

TOTAL AREA (ACRES) = 58226.9

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 47140.39 Tc (MIN.) = 95.644
 EFFECTIVE AREA (ACRES) = 41856.16 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 58226.9
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13402.00 = 118710.93 FEET.

FLOW PROCESS FROM NODE 13402.00 TO NODE 13404.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 209.00 DOWNSTREAM (FEET) = 207.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 395.35 CHANNEL SLOPE = 0.0051
 GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 11.62
 CHANNEL FLOW THRU SUBAREA(CFS) = 47140.39
 FLOW VELOCITY(FEET/SEC.) = 15.71 FLOW DEPTH(FEET) = 11.62
 TRAVEL TIME(MIN.) = 0.42 Tc(MIN.) = 96.06
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13404.00 = 119106.28 FEET.

 FLOW PROCESS FROM NODE 13404.00 TO NODE 13404.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: 0610506Y.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	107.09	17.21	0.30	(0.30)	1.00	49.6	50600.00
TOTAL AREA(ACRES) =							49.6

 FLOW PROCESS FROM NODE 13404.00 TO NODE 13404.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25442.48	19.74	2.440	0.30(0.26)	0.87	4466.6	50200.00
2	25527.36	19.96	2.417	0.30(0.26)	0.87	4545.1	50500.00
3	27557.01	25.36	2.076	0.30(0.26)	0.88	6433.0	110.00
4	31785.62	38.18	1.660	0.30(0.27)	0.89	10652.0	50150.00
5	32808.09	42.01	1.570	0.30(0.27)	0.90	12283.7	600.00
6	34002.90	46.98	1.462	0.30(0.27)	0.91	14448.6	31100.00
7	36661.40	57.84	1.311	0.30(0.28)	0.93	19200.9	40100.00
8	38854.89	64.97	1.253	0.30(0.28)	0.93	22365.1	11801.00
9	41784.32	74.31	1.190	0.30(0.28)	0.94	27133.9	11530.00
10	44158.64	82.76	1.133	0.30(0.28)	0.95	32566.0	11910.00
11	46248.36	89.77	1.086	0.30(0.29)	0.95	37425.1	11330.00
12	47140.39	96.06	1.056	0.30(0.29)	0.96	41856.2	11130.00
13	46840.44	103.66	1.022	0.30(0.29)	0.96	45850.1	12330.00
14	46439.29	110.31	0.991	0.30(0.29)	0.96	49193.3	12400.00
15	45698.11	118.99	0.952	0.30(0.29)	0.96	52562.1	12201.00
16	45157.89	122.97	0.939	0.30(0.29)	0.96	53646.8	12111.00
17	44428.14	128.36	0.925	0.30(0.29)	0.96	55016.2	12101.10
18	43839.51	132.40	0.915	0.30(0.29)	0.97	55865.3	10400.00
19	42179.73	140.47	0.894	0.30(0.29)	0.97	57180.4	12010.00
20	40797.29	146.38	0.878	0.30(0.29)	0.97	57494.1	10210.00
21	37005.46	172.56	0.810	0.30(0.29)	0.97	58226.9	10100.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13404.00 =							119106.28 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	107.09	17.21	2.698	0.30(0.30)	1.00	49.6	50600.00
LONGEST FLOWPATH FROM NODE 50600.00 TO NODE 13404.00 =							4378.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24920.77	17.21	2.698	0.30(0.26)	0.87	3943.0	50600.00
2	25538.01	19.74	2.440	0.30(0.26)	0.87	4516.2	50200.00
3	25621.88	19.96	2.417	0.30(0.26)	0.87	4594.7	50500.00
4	27636.30	25.36	2.076	0.30(0.26)	0.88	6482.6	110.00
5	31846.32	38.18	1.660	0.30(0.27)	0.89	10701.6	50150.00
6	32864.77	42.01	1.570	0.30(0.27)	0.90	12333.3	600.00
7	34054.80	46.98	1.462	0.30(0.27)	0.91	14498.2	31100.00
8	36706.53	57.84	1.311	0.30(0.28)	0.93	19250.5	40100.00
9	38897.46	64.97	1.253	0.30(0.28)	0.93	22414.7	11801.00
10	41824.06	74.31	1.190	0.30(0.28)	0.94	27183.5	11530.00
11	44195.83	82.76	1.133	0.30(0.28)	0.95	32615.6	11910.00
12	46283.43	89.77	1.086	0.30(0.29)	0.95	37474.7	11330.00
13	47174.16	96.06	1.056	0.30(0.29)	0.96	41905.8	11130.00
14	46872.66	103.66	1.022	0.30(0.29)	0.96	45899.7	12330.00
15	46470.16	110.31	0.991	0.30(0.29)	0.96	49242.9	12400.00
16	45727.20	118.99	0.952	0.30(0.29)	0.96	52611.7	12201.00
17	45186.43	122.97	0.939	0.30(0.29)	0.96	53696.4	12111.00
18	44456.06	128.36	0.925	0.30(0.29)	0.96	55065.8	12101.10
19	43866.96	132.40	0.915	0.30(0.29)	0.97	55914.9	10400.00
20	42206.24	140.47	0.894	0.30(0.29)	0.97	57230.0	12010.00
21	40823.12	146.38	0.878	0.30(0.29)	0.97	57543.7	10210.00
22	37028.25	172.56	0.810	0.30(0.29)	0.97	58276.5	10100.00
TOTAL AREA(ACRES) =							58276.5

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 47174.16 Tc(MIN.) = 96.063
 EFFECTIVE AREA(ACRES) = 41905.75 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA(ACRES) = 58276.5
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13404.00 = 119106.28 FEET.

 FLOW PROCESS FROM NODE 13404.00 TO NODE 13406.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 207.00 DOWNSTREAM(FEET) = 195.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1601.97 CHANNEL SLOPE = 0.0075
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 10.42
 CHANNEL FLOW THRU SUBAREA(CFS) = 47174.16
 FLOW VELOCITY(FEET/SEC.) = 17.96 FLOW DEPTH(FEET) = 10.42
 TRAVEL TIME(MIN.) = 1.49 Tc(MIN.) = 97.55
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13406.00 = 120708.25 FEET.

 FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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MAINLINE Tc(MIN.) = 97.55
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.050
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS

LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
NATURAL FAIR COVER "GRASS"	B	0.20	0.30	1.000	69
NATURAL FAIR COVER "GRASS"	B	4.00	0.30	1.000	69
NATURAL FAIR COVER "GRASS"	B	2.00	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	9.70	0.30	1.000	66
NATURAL FAIR COVER "OPEN BRUSH"	B	2.60	0.30	1.000	66
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	1.80	0.30	1.000	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 20.30 SUBAREA RUNOFF (CFS) = 13.69
EFFECTIVE AREA (ACRES) = 41926.05 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
TOTAL AREA (ACRES) = 58296.8 PEAK FLOW RATE (CFS) = 47174.16
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 97.55
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.050
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	3.50	0.30	1.000	81
NATURAL FAIR COVER "WOODLAND, GRASS"	B	7.20	0.30	1.000	65
NATURAL FAIR COVER "WOODLAND, GRASS"	B	5.80	0.30	1.000	65
NATURAL FAIR COVER "WOODLAND, GRASS"	B	0.10	0.30	1.000	65

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 16.60 SUBAREA RUNOFF (CFS) = 11.20
EFFECTIVE AREA (ACRES) = 41942.65 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
TOTAL AREA (ACRES) = 58313.4 PEAK FLOW RATE (CFS) = 47174.16
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 2p00evbb.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	842.59	9.80	0.30 (0.11)	0.38	246.8	429.00
2	890.71	11.26	0.30 (0.11)	0.38	283.5	425.00
3	905.71	11.71	0.30 (0.11)	0.38	294.8	400.00
4	943.25	13.11	0.30 (0.11)	0.38	330.1	300.00
5	1001.68	18.01	0.30 (0.11)	0.38	440.3	210.00
6	980.97	20.12	0.30 (0.11)	0.38	468.0	410.00
7	972.01	21.00	0.30 (0.11)	0.38	479.3	200.00
8	969.62	21.61	0.30 (0.11)	0.38	486.7	230.00
9	947.95	22.69	0.30 (0.11)	0.37	491.2	220.50
TOTAL AREA (ACRES) =			491.2			

FLOW PROCESS FROM NODE 13406.00 TO NODE 13406.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24920.77	19.04	2.511	0.30 (0.26)	0.87	3979.9	50600.00
2	25538.01	21.56	2.313	0.30 (0.26)	0.87	4553.1	50200.00
3	25621.88	21.78	2.299	0.30 (0.26)	0.87	4631.6	50500.00
4	27636.30	27.13	1.997	0.30 (0.26)	0.88	6519.5	110.00
5	31846.32	39.87	1.616	0.30 (0.27)	0.89	10738.5	50150.00
6	32864.77	43.68	1.533	0.30 (0.27)	0.90	12370.2	600.00
7	34054.80	48.63	1.427	0.30 (0.27)	0.91	14535.1	31100.00
8	36706.53	59.45	1.293	0.30 (0.28)	0.93	19287.4	40100.00
9	38897.46	66.55	1.243	0.30 (0.28)	0.93	22451.6	11801.00
10	41824.06	75.86	1.180	0.30 (0.28)	0.94	27220.4	11530.00
11	44195.83	84.28	1.123	0.30 (0.28)	0.95	32652.5	11910.00
12	46283.43	91.26	1.078	0.30 (0.29)	0.95	37511.6	11330.00
13	47174.16	97.55	1.050	0.30 (0.29)	0.96	41942.7	11130.00
14	46872.66	105.15	1.015	0.30 (0.29)	0.96	45936.6	12330.00
15	46470.16	111.80	0.984	0.30 (0.29)	0.96	49279.8	12400.00
16	45727.20	120.50	0.946	0.30 (0.29)	0.96	52648.6	12201.00
17	45186.43	124.47	0.935	0.30 (0.29)	0.96	53733.3	12111.00
18	44456.06	129.87	0.921	0.30 (0.29)	0.96	55102.7	12101.10
19	43866.96	133.92	0.911	0.30 (0.29)	0.97	55951.8	10400.00
20	42206.24	142.01	0.890	0.30 (0.29)	0.97	57266.9	12010.00
21	40823.12	147.94	0.874	0.30 (0.29)	0.97	57580.6	10210.00
22	37028.25	174.17	0.806	0.30 (0.29)	0.97	58313.4	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13406.00 = 120708.25 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	842.59	9.80	3.858	0.30 (0.11)	0.38	246.8	429.00
2	890.71	11.26	3.560	0.30 (0.11)	0.38	283.5	425.00
3	905.71	11.71	3.484	0.30 (0.11)	0.38	294.8	400.00
4	943.25	13.11	3.246	0.30 (0.11)	0.38	330.1	300.00
5	1001.68	18.01	2.616	0.30 (0.11)	0.38	440.3	210.00
6	980.97	20.12	2.406	0.30 (0.11)	0.38	468.0	410.00
7	972.01	21.00	2.349	0.30 (0.11)	0.38	479.3	200.00

8 969.62 21.61 2.309 0.30(0.11) 0.38 486.7 230.00
 9 947.95 22.69 2.240 0.30(0.11) 0.37 491.2 220.50
 LONGEST FLOWPATH FROM NODE 230.00 TO NODE 13406.00 = 11903.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21351.35	9.80	3.858	0.30(0.25)	0.82	2294.9	429.00
2	22509.85	11.26	3.560	0.30(0.25)	0.82	2637.9	425.00
3	22864.29	11.71	3.484	0.30(0.25)	0.82	2742.6	400.00
4	23707.17	13.11	3.246	0.30(0.25)	0.82	3070.0	300.00
5	25677.13	18.01	2.616	0.30(0.25)	0.82	4204.3	210.00
6	25912.29	19.04	2.511	0.30(0.25)	0.82	4433.8	50600.00
7	26164.94	20.12	2.406	0.30(0.25)	0.82	4692.3	410.00
8	26372.39	21.00	2.349	0.30(0.25)	0.83	4904.7	200.00
9	26507.83	21.56	2.313	0.30(0.25)	0.83	5039.2	50200.00
10	26528.12	21.61	2.309	0.30(0.25)	0.83	5059.0	230.00
11	26588.21	21.78	2.299	0.30(0.25)	0.83	5118.9	50500.00
12	26914.44	22.69	2.240	0.30(0.25)	0.83	5445.7	220.50
13	28475.90	27.13	1.997	0.30(0.25)	0.84	7010.7	110.00
14	32516.35	39.87	1.616	0.30(0.26)	0.87	11229.7	50150.00
15	33497.88	43.68	1.533	0.30(0.26)	0.88	12861.4	600.00
16	34640.33	48.63	1.427	0.30(0.27)	0.89	15026.3	31100.00
17	37232.52	59.45	1.293	0.30(0.27)	0.91	19778.6	40100.00
18	39401.03	66.55	1.243	0.30(0.28)	0.92	22942.8	11801.00
19	42299.56	75.86	1.180	0.30(0.28)	0.93	27711.6	11530.00
20	44645.94	84.28	1.123	0.30(0.28)	0.94	33143.7	11910.00
21	46713.73	91.26	1.078	0.30(0.28)	0.95	38002.8	11330.00
22	47591.67	97.55	1.050	0.30(0.29)	0.95	42433.9	11130.00
23	47274.71	105.15	1.015	0.30(0.29)	0.95	46427.8	12330.00
24	46858.67	111.80	0.984	0.30(0.29)	0.96	49771.0	12400.00
25	46098.46	120.50	0.946	0.30(0.29)	0.96	53139.8	12201.00
26	45553.08	124.47	0.935	0.30(0.29)	0.96	54224.5	12111.00
27	44816.46	129.87	0.921	0.30(0.29)	0.96	55593.9	12101.10
28	44222.67	133.92	0.911	0.30(0.29)	0.96	56443.0	10400.00
29	42552.58	142.01	0.890	0.30(0.29)	0.96	57758.1	12010.00
30	41162.59	147.94	0.874	0.30(0.29)	0.96	58071.8	10210.00
31	37337.33	174.17	0.806	0.30(0.29)	0.96	58804.6	10100.00
TOTAL AREA (ACRES) = 58804.6							

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) = 47591.67 Tc(MIN.) = 97.550
 EFFECTIVE AREA(ACRES) = 42433.85 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
 TOTAL AREA(ACRES) = 58804.6
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13406.00 = 120708.25 FEET.

 FLOW PROCESS FROM NODE 13406.00 TO NODE 13408.00 IS CODE = 56

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<
 =====

ELEVATION DATA: UPSTREAM(FEET) = 195.00 DOWNSTREAM(FEET) = 182.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 2458.36 CHANNEL SLOPE = 0.0053
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 11.54

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.038
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 7.00 0.30 1.000 -
 USER-DEFINED - 3.30 0.30 1.000 -
 USER-DEFINED - 0.40 0.30 0.100 -
 USER-DEFINED - 1.40 0.30 1.000 -
 USER-DEFINED - 0.30 0.30 0.100 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.949
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 47595.88
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 16.00
 AVERAGE FLOW DEPTH(FEET) = 11.54 TRAVEL TIME(MIN.) = 2.56
 Tc(MIN.) = 100.11
 SUBAREA AREA(ACRES) = 12.40 SUBAREA RUNOFF(CFS) = 8.41
 EFFECTIVE AREA(ACRES) = 42446.25 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA(ACRES) = 58817.0 PEAK FLOW RATE(CFS) = 47591.67
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 11.54
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 11.54 FLOW VELOCITY(FEET/SEC.) = 16.00
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13408.00 = 123166.61 FEET.

 FLOW PROCESS FROM NODE 13408.00 TO NODE 13408.00 IS CODE = 12

 >>>>CLEAR MEMORY BANK # 2 <<<<<
 =====

 FLOW PROCESS FROM NODE 13408.00 TO NODE 13408.00 IS CODE = 15.1

 >>>>DEFINE MEMORY BANK # 2 <<<<<
 =====

PEAK FLOWRATE TABLE FILE NAME: 0610507Y.DNA
 MEMORY BANK # 2 DEFINED AS FOLLOWS:
 STREAM Q Tc Fp(Fm) Ap Ae HEADWATER
 NUMBER (CFS) (MIN.) (INCH/HR) (ACRES) NODE
 1 459.67 19.60 0.30(0.30) 0.99 236.8 50700.00
 TOTAL AREA(ACRES) = 236.8

 FLOW PROCESS FROM NODE 13408.00 TO NODE 13408.00 IS CODE = 11

 >>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
 =====

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21351.35	13.13	3.243	0.30(0.25)	0.82	2307.3	429.00
2	22509.85	14.53	3.003	0.30(0.25)	0.82	2650.3	425.00
3	22864.29	14.96	2.930	0.30(0.25)	0.82	2755.0	400.00

4	23707.17	16.32	2.789	0.30 (0.25)	0.82	3082.4	300.00
5	25677.13	21.14	2.340	0.30 (0.25)	0.82	4216.7	210.00
6	25912.29	22.16	2.274	0.30 (0.25)	0.82	4446.2	50600.00
7	26164.94	23.23	2.206	0.30 (0.25)	0.83	4704.7	410.00
8	26372.39	24.10	2.150	0.30 (0.25)	0.83	4917.1	200.00
9	26507.83	24.66	2.114	0.30 (0.25)	0.83	5051.6	50200.00
10	26528.12	24.71	2.111	0.30 (0.25)	0.83	5071.4	230.00
11	26588.21	24.87	2.100	0.30 (0.25)	0.83	5131.3	50500.00
12	26914.44	25.77	2.057	0.30 (0.25)	0.83	5458.1	220.50
13	28475.90	30.16	1.865	0.30 (0.25)	0.84	7023.1	110.00
14	32516.35	42.77	1.553	0.30 (0.26)	0.87	11242.1	50150.00
15	33497.88	46.55	1.471	0.30 (0.26)	0.88	12873.8	600.00
16	34640.33	51.46	1.381	0.30 (0.27)	0.89	15038.7	31100.00
17	37232.52	62.22	1.272	0.30 (0.27)	0.91	19791.0	40100.00
18	39401.03	69.27	1.224	0.30 (0.28)	0.92	22955.2	11801.00
19	42299.56	78.52	1.162	0.30 (0.28)	0.93	27724.0	11530.00
20	44645.94	86.89	1.105	0.30 (0.28)	0.94	33156.1	11910.00
21	46713.73	93.84	1.066	0.30 (0.28)	0.95	38015.2	11330.00
22	47591.67	100.11	1.038	0.30 (0.29)	0.95	42446.2	11130.00
23	47274.71	107.71	1.003	0.30 (0.29)	0.95	46440.2	12330.00
24	46858.67	114.37	0.973	0.30 (0.29)	0.96	49783.4	12400.00
25	46098.46	123.08	0.939	0.30 (0.29)	0.96	53152.2	12201.00
26	45553.08	127.07	0.929	0.30 (0.29)	0.96	54236.9	12111.00
27	44816.46	132.48	0.915	0.30 (0.29)	0.96	55606.3	12101.10
28	44222.67	136.54	0.904	0.30 (0.29)	0.96	56455.4	10400.00
29	42552.58	144.66	0.883	0.30 (0.29)	0.96	57770.5	12010.00
30	41162.59	150.62	0.867	0.30 (0.29)	0.96	58084.2	10210.00
31	37337.33	176.94	0.799	0.30 (0.29)	0.96	58817.0	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13408.00 = 123166.61 FEET.

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	459.67	19.60	2.454	0.30 (0.30)	0.99	236.8	50700.00

LONGEST FLOWPATH FROM NODE 50700.00 TO NODE 13408.00 = 7903.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21771.86	13.13	3.243	0.30 (0.25)	0.83	2465.9	429.00
2	22937.56	14.53	3.003	0.30 (0.25)	0.83	2825.9	425.00
3	23292.74	14.96	2.930	0.30 (0.25)	0.83	2935.8	400.00
4	24149.45	16.32	2.789	0.30 (0.25)	0.83	3279.7	300.00
5	25506.72	19.60	2.454	0.30 (0.25)	0.83	4090.7	50700.00
6	26112.47	21.14	2.340	0.30 (0.25)	0.83	4453.5	210.00
7	26333.63	22.16	2.274	0.30 (0.25)	0.83	4683.0	50600.00
8	26571.72	23.23	2.206	0.30 (0.25)	0.83	4941.5	410.00
9	26767.20	24.10	2.150	0.30 (0.25)	0.83	5153.8	200.00
10	26895.04	24.66	2.114	0.30 (0.25)	0.83	5288.3	50200.00
11	26914.59	24.71	2.111	0.30 (0.25)	0.83	5308.1	230.00
12	26972.48	24.87	2.100	0.30 (0.25)	0.83	5368.1	50500.00
13	27289.56	25.77	2.057	0.30 (0.25)	0.84	5694.9	220.50
14	28810.01	30.16	1.865	0.30 (0.25)	0.85	7259.9	110.00
15	32784.00	42.77	1.553	0.30 (0.26)	0.87	11478.9	50150.00
16	33748.09	46.55	1.471	0.30 (0.27)	0.88	13110.6	600.00
17	34871.23	51.46	1.381	0.30 (0.27)	0.90	15275.4	31100.00
18	37440.20	62.22	1.272	0.30 (0.27)	0.92	20027.8	40100.00
19	39598.54	69.27	1.224	0.30 (0.28)	0.92	23192.0	11801.00

20	42483.74	78.52	1.162	0.30 (0.28)	0.93	27960.7	11530.00
21	44818.03	86.89	1.105	0.30 (0.28)	0.94	33392.9	11910.00
22	46877.61	93.84	1.066	0.30 (0.28)	0.95	38252.0	11330.00
23	47749.45	100.11	1.038	0.30 (0.29)	0.95	42683.0	11130.00
24	47425.08	107.71	1.003	0.30 (0.29)	0.95	46677.0	12330.00
25	47002.55	114.37	0.973	0.30 (0.29)	0.96	50020.2	12400.00
26	46235.16	123.08	0.939	0.30 (0.29)	0.96	53389.0	12201.00
27	45687.57	127.07	0.929	0.30 (0.29)	0.96	54473.6	12111.00
28	44947.95	132.48	0.915	0.30 (0.29)	0.96	55843.1	12101.10
29	44351.91	136.54	0.904	0.30 (0.29)	0.96	56692.2	10400.00
30	42677.32	144.66	0.883	0.30 (0.29)	0.96	58007.3	12010.00
31	41284.02	150.62	0.867	0.30 (0.29)	0.96	58321.0	10210.00
32	37444.18	176.94	0.799	0.30 (0.29)	0.96	59053.8	10100.00

TOTAL AREA (ACRES) = 59053.8

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 47749.45 Tc (MIN.) = 100.110
EFFECTIVE AREA (ACRES) = 42683.04 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 59053.8
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13408.00 = 123166.61 FEET.

FLOW PROCESS FROM NODE 13408.00 TO NODE 13410.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 182.00 DOWNSTREAM (FEET) = 178.72
CHANNEL LENGTH THRU SUBAREA (FEET) = 952.73 CHANNEL SLOPE = 0.0034
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 13.03
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.033

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.40	0.30	1.000	-
USER-DEFINED	-	2.90	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 47750.54
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 13.83
AVERAGE FLOW DEPTH (FEET) = 13.03 TRAVEL TIME (MIN.) = 1.15
Tc (MIN.) = 101.26
SUBAREA AREA (ACRES) = 3.30 SUBAREA RUNOFF (CFS) = 2.18
EFFECTIVE AREA (ACRES) = 42686.34 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 59057.1 PEAK FLOW RATE (CFS) = 47749.45
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 13.03

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 13.03 FLOW VELOCITY (FEET/SEC.) = 13.83
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13410.00 = 124119.34 FEET.

 FLOW PROCESS FROM NODE 13410.00 TO NODE 13410.00 IS CODE = 12

 >>>>CLEAR MEMORY BANK # 3 <<<<<<
 =====

 FLOW PROCESS FROM NODE 13410.00 TO NODE 13410.00 IS CODE = 15.1

 >>>>DEFINE MEMORY BANK # 3 <<<<<<
 =====

PEAK FLOWRATE TABLE FILE NAME: RU00EV36.DNA
 MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2776.71	27.02	0.30 (0.27)	0.90	1487.3	110.00
2	2879.22	29.39	0.30 (0.27)	0.90	1661.9	100.00
3	2888.80	30.54	0.30 (0.27)	0.90	1737.8	100.00
4	2912.73	33.54	0.30 (0.27)	0.91	1918.1	130.00
5	3088.57	46.09	0.30 (0.28)	0.93	2647.7	20100.00
6	3029.31	51.27	0.30 (0.28)	0.93	2829.1	13600.00
7	2905.42	85.17	0.30 (0.28)	0.93	3796.8	13510.00
8	2757.25	93.58	0.30 (0.28)	0.93	3859.7	13500.00
TOTAL AREA (ACRES) =						3859.7

 FLOW PROCESS FROM NODE 13410.00 TO NODE 13410.00 IS CODE = 11

 >>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<<
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** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	21771.86	14.61	2.991	0.30 (0.25)	0.83	2469.2	429.00
2	22937.56	15.99	2.823	0.30 (0.25)	0.83	2829.2	425.00
3	23292.74	16.41	2.780	0.30 (0.25)	0.83	2939.1	400.00
4	24149.45	17.75	2.643	0.30 (0.25)	0.83	3283.0	300.00
5	25506.72	21.00	2.349	0.30 (0.25)	0.83	4094.0	50700.00
6	26112.47	22.53	2.250	0.30 (0.25)	0.83	4456.8	210.00
7	26333.63	23.55	2.185	0.30 (0.25)	0.83	4686.3	50600.00
8	26571.72	24.61	2.117	0.30 (0.25)	0.83	4944.8	410.00
9	26767.20	25.48	2.070	0.30 (0.25)	0.83	5157.1	200.00
10	26895.04	26.04	2.046	0.30 (0.25)	0.83	5291.6	50200.00
11	26914.59	26.09	2.043	0.30 (0.25)	0.83	5311.4	230.00
12	26972.48	26.25	2.036	0.30 (0.25)	0.83	5371.4	50500.00
13	27289.56	27.15	1.996	0.30 (0.25)	0.84	5698.2	220.50
14	28810.01	31.50	1.830	0.30 (0.25)	0.85	7263.2	110.00
15	32784.00	44.06	1.525	0.30 (0.26)	0.87	11482.2	50150.00
16	33748.09	47.83	1.444	0.30 (0.27)	0.88	13113.9	600.00
17	34871.23	52.73	1.367	0.30 (0.27)	0.90	15278.7	31100.00
18	37440.20	63.46	1.264	0.30 (0.27)	0.92	20031.1	40100.00
19	39598.54	70.49	1.216	0.30 (0.28)	0.92	23195.3	11801.00
20	42483.74	79.71	1.154	0.30 (0.28)	0.93	27964.0	11530.00
21	44818.03	88.07	1.097	0.30 (0.28)	0.94	33396.2	11910.00
22	46877.61	94.99	1.061	0.30 (0.28)	0.95	38255.3	11330.00
23	47749.45	101.26	1.033	0.30 (0.29)	0.95	42686.3	11130.00
24	47425.08	108.86	0.998	0.30 (0.29)	0.95	46680.3	12330.00

25	47002.55	115.53	0.967	0.30 (0.29)	0.96	50023.5	12400.00
26	46235.16	124.24	0.936	0.30 (0.29)	0.96	53392.3	12201.00
27	45687.57	128.24	0.926	0.30 (0.29)	0.96	54476.9	12111.00
28	44947.95	133.65	0.912	0.30 (0.29)	0.96	55846.4	12101.10
29	44351.91	137.72	0.901	0.30 (0.29)	0.96	56695.5	10400.00
30	42677.32	145.85	0.880	0.30 (0.29)	0.96	58010.6	12010.00
31	41284.02	151.82	0.864	0.30 (0.29)	0.96	58324.3	10210.00
32	37444.18	178.18	0.796	0.30 (0.29)	0.96	59057.1	10100.00
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13410.00 =							124119.34 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2776.71	27.02	2.002	0.30 (0.27)	0.90	1487.3	110.00
2	2879.22	29.39	1.896	0.30 (0.27)	0.90	1661.9	100.00
3	2888.80	30.54	1.855	0.30 (0.27)	0.90	1737.8	100.00
4	2912.73	33.54	1.778	0.30 (0.27)	0.91	1918.1	130.00
5	3088.57	46.09	1.482	0.30 (0.28)	0.93	2647.7	20100.00
6	3029.31	51.27	1.383	0.30 (0.28)	0.93	2829.1	13600.00
7	2905.42	85.17	1.117	0.30 (0.28)	0.93	3796.8	13510.00
8	2757.25	93.58	1.068	0.30 (0.28)	0.93	3859.7	13500.00
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13410.00 =							41710.10 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24130.58	14.61	2.991	0.30 (0.26)	0.85	3273.3	429.00
2	25359.91	15.99	2.823	0.30 (0.25)	0.85	3709.2	425.00
3	25737.09	16.41	2.780	0.30 (0.25)	0.85	3842.5	400.00
4	26649.15	17.75	2.643	0.30 (0.25)	0.85	4260.2	300.00
5	28097.38	21.00	2.349	0.30 (0.25)	0.85	5250.1	50700.00
6	28760.49	22.53	2.250	0.30 (0.25)	0.85	5697.2	210.00
7	29009.92	23.55	2.185	0.30 (0.25)	0.85	5982.7	50600.00
8	29269.05	24.61	2.117	0.30 (0.25)	0.85	6299.5	410.00
9	29489.70	25.48	2.070	0.30 (0.25)	0.85	6559.9	200.00
10	29638.52	26.04	2.046	0.30 (0.25)	0.85	6724.9	50200.00
11	29660.00	26.09	2.043	0.30 (0.25)	0.85	6747.6	230.00
12	29723.61	26.25	2.036	0.30 (0.25)	0.85	6816.4	50500.00
13	30020.47	27.02	2.002	0.30 (0.26)	0.85	7138.3	110.00
14	30071.88	27.15	1.996	0.30 (0.26)	0.85	7195.0	220.50
15	30952.97	29.39	1.896	0.30 (0.26)	0.85	8167.3	100.00
16	31362.79	30.54	1.855	0.30 (0.26)	0.86	8655.1	100.00
17	31706.49	31.50	1.830	0.30 (0.26)	0.86	9058.8	110.00
18	32367.69	33.54	1.778	0.30 (0.26)	0.86	9866.0	130.00
19	35844.14	44.06	1.525	0.30 (0.26)	0.88	14012.0	50150.00
20	36390.70	46.09	1.482	0.30 (0.27)	0.89	15006.8	20100.00
21	36816.68	47.83	1.444	0.30 (0.27)	0.89	15822.8	600.00
22	37564.46	51.27	1.383	0.30 (0.27)	0.90	17460.0	13600.00
23	37895.19	52.73	1.367	0.30 (0.27)	0.90	18149.6	31100.00
24	40424.95	63.46	1.264	0.30 (0.28)	0.92	23208.3	40100.00
25	42557.61	70.49	1.216	0.30 (0.28)	0.92	26573.1	11801.00
26	45409.11	79.71	1.154	0.30 (0.28)	0.93	31605.0	11530.00
27	46914.52	85.17	1.117	0.30 (0.28)	0.94	35310.5	13510.00
28	47672.46	88.07	1.097	0.30 (0.28)	0.94	37214.6	11910.00
29	49215.99	93.58	1.068	0.30 (0.28)	0.94	41126.8	13500.00
30	49612.34	94.99	1.061	0.30 (0.28)	0.95	42115.0	11330.00
31	50384.02	101.26	1.033	0.30 (0.28)	0.95	46546.0	11130.00
32	49938.05	108.86	0.998	0.30 (0.29)	0.95	50540.0	12330.00

33	49408.98	115.53	0.967	0.30 (0.29)	0.96	53883.2	12400.00
34	48531.48	124.24	0.936	0.30 (0.29)	0.96	57251.9	12201.00
35	47947.55	128.24	0.926	0.30 (0.29)	0.96	58336.6	12111.00
36	47158.62	133.65	0.912	0.30 (0.29)	0.96	59706.1	12101.10
37	46525.59	137.72	0.901	0.30 (0.29)	0.96	60555.2	10400.00
38	44776.95	145.85	0.880	0.30 (0.29)	0.96	61870.3	12010.00
39	43329.32	151.82	0.864	0.30 (0.29)	0.96	62184.0	10210.00
40	39249.59	178.18	0.796	0.30 (0.29)	0.96	62916.7	10100.00

TOTAL AREA (ACRES) = 62916.7

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 50384.02 Tc (MIN.) = 101.258
EFFECTIVE AREA (ACRES) = 46546.02 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.90
TOTAL AREA (ACRES) = 62916.7
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13410.00 = 124119.34 FEET.

FLOW PROCESS FROM NODE 13410.00 TO NODE 13412.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 178.72 DOWNSTREAM (FEET) = 176.93
CHANNEL LENGTH THRU SUBAREA (FEET) = 169.78 CHANNEL SLOPE = 0.0105
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 9.82
CHANNEL FLOW THRU SUBAREA (CFS) = 50384.02
FLOW VELOCITY (FEET/SEC.) = 20.59 FLOW DEPTH (FEET) = 9.82
TRAVEL TIME (MIN.) = 0.14 Tc (MIN.) = 101.40
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13412.00 = 124289.12 FEET.

FLOW PROCESS FROM NODE 13412.00 TO NODE 13412.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 13412.00 TO NODE 13412.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 0506101b.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	683.96	36.50	0.30 (0.30)	0.98	591.0	10100.00

TOTAL AREA (ACRES) = 591.0

FLOW PROCESS FROM NODE 13412.00 TO NODE 13412.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24130.58	14.78	2.961	0.30 (0.26)	0.85	3273.3	429.00
2	25359.91	16.16	2.805	0.30 (0.25)	0.85	3709.2	425.00
3	25737.09	16.58	2.762	0.30 (0.25)	0.85	3842.5	400.00
4	26649.15	17.92	2.625	0.30 (0.25)	0.85	4260.2	300.00
5	28097.38	21.17	2.338	0.30 (0.25)	0.85	5250.1	50700.00
6	28760.49	22.70	2.240	0.30 (0.25)	0.85	5697.2	210.00
7	29009.92	23.72	2.174	0.30 (0.25)	0.85	5982.7	50600.00
8	29269.05	24.77	2.106	0.30 (0.25)	0.85	6299.5	410.00
9	29489.70	25.65	2.063	0.30 (0.25)	0.85	6559.9	200.00
10	29638.52	26.20	2.039	0.30 (0.25)	0.85	6724.9	50200.00
11	29660.00	26.25	2.036	0.30 (0.25)	0.85	6747.6	230.00
12	29723.61	26.41	2.029	0.30 (0.25)	0.85	6816.4	50500.00
13	30020.47	27.18	1.995	0.30 (0.26)	0.85	7138.3	110.00
14	30071.88	27.31	1.989	0.30 (0.26)	0.85	7195.0	220.50
15	30952.97	29.56	1.889	0.30 (0.26)	0.85	8167.3	100.00
16	31362.79	30.70	1.851	0.30 (0.26)	0.86	8655.1	100.00
17	31706.49	31.66	1.826	0.30 (0.26)	0.86	9058.8	110.00
18	32367.69	33.70	1.774	0.30 (0.26)	0.86	9866.0	130.00
19	35844.14	44.21	1.522	0.30 (0.26)	0.88	14012.0	50150.00
20	36390.70	46.24	1.478	0.30 (0.27)	0.89	15006.8	20100.00
21	36816.68	47.99	1.441	0.30 (0.27)	0.89	15822.8	600.00
22	37564.46	51.42	1.381	0.30 (0.27)	0.90	17460.0	13600.00
23	37895.19	52.88	1.365	0.30 (0.27)	0.90	18149.6	31100.00
24	40424.95	63.61	1.263	0.30 (0.28)	0.92	23208.3	40100.00
25	42557.61	70.63	1.215	0.30 (0.28)	0.92	26573.1	11801.00
26	45409.11	79.85	1.153	0.30 (0.28)	0.93	31605.0	11530.00
27	46914.52	85.31	1.116	0.30 (0.28)	0.94	35310.5	13510.00
28	47672.46	88.21	1.096	0.30 (0.28)	0.94	37214.6	11910.00
29	49215.99	93.72	1.067	0.30 (0.28)	0.94	41126.8	13500.00
30	49612.34	95.13	1.061	0.30 (0.28)	0.95	42115.0	11330.00
31	50384.02	101.40	1.032	0.30 (0.28)	0.95	46546.0	11130.00
32	49938.05	109.00	0.997	0.30 (0.29)	0.95	50540.0	12330.00
33	49408.98	115.67	0.967	0.30 (0.29)	0.96	53883.2	12400.00
34	48531.48	124.38	0.936	0.30 (0.29)	0.96	57251.9	12201.00
35	47947.55	128.38	0.925	0.30 (0.29)	0.96	58336.6	12111.00
36	47158.62	133.79	0.911	0.30 (0.29)	0.96	59706.1	12101.10
37	46525.59	137.86	0.901	0.30 (0.29)	0.96	60555.2	10400.00
38	44776.95	146.00	0.879	0.30 (0.29)	0.96	61870.3	12010.00
39	43329.32	151.97	0.864	0.30 (0.29)	0.96	62184.0	10210.00
40	39249.59	178.33	0.795	0.30 (0.29)	0.96	62916.7	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13412.00 = 124289.12 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	683.96	36.50	1.703	0.30 (0.30)	0.98	591.0	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13412.00 = 14677.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24655.22	14.78	2.961	0.30 (0.26)	0.86	3512.6	429.00
2	25899.96	16.16	2.805	0.30 (0.26)	0.86	3970.9	425.00
3	26281.73	16.58	2.762	0.30 (0.26)	0.86	4110.9	400.00
4	27205.13	17.92	2.625	0.30 (0.26)	0.86	4550.3	300.00
5	28673.08	21.17	2.338	0.30 (0.26)	0.86	5592.8	50700.00

6	29348.12	22.70	2.240	0.30	(0.26)	0.86	6064.6	210.00
7	29603.27	23.72	2.174	0.30	(0.26)	0.86	6366.6	50600.00
8	29866.48	24.77	2.106	0.30	(0.26)	0.86	6700.7	410.00
9	30093.37	25.65	2.063	0.30	(0.26)	0.86	6975.1	200.00
10	30246.59	26.20	2.039	0.30	(0.26)	0.86	7149.0	50200.00
11	30268.49	26.25	2.036	0.30	(0.26)	0.86	7172.6	230.00
12	30333.29	26.41	2.029	0.30	(0.26)	0.86	7244.0	50500.00
13	30635.49	27.18	1.995	0.30	(0.26)	0.86	7578.3	110.00
14	30687.72	27.31	1.989	0.30	(0.26)	0.86	7637.2	220.50
15	31580.05	29.56	1.889	0.30	(0.26)	0.86	8645.8	100.00
16	31998.75	30.70	1.851	0.30	(0.26)	0.86	9152.2	100.00
17	32351.99	31.66	1.826	0.30	(0.26)	0.87	9571.5	110.00
18	33031.32	33.70	1.774	0.30	(0.26)	0.87	10411.6	130.00
19	33978.66	36.50	1.703	0.30	(0.26)	0.87	11562.6	10100.00
20	36440.39	44.21	1.522	0.30	(0.27)	0.88	14603.0	50150.00
21	36965.66	46.24	1.478	0.30	(0.27)	0.89	15597.8	20100.00
22	37373.33	47.99	1.441	0.30	(0.27)	0.90	16413.8	600.00
23	38092.39	51.42	1.381	0.30	(0.27)	0.90	18051.0	13600.00
24	38415.29	52.88	1.365	0.30	(0.27)	0.90	18740.6	31100.00
25	40895.12	63.61	1.263	0.30	(0.28)	0.92	23799.3	40100.00
26	43004.68	70.63	1.215	0.30	(0.28)	0.93	27164.1	11801.00
27	45825.88	79.85	1.153	0.30	(0.28)	0.93	32196.0	11530.00
28	47313.34	85.31	1.116	0.30	(0.28)	0.94	35901.5	13510.00
29	48061.76	88.21	1.096	0.30	(0.28)	0.94	37805.6	11910.00
30	49591.13	93.72	1.067	0.30	(0.28)	0.94	41717.8	13500.00
31	49984.35	95.13	1.061	0.30	(0.28)	0.95	42706.0	11330.00
32	50742.13	101.40	1.032	0.30	(0.29)	0.95	47137.0	11130.00
33	50279.28	109.00	0.997	0.30	(0.29)	0.95	51131.0	12330.00
34	49735.42	115.67	0.967	0.30	(0.29)	0.96	54474.2	12400.00
35	48842.77	124.38	0.936	0.30	(0.29)	0.96	57842.9	12201.00
36	48253.80	128.38	0.925	0.30	(0.29)	0.96	58927.6	12111.00
37	47458.02	133.79	0.911	0.30	(0.29)	0.96	60297.1	12101.10
38	46819.85	137.86	0.901	0.30	(0.29)	0.96	61146.2	10400.00
39	45060.93	146.00	0.879	0.30	(0.29)	0.96	62461.3	12010.00
40	43605.76	151.97	0.864	0.30	(0.29)	0.96	62775.0	10210.00
41	39492.72	178.33	0.795	0.30	(0.29)	0.96	63507.7	10100.00

TOTAL AREA (ACRES) = 63507.7

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 50742.13 Tc (MIN.) = 101.396
EFFECTIVE AREA (ACRES) = 47137.02 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 63507.7
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13412.00 = 124289.12 FEET.

FLOW PROCESS FROM NODE 13412.00 TO NODE 13700.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 176.93 DOWNSTREAM (FEET) = 170.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 260.10 CHANNEL SLOPE = 0.0266
GIVEN CHANNEL BASE (FEET) = 200.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 7.57
CHANNEL FLOW THRU SUBAREA (CFS) = 50742.13
FLOW VELOCITY (FEET/SEC.) = 28.17 FLOW DEPTH (FEET) = 7.57

TRAVEL TIME (MIN.) = 0.15 Tc (MIN.) = 101.55
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13700.00 = 124549.22 FEET.

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 2 <<<<<
=====

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<
=====

PEAK FLOWRATE TABLE FILE NAME: 0610508Y.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24655.22	14.98	2.927	0.30 (0.26)	0.86	3512.6
TOTAL AREA (ACRES) =						131.3

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
=====

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24655.22	14.98	2.927	0.30 (0.26)	0.86	3512.6	429.00
2	25899.96	16.35	2.786	0.30 (0.26)	0.86	3970.9	425.00
3	26281.73	16.78	2.743	0.30 (0.26)	0.86	4110.9	400.00
4	27205.13	18.11	2.606	0.30 (0.26)	0.86	4550.3	300.00
5	28673.08	21.36	2.326	0.30 (0.26)	0.86	5592.8	50700.00
6	29348.12	22.88	2.228	0.30 (0.26)	0.86	6064.6	210.00
7	29603.27	23.90	2.163	0.30 (0.26)	0.86	6366.6	50600.00
8	29866.48	24.96	2.095	0.30 (0.26)	0.86	6700.7	410.00
9	30093.37	25.83	2.055	0.30 (0.26)	0.86	6975.1	200.00
10	30246.59	26.38	2.030	0.30 (0.26)	0.86	7149.0	50200.00
11	30268.49	26.44	2.028	0.30 (0.26)	0.86	7172.6	230.00
12	30333.29	26.60	2.021	0.30 (0.26)	0.86	7244.0	50500.00
13	30635.49	27.36	1.987	0.30 (0.26)	0.86	7578.3	110.00
14	30687.72	27.49	1.981	0.30 (0.26)	0.86	7637.2	220.50
15	31580.05	29.74	1.881	0.30 (0.26)	0.86	8645.8	100.00
16	31998.75	30.88	1.846	0.30 (0.26)	0.86	9152.2	100.00
17	32351.99	31.84	1.822	0.30 (0.26)	0.87	9571.5	110.00
18	33031.32	33.88	1.770	0.30 (0.26)	0.87	10411.6	130.00
19	33978.66	36.68	1.698	0.30 (0.26)	0.87	11562.6	10100.00
20	36440.39	44.39	1.518	0.30 (0.27)	0.88	14603.0	50150.00
21	36965.66	46.41	1.475	0.30 (0.27)	0.89	15597.8	20100.00
22	37373.33	48.16	1.437	0.30 (0.27)	0.90	16413.8	600.00
23	38092.39	51.59	1.380	0.30 (0.27)	0.90	18051.0	13600.00
24	38415.29	53.05	1.363	0.30 (0.27)	0.90	18740.6	31100.00
25	40895.12	63.78	1.261	0.30 (0.28)	0.92	23799.3	40100.00
26	43004.68	70.80	1.214	0.30 (0.28)	0.93	27164.1	11801.00
27	45825.88	80.01	1.152	0.30 (0.28)	0.93	32196.0	11530.00
28	47313.34	85.47	1.115	0.30 (0.28)	0.94	35901.5	13510.00

29	48061.76	88.36	1.095	0.30 (0.28)	0.94	37805.6	11910.00
30	49591.13	93.88	1.066	0.30 (0.28)	0.94	41717.8	13500.00
31	49984.35	95.29	1.060	0.30 (0.28)	0.95	42706.0	11330.00
32	50742.13	101.55	1.031	0.30 (0.29)	0.95	47137.0	11130.00
33	50279.28	109.16	0.997	0.30 (0.29)	0.95	51131.0	12330.00
34	49735.42	115.82	0.966	0.30 (0.29)	0.96	54474.2	12400.00
35	48842.77	124.54	0.935	0.30 (0.29)	0.96	57842.9	12201.00
36	48253.80	128.53	0.925	0.30 (0.29)	0.96	58927.6	12111.00
37	47458.02	133.95	0.911	0.30 (0.29)	0.96	60297.1	12101.10
38	46819.85	138.02	0.900	0.30 (0.29)	0.96	61146.2	10400.00
39	45060.93	146.16	0.879	0.30 (0.29)	0.96	62461.3	12010.00
40	43605.76	152.13	0.863	0.30 (0.29)	0.96	62775.0	10210.00
41	39492.72	178.49	0.795	0.30 (0.29)	0.96	63507.7	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13700.00 = 124549.22 FEET.

** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	246.57	20.47	2.383	0.30 (0.30)	0.99	131.3	50800.00

LONGEST FLOWPATH FROM NODE 50800.00 TO NODE 13700.00 = 5946.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24882.76	14.98	2.927	0.30 (0.26)	0.86	3608.7	429.00
2	26134.99	16.35	2.786	0.30 (0.26)	0.86	4075.7	425.00
3	26518.64	16.78	2.743	0.30 (0.26)	0.86	4218.5	400.00
4	27446.63	18.11	2.606	0.30 (0.26)	0.86	4666.5	300.00
5	28518.08	20.47	2.383	0.30 (0.26)	0.86	5438.9	50800.00
6	28912.92	21.36	2.326	0.30 (0.26)	0.86	5724.1	50700.00
7	29576.37	22.88	2.228	0.30 (0.26)	0.86	6195.9	210.00
8	29823.80	23.90	2.163	0.30 (0.26)	0.86	6497.9	50600.00
9	30078.97	24.96	2.095	0.30 (0.26)	0.86	6831.9	410.00
10	30301.18	25.83	2.055	0.30 (0.26)	0.86	7106.4	200.00
11	30451.49	26.38	2.030	0.30 (0.26)	0.86	7280.3	50200.00
12	30473.10	26.44	2.028	0.30 (0.26)	0.86	7303.9	230.00
13	30537.07	26.60	2.021	0.30 (0.26)	0.86	7375.3	50500.00
14	30835.22	27.36	1.987	0.30 (0.26)	0.86	7709.6	110.00
15	30886.77	27.49	1.981	0.30 (0.26)	0.86	7768.5	220.50
16	31767.27	29.74	1.881	0.30 (0.26)	0.86	8777.1	100.00
17	32181.91	30.88	1.846	0.30 (0.26)	0.87	9283.5	100.00
18	32532.25	31.84	1.822	0.30 (0.26)	0.87	9702.8	110.00
19	33205.42	33.88	1.770	0.30 (0.26)	0.87	10542.9	130.00
20	34144.29	36.68	1.698	0.30 (0.26)	0.87	11693.8	10100.00
21	36584.77	44.39	1.518	0.30 (0.27)	0.89	14734.2	50150.00
22	37104.88	46.41	1.475	0.30 (0.27)	0.89	15729.1	20100.00
23	37508.09	48.16	1.437	0.30 (0.27)	0.90	16545.0	600.00
24	38220.38	51.59	1.380	0.30 (0.27)	0.90	18182.3	13600.00
25	38541.38	53.05	1.363	0.30 (0.27)	0.90	18871.9	31100.00
26	41009.16	63.78	1.261	0.30 (0.28)	0.92	23930.5	40100.00
27	43113.11	70.80	1.214	0.30 (0.28)	0.93	27295.3	11801.00
28	45926.94	80.01	1.152	0.30 (0.28)	0.93	32327.3	11530.00
29	47410.04	85.47	1.115	0.30 (0.28)	0.94	36032.8	13510.00
30	48156.14	88.36	1.095	0.30 (0.28)	0.94	37936.9	11910.00
31	49682.10	93.88	1.066	0.30 (0.28)	0.94	41849.0	13500.00
32	50074.57	95.29	1.060	0.30 (0.28)	0.95	42837.3	11330.00
33	50828.96	101.55	1.031	0.30 (0.29)	0.95	47268.3	11130.00
34	50362.01	109.16	0.997	0.30 (0.29)	0.95	51262.2	12330.00

35	49814.55	115.82	0.966	0.30 (0.29)	0.96	54605.4	12400.00
36	48918.25	124.54	0.935	0.30 (0.29)	0.96	57974.2	12201.00
37	48328.05	128.53	0.925	0.30 (0.29)	0.96	59058.9	12111.00
38	47530.61	133.95	0.911	0.30 (0.29)	0.96	60428.3	12101.10
39	46891.19	138.02	0.900	0.30 (0.29)	0.96	61277.4	10400.00
40	45129.77	146.16	0.879	0.30 (0.29)	0.96	62592.6	12010.00
41	43672.76	152.13	0.863	0.30 (0.29)	0.96	62906.3	10210.00
42	39551.62	178.49	0.795	0.30 (0.29)	0.96	63639.0	10100.00

TOTAL AREA (ACRES) = 63639.0

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 50828.96 Tc(MIN.) = 101.550
EFFECTIVE AREA(ACRES) = 47268.29 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 63639.0
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13700.00 = 124549.22 FEET.

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 63639.0 TC(MIN.) = 101.55
EFFECTIVE AREA(ACRES) = 47268.29 AREA-AVERAGED Fm(INCH/HR) = 0.29
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.951
PEAK FLOW RATE(CFS) = 50828.96

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24882.76	14.98	2.927	0.30 (0.26)	0.86	3608.7	429.00
2	26134.99	16.35	2.786	0.30 (0.26)	0.86	4075.7	425.00
3	26518.64	16.78	2.743	0.30 (0.26)	0.86	4218.5	400.00
4	27446.63	18.11	2.606	0.30 (0.26)	0.86	4666.5	300.00
5	28518.08	20.47	2.383	0.30 (0.26)	0.86	5438.9	50800.00
6	28912.92	21.36	2.326	0.30 (0.26)	0.86	5724.1	50700.00
7	29576.37	22.88	2.228	0.30 (0.26)	0.86	6195.9	210.00
8	29823.80	23.90	2.163	0.30 (0.26)	0.86	6497.9	50600.00
9	30078.97	24.96	2.095	0.30 (0.26)	0.86	6831.9	410.00
10	30301.18	25.83	2.055	0.30 (0.26)	0.86	7106.4	200.00
11	30451.49	26.38	2.030	0.30 (0.26)	0.86	7280.3	50200.00
12	30473.10	26.44	2.028	0.30 (0.26)	0.86	7303.9	230.00
13	30537.07	26.60	2.021	0.30 (0.26)	0.86	7375.3	50500.00
14	30835.22	27.36	1.987	0.30 (0.26)	0.86	7709.6	110.00
15	30886.77	27.49	1.981	0.30 (0.26)	0.86	7768.5	220.50
16	31767.27	29.74	1.881	0.30 (0.26)	0.86	8777.1	100.00
17	32181.91	30.88	1.846	0.30 (0.26)	0.87	9283.5	100.00
18	32532.25	31.84	1.822	0.30 (0.26)	0.87	9702.8	110.00
19	33205.42	33.88	1.770	0.30 (0.26)	0.87	10542.9	130.00
20	34144.29	36.68	1.698	0.30 (0.26)	0.87	11693.8	10100.00
21	36584.77	44.39	1.518	0.30 (0.27)	0.89	14734.2	50150.00
22	37104.88	46.41	1.475	0.30 (0.27)	0.89	15729.1	20100.00
23	37508.09	48.16	1.437	0.30 (0.27)	0.90	16545.0	600.00
24	38220.38	51.59	1.380	0.30 (0.27)	0.90	18182.3	13600.00
25	38541.38	53.05	1.363	0.30 (0.27)	0.90	18871.9	31100.00
26	41009.16	63.78	1.261	0.30 (0.28)	0.92	23930.5	40100.00
27	43113.11	70.80	1.214	0.30 (0.28)	0.93	27295.3	11801.00
28	45926.94	80.01	1.152	0.30 (0.28)	0.93	32327.3	11530.00
29	47410.04	85.47	1.115	0.30 (0.28)	0.94	36032.8	13510.00
30	48156.14	88.36	1.095	0.30 (0.28)	0.94	37936.9	11910.00
31	49682.10	93.88	1.066	0.30 (0.28)	0.94	41849.0	13500.00
32	50074.57	95.29	1.060	0.30 (0.28)	0.95	42837.3	11330.00

33	50828.96	101.55	1.031	0.30 (0.29)	0.95	47268.3	11130.00
34	50362.01	109.16	0.997	0.30 (0.29)	0.95	51262.2	12330.00
35	49814.55	115.82	0.966	0.30 (0.29)	0.96	54605.4	12400.00
36	48918.25	124.54	0.935	0.30 (0.29)	0.96	57974.2	12201.00
37	48328.05	128.53	0.925	0.30 (0.29)	0.96	59058.9	12111.00
38	47530.61	133.95	0.911	0.30 (0.29)	0.96	60428.3	12101.10
39	46891.19	138.02	0.900	0.30 (0.29)	0.96	61277.4	10400.00
40	45129.77	146.16	0.879	0.30 (0.29)	0.96	62592.6	12010.00
41	43672.76	152.13	0.863	0.30 (0.29)	0.96	62906.3	10210.00
42	39551.62	178.49	0.795	0.30 (0.29)	0.96	63639.0	10100.00

=====
=====
END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 136 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 100-YR EV MAY 2023 ROKAMOTO *

FILE NAME: RU00EV36.DAT
TIME/DATE OF STUDY: 08:29 05/10/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 5.786
- 2) 10.00; 3.745
- 3) 15.00; 2.905
- 4) 20.00; 2.401
- 5) 25.00; 2.083
- 6) 30.00; 1.861
- 7) 40.00; 1.606
- 8) 50.00; 1.392
- 9) 60.00; 1.279
- 10) 90.00; 1.075
- 11) 120.00; 0.938
- 12) 180.00; 0.782
- 13) 360.00; 0.577
- 14) 1200.00; 0.251

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0313	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13600.00 TO NODE 13600.50 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 488.61
ELEVATION DATA: UPSTREAM(FEET) = 872.12 DOWNSTREAM(FEET) = 744.80

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 10.995
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.578
SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
NATURAL FAIR COVER "OPEN BRUSH"	-	3.39	0.30	1.000	56	11.00

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF(CFS) = 10.00
TOTAL AREA(ACRES) = 3.39 PEAK FLOW RATE(CFS) = 10.00

FLOW PROCESS FROM NODE 13600.50 TO NODE 13601.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 744.80 DOWNSTREAM(FEET) = 707.32
CHANNEL LENGTH THRU SUBAREA(FEET) = 418.30 CHANNEL SLOPE = 0.0896
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.46
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.289
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	7.45	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 20.04
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.06
AVERAGE FLOW DEPTH(FEET) = 0.45 TRAVEL TIME(MIN.) = 1.72
Tc(MIN.) = 12.71
SUBAREA AREA(ACRES) = 7.45 SUBAREA RUNOFF(CFS) = 20.04
EFFECTIVE AREA(ACRES) = 10.84 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 10.8 PEAK FLOW RATE(CFS) = 29.16
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.56

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.56 FLOW VELOCITY(FEET/SEC.) = 4.67
LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13601.00 = 906.91 FEET.

FLOW PROCESS FROM NODE 13601.00 TO NODE 13602.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 707.32 DOWNSTREAM(FEET) = 657.12
CHANNEL LENGTH THRU SUBAREA(FEET) = 777.60 CHANNEL SLOPE = 0.0646
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.03
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.899

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.32	0.30	1.000	-
USER-DEFINED	-	4.70	0.30	1.000	-
USER-DEFINED	-	25.05	0.30	1.000	-
USER-DEFINED	-	0.45	0.30	1.000	-
USER-DEFINED	-	0.44	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 65.46

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.53

AVERAGE FLOW DEPTH(FEET) = 0.99 TRAVEL TIME(MIN.) = 2.35

Tc(MIN.) = 15.06

SUBAREA AREA(ACRES) = 30.96 SUBAREA RUNOFF(CFS) = 72.42
EFFECTIVE AREA(ACRES) = 41.80 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 41.8 PEAK FLOW RATE(CFS) = 97.78
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.25

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.25 FLOW VELOCITY(FEET/SEC.) = 6.28

LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13602.00 = 1684.51 FEET.

FLOW PROCESS FROM NODE 13602.00 TO NODE 13603.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 657.12 DOWNSTREAM(FEET) = 584.58
CHANNEL LENGTH THRU SUBAREA(FEET) = 1186.54 CHANNEL SLOPE = 0.0611
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.45
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.598

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	7.03	0.30	1.000	-
USER-DEFINED	-	2.51	0.30	1.000	-

USER-DEFINED - 1.52 0.30 1.000 -
USER-DEFINED - 12.30 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 121.96

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.62

AVERAGE FLOW DEPTH(FEET) = 1.43 TRAVEL TIME(MIN.) = 2.99

Tc(MIN.) = 18.04

SUBAREA AREA(ACRES) = 23.36 SUBAREA RUNOFF(CFS) = 48.32
EFFECTIVE AREA(ACRES) = 65.16 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 65.2 PEAK FLOW RATE(CFS) = 134.78
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.52

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.52 FLOW VELOCITY(FEET/SEC.) = 6.83

LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13603.00 = 2871.05 FEET.

FLOW PROCESS FROM NODE 13603.00 TO NODE 13620.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 584.58 DOWNSTREAM(FEET) = 544.91
CHANNEL LENGTH THRU SUBAREA(FEET) = 860.98 CHANNEL SLOPE = 0.0461
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.78
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.384

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	10.22	0.30	1.000	-
USER-DEFINED	-	4.19	0.30	1.000	-
USER-DEFINED	-	0.07	0.30	1.000	-
USER-DEFINED	-	1.11	0.30	1.000	-
USER-DEFINED	-	5.56	0.30	1.000	-
USER-DEFINED	-	0.09	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 154.70

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.44

AVERAGE FLOW DEPTH(FEET) = 1.77 TRAVEL TIME(MIN.) = 2.23

Tc(MIN.) = 20.27

SUBAREA AREA(ACRES) = 21.24 SUBAREA RUNOFF(CFS) = 39.83
EFFECTIVE AREA(ACRES) = 86.40 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 86.4 PEAK FLOW RATE(CFS) = 162.03
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.82

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 1.82 FLOW VELOCITY(FEET/SEC.) = 6.53

LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13620.00 = 3732.03 FEET.


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*****
FLOW PROCESS FROM NODE 13603.00 TO NODE 13620.00 IS CODE = 10
-----
>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
=====
*****
FLOW PROCESS FROM NODE 13522.00 TO NODE 13522.00 IS CODE = 15.1
-----
>>>>DEFINE MEMORY BANK # 2 <<<<<
=====
PEAK FLOWRATE TABLE FILE NAME: S35X00.DNA
MEMORY BANK # 2 DEFINED AS FOLLOWS:
STREAM      Q      Tc      Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.)  (INCH/HR)    (ACRES)  NODE
  1      1365.67  51.63  0.30( 0.28) 0.95    1517.0  13510.00
  2      1241.97  59.58  0.30( 0.28) 0.94    1579.8  13500.00
TOTAL AREA(ACRES) =      1579.8

*****
FLOW PROCESS FROM NODE 13522.00 TO NODE 13522.00 IS CODE = 14.0
-----
>>>>MEMORY BANK # 2 COPIED ONTO MAIN-STREAM MEMORY<<<<<
=====
MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
STREAM      Q      Tc      Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.)  (INCH/HR)    (ACRES)  NODE
  1      1365.67  51.63  0.30( 0.28) 0.95    1517.0  13510.00
  2      1241.97  59.58  0.30( 0.28) 0.94    1579.8  13500.00
TOTAL AREA(ACRES) =      1579.8

*****
FLOW PROCESS FROM NODE 13522.00 TO NODE 13620.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 632.19 DOWNSTREAM(FEET) = 544.91
CHANNEL LENGTH THRU SUBAREA(FEET) = 2062.96 CHANNEL SLOPE = 0.0423
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.76
*100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.344
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp      Ap      SCS
LAND USE              GROUP  (ACRES)  (INCH/HR)  (DECIMAL)  CN
USER-DEFINED          -      17.68    0.30    1.000    -
USER-DEFINED          -      2.36    0.30    1.000    -
USER-DEFINED          -      0.60    0.30    1.000    -
USER-DEFINED          -      0.22    0.30    1.000    -
USER-DEFINED          -      2.22    0.30    1.000    -
USER-DEFINED          -      3.42    0.30    1.000    -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1378.12
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 13.05

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AVERAGE FLOW DEPTH(FEET) = 2.76 TRAVEL TIME(MIN.) = 2.63
Tc(MIN.) = 54.26
SUBAREA AREA(ACRES) = 26.50 SUBAREA RUNOFF(CFS) = 24.90
EFFECTIVE AREA(ACRES) = 1543.46 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 1606.3 PEAK FLOW RATE(CFS) = 1471.93
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 2.87

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 2.87 FLOW VELOCITY(FEET/SEC.) = 13.31
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13620.00 = 20677.72 FEET.

*****
FLOW PROCESS FROM NODE 13620.00 TO NODE 13620.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====
MAINLINE Tc(MIN.) = 54.26
*100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.344
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp      Ap      SCS
LAND USE              GROUP  (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"WOODLAND,GRASS"      B      1.44    0.30    1.000    65
NATURAL FAIR COVER
"WOODLAND,GRASS"      B      0.01    0.30    1.000    65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 1.45 SUBAREA RUNOFF(CFS) = 1.36
EFFECTIVE AREA(ACRES) = 1544.91 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 1607.8 PEAK FLOW RATE(CFS) = 1473.29

*****
FLOW PROCESS FROM NODE 13603.00 TO NODE 13620.00 IS CODE = 11
-----
>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
=====
** MAIN STREAM CONFLUENCE DATA **
STREAM      Q      Tc  Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.)  (INCH/HR)  (INCH/HR)  (ACRES)  NODE
  1      1473.29  54.26  1.344  0.30( 0.28) 0.95    1544.9  13510.00
  2      1417.77  62.30  1.263  0.30( 0.28) 0.95    1607.8  13500.00
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13620.00 = 20677.72 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **
STREAM      Q      Tc  Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.)  (INCH/HR)  (INCH/HR)  (ACRES)  NODE
  1      162.03  20.27  2.384  0.30( 0.30) 1.00    86.4  13600.00
LONGEST FLOWPATH FROM NODE 13600.00 TO NODE 13620.00 = 3732.03 FEET.

** PEAK FLOW RATE TABLE **
STREAM      Q      Tc  Intensity  Fp(Fm)      Ap      Ae      HEADWATER
NUMBER      (CFS)    (MIN.)  (INCH/HR)  (INCH/HR)  (ACRES)  NODE
  1      1252.61  20.27  2.384  0.30( 0.29) 0.95    663.6  13600.00

```

2 1554.47 54.26 1.344 0.30(0.29) 0.95 1631.3 13510.00
 3 1492.69 62.30 1.263 0.30(0.28) 0.95 1694.2 13500.00
 TOTAL AREA (ACRES) = 1694.2

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 1554.47 Tc (MIN.) = 54.262
 EFFECTIVE AREA (ACRES) = 1631.31 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 1694.2
 LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13620.00 = 20677.72 FEET.

 FLOW PROCESS FROM NODE 13620.00 TO NODE 13640.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 544.91 DOWNSTREAM (FEET) = 489.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1384.37 CHANNEL SLOPE = 0.0404
 GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 3.02
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.324

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	5.39	0.30	1.000	-
USER-DEFINED	-	16.30	0.30	1.000	-
USER-DEFINED	-	4.08	0.30	1.000	-
USER-DEFINED	-	12.36	0.30	1.000	-
USER-DEFINED	-	11.23	0.30	1.000	-
USER-DEFINED	-	5.16	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 1579.60
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 13.40
 AVERAGE FLOW DEPTH (FEET) = 3.02 TRAVEL TIME (MIN.) = 1.72
 Tc (MIN.) = 55.98
 SUBAREA AREA (ACRES) = 54.52 SUBAREA RUNOFF (CFS) = 50.27
 EFFECTIVE AREA (ACRES) = 1685.83 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 1748.7 PEAK FLOW RATE (CFS) = 1576.17
 GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 3.02

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 3.02 FLOW VELOCITY (FEET/SEC.) = 13.38
 LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13640.00 = 22062.09 FEET.

 FLOW PROCESS FROM NODE 13640.00 TO NODE 13640.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 55.98
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.324
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	53.93	0.30	1.000	-
USER-DEFINED	-	0.45	0.30	1.000	-
USER-DEFINED	-	3.98	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 58.36 SUBAREA RUNOFF (CFS) = 53.81
 EFFECTIVE AREA (ACRES) = 1744.19 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 1807.1 PEAK FLOW RATE (CFS) = 1629.97

 FLOW PROCESS FROM NODE 13640.00 TO NODE 13640.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: P201XXCE.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap (DECIMAL)	Ae (ACRES)	HEADWATER NODE
1	262.78	16.94	0.30 (0.26)	0.85	133.8	20100.00
TOTAL AREA (ACRES) =		133.8				

 FLOW PROCESS FROM NODE 13640.00 TO NODE 13640.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap (DECIMAL)	Ae (ACRES)	HEADWATER NODE
1	1382.80	22.11	2.267	0.30 (0.29)	0.96	776.4	13600.00
2	1629.97	55.98	1.324	0.30 (0.29)	0.95	1744.2	13510.00
3	1571.28	64.04	1.252	0.30 (0.29)	0.95	1807.1	13500.00
LONGEST FLOWPATH FROM NODE		13500.00 TO NODE 13640.00 = 22062.09 FEET.					

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap (DECIMAL)	Ae (ACRES)	HEADWATER NODE
1	262.78	16.94	2.709	0.30 (0.26)	0.85	133.8	20100.00
LONGEST FLOWPATH FROM NODE		20100.00 TO NODE 13640.00 = 5247.00 FEET.					

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap (DECIMAL)	Ae (ACRES)	HEADWATER NODE
1	1559.40	16.94	2.709	0.30 (0.28)	0.94	728.9	20100.00
2	1598.22	22.11	2.267	0.30 (0.28)	0.95	910.2	13600.00
3	1744.40	55.98	1.324	0.30 (0.28)	0.95	1878.0	13510.00
4	1677.90	64.04	1.252	0.30 (0.28)	0.94	1940.9	13500.00
TOTAL AREA (ACRES) =		1940.9					

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 1744.40 Tc (MIN.) = 55.984
 EFFECTIVE AREA (ACRES) = 1877.99 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 1940.9

LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13640.00 = 22062.09 FEET.

FLOW PROCESS FROM NODE 13640.00 TO NODE 13641.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 489.00 DOWNSTREAM(FEET) = 436.89
CHANNEL LENGTH THRU SUBAREA(FEET) = 2994.52 CHANNEL SLOPE = 0.0174
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 4.06

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.274

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.96	0.30	1.000	-
USER-DEFINED	-	0.01	0.30	1.000	-
USER-DEFINED	-	1.56	0.30	1.000	-
USER-DEFINED	-	10.45	0.30	1.000	-
USER-DEFINED	-	44.94	0.30	1.000	-
USER-DEFINED	-	9.66	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1774.01

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.37

AVERAGE FLOW DEPTH(FEET) = 4.06 TRAVEL TIME(MIN.) = 4.81

Tc(MIN.) = 60.80

SUBAREA AREA(ACRES) = 67.58 SUBAREA RUNOFF(CFS) = 59.22

EFFECTIVE AREA(ACRES) = 1945.57 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95

TOTAL AREA(ACRES) = 2008.4 PEAK FLOW RATE(CFS) = 1744.40

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 4.02

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 4.02 FLOW VELOCITY(FEET/SEC.) = 10.31

LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13641.00 = 25056.61 FEET.

FLOW PROCESS FROM NODE 13641.00 TO NODE 13641.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 60.80

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.274

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	16.49	0.30	1.000	-
USER-DEFINED	-	20.39	0.30	1.000	-
USER-DEFINED	-	7.02	0.30	1.000	-
USER-DEFINED	-	12.58	0.30	1.000	-
USER-DEFINED	-	42.49	0.30	1.000	-
USER-DEFINED	-	5.73	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA(ACRES) = 104.70 SUBAREA RUNOFF(CFS) = 91.75

EFFECTIVE AREA(ACRES) = 2050.27 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95

TOTAL AREA(ACRES) = 2113.1 PEAK FLOW RATE(CFS) = 1823.72

FLOW PROCESS FROM NODE 13641.00 TO NODE 13641.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 60.80

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.274

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	1.78	0.30	1.000	-
USER-DEFINED	-	6.25	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA(ACRES) = 8.03 SUBAREA RUNOFF(CFS) = 7.04

EFFECTIVE AREA(ACRES) = 2058.30 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95

TOTAL AREA(ACRES) = 2121.2 PEAK FLOW RATE(CFS) = 1830.76

FLOW PROCESS FROM NODE 13641.00 TO NODE 13642.00 IS CODE = 56

ELEVATION DATA: UPSTREAM(FEET) = 436.89 DOWNSTREAM(FEET) = 394.80

CHANNEL LENGTH THRU SUBAREA(FEET) = 2814.16 CHANNEL SLOPE = 0.0150

GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 4.42

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.242

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.67	0.30	1.000	-
USER-DEFINED	-	24.24	0.30	1.000	-
USER-DEFINED	-	1.34	0.30	1.000	-
USER-DEFINED	-	74.98	0.30	1.000	-
USER-DEFINED	-	101.12	0.30	1.000	-
USER-DEFINED	-	16.90	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 1923.70

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.06

AVERAGE FLOW DEPTH(FEET) = 4.42 TRAVEL TIME(MIN.) = 4.66

Tc(MIN.) = 65.46

SUBAREA AREA(ACRES) = 219.25 SUBAREA RUNOFF(CFS) = 185.87

EFFECTIVE AREA(ACRES) = 2277.55 AREA-AVERAGED Fm(INCH/HR) = 0.29

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96

TOTAL AREA(ACRES) = 2340.4 PEAK FLOW RATE(CFS) = 1957.90

GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 4.46

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 4.46 FLOW VELOCITY (FEET/SEC.) = 10.12
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13642.00 = 27870.77 FEET.

FLOW PROCESS FROM NODE 13642.00 TO NODE 13642.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 65.46
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.242
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	9.95	0.30	1.000	-
USER-DEFINED	-	10.02	0.30	1.000	-
USER-DEFINED	-	4.45	0.30	1.000	-
USER-DEFINED	-	179.37	0.30	1.000	-
USER-DEFINED	-	11.47	0.30	1.000	-
USER-DEFINED	-	0.17	0.30	0.850	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 215.43 SUBAREA RUNOFF (CFS) = 182.64
EFFECTIVE AREA (ACRES) = 2492.98 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
TOTAL AREA (ACRES) = 2555.9 PEAK FLOW RATE (CFS) = 2140.54

FLOW PROCESS FROM NODE 13642.00 TO NODE 13642.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 65.46
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.242
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.03	0.30	0.850	-
USER-DEFINED	-	5.14	0.30	1.000	-
USER-DEFINED	-	11.22	0.30	1.000	-
USER-DEFINED	-	0.33	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 16.72 SUBAREA RUNOFF (CFS) = 14.18
EFFECTIVE AREA (ACRES) = 2509.70 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
TOTAL AREA (ACRES) = 2572.6 PEAK FLOW RATE (CFS) = 2154.71

FLOW PROCESS FROM NODE 13642.00 TO NODE 13643.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 394.80 DOWNSTREAM (FEET) = 342.39

CHANNEL LENGTH THRU SUBAREA (FEET) = 2913.57 CHANNEL SLOPE = 0.0180
GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 4.54
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.212

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.22	0.30	1.000	-
USER-DEFINED	-	2.17	0.30	1.000	-
USER-DEFINED	-	9.19	0.30	1.000	-
USER-DEFINED	-	67.57	0.30	1.000	-
USER-DEFINED	-	35.19	0.30	1.000	-
USER-DEFINED	-	30.67	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 2214.26
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 11.20
AVERAGE FLOW DEPTH (FEET) = 4.53 TRAVEL TIME (MIN.) = 4.34
Tc (MIN.) = 69.79
SUBAREA AREA (ACRES) = 145.01 SUBAREA RUNOFF (CFS) = 119.09
EFFECTIVE AREA (ACRES) = 2654.71 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
TOTAL AREA (ACRES) = 2717.6 PEAK FLOW RATE (CFS) = 2207.20
GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 4.53

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 4.53 FLOW VELOCITY (FEET/SEC.) = 11.19
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13643.00 = 30784.34 FEET.

FLOW PROCESS FROM NODE 13643.00 TO NODE 13643.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 69.79
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.212
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.89	0.30	1.000	-
USER-DEFINED	-	20.65	0.30	1.000	-
USER-DEFINED	-	2.69	0.30	1.000	-
USER-DEFINED	-	8.45	0.30	1.000	-
USER-DEFINED	-	96.93	0.30	1.000	-
USER-DEFINED	-	13.19	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 142.80 SUBAREA RUNOFF (CFS) = 117.27
EFFECTIVE AREA (ACRES) = 2797.51 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.96
TOTAL AREA (ACRES) = 2860.4 PEAK FLOW RATE (CFS) = 2324.47

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap (ACRES)	Ae (ACRES)	HEADWATER NODE
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1 2290.19 30.99 1.836 0.30(0.29) 0.97 1648.4 20100.00
 2 2328.11 36.10 1.706 0.30(0.29) 0.97 1829.8 13600.00
 3 2324.47 69.79 1.212 0.30(0.29) 0.96 2797.5 13510.00
 4 2234.36 78.00 1.157 0.30(0.29) 0.96 2860.4 13500.00
 NEW PEAK FLOW DATA ARE:
 PEAK FLOW RATE(CFS) = 2328.11 Tc(MIN.) = 36.10
 AREA-AVERAGED Fm(INCH/HR) = 0.29 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.97 EFFECTIVE AREA(ACRES) = 1829.77

 FLOW PROCESS FROM NODE 13643.00 TO NODE 13643.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 36.10
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.706
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 42.54 0.30 1.000 -
 USER-DEFINED - 16.96 0.30 1.000 -
 USER-DEFINED - 80.60 0.30 1.000 -
 USER-DEFINED - 1.56 0.30 1.000 -
 USER-DEFINED - 2.00 0.30 1.000 -
 USER-DEFINED - 3.11 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 146.77 SUBAREA RUNOFF(CFS) = 185.67
 EFFECTIVE AREA(ACRES) = 1976.54 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97
 TOTAL AREA(ACRES) = 3007.2 PEAK FLOW RATE(CFS) = 2513.78

 FLOW PROCESS FROM NODE 13643.00 TO NODE 13660.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 342.39 DOWNSTREAM(FEET) = 300.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1591.23 CHANNEL SLOPE = 0.0266
 GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 4.40
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.655
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 0.89 0.30 1.000 -
 USER-DEFINED - 23.73 0.30 1.000 -
 USER-DEFINED - 0.27 0.30 1.000 -
 USER-DEFINED - 19.87 0.30 1.000 -
 USER-DEFINED - 6.40 0.30 1.000 -
 USER-DEFINED - 3.14 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 2546.89
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 13.40
 AVERAGE FLOW DEPTH(FEET) = 4.40 TRAVEL TIME(MIN.) = 1.98

Tc(MIN.) = 38.08
 SUBAREA AREA(ACRES) = 54.30 SUBAREA RUNOFF(CFS) = 66.22
 EFFECTIVE AREA(ACRES) = 2030.84 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA(ACRES) = 3061.5 PEAK FLOW RATE(CFS) = 2513.78
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 4.37

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 4.37 FLOW VELOCITY(FEET/SEC.) = 13.35
 LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13660.00 = 32375.57 FEET.

 FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 38.08
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.655
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 0.67 0.30 1.000 -
 USER-DEFINED - 9.52 0.30 1.000 -
 USER-DEFINED - 0.71 0.30 1.000 -
 USER-DEFINED - 0.22 0.30 1.000 -
 USER-DEFINED - 39.42 0.30 1.000 -
 USER-DEFINED - 0.62 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 51.16 SUBAREA RUNOFF(CFS) = 62.39
 EFFECTIVE AREA(ACRES) = 2082.00 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA(ACRES) = 3112.6 PEAK FLOW RATE(CFS) = 2552.63

 FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

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MAINLINE Tc(MIN.) = 38.08
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.655
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 0.11 0.30 1.000 -
 USER-DEFINED - 0.77 0.30 1.000 -
 USER-DEFINED - 0.22 0.30 1.000 -
 USER-DEFINED - 2.69 0.30 1.000 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 3.79 SUBAREA RUNOFF(CFS) = 4.62
 EFFECTIVE AREA(ACRES) = 2085.79 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
 TOTAL AREA(ACRES) = 3116.4 PEAK FLOW RATE(CFS) = 2557.25

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2557.45	32.97	1.785	0.30 (0.29)	0.98	1904.4	20100.00
2	2557.25	38.08	1.655	0.30 (0.29)	0.98	2085.8	13600.00
3	2497.40	71.79	1.199	0.30 (0.29)	0.97	3053.5	13510.00
4	2393.19	80.02	1.143	0.30 (0.29)	0.97	3116.4	13500.00

NEW PEAK FLOW DATA ARE:

PEAK FLOW RATE(CFS) = 2557.45 Tc(MIN.) = 32.97
 AREA-AVERAGED Fm(INCH/HR) = 0.29 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.98 EFFECTIVE AREA(ACRES) = 1904.44

 FLOW PROCESS FROM NODE 13643.00 TO NODE 13660.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 1 <<<<<

 FLOW PROCESS FROM NODE 13659.00 TO NODE 13659.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 2P00EVAA.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	589.23	13.84	0.30 (0.11)	0.36	173.5	110.00
2	590.10	16.35	0.30 (0.11)	0.38	204.6	100.00
3	582.95	17.51	0.30 (0.11)	0.38	213.9	100.00
4	519.41	20.54	0.30 (0.12)	0.40	221.1	130.00
TOTAL AREA(ACRES) =						221.1

 FLOW PROCESS FROM NODE 13659.00 TO NODE 13660.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<

>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 338.00 DOWNSTREAM(FEET) = 300.00
 FLOW LENGTH(FEET) = 881.07 MANNING'S N = 0.013
 DEPTH OF FLOW IN 114.0 INCH PIPE IS 84.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 45.37
 ESTIMATED PIPE DIAMETER(INCH) = 114.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 2557.45
 PIPE TRAVEL TIME(MIN.) = 0.32 Tc(MIN.) = 33.29
 LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13660.00 = 33256.64 FEET.

 FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2557.45	33.29	1.777	0.30 (0.29)	0.98	1904.4	20100.00

2	2557.25	38.40	1.647	0.30 (0.29)	0.98	2085.8	13600.00
3	2497.40	72.12	1.197	0.30 (0.29)	0.97	3053.5	13510.00
4	2393.19	80.35	1.141	0.30 (0.29)	0.97	3116.4	13500.00
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13660.00 =							33256.64 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	589.23	13.84	3.100	0.30 (0.11)	0.36	173.5	110.00
2	590.10	16.35	2.769	0.30 (0.11)	0.38	204.6	100.00
3	582.95	17.51	2.652	0.30 (0.11)	0.38	213.9	100.00
4	519.41	20.54	2.367	0.30 (0.12)	0.40	221.1	130.00
LONGEST FLOWPATH FROM NODE 130.00 TO NODE 13660.00 =							6327.50 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2600.15	13.84	3.100	0.30 (0.26)	0.87	965.1	110.00
2	2685.54	16.35	2.769	0.30 (0.26)	0.87	1139.7	100.00
3	2721.21	17.51	2.652	0.30 (0.26)	0.87	1215.6	100.00
4	2724.13	20.54	2.367	0.30 (0.27)	0.89	1395.9	130.00
5	2940.50	33.29	1.777	0.30 (0.28)	0.92	2125.5	20100.00
6	2910.19	38.40	1.647	0.30 (0.28)	0.92	2306.9	13600.00
7	2746.24	72.12	1.197	0.30 (0.28)	0.93	3274.6	13510.00
8	2629.09	80.35	1.141	0.30 (0.28)	0.93	3337.5	13500.00
TOTAL AREA(ACRES) =						3337.5	

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 2940.50 Tc(MIN.) = 33.292
 EFFECTIVE AREA(ACRES) = 2125.54 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.87
 TOTAL AREA(ACRES) = 3337.5
 LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13660.00 = 33256.64 FEET.

 FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 33.29
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.777
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"FALLOW"	B	1.11	0.30	1.000	86
AGRICULTURAL POOR COVER					
"FALLOW"	B	0.44	0.30	1.000	86
NATURAL FAIR COVER					
"GRASS"	B	1.49	0.30	1.000	69
NATURAL FAIR COVER					
"GRASS"	B	1.70	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.09	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	18.57	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA (ACRES) = 24.40 SUBAREA RUNOFF (CFS) = 32.44
EFFECTIVE AREA (ACRES) = 2149.94 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA (ACRES) = 3361.9 PEAK FLOW RATE (CFS) = 2940.50
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13660.00 TO NODE 13660.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 33.29
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.777
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
AGRICULTURAL FAIR COVER
"ORCHARDS" B 12.39 0.30 1.000 65
AGRICULTURAL FAIR COVER
"ORCHARDS" B 2.30 0.30 1.000 65
AGRICULTURAL POOR COVER
"ROW CROPS, CONTOURED" B 5.19 0.30 1.000 79
AGRICULTURAL POOR COVER
"ROW CROPS, STRAIGHT ROW" B 28.71 0.30 1.000 81
NATURAL FAIR COVER
"WOODLAND, GRASS" B 0.17 0.30 1.000 65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 48.76 SUBAREA RUNOFF (CFS) = 64.82
EFFECTIVE AREA (ACRES) = 2198.70 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA (ACRES) = 3410.7 PEAK FLOW RATE (CFS) = 2970.23

FLOW PROCESS FROM NODE 13660.00 TO NODE 13680.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 300.00 DOWNSTREAM (FEET) = 288.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 933.89 CHANNEL SLOPE = 0.0128
GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 5.81
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.740
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.22 0.30 1.000 -
USER-DEFINED - 9.23 0.30 1.000 -
USER-DEFINED - 0.54 0.30 1.000 -
USER-DEFINED - 5.66 0.30 1.000 -
USER-DEFINED - 3.66 0.30 1.000 -
USER-DEFINED - 0.67 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 2983.18
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 10.83

AVERAGE FLOW DEPTH (FEET) = 5.81 TRAVEL TIME (MIN.) = 1.44
Tc (MIN.) = 34.73
SUBAREA AREA (ACRES) = 19.98 SUBAREA RUNOFF (CFS) = 25.90
EFFECTIVE AREA (ACRES) = 2218.68 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA (ACRES) = 3430.6 PEAK FLOW RATE (CFS) = 2970.23
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 5.79

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 5.79 FLOW VELOCITY (FEET/SEC.) = 10.82
LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13680.00 = 34190.53 FEET.

FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 34.73
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.740
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 1.56 0.30 1.000 -
USER-DEFINED - 9.40 0.30 1.000 -
USER-DEFINED - 2.76 0.30 1.000 -
USER-DEFINED - 17.38 0.30 1.000 -
USER-DEFINED - 2.46 0.30 1.000 -
USER-DEFINED - 5.56 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 39.12 SUBAREA RUNOFF (CFS) = 50.72
EFFECTIVE AREA (ACRES) = 2257.80 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA (ACRES) = 3469.8 PEAK FLOW RATE (CFS) = 2974.31

FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 34.73
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.740
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 0.65 0.30 1.000 -
USER-DEFINED - 1.70 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA (ACRES) = 2.35 SUBAREA RUNOFF (CFS) = 3.05
EFFECTIVE AREA (ACRES) = 2260.15 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA (ACRES) = 3472.1 PEAK FLOW RATE (CFS) = 2977.36

FLOW PROCESS FROM NODE 13660.00 TO NODE 13680.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 34.73

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.740

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	5.29	0.30	1.000	-
USER-DEFINED	-	31.25	0.30	1.000	-
USER-DEFINED	-	0.22	0.30	1.000	-
USER-DEFINED	-	6.26	0.30	1.000	-
USER-DEFINED	-	0.07	0.30	1.000	-
USER-DEFINED	-	0.22	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA(ACRES) = 43.31 SUBAREA RUNOFF(CFS) = 56.15

EFFECTIVE AREA(ACRES) = 2303.46 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92

TOTAL AREA(ACRES) = 3515.4 PEAK FLOW RATE(CFS) = 3033.51

FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 34.73

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.740

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	2.47	0.30	0.850	-
USER-DEFINED	-	3.06	0.30	0.850	-
USER-DEFINED	-	17.76	0.30	0.500	-
USER-DEFINED	-	7.31	0.30	0.500	-
USER-DEFINED	-	0.34	0.30	1.000	-
USER-DEFINED	-	8.22	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.659

SUBAREA AREA(ACRES) = 39.16 SUBAREA RUNOFF(CFS) = 54.38

EFFECTIVE AREA(ACRES) = 2342.62 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92

TOTAL AREA(ACRES) = 3554.6 PEAK FLOW RATE(CFS) = 3087.88

FLOW PROCESS FROM NODE 13680.00 TO NODE 13680.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 34.73

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.740

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.53	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA(ACRES) = 0.53 SUBAREA RUNOFF(CFS) = 0.69

EFFECTIVE AREA(ACRES) = 2343.15 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92

TOTAL AREA(ACRES) = 3555.1 PEAK FLOW RATE(CFS) = 3088.57

FLOW PROCESS FROM NODE 13680.00 TO NODE 13682.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 288.00 DOWNSTREAM(FEET) = 242.00

CHANNEL LENGTH THRU SUBAREA(FEET) = 2860.77 CHANNEL SLOPE = 0.0161

GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 5.58

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.638

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.22	0.30	1.000	-
USER-DEFINED	-	5.28	0.30	1.000	-
USER-DEFINED	-	0.52	0.30	1.000	-
USER-DEFINED	-	3.61	0.30	1.000	-
USER-DEFINED	-	0.67	0.30	1.000	-
USER-DEFINED	-	1.37	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 3095.60

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.86

AVERAGE FLOW DEPTH(FEET) = 5.58 TRAVEL TIME(MIN.) = 4.02

Tc(MIN.) = 38.75

SUBAREA AREA(ACRES) = 11.67 SUBAREA RUNOFF(CFS) = 14.05

EFFECTIVE AREA(ACRES) = 2354.82 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92

TOTAL AREA(ACRES) = 3566.8 PEAK FLOW RATE(CFS) = 3088.57

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 5.57

FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 38.75

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.638

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	6.90	0.30	1.000	-
USER-DEFINED	-	23.04	0.30	1.000	-
USER-DEFINED	-	1.18	0.30	1.000	-
USER-DEFINED	-	1.56	0.30	1.000	-
USER-DEFINED	-	53.20	0.30	1.000	-
USER-DEFINED	-	2.08	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 87.96 SUBAREA RUNOFF(CFS) = 105.92
EFFECTIVE AREA(ACRES) = 2442.78 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA(ACRES) = 3654.7 PEAK FLOW RATE(CFS) = 3088.57
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 38.75
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.638
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.01	0.30	1.000	-
USER-DEFINED	-	0.18	0.30	1.000	-
USER-DEFINED	-	0.38	0.30	1.000	-
USER-DEFINED	-	0.22	0.30	1.000	-
USER-DEFINED	-	7.73	0.30	1.000	-
USER-DEFINED	-	4.37	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 12.89 SUBAREA RUNOFF(CFS) = 15.52
EFFECTIVE AREA(ACRES) = 2455.67 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA(ACRES) = 3667.6 PEAK FLOW RATE(CFS) = 3088.57
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 38.75
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.638
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER "FALLOW"	B	2.57	0.30	1.000	86
AGRICULTURAL POOR COVER "FALLOW"	B	1.97	0.30	1.000	86
NATURAL FAIR COVER "GRASS"	B	1.00	0.30	1.000	69
NATURAL FAIR COVER					

"GRASS"	B	2.98	0.30	1.000	69
NATURAL FAIR COVER "OPEN BRUSH"	B	2.39	0.30	1.000	66
NATURAL FAIR COVER "OPEN BRUSH"	B	1.67	0.30	1.000	66

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 12.58 SUBAREA RUNOFF(CFS) = 15.15
EFFECTIVE AREA(ACRES) = 2468.25 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA(ACRES) = 3680.2 PEAK FLOW RATE(CFS) = 3088.57
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 38.75
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.638
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	B	0.44	0.30	1.000	66
PUBLIC PARK	B	2.65	0.30	0.850	56
PUBLIC PARK	B	1.16	0.30	0.850	56
RESIDENTIAL "5-7 DWELLINGS/ACRE"	B	0.47	0.30	0.500	56
RESIDENTIAL "5-7 DWELLINGS/ACRE"	B	0.25	0.30	0.500	56
AGRICULTURAL POOR COVER "ROW CROPS, STRAIGHT ROW"	B	20.24	0.30	1.000	81

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.963
SUBAREA AREA(ACRES) = 25.21 SUBAREA RUNOFF(CFS) = 30.61
EFFECTIVE AREA(ACRES) = 2493.46 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA(ACRES) = 3705.4 PEAK FLOW RATE(CFS) = 3088.57
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13682.00 TO NODE 13682.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc(MIN.) = 38.75
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.638
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	7.08	0.30	1.000	-
USER-DEFINED	-	6.75	0.30	1.000	-
USER-DEFINED	-	0.02	0.30	1.000	-
USER-DEFINED	-	0.93	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA AREA(ACRES) = 14.78 SUBAREA RUNOFF(CFS) = 17.80

EFFECTIVE AREA (ACRES) = 2508.24 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
TOTAL AREA (ACRES) = 3720.2 PEAK FLOW RATE (CFS) = 3088.57
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13682.00 TO NODE 13683.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
=====

ELEVATION DATA: UPSTREAM (FEET) = 242.00 DOWNSTREAM (FEET) = 208.53
CHANNEL LENGTH THRU SUBAREA (FEET) = 2526.22 CHANNEL SLOPE = 0.0132
GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT (FEET) = 5.89

* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.551

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	8.49	0.30	1.000	-
USER-DEFINED	-	13.31	0.30	1.000	-
USER-DEFINED	-	0.87	0.30	1.000	-
USER-DEFINED	-	20.26	0.30	1.000	-
USER-DEFINED	-	1.21	0.30	1.000	-
USER-DEFINED	-	0.05	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 3113.46

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 11.08

AVERAGE FLOW DEPTH (FEET) = 5.89 TRAVEL TIME (MIN.) = 3.80

Tc (MIN.) = 42.55

SUBAREA AREA (ACRES) = 44.19 SUBAREA RUNOFF (CFS) = 49.78

EFFECTIVE AREA (ACRES) = 2552.43 AREA-AVERAGED Fm (INCH/HR) = 0.28

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93

TOTAL AREA (ACRES) = 3764.4 PEAK FLOW RATE (CFS) = 3088.57

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE (FEET) = 30.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT (FEET) = 5.86

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 5.86 FLOW VELOCITY (FEET/SEC.) = 11.07

LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13683.00 = 39577.52 FEET.

FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc (MIN.) = 42.55

* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.551

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	12.56	0.30	1.000	-
USER-DEFINED	-	0.81	0.30	1.000	-
USER-DEFINED	-	0.01	0.30	1.000	-

USER-DEFINED - 1.11 0.30 1.000 -
USER-DEFINED - 0.59 0.30 1.000 -
USER-DEFINED - 3.04 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

SUBAREA AREA (ACRES) = 18.12 SUBAREA RUNOFF (CFS) = 20.41

EFFECTIVE AREA (ACRES) = 2570.55 AREA-AVERAGED Fm (INCH/HR) = 0.28

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93

TOTAL AREA (ACRES) = 3782.5 PEAK FLOW RATE (CFS) = 3088.57

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc (MIN.) = 42.55

* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.551

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"8-10 DWELLINGS/ACRE"	B	0.10	0.30	0.400	56
PUBLIC PARK	B	1.30	0.30	0.850	56
RESIDENTIAL					
"8-10 DWELLINGS/ACRE"	B	0.10	0.30	0.400	56
PUBLIC PARK	B	1.70	0.30	0.850	56
PUBLIC PARK	B	0.10	0.30	0.850	56
PUBLIC PARK	B	2.90	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.835

SUBAREA AREA (ACRES) = 6.20 SUBAREA RUNOFF (CFS) = 7.26

EFFECTIVE AREA (ACRES) = 2576.75 AREA-AVERAGED Fm (INCH/HR) = 0.28

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93

TOTAL AREA (ACRES) = 3788.7 PEAK FLOW RATE (CFS) = 3088.57

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=====

MAINLINE Tc (MIN.) = 42.55

* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.551

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	B	0.10	0.30	0.500	56
CONDOMINIUMS	B	0.10	0.30	0.350	56
PUBLIC PARK	B	6.90	0.30	0.850	56
PUBLIC PARK	B	0.40	0.30	0.850	56

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.839

SUBAREA AREA (ACRES) = 7.50 SUBAREA RUNOFF (CFS) = 8.77

EFFECTIVE AREA (ACRES) = 2584.25 AREA-AVERAGED Fm (INCH/HR) = 0.28

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93

TOTAL AREA (ACRES) = 3796.2 PEAK FLOW RATE (CFS) = 3088.57

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13682.00 TO NODE 13683.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

MEMORY BANK # 3 IS EMPTY - PROCESS IGNORED.

FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 42.55

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.551

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"FALLOW"	B	2.55	0.30	1.000	86
AGRICULTURAL POOR COVER					
"FALLOW"	B	0.01	0.30	1.000	86
AGRICULTURAL POOR COVER					
"FALLOW"	B	1.35	0.30	1.000	86
NATURAL FAIR COVER					
"GRASS"	B	0.44	0.30	1.000	69
NATURAL FAIR COVER					
"GRASS"	B	0.67	0.30	1.000	69
NATURAL FAIR COVER					
"OPEN BRUSH"	B	1.06	0.30	1.000	66
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30					
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000					
SUBAREA AREA(ACRES) = 6.08		SUBAREA RUNOFF(CFS) = 6.85			
EFFECTIVE AREA(ACRES) = 2590.33		AREA-AVERAGED Fm(INCH/HR) = 0.28			
AREA-AVERAGED Fp(INCH/HR) = 0.30		AREA-AVERAGED Ap = 0.93			
TOTAL AREA(ACRES) = 3802.3		PEAK FLOW RATE(CFS) = 3088.57			
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE					

FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 42.55

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.551

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.16	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	2.45	0.30	1.000	66
NATURAL FAIR COVER					
"OPEN BRUSH"	B	6.15	0.30	1.000	66
AGRICULTURAL POOR COVER					
"ROW CROPS,STRAIGHT ROW"	B	1.34	0.30	1.000	81
AGRICULTURAL POOR COVER					

"ROW CROPS,STRAIGHT ROW" B 18.46 0.30 1.000 81
 AGRICULTURAL POOR COVER
 "ROW CROPS,STRAIGHT ROW" B 4.13 0.30 1.000 81
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA(ACRES) = 34.69 SUBAREA RUNOFF(CFS) = 39.07
 EFFECTIVE AREA(ACRES) = 2625.02 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA(ACRES) = 3837.0 PEAK FLOW RATE(CFS) = 3088.57
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13683.00 TO NODE 13683.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 42.55

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.551

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
AGRICULTURAL POOR COVER					
"ROW CROPS,STRAIGHT ROW"	B	8.69	0.30	1.000	81
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.73	0.30	1.000	65
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	0.41	0.30	1.000	65
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	1.37	0.30	1.000	65
NATURAL FAIR COVER					
"WOODLAND,GRASS"	B	3.11	0.30	1.000	65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30					
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000					
SUBAREA AREA(ACRES) = 14.31		SUBAREA RUNOFF(CFS) = 16.12			
EFFECTIVE AREA(ACRES) = 2639.33		AREA-AVERAGED Fm(INCH/HR) = 0.28			
AREA-AVERAGED Fp(INCH/HR) = 0.30		AREA-AVERAGED Ap = 0.93			
TOTAL AREA(ACRES) = 3851.3		PEAK FLOW RATE(CFS) = 3088.57			
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE					

FLOW PROCESS FROM NODE 13683.00 TO NODE 13685.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 208.53 DOWNSTREAM(FEET) = 194.24
 CHANNEL LENGTH THRU SUBAREA(FEET) = 289.01 CHANNEL SLOPE = 0.0494
 GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT(FEET) = 4.13
 CHANNEL FLOW THRU SUBAREA(CFS) = 3088.57
 FLOW VELOCITY(FEET/SEC.) = 17.64 FLOW DEPTH(FEET) = 4.13
 TRAVEL TIME(MIN.) = 0.27 Tc(MIN.) = 42.82
 LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13685.00 = 39866.53 FEET.

FLOW PROCESS FROM NODE 13685.00 TO NODE 13410.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 194.24 DOWNSTREAM(FEET) = 178.72
CHANNEL LENGTH THRU SUBAREA(FEET) = 1843.57 CHANNEL SLOPE = 0.0084
GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 6.60
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 1.476

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	0.23	0.30	1.000	-
USER-DEFINED	-	1.52	0.30	1.000	-
USER-DEFINED	-	0.06	0.30	1.000	-
USER-DEFINED	-	0.13	0.30	1.000	-
USER-DEFINED	-	6.45	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 3093.01

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.41

AVERAGE FLOW DEPTH(FEET) = 6.60 TRAVEL TIME(MIN.) = 3.27

Tc(MIN.) = 46.09

SUBAREA AREA(ACRES) = 8.39 SUBAREA RUNOFF(CFS) = 8.88

EFFECTIVE AREA(ACRES) = 2647.72 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93

TOTAL AREA(ACRES) = 3859.7 PEAK FLOW RATE(CFS) = 3088.57

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 30.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040

*ESTIMATED CHANNEL HEIGHT(FEET) = 6.60

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 6.60 FLOW VELOCITY(FEET/SEC.) = 9.40

LONGEST FLOWPATH FROM NODE 13500.00 TO NODE 13410.00 = 41710.10 FEET.

=====

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 3859.7 TC(MIN.) = 46.09

EFFECTIVE AREA(ACRES) = 2647.72 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.928

PEAK FLOW RATE(CFS) = 3088.57

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	2776.71	27.02	1.993	0.30(0.27)	0.90	1487.3	110.00
2	2879.22	29.39	1.888	0.30(0.27)	0.90	1661.9	100.00
3	2888.80	30.54	1.847	0.30(0.27)	0.90	1737.8	100.00
4	2912.73	33.54	1.771	0.30(0.27)	0.91	1918.1	130.00
5	3088.57	46.09	1.476	0.30(0.28)	0.93	2647.7	20100.00
6	3029.31	51.27	1.378	0.30(0.28)	0.93	2829.1	13600.00
7	2905.42	85.17	1.108	0.30(0.28)	0.93	3796.8	13510.00
8	2757.25	93.58	1.059	0.30(0.28)	0.93	3859.7	13500.00

=====

END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 137 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 100-YR EV AUG 2023 ROKAMOTO *

FILE NAME: RU00EV37.DAT
TIME/DATE OF STUDY: 08:53 08/09/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 5.768
- 2) 10.00; 3.736
- 3) 15.00; 2.899
- 4) 20.00; 2.397
- 5) 25.00; 2.080
- 6) 30.00; 1.859
- 7) 40.00; 1.604
- 8) 50.00; 1.391
- 9) 60.00; 1.276
- 10) 90.00; 1.073
- 11) 120.00; 0.936
- 12) 180.00; 0.780
- 13) 360.00; 0.574
- 14) 1200.00; 0.249

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER WIDTH (FT)	GEOMETRIES: LIP (FT)	MANNING HIKE FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: RU00EV34.DNA
MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	27446.63	18.11	0.30 (0.26)	0.86	4666.5	300.00
2	29823.80	23.90	0.30 (0.26)	0.86	6497.9	50600.00
3	34144.29	36.68	0.30 (0.26)	0.87	11693.8	10100.00
4	37508.09	48.16	0.30 (0.27)	0.90	16545.0	600.00
5	38541.38	53.05	0.30 (0.27)	0.90	18871.9	31100.00
6	41009.16	63.78	0.30 (0.28)	0.92	23930.5	40100.00
7	43113.11	70.80	0.30 (0.28)	0.93	27295.3	11801.00
8	45926.94	80.01	0.30 (0.28)	0.93	32327.3	11530.00
9	48156.14	88.36	0.30 (0.28)	0.94	37936.9	11910.00
10	50074.57	95.29	0.30 (0.28)	0.95	42837.3	11330.00
11	50828.96	101.55	0.30 (0.29)	0.95	47268.3	11130.00
12	50362.01	109.16	0.30 (0.29)	0.95	51262.2	12330.00
13	49814.55	115.82	0.30 (0.29)	0.96	54605.4	12400.00
14	48918.25	124.54	0.30 (0.29)	0.96	57974.2	12201.00
15	48328.05	128.53	0.30 (0.29)	0.96	59058.9	12111.00
16	47530.61	133.95	0.30 (0.29)	0.96	60428.3	12101.10
17	46891.19	138.02	0.30 (0.29)	0.96	61277.4	10400.00
18	45129.77	146.16	0.30 (0.29)	0.96	62592.6	12010.00
19	43672.76	152.13	0.30 (0.29)	0.96	62906.3	10210.00
20	39551.62	178.49	0.30 (0.29)	0.96	63639.0	10100.00
TOTAL AREA(ACRES) =						63639.0

FLOW PROCESS FROM NODE 13700.00 TO NODE 13700.00 IS CODE = 14.0

>>>>MEMORY BANK # 3 COPIED ONTO MAIN-STREAM MEMORY<<<<<

=====

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	27446.63	18.11	0.30 (0.26)	0.86	4666.5	300.00
2	29823.80	23.90	0.30 (0.26)	0.86	6497.9	50600.00
3	34144.29	36.68	0.30 (0.26)	0.87	11693.8	10100.00
4	37508.09	48.16	0.30 (0.27)	0.90	16545.0	600.00
5	38541.38	53.05	0.30 (0.27)	0.90	18871.9	31100.00
6	41009.16	63.78	0.30 (0.28)	0.92	23930.5	40100.00
7	43113.11	70.80	0.30 (0.28)	0.93	27295.3	11801.00
8	45926.94	80.01	0.30 (0.28)	0.93	32327.3	11530.00
9	48156.14	88.36	0.30 (0.28)	0.94	37936.9	11910.00
10	50074.57	95.29	0.30 (0.28)	0.95	42837.3	11330.00
11	50828.96	101.55	0.30 (0.29)	0.95	47268.3	11130.00
12	50362.01	109.16	0.30 (0.29)	0.95	51262.2	12330.00
13	49814.55	115.82	0.30 (0.29)	0.96	54605.4	12400.00

14 48918.25 124.54 0.30(0.29) 0.96 57974.2 12201.00
 15 48328.05 128.53 0.30(0.29) 0.96 59058.9 12111.00
 16 47530.61 133.95 0.30(0.29) 0.96 60428.3 12101.10
 17 46891.19 138.02 0.30(0.29) 0.96 61277.4 10400.00
 18 45129.77 146.16 0.30(0.29) 0.96 62592.6 12010.00
 19 43672.76 152.13 0.30(0.29) 0.96 62906.3 10210.00
 20 39551.62 178.49 0.30(0.29) 0.96 63639.0 10100.00
 TOTAL AREA (ACRES) = 63639.0

FLOW PROCESS FROM NODE 13700.00 TO NODE 13720.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 170.00 DOWNSTREAM(FEET) = 165.51
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1891.83 CHANNEL SLOPE = 0.0024
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 14.93
 CHANNEL FLOW THRU SUBAREA(CFS) = 50828.96
 FLOW VELOCITY(FEET/SEC.) = 12.40 FLOW DEPTH(FEET) = 14.93
 TRAVEL TIME(MIN.) = 2.54 Tc(MIN.) = 104.09
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13720.00 = 126441.05 FEET.

FLOW PROCESS FROM NODE 13700.00 TO NODE 13720.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

FLOW PROCESS FROM NODE 13720.00 TO NODE 13720.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 0506102b.DNA
 MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm)	Ap	Ae (ACRES)	HEADWATER NODE
1	406.54	14.41	2.998	0.30(0.29)	0.96	189.8	10230.00
2	372.26	23.72	2.161	0.30(0.29)	0.95	240.3	10200.00
3	368.40	24.34	2.122	0.30(0.29)	0.95	241.8	10250.00
4	339.08	28.10	1.943	0.30(0.29)	0.95	246.3	10220.00
TOTAL AREA (ACRES) =							246.3

FLOW PROCESS FROM NODE 13720.00 TO NODE 13720.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm)	Ap	Ae (ACRES)	HEADWATER NODE
1	27446.63	21.20	2.321	0.30(0.26)	0.86	4666.5	300.00
2	29823.80	26.90	1.996	0.30(0.26)	0.86	6497.9	50600.00
3	34144.29	39.56	1.615	0.30(0.26)	0.87	11693.8	10100.00

4	37508.09	50.95	1.380	0.30(0.27)	0.90	16545.0	600.00
5	38541.38	55.82	1.324	0.30(0.27)	0.90	18871.9	31100.00
6	41009.16	66.49	1.232	0.30(0.28)	0.92	23930.5	40100.00
7	43113.11	73.47	1.185	0.30(0.28)	0.93	27295.3	11801.00
8	45926.94	82.64	1.123	0.30(0.28)	0.93	32327.3	11530.00
9	48156.14	90.95	1.069	0.30(0.28)	0.94	37936.9	11910.00
10	50074.57	97.84	1.037	0.30(0.28)	0.95	42837.3	11330.00
11	50828.96	104.09	1.009	0.30(0.29)	0.95	47268.3	11130.00
12	50362.01	111.71	0.974	0.30(0.29)	0.95	51262.2	12330.00
13	49814.55	118.38	0.943	0.30(0.29)	0.96	54605.4	12400.00
14	48918.25	127.11	0.918	0.30(0.29)	0.96	57974.2	12201.00
15	48328.05	131.11	0.907	0.30(0.29)	0.96	59058.9	12111.00
16	47530.61	136.55	0.893	0.30(0.29)	0.96	60428.3	12101.10
17	46891.19	140.62	0.882	0.30(0.29)	0.96	61277.4	10400.00
18	45129.77	148.79	0.861	0.30(0.29)	0.96	62592.6	12010.00
19	43672.76	154.79	0.846	0.30(0.29)	0.96	62906.3	10210.00
20	39551.62	181.24	0.779	0.30(0.29)	0.96	63639.0	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13720.00 = 126441.05 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm)	Ap	Ae (ACRES)	HEADWATER NODE
1	406.54	14.41	2.998	0.30(0.29)	0.96	189.8	10230.00
2	372.26	23.72	2.161	0.30(0.29)	0.95	240.3	10200.00
3	368.40	24.34	2.122	0.30(0.29)	0.95	241.8	10250.00
4	339.08	28.10	1.943	0.30(0.29)	0.95	246.3	10220.00

LONGEST FLOWPATH FROM NODE 10200.00 TO NODE 13720.00 = 9099.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm)	Ap	Ae (ACRES)	HEADWATER NODE
1	25184.18	14.41	2.998	0.30(0.26)	0.87	3361.9	10230.00
2	27828.17	21.20	2.321	0.30(0.26)	0.86	4893.1	300.00
3	28868.49	23.72	2.161	0.30(0.26)	0.86	5715.4	10200.00
4	29124.32	24.34	2.122	0.30(0.26)	0.86	5917.0	10250.00
5	30172.21	26.90	1.996	0.30(0.26)	0.86	6742.7	50600.00
6	30571.19	28.10	1.943	0.30(0.26)	0.86	7235.2	10220.00
7	34416.30	39.56	1.615	0.30(0.26)	0.88	11940.1	10100.00
8	37731.97	50.95	1.380	0.30(0.27)	0.90	16791.3	600.00
9	38753.80	55.82	1.324	0.30(0.27)	0.91	19118.2	31100.00
10	41202.75	66.49	1.232	0.30(0.28)	0.92	24176.8	40100.00
11	43297.03	73.47	1.185	0.30(0.28)	0.93	27541.6	11801.00
12	46098.18	82.64	1.123	0.30(0.28)	0.93	32573.5	11530.00
13	48316.29	90.95	1.069	0.30(0.28)	0.94	38183.2	11910.00
14	50228.28	97.84	1.037	0.30(0.28)	0.95	43083.5	11330.00
15	50976.84	104.09	1.009	0.30(0.29)	0.95	47514.5	11130.00
16	50502.76	111.71	0.974	0.30(0.29)	0.95	51508.5	12330.00
17	49949.07	118.38	0.943	0.30(0.29)	0.96	54851.7	12400.00
18	49047.47	127.11	0.918	0.30(0.29)	0.96	58220.5	12201.00
19	48455.15	131.11	0.907	0.30(0.29)	0.96	59305.1	12111.00
20	47654.81	136.55	0.893	0.30(0.29)	0.96	60674.6	12101.10
21	47013.22	140.62	0.882	0.30(0.29)	0.96	61523.7	10400.00
22	45247.45	148.79	0.861	0.30(0.29)	0.96	62838.8	12010.00
23	43787.25	154.79	0.846	0.30(0.29)	0.96	63152.5	10210.00
24	39652.41	181.24	0.779	0.30(0.29)	0.96	63885.3	10100.00
TOTAL AREA (ACRES) =							63885.3

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 50976.84 Tc(MIN.) = 104.093
 EFFECTIVE AREA(ACRES) = 47514.54 AREA-AVERAGED Fm(INCH/HR) = 0.29
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA(ACRES) = 63885.3
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13720.00 = 126441.05 FEET.

 FLOW PROCESS FROM NODE 13720.00 TO NODE 13740.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 165.51 DOWNSTREAM(FEET) = 161.03
 CHANNEL LENGTH THRU SUBAREA(FEET) = 2067.54 CHANNEL SLOPE = 0.0022
 GIVEN CHANNEL BASE(FEET) = 200.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 5.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 15.33
 CHANNEL FLOW THRU SUBAREA(CFS) = 50976.84
 FLOW VELOCITY(FEET/SEC.) = 12.02 FLOW DEPTH(FEET) = 15.33
 TRAVEL TIME(MIN.) = 2.87 Tc(MIN.) = 106.96
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13740.00 = 128508.59 FEET.

 FLOW PROCESS FROM NODE 13720.00 TO NODE 13740.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

 FLOW PROCESS FROM NODE 13740.00 TO NODE 13740.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

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PEAK FLOWRATE TABLE FILE NAME: 0506103b.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	810.21	17.74	0.30(0.23)	0.76	399.5	10300.00
2	813.53	18.53	0.30(0.23)	0.76	413.0	10380.00
3	800.95	20.83	0.30(0.23)	0.76	438.9	10320.00
4	771.92	23.06	0.30(0.23)	0.76	451.6	10360.00
5	728.08	25.86	0.30(0.23)	0.76	460.8	10340.00
TOTAL AREA(ACRES) =						460.8

 FLOW PROCESS FROM NODE 13740.00 TO NODE 13740.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

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** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25184.18	17.98	2.599	0.30(0.26)	0.87	3361.9	10230.00
2	27828.17	24.66	2.101	0.30(0.26)	0.86	4893.1	300.00
3	28868.49	27.14	1.985	0.30(0.26)	0.86	5715.4	10200.00
4	29124.32	27.75	1.958	0.30(0.26)	0.86	5917.0	10250.00
5	30172.21	30.28	1.852	0.30(0.26)	0.86	6742.7	50600.00

6	30571.19	31.46	1.822	0.30(0.26)	0.86	7235.2	10220.00
7	34416.30	42.80	1.544	0.30(0.26)	0.88	11940.1	10100.00
8	37731.97	54.10	1.344	0.30(0.27)	0.90	16791.3	600.00
9	38753.80	58.94	1.288	0.30(0.27)	0.91	19118.2	31100.00
10	41202.75	69.55	1.211	0.30(0.28)	0.92	24176.8	40100.00
11	43297.03	76.49	1.164	0.30(0.28)	0.93	27541.6	11801.00
12	46098.18	85.59	1.103	0.30(0.28)	0.93	32573.5	11530.00
13	48316.29	93.86	1.055	0.30(0.28)	0.94	38183.2	11910.00
14	50228.28	100.72	1.024	0.30(0.28)	0.95	43083.5	11330.00
15	50976.84	106.96	0.996	0.30(0.29)	0.95	47514.5	11130.00
16	50502.76	114.58	0.961	0.30(0.29)	0.95	51508.5	12330.00
17	49949.07	121.27	0.933	0.30(0.29)	0.96	54851.7	12400.00
18	49047.47	130.01	0.910	0.30(0.29)	0.96	58220.5	12201.00
19	48455.15	134.03	0.900	0.30(0.29)	0.96	59305.1	12111.00
20	47654.81	139.47	0.885	0.30(0.29)	0.96	60674.6	12101.10
21	47013.22	143.56	0.875	0.30(0.29)	0.96	61523.7	10400.00
22	45247.45	151.77	0.853	0.30(0.29)	0.96	62838.8	12010.00
23	43787.25	157.80	0.838	0.30(0.29)	0.96	63152.5	10210.00
24	39652.41	184.34	0.775	0.30(0.29)	0.96	63885.3	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13740.00 = 128508.59 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	810.21	17.74	2.623	0.30(0.23)	0.76	399.5	10300.00
2	813.53	18.53	2.544	0.30(0.23)	0.76	413.0	10380.00
3	800.95	20.83	2.345	0.30(0.23)	0.76	438.9	10320.00
4	771.92	23.06	2.203	0.30(0.23)	0.76	451.6	10360.00
5	728.08	25.86	2.042	0.30(0.23)	0.76	460.8	10340.00

LONGEST FLOWPATH FROM NODE 10320.00 TO NODE 13740.00 = 8457.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25914.09	17.74	2.623	0.30(0.26)	0.85	3716.5	10300.00
2	25995.40	17.98	2.599	0.30(0.26)	0.85	3765.5	10230.00
3	26215.47	18.53	2.544	0.30(0.26)	0.85	3901.0	10380.00
4	27110.76	20.83	2.345	0.30(0.26)	0.86	4452.7	10320.00
5	27963.75	23.06	2.203	0.30(0.26)	0.86	4976.2	10360.00
6	28575.01	24.66	2.101	0.30(0.26)	0.86	5350.0	300.00
7	29060.50	25.86	2.042	0.30(0.26)	0.86	5752.5	10340.00
8	29573.89	27.14	1.985	0.30(0.26)	0.86	6176.2	10200.00
9	29818.84	27.75	1.958	0.30(0.26)	0.86	6377.8	10250.00
10	30824.00	30.28	1.852	0.30(0.26)	0.86	7203.5	50600.00
11	31210.89	31.46	1.822	0.30(0.26)	0.86	7696.0	10220.00
12	34944.61	42.80	1.544	0.30(0.26)	0.87	12400.9	10100.00
13	38179.74	54.10	1.344	0.30(0.27)	0.89	17252.1	600.00
14	39179.18	58.94	1.288	0.30(0.27)	0.90	19579.0	31100.00
15	41597.29	69.55	1.211	0.30(0.28)	0.92	24637.6	40100.00
16	43672.72	76.49	1.164	0.30(0.28)	0.92	28002.4	11801.00
17	46449.12	85.59	1.103	0.30(0.28)	0.93	33034.3	11530.00
18	48648.18	93.86	1.055	0.30(0.28)	0.94	38644.0	11910.00
19	50547.59	100.72	1.024	0.30(0.28)	0.94	43544.3	11330.00
20	51284.70	106.96	0.996	0.30(0.28)	0.95	47975.3	11130.00
21	50796.64	114.58	0.961	0.30(0.29)	0.95	51969.3	12330.00
22	50231.70	121.27	0.933	0.30(0.29)	0.95	55312.5	12400.00
23	49320.96	130.01	0.910	0.30(0.29)	0.96	58681.3	12201.00
24	48724.45	134.03	0.900	0.30(0.29)	0.96	59765.9	12111.00

25 47918.42 139.47 0.885 0.30(0.29) 0.96 61135.4 12101.10
 26 47272.56 143.56 0.875 0.30(0.29) 0.96 61984.5 10400.00
 27 45498.22 151.77 0.853 0.30(0.29) 0.96 63299.6 12010.00
 28 44031.73 157.80 0.838 0.30(0.29) 0.96 63613.3 10210.00
 29 39871.71 184.34 0.775 0.30(0.29) 0.96 64346.1 10100.00
 TOTAL AREA (ACRES) = 64346.1

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 51284.70 Tc(MIN.) = 106.960
 EFFECTIVE AREA(ACRES) = 47975.34 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.92
 TOTAL AREA(ACRES) = 64346.1
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13740.00 = 128508.59 FEET.

FLOW PROCESS FROM NODE 13740.00 TO NODE 13741.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 161.03 DOWNSTREAM(FEET) = 141.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 364.08 CHANNEL SLOPE = 0.0550
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 8.92
 CHANNEL FLOW THRU SUBAREA(CFS) = 51284.70
 FLOW VELOCITY(FEET/SEC.) = 42.40 FLOW DEPTH(FEET) = 8.92
 TRAVEL TIME(MIN.) = 0.14 Tc(MIN.) = 107.10
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13741.00 = 128872.66 FEET.

FLOW PROCESS FROM NODE 13740.00 TO NODE 13741.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

FLOW PROCESS FROM NODE 13741.00 TO NODE 13741.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 0506104b.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	82.60	19.10	0.30(0.24)	0.80	44.3	10400.00
TOTAL AREA(ACRES) =						44.3

FLOW PROCESS FROM NODE 13741.00 TO NODE 13741.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25914.09	17.92	2.606	0.30(0.26)	0.85	3716.5	10300.00

2	25995.40	18.16	2.582	0.30(0.26)	0.85	3765.5	10230.00
3	26215.47	18.71	2.526	0.30(0.26)	0.85	3901.0	10380.00
4	27110.76	21.00	2.333	0.30(0.26)	0.86	4452.7	10320.00
5	27963.75	23.23	2.192	0.30(0.26)	0.86	4976.2	10360.00
6	28575.01	24.83	2.091	0.30(0.26)	0.86	5350.0	300.00
7	29060.50	26.04	2.034	0.30(0.26)	0.86	5752.5	10340.00
8	29573.89	27.31	1.978	0.30(0.26)	0.86	6176.2	10200.00
9	29818.84	27.92	1.951	0.30(0.26)	0.86	6377.8	10250.00
10	30824.00	30.45	1.848	0.30(0.26)	0.86	7203.5	50600.00
11	31210.89	31.63	1.817	0.30(0.26)	0.86	7696.0	10220.00
12	34944.61	42.96	1.541	0.30(0.26)	0.87	12400.9	10100.00
13	38179.74	54.25	1.342	0.30(0.27)	0.89	17252.1	600.00
14	39179.18	59.10	1.286	0.30(0.27)	0.90	19579.0	31100.00
15	41597.29	69.71	1.210	0.30(0.28)	0.92	24637.6	40100.00
16	43672.72	76.64	1.163	0.30(0.28)	0.92	28002.4	11801.00
17	46449.12	85.74	1.102	0.30(0.28)	0.93	33034.3	11530.00
18	48648.18	94.01	1.055	0.30(0.28)	0.94	38644.0	11910.00
19	50547.59	100.86	1.023	0.30(0.28)	0.94	43544.3	11330.00
20	51284.70	107.10	0.995	0.30(0.28)	0.95	47975.3	11130.00
21	50796.64	114.73	0.960	0.30(0.29)	0.95	51969.3	12330.00
22	50231.70	121.41	0.932	0.30(0.29)	0.95	55312.5	12400.00
23	49320.96	130.16	0.910	0.30(0.29)	0.96	58681.3	12201.00
24	48724.45	134.17	0.899	0.30(0.29)	0.96	59765.9	12111.00
25	47918.42	139.62	0.885	0.30(0.29)	0.96	61135.4	12101.10
26	47272.56	143.71	0.874	0.30(0.29)	0.96	61984.5	10400.00
27	45498.22	151.92	0.853	0.30(0.29)	0.96	63299.6	12010.00
28	44031.73	157.95	0.837	0.30(0.29)	0.96	63613.3	10210.00
29	39871.71	184.50	0.775	0.30(0.29)	0.96	64346.1	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13741.00 = 128872.66 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	82.60	19.10	2.487	0.30(0.24)	0.80	44.3	10400.00
LONGEST FLOWPATH FROM NODE 10400.00 TO NODE 13741.00 =							6237.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25995.40	17.92	2.606	0.30(0.26)	0.85	3758.0	10300.00
2	26077.23	18.16	2.582	0.30(0.26)	0.85	3807.6	10230.00
3	26297.79	18.71	2.526	0.30(0.26)	0.85	3944.4	10380.00
4	26450.11	19.10	2.487	0.30(0.26)	0.85	4039.0	10400.00
5	27187.70	21.00	2.333	0.30(0.26)	0.85	4497.0	10320.00
6	28035.51	23.23	2.192	0.30(0.26)	0.86	5020.5	10360.00
7	28643.03	24.83	2.091	0.30(0.26)	0.86	5394.3	300.00
8	29126.45	26.04	2.034	0.30(0.26)	0.86	5796.8	10340.00
9	29637.77	27.31	1.978	0.30(0.26)	0.86	6220.5	10200.00
10	29881.73	27.92	1.951	0.30(0.26)	0.86	6422.1	10250.00
11	30883.10	30.45	1.848	0.30(0.26)	0.86	7247.8	50600.00
12	31268.88	31.63	1.817	0.30(0.26)	0.86	7740.3	10220.00
13	34992.44	42.96	1.541	0.30(0.26)	0.87	12445.2	10100.00
14	38220.26	54.25	1.342	0.30(0.27)	0.89	17296.4	600.00
15	39217.66	59.10	1.286	0.30(0.27)	0.90	19623.3	31100.00
16	41632.96	69.71	1.210	0.30(0.28)	0.92	24681.9	40100.00
17	43706.68	76.64	1.163	0.30(0.28)	0.92	28046.7	11801.00
18	46480.81	85.74	1.102	0.30(0.28)	0.93	33078.6	11530.00
19	48678.13	94.01	1.055	0.30(0.28)	0.94	38688.3	11910.00

20	50576.39	100.86	1.023	0.30	(0.28)	0.94	43588.6	11330.00
21	51312.46	107.10	0.995	0.30	(0.28)	0.95	48019.6	11130.00
22	50823.12	114.73	0.960	0.30	(0.29)	0.95	52013.6	12330.00
23	50257.16	121.41	0.932	0.30	(0.29)	0.95	55356.8	12400.00
24	49345.59	130.16	0.910	0.30	(0.29)	0.96	58725.6	12201.00
25	48748.69	134.17	0.899	0.30	(0.29)	0.96	59810.2	12111.00
26	47942.14	139.62	0.885	0.30	(0.29)	0.96	61179.7	12101.10
27	47295.89	143.71	0.874	0.30	(0.29)	0.96	62028.8	10400.00
28	45520.77	151.92	0.853	0.30	(0.29)	0.96	63343.9	12010.00
29	44053.70	157.95	0.837	0.30	(0.29)	0.96	63657.6	10210.00
30	39891.38	184.50	0.775	0.30	(0.29)	0.96	64390.4	10100.00

TOTAL AREA (ACRES) = 64390.4

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 51312.46 Tc (MIN.) = 107.103
EFFECTIVE AREA (ACRES) = 48019.64 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA (ACRES) = 64390.4
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13741.00 = 128872.66 FEET.

FLOW PROCESS FROM NODE 13741.00 TO NODE 13802.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 141.00 DOWNSTREAM (FEET) = 135.00
CHANNEL LENGTH THRU SUBAREA (FEET) = 1533.41 CHANNEL SLOPE = 0.0039
GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 17.95
CHANNEL FLOW THRU SUBAREA (CFS) = 51312.46
FLOW VELOCITY (FEET/SEC.) = 16.63 FLOW DEPTH (FEET) = 17.95
TRAVEL TIME (MIN.) = 1.54 Tc (MIN.) = 108.64
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13802.00 = 130406.07 FEET.

FLOW PROCESS FROM NODE 13802.00 TO NODE 13802.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<

FLOW PROCESS FROM NODE 13802.00 TO NODE 13802.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<

PEAK FLOWRATE TABLE FILE NAME: 0506105i.DNA

MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	447.60	14.36	0.30 (0.27)	0.90	208.7	10520.00
2	533.75	30.45	0.30 (0.28)	0.93	403.6	10500.00
TOTAL AREA (ACRES) =						403.6

FLOW PROCESS FROM NODE 13802.00 TO NODE 13802.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25995.68	19.79	2.418	0.30 (0.26)	0.85	3758.0	10300.00
2	26077.23	20.03	2.395	0.30 (0.26)	0.85	3807.6	10230.00
3	26297.79	20.57	2.361	0.30 (0.26)	0.85	3944.4	10380.00
4	26450.11	20.96	2.336	0.30 (0.26)	0.85	4039.0	10400.00
5	27187.70	22.84	2.217	0.30 (0.26)	0.85	4497.0	10320.00
6	28035.51	25.05	2.078	0.30 (0.26)	0.86	5020.5	10360.00
7	28643.03	26.65	2.007	0.30 (0.26)	0.86	5394.3	300.00
8	29126.45	27.84	1.954	0.30 (0.26)	0.86	5796.8	10340.00
9	29637.77	29.11	1.898	0.30 (0.26)	0.86	6220.5	10200.00
10	29881.73	29.72	1.872	0.30 (0.26)	0.86	6422.1	10250.00
11	30883.10	32.22	1.802	0.30 (0.26)	0.86	7247.8	50600.00
12	31268.88	33.40	1.772	0.30 (0.26)	0.86	7740.3	10220.00
13	34992.44	44.67	1.505	0.30 (0.26)	0.87	12445.2	10100.00
14	38220.26	55.92	1.323	0.30 (0.27)	0.89	17296.4	600.00
15	39217.66	60.76	1.271	0.30 (0.27)	0.90	19623.3	31100.00
16	41632.96	71.34	1.199	0.30 (0.28)	0.92	24681.9	40100.00
17	43706.68	78.25	1.153	0.30 (0.28)	0.92	28046.7	11801.00
18	46480.81	87.32	1.091	0.30 (0.28)	0.93	33078.6	11530.00
19	48678.13	95.57	1.048	0.30 (0.28)	0.94	38688.3	11910.00
20	50576.39	102.41	1.016	0.30 (0.28)	0.94	43588.6	11330.00
21	51312.46	108.64	0.988	0.30 (0.28)	0.95	48019.6	11130.00
22	50823.12	116.27	0.953	0.30 (0.29)	0.95	52013.6	12330.00
23	50257.16	122.96	0.928	0.30 (0.29)	0.95	55356.8	12400.00
24	49345.59	131.71	0.906	0.30 (0.29)	0.96	58725.6	12201.00
25	48748.69	135.73	0.895	0.30 (0.29)	0.96	59810.2	12111.00
26	47942.14	141.19	0.881	0.30 (0.29)	0.96	61179.7	12101.10
27	47295.89	145.28	0.870	0.30 (0.29)	0.96	62028.8	10400.00
28	45520.77	153.50	0.849	0.30 (0.29)	0.96	63343.9	12010.00
29	44053.70	159.55	0.833	0.30 (0.29)	0.96	63657.6	10210.00
30	39891.38	186.15	0.773	0.30 (0.29)	0.96	64390.4	10100.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13802.00 = 130406.07 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	447.60	14.36	3.006	0.30 (0.27)	0.90	208.7	10520.00
2	533.75	30.45	1.848	0.30 (0.28)	0.93	403.6	10500.00

LONGEST FLOWPATH FROM NODE 10500.00 TO NODE 13802.00 = 12187.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24442.21	14.36	3.006	0.30 (0.26)	0.86	2936.7	10520.00
2	26472.32	19.79	2.418	0.30 (0.26)	0.86	4032.5	10300.00
3	26555.16	20.03	2.395	0.30 (0.26)	0.86	4085.0	10230.00
4	26778.63	20.57	2.361	0.30 (0.26)	0.86	4228.3	10380.00
5	26933.03	20.96	2.336	0.30 (0.26)	0.86	4327.6	10400.00
6	27680.72	22.84	2.217	0.30 (0.26)	0.86	4808.5	10320.00
7	28540.36	25.05	2.078	0.30 (0.26)	0.86	5358.8	10360.00
8	29156.42	26.65	2.007	0.30 (0.26)	0.86	5751.9	300.00
9	29646.22	27.84	1.954	0.30 (0.26)	0.86	6168.8	10340.00
10	30164.33	29.11	1.898	0.30 (0.26)	0.86	6607.9	10200.00

11	30411.54	29.72	1.872	0.30	(0.26)	0.86	6816.8	10250.00
12	30708.87	30.45	1.848	0.30	(0.26)	0.86	7067.6	10500.00
13	31401.48	32.22	1.802	0.30	(0.26)	0.86	7651.4	50600.00
14	31777.08	33.40	1.772	0.30	(0.26)	0.86	8143.9	10220.00
15	35409.55	44.67	1.505	0.30	(0.26)	0.87	12848.8	10100.00
16	38575.60	55.92	1.323	0.30	(0.27)	0.89	17700.0	600.00
17	39555.31	60.76	1.271	0.30	(0.27)	0.90	20026.9	31100.00
18	41946.27	71.34	1.199	0.30	(0.28)	0.92	25085.5	40100.00
19	44004.08	78.25	1.153	0.30	(0.28)	0.92	28450.3	11801.00
20	46757.34	87.32	1.091	0.30	(0.28)	0.93	33482.2	11530.00
21	48939.84	95.57	1.048	0.30	(0.28)	0.94	39091.9	11910.00
22	50827.48	102.41	1.016	0.30	(0.28)	0.94	43992.2	11330.00
23	51553.87	108.64	0.988	0.30	(0.28)	0.95	48423.2	11130.00
24	51052.68	116.27	0.953	0.30	(0.29)	0.95	52417.2	12330.00
25	50478.31	122.96	0.928	0.30	(0.29)	0.95	55760.4	12400.00
26	49559.00	131.71	0.906	0.30	(0.29)	0.96	59129.2	12201.00
27	48958.55	135.73	0.895	0.30	(0.29)	0.96	60213.8	12111.00
28	48147.18	141.19	0.881	0.30	(0.29)	0.96	61583.3	12101.10
29	47497.30	145.28	0.870	0.30	(0.29)	0.96	62432.4	10400.00
30	45714.91	153.50	0.849	0.30	(0.29)	0.96	63747.5	12010.00
31	44242.49	159.55	0.833	0.30	(0.29)	0.96	64061.2	10210.00
32	40059.71	186.15	0.773	0.30	(0.29)	0.96	64794.0	10100.00

TOTAL AREA (ACRES) = 64794.0

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 51553.87 Tc (MIN.) = 108.639
EFFECTIVE AREA (ACRES) = 48423.25 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA (ACRES) = 64794.0
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13802.00 = 130406.07 FEET.

FLOW PROCESS FROM NODE 13802.00 TO NODE 13803.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 135.00 DOWNSTREAM (FEET) = 134.99
CHANNEL LENGTH THRU SUBAREA (FEET) = 207.23 CHANNEL SLOPE = 0.0000
GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 51.14
CHANNEL FLOW THRU SUBAREA (CFS) = 51553.87
FLOW VELOCITY (FEET/SEC.) = 3.31 FLOW DEPTH (FEET) = 51.14
TRAVEL TIME (MIN.) = 1.04 Tc (MIN.) = 109.68
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13803.00 = 130613.30 FEET.

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc (MIN.) = 109.68
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 0.983
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
RESIDENTIAL

"1 DWELLING/ACRE" B 48.80 0.30 0.800 56
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.800
SUBAREA AREA (ACRES) = 48.80 SUBAREA RUNOFF (CFS) = 32.64
EFFECTIVE AREA (ACRES) = 48472.05 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA (ACRES) = 64842.8 PEAK FLOW RATE (CFS) = 51553.87
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

FLOW PROCESS FROM NODE 13802.00 TO NODE 13803.00 IS CODE = 12

>>>>CLEAR MEMORY BANK # 3 <<<<<

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 3 <<<<<

PEAK FLOWRATE TABLE FILE NAME: 0506106b.DNA
MEMORY BANK # 3 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	73.36	17.31	0.30 (0.20)	0.67	36.9	10600.00
TOTAL AREA (ACRES) =			36.9			

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 3 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24442.21	15.63	2.836	0.30 (0.26)	0.86	2985.5	10520.00
2	26472.32	21.03	2.332	0.30 (0.26)	0.86	4081.3	10300.00
3	26555.16	21.26	2.317	0.30 (0.26)	0.86	4133.8	10230.00
4	26778.63	21.81	2.283	0.30 (0.26)	0.86	4277.1	10380.00
5	26933.03	22.19	2.258	0.30 (0.26)	0.86	4376.4	10400.00
6	27680.72	24.07	2.139	0.30 (0.26)	0.86	4857.3	10320.00
7	28540.36	26.27	2.024	0.30 (0.26)	0.86	5407.6	10360.00
8	29156.42	27.86	1.954	0.30 (0.26)	0.86	5800.7	300.00
9	29646.22	29.04	1.901	0.30 (0.26)	0.86	6217.6	10340.00
10	30164.33	30.30	1.851	0.30 (0.26)	0.86	6656.7	10200.00
11	30411.54	30.91	1.836	0.30 (0.26)	0.86	6865.6	10250.00
12	30708.87	31.64	1.817	0.30 (0.26)	0.86	7116.4	10500.00
13	31401.48	33.41	1.772	0.30 (0.26)	0.86	7700.2	50600.00
14	31777.08	34.58	1.742	0.30 (0.26)	0.86	8192.7	10220.00
15	35409.55	45.82	1.480	0.30 (0.26)	0.87	12897.6	10100.00
16	38575.60	57.05	1.310	0.30 (0.27)	0.89	17748.8	600.00
17	39555.31	61.87	1.263	0.30 (0.27)	0.90	20075.7	31100.00
18	41946.27	72.44	1.192	0.30 (0.28)	0.92	25134.3	40100.00
19	44004.08	79.33	1.145	0.30 (0.28)	0.92	28499.1	11801.00
20	46757.34	88.39	1.084	0.30 (0.28)	0.93	33531.0	11530.00
21	48939.84	96.62	1.043	0.30 (0.28)	0.94	39140.7	11910.00
22	50827.48	103.45	1.012	0.30 (0.28)	0.94	44041.0	11330.00

23 51553.87 109.68 0.983 0.30(0.28) 0.95 48472.0 11130.00
 24 51052.68 117.31 0.948 0.30(0.29) 0.95 52466.0 12330.00
 25 50478.31 124.00 0.926 0.30(0.29) 0.95 55809.2 12400.00
 26 49559.00 132.76 0.903 0.30(0.29) 0.96 59178.0 12201.00
 27 48958.55 136.79 0.892 0.30(0.29) 0.96 60262.6 12111.00
 28 48147.18 142.25 0.878 0.30(0.29) 0.96 61632.1 12101.10
 29 47497.30 146.35 0.867 0.30(0.29) 0.96 62481.2 10400.00
 30 45714.91 154.58 0.846 0.30(0.29) 0.96 63796.3 12010.00
 31 44242.49 160.64 0.830 0.30(0.29) 0.96 64110.0 10210.00
 32 40059.71 187.26 0.772 0.30(0.29) 0.96 64842.8 10100.00
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13803.00 = 130613.30 FEET.

** MEMORY BANK # 3 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	73.36	17.31	2.667	0.30(0.20)	0.67	36.9	10600.00

LONGEST FLOWPATH FROM NODE 10600.00 TO NODE 13803.00 = 1713.00 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24512.97	15.63	2.836	0.30(0.26)	0.85	3018.8	10520.00
2	25147.62	17.31	2.667	0.30(0.26)	0.85	3363.5	10600.00
3	26535.71	21.03	2.332	0.30(0.26)	0.86	4118.2	10300.00
4	26618.09	21.26	2.317	0.30(0.26)	0.86	4170.7	10230.00
5	26840.55	21.81	2.283	0.30(0.26)	0.86	4314.0	10380.00
6	26994.22	22.19	2.258	0.30(0.26)	0.86	4413.3	10400.00
7	27738.37	24.07	2.139	0.30(0.26)	0.86	4894.2	10320.00
8	28594.58	26.27	2.024	0.30(0.26)	0.86	5444.5	10360.00
9	29208.56	27.86	1.954	0.30(0.26)	0.86	5837.6	300.00
10	29696.80	29.04	1.901	0.30(0.26)	0.86	6254.5	10340.00
11	30213.42	30.30	1.851	0.30(0.26)	0.86	6693.6	10200.00
12	30460.17	30.91	1.836	0.30(0.26)	0.86	6902.5	10250.00
13	30756.94	31.64	1.817	0.30(0.26)	0.86	7153.3	10500.00
14	31448.22	33.41	1.772	0.30(0.26)	0.86	7737.1	50600.00
15	31822.93	34.58	1.742	0.30(0.26)	0.86	8229.6	10220.00
16	35447.60	45.82	1.480	0.30(0.26)	0.87	12934.5	10100.00
17	38608.59	57.05	1.310	0.30(0.27)	0.89	17785.7	600.00
18	39586.91	61.87	1.263	0.30(0.27)	0.90	20112.6	31100.00
19	41975.74	72.44	1.192	0.30(0.27)	0.92	25171.2	40100.00
20	44032.17	79.33	1.145	0.30(0.28)	0.92	28536.0	11801.00
21	46783.60	88.39	1.084	0.30(0.28)	0.93	33567.9	11530.00
22	48964.88	96.62	1.043	0.30(0.28)	0.94	39177.6	11910.00
23	50851.59	103.45	1.012	0.30(0.28)	0.94	44077.9	11330.00
24	51577.14	109.68	0.983	0.30(0.28)	0.95	48508.9	11130.00
25	51074.91	117.31	0.948	0.30(0.29)	0.95	52502.9	12330.00
26	50499.86	124.00	0.926	0.30(0.29)	0.95	55846.1	12400.00
27	49579.88	132.76	0.903	0.30(0.29)	0.96	59214.9	12201.00
28	48979.11	136.79	0.892	0.30(0.29)	0.96	60299.5	12111.00
29	48167.32	142.25	0.878	0.30(0.29)	0.96	61669.0	12101.10
30	47517.13	146.35	0.867	0.30(0.29)	0.96	62518.1	10400.00
31	45734.10	154.58	0.846	0.30(0.29)	0.96	63833.2	12010.00
32	44261.21	160.64	0.830	0.30(0.29)	0.96	64146.9	10210.00
33	40076.68	187.26	0.772	0.30(0.29)	0.96	64879.7	10100.00

TOTAL AREA (ACRES) = 64879.7

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 51577.14 Tc (MIN.) = 109.683

EFFECTIVE AREA (ACRES) = 48508.95 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
 TOTAL AREA (ACRES) = 64879.7
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13803.00 = 130613.30 FEET.

END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 64879.7 TC (MIN.) = 109.68
 EFFECTIVE AREA (ACRES) = 48508.95 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.948
 PEAK FLOW RATE (CFS) = 51577.14

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	24512.97	15.63	2.836	0.30(0.26)	0.85	3018.8	10520.00
2	25147.62	17.31	2.667	0.30(0.26)	0.85	3363.5	10600.00
3	26535.71	21.03	2.332	0.30(0.26)	0.86	4118.2	10300.00
4	26618.09	21.26	2.317	0.30(0.26)	0.86	4170.7	10230.00
5	26840.55	21.81	2.283	0.30(0.26)	0.86	4314.0	10380.00
6	26994.22	22.19	2.258	0.30(0.26)	0.86	4413.3	10400.00
7	27738.37	24.07	2.139	0.30(0.26)	0.86	4894.2	10320.00
8	28594.58	26.27	2.024	0.30(0.26)	0.86	5444.5	10360.00
9	29208.56	27.86	1.954	0.30(0.26)	0.86	5837.6	300.00
10	29696.80	29.04	1.901	0.30(0.26)	0.86	6254.5	10340.00
11	30213.42	30.30	1.851	0.30(0.26)	0.86	6693.6	10200.00
12	30460.17	30.91	1.836	0.30(0.26)	0.86	6902.5	10250.00
13	30756.94	31.64	1.817	0.30(0.26)	0.86	7153.3	10500.00
14	31448.22	33.41	1.772	0.30(0.26)	0.86	7737.1	50600.00
15	31822.93	34.58	1.742	0.30(0.26)	0.86	8229.6	10220.00
16	35447.60	45.82	1.480	0.30(0.26)	0.87	12934.5	10100.00
17	38608.59	57.05	1.310	0.30(0.27)	0.89	17785.7	600.00
18	39586.91	61.87	1.263	0.30(0.27)	0.90	20112.6	31100.00
19	41975.74	72.44	1.192	0.30(0.27)	0.92	25171.2	40100.00
20	44032.17	79.33	1.145	0.30(0.28)	0.92	28536.0	11801.00
21	46783.60	88.39	1.084	0.30(0.28)	0.93	33567.9	11530.00
22	48964.88	96.62	1.043	0.30(0.28)	0.94	39177.6	11910.00
23	50851.59	103.45	1.012	0.30(0.28)	0.94	44077.9	11330.00
24	51577.14	109.68	0.983	0.30(0.28)	0.95	48508.9	11130.00
25	51074.91	117.31	0.948	0.30(0.29)	0.95	52502.9	12330.00
26	50499.86	124.00	0.926	0.30(0.29)	0.95	55846.1	12400.00
27	49579.88	132.76	0.903	0.30(0.29)	0.96	59214.9	12201.00
28	48979.11	136.79	0.892	0.30(0.29)	0.96	60299.5	12111.00
29	48167.32	142.25	0.878	0.30(0.29)	0.96	61669.0	12101.10
30	47517.13	146.35	0.867	0.30(0.29)	0.96	62518.1	10400.00
31	45734.10	154.58	0.846	0.30(0.29)	0.96	63833.2	12010.00
32	44261.21	160.64	0.830	0.30(0.29)	0.96	64146.9	10210.00
33	40076.68	187.26	0.772	0.30(0.29)	0.96	64879.7	10100.00

END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 138 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 100-YR EV AUG 2023 ROKAMOTO *

FILE NAME: RU00EV38.DAT
TIME/DATE OF STUDY: 08:53 08/09/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

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--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 5.750
- 2) 10.00; 3.727
- 3) 15.00; 2.893
- 4) 20.00; 2.393
- 5) 25.00; 2.078
- 6) 30.00; 1.857
- 7) 40.00; 1.601
- 8) 50.00; 1.389
- 9) 60.00; 1.274
- 10) 90.00; 1.070
- 11) 120.00; 0.933
- 12) 180.00; 0.777
- 13) 360.00; 0.572
- 14) 1200.00; 0.248

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER WIDTH (FT)	GEOMETRIES: LIP (FT)	MANNING HIKE FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167 0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 1 <<<<<

PEAK FLOWRATE TABLE FILE NAME: RU00EV37.DNA

MEMORY BANK # 1 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25147.62	17.31	0.30 (0.26)	0.85	3363.5	10600.00
2	31822.93	34.58	0.30 (0.26)	0.86	8229.6	10220.00
3	35447.60	45.82	0.30 (0.26)	0.87	12934.5	10100.00
4	38608.59	57.05	0.30 (0.27)	0.89	17785.7	600.00
5	39586.91	61.87	0.30 (0.27)	0.90	20112.6	31100.00
6	41975.74	72.44	0.30 (0.27)	0.92	25171.2	40100.00
7	44032.17	79.33	0.30 (0.28)	0.92	28536.0	11801.00
8	46783.60	88.39	0.30 (0.28)	0.93	33567.9	11530.00
9	48964.88	96.62	0.30 (0.28)	0.94	39177.6	11910.00
10	50851.59	103.45	0.30 (0.28)	0.94	44077.9	11330.00
11	51577.14	109.68	0.30 (0.28)	0.95	48508.9	11130.00
12	51074.91	117.31	0.30 (0.29)	0.95	52502.9	12330.00
13	50499.86	124.00	0.30 (0.29)	0.95	55846.1	12010.00
14	49579.88	132.76	0.30 (0.29)	0.96	59214.9	12201.00
15	48979.11	136.79	0.30 (0.29)	0.96	60299.5	12111.00
16	48167.32	142.25	0.30 (0.29)	0.96	61669.0	12101.10
17	47517.13	146.35	0.30 (0.29)	0.96	62518.1	10400.00
18	45734.10	154.58	0.30 (0.29)	0.96	63833.2	12010.00
19	44261.21	160.64	0.30 (0.29)	0.96	64146.9	10210.00
20	40076.68	187.26	0.30 (0.29)	0.96	64879.7	10100.00
TOTAL AREA (ACRES) =						64879.7

FLOW PROCESS FROM NODE 13803.00 TO NODE 13803.00 IS CODE = 14.0

>>>>MEMORY BANK # 1 COPIED ONTO MAIN-STREAM MEMORY<<<<<

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25147.62	17.31	0.30 (0.26)	0.85	3363.5	10600.00
2	31822.93	34.58	0.30 (0.26)	0.86	8229.6	10220.00
3	35447.60	45.82	0.30 (0.26)	0.87	12934.5	10100.00
4	38608.59	57.05	0.30 (0.27)	0.89	17785.7	600.00
5	39586.91	61.87	0.30 (0.27)	0.90	20112.6	31100.00
6	41975.74	72.44	0.30 (0.27)	0.92	25171.2	40100.00
7	44032.17	79.33	0.30 (0.28)	0.92	28536.0	11801.00
8	46783.60	88.39	0.30 (0.28)	0.93	33567.9	11530.00
9	48964.88	96.62	0.30 (0.28)	0.94	39177.6	11910.00
10	50851.59	103.45	0.30 (0.28)	0.94	44077.9	11330.00
11	51577.14	109.68	0.30 (0.28)	0.95	48508.9	11130.00
12	51074.91	117.31	0.30 (0.29)	0.95	52502.9	12330.00
13	50499.86	124.00	0.30 (0.29)	0.95	55846.1	12400.00

14 49579.88 132.76 0.30(0.29) 0.96 59214.9 12201.00
 15 48979.11 136.79 0.30(0.29) 0.96 60299.5 12111.00
 16 48167.32 142.25 0.30(0.29) 0.96 61669.0 12101.10
 17 47517.13 146.35 0.30(0.29) 0.96 62518.1 10400.00
 18 45734.10 154.58 0.30(0.29) 0.96 63833.2 12010.00
 19 44261.21 160.64 0.30(0.29) 0.96 64146.9 10210.00
 20 40076.68 187.26 0.30(0.29) 0.96 64879.7 10100.00
 TOTAL AREA (ACRES) = 64879.7

FLOW PROCESS FROM NODE 13803.00 TO NODE 13820.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 134.99 DOWNSTREAM(FEET) = 134.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 926.91 CHANNEL SLOPE = 0.0011
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 24.88

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 0.973

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	31.44	0.30	0.983	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.983

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 51586.73

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 10.39

AVERAGE FLOW DEPTH(FEET) = 24.88 TRAVEL TIME(MIN.) = 1.49

Tc(MIN.) = 111.17

SUBAREA AREA(ACRES) = 31.44 SUBAREA RUNOFF(CFS) = 19.20

EFFECTIVE AREA(ACRES) = 48540.39 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95

TOTAL AREA(ACRES) = 64911.1 PEAK FLOW RATE(CFS) = 51577.14

NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030

*ESTIMATED CHANNEL HEIGHT(FEET) = 24.88

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 24.88 FLOW VELOCITY(FEET/SEC.) = 10.39

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13820.00 = 131540.20 FEET.

FLOW PROCESS FROM NODE 13803.00 TO NODE 13820.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

TOTAL NUMBER OF STREAMS = 2

CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:

TIME OF CONCENTRATION(MIN.) = 111.17

RAINFALL INTENSITY(INCH/HR) = 0.97

AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30

AREA-AVERAGED Ap = 0.95

EFFECTIVE STREAM AREA(ACRES) = 48540.39

TOTAL STREAM AREA(ACRES) = 64911.11

PEAK FLOW RATE(CFS) AT CONFLUENCE = 51577.14

FLOW PROCESS FROM NODE 13810.00 TO NODE 13811.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<

>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

INITIAL SUBAREA FLOW-LENGTH(FEET) = 648.54

ELEVATION DATA: UPSTREAM(FEET) = 756.46 DOWNSTREAM(FEET) = 586.02

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20

SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 12.293

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.345

SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	-	5.58	0.30	1.000	56	12.29

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

SUBAREA RUNOFF(CFS) = 15.29

TOTAL AREA(ACRES) = 5.58 PEAK FLOW RATE(CFS) = 15.29

FLOW PROCESS FROM NODE 13811.00 TO NODE 13811.50 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 586.02 DOWNSTREAM(FEET) = 437.69

CHANNEL LENGTH THRU SUBAREA(FEET) = 696.28 CHANNEL SLOPE = 0.2130

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 0.49

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.044

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	14.79	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp(INCH/HR) = 0.30

SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 33.60

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.45

AVERAGE FLOW DEPTH(FEET) = 0.48 TRAVEL TIME(MIN.) = 1.80

Tc(MIN.) = 14.09

SUBAREA AREA(ACRES) = 14.79 SUBAREA RUNOFF(CFS) = 36.53

EFFECTIVE AREA(ACRES) = 20.37 AREA-AVERAGED Fm(INCH/HR) = 0.30

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA(ACRES) = 20.4 PEAK FLOW RATE(CFS) = 50.31

GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT(FEET) = 0.60

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.60 FLOW VELOCITY(FEET/SEC.) = 7.49

LONGEST FLOWPATH FROM NODE 13810.00 TO NODE 13811.50 = 1344.82 FEET.

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FLOW PROCESS FROM NODE 13811.50 TO NODE 13812.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 437.69 DOWNSTREAM(FEET) = 402.36
CHANNEL LENGTH THRU SUBAREA(FEET) = 681.04 CHANNEL SLOPE = 0.0519
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.12
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.768
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 18.41 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 70.77
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.27
AVERAGE FLOW DEPTH(FEET) = 1.10 TRAVEL TIME(MIN.) = 2.16
Tc(MIN.) = 16.25
SUBAREA AREA(ACRES) = 18.41 SUBAREA RUNOFF(CFS) = 40.90
EFFECTIVE AREA(ACRES) = 38.78 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 38.8 PEAK FLOW RATE(CFS) = 86.15
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.23

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.23 FLOW VELOCITY(FEET/SEC.) = 5.60
LONGEST FLOWPATH FROM NODE 13810.00 TO NODE 13812.00 = 2025.86 FEET.

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FLOW PROCESS FROM NODE 13812.00 TO NODE 13813.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 402.36 DOWNSTREAM(FEET) = 259.72
CHANNEL LENGTH THRU SUBAREA(FEET) = 1282.56 CHANNEL SLOPE = 0.1112
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.18
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.500
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 27.87 0.30 0.858 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.858
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 114.30
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 7.96
AVERAGE FLOW DEPTH(FEET) = 1.16 TRAVEL TIME(MIN.) = 2.68
Tc(MIN.) = 18.93
SUBAREA AREA(ACRES) = 27.87 SUBAREA RUNOFF(CFS) = 56.24
EFFECTIVE AREA(ACRES) = 66.65 AREA-AVERAGED Fm(INCH/HR) = 0.28

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AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA(ACRES) = 66.7 PEAK FLOW RATE(CFS) = 133.02
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.27

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END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.27 FLOW VELOCITY(FEET/SEC.) = 8.34
LONGEST FLOWPATH FROM NODE 13810.00 TO NODE 13813.00 = 3308.42 FEET.

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*****
FLOW PROCESS FROM NODE 13813.00 TO NODE 13820.00 IS CODE = 31
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>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<
=====

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ELEVATION DATA: UPSTREAM(FEET) = 259.72 DOWNSTREAM(FEET) = 137.00
FLOW LENGTH(FEET) = 2412.88 MANNING'S N = 0.013
DEPTH OF FLOW IN 36.0 INCH PIPE IS 27.5 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 22.94
ESTIMATED PIPE DIAMETER(INCH) = 36.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 133.02
PIPE TRAVEL TIME(MIN.) = 1.75 Tc(MIN.) = 20.69
LONGEST FLOWPATH FROM NODE 13810.00 TO NODE 13820.00 = 5721.30 FEET.

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*****
FLOW PROCESS FROM NODE 13813.00 TO NODE 13820.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN.) = 20.69
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.350
SUBAREA LOSS RATE DATA(AMC II):

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DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 83.64 0.30 0.570 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.570
SUBAREA AREA(ACRES) = 83.64 SUBAREA RUNOFF(CFS) = 164.01
EFFECTIVE AREA(ACRES) = 150.29 AREA-AVERAGED Fm(INCH/HR) = 0.22
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.73
TOTAL AREA(ACRES) = 150.3 PEAK FLOW RATE(CFS) = 288.03

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*****
FLOW PROCESS FROM NODE 13813.00 TO NODE 13820.00 IS CODE = 1
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>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
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TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 20.69
RAINFALL INTENSITY(INCH/HR) = 2.35
AREA-AVERAGED Fm(INCH/HR) = 0.22
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.73
EFFECTIVE STREAM AREA(ACRES) = 150.29
TOTAL STREAM AREA(ACRES) = 150.29

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PEAK FLOW RATE(CFS) AT CONFLUENCE = 288.03

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25147.62	19.12	2.481	0.30(0.26)	0.86	3395.0	10600.00
1	31822.93	36.27	1.696	0.30(0.26)	0.86	8261.0	10220.00
1	35447.60	47.46	1.443	0.30(0.26)	0.87	12965.9	10100.00
1	38608.59	58.65	1.289	0.30(0.27)	0.89	17817.1	600.00
1	39586.91	63.47	1.250	0.30(0.27)	0.90	20144.0	31100.00
1	41975.74	74.01	1.179	0.30(0.27)	0.92	25202.6	40100.00
1	44032.17	80.88	1.132	0.30(0.28)	0.92	28567.4	11801.00
1	46783.60	89.92	1.071	0.30(0.28)	0.93	33599.4	11530.00
1	48964.88	98.13	1.033	0.30(0.28)	0.94	39209.0	11910.00
1	50851.59	104.95	1.002	0.30(0.28)	0.94	44109.4	11330.00
1	51577.14	111.17	0.973	0.30(0.28)	0.95	48540.4	11130.00
1	51074.91	118.80	0.938	0.30(0.29)	0.95	52534.4	12330.00
1	50499.86	125.50	0.919	0.30(0.29)	0.95	55877.5	12400.00
1	49579.88	134.27	0.896	0.30(0.29)	0.96	59246.3	12201.00
1	48979.11	138.30	0.885	0.30(0.29)	0.96	60331.0	12111.00
1	48167.32	143.76	0.871	0.30(0.29)	0.96	61700.4	12101.10
1	47517.13	147.87	0.861	0.30(0.29)	0.96	62549.5	10400.00
1	45734.10	156.12	0.839	0.30(0.29)	0.96	63864.7	12010.00
1	44261.21	162.18	0.823	0.30(0.29)	0.96	64178.4	10210.00
1	40076.68	188.85	0.767	0.30(0.29)	0.96	64911.1	10100.00
2	288.03	20.69	2.350	0.30(0.22)	0.73	150.3	13810.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25430.25	19.12	2.481	0.30(0.26)	0.85	3533.9	10600.00
2	26046.29	20.69	2.350	0.30(0.26)	0.85	3990.4	13810.00
3	32022.60	36.27	1.696	0.30(0.26)	0.86	8411.3	10220.00
4	35612.95	47.46	1.443	0.30(0.26)	0.87	13116.2	10100.00
5	38753.21	58.65	1.289	0.30(0.27)	0.89	17967.4	600.00
6	39726.25	63.47	1.250	0.30(0.27)	0.90	20294.3	31100.00
7	42105.38	74.01	1.179	0.30(0.27)	0.92	25352.9	40100.00
8	44155.49	80.88	1.132	0.30(0.28)	0.92	28717.7	11801.00
9	46898.61	89.92	1.071	0.30(0.28)	0.93	33749.6	11530.00
10	49074.80	98.13	1.033	0.30(0.28)	0.94	39359.3	11910.00
11	50957.29	104.95	1.002	0.30(0.28)	0.94	44259.7	11330.00
12	51679.00	111.17	0.973	0.30(0.28)	0.95	48690.7	11130.00
13	51172.06	118.80	0.938	0.30(0.29)	0.95	52684.6	12330.00
14	50594.34	125.50	0.919	0.30(0.29)	0.95	56027.8	12400.00
15	49671.27	134.27	0.896	0.30(0.29)	0.95	59396.6	12201.00
16	49069.09	138.30	0.885	0.30(0.29)	0.96	60481.3	12111.00
17	48255.37	143.76	0.871	0.30(0.29)	0.96	61850.7	12101.10
18	47603.74	147.87	0.861	0.30(0.29)	0.96	62699.8	10400.00
19	45817.80	156.12	0.839	0.30(0.29)	0.96	64015.0	12010.00
20	44342.79	162.18	0.823	0.30(0.29)	0.96	64328.7	10210.00
21	40150.62	188.85	0.767	0.30(0.29)	0.96	65061.4	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 51679.00 Tc(MIN.) = 111.17
EFFECTIVE AREA(ACRES) = 48690.68 AREA-AVERAGED Fm(INCH/HR) = 0.28

AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 65061.4
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13820.00 = 131540.20 FEET.

FLOW PROCESS FROM NODE 13820.00 TO NODE 13840.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 137.00 DOWNSTREAM(FEET) = 133.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1261.34 CHANNEL SLOPE = 0.0032
GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 19.01
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 0.967

SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 31.60 0.30 0.683 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.683
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 51689.84
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 15.45
AVERAGE FLOW DEPTH(FEET) = 19.01 TRAVEL TIME(MIN.) = 1.36
Tc(MIN.) = 112.53

SUBAREA AREA(ACRES) = 31.60 SUBAREA RUNOFF(CFS) = 21.68
EFFECTIVE AREA(ACRES) = 48722.28 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 65093.0 PEAK FLOW RATE(CFS) = 51679.00
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 19.01

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 19.01 FLOW VELOCITY(FEET/SEC.) = 15.45
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13840.00 = 132801.55 FEET.

FLOW PROCESS FROM NODE 13820.00 TO NODE 13840.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

=====

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 112.53
RAINFALL INTENSITY(INCH/HR) = 0.97
AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.95
EFFECTIVE STREAM AREA(ACRES) = 48722.28
TOTAL STREAM AREA(ACRES) = 65093.00
PEAK FLOW RATE(CFS) AT CONFLUENCE = 51679.00

FLOW PROCESS FROM NODE 13830.00 TO NODE 13831.00 IS CODE = 21

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>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
=====
INITIAL SUBAREA FLOW-LENGTH (FEET) = 744.71
ELEVATION DATA: UPSTREAM (FEET) = 1100.95 DOWNSTREAM (FEET) = 959.21

Tc = K * [(LENGTH** 3.00) / (ELEVATION CHANGE)] ** 0.20
SUBAREA ANALYSIS USED MINIMUM Tc (MIN.) = 13.858
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.083
SUBAREA Tc AND LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
NATURAL FAIR COVER
"CHAPARRAL, BROADLEAF" - 5.06 0.30 1.000 56 13.86
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF (CFS) = 12.68
TOTAL AREA (ACRES) = 5.06 PEAK FLOW RATE (CFS) = 12.68

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FLOW PROCESS FROM NODE 13831.00 TO NODE 13832.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
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ELEVATION DATA: UPSTREAM (FEET) = 959.21 DOWNSTREAM (FEET) = 832.83
CHANNEL LENGTH THRU SUBAREA (FEET) = 1076.71 CHANNEL SLOPE = 0.1174
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.74
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.711
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 32.57 0.30 1.000 -
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 48.16
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.06
AVERAGE FLOW DEPTH (FEET) = 0.70 TRAVEL TIME (MIN.) = 2.96
Tc (MIN.) = 16.82
SUBAREA AREA (ACRES) = 32.57 SUBAREA RUNOFF (CFS) = 70.68
EFFECTIVE AREA (ACRES) = 37.63 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 37.6 PEAK FLOW RATE (CFS) = 81.66
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.95

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END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.95 FLOW VELOCITY (FEET/SEC.) = 7.23
LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13832.00 = 1821.42 FEET.

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*****
FLOW PROCESS FROM NODE 13832.00 TO NODE 13833.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

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=====
ELEVATION DATA: UPSTREAM (FEET) = 832.83 DOWNSTREAM (FEET) = 572.49
CHANNEL LENGTH THRU SUBAREA (FEET) = 1883.58 CHANNEL SLOPE = 0.1382
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 1.11
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.361
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 32.23 0.30 1.000 -
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 111.59
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.49
AVERAGE FLOW DEPTH (FEET) = 1.08 TRAVEL TIME (MIN.) = 3.70
Tc (MIN.) = 20.51
SUBAREA AREA (ACRES) = 32.23 SUBAREA RUNOFF (CFS) = 59.77
EFFECTIVE AREA (ACRES) = 69.86 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 69.9 PEAK FLOW RATE (CFS) = 129.56
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 1.18

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END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 1.18 FLOW VELOCITY (FEET/SEC.) = 8.90
LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13833.00 = 3705.00 FEET.

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*****
FLOW PROCESS FROM NODE 13833.00 TO NODE 13834.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<
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ELEVATION DATA: UPSTREAM (FEET) = 572.49 DOWNSTREAM (FEET) = 471.65
CHANNEL LENGTH THRU SUBAREA (FEET) = 943.78 CHANNEL SLOPE = 0.1068
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 1.40
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.246
SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 27.51 0.30 1.000 -
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 153.65
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.62
AVERAGE FLOW DEPTH (FEET) = 1.39 TRAVEL TIME (MIN.) = 1.82
Tc (MIN.) = 22.34
SUBAREA AREA (ACRES) = 27.51 SUBAREA RUNOFF (CFS) = 48.18
EFFECTIVE AREA (ACRES) = 97.37 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 97.4 PEAK FLOW RATE (CFS) = 170.51
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 1.48

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END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 1.48 FLOW VELOCITY (FEET/SEC.) = 8.91
LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13834.00 = 4648.78 FEET.

FLOW PROCESS FROM NODE 13834.00 TO NODE 13835.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 471.65 DOWNSTREAM (FEET) = 347.06
CHANNEL LENGTH THRU SUBAREA (FEET) = 1647.45 CHANNEL SLOPE = 0.0756
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 2.02

* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.058

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	94.21	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 245.10

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.82

AVERAGE FLOW DEPTH (FEET) = 1.99 TRAVEL TIME (MIN.) = 3.11

Tc (MIN.) = 25.45

SUBAREA AREA (ACRES) = 94.21 SUBAREA RUNOFF (CFS) = 149.07

EFFECTIVE AREA (ACRES) = 191.58 AREA-AVERAGED Fm (INCH/HR) = 0.30

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00

TOTAL AREA (ACRES) = 191.6 PEAK FLOW RATE (CFS) = 303.14

GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 2.23

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 2.23 FLOW VELOCITY (FEET/SEC.) = 9.39

LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13835.00 = 6296.23 FEET.

FLOW PROCESS FROM NODE 13835.00 TO NODE 13836.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 347.06 DOWNSTREAM (FEET) = 269.29
CHANNEL LENGTH THRU SUBAREA (FEET) = 1696.71 CHANNEL SLOPE = 0.0458
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 3.28

* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.918

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	233.25	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000

TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 473.04

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.90
AVERAGE FLOW DEPTH (FEET) = 3.23 TRAVEL TIME (MIN.) = 3.18
Tc (MIN.) = 28.63
SUBAREA AREA (ACRES) = 233.25 SUBAREA RUNOFF (CFS) = 339.58
EFFECTIVE AREA (ACRES) = 424.83 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 424.8 PEAK FLOW RATE (CFS) = 618.49
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 3.71

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 3.71 FLOW VELOCITY (FEET/SEC.) = 9.59

LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13836.00 = 7992.94 FEET.

FLOW PROCESS FROM NODE 13836.00 TO NODE 13837.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 269.29 DOWNSTREAM (FEET) = 191.87
CHANNEL LENGTH THRU SUBAREA (FEET) = 2529.21 CHANNEL SLOPE = 0.0306
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 4.42

* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.766

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	134.70	0.30	0.880	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.880

TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 709.58

TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.58

AVERAGE FLOW DEPTH (FEET) = 4.40 TRAVEL TIME (MIN.) = 4.91

Tc (MIN.) = 33.54

SUBAREA AREA (ACRES) = 134.70 SUBAREA RUNOFF (CFS) = 182.13

EFFECTIVE AREA (ACRES) = 559.53 AREA-AVERAGED Fm (INCH/HR) = 0.29

AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97

TOTAL AREA (ACRES) = 559.5 PEAK FLOW RATE (CFS) = 742.79

GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060

*ESTIMATED CHANNEL HEIGHT (FEET) = 4.50

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH (FEET) = 4.50 FLOW VELOCITY (FEET/SEC.) = 8.69

LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13837.00 = 10522.15 FEET.

FLOW PROCESS FROM NODE 13837.00 TO NODE 13840.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<

>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<

ELEVATION DATA: UPSTREAM (FEET) = 191.87 DOWNSTREAM (FEET) = 133.00
FLOW LENGTH (FEET) = 1151.02 MANNING'S N = 0.013
DEPTH OF FLOW IN 69.0 INCH PIPE IS 51.9 INCHES

PIPE-FLOW VELOCITY (FEET/SEC.) = 35.42
 ESTIMATED PIPE DIAMETER (INCH) = 69.00 NUMBER OF PIPES = 1
 PIPE-FLOW (CFS) = 742.79
 PIPE TRAVEL TIME (MIN.) = 0.54 Tc (MIN.) = 34.08
 LONGEST FLOWPATH FROM NODE 13830.00 TO NODE 13840.00 = 11673.17 FEET.

 FLOW PROCESS FROM NODE 13837.00 TO NODE 13840.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<

MAINLINE Tc (MIN.) = 34.08
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.752
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 5.97 0.30 0.622 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.622
 SUBAREA AREA (ACRES) = 5.97 SUBAREA RUNOFF (CFS) = 8.41
 EFFECTIVE AREA (ACRES) = 565.50 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.97
 TOTAL AREA (ACRES) = 565.5 PEAK FLOW RATE (CFS) = 744.23

 FLOW PROCESS FROM NODE 13837.00 TO NODE 13840.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 34.08
 RAINFALL INTENSITY (INCH/HR) = 1.75
 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.97
 EFFECTIVE STREAM AREA (ACRES) = 565.50
 TOTAL STREAM AREA (ACRES) = 565.50
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 744.23

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	25430.25	20.78	2.344	0.30 (0.25)	0.85	3565.5	10600.00
1	26046.29	22.34	2.246	0.30 (0.26)	0.85	4022.0	13810.00
1	32022.60	37.83	1.657	0.30 (0.26)	0.86	8442.9	10220.00
1	35612.95	48.97	1.411	0.30 (0.26)	0.87	13147.8	10100.00
1	38753.21	60.13	1.273	0.30 (0.27)	0.89	17999.0	600.00
1	39726.25	64.93	1.240	0.30 (0.27)	0.90	20325.9	31100.00
1	42105.38	75.45	1.169	0.30 (0.27)	0.92	25384.5	40100.00
1	44155.49	82.30	1.122	0.30 (0.28)	0.92	28749.3	11801.00
1	46898.61	91.31	1.064	0.30 (0.28)	0.93	33781.2	11530.00
1	49074.80	99.51	1.027	0.30 (0.28)	0.94	39390.9	11910.00
1	50957.29	106.31	0.996	0.30 (0.28)	0.94	44291.3	11330.00
1	51679.00	112.53	0.967	0.30 (0.28)	0.95	48722.3	11130.00
1	51172.06	120.17	0.933	0.30 (0.29)	0.95	52716.2	12330.00
1	50594.34	126.87	0.915	0.30 (0.29)	0.95	56059.4	12400.00

1	49671.27	135.64	0.892	0.30 (0.29)	0.95	59428.2	12201.00
1	49069.09	139.68	0.882	0.30 (0.29)	0.96	60512.9	12111.00
1	48255.37	145.15	0.868	0.30 (0.29)	0.96	61882.3	12101.10
1	47603.74	149.26	0.857	0.30 (0.29)	0.96	62731.4	10400.00
1	45817.80	157.52	0.835	0.30 (0.29)	0.96	64046.6	12010.00
1	44342.79	163.60	0.820	0.30 (0.29)	0.96	64360.3	10210.00
1	40150.62	190.31	0.765	0.30 (0.29)	0.96	65093.0	10100.00
2	744.23	34.08	1.752	0.30 (0.29)	0.97	565.5	13830.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	26067.49	20.78	2.344	0.30 (0.26)	0.86	3910.2	10600.00
2	26698.57	22.34	2.246	0.30 (0.26)	0.86	4392.6	13810.00
3	31322.26	34.08	1.752	0.30 (0.26)	0.86	7939.8	13830.00
4	32718.04	37.83	1.657	0.30 (0.26)	0.86	9008.4	10220.00
5	36183.28	48.97	1.411	0.30 (0.26)	0.88	13713.3	10100.00
6	39253.50	60.13	1.273	0.30 (0.27)	0.89	18564.5	600.00
7	40209.90	64.93	1.240	0.30 (0.27)	0.90	20891.4	31100.00
8	42552.64	75.45	1.169	0.30 (0.27)	0.92	25950.0	40100.00
9	44579.02	82.30	1.122	0.30 (0.28)	0.92	29314.8	11801.00
10	47292.46	91.31	1.064	0.30 (0.28)	0.93	34346.8	11530.00
11	49449.59	99.51	1.027	0.30 (0.28)	0.94	39956.4	11910.00
12	51316.28	106.31	0.996	0.30 (0.28)	0.94	44856.8	11330.00
13	52023.53	112.53	0.967	0.30 (0.28)	0.95	49287.8	11130.00
14	51499.01	120.17	0.933	0.30 (0.29)	0.95	53281.7	12330.00
15	50912.42	126.87	0.915	0.30 (0.29)	0.95	56624.9	12400.00
16	49977.74	135.64	0.892	0.30 (0.29)	0.95	59993.7	12201.00
17	49370.22	139.68	0.882	0.30 (0.29)	0.96	61078.4	12111.00
18	48549.27	145.15	0.868	0.30 (0.29)	0.96	62447.8	12101.10
19	47892.20	149.26	0.857	0.30 (0.29)	0.96	63296.9	10400.00
20	46095.32	157.52	0.835	0.30 (0.29)	0.96	64612.1	12010.00
21	44612.26	163.60	0.820	0.30 (0.29)	0.96	64925.8	10210.00
22	40392.43	190.31	0.765	0.30 (0.29)	0.96	65658.5	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 52023.53 Tc (MIN.) = 112.53
 EFFECTIVE AREA (ACRES) = 49287.78 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 65658.5
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13840.00 = 132801.55 FEET.

 FLOW PROCESS FROM NODE 13840.00 TO NODE 13860.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM (FEET) = 133.00 DOWNSTREAM (FEET) = 130.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 654.44 CHANNEL SLOPE = 0.0046
 GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 17.37
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 0.964
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 6.61 0.30 0.975 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.975
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 52025.53
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 17.68
 AVERAGE FLOW DEPTH(FEET) = 17.37 TRAVEL TIME(MIN.) = 0.62
 Tc(MIN.) = 113.15
 SUBAREA AREA(ACRES) = 6.61 SUBAREA RUNOFF(CFS) = 4.00
 EFFECTIVE AREA(ACRES) = 49294.39 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA(ACRES) = 65665.1 PEAK FLOW RATE(CFS) = 52023.53
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 17.37

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 17.37 FLOW VELOCITY(FEET/SEC.) = 17.68
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13860.00 = 133455.98 FEET.

 FLOW PROCESS FROM NODE 13840.00 TO NODE 13860.00 IS CODE = 1

 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION(MIN.) = 113.15
 RAINFALL INTENSITY(INCH/HR) = 0.96
 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.95
 EFFECTIVE STREAM AREA(ACRES) = 49294.39
 TOTAL STREAM AREA(ACRES) = 65665.11
 PEAK FLOW RATE(CFS) AT CONFLUENCE = 52023.53

 FLOW PROCESS FROM NODE 13850.00 TO NODE 13851.00 IS CODE = 21

 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

INITIAL SUBAREA FLOW-LENGTH(FEET) = 617.57
 ELEVATION DATA: UPSTREAM(FEET) = 646.95 DOWNSTREAM(FEET) = 490.10

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 12.137
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.371
 SUBAREA Tc AND LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF" - 4.95 0.30 1.000 56 12.14
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 13.68

TOTAL AREA(ACRES) = 4.95 PEAK FLOW RATE(CFS) = 13.68

 FLOW PROCESS FROM NODE 13851.00 TO NODE 13851.50 IS CODE = 56

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 490.10 DOWNSTREAM(FEET) = 440.98
 CHANNEL LENGTH THRU SUBAREA(FEET) = 351.14 CHANNEL SLOPE = 0.1399
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.38
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.160
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 4.02 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 18.85
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.63
 AVERAGE FLOW DEPTH(FEET) = 0.38 TRAVEL TIME(MIN.) = 1.26
 Tc(MIN.) = 13.40
 SUBAREA AREA(ACRES) = 4.02 SUBAREA RUNOFF(CFS) = 10.35
 EFFECTIVE AREA(ACRES) = 8.97 AREA-AVERAGED Fm(INCH/HR) = 0.30
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
 TOTAL AREA(ACRES) = 9.0 PEAK FLOW RATE(CFS) = 23.09
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.43

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 0.43 FLOW VELOCITY(FEET/SEC.) = 4.94
 LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13851.50 = 968.71 FEET.

 FLOW PROCESS FROM NODE 13851.50 TO NODE 13852.00 IS CODE = 56

 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<

ELEVATION DATA: UPSTREAM(FEET) = 440.98 DOWNSTREAM(FEET) = 395.76
 CHANNEL LENGTH THRU SUBAREA(FEET) = 512.91 CHANNEL SLOPE = 0.0882
 GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT(FEET) = 0.60
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.873
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 7.17 0.30 1.000 -

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 31.40
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.76
 AVERAGE FLOW DEPTH(FEET) = 0.59 TRAVEL TIME(MIN.) = 1.80
 Tc(MIN.) = 15.20

SUBAREA AREA (ACRES) = 7.17 SUBAREA RUNOFF (CFS) = 16.60
EFFECTIVE AREA (ACRES) = 16.14 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 16.1 PEAK FLOW RATE (CFS) = 37.38
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.65

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.65 FLOW VELOCITY (FEET/SEC.) = 5.06
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13852.00 = 1481.62 FEET.

FLOW PROCESS FROM NODE 13852.00 TO NODE 13853.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM (FEET) = 395.76 DOWNSTREAM (FEET) = 354.94
CHANNEL LENGTH THRU SUBAREA (FEET) = 443.69 CHANNEL SLOPE = 0.0920
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.72
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.738

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	6.76	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 44.80
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.49
AVERAGE FLOW DEPTH (FEET) = 0.71 TRAVEL TIME (MIN.) = 1.35
Tc (MIN.) = 16.55

SUBAREA AREA (ACRES) = 6.76 SUBAREA RUNOFF (CFS) = 14.84
EFFECTIVE AREA (ACRES) = 22.90 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 22.9 PEAK FLOW RATE (CFS) = 50.26
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.77

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.77 FLOW VELOCITY (FEET/SEC.) = 5.69
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13853.00 = 1925.31 FEET.

FLOW PROCESS FROM NODE 13853.00 TO NODE 13854.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM (FEET) = 354.94 DOWNSTREAM (FEET) = 263.57
CHANNEL LENGTH THRU SUBAREA (FEET) = 962.09 CHANNEL SLOPE = 0.0950
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.92
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.487

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	18.16	0.30	1.000	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 68.15
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.38
AVERAGE FLOW DEPTH (FEET) = 0.91 TRAVEL TIME (MIN.) = 2.51
Tc (MIN.) = 19.06

SUBAREA AREA (ACRES) = 18.16 SUBAREA RUNOFF (CFS) = 35.74
EFFECTIVE AREA (ACRES) = 41.06 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA (ACRES) = 41.1 PEAK FLOW RATE (CFS) = 80.82
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 1.00

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 1.00 FLOW VELOCITY (FEET/SEC.) = 6.72
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13854.00 = 2887.40 FEET.

FLOW PROCESS FROM NODE 13854.00 TO NODE 13855.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM (FEET) = 263.57 DOWNSTREAM (FEET) = 188.74
CHANNEL LENGTH THRU SUBAREA (FEET) = 1228.77 CHANNEL SLOPE = 0.0609
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 1.41
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.254

SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	38.75	0.30	0.879	-

SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.879
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 115.55
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.50
AVERAGE FLOW DEPTH (FEET) = 1.39 TRAVEL TIME (MIN.) = 3.15
Tc (MIN.) = 22.21

SUBAREA AREA (ACRES) = 38.75 SUBAREA RUNOFF (CFS) = 69.40
EFFECTIVE AREA (ACRES) = 79.81 AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA (ACRES) = 79.8 PEAK FLOW RATE (CFS) = 141.59
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT (FEET) = 1.56

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 1.56 FLOW VELOCITY (FEET/SEC.) = 6.92
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13855.00 = 4116.17 FEET.

FLOW PROCESS FROM NODE 13855.00 TO NODE 13860.00 IS CODE = 31

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-----
>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<
=====
ELEVATION DATA: UPSTREAM(FEET) = 188.74 DOWNSTREAM(FEET) = 130.00
FLOW LENGTH(FEET) = 2092.67 MANNING'S N = 0.013
DEPTH OF FLOW IN 42.0 INCH PIPE IS 30.7 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 18.77
ESTIMATED PIPE DIAMETER(INCH) = 42.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 141.59
PIPE TRAVEL TIME(MIN.) = 1.86 Tc(MIN.) = 24.07
LONGEST FLOWPATH FROM NODE 13850.00 TO NODE 13860.00 = 6208.84 FEET.
*****
FLOW PROCESS FROM NODE 13855.00 TO NODE 13860.00 IS CODE = 81
-----
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
=====
MAINLINE Tc(MIN.) = 24.07
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.136
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 43.41 0.30 0.707 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.707
SUBAREA AREA(ACRES) = 43.41 SUBAREA RUNOFF(CFS) = 75.19
EFFECTIVE AREA(ACRES) = 123.22 AREA-AVERAGED Fm(INCH/HR) = 0.26
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.86
TOTAL AREA(ACRES) = 123.2 PEAK FLOW RATE(CFS) = 208.37
*****
FLOW PROCESS FROM NODE 13855.00 TO NODE 13860.00 IS CODE = 1
-----
>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
=====
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 24.07
RAINFALL INTENSITY(INCH/HR) = 2.14
AREA-AVERAGED Fm(INCH/HR) = 0.26
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.86
EFFECTIVE STREAM AREA(ACRES) = 123.22
TOTAL STREAM AREA(ACRES) = 123.22
PEAK FLOW RATE(CFS) AT CONFLUENCE = 208.37

** CONFLUENCE DATA **
STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 26067.49 21.53 2.296 0.30( 0.26) 0.86 3916.8 10600.00
1 26698.57 23.09 2.199 0.30( 0.26) 0.86 4399.2 13810.00
1 31322.26 34.80 1.734 0.30( 0.26) 0.86 7946.4 13830.00
1 32718.04 38.53 1.639 0.30( 0.26) 0.86 9015.0 10220.00
1 36183.28 49.66 1.396 0.30( 0.26) 0.88 13719.9 10100.00
1 39253.50 60.80 1.269 0.30( 0.27) 0.89 18571.1 600.00
1 40209.90 65.60 1.236 0.30( 0.27) 0.90 20898.0 31100.00

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1 42552.64 76.10 1.165 0.30( 0.27) 0.92 25956.6 40100.00
1 44579.02 82.95 1.118 0.30( 0.28) 0.92 29321.4 11801.00
1 47292.46 91.95 1.061 0.30( 0.28) 0.93 34353.4 11530.00
1 49449.59 100.14 1.024 0.30( 0.28) 0.94 39963.0 11910.00
1 51316.28 106.93 0.993 0.30( 0.28) 0.94 44863.4 11330.00
1 52023.53 113.15 0.964 0.30( 0.28) 0.95 49294.4 11130.00
1 51499.01 120.79 0.931 0.30( 0.29) 0.95 53288.4 12330.00
1 50912.42 127.49 0.914 0.30( 0.29) 0.95 56631.5 12400.00
1 49977.74 136.27 0.891 0.30( 0.29) 0.95 60000.3 12201.00
1 49370.22 140.30 0.880 0.30( 0.29) 0.96 61085.0 12111.00
1 48549.27 145.78 0.866 0.30( 0.29) 0.96 62454.4 12101.10
1 47892.20 149.89 0.855 0.30( 0.29) 0.96 63303.5 10400.00
1 46095.32 158.16 0.834 0.30( 0.29) 0.96 64618.7 12010.00
1 44612.26 164.25 0.818 0.30( 0.29) 0.96 64932.4 10210.00
1 40392.43 190.97 0.765 0.30( 0.29) 0.96 65665.1 10100.00
2 208.37 24.07 2.136 0.30( 0.26) 0.86 123.2 13850.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **
STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
1 26269.75 21.53 2.296 0.30( 0.26) 0.86 4027.1 10600.00
2 26905.01 23.09 2.199 0.30( 0.26) 0.86 4517.4 13810.00
3 27296.30 24.07 2.136 0.30( 0.26) 0.86 4821.2 13850.00
4 31486.02 34.80 1.734 0.30( 0.26) 0.86 8069.7 13830.00
5 32871.20 38.53 1.639 0.30( 0.26) 0.86 9138.3 10220.00
6 36309.56 49.66 1.396 0.30( 0.26) 0.87 13843.1 10100.00
7 39365.62 60.80 1.269 0.30( 0.27) 0.89 18694.4 600.00
8 40318.40 65.60 1.236 0.30( 0.27) 0.90 21021.2 31100.00
9 42653.22 76.10 1.165 0.30( 0.27) 0.92 26079.9 40100.00
10 44674.44 82.95 1.118 0.30( 0.28) 0.92 29444.7 11801.00
11 47381.57 91.95 1.061 0.30( 0.28) 0.93 34476.6 11530.00
12 49534.55 100.14 1.024 0.30( 0.28) 0.94 40086.2 11910.00
13 51397.80 106.93 0.993 0.30( 0.28) 0.94 44986.6 11330.00
14 52101.91 113.15 0.964 0.30( 0.28) 0.95 49417.6 11130.00
15 51573.69 120.79 0.931 0.30( 0.29) 0.95 53411.6 12330.00
16 50985.17 127.49 0.914 0.30( 0.29) 0.95 56754.8 12400.00
17 50047.95 136.27 0.891 0.30( 0.29) 0.95 60123.5 12201.00
18 49439.27 140.30 0.880 0.30( 0.29) 0.95 61208.2 12111.00
19 48616.74 145.78 0.866 0.30( 0.29) 0.96 62577.7 12101.10
20 47958.48 149.89 0.855 0.30( 0.29) 0.96 63426.7 10400.00
21 46159.23 158.16 0.834 0.30( 0.29) 0.96 64741.9 12010.00
22 44674.41 164.25 0.818 0.30( 0.29) 0.96 65055.6 10210.00
23 40448.64 190.97 0.765 0.30( 0.29) 0.96 65788.3 10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 52101.91 Tc(MIN.) = 113.15
EFFECTIVE AREA(ACRES) = 49417.61 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 65788.3
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13860.00 = 133455.98 FEET.

*****
FLOW PROCESS FROM NODE 13860.00 TO NODE 13880.00 IS CODE = 56
-----
>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

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>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 130.00 DOWNSTREAM(FEET) = 120.57
CHANNEL LENGTH THRU SUBAREA(FEET) = 610.77 CHANNEL SLOPE = 0.0154
GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 12.67
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 0.963
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	4.89	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 52103.36
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 27.29
AVERAGE FLOW DEPTH(FEET) = 12.67 TRAVEL TIME(MIN.) = 0.37
Tc(MIN.) = 113.52
SUBAREA AREA(ACRES) = 4.89 SUBAREA RUNOFF(CFS) = 2.92
EFFECTIVE AREA(ACRES) = 49422.50 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 65793.2 PEAK FLOW RATE(CFS) = 52101.91
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 12.67

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 12.67 FLOW VELOCITY(FEET/SEC.) = 27.29
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13880.00 = 134066.75 FEET.

FLOW PROCESS FROM NODE 13860.00 TO NODE 13880.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<

=====

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 113.52
RAINFALL INTENSITY(INCH/HR) = 0.96
AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.95
EFFECTIVE STREAM AREA(ACRES) = 49422.50
TOTAL STREAM AREA(ACRES) = 65793.22
PEAK FLOW RATE(CFS) AT CONFLUENCE = 52101.91

FLOW PROCESS FROM NODE 13870.00 TO NODE 13871.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<

>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 872.65
ELEVATION DATA: UPSTREAM(FEET) = 558.52 DOWNSTREAM(FEET) = 436.47

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 15.704

* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.823
SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
NATURAL FAIR COVER						
"GRASS"	-	7.32	0.30	1.000	56	15.70

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF(CFS) = 16.62
TOTAL AREA(ACRES) = 7.32 PEAK FLOW RATE(CFS) = 16.62

FLOW PROCESS FROM NODE 13871.00 TO NODE 13872.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 436.47 DOWNSTREAM(FEET) = 337.62
CHANNEL LENGTH THRU SUBAREA(FEET) = 827.95 CHANNEL SLOPE = 0.1194
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.54
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.555
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	13.01	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 29.85
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 5.16
AVERAGE FLOW DEPTH(FEET) = 0.52 TRAVEL TIME(MIN.) = 2.67
Tc(MIN.) = 18.38
SUBAREA AREA(ACRES) = 13.01 SUBAREA RUNOFF(CFS) = 26.41
EFFECTIVE AREA(ACRES) = 20.33 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 20.3 PEAK FLOW RATE(CFS) = 41.27
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.63

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 0.63 FLOW VELOCITY(FEET/SEC.) = 5.81
LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13872.00 = 1700.60 FEET.

FLOW PROCESS FROM NODE 13872.00 TO NODE 13873.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 337.62 DOWNSTREAM(FEET) = 253.88
CHANNEL LENGTH THRU SUBAREA(FEET) = 1049.16 CHANNEL SLOPE = 0.0798
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.00
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.315
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 USER-DEFINED - 32.99 0.30 0.923 -
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.923
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 71.56
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.11
 AVERAGE FLOW DEPTH (FEET) = 0.98 TRAVEL TIME (MIN.) = 2.86
 Tc (MIN.) = 21.24
 SUBAREA AREA (ACRES) = 32.99 SUBAREA RUNOFF (CFS) = 60.51
 EFFECTIVE AREA (ACRES) = 53.32 AREA-AVERAGED Fm (INCH/HR) = 0.29
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 53.3 PEAK FLOW RATE (CFS) = 97.38
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.060
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.17

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.17 FLOW VELOCITY (FEET/SEC.) = 6.74
 LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13873.00 = 2749.76 FEET.

 FLOW PROCESS FROM NODE 13873.00 TO NODE 13874.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 253.88 DOWNSTREAM (FEET) = 160.73
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1518.60 CHANNEL SLOPE = 0.0613
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.16
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.133
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	30.94	0.30	0.900	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.900
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 123.34
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.74
 AVERAGE FLOW DEPTH (FEET) = 1.15 TRAVEL TIME (MIN.) = 2.89
 Tc (MIN.) = 24.13
 SUBAREA AREA (ACRES) = 30.94 SUBAREA RUNOFF (CFS) = 51.87
 EFFECTIVE AREA (ACRES) = 84.26 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA (ACRES) = 84.3 PEAK FLOW RATE (CFS) = 140.50
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 1.23

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.23 FLOW VELOCITY (FEET/SEC.) = 9.14
 LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13874.00 = 4268.36 FEET.

 FLOW PROCESS FROM NODE 13874.00 TO NODE 13875.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 160.73 DOWNSTREAM (FEET) = 158.14
 CHANNEL LENGTH THRU SUBAREA (FEET) = 582.74 CHANNEL SLOPE = 0.0044
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 3.08
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.010
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	73.67	0.30	0.930	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.930
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 197.90
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 4.03
 AVERAGE FLOW DEPTH (FEET) = 3.05 TRAVEL TIME (MIN.) = 2.41
 Tc (MIN.) = 26.54
 SUBAREA AREA (ACRES) = 73.67 SUBAREA RUNOFF (CFS) = 114.76
 EFFECTIVE AREA (ACRES) = 157.93 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.93
 TOTAL AREA (ACRES) = 157.9 PEAK FLOW RATE (CFS) = 245.95
 GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
 *ESTIMATED CHANNEL HEIGHT (FEET) = 3.41

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 3.41 FLOW VELOCITY (FEET/SEC.) = 4.28
 LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13875.00 = 4851.10 FEET.

 FLOW PROCESS FROM NODE 13875.00 TO NODE 13880.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM (FEET) = 158.14 DOWNSTREAM (FEET) = 120.57
 FLOW LENGTH (FEET) = 1855.67 MANNING'S N = 0.013
 DEPTH OF FLOW IN 54.0 INCH PIPE IS 41.1 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 18.95
 ESTIMATED PIPE DIAMETER (INCH) = 54.00 NUMBER OF PIPES = 1
 PIPE-FLOW (CFS) = 245.95
 PIPE TRAVEL TIME (MIN.) = 1.63 Tc (MIN.) = 28.17
 LONGEST FLOWPATH FROM NODE 13870.00 TO NODE 13880.00 = 6706.77 FEET.

 FLOW PROCESS FROM NODE 13875.00 TO NODE 13880.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc (MIN.) = 28.17
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 1.938
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	34.90	0.30	0.743	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.743
 SUBAREA AREA (ACRES) = 34.90 SUBAREA RUNOFF (CFS) = 53.86
 EFFECTIVE AREA (ACRES) = 192.83 AREA-AVERAGED Fm (INCH/HR) = 0.27
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.90
 TOTAL AREA (ACRES) = 192.8 PEAK FLOW RATE (CFS) = 289.56

 FLOW PROCESS FROM NODE 13875.00 TO NODE 13880.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<

=====

TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 28.17
 RAINFALL INTENSITY (INCH/HR) = 1.94
 AREA-AVERAGED Fm (INCH/HR) = 0.27
 AREA-AVERAGED Fp (INCH/HR) = 0.30
 AREA-AVERAGED Ap = 0.90
 EFFECTIVE STREAM AREA (ACRES) = 192.83
 TOTAL STREAM AREA (ACRES) = 192.83
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 289.56

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	26269.75	21.99	2.268	0.30 (0.26)	0.86	4032.0	10600.00
1	26905.01	23.54	2.170	0.30 (0.26)	0.86	4522.3	13810.00
1	27296.30	24.52	2.108	0.30 (0.26)	0.86	4826.0	13850.00
1	31486.02	35.23	1.723	0.30 (0.26)	0.86	8074.5	13830.00
1	32871.20	38.96	1.628	0.30 (0.26)	0.86	9143.1	10220.00
1	36309.56	50.07	1.388	0.30 (0.26)	0.87	13848.0	10100.00
1	39365.62	61.20	1.266	0.30 (0.27)	0.89	18699.2	600.00
1	40318.40	66.00	1.233	0.30 (0.27)	0.90	21026.1	31100.00
1	42653.22	76.50	1.162	0.30 (0.27)	0.92	26084.8	40100.00
1	44674.44	83.34	1.115	0.30 (0.28)	0.92	29449.5	11801.00
1	47381.57	92.33	1.059	0.30 (0.28)	0.93	34481.5	11530.00
1	49534.55	100.52	1.022	0.30 (0.28)	0.94	40091.1	11910.00
1	51397.80	107.31	0.991	0.30 (0.28)	0.94	44991.5	11330.00
1	52101.91	113.52	0.963	0.30 (0.28)	0.95	49422.5	11130.00
1	51573.69	121.16	0.930	0.30 (0.29)	0.95	53416.5	12330.00
1	50985.17	127.86	0.913	0.30 (0.29)	0.95	56759.6	12400.00
1	50047.95	136.64	0.890	0.30 (0.29)	0.95	60128.4	12201.00
1	49439.27	140.68	0.879	0.30 (0.29)	0.95	61213.1	12111.00
1	48616.74	146.16	0.865	0.30 (0.29)	0.96	62582.6	12101.10
1	47958.48	150.27	0.854	0.30 (0.29)	0.96	63431.6	10400.00
1	46159.23	158.55	0.833	0.30 (0.29)	0.96	64746.8	12010.00
1	44674.41	164.64	0.817	0.30 (0.29)	0.96	65060.5	10210.00
1	40448.64	191.37	0.764	0.30 (0.29)	0.96	65793.2	10100.00
2	289.56	28.17	1.938	0.30 (0.27)	0.90	192.8	13870.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	26540.45	21.99	2.268	0.30 (0.26)	0.86	4182.5	10600.00

2	27180.62	23.54	2.170	0.30 (0.26)	0.86	4683.4	13810.00
3	27574.07	24.52	2.108	0.30 (0.26)	0.86	4993.9	13850.00
4	29014.36	28.17	1.938	0.30 (0.26)	0.86	6126.5	13870.00
5	31738.34	35.23	1.723	0.30 (0.26)	0.86	8267.4	13830.00
6	33106.95	38.96	1.628	0.30 (0.26)	0.86	9336.0	10220.00
7	36503.75	50.07	1.388	0.30 (0.26)	0.88	14040.9	10100.00
8	39538.58	61.20	1.266	0.30 (0.27)	0.89	18892.1	600.00
9	40485.70	66.00	1.233	0.30 (0.27)	0.90	21218.9	31100.00
10	42808.13	76.50	1.162	0.30 (0.27)	0.92	26277.6	40100.00
11	44821.27	83.34	1.115	0.30 (0.28)	0.92	29642.4	11801.00
12	47518.70	92.33	1.059	0.30 (0.28)	0.93	34674.3	11530.00
13	49665.19	100.52	1.022	0.30 (0.28)	0.94	40284.0	11910.00
14	51523.06	107.31	0.991	0.30 (0.28)	0.94	45184.3	11330.00
15	52222.24	113.52	0.963	0.30 (0.28)	0.95	49615.3	11130.00
16	51688.36	121.16	0.930	0.30 (0.29)	0.95	53609.3	12330.00
17	51096.82	127.86	0.913	0.30 (0.29)	0.95	56952.5	12400.00
18	50155.64	136.64	0.890	0.30 (0.29)	0.95	60321.2	12201.00
19	49545.14	140.68	0.879	0.30 (0.29)	0.95	61405.9	12111.00
20	48720.14	146.16	0.865	0.30 (0.29)	0.96	62775.4	12101.10
21	48060.02	150.27	0.854	0.30 (0.29)	0.96	63624.5	10400.00
22	46257.04	158.55	0.833	0.30 (0.29)	0.96	64939.6	12010.00
23	44769.46	164.64	0.817	0.30 (0.29)	0.96	65253.3	10210.00
24	40534.52	191.37	0.764	0.30 (0.29)	0.96	65986.0	10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 52222.24 Tc (MIN.) = 113.52
 EFFECTIVE AREA (ACRES) = 49615.32 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 65986.0
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13880.00 = 134066.75 FEET.

 FLOW PROCESS FROM NODE 13880.00 TO NODE 13910.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<

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ELEVATION DATA: UPSTREAM (FEET) = 120.57 DOWNSTREAM (FEET) = 119.70
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1190.21 CHANNEL SLOPE = 0.0007
 GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT (FEET) = 27.45
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 0.953
 SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	117.69	0.30	0.724	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.724
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 52261.19
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 9.08
 AVERAGE FLOW DEPTH (FEET) = 27.45 TRAVEL TIME (MIN.) = 2.19
 Tc (MIN.) = 115.71
 SUBAREA AREA (ACRES) = 117.69 SUBAREA RUNOFF (CFS) = 77.90
 EFFECTIVE AREA (ACRES) = 49733.02 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
 TOTAL AREA (ACRES) = 66103.7 PEAK FLOW RATE (CFS) = 52222.24
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

GIVEN CHANNEL BASE (FEET) = 100.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT (FEET) = 27.44

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 27.44 FLOW VELOCITY (FEET/SEC.) = 9.07
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13910.00 = 135256.95 FEET.

FLOW PROCESS FROM NODE 13880.00 TO NODE 13910.00 IS CODE = 1

>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION (MIN.) = 115.71
RAINFALL INTENSITY (INCH/HR) = 0.95
AREA-AVERAGED Fm (INCH/HR) = 0.28
AREA-AVERAGED Fp (INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.95
EFFECTIVE STREAM AREA (ACRES) = 49733.02
TOTAL STREAM AREA (ACRES) = 66103.73
PEAK FLOW RATE (CFS) AT CONFLUENCE = 52222.24

FLOW PROCESS FROM NODE 13889.00 TO NODE 13890.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

INITIAL SUBAREA FLOW-LENGTH (FEET) = 447.89
ELEVATION DATA: UPSTREAM (FEET) = 564.89 DOWNSTREAM (FEET) = 421.92

Tc = K * [(LENGTH** 3.00) / (ELEVATION CHANGE)] ** 0.20
SUBAREA ANALYSIS USED MINIMUM Tc (MIN.) = 6.976
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.951
SUBAREA Tc AND LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS Tc
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
PUBLIC PARK - 3.03 0.30 0.960 56 6.98
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.960
SUBAREA RUNOFF (CFS) = 12.71
TOTAL AREA (ACRES) = 3.03 PEAK FLOW RATE (CFS) = 12.71

FLOW PROCESS FROM NODE 13890.00 TO NODE 13891.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 421.92 DOWNSTREAM (FEET) = 392.64
CHANNEL LENGTH THRU SUBAREA (FEET) = 435.33 CHANNEL SLOPE = 0.0673
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.49
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.410
SUBAREA LOSS RATE DATA (AMC II):

DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 8.12 0.30 0.986 -
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 0.986
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 27.80
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.43
AVERAGE FLOW DEPTH (FEET) = 0.47 TRAVEL TIME (MIN.) = 1.34
Tc (MIN.) = 8.31

SUBAREA AREA (ACRES) = 8.12 SUBAREA RUNOFF (CFS) = 30.07
EFFECTIVE AREA (ACRES) = 11.15 AREA-AVERAGED Fm (INCH/HR) = 0.29
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.98
TOTAL AREA (ACRES) = 11.1 PEAK FLOW RATE (CFS) = 41.31
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.59

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.59 FLOW VELOCITY (FEET/SEC.) = 6.26
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13891.00 = 883.22 FEET.

FLOW PROCESS FROM NODE 13891.00 TO NODE 13892.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

ELEVATION DATA: UPSTREAM (FEET) = 392.64 DOWNSTREAM (FEET) = 324.46
CHANNEL LENGTH THRU SUBAREA (FEET) = 662.40 CHANNEL SLOPE = 0.1029
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.68
* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.868

SUBAREA LOSS RATE DATA (AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 12.50 0.30 1.000 -
SUBAREA AVERAGE PVIOUS LOSS RATE, Fp (INCH/HR) = 0.30
SUBAREA AVERAGE PVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW (CFS) = 61.43
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.24
AVERAGE FLOW DEPTH (FEET) = 0.66 TRAVEL TIME (MIN.) = 1.34
Tc (MIN.) = 9.65
SUBAREA AREA (ACRES) = 12.50 SUBAREA RUNOFF (CFS) = 40.14
EFFECTIVE AREA (ACRES) = 23.65 AREA-AVERAGED Fm (INCH/HR) = 0.30
AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA (ACRES) = 23.6 PEAK FLOW RATE (CFS) = 76.00
GIVEN CHANNEL BASE (FEET) = 10.00 CHANNEL FREEBOARD (FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT (FEET) = 0.74

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH (FEET) = 0.74 FLOW VELOCITY (FEET/SEC.) = 8.88
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13892.00 = 1545.62 FEET.

FLOW PROCESS FROM NODE 13892.00 TO NODE 13893.00 IS CODE = 56

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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
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ELEVATION DATA: UPSTREAM(FEET) = 324.46 DOWNSTREAM(FEET) = 240.82
CHANNEL LENGTH THRU SUBAREA(FEET) = 980.03 CHANNEL SLOPE = 0.0853
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.93
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.485
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 15.87 0.30 1.000 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 98.76
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.09
AVERAGE FLOW DEPTH(FEET) = 0.92 TRAVEL TIME(MIN.) = 1.80
Tc(MIN.) = 11.45
SUBAREA AREA(ACRES) = 15.87 SUBAREA RUNOFF(CFS) = 45.49
EFFECTIVE AREA(ACRES) = 39.52 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA(ACRES) = 39.5 PEAK FLOW RATE(CFS) = 113.35
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.99

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END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 0.99 FLOW VELOCITY(FEET/SEC.) = 9.50
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13893.00 = 2525.65 FEET.

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FLOW PROCESS FROM NODE 13893.00 TO NODE 13894.00 IS CODE = 56
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>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<
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ELEVATION DATA: UPSTREAM(FEET) = 240.82 DOWNSTREAM(FEET) = 163.04
CHANNEL LENGTH THRU SUBAREA(FEET) = 1144.35 CHANNEL SLOPE = 0.0680
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.26
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.157
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 28.41 0.30 0.985 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.985
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 149.96
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.68
AVERAGE FLOW DEPTH(FEET) = 1.24 TRAVEL TIME(MIN.) = 1.97
Tc(MIN.) = 13.42
SUBAREA AREA(ACRES) = 28.41 SUBAREA RUNOFF(CFS) = 73.16
EFFECTIVE AREA(ACRES) = 67.93 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA(ACRES) = 67.9 PEAK FLOW RATE(CFS) = 174.82
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

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"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 1.36

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.36 FLOW VELOCITY(FEET/SEC.) = 10.15
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13894.00 = 3670.00 FEET.

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FLOW PROCESS FROM NODE 13894.00 TO NODE 13910.00 IS CODE = 31
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>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<
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ELEVATION DATA: UPSTREAM(FEET) = 163.04 DOWNSTREAM(FEET) = 119.70
FLOW LENGTH(FEET) = 1899.01 MANNING'S N = 0.013
DEPTH OF FLOW IN 48.0 INCH PIPE IS 34.0 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 18.39
ESTIMATED PIPE DIAMETER(INCH) = 48.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 174.82
PIPE TRAVEL TIME(MIN.) = 1.72 Tc(MIN.) = 15.14
LONGEST FLOWPATH FROM NODE 13889.00 TO NODE 13910.00 = 5569.01 FEET.

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FLOW PROCESS FROM NODE 13894.00 TO NODE 13910.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<
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MAINLINE Tc(MIN.) = 15.14
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.879
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 11.69 0.30 0.634 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.634
SUBAREA AREA(ACRES) = 11.69 SUBAREA RUNOFF(CFS) = 28.29
EFFECTIVE AREA(ACRES) = 79.62 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
TOTAL AREA(ACRES) = 79.6 PEAK FLOW RATE(CFS) = 186.13

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FLOW PROCESS FROM NODE 13894.00 TO NODE 13910.00 IS CODE = 1
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>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<
>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<
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TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 15.14
RAINFALL INTENSITY(INCH/HR) = 2.88
AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30
AREA-AVERAGED Ap = 0.94
EFFECTIVE STREAM AREA(ACRES) = 79.62
TOTAL STREAM AREA(ACRES) = 79.62
PEAK FLOW RATE(CFS) AT CONFLUENCE = 186.13

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** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	26540.45	24.61	2.102	0.30 (0.26)	0.86	4300.2	10600.00
1	27180.62	26.15	2.027	0.30 (0.26)	0.86	4801.1	13810.00
1	27574.07	27.12	1.984	0.30 (0.26)	0.86	5111.6	13850.00
1	29014.36	30.73	1.838	0.30 (0.26)	0.86	6244.2	13870.00
1	31738.34	37.73	1.659	0.30 (0.26)	0.86	8385.1	13830.00
1	33106.95	41.43	1.571	0.30 (0.26)	0.86	9453.7	10220.00
1	36503.75	52.48	1.361	0.30 (0.26)	0.87	14158.6	10100.00
1	39538.58	63.56	1.250	0.30 (0.27)	0.89	19009.8	600.00
1	40485.70	68.34	1.217	0.30 (0.27)	0.90	21336.6	31100.00
1	42808.13	78.80	1.146	0.30 (0.27)	0.92	26395.3	40100.00
1	44821.27	85.62	1.100	0.30 (0.28)	0.92	29760.1	11801.00
1	47518.70	94.57	1.049	0.30 (0.28)	0.93	34792.0	11530.00
1	49665.19	102.73	1.012	0.30 (0.28)	0.94	40401.6	11910.00
1	51523.06	109.50	0.981	0.30 (0.28)	0.94	45302.0	11330.00
1	52222.24	115.71	0.953	0.30 (0.28)	0.95	49733.0	11130.00
1	51688.36	123.35	0.924	0.30 (0.28)	0.95	53727.0	12330.00
1	51096.82	130.06	0.907	0.30 (0.29)	0.95	57070.2	12400.00
1	50155.64	138.85	0.884	0.30 (0.29)	0.95	60438.9	12201.00
1	49545.14	142.90	0.873	0.30 (0.29)	0.95	61523.6	12111.00
1	48720.14	148.38	0.859	0.30 (0.29)	0.95	62893.1	12101.10
1	48060.02	152.51	0.848	0.30 (0.29)	0.96	63742.2	10400.00
1	46257.04	160.81	0.827	0.30 (0.29)	0.96	65057.3	12010.00
1	44769.46	166.92	0.811	0.30 (0.29)	0.96	65371.0	10210.00
1	40534.52	193.71	0.761	0.30 (0.29)	0.96	66103.7	10100.00
2	186.13	15.14	2.879	0.30 (0.28)	0.94	79.6	13889.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	23384.20	15.14	2.879	0.30 (0.26)	0.86	2724.9	13889.00
2	26670.94	24.61	2.102	0.30 (0.26)	0.86	4379.8	10600.00
3	27305.74	26.15	2.027	0.30 (0.26)	0.86	4880.7	13810.00
4	27696.10	27.12	1.984	0.30 (0.26)	0.86	5191.2	13850.00
5	29125.93	30.73	1.838	0.30 (0.26)	0.86	6323.8	13870.00
6	31837.07	37.73	1.659	0.30 (0.26)	0.86	8464.7	13830.00
7	33199.34	41.43	1.571	0.30 (0.26)	0.86	9533.3	10220.00
8	36581.09	52.48	1.361	0.30 (0.26)	0.87	14238.2	10100.00
9	39607.98	63.56	1.250	0.30 (0.27)	0.89	19089.4	600.00
10	40552.77	68.34	1.217	0.30 (0.27)	0.90	21416.3	31100.00
11	42870.10	78.80	1.146	0.30 (0.27)	0.92	26474.9	40100.00
12	44879.93	85.62	1.100	0.30 (0.28)	0.92	29839.7	11801.00
13	47573.72	94.57	1.049	0.30 (0.28)	0.93	34871.6	11530.00
14	49717.54	102.73	1.012	0.30 (0.28)	0.94	40481.3	11910.00
15	51573.20	109.50	0.981	0.30 (0.28)	0.94	45381.6	11330.00
16	52270.34	115.71	0.953	0.30 (0.28)	0.95	49812.6	11130.00
17	51734.44	123.35	0.924	0.30 (0.28)	0.95	53806.6	12330.00
18	51141.64	130.06	0.907	0.30 (0.29)	0.95	57149.8	12400.00
19	50198.83	138.85	0.884	0.30 (0.29)	0.95	60518.6	12201.00
20	49587.58	142.90	0.873	0.30 (0.29)	0.95	61603.2	12111.00
21	48761.55	148.38	0.859	0.30 (0.29)	0.95	62972.7	12101.10
22	48100.66	152.51	0.848	0.30 (0.29)	0.96	63821.8	10400.00
23	46296.13	160.81	0.827	0.30 (0.29)	0.96	65136.9	12010.00
24	44807.42	166.92	0.811	0.30 (0.29)	0.96	65450.6	10210.00

25 40568.92 193.71 0.761 0.30 (0.29) 0.96 66183.4 10100.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 52270.34 Tc(MIN.) = 115.71
EFFECTIVE AREA(ACRES) = 49812.64 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 66183.4
LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13910.00 = 135256.95 FEET.

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 66183.4 TC(MIN.) = 115.71
EFFECTIVE AREA(ACRES) = 49812.64 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.947
PEAK FLOW RATE(CFS) = 52270.34

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	23384.20	15.14	2.879	0.30 (0.26)	0.86	2724.9	13889.00
2	26670.94	24.61	2.102	0.30 (0.26)	0.86	4379.8	10600.00
3	27305.74	26.15	2.027	0.30 (0.26)	0.86	4880.7	13810.00
4	27696.10	27.12	1.984	0.30 (0.26)	0.86	5191.2	13850.00
5	29125.93	30.73	1.838	0.30 (0.26)	0.86	6323.8	13870.00
6	31837.07	37.73	1.659	0.30 (0.26)	0.86	8464.7	13830.00
7	33199.34	41.43	1.571	0.30 (0.26)	0.86	9533.3	10220.00
8	36581.09	52.48	1.361	0.30 (0.26)	0.87	14238.2	10100.00
9	39607.98	63.56	1.250	0.30 (0.27)	0.89	19089.4	600.00
10	40552.77	68.34	1.217	0.30 (0.27)	0.90	21416.3	31100.00
11	42870.10	78.80	1.146	0.30 (0.27)	0.92	26474.9	40100.00
12	44879.93	85.62	1.100	0.30 (0.28)	0.92	29839.7	11801.00
13	47573.72	94.57	1.049	0.30 (0.28)	0.93	34871.6	11530.00
14	49717.54	102.73	1.012	0.30 (0.28)	0.94	40481.3	11910.00
15	51573.20	109.50	0.981	0.30 (0.28)	0.94	45381.6	11330.00
16	52270.34	115.71	0.953	0.30 (0.28)	0.95	49812.6	11130.00
17	51734.44	123.35	0.924	0.30 (0.28)	0.95	53806.6	12330.00
18	51141.64	130.06	0.907	0.30 (0.29)	0.95	57149.8	12400.00
19	50198.83	138.85	0.884	0.30 (0.29)	0.95	60518.6	12201.00
20	49587.58	142.90	0.873	0.30 (0.29)	0.95	61603.2	12111.00
21	48761.55	148.38	0.859	0.30 (0.29)	0.95	62972.7	12101.10
22	48100.66	152.51	0.848	0.30 (0.29)	0.96	63821.8	10400.00
23	46296.13	160.81	0.827	0.30 (0.29)	0.96	65136.9	12010.00
24	44807.42	166.92	0.811	0.30 (0.29)	0.96	65450.6	10210.00
25	40568.92	193.71	0.761	0.30 (0.29)	0.96	66183.4	10100.00

END OF RATIONAL METHOD ANALYSIS

RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
(Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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Analysis prepared by:

***** DESCRIPTION OF STUDY *****
* RMV PA-3 BODR 2022 - NODE 139 COMPLEX *
* RATIONAL METHOD HYDROLOGY MODEL REGIONAL - PHASE NOPA5 *
* 100-YR EV AUG 2023 ROKAMOTO *

FILE NAME: RU00EV39.DAT
TIME/DATE OF STUDY: 08:53 08/09/2023

=====

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

=====

--*TIME-OF-CONCENTRATION MODEL*--

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 36.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90

USER-DEFINED TABLED RAINFALL USED
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 14

- 1) 5.00; 5.744
- 2) 10.00; 3.724
- 3) 15.00; 2.891
- 4) 20.00; 2.392
- 5) 25.00; 2.077
- 6) 30.00; 1.856
- 7) 40.00; 1.601
- 8) 50.00; 1.389
- 9) 60.00; 1.273
- 10) 90.00; 1.070
- 11) 120.00; 0.932
- 12) 180.00; 0.777
- 13) 360.00; 0.571
- 14) 1200.00; 0.248

ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD

USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF- WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL IN- / OUT- / PARK- SIDE / SIDE / WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:

- 1. Relative Flow-Depth = 0.00 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)

2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

FLOW PROCESS FROM NODE 13900.00 TO NODE 13901.00 IS CODE = 21

>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

=====

INITIAL SUBAREA FLOW-LENGTH(FEET) = 600.65
ELEVATION DATA: UPSTREAM(FEET) = 442.40 DOWNSTREAM(FEET) = 385.16

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 10.859
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.581
SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
AGRICULTURAL POOR COVER "FALLOW"	-	4.00	0.30	1.000	56	10.86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
SUBAREA RUNOFF(CFS) = 11.81
TOTAL AREA(ACRES) = 4.00 PEAK FLOW RATE(CFS) = 11.81

FLOW PROCESS FROM NODE 13901.00 TO NODE 13902.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 385.16 DOWNSTREAM(FEET) = 288.21
CHANNEL LENGTH THRU SUBAREA(FEET) = 647.42 CHANNEL SLOPE = 0.1497
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.34
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.307
SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	8.47	0.30	1.000	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 23.29
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.56
AVERAGE FLOW DEPTH(FEET) = 0.33 TRAVEL TIME(MIN.) = 1.64
Tc(MIN.) = 12.50
SUBAREA AREA(ACRES) = 8.47 SUBAREA RUNOFF(CFS) = 22.92
EFFECTIVE AREA(ACRES) = 12.47 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 1.00
TOTAL AREA(ACRES) = 12.5 PEAK FLOW RATE(CFS) = 33.75
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.41

END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 0.41 FLOW VELOCITY(FEET/SEC.) = 7.51
LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13902.00 = 1248.07 FEET.

FLOW PROCESS FROM NODE 13902.00 TO NODE 13903.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>TRAVELTIME THRU SUBAREA<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 288.21 DOWNSTREAM(FEET) = 184.89
CHANNEL LENGTH THRU SUBAREA(FEET) = 669.27 CHANNEL SLOPE = 0.1544
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0

"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.61
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.113

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	23.85	0.30	0.982	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.982
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 64.02
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 9.56
AVERAGE FLOW DEPTH(FEET) = 0.60 TRAVEL TIME(MIN.) = 1.17
Tc(MIN.) = 13.67

SUBAREA AREA(ACRES) = 23.85 SUBAREA RUNOFF(CFS) = 60.49
EFFECTIVE AREA(ACRES) = 36.32 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA(ACRES) = 36.3 PEAK FLOW RATE(CFS) = 92.06
GIVEN CHANNEL BASE(FEET) = 10.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 2.000 MANNING'S FACTOR = 0.040
*ESTIMATED CHANNEL HEIGHT(FEET) = 0.74

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 0.74 FLOW VELOCITY(FEET/SEC.) = 10.79
LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13903.00 = 1917.34 FEET.

FLOW PROCESS FROM NODE 13903.00 TO NODE 13904.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 184.89 DOWNSTREAM(FEET) = 155.08
FLOW LENGTH(FEET) = 876.66 MANNING'S N = 0.013
ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 36.000
DEPTH OF FLOW IN 36.0 INCH PIPE IS 24.1 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 18.29
ESTIMATED PIPE DIAMETER(INCH) = 36.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 92.06
PIPE TRAVEL TIME(MIN.) = 0.80 Tc(MIN.) = 14.47
LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13904.00 = 2794.00 FEET.

FLOW PROCESS FROM NODE 13903.00 TO NODE 13904.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

MAINLINE Tc(MIN.) = 14.47
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.980

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	21.29	0.30	0.996	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.996
SUBAREA AREA(ACRES) = 21.29 SUBAREA RUNOFF(CFS) = 51.37
EFFECTIVE AREA(ACRES) = 57.61 AREA-AVERAGED Fm(INCH/HR) = 0.30
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.99
TOTAL AREA(ACRES) = 57.6 PEAK FLOW RATE(CFS) = 139.07

FLOW PROCESS FROM NODE 13904.00 TO NODE 13920.00 IS CODE = 31

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

=====

ELEVATION DATA: UPSTREAM(FEET) = 155.08 DOWNSTREAM(FEET) = 118.00
FLOW LENGTH(FEET) = 1961.38 MANNING'S N = 0.013
DEPTH OF FLOW IN 45.0 INCH PIPE IS 32.8 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 16.12
ESTIMATED PIPE DIAMETER(INCH) = 45.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 139.07
PIPE TRAVEL TIME(MIN.) = 2.03 Tc(MIN.) = 16.50
LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13920.00 = 4755.38 FEET.

FLOW PROCESS FROM NODE 13904.00 TO NODE 13920.00 IS CODE = 81

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<

=====

MAINLINE Tc(MIN.) = 16.50
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.742

SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	43.53	0.30	0.649	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.649
SUBAREA AREA(ACRES) = 43.53 SUBAREA RUNOFF(CFS) = 99.78
EFFECTIVE AREA(ACRES) = 101.14 AREA-AVERAGED Fm(INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.84
TOTAL AREA(ACRES) = 101.1 PEAK FLOW RATE(CFS) = 226.52

FLOW PROCESS FROM NODE 13904.00 TO NODE 13920.00 IS CODE = 10

>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<

FLOW PROCESS FROM NODE 13910.00 TO NODE 13910.00 IS CODE = 15.1

>>>>DEFINE MEMORY BANK # 2 <<<<<

=====

PEAK FLOWRATE TABLE FILE NAME: RU00EV38.DNA

MEMORY BANK # 2 DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	23384.20	15.14	0.30 (0.26)	0.86	2724.9	13889.00
2	29125.93	30.73	0.30 (0.26)	0.86	6323.8	13870.00
3	33199.34	41.43	0.30 (0.26)	0.86	9533.3	10220.00
4	36581.09	52.48	0.30 (0.26)	0.87	14238.2	10100.00
5	39607.98	63.56	0.30 (0.27)	0.89	19089.4	600.00
6	40552.77	68.34	0.30 (0.27)	0.90	21416.3	31100.00
7	42870.10	78.80	0.30 (0.27)	0.92	26474.9	40100.00
8	44879.93	85.62	0.30 (0.28)	0.92	29839.7	11801.00
9	47573.72	94.57	0.30 (0.28)	0.93	34871.6	11530.00
10	49717.54	102.73	0.30 (0.28)	0.94	40481.3	11910.00
11	51573.20	109.50	0.30 (0.28)	0.94	45381.6	11330.00
12	52270.34	115.71	0.30 (0.28)	0.95	49812.6	11130.00
13	51734.44	123.35	0.30 (0.28)	0.95	53806.6	12330.00
14	51141.64	130.06	0.30 (0.29)	0.95	57149.8	12400.00
15	50198.83	138.85	0.30 (0.29)	0.95	60518.6	12201.00
16	48761.55	148.38	0.30 (0.29)	0.95	62972.7	12101.10
17	48100.66	152.51	0.30 (0.29)	0.96	63821.8	10400.00
18	46296.13	160.81	0.30 (0.29)	0.96	65136.9	12010.00
19	44807.42	166.92	0.30 (0.29)	0.96	65450.6	10210.00
20	40568.92	193.71	0.30 (0.29)	0.96	66183.4	10100.00
TOTAL AREA (ACRES) =						66183.4

FLOW PROCESS FROM NODE 13910.00 TO NODE 13910.00 IS CODE = 14.0

>>>>MEMORY BANK # 2 COPIED ONTO MAIN-STREAM MEMORY<<<<<

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	23384.20	15.14	0.30 (0.26)	0.86	2724.9	13889.00
2	29125.93	30.73	0.30 (0.26)	0.86	6323.8	13870.00
3	33199.34	41.43	0.30 (0.26)	0.86	9533.3	10220.00
4	36581.09	52.48	0.30 (0.26)	0.87	14238.2	10100.00
5	39607.98	63.56	0.30 (0.27)	0.89	19089.4	600.00
6	40552.77	68.34	0.30 (0.27)	0.90	21416.3	31100.00
7	42870.10	78.80	0.30 (0.27)	0.92	26474.9	40100.00
8	44879.93	85.62	0.30 (0.28)	0.92	29839.7	11801.00
9	47573.72	94.57	0.30 (0.28)	0.93	34871.6	11530.00
10	49717.54	102.73	0.30 (0.28)	0.94	40481.3	11910.00
11	51573.20	109.50	0.30 (0.28)	0.94	45381.6	11330.00
12	52270.34	115.71	0.30 (0.28)	0.95	49812.6	11130.00
13	51734.44	123.35	0.30 (0.28)	0.95	53806.6	12330.00
14	51141.64	130.06	0.30 (0.29)	0.95	57149.8	12400.00
15	50198.83	138.85	0.30 (0.29)	0.95	60518.6	12201.00
16	48761.55	148.38	0.30 (0.29)	0.95	62972.7	12101.10
17	48100.66	152.51	0.30 (0.29)	0.96	63821.8	10400.00
18	46296.13	160.81	0.30 (0.29)	0.96	65136.9	12010.00
19	44807.42	166.92	0.30 (0.29)	0.96	65450.6	10210.00
20	40568.92	193.71	0.30 (0.29)	0.96	66183.4	10100.00
TOTAL AREA (ACRES) =						66183.4

FLOW PROCESS FROM NODE 13910.00 TO NODE 13920.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<

>>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 119.70 DOWNSTREAM(FEET) = 118.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 1376.26 CHANNEL SLOPE = 0.0012
GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 24.17
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 0.942
SUBAREA LOSS RATE DATA(AMC II):
DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap SCS
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
USER-DEFINED - 96.09 0.30 0.535 -
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.535
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 52304.14
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 11.00
AVERAGE FLOW DEPTH(FEET) = 24.17 TRAVEL TIME(MIN.) = 2.09
Tc(MIN.) = 117.79
SUBAREA AREA(ACRES) = 96.09 SUBAREA RUNOFF(CFS) = 67.60
EFFECTIVE AREA(ACRES) = 49908.73 AREA-AVERAGED Fm(INCH/HR) = 0.28
AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.95
TOTAL AREA(ACRES) = 66279.4 PEAK FLOW RATE(CFS) = 52270.34
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
"Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
*ESTIMATED CHANNEL HEIGHT(FEET) = 24.17
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END OF SUBAREA CHANNEL FLOW HYDRAULICS:

DEPTH(FEET) = 24.17 FLOW VELOCITY(FEET/SEC.) = 11.00

LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13920.00 = 136633.22 FEET.

FLOW PROCESS FROM NODE 13904.00 TO NODE 13920.00 IS CODE = 11

>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<

** MAIN STREAM CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	23384.20	17.74	2.617	0.30 (0.25)	0.85	2821.0	13889.00
2	29125.93	33.18	1.775	0.30 (0.26)	0.86	6419.9	13870.00
3	33199.34	43.79	1.521	0.30 (0.26)	0.86	9629.4	10220.00
4	36581.09	54.77	1.334	0.30 (0.26)	0.87	14334.3	10100.00
5	39607.98	65.80	1.234	0.30 (0.27)	0.89	19185.5	600.00
6	40552.77	70.57	1.201	0.30 (0.27)	0.90	21512.3	31100.00
7	42870.10	81.00	1.131	0.30 (0.27)	0.91	26571.0	40100.00
8	44879.93	87.79	1.085	0.30 (0.28)	0.92	29935.8	11801.00
9	47573.72	96.71	1.039	0.30 (0.28)	0.93	34967.7	11530.00
10	49717.54	104.84	1.002	0.30 (0.28)	0.94	40577.4	11910.00
11	51573.20	111.59	0.971	0.30 (0.28)	0.94	45477.7	11330.00
12	52270.34	117.79	0.942	0.30 (0.28)	0.95	49908.7	11130.00
13	51734.44	125.44	0.918	0.30 (0.28)	0.95	53902.7	12330.00
14	51141.64	132.16	0.901	0.30 (0.29)	0.95	57245.9	12400.00
15	50198.83	140.96	0.878	0.30 (0.29)	0.95	60614.7	12201.00
16	48761.55	150.51	0.853	0.30 (0.29)	0.95	63068.8	12101.10

17 48100.66 154.64 0.843 0.30(0.29) 0.95 63917.9 10400.00
 18 46296.13 162.96 0.821 0.30(0.29) 0.96 65233.0 12010.00
 19 44807.42 169.09 0.805 0.30(0.29) 0.96 65546.7 10210.00
 20 40568.92 195.95 0.759 0.30(0.29) 0.96 66279.4 10100.00
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13920.00 = 136633.22 FEET.

** MEMORY BANK # 1 CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	226.52	16.50	2.742	0.30(0.25)	0.84	101.1	13900.00

LONGEST FLOWPATH FROM NODE 13900.00 TO NODE 13920.00 = 4755.38 FEET.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	23113.32	16.50	2.742	0.30(0.25)	0.85	2724.2	13900.00
2	23599.41	17.74	2.617	0.30(0.25)	0.85	2922.1	13889.00
3	29264.45	33.18	1.775	0.30(0.26)	0.86	6521.0	13870.00
4	33314.72	43.79	1.521	0.30(0.26)	0.86	9730.5	10220.00
5	36679.44	54.77	1.334	0.30(0.26)	0.87	14435.4	10100.00
6	39697.25	65.80	1.234	0.30(0.27)	0.89	19286.6	600.00
7	40639.10	70.57	1.201	0.30(0.27)	0.90	21613.5	31100.00
8	42950.00	81.00	1.131	0.30(0.27)	0.91	26672.1	40100.00
9	44955.65	87.79	1.085	0.30(0.28)	0.92	30036.9	11801.00
10	47645.27	96.71	1.039	0.30(0.28)	0.93	35068.8	11530.00
11	49785.68	104.84	1.002	0.30(0.28)	0.94	40678.5	11910.00
12	51638.51	111.59	0.971	0.30(0.28)	0.94	45578.8	11330.00
13	52333.07	117.79	0.942	0.30(0.28)	0.95	50009.9	11130.00
14	51794.96	125.44	0.918	0.30(0.28)	0.95	54003.8	12330.00
15	51200.58	132.16	0.901	0.30(0.29)	0.95	57347.0	12400.00
16	50255.70	140.96	0.878	0.30(0.29)	0.95	60715.8	12201.00
17	48816.17	150.51	0.853	0.30(0.29)	0.95	63169.9	12101.10
18	48154.32	154.64	0.843	0.30(0.29)	0.95	64019.0	10400.00
19	46347.82	162.96	0.821	0.30(0.29)	0.96	65334.2	12010.00
20	44857.68	169.09	0.805	0.30(0.29)	0.96	65647.9	10210.00
21	40614.95	195.95	0.759	0.30(0.29)	0.96	66380.6	10100.00

TOTAL AREA (ACRES) = 66380.6

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE(CFS) = 52333.07 Tc(MIN.) = 117.790
 EFFECTIVE AREA(ACRES) = 50009.87 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
 TOTAL AREA(ACRES) = 66380.6
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13920.00 = 136633.22 FEET.

 FLOW PROCESS FROM NODE 13920.00 TO NODE 13921.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 118.00 DOWNSTREAM(FEET) = 115.28
 CHANNEL LENGTH THRU SUBAREA(FEET) = 335.44 CHANNEL SLOPE = 0.0081
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 15.05
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 0.941
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	134.30	0.30	0.658	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.658
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 52378.01
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 21.74
 AVERAGE FLOW DEPTH(FEET) = 15.04 TRAVEL TIME(MIN.) = 0.26
 Tc(MIN.) = 118.05
 SUBAREA AREA(ACRES) = 134.30 SUBAREA RUNOFF(CFS) = 89.88
 EFFECTIVE AREA(ACRES) = 50144.17 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
 TOTAL AREA(ACRES) = 66514.9 PEAK FLOW RATE(CFS) = 52333.07
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 15.04

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 15.04 FLOW VELOCITY(FEET/SEC.) = 21.72
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 13921.00 = 136968.66 FEET.

 FLOW PROCESS FROM NODE 13921.00 TO NODE 14010.00 IS CODE = 56

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>TRAVELTIME THRU SUBAREA<<<<<

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ELEVATION DATA: UPSTREAM(FEET) = 115.28 DOWNSTREAM(FEET) = 100.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 1396.08 CHANNEL SLOPE = 0.0109
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 13.91
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 0.937
 SUBAREA LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
USER-DEFINED	-	96.27	0.30	0.723	-

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.723
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 52364.25
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 24.18
 AVERAGE FLOW DEPTH(FEET) = 13.91 TRAVEL TIME(MIN.) = 0.96
 Tc(MIN.) = 119.01
 SUBAREA AREA(ACRES) = 96.27 SUBAREA RUNOFF(CFS) = 62.36
 EFFECTIVE AREA(ACRES) = 50240.44 AREA-AVERAGED Fm(INCH/HR) = 0.28
 AREA-AVERAGED Fp(INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.94
 TOTAL AREA(ACRES) = 66611.2 PEAK FLOW RATE(CFS) = 52333.07
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
 GIVEN CHANNEL BASE(FEET) = 100.00 CHANNEL FREEBOARD(FEET) = 0.0
 "Z" FACTOR = 4.000 MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) = 13.91

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 13.91 FLOW VELOCITY(FEET/SEC.) = 24.18
 LONGEST FLOWPATH FROM NODE 10100.00 TO NODE 14010.00 = 138364.73 FEET.

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END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 66611.2 TC (MIN.) = 119.01
 EFFECTIVE AREA (ACRES) = 50240.44 AREA-AVERAGED Fm (INCH/HR) = 0.28
 AREA-AVERAGED Fp (INCH/HR) = 0.30 AREA-AVERAGED Ap = 0.944
 PEAK FLOW RATE (CFS) = 52333.07

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp (Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	23113.32	18.05	2.587	0.30 (0.25)	0.84	2954.8	13900.00
2	23599.41	19.28	2.464	0.30 (0.25)	0.84	3152.7	13889.00
3	29264.45	34.62	1.738	0.30 (0.26)	0.85	6751.6	13870.00
4	33314.72	45.18	1.491	0.30 (0.26)	0.86	9961.1	10220.00
5	36679.44	56.13	1.318	0.30 (0.26)	0.87	14666.0	10100.00
6	39697.25	67.12	1.225	0.30 (0.27)	0.89	19517.2	600.00
7	40639.10	71.88	1.193	0.30 (0.27)	0.90	21844.1	31100.00
8	42950.00	82.29	1.122	0.30 (0.27)	0.91	26902.7	40100.00
9	44955.65	89.06	1.076	0.30 (0.28)	0.92	30267.5	11801.00
10	47645.27	97.96	1.033	0.30 (0.28)	0.93	35299.4	11530.00
11	49785.68	106.08	0.996	0.30 (0.28)	0.93	40909.1	11910.00
12	51638.51	112.82	0.965	0.30 (0.28)	0.94	45809.4	11330.00
13	52333.07	119.01	0.937	0.30 (0.28)	0.94	50240.4	11130.00
14	51794.96	126.67	0.915	0.30 (0.28)	0.95	54234.4	12330.00
15	51200.58	133.39	0.897	0.30 (0.28)	0.95	57577.6	12400.00
16	50255.70	142.19	0.875	0.30 (0.29)	0.95	60946.4	12201.00
17	48816.17	151.75	0.850	0.30 (0.29)	0.95	63400.5	12101.10
18	48154.32	155.89	0.839	0.30 (0.29)	0.95	64249.6	10400.00
19	46347.82	164.22	0.818	0.30 (0.29)	0.95	65564.7	12010.00
20	44857.68	170.36	0.802	0.30 (0.29)	0.95	65878.4	10210.00
21	40614.95	197.26	0.757	0.30 (0.29)	0.96	66611.2	10100.00

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 END OF RATIONAL METHOD ANALYSIS