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

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* RMV PA-3 SUBAREA A ROMP 2018 * RATIONAL METHOD HYDROLOGY MODEL LOCAL * 100-YR HC AUGUST 2018 ROKAMOTO FILE NAME: PA3A00HC.DAT TIME/DATE OF STUDY: 08:22 08/14/2018 ______ USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION: _____ --*TIME-OF-CONCENTRATION MODEL*--USER SPECIFIED STORM EVENT (YEAR) = 100.00 SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00 SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.90 *DATA BANK RAINFALL USED* *ANTECEDENT MOISTURE CONDITION (AMC) III 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) 1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0313 0.167 0.0150 2 32.0 27.0 0.020/0.020/ ---0.67 2.00 0.0312 0.167 0.0150 3 13.0 8.0 0.020/0.020/ ---0.33 1.00 0.0312 0.125 0.0150 GLOBAL STREET FLOW-DEPTH CONSTRAINTS: 1. Relative Flow-Depth = 1.00 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 100.00 TO NODE 101.00 IS CODE = 21 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS< >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<< ______ INITIAL SUBAREA FLOW-LENGTH (FEET) = 327.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.413 OA-1* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.306 SUBAREA To AND LOSS RATE DATA (AMC III): DEVELOPMENT TYPE/ SCS SOIL AREA SCS LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.) NATURAL FAIR COVER 1.10 0.25 1.000 92 9.41 "OPEN BRUSH" C SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000 SUBAREA RUNOFF (CFS) = 4.02TOTAL AREA (ACRES) = 1.10 PEAK FLOW RATE (CFS) = ************************ FLOW PROCESS FROM NODE 101.00 TO NODE 102.00 IS CODE = 51 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW< >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) < ______ ELEVATION DATA: UPSTREAM(FEET) = 642.00 DOWNSTREAM(FEET) = 605.00 CHANNEL LENGTH THRU SUBAREA (FEET) = 385.00 CHANNEL SLOPE = 0.0961 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 20.00 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.047 OA-2SUBAREA LOSS RATE DATA (AMC III): DEVELOPMENT TYPE/ SCS SOIL AREA Fρ Aρ LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" 0.90 0.25 1.000 91 NATURAL FAIR COVER 2.60 0.25 1.000 "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" C 0.70 0.25 0.900 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.983 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.98 AVERAGE FLOW DEPTH (FEET) = 0.79 TRAVEL TIME (MIN.) = 1.07 Tc(MIN.) = 10.49SUBAREA AREA(ACRES) = 4.20 SUBAREA RUNOFF(CFS) = 14.37 EFFECTIVE AREA(ACRES) = 5.30 AREA-AVERAGED Fm(INCH/HR) = 0.25 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.99 TOTAL AREA (ACRES) = 5.3 PEAK FLOW RATE(CFS) = END OF SUBAREA CHANNEL FLOW HYDRAULICS: DEPTH(FEET) = 0.95 FLOW VELOCITY(FEET/SEC.) = 6.71LONGEST FLOWPATH FROM NODE 100.00 TO NODE 102.00 = 712.00 FEET. ***************** FLOW PROCESS FROM NODE 102.00 TO NODE 103.00 IS CODE = 62 ______ >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA< >>>> (STREET TABLE SECTION # 1 USED) <<<< _____ UPSTREAM ELEVATION(FEET) = 605.00 DOWNSTREAM ELEVATION(FEET) = 584.00 STREET LENGTH (FEET) = 264.00 CURB HEIGHT (INCHES) = 8.0 STREET HALFWIDTH (FEET) = 30.00

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ELEVATION DATA: UPSTREAM(FEET) = 725.00 DOWNSTREAM(FEET) = 642.00

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DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL(DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
                                                  21.70
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) = 0.39
   HALFSTREET FLOOD WIDTH (FEET) = 12.46
   AVERAGE FLOW VELOCITY (FEET/SEC.) = 6.87
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 2.64
 STREET FLOW TRAVEL TIME (MIN.) = 0.64 Tc(MIN.) = 11.13
                                                          A-1
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.912
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/
                   SCS SOIL AREA
                                      Fp
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                      C 1.10 0.25 0.900 86
 COMMERCIAL
                        С
                                1.00
                                       0.25
                                                  0.100 86
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.519
 SUBAREA AREA (ACRES) = 2.10 SUBAREA RUNOFF (CFS) = 7.15
 EFFECTIVE AREA(ACRES) = 7.40 AREA-AVERAGED Fm(INCH/HR) = 0.21
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.85
 TOTAL AREA (ACRES) = 7.4
                                 PEAK FLOW RATE (CFS) =
 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.40 HALFSTREET FLOOD WIDTH(FEET) = 13.16
 FLOW VELOCITY (FEET/SEC.) = 7.07 DEPTH*VELOCITY (FT*FT/SEC.) = 2.81
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 103.00 =
*********************
 FLOW PROCESS FROM NODE 103.00 TO NODE 104.00 IS CODE = 62
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
______
 UPSTREAM ELEVATION(FEET) = 584.00 DOWNSTREAM ELEVATION(FEET) = 564.00
 STREET LENGTH (FEET) = 494.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL(DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) = 0.50
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TOTAL AREA (ACRES) = ***************** FLOW PROCESS FROM NOD	*****	******	*****	******	******
>>>>ADDITION OF SUBA					
MAINLINE Tc(MIN.) = * 100 YEAR RAINFALL I	NTENSITY(IN		3.423		A-4
SUBAREA LOSS RATE DAT			En	7.50	ccc
DEVELOPMENT TYPE/ LAND USE	CDOID	AKEA	tp / TNCU /UD/	AP	SUS
COMMERCIAL	GROOT B	0.60	0 30	0 100	76
PUBLIC PARK	B B	0.30	0.30	0.850	76
RESIDENTIAL	_				. •
".4 DWELLING/ACRE"	В	0.40	0.30	0.900	76
COMMERCIAL			0.25		
PUBLIC PARK	С	2.10	0.25	0.850	86
RESIDENTIAL					
".4 DWELLING/ACRE"					86
SUBAREA AVERAGE PERVI				1.26	
SUBAREA AVERAGE PERVI			-		
SUBAREA AREA(ACRES) =	9.20	SUBARE	A RUNOFF (CE	rs) = 27.	48
EFFECTIVE AREA(ACRES)	= 32.0	0 AREA-	AVERAGED Fn	n(INCH/HR)	= 0.11
AREA-AVERAGED Fp (INCH	/HR) = 0.2	5 AREA-A	VERAGED Ap	= 0.44	
TOTAL AREA (ACRES) =	32.0	PEAK	FLOW RATE ((CFS) =	95.36
FLOW PROCESS FROM NOD	REA TO MAIN	 LINE PEAK	FLOW<		
MAINIINE TC(MIN.) =					
MAINLINE Tc(MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT	NTENSITY(IN		3.423		A-4
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT	NTENSITY(IN A(AMC III):				
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/	NTENSITY(IN A(AMC III): SCS SOIL	AREA	Fp	Ар	SCS
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/	NTENSITY(IN A(AMC III): SCS SOIL	AREA	Fp	Ар	SCS
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI	NTENSITY(IN A(AMC III): SCS SOIL GROUP D OUS LOSS RA	AREA (ACRES) 1.80 TE, Fp(IN	Fp (INCH/HR) 0.20 CH/HR) = 0	Ap (DECIMAL) 0.100	SCS
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI	NTENSITY(IN A (AMC III): SCS SOIL GROUP D OUS LOSS RA OUS AREA FR	AREA (ACRES) 1.80 TE, Fp(IN ACTION, A	Fp (INCH/HR) 0.20 CH/HR) = 0 p = 0.100	Ap (DECIMAL) 0.100	SCS CN 91
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA(ACRES) =	NTENSITY(IN A(AMC III): SCS SOIL GROUP D OUS LOSS RA OUS AREA FR 1.80	AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE	Fp (INCH/HR) 0.20 CH/HR) = 0 100 A RUNOFF (CF	Ap (DECIMAL) 0.100 0.20 CS) = 5.	SCS CN 91
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES)	NTENSITY(IN A (AMC III): SCS SOIL GROUP D OUS LOSS RA OUS AREA FR 1.80 = 33.8	AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA-	Fp (INCH/HR) 0.20 CH/HR) = 0 p = 0.100 A RUNOFF(CE AVERAGED Fm	Ap (DECIMAL) 0.100 0.20 CS) = 5.	SCS CN 91 51 = 0.11
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) AREA-AVERAGED Fp(INCH	NTENSITY(IN A (AMC III): SCS SOIL GROUP D OUS LOSS RA OUS AREA FR 1.80 = 33.8 /HR) = 0.2	AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA-5 AREA-A	Fp (INCH/HR) 0.20 CH/HR) = 0 p = 0.100 A RUNOFF(CF AVERAGED Fn VERAGED Ap	Ap (DECIMAL) 0.100 0.20 CS) = 5. 1(INCH/HR) = 0.42	SCS CN 91 51 = 0.11
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) AREA-AVERAGED Fp(INCH	NTENSITY(IN A (AMC III): SCS SOIL GROUP D OUS LOSS RA OUS AREA FR 1.80 = 33.8 /HR) = 0.2	AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA-5 AREA-A	Fp (INCH/HR) 0.20 CH/HR) = 0 p = 0.100 A RUNOFF(CF AVERAGED Fn VERAGED Ap	Ap (DECIMAL) 0.100 0.20 CS) = 5. 1(INCH/HR) = 0.42	SCS CN 91 51 = 0.11
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH TOTAL AREA (ACRES) =	NTENSITY(IN A (AMC III): SCS SOIL GROUP D OUS LOSS RA OUS AREA FR 1.80 = 33.8 /HR) = 0.2 33.8	AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA- 5 AREA-A PEAK	Fp (INCH/HR) 0.20 CH/HR) = 0 p = 0.100 A RUNOFF(CF AVERAGED FR VERAGED AP	Ap (DECIMAL) 0.100 0.20 CS) = 5. n(INCH/HR) = 0.42 (CFS) =	SCS CN 91 51 = 0.11 100.88
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH TOTAL AREA (ACRES) =	NTENSITY(IN A (AMC III): SCS SOIL GROUP D OUS LOSS RA OUS AREA FR 1.80 = 33.8 /HR) = 0.2 33.8	AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA-A PEAK	Fp (INCH/HR) 0.20 CH/HR) = 0.100 A RUNOFF(CF AVERAGED Fn VERAGED Ap FLOW RATE (************************************	Ap (DECIMAL) 0.100 0.20 (SS) = 5. (INCH/HR) = 0.42 (CFS) =	SCS CN 91 51 = 0.11 100.88
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH TOTAL AREA (ACRES) = ***********************************	NTENSITY(IN A (AMC III): SCS SOIL GROUP D OUS LOSS RA OUS AREA FR 1.80 = 33.8 /HR) = 0.2 33.8	AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA- 5 AREA-A PEAK ************************************	Fp (INCH/HR) 0.20 CH/HR) = 0.100 A RUNOFF (CF AVERAGED AP FLOW RATE (************************************	Ap (DECIMAL) 0.100 0.20 CS) = 5. 1 (INCH/HR) = 0.42 (CFS) = ***********************************	SCS CN 91 51 = 0.11 100.88
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH TOTAL AREA (ACRES) = ***********************************	NTENSITY(IN A (AMC III): SCS SOIL GROUP D OUS LOSS RA OUS AREA FR 1.80 = 33.8 /HR) = 0.2 33.8 *********** E 105.00	AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA- 5 AREA-A PEAK ******** TO NODE ME THRU S PESIZE (N	Fp (INCH/HR) 0.20 CH/HR) = 0.100 A RUNOFF (CF AVERAGED FR FLOW RATE (************************************	Ap (DECIMAL) 0.100 0.20	SCS CN 91 51 = 0.11 100.88 **********************************
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH TOTAL AREA (ACRES) = ***********************************	NTENSITY(IN A (AMC III):	AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA-A PEAK ******** TO NODE ME THRU S PESIZE (N	Fp (INCH/HR) 0.20 CH/HR) = 0.100 A RUNOFF (CF AVERAGED AP FLOW RATE (106.00 I	Ap (DECIMAL) 0.100 0.20 CS) = 5.0 (INCH/HR) = 0.42 (CFS) = ***********************************	SCS CN 91 51 = 0.11 100.88 **********************************
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH TOTAL AREA (ACRES) = ***********************************	NTENSITY(IN A (AMC III):	AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA- 5 AREA-A PEAK ******** TO NODE ME THRU S PESIZE (N = 520.00	Fp (INCH/HR) 0.20 CH/HR) = 0.20 CH/HR) = 0.100 A RUNOFF (CFAVERAGED FNOW RATE (CFACE) AP	Ap (DECIMAL) 0.100 0.20 CS) = 5.0 (INCH/HR) = 0.42 (CFS) = ***********************************	SCS CN 91 51 = 0.11 100.88 **********************************
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH TOTAL AREA (ACRES) = ***********************************	NTENSITY(IN A (AMC III):	AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA- 5 AREA-A PEAK ******** TO NODE ME THRU S PESIZE (N 520.00 ANNING'S	Fp (INCH/HR) 0.20 CH/HR) = 0.100 A RUNOFF (CF AVERAGED FR VERAGED AP FLOW RATE (106.00 I	Ap (DECIMAL) 0.100 0.20 CS) = 5.0 (INCH/HR) = 0.42 (CFS) = ***********************************	SCS CN 91 51 = 0.11 100.88 **********************************
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH TOTAL AREA (ACRES) = ***********************************	NTENSITY(IN A (AMC III):	AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA- 5 AREA-A PEAK ******** TO NODE ME THRU S PESIZE (N = 520.00 ANNING'S IS 28.5	Fp (INCH/HR) 0.20 CH/HR) = 0.100 A RUNOFF (CF AVERAGED FR VERAGED AP FLOW RATE (106.00 I	Ap (DECIMAL) 0.100 0.20 CS) = 5.0 (INCH/HR) = 0.42 (CFS) = ***********************************	SCS CN 91 51 = 0.11 100.88 **********************************
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH TOTAL AREA (ACRES) = ***********************************	NTENSITY(IN A (AMC III):	AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA- 5 AREA-A PEAK ******** TO NODE ME THRU S PESIZE (N = 520.00 ANNING'S IS 28.5	Fp (INCH/HR) 0.20 CH/HR) = 0.100 A RUNOFF (CF AVERAGED FR VERAGED AP FLOW RATE (106.00 I	Ap (DECIMAL) 0.100 0.20 CS) = 5.0 (INCH/HR) = 0.42 (CFS) = ***********************************	SCS CN 91 51 = 0.11 100.88 **********************************
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH TOTAL AREA (ACRES) = ***********************************	NTENSITY(IN A (AMC III):	AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA-A PEAK ******** TO NODE ME THRU S PESIZE (N = 520.00 ANNING'S IS 28.5 15.51	Fp (INCH/HR) 0.20 CH/HR) = 0.20 CH/HR) = 0.100 A RUNOFF (CFAVERAGED FROW RATE OF THE NAME	Ap (DECIMAL) 0.100 0.20	SCS CN 91 51 = 0.11 100.88 **********************************

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ESTIMATED PIPE DIAMETER (INCH) = 39.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 100.88
 PIPE TRAVEL TIME (MIN.) = 0.86 Tc (MIN.) = 14.91
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 106.00 = 3730.00 FEET.
FLOW PROCESS FROM NODE 106.00 TO NODE 106.00 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc (MIN.) = 14.91
                                             A-5
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.308
 SUBAREA LOSS RATE DATA(AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap
    LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                B 2.80 0.30 0.100
                                            76
 COMMERCIAL
                 С
                        7.60 0.25 0.100 86
                 C 0.40 0.25 0.850 86
 PUBLIC PARK
 COMMERCIAL
                 D 10.50 0.20 0.100
 RESIDENTIAL
 ".4 DWELLING/ACRE" D 0.30 0.20 0.900 91
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.125
 SUBAREA AREA (ACRES) = 21.60 SUBAREA RUNOFF (CFS) = 63.75
 EFFECTIVE AREA(ACRES) = 55.40 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.31
 TOTAL AREA(ACRES) = 55.4
                          PEAK FLOW RATE(CFS) =
                                          161.12
******************
 FLOW PROCESS FROM NODE 106.00 TO NODE 106.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
_____
 MAINLINE Tc(MIN.) = 14.91
                                             A-6
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.308
 SUBAREA LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap
                                            SCS
    LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                 В 6.80 0.30 0.100
                                            76
 COMMERCIAL
                  C 12.10 0.25 0.100 86
 PUBLIC PARK
                 C 1.00 0.25 0.850 86
                  D
                       4.50 0.20 0.100 91
 COMMERCIAL
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.131
 SUBAREA AREA (ACRES) = 24.40 SUBAREA RUNOFF (CFS) = 71.91
 EFFECTIVE AREA(ACRES) = 79.80 AREA-AVERAGED Fm(INCH/HR) = 0.06
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.25
 TOTAL AREA (ACRES) = 79.8 PEAK FLOW RATE (CFS) =
                                            233.03
*****************
 FLOW PROCESS FROM NODE 106.00 TO NODE 107.00 IS CODE = 31
______
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 503.00 DOWNSTREAM(FEET) = 485.00
 FLOW LENGTH (FEET) = 808.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 51.0 INCH PIPE IS 40.7 INCHES
```

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PIPE-FLOW VELOCITY (FEET/SEC.) = 19.21
 ESTIMATED PIPE DIAMETER(INCH) = 51.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 233.03
 PIPE TRAVEL TIME (MIN.) = 0.70 Tc (MIN.) = 15.61
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 107.00 = 4538.00 FEET.
******************
 FLOW PROCESS FROM NODE 107.00 TO NODE 107.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc(MIN.) = 15.61
                                                   A-8
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.222
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/
                   SCS SOIL AREA
                                    Fρ
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                     В
                             3.40
                                    0.30
                                            0.100
                                                   76
 COMMERCIAL
                      C
                             6.70
                                     0.25
                                            0.100
                                                   86
 PUBLIC PARK
                             0.10
                                     0.25
                                            0.850
                                            0.100
 COMMERCIAL
                      D
                             2.50
                                     0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.106
 SUBAREA AREA (ACRES) = 12.70
                            SUBAREA RUNOFF (CFS) = 36.52
 EFFECTIVE AREA(ACRES) = 92.50 AREA-AVERAGED Fm(INCH/HR) = 0.06
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.23
                     92.5
 TOTAL AREA (ACRES) =
                            PEAK FLOW RATE(CFS) =
                                                  263.38
*****************
 FLOW PROCESS FROM NODE 107.00 TO NODE 107.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
_____
 MAINLINE Tc(MIN.) = 15.61
                                                    A-7
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.222
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                    Fρ
                                            Αp
                                                  SCS
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 COMMERCIAL
                     В
                             7.20
                                     0.30
                                            0.100
                                                   76
 PUBLIC PARK
                      В
                             0.70
                                     0.30
                                            0.850
                      C
                             7.60
                                     0.25
                                            0.100
                                                  86
 COMMERCIAL
 PUBLIC PARK
                      С
                             0.30
                                     0.25
                                            0.850
 COMMERCIAL
                      D
                             4.70
                                     0.20
                                            0.100
 PUBLIC PARK
                      D
                             0.40
                                            0.850
                                     0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 20.90
                            SUBAREA RUNOFF (CFS) = 59.88
 EFFECTIVE AREA(ACRES) = 113.40 AREA-AVERAGED Fm(INCH/HR) = 0.05
 AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.22
 TOTAL AREA (ACRES) =
                  113.4 PEAK FLOW RATE(CFS) =
*******************
 FLOW PROCESS FROM NODE 107.00 TO NODE 108.00 IS CODE = 31
...........
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <>>>
_____
 ELEVATION DATA: UPSTREAM(FEET) = 485.00 DOWNSTREAM(FEET) = 480.00
 FLOW LENGTH (FEET) = 933.00 MANNING'S N = 0.013
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DEPTH OF FLOW IN 75.0 INCH PIPE IS 60.5 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 12.19
 ESTIMATED PIPE DIAMETER (INCH) = 75.00
                                NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 323.26
 PIPE TRAVEL TIME (MIN.) = 1.28 Tc (MIN.) = 16.89
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 108.00 = 5471.00 FEET.
******************
 FLOW PROCESS FROM NODE 108.00 TO NODE 108.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc(MIN.) = 16.89
                                                 A - 18
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.080
 SUBAREA LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/
                 SCS SOIL AREA
                                 Fρ
                                          αA
                                                  SCS
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL)
                             3.50
                                    0.30
                                           0.100
                                                  76
 COMMERCIAL
                      R
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                                           0.900
                                                  76
                            0.60
                                    0.30
 COMMERCIAL
                             2.80
                                    0.25
                                           0.100
                                                  86
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                     C
                            0.80
                                    0.25
                                           0.900
                                                  86
                            0.60
                                    0.20
                                           0.100
 COMMERCIAL
                      D
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.235
 SUBAREA AREA(ACRES) = 8.30
                            SUBAREA RUNOFF (CFS) = 22.53
 EFFECTIVE AREA(ACRES) = 121.70 AREA-AVERAGED Fm(INCH/HR) = 0.06
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.22
 TOTAL AREA (ACRES) =
                    121.7
                             PEAK FLOW RATE(CFS) =
*****************
 FLOW PROCESS FROM NODE 108.00 TO NODE 108.00 IS CODE = 81
_____
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc(MIN.) = 16.89
                                                  A-9
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.080
 SUBAREA LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/
                 SCS SOIL AREA
                                 Fρ
                                           Αp
                                                  SCS
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                  76
 APARTMENTS
                      В
                            0.40
                                    0.30
                                           0.200
 APARTMENTS
                      C.
                             5.50
                                    0.25
                                           0.200
                                                  86
                                           0.200
 APARTMENTS
                             3.20
                                    0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.200
 SUBAREA AREA(ACRES) = 9.10
                            SUBAREA RUNOFF (CFS) = 24.84
 EFFECTIVE AREA(ACRES) = 130.80 AREA-AVERAGED Fm(INCH/HR) = 0.05
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.22
 TOTAL AREA (ACRES) = 130.8
                             PEAK FLOW RATE(CFS) =
*****************
 FLOW PROCESS FROM NODE 108.00 TO NODE 108.00 IS CODE = 1
 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE <<<<
______
 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
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TIME OF CONCENTRATION (MIN.) = 16.89
 RAINFALL INTENSITY (INCH/HR) = 3.08
 AREA-AVERAGED Fm(INCH/HR) = 0.05
 AREA-AVERAGED Fp (INCH/HR) = 0.25
 AREA-AVERAGED Ap = 0.22
 EFFECTIVE STREAM AREA(ACRES) = 130.80
 TOTAL STREAM AREA(ACRES) = 130.80
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 356.16
******************
 FLOW PROCESS FROM NODE 110.00 TO NODE 111.00 IS CODE = 21
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
_____
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 330.00
 ELEVATION DATA: UPSTREAM(FEET) = 645.00 DOWNSTREAM(FEET) = 625.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc (MIN.) = 5.417
                                                      \Delta - 10
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 5.910
 SUBAREA To AND LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                    Fρ
                                                     SCS Tc
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
     LAND USE
 RESIDENTIAL
                  C
 ".4 DWELLING/ACRE"
                              0.40
                                       0.25
                                              0.900
                                                     86
                                                           8.68
                                                           5.42
 COMMERCIAL
                       D
                              0.30
                                       0.20
                                              0.100
                                                     91
                      D
                             1.30
                                       0.20
                                                     91
                                                           8.61
 PUBLIC PARK
                                              0.850
 RESIDENTIAL
                     D 1.00
                                    0.20
 ".4 DWELLING/ACRE"
                                             0.900
                                                    91 8.68
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.798
 SUBAREA RUNOFF(CFS) = 15.51
 TOTAL AREA (ACRES) = 3.00 PEAK FLOW RATE (CFS) =
*******************
 FLOW PROCESS FROM NODE 111.00 TO NODE 112.00 IS CODE = 62
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
UPSTREAM ELEVATION(FEET) = 625.00 DOWNSTREAM ELEVATION(FEET) = 595.00
 STREET LENGTH (FEET) = 517.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL (DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 24.54
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH (FEET) = 0.41
   HALFSTREET FLOOD WIDTH (FEET) = 14.02
                                                     Page 9
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AVERAGE FLOW VELOCITY (FEET/SEC.) = 6.29
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 2.60
 STREET FLOW TRAVEL TIME (MIN.) = 1.37 Tc (MIN.) = 6.79
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 5.194
                                                     \Delta - 11
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                     GROUP (ACRES) (INCH/HR) (DECIMAL)
     LAND USE
                     С
                             2.30 0.25
                                               0.100
 COMMERCIAL
 RESIDENTIAL
                     C 0.30
                                       0.25
                                               0.900
                                                      86
 ".4 DWELLING/ACRE"
                       D 1.00
 COMMERCIAL
                                       0.20
                                               0.100
                                                      91
 RESIDENTIAL
                     D 0.30 0.20 0.900
 ".4 DWELLING/ACRE"
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.223
 SUBAREA AREA(ACRES) = 3.90 SUBAREA RUNOFF(CFS) = 18.05
 EFFECTIVE AREA(ACRES) = 6.90 AREA-AVERAGED Fm(INCH/HR) = 0.10
 AREA-AVERAGED Fp(INCH/HR) = 0.21 AREA-AVERAGED Ap = 0.47
 TOTAL AREA (ACRES) = 6.9 PEAK FLOW RATE (CFS) = 31.63
 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.44 HALFSTREET FLOOD WIDTH(FEET) = 15.66
 FLOW VELOCITY (FEET/SEC.) = 6.63 DEPTH*VELOCITY (FT*FT/SEC.) = 2.93
 LONGEST FLOWPATH FROM NODE 110.00 TO NODE 112.00 = 847.00 FEET.
******************
 FLOW PROCESS FROM NODE 112.00 TO NODE 113.00 IS CODE = 62
______
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
______
 UPSTREAM ELEVATION(FEET) = 595.00 DOWNSTREAM ELEVATION(FEET) = 585.00
 STREET LENGTH (FEET) = 389.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL (DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
                                                 49.43
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH (FEET) = 0.56
  HALFSTREET FLOOD WIDTH (FEET) = 22.07
  AVERAGE FLOW VELOCITY (FEET/SEC.) = 5.44
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 3.03
 STREET FLOW TRAVEL TIME (MIN.) = 1.19 Tc (MIN.) = 7.98
                                                    A - 12
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.734
 SUBAREA LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp
                                              αA
                                                     SCS
     LAND USE
                     GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                      C 5.00 0.25
                                             0.100
 COMMERCIAL
                                                      86
 RESIDENTIAL.
 ".4 DWELLING/ACRE" C
                              2.20
                                       0.25
                                               0.900
```

	Б	1.00	0.20	0 100	0.1
COMMERCIAL RESIDENTIAL	D	1.00	0.20	0.100	31
".4 DWELLING/ACRE"	D	0.30	0.20	0.900	91
SUBAREA AVERAGE PERVIO	JS LOSS RA	TE, Fp(INC	H/HR) = 0	.24	
SUBAREA AVERAGE PERVIOU					
SUBAREA AREA(ACRES) =	8.50	SUBAREA	RUNOFF (CF	s) = 35.	59
EFFECTIVE AREA(ACRES) =	= 15.4	0 AREA- <i>I</i>	AVERAGED F	m(INCH/HR)	= 0.09
AREA-AVERAGED Fp(INCH/	4R) = 0.2	3 AREA-AVI	ERAGED Ap	= 0.40	64.26
TOTAL AREA (ACRES) =	15.4	PEAK	FLOW RATE	(CFS) =	04.30
END OF SUBAREA STREET I	TI.OW HYDRAI	III.TCS•			
DEPTH(FEET) = 0.60 HA			H(FEET) =	24.49	
FLOW VELOCITY (FEET/SEC	.) = 5.80	DEPTH*VE	ELOCITY (FT	*FT/SEC.)	= 3.48
LONGEST FLOWPATH FROM 1	NODE 11	0.00 TO NOI	DE 113.	00 = 12	36.00 FEET.

FLOW PROCESS FROM NODE					
		TO NODE		 	
>>>>COMPUTE PIPE-FLOW	TRAVEL TI	ME THRU SUE	BAREA<		
>>>>USING COMPUTER-EST	TIMATED PI	PESIZE (NON	N-PRESSURE	FLOW) <<<<	<
ELEVATION DATA: UPSTREA				M(FEET) =	565.00
FLOW LENGTH (FEET) = '					
DEPTH OF FLOW IN 30.0 PIPE-FLOW VELOCITY (FEET			INCHES		
ESTIMATED PIPE DIAMETER			JUMBER OF	PIPES =	1
PIPE-FLOW(CFS) =			.011221. 01		-
		Tc(MIN.)	= 8.7	5	
PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N	NODE 11	0.00 TO NOI	DE 114.	00 = 19	38.00 FEET.
******	*****		******	*****	*****
	111 00	TO MODE	111 00 -	0 0000	0.1
FLOW PROCESS FROM NODE	114.00	TO NODE	114.00 I	S CODE =	81
>>>>ADDITION OF SUBAR	EA TO MAIN			S CODE =	81
>>>>ADDITION OF SUBARE	EA TO MAIN	LINE PEAK F	FLOW<<<<		
>>>>ADDITION OF SUBARE	EA TO MAIN	LINE PEAK F	FLOW<<<<		
>>>>ADDITION OF SUBARR ===================================	EA TO MAIN: 	LINE PEAK F	FLOW<<<<		81 4-13
>>>>ADDITION OF SUBARE	EA TO MAIN 8.75 FENSITY(IN (AMC III):	LINE PEAK F	FLOW<<<<	 <i>P</i>	 A-13
>>>>ADDITION OF SUBARR	EA TO MAIN 8.75 FENSITY(ING (AMC III): SCS SOIL	LINE PEAK F	FLOW<<<< 		 A-13
>>>>ADDITION OF SUBARR	8.75 FENSITY(ING (AMC III): SCS SOIL GROUP	LINE PEAK H CH/HR) = 4 AREA (ACRES)	FLOW<<<< 	Ap (DECIMAL)	
>>>>ADDITION OF SUBARR	8.75 FENSITY(ING (AMC III): SCS SOIL GROUP	LINE PEAK F	FLOW<<<< 	Ap (DECIMAL)	
>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN' SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL	8.75 FENSITY(ING (AMC III): SCS SOIL GROUP C C	CH/HR) = 4 AREA (ACRES) 1.60 0.20	FDOW<>>> 1.491 Fp (INCH/HR) 0.25 0.25	Ap (DECIMAL) 0.100 0.850	SCS CN 86 86
>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN: SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE"	8.75 FENSITY(ING (AMC III): SCS SOIL GROUP C C C	CH/HR) = 4 AREA (ACRES) 1.60 0.20 1.10	FDOW<>>> 1.491 Fp (INCH/HR) 0.25 0.25 0.25	Ap (DECIMAL) 0.100 0.850 0.900	SCS CN 86 86
>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN' SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU	EA TO MAIN: 8.75 FENSITY(IN(AMC III): SCS SOIL GROUP C C C US LOSS RA'	LINE PEAK F CH/HR) = 4 AREA (ACRES) 1.60 0.20 1.10 TE, Fp(INCH	FLOW<<<< 	Ap (DECIMAL) 0.100 0.850 0.900	SCS CN 86 86
>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN: SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS	8.75 FENSITY(ING (AMC III): SCS SOIL GROUP C C C US LOSS RA' JS AREA FR	LINE PEAK FERMING AREA (ACRES) 1.60 0.20 1.10 TE, FP(INCHACTION, AP	FDOW<>>> 1.491 Fp (INCH/HR) 0.25 0.25 0.25 H/HR) = 0 1.455	Ap (DECIMAL) 0.100 0.850 0.900 .25	SCS CN 86 86 86
>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN: SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ". 4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) =	8.75 FENSITY(ING (AMC III): SCS SOIL GROUP C C C US LOSS RA: JS AREA FR: 2.90	LINE PEAK FEAREA (ACRES) 1.60 0.20 1.10 TE, FP(INCHACTION, APSUBAREA	FLOW<<<<	Ap (DECIMAL) 0.100 0.850 0.900 .25	SCS CN 86 86 86
>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN: SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) =	8.75 FENSITY(ING (AMC III): SCS SOIL GROUP C C C US LOSS RA' US AREA FR. 2.90 = 18.30	LINE PEAK FEARMANN AREA (ACRES) 1.60 0.20 1.10 TE, FP(INCHACTION, AP SUBAREA 0 AREA-AV	FLOW<<<<	Ap (DECIMAL) 0.100 0.850 0.900 .25 S) = 11. (INCH/HR)	SCS CN 86 86 86
>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = * 100 YEAR RAINFALL INTERPRETATION SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/I	EA TO MAIN: 8.75 FENSITY(IN: (AMC III): SCS SOIL GROUP C C US LOSS RA' JS AREA FR 2.90 18.31 HR) = 0.2	LINE PEAK H AREA (ACRES) 1.60 0.20 1.10 TE, FP(INCH ACTION, AP SUBAREA 0 AREA-AV 3 AREA-AV	FLOW<<<<	Ap (DECIMAL) 0.100 0.850 0.900 .25 S) = 11. (INCH/HR) = 0.41	SCS CN 86 86 86
>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = * 100 YEAR RAINFALL INTERPRETATION SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/I TOTAL AREA (ACRES) =	EA TO MAIN: 8.75 FENSITY(IN: (AMC III): SCS SOIL GROUP C C US LOSS RA' JS AREA FR 2.90 18.3 HR) = 0.2. 18.3	LINE PEAK H AREA (ACRES) 1.60 0.20 1.10 TE, FP(INCH ACTION, AP SUBAREA 0 AREA-AV PEAK H	FLOW<<<<	Ap (DECIMAL) 0.100 0.850 0.900 .25 S) = 11. (INCH/HR) = 0.41 CFS) =	SCS CN 86 86 86 86 72.42
>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = * 100 YEAR RAINFALL INTERPRETATION SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/F TOTAL AREA (ACRES) =	EA TO MAIN: 8.75 FENSITY(IN: (AMC III): SCS SOIL GROUP C C US LOSS RA' JS AREA FR. 2.90 18.3 18.3	LINE PEAK H AREA (ACRES) 1.60 0.20 1.10 IE, FP(INCH ACTION, AP SUBAREA 0 AREA-AV PEAK H ***********************************	FLOW<<<<	Ap (DECIMAL) 0.100 0.850 0.900 .25 S) = 11. (INCH/HR) = 0.41 CFS) =	SCS CN 86 86 86 86 72.42
>>>>ADDITION OF SUBARI	EA TO MAIN: 8.75 FENSITY(IN: (AMC III): SCS SOIL GROUP C C C US LOSS RA' JS AREA FR. 2.90 = 18.3: HR) = 0.2. 18.3 ***********************************	LINE PEAK H AREA (ACRES) 1.60 0.20 1.10 TE, FP(INCH ACTION, AP SUBAREA 0 AREA-AV PEAK H ***********************************	FLOW<<<< 1.491 Fp (INCH/HR) 0.25 0.25 1/HR) = 0 = 0.455 RUNOFF (CF VERAGED FM ERAGED AP FLOW RATE (************************************	Ap (DECIMAL) 0.100 0.850 0.900 .25 S) = 11. (INCH/HR) = 0.41 CFS) = ********** S CODE =	SCS CN 86 86 86 86 86 87 86 86
>>>>ADDITION OF SUBARI	EA TO MAIN: 8.75 FENSITY(IN: (AMC III): SCS SOIL GROUP C C C US LOSS RA' JS AREA FR. 2.90 = 18.3 HR) = 0.2 18.3 ************* 114.00	LINE PEAK F AREA (ACRES) 1.60 0.20 1.10 TE, FP(INCHACTION, AP SUBAREA 0 AREA-AVI PEAK F ***********************************	FLOW<<<<	Ap (DECIMAL) 0.100 0.850 0.900 .25 S) = 11. (INCH/HR) = 0.41 CFS) = ********** S CODE =	A-13 SCS CN 86 86 86 86 42 = 0.09 72.42 **********************************
>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN: SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FD (INCH/IT TOTAL AREA (ACRES) = ***********************************	EA TO MAIN: 8.75 FENSITY(IN(AMC III): SCS SOIL GROUP C C US LOSS RA' JS AREA FR. 2.90 = 18.3 HR) = 0.2. 18.3 ***************** 114.00 EA TO MAIN:	LINE PEAK F AREA (ACRES) 1.60 0.20 1.10 TE, FP(INCHACTION, AP SUBAREA 0 AREA-AVI PEAK F ***********************************	FLOW<<<<	Ap (DECIMAL) 0.100 0.850 0.900 .25 S) = 11. (INCH/HR) = 0.41 CFS) = ********** S CODE =	A-13 SCS CN 86 86 86 86 42 = 0.09 72.42 **********************************
>>>>ADDITION OF SUBARI	EA TO MAIN: 8.75 FENSITY(IN(AMC III): SCS SOIL GROUP C C US LOSS RA' JS AREA FR. 2.90 = 18.3 HR) = 0.2. 18.3 ***********************************	LINE PEAK I AREA (ACRES) 1.60 0.20 1.10 TE, Fp(INCHACTION, Ap SUBAREA 0 AREA-AVI PEAK I ***********************************	FLOW<<<< 0.25 0.25 0.25 0.25 0.455 RUNOFF(CF WERAGED FM CRAGED AP FLOW RATE(************************************	Ap (DECIMAL) 0.100 0.850 0.900 .25 S) = 11. (INCH/HR) = 0.41 CFS) = ********** S CODE =	A-13 SCS CN 86 86 86 86 42 = 0.09 72.42 **********************************
>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = * 100 YEAR RAINFALL INTO SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/FI TOTAL AREA (ACRES) = ***********************************	EA TO MAIN: 8.75 FENSITY(IN(AMC III): SCS SOIL GROUP C C US LOSS RA' JS AREA FR. 2.90 = 18.33 HR) = 0.2. 18.3 *********** 114.00 EA TO MAIN: 8.75 FENSITY(ING	LINE PEAK I AREA (ACRES) 1.60 0.20 1.10 TE, Fp(INCHACTION, Ap SUBAREA 0 AREA-AVI PEAK I ***********************************	FLOW<<<<	Ap (DECIMAL) 0.100 0.850 0.900 .25 S) = 11. (INCH/HR) = 0.41 CFS) = ***********************************	A-13 SCS CN 86 86 86 86 42 = 0.09 72.42 **********************************

SUBAREA LOSS RATE DATA(AMC TTT).				A –	14
DEVELOPMENT TYPE/	AMC III).	ADFA	Fn	Δn		
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
DEVELOPMENT TYPE/ LAND USE COMMERCIAL	C	9.00	0.25	0.100	86	
PUBLIC PARK	C	1.90	0.25 0.25	0.850	86	
RESIDENTIAL						
".4 DWELLING/ACRE"	С	2.70	0.25	0.900	86	
COMMERCIAL	D		0.20			
RESIDENTIAL						
".4 DWELLING/ACRE"	D	0.30	0.20	0.900	91	
SUBAREA AVERAGE PERVIOU						
SUBAREA AVERAGE PERVIOU						
SUBAREA AREA(ACRES) =	18.00	SUBARE	A RUNOFF(CF	(S) = 71.	.52	
EFFECTIVE AREA(ACRES) =						
AREA-AVERAGED Fp(INCH/H						
TOTAL AREA (ACRES) =	36.3	PEAK	FLOW RATE (CFS) =	143.94	
*******	*****	******	*****	*****	******	****
FLOW PROCESS FROM NODE	114.00	TO NODE	114.00 I	S CODE =	81	
>>>>ADDITION OF SUBARE	A TO MAINI	LINE PEAK	FLOW<			
						====
MAINLINE Tc(MIN.) =	8.75				7 1	
* 100 YEAR RAINFALL INT	ENSITY(ING	CH/HR) =	4.491		A-1	- D
SUBAREA LOSS RATE DATA(AMC III):					
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap	SCS	
LAND USE COMMERCIAL	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
COMMERCIAL	С	4.50	0.25	0.100	86	
PUBLIC PARK	С	1.20	0.25	0.850	86	
RESIDENTIAL						
".4 DWELLING/ACRE"					86	
SUBAREA AVERAGE PERVIOU	S LOSS RAT	TE, Fp(IN	CH/HR) = 0	.25		
SUBAREA AVERAGE PERVIOU						
SUBAREA AREA(ACRES) =	9.50	SUBARE	A RUNOFF(CF	(S) = 37.	.30	
EFFECTIVE AREA(ACRES) =					= 0.09	
AREA-AVERAGED Fp(INCH/H	R) = 0.24	4 AREA-A	VERAGED Ap	= 0.39		
TOTAL AREA (ACRES) =	45.8	PEAK	FLOW RATE (CFS) =	181.24	

FLOW PROCESS FROM NODE	114.00	TO NODE	114.00 1	S CODE =	81	
>>>> ADDIMION OF CUDARE	7 MO MATNI	TME DEAK	ELOW////			
>>>>ADDITION OF SUBARE						
MAINLINE Tc(MIN.) =						
* 100 YEAR RAINFALL INT		- (מוו/וור	4 401		OA-	3
SUBAREA LOSS RATE DATA(Jn/nk) -	4.491		011	J
		7057	Fp	Λn	SCS	
DEVELOPMENT TIPE/	SCS SOIT	(ACDEC)	rp (INCH/HR)	(DECIMAL)		
	GROOF	(ACKES)	(INCH/HK)	(DECIMAL)	CIN	
NATURAL FAIR COVER "OPEN BRUSH"	С	E 20	0.25	1 000	92	
	C	3.30	0.23	1.000	32	
NATURAL FAIR COVER	~	0 20	0.05	1 000	0.2	
"WOODLAND, GRASS"					92	
SUBAREA AVERAGE PERVIOU				.23		
SUBAREA AVERAGE PERVIOU				C) - 01	20	
SUBAREA AREA (ACRES) =						
EFFECTIVE AREA (ACRES) =					= 0.11	
AREA-AVERAGED Fp(INCH/H					202 62	
TOTAL AREA (ACRES) =	J1.4	PEAK	FLOW KATE(Cr3) =	202.62	
			,			
Date: 08/14/2018					Page 12	

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FLOW PROCESS FROM NODE 114.00 TO NODE 115.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
 ELEVATION DATA: UPSTREAM(FEET) = 565.00 DOWNSTREAM(FEET) = 535.00
 FLOW LENGTH (FEET) = 1017.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 48.0 INCH PIPE IS 34.5 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 20.97
 ESTIMATED PIPE DIAMETER (INCH) = 48.00
                                NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
 PIPE TRAVEL TIME (MIN.) = 0.81 Tc (MIN.) = 9.55
 LONGEST FLOWPATH FROM NODE 110.00 TO NODE 115.00 =
********************
 FLOW PROCESS FROM NODE 115.00 TO NODE 115.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc (MIN.) = 9.55
                                                 A - 16
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.269
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                  SCS
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                         3.40
 COMMERCIAL
                                    0.30
                                            0.100
                    В
                    C 11.00
 COMMERCIAL
                                     0.25
                                            0.100 86
 PUBLIC PARK
                    С
                           1.80
                                     0.25
                                            0.850 86
 RESIDENTIAL
                    C 1.50
                                     0.25
                                            0.900
 ".4 DWELLING/ACRE"
                                                  86
 COMMERCIAL
                      D
                            3.20
                                     0.20
                                            0.100
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.222
 SUBAREA AREA(ACRES) = 20.90
                            SUBAREA RUNOFF (CFS) = 79.26
 EFFECTIVE AREA(ACRES) = 72.30 AREA-AVERAGED Fm(INCH/HR) = 0.10
 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.39
 TOTAL AREA(ACRES) =
                     72.3
                             PEAK FLOW RATE (CFS) =
*********************
 FLOW PROCESS FROM NODE 115.00 TO NODE 108.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 535.00 DOWNSTREAM(FEET) = 480.00
 FLOW LENGTH (FEET) = 1110.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 48.0 INCH PIPE IS 35.4 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 27.30
 ESTIMATED PIPE DIAMETER (INCH) = 48.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
               271.61
 PIPE TRAVEL TIME (MIN.) = 0.68 Tc (MIN.) = 10.23
 LONGEST FLOWPATH FROM NODE 110.00 TO NODE 108.00 = 4065.00 FEET.
*****************
 FLOW PROCESS FROM NODE 108.00 TO NODE 108.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
```

						====
MAINLINE Tc(MIN.) =		a / :	4 105		_	_
* 100 YEAR RAINFALL IN			4.105		Α-	- L
SUBAREA LOSS RATE DATA						
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp	Ap	SCS	
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
COMMERCIAL	В	3.10	0.30 0.30	0.100	76	
PUBLIC PARK	В	1.40	0.30	0.850	76	
RESIDENTIAL						
".4 DWELLING/ACRE" COMMERCIAL	В	1.10	0.30	0.900	76	
COMMERCIAL	C	5.10	0.25	0.100	86	
PUBLIC PARK			0.25			
RESIDENTIAL	Ü	1.30	0.20	0.000	0.0	
".4 DWELLING/ACRE"	C	3 60	0.25	0 900	86	
SUBAREA AVERAGE PERVIC					00	
				• 2 /		
SUBAREA AVERAGE PERVIC				10) [7	0.7	
SUBAREA AREA (ACRES) =	16.20	SUBARE	A RUNOFF (CF	5) = 5/.	.9/	
EFFECTIVE AREA (ACRES)	= 88.5	U AREA-	AVERAGED FM	(INCH/HR)	= 0.10	
AREA-AVERAGED Fp (INCH/TOTAL AREA (ACRES) =	HR) = 0.2	5 AREA-A	veraged Ap	= 0.41		
TOTAL AREA (ACRES) =	88.5	PEAK	FLOW RATE (CFS) =	318.89	
********	******	*****	******	******	******	***
FLOW PROCESS FROM NODE	108.00	TO NODE	108.00 I	S CODE =	81	
>>>>ADDITION OF SUBAR	REA TO MAIN	LINE PEAK	FLOW<			
	=======	=======	========	=======		====
MAINLINE Tc(MIN.) =	10.23				_	_
* 100 YEAR RAINFALL IN	TENSITY (IN	CH/HR) =	4.105		$\Delta = 1$	7
	(2240 ===)					′
DEVELOPMENT TYPE/ LAND USE COMMERCIAL	SCS SOTT.	AREA	Fn	Δn	SCS	
IAND HEF	CBUILD	(ACRES)	(TNCH/HD)	(DECIMAL)	CN	
COMMEDITATION OF THE PROPERTY	GKOOL	(ACKES)	(110011/110)	(DECIMAL)	O1	
COMMERCIAL	D -	2.70	0.20	0.100	91	
	D	0.10	0.20	0.850	91	
RESIDENTIAL						
".4 DWELLING/ACRE"					91	
SUBAREA AVERAGE PERVIC	US LOSS RA	TE, Fp(IN	CH/HR) = 0	.20		
SUBAREA AVERAGE PERVIO	US AREA FR	ACTION, A	p = 0.244			
SUBAREA AREA(ACRES) =	3.30	SUBARE	A RUNOFF(CF	(S) = 12.	.05	
EFFECTIVE AREA(ACRES)	= 91.8	O AREA-	AVERAGED Fm	(INCH/HR)	= 0.10	
AREA-AVERAGED Fp(INCH/					**-*	
TOTAL AREA (ACRES) =	01 8	DEVR	FIOW DATE	CFS) =	330 93	
IOIAL AREA (ACRES) =	91.0	FEAN	. FLOW RAIL(CF3) -	330.93	
******				ale ale ale ale ale ale ale ale ale	le ale ale ale ale ale ale ale ale	ala ala ala al
						* * * *
FLOW PROCESS FROM NODE	108.00	TO NODE	108.00 I	S CODE =	1	
>>>>DESIGNATE INDEPEN	IDENT STREA	M FOR CON	FLUENCE<	<		
>>>>AND COMPUTE VARIO	US CONFLUE	NCED STRE	AM VALUES<<	<<<		
						====
TOTAL NUMBER OF STREAM	1S = 2					
CONFLUENCE VALUES USEI		ENDENT ST	REAM 2 ARE			
TIME OF CONCENTRATION				•		
RAINFALL INTENSITY (INC						
AREA-AVERAGED Fm (INCH/						
AREA-AVERAGED Fp(INCH/		5				
AREA-AVERAGED Ap = 0.	40					
EFFECTIVE STREAM AREA	ACRES) =	91.80				
TOTAL STREAM AREA (ACRE						
PEAK FLOW RATE (CFS) AT			30.93			
		9				

File name: PA3A00HC.RES

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```
** CONFLUENCE DATA **
               Tc Intensity Fp(Fm) Ap Ae HEADWATER
  STREAM
         0
  NUMBER
          (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
   1
         356.16 16.89 3.080 0.25(0.05) 0.22 130.8 100.00
         330.93 10.23 4.105 0.25(0.10) 0.40
                                           91.8 110.00
    2
 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
         619.77 10.23 4.105 0.25(0.08) 0.32 171.0 110.00
         602.43 16.89 3.080 0.25(0.07) 0.29 222.6
                                                   100.00
 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE (CFS) = 619.77 Tc (MIN.) = 10.23
 EFFECTIVE AREA(ACRES) = 171.04 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.32
 TOTAL AREA(ACRES) = 222.6
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 108.00 = 5471.00 FEET.
*****************
 FLOW PROCESS FROM NODE 108.00 TO NODE 128.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 480.00 DOWNSTREAM(FEET) = 473.00
 FLOW LENGTH (FEET) = 900.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 90.0 INCH PIPE IS 71.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 16.56
 ESTIMATED PIPE DIAMETER (INCH) = 90.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 619.77
 PIPE TRAVEL TIME (MIN.) = 0.91 Tc (MIN.) = 11.14
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 128.00 = 6371.00 FEET.
********************
 FLOW PROCESS FROM NODE 128.00 TO NODE 128.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
_____
 MAINLINE Tc(MIN.) = 11.14
                                                 A - 19
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.910
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                  Fρ
                                          Αp
                                                  SCS
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
    LAND USE
                         1.10
                                            0.100
 COMMERCIAL
                    В
                                  0.30
                                                   76
                     С
                            3.60
 COMMERCIAL
                                     0.25
                                            0.100
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.100
 SUBAREA AREA(ACRES) = 4.70 SUBAREA RUNOFF(CFS) = 16.43
 EFFECTIVE AREA(ACRES) = 175.74 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.31
 TOTAL AREA(ACRES) = 227.3
                             PEAK FLOW RATE(CFS) =
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
```

```
*******************
 FLOW PROCESS FROM NODE 128.00 TO NODE 128.00 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.) = 11.14
 RAINFALL INTENSITY (INCH/HR) = 3.91
 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp (INCH/HR) = 0.25
 AREA-AVERAGED Ap = 0.31
 EFFECTIVE STREAM AREA(ACRES) = 175.74
 TOTAL STREAM AREA(ACRES) = 227.30
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 619.77
*******************
 FLOW PROCESS FROM NODE 120.00 TO NODE 121.00 IS CODE = 21
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
INITIAL SUBAREA FLOW-LENGTH (FEET) = 329.00
 ELEVATION DATA: UPSTREAM(FEET) = 640.00 DOWNSTREAM(FEET) = 634.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 6.880
                                              A - 2.0
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 5.153
 SUBAREA TC AND LOSS RATE DATA(AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                        αA
                                              SCS Tc
                 GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
    LAND USE
 COMMERCIAL
                  С
                         0.50 0.25
                                        0.100
                                               86 6.88
 PUBLIC PARK
                    С
                          0.20
                                  0.25
                                         0.850
                                               86 10.93
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" C 2.70
                                  0.25
                                        0.200
                                               86 7.33
 RESIDENTIAL
                   C 1.40
 ".4 DWELLING/ACRE"
                                  0.25
                                        0.900
                                               86 11.02
 PUBLIC PARK
                    D 0.10
                                  0.20
                                        0.850
                                               91 10.93
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" D 1.30
                                  0.20
                                        0.200
                                               91 7.33
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.381
 SUBAREA RUNOFF (CFS) = 28.24
 TOTAL AREA (ACRES) = 6.20 PEAK FLOW RATE (CFS) =
******************
 FLOW PROCESS FROM NODE 121.00 TO NODE 121.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc(MIN.) = 6.88
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 5.153
 SUBAREA LOSS RATE DATA(AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp
                                       Aр
   LAND USE
                 GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 RESIDENTIAL
 ".4 DWELLING/ACRE" D 0.20 0.20 0.900
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
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SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.900
 SUBAREA AREA(ACRES) = 0.20
                            SUBAREA RUNOFF (CFS) = 0.90
 EFFECTIVE AREA(ACRES) = 6.40 AREA-AVERAGED Fm(INCH/HR) = 0.10
 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.40
 TOTAL AREA (ACRES) =
                    6.4
                             PEAK FLOW RATE(CFS) =
******************
 FLOW PROCESS FROM NODE 121.00 TO NODE 122.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 634.00 DOWNSTREAM(FEET) = 626.00
 FLOW LENGTH (FEET) = 425.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 24.0 INCH PIPE IS 19.4 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 10.69
 ESTIMATED PIPE DIAMETER (INCH) = 24.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
                29.13
 PIPE TRAVEL TIME (MIN.) = 0.66 Tc (MIN.) = 7.54
 LONGEST FLOWPATH FROM NODE 120.00 TO NODE 122.00 =
                                                754.00 FEET.
*******************
 FLOW PROCESS FROM NODE 122.00 TO NODE 122.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc(MIN.) = 7.54
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.889
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                 Fp
                                            αA
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" C 5.40
                                    0.25
                                           0.200
                                                 86
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                    C 2.40
                                    0.25
                                           0.900 86
 COMMERCIAL
                             0.70
                                    0.25
                                           0.100
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                    D 0.60
                                    0.20
                                           0.900
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.423
 SUBAREA AREA(ACRES) = 9.10
                            SUBAREA RUNOFF (CFS) = 39.20
 EFFECTIVE AREA(ACRES) = 15.50 AREA-AVERAGED Fm(INCH/HR) = 0.10
 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.41
 TOTAL AREA (ACRES) = 15.5
                             PEAK FLOW RATE(CFS) =
******************
 FLOW PROCESS FROM NODE 122.00 TO NODE 123.00 IS CODE = 31
-----
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 626.00 DOWNSTREAM(FEET) = 606.00
 FLOW LENGTH (FEET) = 1030.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 33.0 INCH PIPE IS 25.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 13.40
 ESTIMATED PIPE DIAMETER (INCH) = 33.00
                               NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 66.81
 PIPE TRAVEL TIME (MIN.) = 1.28 Tc (MIN.) = 8.82
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```

FLOW PROCESS FROM NODE						
>>>>ADDITION OF SUBARE				=======		
MAINLINE Tc (MIN.) =	8.82				7	0.0
* 100 YEAR RAINFALL INT			4.468		A-	'
SUBAREA LOSS RATE DATA	(AMC III);	7057	En	7.00	000	
DEVELOPMENT TIPE/	202 2011	AREA (ACDEC)	rp	AP	SCS	
DEVELOPMENT TYPE/ LAND USE APARTMENTS COMMERCIAL	CROOP	(ACRES) 7 60	(INCH/HK) 0 25	(DECIMAL)	86	
COMMERCIAL.	C	1 40	0.25	0.200	86	
RESTDENTITAL.						
"11+ DWELLINGS/ACRE"	С	2.30	0.25	0.200	86	
RESTDENTIAL.						
".4 DWELLING/ACRE"	С	6.50	0.25	0.900	86	
RESIDENTIAL.						
"3-4 DWELLINGS/ACRE"	С	8.40	0.25	0.600	86	
APARTMENTS	D	0.50	0.20	0.200	91	
SUBAREA AVERAGE PERVIOU	JS LOSS RA	ATE, Fp(IN	CH/HR) = 0	.25		
SUBAREA AVERAGE PERVIOU	JS AREA FF	RACTION, A	p = 0.491			
SUBAREA AREA(ACRES) =	26.70	SUBARE	A RUNOFF (CF	(s) = 104.	.43	
EFFECTIVE AREA (ACRES) =	= 42.2	O AREA-	AVERAGED Fm	(INCH/HR)	= 0.	11
AREA-AVERAGED Fp(INCH/F	4R) = 0.2	25 AREA-A	VERAGED Ap	= 0.46		
momar appa (appea)				0.10		
**************************************	123.00 EA TO MAIN	*********) TO NODE 	********* 123.00 I 	********* S CODE =	***** 81 	****
**************************************	123.00 EA TO MAIN 8.82	*********) TO NODE 	********* 123.00 I 	*********** S CODE =	***** 81 	****
**************************************	123.00 EA TO MAIN ========= 8.82 FENSITY(IN	**********) TO NODE	********* 123.00 I 	*********** S CODE =	***** 81 	****
**************************************	123.00 	*********) TO NODE	********** 123.00 I FLOW<<<<	********** S CODE =	***** 81 A-	****
**************************************	123.00 	*********) TO NODE	********** 123.00 I FLOW<<<<	********** S CODE =	***** 81 A-	****
******************* FLOW PROCESS FROM NODE	123.00 EA TO MAIN EEE S 88 82 PENSITY(IN (AMC III): SCS SOII GROUP	TO NODE LINE PEAK CH/HR) = AREA (ACRES)	********** 123.00 I FLOW<<<< =================================	********* S CODE =	****** 81 ——————————————————————————————	****
******************* FLOW PROCESS FROM NODE	123.00 EA TO MAIN EEE S 88 82 PENSITY(IN (AMC III): SCS SOII GROUP	TO NODE LINE PEAK CH/HR) = AREA (ACRES)	********** 123.00 I FLOW<<<< =================================	********* S CODE =	****** 81 ——————————————————————————————	****
****************** FLOW PROCESS FROM NODE	123.00 EA TO MAIN EEE S 88 82 PENSITY(IN (AMC III): SCS SOII GROUP	TO NODE LINE PEAK CH/HR) = AREA (ACRES)	********** 123.00 I FLOW<<<<	********* S CODE =	****** 81 ——————————————————————————————	****
******************* FLOW PROCESS FROM NODE	123.00	TO NODE LINE PEAK CH/HR) = CAREA (ACRES) 0.30 1.10	********** 123.00 I FLOW<<<< 4.468 Fp (INCH/HR) 0.20 0.20	********* S CODE =	****** 81 A - scs CN 91 91	****
******************* FLOW PROCESS FROM NODE	123.00	TO NODE LINE PEAK CH/HR) = CAREA (ACRES) 0.30 1.10	********** 123.00 I FLOW<<<< 4.468 Fp (INCH/HR) 0.20 0.20	********* S CODE =	****** 81 A - scs CN 91 91	****
****************** FLOW PROCESS FROM NODE	123.00	NLINE PEAK	********** 123.00 I FLOW<>>> 4.468 Fp (INCH/HR) 0.20 0.20 0.20	********* S CODE =	****** 81 ————— SCS O CN 91 91	****
******************* FLOW PROCESS FROM NODE	123.00	NLINE PEAK	********** 123.00 I FLOW<>>> 4.468 Fp (INCH/HR) 0.20 0.20 0.20	********* S CODE =	****** 81 ————— SCS O CN 91 91	****
****************** FLOW PROCESS FROM NODE	123.00 EA TO MAIN EN T	********** O TO NODE NLINE PEAK NCH/HR) = AREA (ACRES) 0.30 1.10 2.00 3.80	********** 123.00 I FLOW<<<<< 4.468 Fp (INCH/HR) 0.20 0.20 0.20 0.20	********* S CODE =	****** 81 A- SCS CN 91 91 91	****
******************* FLOW PROCESS FROM NODE	123.00 TA TO MAIN 8.82 PENSITY (IN (AMC III): SCS SOII GROUP D D D	TO NODE LINE PEAK CAREA (ACRES) 0.30 1.10 2.00 3.80	********** 123.00 I FLOW<><<< 4.468 Fp (INCH/HR) 0.20 0.20 0.20 0.20 0.20 0.20	********* S CODE =	****** 81 A- SCS CN 91 91 91	****
******************* FLOW PROCESS FROM NODE	123.00 EA TO MAIN ENSITY (IN (AMC III): SCS SOII GROUP D D D D D JS LOSS RA	********** O TO NODE NLINE PEAK NCH/HR) = AREA (ACRES) 0.30 1.10 2.00 3.80 3.80 ATE, Fp(IN	********** 123.00 I FLOW<<<<<	********* S CODE = Ap (DECIMAL) 0.100 0.850 0.200 0.900 0.600	****** 81 A- SCS CN 91 91 91	****
******************* FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE ===================================	123.00	********** O TO NODE NLINE PEAK NCH/HR) = NCH/H	********** 123.00 I	Ap (DECIMAL) 0.100 0.850 0.200 0.600 .20	****** 81 A- scs CN 91 91 91 91	****
******************** FLOW PROCESS FROM NODE	123.00 EA TO MAIN ENERGY (IN (AMC III): SCS SOII GROUP D D D D JS LOSS RA JS AREA FF 11.00	********* O TO NODE NLINE PEAK NCH/HR) = NCH/HR	********* 123.00 I FLOW<<<<< ========== 4.468 Fp (INCH/HR) 0.20 0.20 0.20 0.20 0.20 CH/HR) = 0 p = 0.642 A RUNOFF (CF	Ap (DECIMAL) 0.100 0.850 0.200 0.600 .20	****** 81 A - SCS CN 91 91 91 91	- 2 <i>i</i>
******************** FLOW PROCESS FROM NODE	123.00 EA TO MAIN ENERGY (IN (AMC III): SCS SOII GROUP D D D D JS LOSS RA JS AREA FF 11.00	********* O TO NODE NLINE PEAK NCH/HR) = NCH/HR	********* 123.00 I FLOW<<<<< ========== 4.468 Fp (INCH/HR) 0.20 0.20 0.20 0.20 0.20 CH/HR) = 0 p = 0.642 A RUNOFF (CF	Ap (DECIMAL) 0.100 0.850 0.200 0.600 .20	****** 81 A - SCS CN 91 91 91 91	- 2 <i>i</i>
*************************** FLOW PROCESS FROM NODE	123.00	********* O TO NODE NLINE PEAK NCH/HR) = AREA (ACRES) 0.30 1.10 2.00 3.80 ATE, Fp(IN RACTION, A SUBARE 20 AREA-A	********* 123.00 I	Ap (DECIMAL) 0.100 0.850 0.200 0.600 .20 (S) = 42.1(INCH/HR) = 0.50	******* 81 A - SCS CN 91 91 91 91 91 91	****** - 2 :
*************************** FLOW PROCESS FROM NODE	123.00	********* O TO NODE NLINE PEAK NCH/HR) = AREA (ACRES) 0.30 1.10 2.00 3.80 ATE, Fp(IN RACTION, A SUBARE 20 AREA-A	********* 123.00 I	Ap (DECIMAL) 0.100 0.850 0.200 0.600 .20 (S) = 42.1(INCH/HR) = 0.50	******* 81 A - SCS CN 91 91 91 91 91 91	****** - 2 :
**************************************	123.00	********** O TO NODE NLINE PEAK NCH/HR) = AREA (ACRES) 0.30 1.10 2.00 3.80 ATE, Fp(IN RACTION, A SUBARE 20 AREA-A PEAK	********* 123.00 I FLOW<<<<< ================================	Ap (DECIMAL) 0.100 0.850 0.200 0.600 .20 (INCH/HR) = 0.50 CFS) =	******* 81 A - SCS CN 91 91 91 91 91 208.	****** - 2 :
******************* FLOW PROCESS FROM NODE	123.00	********** TO NODE NLINE PEAK NCH/HR) = AREA (ACRES) 0.30 1.10 2.00 3.80 ATE, Fp(IN ACTION, A SUBARE CO AREA- PEAK *********	********* 123.00 I FLOW<<<<< ================================	Ap (DECIMAL) 0.100 0.850 0.200 0.600 .20 (S) = 42.1 (INCH/HR) = 0.50 CFS) =	****** 81 A - SCS CN 91 91 91 91 208.	****** - 2 :

122 00 - 1704 00 हहाहण

LONGECE ELONDARII EDOM NODE 120 00 TO NODE

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______
 ELEVATION DATA: UPSTREAM(FEET) = 606.00 DOWNSTREAM(FEET) = 604.00
 FLOW LENGTH (FEET) = 222.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 60.0 INCH PIPE IS 44.0 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 13.49
 ESTIMATED PIPE DIAMETER (INCH) = 60.00
                               NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 208.34
 PIPE TRAVEL TIME (MIN.) = 0.27 Tc (MIN.) = 9.10
 LONGEST FLOWPATH FROM NODE 120.00 TO NODE 124.00 = 2006.00 FEET.
*****************
 FLOW PROCESS FROM NODE 124.00 TO NODE 124.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc(MIN.) = 9.10
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.391
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 APARTMENTS
                    C
                            0.10
                                    0.25
                                           0.200
 COMMERCIAL
                    C
                            1.60
                                    0.25
                                           0.100
                                                 86
                            0.20
                                    0.25
                                           0.850
                                                86
 PUBLIC PARK
                    С
                     D
                            0.30
                                    0.20
                                           0.200
 APARTMENTS
 COMMERCIAL
                            2.10
                                    0.20
                                           0.100
                                           0.850 91
 PUBLIC PARK
                    D
                          0.60
                                    0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.231
 SUBAREA AREA(ACRES) = 4.90 SUBAREA RUNOFF(CFS) = 19.14
 EFFECTIVE AREA(ACRES) = 58.10 AREA-AVERAGED Fm(INCH/HR) = 0.11
 AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.48
 TOTAL AREA (ACRES) =
                 58.1
                           PEAK FLOW RATE(CFS) =
******************
 FLOW PROCESS FROM NODE 124.00 TO NODE 124.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
_____
 MAINLINE Tc (MIN.) = 9.10
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.391
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                 Fρ
                                          Αp
                                                 SCS
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" D 0.20
                                          0.200 91
                                  0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.200
 SUBAREA AREA(ACRES) = 0.20 SUBAREA RUNOFF(CFS) = 0.78
 EFFECTIVE AREA(ACRES) = 58.30 AREA-AVERAGED Fm(INCH/HR) = 0.11
 AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.48
 TOTAL AREA (ACRES) = 58.3 PEAK FLOW RATE (CFS) = 224.55
*****************
 FLOW PROCESS FROM NODE 124.00 TO NODE 125.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <>>>
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ELEVATION DATA: UPSTREAM(FEET) = 604.00 DOWNSTREAM(FEET) = 546.00
 FLOW LENGTH (FEET) = 1271.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 45.0 INCH PIPE IS 33.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 25.16
 ESTIMATED PIPE DIAMETER (INCH) = 45.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 224.55
 PIPE TRAVEL TIME (MIN.) = 0.84 Tc (MIN.) = 9.94
 LONGEST FLOWPATH FROM NODE 120.00 TO NODE 125.00 = 3277.00 FEET.
*******************
 FLOW PROCESS FROM NODE 125.00 TO NODE 125.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE TC (MIN.) = 9.94
                                                 A - 25
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.174
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                           αA
    LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                             0.50
                                     0.25
 APARTMENTS
                    С
                                            0.200
 COMMERCIAL
                     C
                             1.20
                                     0.25
                                            0.100
                                                   86
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                    C 1.20
                                     0.25
                                            0.900
                                                   86
 APARTMENTS
                      D
                             0.10
                                     0.20
                                            0.200
                                                   91
                             1.60
 COMMERCIAL
                                     0.20
                                            0.100
                                                   91
 RESIDENTIAL
 ".4 DWELLING/ACRE" D 3.00
                                     0.20
                                            0.900
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.550
                            SUBAREA RUNOFF (CFS) = 27.74
 SUBAREA AREA(ACRES) = 7.60
 EFFECTIVE AREA(ACRES) = 65.90 AREA-AVERAGED Fm(INCH/HR) = 0.11
 AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.48
 TOTAL AREA (ACRES) =
                  65.9
                              PEAK FLOW RATE(CFS) =
                                                  240.90
*****************
 FLOW PROCESS FROM NODE 125.00 TO NODE 125.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc (MIN.) = 9.94
                                             A - 25.1
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.174
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                  Fp
                                                   SCS
                                             Aρ
   LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL)
                           1.90
                                     0.25
                                            0.200
                                                   86
 APARTMENTS
                     С
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                    C 0.60
                                     0.25
                                            0.900
                                                   86
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"
                   C
                             0.30
                                     0.25
                                            0.600
                                                   86
                             5.00
                                     0.20
                                            0.200
                                                   91
 APARTMENTS
                      D
 PUBLIC PARK
                             2.30
                                     0.20
                                            0.850
                                                   91
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                    D
                             3.50
                                     0.20
                                            0.900
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.530
 SUBAREA AREA(ACRES) = 13.60
                            SUBAREA RUNOFF (CFS) = 49.74
 EFFECTIVE AREA(ACRES) = 79.50 AREA-AVERAGED Fm(INCH/HR) = 0.11
 AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.49
```

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TOTAL AREA (ACRES) =
                   79.5
                          PEAK FLOW RATE(CFS) =
                                               290.63
*******************
 FLOW PROCESS FROM NODE 125.00 TO NODE 125.00 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc(MIN.) = 9.94
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.174
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                Fp
                                         Aр
                                               SCS
                 GROUP (ACRES) (INCH/HR) (DECIMAL) CN
    LAND USE
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE" D 10.20
                                0.20
                                         0.600 91
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.600
 SUBAREA AREA(ACRES) = 10.20
                           SUBAREA RUNOFF (CFS) = 37.21
 EFFECTIVE AREA(ACRES) = 89.70 AREA-AVERAGED Fm(INCH/HR) = 0.11
 AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.50
 TOTAL AREA (ACRES) =
                 89.7
                            PEAK FLOW RATE(CFS) =
                                               327.85
*******************
 FLOW PROCESS FROM NODE 125.00 TO NODE 126.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 546.00 DOWNSTREAM(FEET) = 525.00
 FLOW LENGTH (FEET) = 562.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 54.0 INCH PIPE IS 40.4 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 25.69
 ESTIMATED PIPE DIAMETER (INCH) = 54.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 327.85
 PIPE TRAVEL TIME (MIN.) = 0.36 Tc (MIN.) = 10.30
 LONGEST FLOWPATH FROM NODE 120.00 TO NODE 126.00 = 3839.00 FEET.
******************
 FLOW PROCESS FROM NODE 126.00 TO NODE 126.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
_____
 MAINLINE Tc(MIN.) = 10.30
                                              A-26
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.088
 SUBAREA LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                Fр
                                          Ар
    LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                   C 5.90 0.25
                                         0.200 86
 APARTMENTS
 COMMERCIAL
                   C
                                         0.100 86
                         0.10
                                  0.25
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                   C 0.60
                                  0.25
                                         0.900
                                              86
                    D
 APARTMENTS
                         6.00
                                   0.20
                                         0.200 91
                    D
                           1.10
 COMMERCIAL
                                   0.20
                                         0.100 91
 RESIDENTIAL
                    D 4.70
 ".4 DWELLING/ACRE"
                                  0.20
                                         0.900 91
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.395
 SUBAREA AREA(ACRES) = 18.40
                        SUBAREA RUNOFF (CFS) = 66.32
 EFFECTIVE AREA(ACRES) = 108.10 AREA-AVERAGED Fm(INCH/HR) = 0.11
```

AREA-AVERAGED Fp(INCH TOTAL AREA(ACRES) =	/HR) = 0.2 108.1	2 AREA-AV PEAK	VERAGED Ap FLOW RATE(= 0.49 CFS) =	387.28	
******	******	*****	******	******	*****	**:
FLOW PROCESS FROM NOD						
>>>>COMPUTE PIPE-FLO	W TRAVEL TI STIMATED PI	ME THRU SU PESIZE (NO	UBAREA<<<< ON-PRESSURE	FLOW) <<<<	<	
ELEVATION DATA: UPSTR FLOW LENGTH(FEET) =	EAM(FEET) = 607.00 M	525.00 ANNING'S	DOWNSTREAN = 0.013			
DEPTH OF FLOW IN 66.			INCHES			
PIPE-FLOW VELOCITY (FE ESTIMATED PIPE DIAMET PIPE-FLOW (CFS) =	ER(INCH) =		NUMBER OF	PIPES =	1	
PIPE TRAVEL TIME (MIN. LONGEST FLOWPATH FROM) = 0.50				46.00 FEE	ET
*******	******	*****	*****	******	*****	**:
FLOW PROCESS FROM NOD						
>>>>ADDITION OF SUBA	REA TO MAIN	LINE PEAK	FLOW<			
MAINLINE Tc(MIN.) = * 100 YEAR RAINFALL I					A-2	, -
* 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT			3.980		A 2	1 /
DEVELOPMENT TYPE/	A (AMC III): SCS SOTI	AREA	Fn	An	SCS	
DEVELOPMENT TYPE/ LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
COMMERCIAL	B	1.50	0.30 0.30 0.25 0.25 0.25	0.100	76	
PUBLIC PARK	B	0.20	0.30	0.100	76	
APARTMENTS	C	1 10	0.30	0.000	86	
COMMERCIAL	C	12 70	0.25	0.200	86	
PUBLIC PARK	C	0.80	0.25	0.200	86	
RESIDENTIAL	Č	0.00	0.23	0.050	00	
".4 DWELLING/ACRE"	C	4.10	0.25	0.900	86	
SUBAREA AVERAGE PERVI						
SUBAREA AVERAGE PERVI				•==		
SUBAREA AREA (ACRES) =				s) = 71.	67	
EFFECTIVE AREA(ACRES)						
AREA-AVERAGED Fp (INCH						
TOTAL AREA(ACRES) =	128.5	PEAK	FLOW RATE (CFS) =		
**************************************	E 127.00	TO NODE	127.00 I			**
>>>>ADDITION OF SUBA						
======================================		=	=== ==			=
* 100 YEAR RAINFALL I		ICH/HR) =	3.980		A-2	7
SUBAREA LOSS RATE DAT					A-Z	1
DEVELOPMENT TYPE/		AREA	Fp	Ар	SCS	
LAND USE			(INCH/HR)	-		
COMMERCIAL	D	1.20		0.100	91	
PUBLIC PARK	D	1.50		0.850	91	
RESIDENTIAL			· ·		-	
	-	0 10	0.20	0.900	91	
".4 DWELLING/ACRE"	D	0.10	0.20	0.900	J 1	
".4 DWELLING/ACRE" SUBAREA AVERAGE PERVI) I	

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TOTAL AREA(ACRES) =	= 131.30 (HR) = 0.22 131.3	AREA-A	VERAGED Fm	S) = 9.76 (INCH/HR) = 0.10 = 0.46 CFS) = 458.16

>>>>ADDITION OF SUBAR	EA TO MAINI	LINE PEAK	FLOW<	
				=======================================
MAINLINE Tc(MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA	TENSITY (INC			
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL) CN
COMMERCIAL	В	1.00	0.30	0.100 76
COMMERCIAL	С	1.30	0.25	0.100 86
COMMERCIAL	D	12.60	0.20	0.100 91
DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL COMMERCIAL PUBLIC PARK	D	1.10	0.20	0.850 91
RESIDENTIAL				
"11+ DWELLINGS/ACRE" RESIDENTIAL				
".4 DWELLING/ACRE"	D	2.10	0.20	0.900 91
SUBAREA AVERAGE PERVIC				.20
SUBAREA AVERAGE PERVIC				
SUBAREA AREA(ACRES) =	18.20	SUBAREA	RUNOFF(CF	S) = 64.40
EFFECTIVE AREA(ACRES)	= 149.50	AREA-A	VERAGED Fm	(INCH/HR) = 0.10
AREA-AVERAGED Fp (INCH/	'HR) = 0.22	2 AREA-AV	ERAGED Ap	= 0.43
TOTAL AREA (ACRES) =	149.5	PEAK	FLOW RATE (CFS) = 522.55
FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-ES	TRAVEL TIM	ME THRU SU	JBAREA<	
ELEVATION DATA: UPSTRE FLOW LENGTH (FEET) = DEPTH OF FLOW IN 60.0 PIPE-FLOW VELOCITY (FEE ESTIMATED PIPE DIAMETE PIPE-FLOW (CFS) = 5 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM	AM(FEET) = 741.00 MM INCH PIPE T/SEC.) = R(INCH) = 122.55 = 0.37	514.00 ANNING'S N IS 44.5 33.49 60.00 Tc(MIN.	DOWNSTREA I = 0.013 INCHES NUMBER OF) = 11.1	M(FEET) = 473.00 PIPES = 1
FLOW LENGTH (FEET) = DEPTH OF FLOW IN 60.0 PIPE-FLOW VELOCITY (FEE ESTIMATED PIPE DIAMETE PIPE-FLOW (CFS) = 5 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM	AM(FEET) = 741.00 MM INCH PIPE ST/SEC.) = 322.55 = 0.37 NODE 120	514.00 ANNING'S N IS 44.5 33.49 60.00 Tc(MIN.	DOWNSTREA I = 0.013 INCHES NUMBER OF) = 11.1 DDE 128.	M(FEET) = 473.00 PIPES = 1 7 00 = 5187.00 FEET.
FLOW LENGTH (FEET) = DEPTH OF FLOW IN 60.0 PIPE-FLOW VELOCITY (FEE ESTIMATED PIPE DIAMETE PIPE-FLOW (CFS) = 5 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM	AM(FEET) = 741.00 MM INCH PIPE ST/SEC.) = 322.55 = 0.37 NODE 120	514.00 ANNING'S N IS 44.5 33.49 60.00 Tc (MIN.	DOWNSTREA I = 0.013 INCHES NUMBER OF) = 11.1 DDE 128.	M(FEET) = 473.00 PIPES = 1 7 00 = 5187.00 FEET.
FLOW LENGTH (FEET) = DEPTH OF FLOW IN 60.0 PIPE-FLOW VELOCITY (FEE ESTIMATED PIPE DIAMETE PIPE-FLOW (CFS) = 5 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM ************************************	AM(FEET) = 741.00 MM INCH PIPE ST/SEC.) = 322.55 = 0.37 NODE 120 ***********************************	514.00 ANNING'S N IS 44.5 33.49 60.00 Tc (MIN. 0.00 TO NC ********* TO NODE	DOWNSTREA I = 0.013 INCHES NUMBER OF) = 11.1 DDE 128. ********* 128.00 I FLOW<<<<<	M(FEET) = 473.00 PIPES = 1 7 00 = 5187.00 FEET. **********************************
FLOW LENGTH (FEET) = DEPTH OF FLOW IN 60.0 PIPE-FLOW VELOCITY (FEE ESTIMATED PIPE DIAMETE PIPE-FLOW (CFS) = 5 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM	AM(FEET) = 741.00 MM INCH PIPE ST/SEC.) = 3R(INCH) = 122.55 = 0.37 NODE 120 ************** 128.00 AEA TO MAINI HELLOW TO MAINI	514.00 ANNING'S N IS 44.5 33.49 60.00 Tc (MIN. 0.00 TO NO ********** TO NODE	DOWNSTREA I = 0.013 INCHES NUMBER OF) = 11.1 DDE 128. ********** 128.00 I FLOW<<<<	M(FEET) = 473.00 PIPES = 1 7 00 = 5187.00 FEET. **********************************
FLOW LENGTH (FEET) = DEPTH OF FLOW IN 60.0 PIPE-FLOW VELOCITY (FEE ESTIMATED PIPE DIAMETE PIPE-FLOW (CFS) = 5 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM ******************************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA	AM(FEET) = 741.00 MY INCH PIPE ST/SEC.) = 8R(INCH) = 122.55 = 0.37 NODE 126 ST/SEC. 128.00 ST/SEC. 128.00 MY INCH PIPE ST/SEC. 128.00 MY INCH	514.00 ANNING'S N IS 44.5 33.49 60.00 TC (MIN. 0.00 TO NO ********** TO NODE LINE PEAK	DOWNSTREA I = 0.013 INCHES NUMBER OF) = 11.1 DDE 128. ********** 128.00 I FLOW<<<<	M(FEET) = 473.00 PIPES = 1 7 00 = 5187.00 FEET. *********************** S CODE = 81 A-29
FLOW LENGTH (FEET) = DEPTH OF FLOW IN 60.0 PIPE-FLOW VELOCITY (FEE ESTIMATED PIPE DIAMETE PIPE-FLOW (CFS) = 5 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM ************************ FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/	AM(FEET) = 741.00 M7 INCH PIPE ST/SEC.) = 8R(INCH) = 122.55 = 0.37 NODE 120 SEA TO MAINI SEA TO	514.00 ANNING'S N IS 44.5 33.49 60.00 Tc (MIN. 0.00 TO NO ********** TO NODE	DOWNSTREA I = 0.013 INCHES NUMBER OF) = 11.1 DDE 128. ********* 128.00 I	M(FEET) = 473.00 PIPES = 1 7 00 = 5187.00 FEET. *********************** **CODE = 81 A-29 Ap SCS
FLOW LENGTH (FEET) = DEPTH OF FLOW IN 60.0 PIPE-FLOW VELOCITY (FEE ESTIMATED PIPE DIAMETE PIPE-FLOW (CFS) = 5 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM ******************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE	AM(FEET) = 741.00 M7 INCH PIPE ST/SEC.) = 8R(INCH) = 122.55 = 0.37 NODE 120 SEA TO MAINI SEA TO	514.00 ANNING'S N IS 44.5 33.49 60.00 TC (MIN. 0.00 TO NO ************ TO NODE LINE PEAK	DOWNSTREA I = 0.013 INCHES NUMBER OF) = 11.1 DDE 128. ********** 128.00 I FLOW<<<<	M(FEET) = 473.00 PIPES = 1 7 00 = 5187.00 FEET. **************** **CODE = 81 A-29 Ap SCS (DECIMAL) CN
FLOW LENGTH (FEET) = DEPTH OF FLOW IN 60.0 PIPE-FLOW VELOCITY (FEE ESTIMATED PIPE DIAMETE PIPE-FLOW (CFS) = 5 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM ************************ FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/	AM(FEET) = 741.00 MY INCH PIPE ST/SEC.) = 8R(INCH) = 122.55 = 0.37 NODE 126 ST/SEC. 128.00 ST/SE	514.00 ANNING'S N IS 44.5 33.49 60.00 TC (MIN. 0.00 TO NO ************ TO NODE LINE PEAK	DOWNSTREA I = 0.013 INCHES NUMBER OF) = 11.1 DDE 128. ********** 128.00 I FLOW<<<<	M(FEET) = 473.00 PIPES = 1 7 00 = 5187.00 FEET. *********************** **CODE = 81 A-29 Ap SCS
FLOW LENGTH (FEET) = DEPTH OF FLOW IN 60.0 PIPE-FLOW VELOCITY (FEE ESTIMATED PIPE DIAMETE PIPE-FLOW (CFS) = 5 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM ******************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL	AM(FEET) = 741.00 M7 INCH PIPE CT/SEC.) = 8R(INCH) = 122.55 = 0.37 NODE 120 EX************************************	514.00 ANNING'S N IS 44.5 33.49 60.00 Tc (MIN. 0.00 TO NO TO NODE	DOWNSTREA I = 0.013 INCHES NUMBER OF) = 11.1 DDE 128. ********* 128.00 I FLOW<<<< =================================	M(FEET) = 473.00 PIPES = 1 7 00 = 5187.00 FEET. **************** **CODE = 81 A-29 Ap SCS (DECIMAL) CN 0.100 86

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SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.223
 SUBAREA AREA (ACRES) = 2.60 SUBAREA RUNOFF (CFS) = 9.01
 EFFECTIVE AREA(ACRES) = 152.10 AREA-AVERAGED Fm(INCH/HR) = 0.10
 AREA-AVERAGED Fp (INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.43
 TOTAL AREA (ACRES) = 152.1 PEAK FLOW RATE (CFS) =
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
*******************
 FLOW PROCESS FROM NODE 128.00 TO NODE 128.00 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.) = 11.17
 RAINFALL INTENSITY (INCH/HR) = 3.90
 AREA-AVERAGED Fm(INCH/HR) = 0.10
 AREA-AVERAGED Fp (INCH/HR) = 0.22
 AREA-AVERAGED Ap = 0.43
 EFFECTIVE STREAM AREA(ACRES) = 152.10
 TOTAL STREAM AREA(ACRES) = 152.10
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 522.55
 ** CONFLUENCE DATA **
  STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
          (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
  NUMBER
   1
         619.77 11.14 3.910 0.25(0.08) 0.31 175.7 110.00
         602.43 17.80 2.989 0.25(0.07) 0.29
   1
                                            227.3 100.00
         522.55 11.17 3.904 0.22(0.10) 0.43 152.1 120.00
 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 1141.73 11.14 3.910 0.24(0.09) 0.36 327.4 110.00
   2 1142.24 11.17 3.904 0.24(0.09) 0.36 328.1 120.00
   3 999.45 17.80 2.989 0.24(0.08) 0.34 379.4 100.00
 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE (CFS) = 1142.24 Tc (MIN.) = 11.17
 EFFECTIVE AREA(ACRES) = 328.07 AREA-AVERAGED Fm(INCH/HR) = 0.09
 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.36
 TOTAL AREA (ACRES) = 379.4
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 128.00 = 6371.00 FEET.
******************
 FLOW PROCESS FROM NODE 128.00 TO NODE 129.00 IS CODE = 31
_____
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 473.00 DOWNSTREAM(FEET) = 455.00
 FLOW LENGTH (FEET) = 1494.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 108.0 INCH PIPE IS 78.5 INCHES
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PIPE-FLOW VELOCITY (FEET/SEC.) = 23.05 ESTIMATED PIPE DIAMETER (INCH) = 108.00 NUMBER OF PIPES = 1 PIPE-FLOW(CFS) = 1142.24PIPE TRAVEL TIME (MIN.) = 1.08 Tc (MIN.) = 12.25LONGEST FLOWPATH FROM NODE 100.00 TO NODE 129.00 = 7865.00 FEET. ****************** FLOW PROCESS FROM NODE 129.00 TO NODE 129.00 IS CODE = 81 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW< ______ MAINLINE Tc(MIN.) = 12.25 $\Delta - 30$ * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.703 SUBAREA LOSS RATE DATA (AMC III): DEVELOPMENT TYPE/ SCS SOIL AREA Fρ Αp SCS LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN COMMERCIAL В 0.60 0.30 0.100 76 RESIDENTIAL ".4 DWELLING/ACRE" 0.60 0.30 0.900 76 COMMERCIAL С 1.80 0.25 0.100 86 RESIDENTIAL ".4 DWELLING/ACRE" 1.40 0.25 0.900 86 COMMERCIAL D 0.80 0.20 0.100 91 RESIDENTIAL ".4 DWELLING/ACRE" D 1.60 0.20 0.900 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.524 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF (CFS) = 21.90EFFECTIVE AREA(ACRES) = 334.87 AREA-AVERAGED Fm(INCH/HR) = 0.09 AREA-AVERAGED Fp (INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.37TOTAL AREA (ACRES) = 386.2 PEAK FLOW RATE (CFS) = 1142.24 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE ****************** FLOW PROCESS FROM NODE 129.00 TO NODE 129.00 IS CODE = 81 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW< _____ MAINLINE Tc(MIN.) = 12.25A - 31* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.703 SUBAREA LOSS RATE DATA(AMC III): DEVELOPMENT TYPE/ SCS SOIL AREA Αp SCS GROUP (ACRES) (INCH/HR) (DECIMAL) CN LAND USE 2.50 76 COMMERCIAL В 0.30 0.100 В 0.30 0.850 76 PUBLIC PARK 0.30 RESIDENTIAL 0.200 "11+ DWELLINGS/ACRE" 0.10 0.30 76 RESIDENTIAL ".4 DWELLING/ACRE" 0.900 0.10 0.30 76 RESIDENTIAL "3-4 DWELLINGS/ACRE" 1.50 0.30 0.600 76 RESIDENTIAL "5-7 DWELLINGS/ACRE" В 0.20 0.30 0.500 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.344 SUBAREA AREA(ACRES) = 4.70 SUBAREA RUNOFF (CFS) = 15.23EFFECTIVE AREA(ACRES) = 339.57 AREA-AVERAGED Fm(INCH/HR) = 0.09 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.37

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TOTAL AREA (ACRES) = 390.9 PEAK FLOW RATE (CFS) = 1142.24 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE ****************** FLOW PROCESS FROM NODE 129.00 TO NODE 129.00 IS CODE = 81 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW< ______ MAINLINE Tc(MIN.) = 12.25 $\Delta - 31$ * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.703 SUBAREA LOSS RATE DATA (AMC III): DEVELOPMENT TYPE/ SCS SOIL AREA Fρ GROUP (ACRES) (INCH/HR) (DECIMAL) CN LAND USE RESIDENTIAL "8-10 DWELLINGS/ACRE" В 2.90 0.30 0.400 76 COMMERCIAL С 4.70 0.25 0.100 86 PUBLIC PARK С 1.30 0.25 0.850 86 RESIDENTIAL "11+ DWELLINGS/ACRE" 0.90 0.25 0.200 86 RESIDENTIAL ".4 DWELLING/ACRE" 0.10 0.25 0.900 86 RESIDENTIAL "3-4 DWELLINGS/ACRE" С 3.80 0.25 0.600 86 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.386 SUBAREA AREA(ACRES) = 13.70 SUBAREA RUNOFF (CFS) = 44.42EFFECTIVE AREA(ACRES) = 353.27 AREA-AVERAGED Fm(INCH/HR) = 0.09 AREA-AVERAGED Fp (INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.37PEAK FLOW RATE(CFS) = 1149.59 TOTAL AREA(ACRES) = 404.6 ****************** FLOW PROCESS FROM NODE 129.00 TO NODE 129.00 IS CODE = 81 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW< _____ MAINLINE Tc(MIN.) = 12.25 $\Delta - 31$ * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.703 SUBAREA LOSS RATE DATA (AMC III): DEVELOPMENT TYPE/ SCS SOIL AREA Fρ Αp GROUP (ACRES) (INCH/HR) (DECIMAL) LAND USE RESIDENTIAL "5-7 DWELLINGS/ACRE" 0.25 0.500 86 С 4.40 RESIDENTIAL 0.70 0.25 0.400 "8-10 DWELLINGS/ACRE" 86 5.00 0.20 0.100 91 COMMERCIAL D PUBLIC PARK 0.10 0.20 0.850 RESIDENTIAL "11+ DWELLINGS/ACRE" 10.30 0.20 0.200 91 RESIDENTIAL ".4 DWELLING/ACRE" 0.10 0.900 D 0.20 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.253 SUBAREA AREA(ACRES) = 20.60 SUBAREA RUNOFF (CFS) = 67.60EFFECTIVE AREA(ACRES) = 373.87 AREA-AVERAGED Fm(INCH/HR) = 0.09 AREA-AVERAGED Fp (INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.36TOTAL AREA (ACRES) = 425.2 PEAK FLOW RATE (CFS) = 1217.19 ******************

FLOW PROCESS FROM NODE	129.00	TO NODE	129.00 IS	CODE =	81
>>>>ADDITION OF SUBAREA					
MAINLINE Tc(MIN.) = 12 * 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(A	.25 NSITY(INO MC III):	CH/HR) =	3.703		A-31
DEVELOPMENT TYPE/ LAND USE RESIDENTIAL	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
"3-4 DWELLINGS/ACRE" RESIDENTIAL	D	1.30	0.20	0.600	91
"5-7 DWELLINGS/ACRE" RESIDENTIAL	D	3.90	0.20	0.500	91
"8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS	LOSS RA	TE, Fp(IN			91
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	7.50 381.3	SUBAREA 7 AREA-A	A RUNOFF(CFS AVERAGED Fm(INCH/HR)	
AREA-AVERAGED Fp(INCH/HR TOTAL AREA(ACRES) =	432.7	4 AKEA-A PEAK	FLOW RATE (C	: 0.36 CFS) =	1241.53
**************************************	129.00	TO NODE	130.00 IS	CODE =	
>>>>COMPUTE PIPE-FLOW T	RAVEL TII MATED PI	ME THRU SU PESIZE (NO	UBAREA<<<< ON-PRESSURE	FLOW) <<<<	<
ELEVATION DATA: UPSTREAM FLOW LENGTH(FEET) = 178 DEPTH OF FLOW IN 93.0 I PIPE-FLOW VELOCITY(FEET/ESTIMATED PIPE DIAMETER(PIPE-FLOW(CFS) = 1241 PIPE TRAVEL TIME(MIN.) = LONGEST FLOWPATH FROM NO	6.00 M NCH PIPE SEC.) = INCH) = .53 0.98	ANNING'S 1 IS 74.9 30.49 93.00 Tc(MIN	N = 0.013 INCHES NUMBER OF F	PIPES =	1

>>>>ADDITION OF SUBAREA					========
MAINLINE Tc(MIN.) = 13 * 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(A	NSITY(IN		3.544		A-32
DEVELOPMENT TYPE/	SCS SOIL	AREA	± .	-	SCS
LAND USE COMMERCIAL	GROUP B	(ACRES) 1.30	(INCH/HR) 0.30	(DECIMAL) 0.100	CN 76
RESIDENTIAL ".4 DWELLING/ACRE"	В	1.20	0.30	0.900	76
RESIDENTIAL "3-4 DWELLINGS/ACRE"	В	0.10	0.30	0.600	76
COMMERCIAL	C	1.30		0.100	86
PUBLIC PARK RESIDENTIAL	С	0.10	0.25	0.850	86
".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS	C LOSS RA		0.25 CH/HR) = 0.		86
SUBAREA AVERAGE PERVIOUS	AREA FR	ACTION, A	p = 0.598		

SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/HF TOTAL AREA(ACRES) = NOTE: PEAK FLOW RATE DEF	$ \begin{array}{r} 388.37 \\ 4) = 0.24 \\ 439.7 \end{array} $	AREA-AV AREA-AV PEAK	VERAGED Fm ERAGED Ap : FLOW RATE((INCH/HR)	= 0.0	09 53
**************************************	130.00 T	O NODE				*****
>>>>ADDITION OF SUBAREA	TO MAINLI	NE PEAK				
MAINLINE Tc(MIN.) = 13 * 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(A DEVELOPMENT TYPE/ LAND USE	.22 NSITY(INCH MC III):	/HR) = :			A-	32
LAND USE RESIDENTIAL	GROUP (ACRES)	(INCH/HR)	(DECIMAL) CN	
"3-4 DWELLINGS/ACRE"	C D	2.50 0.80	0.25 0.20	0.600 0.100	86 91	
".4 DWELLING/ACRE"	D	1.30	0.20	0.900	91	
"3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED FP(INCH/HF TOTAL AREA(ACRES) = NOTE: PEAK FLOW RATE DEF	LOSS RATE AREA FRAC 7.90 396.27 1) = 0.24 447.6	, Fp(INC) TION, Ap SUBAREA AREA-A AREA-AV PEAK	H/HR) = 0 = 0.599 RUNOFF(CF; VERAGED Fm ERAGED Ap : FLOW RATE(.22 S) = 24 (INCH/HR) = 0.37	.28	
**************************************						*****
>>>>MAIN-STREAM MEMORY						
************************** FLOW PROCESS FROM NODE	********* 150.00 T 	******* O NODEEA ANALY:	********* 151.00 I: 	******* S CODE =	*****	
INITIAL SUBAREA FLOW-LEN ELEVATION DATA: UPSTREAM	. ,			======= AM(FEET) :	= 6'	75.00
	NIMUM Tc(M NSITY(INCH	IN.) = /HR) = III): AREA	9.312 4.332 Fp	Ap		Tc (MIN.)
"OPEN BRUSH" NATURAL FAIR COVER	С	1.50			92	9.31
"WOODLAND, GRASS" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS		, Fp(INC			92	9.31

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SUBAREA RUNOFF (CFS) = 6.98 TOTAL AREA (ACRES) = 1.90 PEAK FLOW RATE (CFS) = 6.98

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<>>> >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)
ELEVATION DATA: UPSTREAM(FEET) = 675.00 DOWNSTREAM(FEET) = 635.00 CHANNEL LENGTH THRU SUBAREA(FEET) = 421.00 CHANNEL SLOPE = 0.0950 CHANNEL BASE(FEET) = 0.00 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 20.00 OA - 5 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.082 SUBAREA LOSS RATE DATA(AMC III): DEVELOPMENT TYPE/ SCS SOIL AREA FP AP SCS LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
NATURAL FAIR COVER "OPEN BRUSH" C 4.90 0.25 1.000 92
NATURAL FAIR COVER
"WOODLAND, GRASS" C 2.40 0.25 1.000 92 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 19.58 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.88 AVERAGE FLOW DEPTH(FEET) = 0.97 TRAVEL TIME(MIN.) = 1.02 TC(MIN.) = 10.33 SUBAREA AREA (ACRES) = 7.30 SUBAREA RUNOFF(CFS) = 25.18 EFFECTIVE AREA (ACRES) = 9.20 AREA-AVERAGED Fm(INCH/HR) = 0.25 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 1.00 TOTAL AREA (ACRES) = 9.2 PEAK FLOW RATE(CFS) = 31.73 END OF SUBAREA CHANNEL FLOW HYDRAULICS: DEPTH(FEET) = 1.17 FLOW VELOCITY(FEET/SEC.) = 7.72 LONGEST FLOWPATH FROM NODE 150.00 TO NODE 152.00 = 751.00 FEET. **********************************
ELEVATION DATA: UPSTREAM(FEET) = 635.00 DOWNSTREAM(FEET) = 631.00 FLOW LENGTH(FEET) = 501.00 MANNING'S N = 0.013 DEPTH OF FLOW IN 30.0 INCH PIPE IS 22.5 INCHES PIPE-FLOW VELOCITY(FEET/SEC.) = 8.03 ESTIMATED PIPE DIAMETER(INCH) = 30.00 NUMBER OF PIPES = 1 PIPE-FLOW(CFS) = 31.73 PIPE TRAVEL TIME(MIN.) = 1.04 Tc(MIN.) = 11.37 LONGEST FLOWPATH FROM NODE 150.00 TO NODE 153.00 = 1252.00 FEET.
FLOW PROCESS FROM NODE 153.00 TO NODE 153.00 IS CODE = 81
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
MAINLINE Tc(MIN.) = 11.37 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.864

SUBAREA LOSS RATE DATA(
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp	Ap	SCS
	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
NATURAL FAIR COVER					
"OPEN BRUSH"	С	5.10	0.25	1.000	92
NATURAL FAIR COVER					
"WOODLAND, GRASS"					92
SUBAREA AVERAGE PERVIOU				.25	
SUBAREA AVERAGE PERVIOU					
SUBAREA AREA(ACRES) =	9.10	SUBARE	A RUNOFF (CF	(S) = 29.	60
EFFECTIVE AREA(ACRES) =	18.3	0 AREA-	·AVERAGED Fm	(INCH/HR) :	= 0.25
AREA-AVERAGED Fp(INCH/H					F0 F0
TOTAL AREA (ACRES) =	18.3	PEAK	FLOW RATE (CFS) =	59.52
*******	*****	******	*****	*****	******
FLOW PROCESS FROM NODE		TO NODE	154.00 I	S CODE =	31
>>>>COMPUTE PIPE-FLOW		ME THRII S	IIRAREA<		
>>>>USING COMPUTER-EST					(
ELEVATION DATA: UPSTREA					
FLOW LENGTH (FEET) = 7				11(1111)	050.00
DEPTH OF FLOW IN 51.0					
PIPE-FLOW VELOCITY (FEET			INCHES		
			NUMBER OF	DIDEC -	1
ESTIMATED PIPE DIAMETER		31.00	NUMBER OF	PIPES = .	L
PIPE-FLOW(CFS) = 5		m - (MTN	. 12.0	2	
PIPE TRAVEL TIME (MIN.)					60 00 EE
LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE	154.00	0.00 TO N ******* TO NODE	**************************************	00 = 19 ******* S CODE = 3	*****
LONGEST FLOWPATH FROM N ************* FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE	154.00 15	0.00 TO N ******* TO NODE LINE PEAK	********** 154.00 I	00 = 19 ******* S CODE = 5	****** 81
LONGEST FLOWPATH FROM N ************* FLOW PROCESS FROM NODE	154.00 154.00 ATO MAIN:	0.00 TO N ******* TO NODE LINE PEAK	************ 154.00 I	00 = 19 ******** S CODE = :	****** 81
LONGEST FLOWPATH FROM N *************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC(MIN.) = 1 * 100 YEAR RAINFALL INT	********** 154.00 CA TO MAIN: 3.83 PENSITY(ING	0.00 TO N ******* TO NODE LINE PEAK CH/HR) =	************ 154.00 I	00 = 19 ******** S CODE = :	****** 81
LONGEST FLOWPATH FROM N ***************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC(MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(150DE 150 ******** 154.00	0.00 TO N ******* TO NODE LINE PEAK CH/HR) =	**************************************	00 = 19 ******* S CODE = 3	****** 81 OA-
LONGEST FLOWPATH FROM N ******************** FLOW PROCESS FROM NODE	154.00 A TO MAIN: 3.83 ENSITY(ING AMC III): SCS SOIL	0.00 TO N ******* TO NODE LINE PEAK CH/HR) = AREA	************* 154.00 I FLOW<>>> 3.454 Fp	00 = 19 ******* S CODE = 3	**************************************
LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC(MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE	154.00 A TO MAIN: 3.83 ENSITY(ING AMC III): SCS SOIL	0.00 TO N ******* TO NODE LINE PEAK CH/HR) = AREA	**************************************	00 = 19 ******* S CODE = 3	******** 81 OA-
LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE	********* 154.00 A TO MAIN: 3.83 ENSITY(ING AMC III): SCS SOIL GROUP	0.00 TO N ******* TO NODE LINE PEAK CH/HR) = AREA (ACRES)	************ 154.00 I FLOW<>>> 3.454 FP (INCH/HR)	00 = 19 ******* S CODE = 3 Ap (DECIMAL)	**************************************
LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE	********* 154.00 A TO MAIN: 3.83 ENSITY(ING AMC III): SCS SOIL GROUP	0.00 TO N ******* TO NODE LINE PEAK CH/HR) = AREA (ACRES)	************ 154.00 I FLOW<>>> 3.454 FP (INCH/HR)	00 = 19 ******* S CODE = 3 Ap (DECIMAL)	**************************************
LONGEST FLOWPATH FROM N **************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE ===================================	MAMC III): SCS SOIL GROUP C	0.00 TO N ******* TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.30	**************************************	00 = 19 ******* S CODE = 3	**************************************
LONGEST FLOWPATH FROM N ***************** FLOW PROCESS FROM NODE >>>> ADDITION OF SUBARE =	********* 154.00 A TO MAIN: 3.83 ENSITY(IN: (AMC III): SCS SOIL GROUP C	0.00 TO N ******* TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.30	**************************************	00 = 19 ******* S CODE = 3	**************************************
LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE	MODE 15: ******** 154.00 CA TO MAIN: 3.83 PENSITY (IN: AMC III): SCS SOIL GROUP C C	0.00 TO N ******* TO NODE LINE PEAK ====== CH/HR) = AREA (ACRES) 0.30 5.70	**************************************	00 = 19 ******* S CODE = 3 Ap (DECIMAL) 1.000 1.000	**************************************
LONGEST FLOWPATH FROM N **************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE ===================================	********* 154.00 A TO MAIN: 3.83 ENSITY(IN: (AMC III): SCS SOIL GROUP C	0.00 TO N ******* TO NODE LINE PEAK ====== CH/HR) = AREA (ACRES) 0.30 5.70	**************************************	00 = 19 ******* S CODE = 3 Ap (DECIMAL) 1.000 1.000	**************************************
LONGEST FLOWPATH FROM N **************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE ===================================	154.00 ******** 154.00 A TO MAIN: 3.83 ENSITY(IN: (AMC III): SCS SOIL GROUP C C	0.00 TO N ******* TO NODE LINE PEAK ====== CH/HR) = AREA (ACRES) 0.30 5.70 3.40	**************************************	Ap (DECIMAL) 1.000 1.000	**************************************
LONGEST FLOWPATH FROM N **************** FLOW PROCESS FROM NODE	MODE 15: ******** 154.00 CA TO MAIN: 3.83 PENSITY (IN: AMC III): SCS SOIL GROUP C C	0.00 TO N ******* TO NODE LINE PEAK ====== CH/HR) = AREA (ACRES) 0.30 5.70 3.40	**************************************	Ap (DECIMAL) 1.000 1.000	**************************************
LONGEST FLOWPATH FROM N **************** FLOW PROCESS FROM NODE	154.00 A TO MAIN: 3.83 ENSITY(IN: (AMC III): SCS SOIL GROUP C C C	0.00 TO N ******** TO NODE LINE PEAK ====== CH/HR) = AREA (ACRES) 0.30 5.70 3.40 0.10	**************************************	Ap (DECIMAL) 1.000 1.000 1.000	**************************************
LONGEST FLOWPATH FROM N **************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE ===================================	154.00 A TO MAIN: 3.83 ENSITY(IN: (AMC III): SCS SOIL GROUP C C C	0.00 TO N ******** TO NODE LINE PEAK ====== CH/HR) = AREA (ACRES) 0.30 5.70 3.40 0.10	**************************************	Ap (DECIMAL) 1.000 1.000 1.000	**************************************
LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE	150 150	0.00 TO N ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.30 5.70 3.40 0.10 2.10	************ 154.00 I FLOW< FLOW (FLOW O.25 O.25 O.25 O.20	Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000	**************************************
LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE	150 150	0.00 TO N ******** TO NODE LINE PEAK ===================================	************* 154.00 I ********** 154.00 I FLOW<<<<<	Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 1.000	**************************************
LONGEST FLOWPATH FROM N ******************** FLOW PROCESS FROM NODE	150 150	0.00 TO N ******** TO NODE LINE PEAK ====== CH/HR) = AREA (ACRES) 0.30 5.70 3.40 0.10 2.10 1.60 TE, Fp(IN	************ 154.00 I ********** 154.00 I FLOW<<<<<	Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 1.000	**************************************
LONGEST FLOWPATH FROM N ******************** FLOW PROCESS FROM NODE	150 150	0.00 TO N ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.30 5.70 3.40 0.10 2.10 1.60 TE, Fp(IN ACTION, A	**************************************	Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 1.000 1.000	**************************************
LONGEST FLOWPATH FROM N ******************** FLOW PROCESS FROM NODE	150 150	0.00 TO N ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.30 5.70 3.40 0.10 2.10 1.60 TE, Fp(IN ACTION, A SUBARE	************ 154.00 I ********** 154.00 I FLOW<<<<	Ap (DECIMAL) 1.000 1.000 1.000 1.000 24 S) = 38.3	**************************************
LONGEST FLOWPATH FROM N ******************** FLOW PROCESS FROM NODE	15 15 15 15 15 15 15 15	0.00 TO N ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.30 5.70 3.40 0.10 2.10 1.60 TE, FP(IN ACTION, A SUBARE 0 AREA-	**************************************	Ap (DECIMAL) 1.000 1.000 1.000 1.000 24 (S) = 38.3	**************************************
LONGEST FLOWPATH FROM N ******************** FLOW PROCESS FROM NODE	150 150	0.00 TO N ******** TO NODE LINE PEAK ====== CH/HR) = AREA (ACRES) 0.30 5.70 3.40 0.10 2.10 1.60 TE, FP(IN ACTION, A SUBARE 0 AREA-A 4 AREA-A	************* 154.00 I ********** 154.00 I FLOW< 154.00 I 155.00 I 156.00 I 166.00 I 166.00 I 167.00 I 1	Ap (DECIMAL) 1.000 1.000 1.000 1.000 24 (S) = 38.3 (INCH/HR) = 1.00	**************************************

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FLOW PROCESS FROM NODE					01	
>>>>ADDITION OF SUBARE	A TO MAINI	INE PEAK				
MAINLINE TC(MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	3.83 ENSITY(INC AMC III): SCS SOIL GROUP D S LOSS RAT S AREA FRA 0.20 31.70	AREA (ACRES) 0.20 CE, FP(INC CTION, AS SUBAREA AREA-A	3.454 Fp (INCH/HR) 0.20 CH/HR) = 0 0 = 1.000 A RUNOFF(CF AVERAGED FM	Ap (DECIMAL) 1.000 .20 S) = 0. (INCH/HR)	OA - scs cn 95	-7
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) =					91.60	
**************************************	154.00	TO NODE	155.00 I	S CODE =		****
>>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-EST	TRAVEL TIM IMATED PIF	ME THRU SU PESIZE (NO	ON-PRESSURE	FLOW) <<<		
PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 9 PIPE TRAVEL TIME (MIN.)	(INCH) = 1.60	57.00			1	
ESTIMATED PIPE DIAMETER	(INCH) = 1.60 = 2.35 ODE 150	Tc (MIN a).00 TO NO	NUMBER OF .) = 16.1 DDE 155.	8 00 = 28 *****	373.00 F	
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 9 PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N	(INCH) = 1.60 = 2.35 ODE 150 ***********************************	Tc (MIN 2) .00 TO NO	NUMBER OF .) = 16.1 DDE 155. ***********************************	8 00 = 28 *****	373.00 F	
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 9 PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N **************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC(MIN.) = 1 * 100 YEAR RAINFALL INT	(INCH) = 1.60 = 2.35 ODE 150 ********** 155.00	TC (MIN. 0.00 TO NO. 0.00 TO N	NUMBER OF .) = 16.1 DDE 155. *********** 155.00 I	8 00 = 28 ********* S CODE =	373.00 F	****
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 9 PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE	(INCH) = 1.60 = 2.35 ODE 150 *********** 155.00	57.00 Tc (MIN. 0.00 TO NO ******** TO NODE JINE PEAK CH/HR) =	NUMBER OF .) = 16.1 DDE 155. ********** 155.00 I FLOW<<<<	8 00 = 28 ******** S CODE =	873.00 F	****
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 9 PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE	(INCH) = 1.60 = 2.35 ODE 150 *********** 155.00	57.00 Tc (MIN. 0.00 TO NO ******** TO NODE INE PEAK CH/HR) = AREA	NUMBER OF .) = 16.1 DDE 155. ********** 155.00 I FLOW<<<<	8 00 = 28 ******** S CODE = 	873.00 F	****
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 9 PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE	(INCH) = 1.60 = 2.35 ODE 150 *********** 155.00	Tc (MIN. 0.00 TO NO ******** TO NODE JINE PEAK CH/HR) = AREA (ACRES)	NUMBER OF .) = 16.1 DDE 155. ************ 155.00 I FLOW<<<<< 	8 00 = 28 ********* S CODE = 	873.00 F ******* 81 OA- SCS CN	****
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 9 PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ***************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC(MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	(INCH) = 1.60 = 2.35 ODE 150 *********** 155.00	Tc (MIN. 0.00 TO NO ******** TO NODE JINE PEAK CH/HR) = AREA (ACRES)	NUMBER OF .) = 16.1 DDE 155. ********* 155.00 I FLOW<<<<< 3.157 Fp (INCH/HR) 0.25	8 00 = 28 ********* S CODE = 	873.00 F ******* 81 OA- SCS CN	****
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 9 PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ************ FLOW PROCESS FROM NODE	(INCH) = 1.60 = 2.35 ODE 150 *********** 155.00	TC (MIN. 0.00 TO NO ********* TO NODE INE PEAK CH/HR) = AREA (ACRES) 1.60	NUMBER OF .) = 16.1 DDE 155. ********* 155.00 I FLOW<<<<< 3.157 Fp (INCH/HR) 0.25	8 00 = 28 ********* S CODE = 	873.00 F. ******* 81 OA- SCS CN 91 92	****
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 9 PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N **************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC(MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	(INCH) = 1.60 = 2.35 ODE 150	TC (MIN. 0.00 TO NO 1.00 TO NO 1.10 TO NODE 1.10 PEAK 1.10 PEAK 1.10 TO NODE 1.10 PEAK 1.10 TO NODE 1.10 PEAK 1.10 TO NODE	NUMBER OF .) = 16.1 DDE 155. ********* 155.00 I FLOW<<<< 3.157 Fp (INCH/HR) 0.25 0.20 0.20 CH/HR) = 0 0 = 1.000 A RUNOFF(CF AVERAGED FM VERAGED AP	8 00 = 28 ******** S CODE = Ap (DECIMAL) 1.000 1.000 1.000 22 S) = 17. GINCH/HR) = 1.00	373.00 F ******* 81 OA - SCS CN 91 92 95 96	***** - 8

FLOW PROCESS FROM NODE 155.00 TO NODE 156.00 IS CODE = 31 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA< >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<< ELEVATION DATA: UPSTREAM(FEET) = 629.00 DOWNSTREAM(FEET) = 610.00 FLOW LENGTH (FEET) = 796.00 MANNING'S N = 0.013 DEPTH OF FLOW IN 39.0 INCH PIPE IS 27.1 INCHES PIPE-FLOW VELOCITY (FEET/SEC.) = 16.31 ESTIMATED PIPE DIAMETER (INCH) = 39.00 NUMBER OF PIPES = 1 PIPE-FLOW(CFS) = 100.28PIPE TRAVEL TIME (MIN.) = 0.81 Tc (MIN.) = 16.99 LONGEST FLOWPATH FROM NODE 150.00 TO NODE 156.00 = 3669.00 FEET. ******************* FLOW PROCESS FROM NODE 156.00 TO NODE 156.00 IS CODE = 81 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW< ______ MAINLINE Tc (MIN.) = 16.99OA-9* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.070 SUBAREA LOSS RATE DATA (AMC III): DEVELOPMENT TYPE/ SCS SOIL AREA Fρ SCS LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN NATURAL FAIR COVER C 1.90 0.25 1.000 91 "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" 0.40 0.25 1.000 9.5 NATURAL FAIR COVER 1.000 "OPEN BRUSH" C 1.30 0.25 92 NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" D 4.50 0.20 1.000 95 NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" 1.30 0.20 1.000 97 NATURAL FAIR COVER "OPEN BRUSH" 3.70 0.20 1.000 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000 SUBAREA AREA (ACRES) = 13.10 SUBAREA RUNOFF (CFS) = 33.67 EFFECTIVE AREA(ACRES) = 51.30 AREA-AVERAGED Fm(INCH/HR) = 0.23 AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 1.00 TOTAL AREA (ACRES) = 51.3 PEAK FLOW RATE(CFS) = ****************** FLOW PROCESS FROM NODE 156.00 TO NODE 130.00 IS CODE = 31 ______ >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA< >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<< ______ ELEVATION DATA: UPSTREAM(FEET) = 610.00 DOWNSTREAM(FEET) = 410.00 FLOW LENGTH (FEET) = 6198.00 MANNING'S N = 0.013DEPTH OF FLOW IN 39.0 INCH PIPE IS 29.8 INCHES PIPE-FLOW VELOCITY (FEET/SEC.) = 19.27 ESTIMATED PIPE DIAMETER (INCH) = 39.00 NUMBER OF PIPES = 1 PIPE-FLOW(CFS) = 130.95PIPE TRAVEL TIME (MIN.) = 5.36 Tc (MIN.) = 22.35

```
LONGEST FLOWPATH FROM NODE 150.00 TO NODE 130.00 =
                                                9867.00 FEET.
FLOW PROCESS FROM NODE 130.00 TO NODE 130.00 IS CODE = 11
______
 >>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<
 ** MAIN STREAM CONFLUENCE DATA **
                 Tc Intensity Fp(Fm)
  STREAM
           Q
                                       Ар
                                          Ae
                                                  HEADWATER
  NUMBER
          (CFS) (MIN.) (INCH/HR) (INCH/HR)
                                     (ACRES) NODE
   1
         130.95 22.35 2.623 0.23(0.23) 1.00
                                            51.3 150.00
 LONGEST FLOWPATH FROM NODE 150.00 TO NODE 130.00 = 9867.00 FEET.
 ** MEMORY BANK # 1 CONFLUENCE DATA **
  STREAM
          0
                 Tc Intensity Fp(Fm)
                                     Ap Ae HEADWATER
  NUMBER
          (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
   1
        1241.22 13.19 3.548 0.24(0.09) 0.37
                                           395.6
                                                    110.00
    2
        1241.53 13.22 3.544 0.24(0.09) 0.37
                                            396.3
                                                    120.00
        1095.09 19.92
                                            447.6
    3
                       2.803 0.24(0.08) 0.36
                                                     100.00
 LONGEST FLOWPATH FROM NODE
                      100.00 TO NODE 130.00 = 9651.00 FEET.
 ** PEAK FLOW RATE TABLE **
  STREAM O
                Tc Intensity Fp(Fm) Ap Ae HEADWATER
  NUMBER
          (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
   1
        1348.44 13.19 3.548 0.24(0.10) 0.42 425.9 110.00
        1348.84 13.22
                      3.544 0.24(0.10) 0.42
                                            426.6
                                                    120.00
        1220.52 19.92 2.803 0.24(0.10) 0.42
                                            493.3 100.00
        1153.86 22.35 2.623 0.24(0.10) 0.42
                                           498.9
                                                    150.00
  TOTAL AREA(ACRES) =
                       498.9
 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE (CFS) = 1348.84 Tc (MIN.) = 13.224
 EFFECTIVE AREA(ACRES) = 426.63 AREA-AVERAGED Fm(INCH/HR) = 0.10
 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.42
 TOTAL AREA(ACRES) = 498.9
 LONGEST FLOWPATH FROM NODE 150.00 TO NODE 130.00 = 9867.00 FEET.
********************
 FLOW PROCESS FROM NODE 130.00 TO NODE 130.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
_____
 MAINLINE Tc(MIN.) = 13.22
                                                  A-33
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.544
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                    Fρ
                                            Αp
                                                  SCS
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 AGRICULTURAL POOR COVER
                           1.60
                                            1.000
                                                  97
 "FALLOW"
                                     0.30
 NATURAL FAIR COVER
                            1.30
                                     0.30
                                            1.000
 "OPEN BRUSH"
                                                   84
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                             2.60
                                     0.30
                                            0.900
                                                   76
 NATURAL FAIR COVER
                             1.90
                                     0.30
                                            1.000
                                                   83
 "WOODLAND, GRASS"
 AGRICULTURAL POOR COVER
 "FALLOW"
                             0.70
                                     0.25
                                            1.000
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NATURAL FAIR COVER "OPEN BRUSH" C 0.80 0.25 1.000 92 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.29 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.971 SUBAREA AREA(ACRES) = 8.90 SUBAREA RUNOFF(CFS) = 26.12 EFFECTIVE AREA(ACRES) = 435.53 AREA-AVERAGED Fm(INCH/HR) = 0.10 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.43 TOTAL AREA(ACRES) = 507.8 PEAK FLOW RATE(CFS) = 1349.04

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
MAINLINE TC (MIN.) = 13.22 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.544 SUBARRA JOSS PATE DATA (AMC III):
DEVELOPMENT TYPE/ SCS SOIL AREA FP AP SCS LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN PUBLIC PARK C 0.10 0.25 0.850 86 RESIDENTIAL
".4 DWELLING/ACRE" C 1.50 0.25 0.900 86 NATURAL FAIR COVER
NATURAL FAIR COVER "WOODLAND, GRASS" C 0.40 0.25 1.000 92 NATURAL FAIR COVER "OPEN BRUSH" D 0.10 0.20 1.000 96 RESIDENTIAL
"OPEN BRUSH" D 0.10 0.20 1.000 96 RESIDENTIAL ".4 DWELLING/ACRE" D 0.30 0.20 0.900 91
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.919 SUBAREA AREA(ACRES) = 2.40 SUBAREA RUNOFF(CFS) = 7.18 EFFECTIVE AREA(ACRES) = 437.93 AREA-AVERAGED Fm(INCH/HR) = 0.10 AREA-AVERAGED Fp(INCH/HR) = 0.24 TOTAL AREA(ACRES) = 510.2 PEAK FLOW RATE(CFS) = 1356.21
END OF STUDY SUMMARY: TOTAL AREA(ACRES) = 510.2 TC(MIN.) = 13.22 EFFECTIVE AREA(ACRES) = 437.93 AREA-AVERAGED Fm(INCH/HR) = 0.10 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.432 PEAK FLOW RATE(CFS) = 1356.21
** PEAK FLOW RATE TABLE ** STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE 1 1355.82 13.19 3.548 0.24(0.10) 0.43 437.2 110.00 2 1356.21 13.22 3.544 0.24(0.10) 0.43 437.9 120.00 3 1226.53 19.92 2.803 0.24(0.10) 0.43 504.6 100.00 4 1157.19 22.35 2.623 0.24(0.10) 0.43 510.2 150.00
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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* RMV PA-3 SUBAREA A ROMP 2018 * RATIONAL METHOD HYDROLOGY MODEL LOCAL * 25-YR HC AUGUST 2018 ROKAMOTO FILE NAME: PA3A25HC.DAT TIME/DATE OF STUDY: 10:40 08/14/2018 ______ USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION: ______ --*TIME-OF-CONCENTRATION MODEL*--USER SPECIFIED STORM EVENT (YEAR) = 25.00 SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00 SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.90 *DATA BANK RAINFALL USED* *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) 1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150 2 32.0 27.0 0.020/0.020/ ---0.67 2.00 0.0312 0.167 0.0150 3 13.0 8.0 0.020/0.020/ ---0.33 1.00 0.0312 0.125 0.0150 GLOBAL STREET FLOW-DEPTH CONSTRAINTS: 1. Relative Flow-Depth = 1.00 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 100.00 TO NODE 101.00 IS CODE = 21 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS< >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<< ______ INITIAL SUBAREA FLOW-LENGTH (FEET) = 327.00

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Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.413
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.372
 SUBAREA To AND LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                                    SCS
     LAND USE
                     GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
                            1.10 0.25 1.000
                                                    77 9.41
 "OPEN BRUSH"
                       C
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 3.09
 TOTAL AREA (ACRES) = 1.10 PEAK FLOW RATE (CFS) =
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 FLOW PROCESS FROM NODE 101.00 TO NODE 102.00 IS CODE = 51
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <
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 ELEVATION DATA: UPSTREAM(FEET) = 642.00 DOWNSTREAM(FEET) = 605.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 385.00 CHANNEL SLOPE = 0.0961
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 20.00
                                                   OA-2
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.160
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/
                  SCS SOIL AREA
                                     Fρ
                                              αA
     LAND USE
                     GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 NATURAL FAIR COVER
                                                     7.5
 "CHAPARRAL, BROADLEAF"
                            0.90
                                      0.25
                                             1.000
 NATURAL FAIR COVER
                              2.60
                                      0.25
                                            1.000
 "OPEN BRUSH"
 RESIDENTIAL
 ".4 DWELLING/ACRE" C
                              0.70
                                      0.25
                                             0.900
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.983
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.62
 AVERAGE FLOW DEPTH (FEET) = 0.71 TRAVEL TIME (MIN.) = 1.14
 Tc(MIN.) = 10.55
 SUBAREA AREA(ACRES) = 4.20
                               SUBAREA RUNOFF(CFS) = 11.02
 EFFECTIVE AREA(ACRES) = 5.30 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.99
 TOTAL AREA (ACRES) = 5.3
                               PEAK FLOW RATE(CFS) =
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 0.86 FLOW VELOCITY(FEET/SEC.) = 6.30
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 102.00 =
                                                712.00 FEET.
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 FLOW PROCESS FROM NODE 102.00 TO NODE 103.00 IS CODE = 62
______
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
_____
 UPSTREAM ELEVATION(FEET) = 605.00 DOWNSTREAM ELEVATION(FEET) = 584.00
 STREET LENGTH (FEET) = 264.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
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ELEVATION DATA: UPSTREAM(FEET) = 725.00 DOWNSTREAM(FEET) = 642.00

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DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL(DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
                                                  16.66
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) = 0.36
   HALFSTREET FLOOD WIDTH (FEET) = 11.05
   AVERAGE FLOW VELOCITY (FEET/SEC.) = 6.48
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 2.33
 STREET FLOW TRAVEL TIME (MIN.) = 0.68 Tc(MIN.) = 11.23
                                                          A-1
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.051
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/
                   SCS SOIL AREA
                                      Fp
                                                         SCS
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                      C 1.10 0.25 0.900 69
 COMMERCIAL
                        С
                                1.00
                                       0.25
                                                  0.100 69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.519
 SUBAREA AREA (ACRES) = 2.10 SUBAREA RUNOFF (CFS) = 5.52
 EFFECTIVE AREA(ACRES) = 7.40 AREA-AVERAGED Fm(INCH/HR) = 0.21
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.85
 TOTAL AREA (ACRES) = 7.4
                                 PEAK FLOW RATE (CFS) =
 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.37 HALFSTREET FLOOD WIDTH(FEET) = 11.68
 FLOW VELOCITY (FEET/SEC.) = 6.69 DEPTH*VELOCITY (FT*FT/SEC.) = 2.48
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 103.00 =
********************
 FLOW PROCESS FROM NODE 103.00 TO NODE 104.00 IS CODE = 62
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
______
 UPSTREAM ELEVATION(FEET) = 584.00 DOWNSTREAM ELEVATION(FEET) = 564.00
 STREET LENGTH (FEET) = 494.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL(DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) = 0.46
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HALFSTREET FLOOD WIDTH AVERAGE FLOW VELOCITY PRODUCT OF DEPTH&VELOC STREET FLOW TRAVEL TIME. * 25 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA (F	(FEET/SEC CITY(FT*F (MIN.) = CNSITY(IN	.) = 5. T/SEC.) = 1.43 CH/HR) =	2.66 Fc(MIN.) =	12.66	A-	-2
DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	
	В	1.10	0.30	0.100	56	
RESIDENTIAL						
".4 DWELLING/ACRE"	В	0.30	0.30	0.900	56	
COMMERCIAL	С	6.60	0.25	0.100	69	
RESIDENTIAL						
".4 DWELLING/ACRE"					69	
SUBAREA AVERAGE PERVIOUS				.26		
SUBAREA AVERAGE PERVIOUS				a) 04	F 0	
SUBAREA AREA (ACRES) =						2
EFFECTIVE AREA(ACRES) =	17.2	U AREA-	-AVERAGED F	m(INCH/HR)	= 0.1	3
AREA-AVERAGED Fp (INCH/HF	17 0	5 AREA-A	/ERAGED AP	= 0.52	40 17	n
TOTAL AREA (ACRES) =	1/.2	PEA	K FLOW RATE	(CFS) =	42.10	J
END OF SUBAREA STREET FI DEPTH(FEET) = 0.50 HAI FLOW VELOCITY(FEET/SEC.) LONGEST FLOWPATH FROM NO	FSTREET = 6.19	FLOOD WID: DEPTH*V	ELOCITY (FT	*FT/SEC.)		
*****	******	*******	*****	******	*****	****
FLOW PROCESS FROM NODE	104.00					
>>>>COMPUTE PIPE-FLOW T	MATED PI	PESIZE (NO	ON-PRESSURE	FLOW) <<<<		
ELEVATION DATA: UPSTREAM FLOW LENGTH (FEET) = 145 DEPTH OF FLOW IN 27.0 I PIPE-FLOW VELOCITY (FEET/ ESTIMATED PIPE DIAMETER/ PIPE-FLOW (CFS) = 42 PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO	M(FEET) = 66.00 M ENCH PIPE (SEC.) = (INCH) = 2.10 = 1.69	564.00 ANNING'S N IS 18.7 14.35 27.00	DOWNSTREAN = 0.013 INCHES NUMBER OF .) = 14.3	M(FEET) = PIPES =	520.00	0
******	*****	******	*****	*****	*****	****
FLOW PROCESS FROM NODE				S CODE =	81	
>>>>ADDITION OF SUBAREA	TO MAIN	LINE PEAK	FLOW<			
MAINLINE Tc(MIN.) = 14 * 25 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(1.35 ENSITY(INAMC II):	CH/HR) =	2.656		A-	
DEVELOPMENT TYPE/				Ар	SCS	
			(INCH/HR)			
COMMERCIAL	В	0.60	0.30	0.100	56	
COMMERCIAL	С	3.90		0.100	69	
PUBLIC PARK	С	0.20	0.25	0.850	69	
RESIDENTIAL						
".4 DWELLING/ACRE"	С		0.25		69	
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS				.25		

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TOTAL AREA (ACRES) =	*****	******	*****	*****	*****
FLOW PROCESS FROM NOI					
>>>>ADDITION OF SUBA					
MAINLINE Tc(MIN.) =					
* 25 YEAR RAINFALL I	INTENSITY (IN		2.656		A-4
SUBAREA LOSS RATE DAT	TA (AMC II):	1001	_	,	
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp (TMCH/HP)	Ap	SCS
COMMERCIAL	B	0.60	0.30	0.100	56
PUBLIC PARK	B B	0.30	0.30	0.850	56
RESIDENTIAL					
".4 DWELLING/ACRE"					
COMMERCIAL			0.25		
PUBLIC PARK RESIDENTIAL	С	2.10	0.25	0.850	69
".4 DWELLING/ACRE"	С	0.80	0.25	0.900	69
SUBAREA AVERAGE PERVI					
SUBAREA AVERAGE PERVI	IOUS AREA FR	ACTION, A	ap = 0.400		
SUBAREA AREA(ACRES) =	9.20	SUBARE	A RUNOFF (CE	(S) = 21.1	L3
EFFECTIVE AREA(ACRES)	= 32.0	0 AREA-	·AVERAGED Fn	n(INCH/HR) =	= 0.11
AREA-AVERAGED Fp(INCH TOTAL AREA(ACRES) =	H/HR) = 0.2	5 AREA-A	VERAGED Ap	= 0.44	72.06
FLOW PROCESS FROM NOT	DE 105.00	TO NODE	105.00 1	S CODE = 8	
>>>>ADDITION OF SUBA	DE 105.00 AREA TO MAIN	TO NODE	105.00]	S CODE = 8	31
>>>>ADDITION OF SUBA	DE 105.00 AREA TO MAIN	TO NODE	105.00]	S CODE = 8	31
>>>>ADDITION OF SUBA	DE 105.00 AREA TO MAIN 14.35	TO NODE	105.00]	S CODE = 8	31
>>>>ADDITION OF SUBA MAINLINE Tc(MIN.) = * 25 YEAR RAINFALL I SUBAREA LOSS RATE DAT	AREA TO MAIN: 14.35 INTENSITY(INTENSITY(INTENSITY(INTENSITY):	TO NODE LINE PEAK CH/HR) =	105.00 1 5 FLOW<>>> 2 .656	S CODE = {	A-4
>>>>ADDITION OF SUBA MAINLINE TC(MIN.) = * 25 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/	DE 105.00 AREA TO MAIN: 14.35 INTENSITY(INCIA (AMC II): SCS SOIL	TO NODE LINE PEAK CH/HR) = AREA	105.00 1	S CODE = {	31 A-4 scs
>>>>ADDITION OF SUBA MAINLINE TC(MIN.) = * 25 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/	DE 105.00 AREA TO MAIN: 14.35 INTENSITY(INCIA (AMC II): SCS SOIL	TO NODE LINE PEAK CH/HR) = AREA	105.00 1	S CODE = {	31 A-4 scs
>>>>ADDITION OF SUBA MAINLINE TC(MIN.) = * 25 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL	DE 105.00 AREA TO MAIN: 14.35 INTENSITY (IN: YA (AMC II): SCS SOIL GROUP D	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 1.80	105.00 1 FLOW<<<< 2.656 Fp (INCH/HR) 0.20	Ap (DECIMAL) 0.100	31 A-4 scs
>>>>ADDITION OF SUBA MAINLINE TC(MIN.) = * 25 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI	DE 105.00 AREA TO MAIN: 14.35 INTENSITY(IN: PA (AMC II): SCS SOIL GROUP D IOUS LOSS RA'	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 1.80 TE, Fp(IN	105.00 1 FLOW<<<< 2.656 Fp (INCH/HR) 0.20 ICH/HR) = (Ap (DECIMAL) 0.100	31 A-4 scs
>>>>ADDITION OF SUBA MAINLINE TC (MIN.) = * 25 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI	DE 105.00 AREA TO MAIN 14.35 INTENSITY(ING PA (AMC II): SCS SOIL GROUP D IOUS LOSS RA IOUS AREA FR	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 1.80 TE, Fp(IN ACTION, A	105.00 1 FLOW<<<< 2.656 Fp (INCH/HR) 0.20 ICH/HR) = (100,00) ICH/HR) = 0.100	Ap (DECIMAL) 0.100	31
>>>>ADDITION OF SUBA MAINLINE TC (MIN.) = * 25 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES)	DE 105.00 AREA TO MAIN. 14.35 INTENSITY(ING PA (AMC II): SCS SOIL GROUP D IOUS LOSS RA' IOUS AREA FR 1.80 = 1.80 = 33.8	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA-	105.00 1 FLOW<<<<	Ap (DECIMAL) 0.100 1.20 CS) = 4.2 (INCH/HR) =	31
>>>>ADDITION OF SUBA MAINLINE TC (MIN.) = * 25 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCE	DE 105.00 AREA TO MAIN. 14.35 INTENSITY(ING TA (AMC II): SCS SOIL GROUP D IOUS LOSS RA' IOUS AREA FRI 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA-A	105.00 1 FLOW<<<<	Ap (DECIMAL) 0.100 0.20 CS) = 4.2 (INCH/HR) = 0.42	31 A-4 SCS CN 75
>>>>ADDITION OF SUBA MAINLINE TC (MIN.) = * 25 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES)	DE 105.00 AREA TO MAIN. 14.35 INTENSITY(ING TA (AMC II): SCS SOIL GROUP D IOUS LOSS RA' IOUS AREA FRI 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.80	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA-A	105.00 1 FLOW<<<<	Ap (DECIMAL) 0.100 0.20 CS) = 4.2 (INCH/HR) = 0.42	31 A-4 SCS CN 75
>>>>ADDITION OF SUBA MAINLINE TC (MIN.) = * 25 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED Fp (INCE TOTAL AREA (ACRES) =	DE 105.00 AREA TO MAIN. 14.35 INTENSITY(INGRA (AMC II): SCS SOIL GROUP D IOUS LOSS RA' IOUS AREA FRE 1.80	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA-A PEAK	105.00 I	Ap (DECIMAL) 0.100 1.20 2S) = 4.2 (INCH/HR) = 0.42 (CFS) =	31 A-4 SCS CN 75 27 = 0.11 77.53
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH TOTAL AREA (ACRES) = ***********************************	DE 105.00 AREA TO MAIN: 14.35 INTENSITY(INGTA (AMC II): SCS SOIL GROUP D IOUS LOSS RA' IOUS AREA FR 1.80	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA-A PEAK ********** TO NODE	105.00 1 FLOW<<<<	Ap (DECIMAL) 0.100 1.20 2.20 (INCH/HR) = 0.42 (CFS) = 4.2 (CFS) =	A-4 scs cn 75 27 = 0.11 77.53
MAINLINE TC (MIN.) = * 25 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI TOTAL AREA (ACRES) = ***********************************	DE 105.00 AREA TO MAIN: 14.35 INTENSITY(IN: TA (AMC II): SCS SOIL GROUP D IOUS LOSS RA: IOUS AREA FR: 1.80 1.80 33.88 ************** DE 105.00 W TRAVEL TIL ESTIMATED PI:	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA-A PEAK TO NODE ME THRU S PESIZE (N	105.00 1 FLOW<>>> 2.656 Fp (INCH/HR) 0.20 ICH/HR) = 0.100 IA RUNOFF(CE AVERAGED FR VERAGED AP (FLOW RATE *********** 106.00 1 SUBAREA<>>> ION-PRESSURE	Ap (DECIMAL) 0.100 1.20 CFS) = 4.2 CFS) = 4.2 CFS =	A-4 SCS CN 75 27 = 0.11 77.53 ***********************************
MAINLINE TC (MIN.) = * 25 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCF TOTAL AREA (ACRES) = ***********************************	DE 105.00 AREA TO MAIN. 14.35 INTENSITY(ING PA (AMC II): SCS SOIL GROUP D IOUS LOSS RAY IOUS AREA FR. = 1.80 = 33.80 H/HR) = 0.2 33.8 ********************************	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 1.80 TE, Fp(IN ACTION, A SUBARE 0 AREA-A FEAK ********* TO NODE ME THRU S PESIZE (N ANNING'S IS 25.3	105.00 1 FLOW<<<< 2.656 Fp (INCH/HR) 0.20 ICH/HR) = (0.20 ICH/HR) = 0.100 IA RUNOFF (CHAVERAGED AP IVERAGED AP FLOW RATE V***********************************	Ap (DECIMAL) 0.1002020	A-4 SCS CN 75 27 = 0.11 77.53

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ESTIMATED PIPE DIAMETER (INCH) = 36.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 77.53
 PIPE TRAVEL TIME (MIN.) = 0.92 Tc (MIN.) = 15.27
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 106.00 = 3730.00 FEET.
*******************
 FLOW PROCESS FROM NODE 106.00 TO NODE 106.00 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc (MIN.) = 15.27
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.564
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp
                                             SCS
                                      Ар
    LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                 B 2.80 0.30 0.100 56
 COMMERCIAL
 COMMERCIAL
                  С
                        7.60 0.25 0.100 69
                 C 0.40 0.25 0.850 69
 PUBLIC PARK
 COMMERCIAL
                  D 10.50 0.20 0.100
                                             75
 RESIDENTIAL
 ".4 DWELLING/ACRE" D 0.30 0.20 0.900 75
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.125
 SUBAREA AREA (ACRES) = 21.60 SUBAREA RUNOFF (CFS) = 49.29
 EFFECTIVE AREA(ACRES) = 55.40 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.31
 TOTAL AREA(ACRES) = 55.4
                          PEAK FLOW RATE(CFS) =
                                           124.03
******************
 FLOW PROCESS FROM NODE 106.00 TO NODE 106.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
_____
 MAINLINE Tc(MIN.) = 15.27
                                              A-6
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.564
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp
                                             SCS
    LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                 B 6.80 0.30 0.100
                  C 12.10 0.25 0.100 69
 COMMERCIAL
 PUBLIC PARK
                  C 1.00 0.25 0.850 69
                  D
                        4.50 0.20 0.100 75
 COMMERCIAL
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.131
 SUBAREA AREA (ACRES) = 24.40 SUBAREA RUNOFF (CFS) = 55.58
 EFFECTIVE AREA(ACRES) = 79.80 AREA-AVERAGED Fm(INCH/HR) = 0.06
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.25
 TOTAL AREA(ACRES) = 79.8 PEAK FLOW RATE(CFS) = 179.61
******************
 FLOW PROCESS FROM NODE 106.00 TO NODE 107.00 IS CODE = 31
______
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 503.00 DOWNSTREAM(FEET) = 485.00
 FLOW LENGTH (FEET) = 808.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 48.0 INCH PIPE IS 35.0 INCHES
```

```
PIPE-FLOW VELOCITY (FEET/SEC.) = 18.27
 ESTIMATED PIPE DIAMETER (INCH) = 48.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 179.61
 PIPE TRAVEL TIME (MIN.) = 0.74 Tc (MIN.) = 16.01
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 107.00 = 4538.00 FEET.
******************
 FLOW PROCESS FROM NODE 107.00 TO NODE 107.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
_____
 MAINLINE Tc(MIN.) = 16.01
                                                  A-8
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.497
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/
                 SCS SOIL AREA
                                                  SCS
                                    Fρ
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                     В
                             3.40
                                    0.30
                                            0.100
 COMMERCIAL
                      C
                             6.70
                                    0.25
                                            0.100
                                                   69
 PUBLIC PARK
                             0.10
                                    0.25
                                            0.850
                                            0.100
 COMMERCIAL
                      D
                             2.50
                                     0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.106
 SUBAREA AREA (ACRES) = 12.70
                            SUBAREA RUNOFF (CFS) = 28.23
 EFFECTIVE AREA(ACRES) = 92.50 AREA-AVERAGED Fm(INCH/HR) = 0.06
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.23
                     92.5
 TOTAL AREA (ACRES) =
                            PEAK FLOW RATE(CFS) =
                                                  203.00
*****************
 FLOW PROCESS FROM NODE 107.00 TO NODE 107.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
_____
 MAINLINE Tc(MIN.) = 16.01
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.497
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                    Fρ
                                            Αp
                                                  SCS
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 COMMERCIAL
                     В
                             7.20
                                     0.30
                                            0.100
                             0.70
 PUBLIC PARK
                      В
                                     0.30
                                            0.850
                      C
                             7.60
                                     0.25
                                            0.100
                                                  69
 COMMERCIAL
 PUBLIC PARK
                      С
                             0.30
                                     0.25
                                            0.850
                                                  75
 COMMERCIAL
                      D
                             4.70
                                     0.20
                                            0.100
 PUBLIC PARK
                      D
                             0.40
                                            0.850
                                     0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.150
 SUBAREA AREA(ACRES) = 20.90
                            SUBAREA RUNOFF (CFS) = 46.23
 EFFECTIVE AREA(ACRES) = 113.40 AREA-AVERAGED Fm(INCH/HR) = 0.05
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.22
 TOTAL AREA (ACRES) =
                  113.4 PEAK FLOW RATE(CFS) =
*******************
 FLOW PROCESS FROM NODE 107.00 TO NODE 108.00 IS CODE = 31
...........
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <>>>
_____
 ELEVATION DATA: UPSTREAM(FEET) = 485.00 DOWNSTREAM(FEET) = 480.00
 FLOW LENGTH (FEET) = 933.00 MANNING'S N = 0.013
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DEPTH OF FLOW IN 69.0 INCH PIPE IS 53.6 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 11.51
 ESTIMATED PIPE DIAMETER (INCH) = 69.00
                               NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 249.23
 PIPE TRAVEL TIME (MIN.) = 1.35 Tc (MIN.) = 17.36
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 108.00 = 5471.00 FEET.
******************
 FLOW PROCESS FROM NODE 108.00 TO NODE 108.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc(MIN.) = 17.36
                                                A - 18
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.385
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/
                  SCS SOIL AREA
                                 Fρ
                                          αA
                                                 SCS
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                            3.50
                                    0.30
                                           0.100
 COMMERCIAL
                     R
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                                           0.900
                            0.60
                                    0.30
                                                  56
 COMMERCIAL
                            2.80
                                    0.25
                                           0.100
                                                  69
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                    C
                            0.80
                                    0.25
                                           0.900
                                                  69
                            0.60
                                    0.20
                                           0.100
 COMMERCIAL
                     D
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.235
 SUBAREA AREA(ACRES) = 8.30
                            SUBAREA RUNOFF (CFS) = 17.34
 EFFECTIVE AREA(ACRES) = 121.70 AREA-AVERAGED Fm(INCH/HR) = 0.06
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.22
 TOTAL AREA (ACRES) =
                   121.7
                             PEAK FLOW RATE(CFS) =
*****************
 FLOW PROCESS FROM NODE 108.00 TO NODE 108.00 IS CODE = 81
_____
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc(MIN.) = 17.36
                                                  A-9
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.385
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/
                 SCS SOIL AREA
                                 Fρ
                                          Aρ
                                                 SCS
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 APARTMENTS
                      В
                            0.40
                                 0.30
                                           0.200
 APARTMENTS
                      C.
                            5.50
                                    0.25
                                           0.200
                                                  69
                                           0.200
 APARTMENTS
                            3.20
                                    0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.200
 SUBAREA AREA(ACRES) = 9.10
                            SUBAREA RUNOFF (CFS) = 19.15
 EFFECTIVE AREA(ACRES) = 130.80 AREA-AVERAGED Fm(INCH/HR) = 0.05
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.22
 TOTAL AREA (ACRES) = 130.8
                             PEAK FLOW RATE(CFS) =
                                                 274.29
*****************
 FLOW PROCESS FROM NODE 108.00 TO NODE 108.00 IS CODE = 1
 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE <<<<
______
 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
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TIME OF CONCENTRATION (MIN.) = 17.36
 RAINFALL INTENSITY (INCH/HR) = 2.38
 AREA-AVERAGED Fm(INCH/HR) = 0.05
 AREA-AVERAGED Fp (INCH/HR) = 0.25
 AREA-AVERAGED Ap = 0.22
 EFFECTIVE STREAM AREA(ACRES) = 130.80
 TOTAL STREAM AREA(ACRES) = 130.80
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 274.29
******************
 FLOW PROCESS FROM NODE 110.00 TO NODE 111.00 IS CODE = 21
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
_____
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 330.00
 ELEVATION DATA: UPSTREAM(FEET) = 645.00 DOWNSTREAM(FEET) = 625.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 5.417
                                                    A-10
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 4.610
 SUBAREA To AND LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                    Fρ
                                             Дp
                                                     SCS Tc
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
     LAND USE
 RESIDENTIAL
 ".4 DWELLING/ACRE" C
                              0.40
                                       0.25
                                              0.900
                                                    69
                                                           8.68
 COMMERCIAL
                       D
                              0.30
                                       0.20
                                              0.100
                                                     7.5
                                                           5.42
                             1.30
                                       0.20
                                                     75 8.61
 PUBLIC PARK
                                              0.850
 RESIDENTIAL
                     D 1.00
                                      0.20
                                            0.900
 ".4 DWELLING/ACRE"
                                                    7.5
                                                           8.68
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.798
 SUBAREA RUNOFF(CFS) = 12.00
 TOTAL AREA (ACRES) = 3.00 PEAK FLOW RATE (CFS) =
*******************
 FLOW PROCESS FROM NODE 111.00 TO NODE 112.00 IS CODE = 62
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
UPSTREAM ELEVATION(FEET) = 625.00 DOWNSTREAM ELEVATION(FEET) = 595.00
 STREET LENGTH (FEET) = 517.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL (DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 18.99
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH (FEET) = 0.39
   HALFSTREET FLOOD WIDTH (FEET) = 12.54
```

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AVERAGE FLOW VELOCITY (FEET/SEC.) = 5.94
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 2.30
 STREET FLOW TRAVEL TIME (MIN.) = 1.45 Tc (MIN.) = 6.87
                                                    \Delta - 11
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 4.031
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
                     С
                             2.30 0.25
                                              0.100
 COMMERCIAL
 RESIDENTIAL
                     C 0.30
                                       0.25
                                              0.900
 ".4 DWELLING/ACRE"
                       D 1.00
 COMMERCIAL
                                       0.20
                                              0.100
                                                      75
 RESIDENTIAL
                     D 0.30 0.20 0.900
 ".4 DWELLING/ACRE"
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.223
 SUBAREA AREA(ACRES) = 3.90 SUBAREA RUNOFF(CFS) = 13.97
 EFFECTIVE AREA(ACRES) = 6.90 AREA-AVERAGED Fm(INCH/HR) = 0.10
 AREA-AVERAGED Fp(INCH/HR) = 0.21 AREA-AVERAGED Ap = 0.47
 TOTAL AREA (ACRES) = 6.9 PEAK FLOW RATE (CFS) = 24.40
 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.41 HALFSTREET FLOOD WIDTH(FEET) = 14.02
 FLOW VELOCITY (FEET/SEC.) = 6.26 DEPTH*VELOCITY (FT*FT/SEC.) = 2.58
 LONGEST FLOWPATH FROM NODE 110.00 TO NODE 112.00 = 847.00 FEET.
******************
 FLOW PROCESS FROM NODE 112.00 TO NODE 113.00 IS CODE = 62
______
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
______
 UPSTREAM ELEVATION(FEET) = 595.00 DOWNSTREAM ELEVATION(FEET) = 585.00
 STREET LENGTH (FEET) = 389.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL (DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
                                                 38.11
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH (FEET) = 0.52
  HALFSTREET FLOOD WIDTH (FEET) = 19.88
  AVERAGE FLOW VELOCITY (FEET/SEC.) = 5.12
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 2.65
 STREET FLOW TRAVEL TIME (MIN.) = 1.27 Tc (MIN.) = 8.13
                                                     A - 12
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.662
 SUBAREA LOSS RATE DATA(AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA Fp
                                               αA
    LAND USE
                     GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                     C 5.00 0.25
                                             0.100
                                                      69
 COMMERCIAL
 RESIDENTIAL.
 ".4 DWELLING/ACRE" C 2.20
                                       0.25
                                              0.900
```

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COMMERCIAL	D	1.00	0.20	0 100	75
RESIDENTIAL					
".4 DWELLING/ACRE"					75
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU				. 24	
SUBAREA AREA(ACRES) =				S) = 27.	39
EFFECTIVE AREA(ACRES) =	15.40) AREA-A	VERAGED F	m(INCH/HR)	= 0.09
AREA-AVERAGED Fp(INCH/H	(R) = 0.23	3 AREA-AVE	RAGED Ap	= 0.40	40 51
TOTAL AREA (ACRES) =	15.4	PEAK	FLOW RATE	(CFS) =	49.51
END OF SUBAREA STREET F	LOW HYDRA	JLICS:			
DEPTH(FEET) = 0.56 HA					
FLOW VELOCITY (FEET/SEC.					
LONGEST FLOWPATH FROM N	ODE II	J.UU TO NOL	E 113.	00 = 12	36.00 FEET.
******	*****	******	******	******	******
FLOW PROCESS FROM NODE				S CODE =	31
>>>>COMPUTE PIPE-FLOW					
>>>>USING COMPUTER-EST	'IMATED PI	PESIZE (NON	I-PRESSURE	FLOW) <<<<	<
ELEVATION DATA: UPSTREA	 M(FEET) =	======= 585.00	DOWNSTREA	 M(FEET) =	565.00
FLOW LENGTH (FEET) = 7				(,	
DEPTH OF FLOW IN 27.0			NCHES		
PIPE-FLOW VELOCITY (FEET					1
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 4		27.00 N	IUMBER OF	PIPES =	1
PIPE TRAVEL TIME (MIN.)	= 0.82	Tc(MIN.)	= 8.9	6	
LONGEST FLOWPATH FROM N	ODE 11	0.00 TO NOI	E 114.	00 = 19	38.00 FEET.

LTOM LVOCESS LVOM MODE	114.00	IO NODE	TT4.00 T		
>>>>ADDITION OF SUBARE		LINE PEAK F	LOW<		
MAINLINE TC(MIN.) =	 8.96				
MAINLINE Tc(MIN.) = * 25 YEAR RAINFALL INT	8.96 ENSITY(IN	======================================			
MAINLINE Tc(MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(8.96 ENSITY(ING AMC II):	======== CH/HR) = 3	.468		A-13
MAINLINE Tc(MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/	8.96 ENSITY(ING AMC II): SCS SOIL	======================================	.468 Fp		A-13
MAINLINE Tc(MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE	8.96 ENSITY(ING AMC II): SCS SOIL GROUP	CH/HR) = 3 AREA (ACRES) (Fp (INCH/HR)	Ap	A-13 scs cN
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE COMMERCIAL	8.96 ENSITY(ING AMC II): SCS SOIL GROUP C	======================================	Fp (INCH/HR) 0.25	Ap (DECIMAL) 0.100	A-13 scs cn 69
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL	8.96 ENSITY(ING AMC II): SCS SOIL GROUP C C	AREA (ACRES) (1.60 0.20	Fp (INCH/HR) 0.25 0.25	Ap (DECIMAL) 0.100 0.850	A-13 scs cn 69 69
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE"	8.96 ENSITY(INAMC II): SCS SOIL GROUP C C C	AREA (ACRES) (1.60 0.20 1.10	Fp (INCH/HR) 0.25 0.25 0.25	Ap (DECIMAL) 0.100 0.850	A-13 scs cn 69 69
MAINLINE TC (MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU	8.96 ENSITY(INAMC II): SCS SOIL GROUP C C C	AREA (ACRES) (1.60 0.20 1.10 TE, FP(INCE	Fp (INCH/HR) 0.25 0.25 0.25 1/HR) = 0	Ap (DECIMAL) 0.100 0.850	A-13 scs cn 69 69
MAINLINE TC (MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU	8.96 ENSITY(INAMC II): SCS SOIL GROUP C C C C S LOSS RAMS	AREA (ACRES) (1.60 0.20 1.10 TE, FP(INCHACTION, AP	Fp (INCH/HR) 0.25 0.25 0.25 (I/HR) = 0 = 0.455	Ap (DECIMAL) 0.100 0.850 0.900 .25	A-13 scs cn 69 69
MAINLINE TC (MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) =	8.96 ENSITY(INC AMC II): SCS SOIL GROUP C C C S LOSS RA'S AREA FRI	AREA (ACRES) (1.60 0.20 1.10 TE, FP(INCHACTION, AP SUBAREA	Fp (INCH/HR) 0.25 0.25 0.25 (I/HR) = 0 = 0.455 RUNOFF (CF	Ap (DECIMAL) 0.100 0.850 0.900 .25	A-13 scs cN 69 69
MAINLINE TC (MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) =	8.96 ENSITY(INCAMC II): SCS SOIL GROUP C C C S LOSS RACS S AREA FRI 2.90 18.30	AREA (ACRES) (1.60 0.20 1.10 IF, FP (INCHACTION, AP SUBAREA O AREA-AV	Fp (INCH/HR) 0.25 0.25 0.25 (I/HR) = 0 = 0.455 RUNOFF (CF	Ap (DECIMAL) 0.100 0.850 0.900 .25 S) = 8.	A-13 scs cN 69 69
MAINLINE TC (MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) =	8.96 ENSITY(INC AMC II): SCS SOIL GROUP C C C S LOSS RA: S AREA FR: 2.90 18.30 R) = 0.22	AREA (ACRES) (1.60 0.20 1.10 IF, FP(INCHACTION, AP SUBAREA O AREA-AV 3 AREA-AV	Fp (INCH/HR) 0.25 0.25 0.25 (I/HR) = 0 = 0.455 RUNOFF (CF (ERAGED Ap	Ap (DECIMAL) 0.100 0.850 0.900 .25 (S) = 8.(INCH/HR) = 0.41	A-13 scs cn 69 69 69 75 = 0.09
MAINLINE TC (MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H	8.96 ENSITY(INC AMC II): SCS SOIL GROUP C C C S LOSS RAT 2.90 18.30 IR) = 0.23 18.3	AREA (ACRES) (1.60 0.20 1.10 TE, FP(INCHACTION, AP SUBAREA O AREA-AV PEAK F	Fp (INCH/HR) 0.25 0.25 0.25 (I/HR) = 0 0 = 0.455 RUNOFF (CF) (FRAGED Ap CRAGED Ap CLOW RATE (Ap (DECIMAL) 0.100 0.850 0.900 .25 S) = 8. (INCH/HR) = 0.41 CFS) =	A-13 scs cn 69 69 69 55.57
MAINLINE TC (MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) = ***********************************	8.96 ENSITY(INC AMC II): SCS SOIL GROUP C C S LOSS RAM: 18.30 18.30 ************************************	AREA (ACRES) (1.60 0.20 1.10 IE, FP(INCHACTION, AP SUBAREA DAREA-AV PEAK F ***********************************	Fp (INCH/HR) 0.25 0.25 0.25 (I/HR) = 0 = 0.455 RUNOFF (CF (FERAGED Ap CLOW RATE (I ***********************************	Ap (DECIMAL) 0.100 0.850 0.900 .25 S) = 8. (INCH/HR) = 0.41 CFS) = ********** S CODE =	A-13 scs cn 69 69 69 55.57
MAINLINE TC (MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) = ***********************************	8.96 ENSITY(INC AMC II): SCS SOIL GROUP C C C S LOSS RAM: S AREA FR 2.90 18.30 R) = 0.20 18.3 ************************************	AREA (ACRES) (1.60 0.20 1.10 TE, FP(INCHACTION, AP SUBAREA DAREA-AV PEAK F *********** TO NODE LINE PEAK F	Fp (INCH/HR) 0.25 0.25 0.25 1/HR) = 0 455 RUNOFF (CF FERAGED Fm FRAGED Ap TLOW RATE (Ap (DECIMAL) 0.100 0.850 0.900 .25 S) = 8.(INCH/HR) = 0.41 CFS) = ***********************************	A-13 scs cn 69 69 69 75 = 0.09 55.57
MAINLINE TC (MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) = ***********************************	8.96 ENSITY(INC AMC II): SCS SOIL GROUP C C C S LOSS RA: S AREA FR2 2.90 18.30 R) = 0.2: 18.3 **********	AREA (ACRES) (1.60 0.20 1.10 TE, FP(INCHACTION, AP SUBAREA D AREA-AV PEAK F *********** TO NODE LINE PEAK F	Fp (INCH/HR) 0.25 0.25 0.25 1/HR) = 0 455 RUNOFF (CF FERAGED Fm FRAGED Ap TLOW RATE (Ap (DECIMAL) 0.100 0.850 0.900 .25 S) = 8.(INCH/HR) = 0.41 CFS) = ***********************************	A-13 scs cn 69 69 69 75 = 0.09 55.57
MAINLINE TC (MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE COMMERCIAL PUBLIC PARK RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) = ***********************************	8.96 ENSITY(INC AMC II): SCS SOIL GROUP C C C SI LOSS RAM: 11.3 EN 10 0.2: 18.30 EN 10 0.2:	AREA (ACRES) (1.60 0.20 1.10 TE, FP(INCHACTION, AP SUBAREA O AREA-AVE PEAK F *********** TO NODE LINE PEAK F	Fp (INCH/HR) 0.25 0.25 0.25	Ap (DECIMAL) 0.100 0.850 0.900 .25 S) = 8.(INCH/HR) = 0.41 CFS) = ***********************************	A-13 scs cn 69 69 69 75 = 0.09 55.57

CUDADEA IOCO DAME DAMA	(AMC TT).				A -1	1 4
SUBAREA LOSS RATE DATA	(AMC II):	7057	En	7.10		
DEVELOPMENT TYPE/ LAND USE	SCS SUIT	AKEA	th (TMCII/IID)	AP	SCS	
COMMERCIAL	GROOT	9 00	0 25	0 100	69	
PUBLIC PARK	C	1 90	0.25 0.25	0.100	69	
RESIDENTIAL	C	1.50	0.23	0.000	0,5	
".4 DWELLING/ACRE"	C	2 70	0.25	0 900	69	
	D		0.20			
RESIDENTIAL	D	1.10	0.20	0.100	7.5	
".4 DWELLING/ACRE"	D	0.30	0.20	0.900	75	
SUBAREA AVERAGE PERVIC					, 0	
SUBAREA AVERAGE PERVIC						
SUBAREA AREA(ACRES) =				(S) = 54.	95	
EFFECTIVE AREA(ACRES)	= 36.30	AREA-	AVERAGED Fm	n(INCH/HR)	= 0.09	
AREA-AVERAGED Fp(INCH/						
TOTAL AREA (ACRES) =	36.3	PEAK	FLOW RATE	(CFS) =	110.51	
, ,				,		
******						***
FLOW PROCESS FROM NODE	114.00	TO NODE	114.00 I	S CODE =	81	
>>>>ADDITION OF SUBAR	EA TO MAIN	 LINE PEAK	FLOW<<<<			
MAINLINE Tc(MIN.) =					_ 1	-
* 25 YEAR RAINFALL IN			3.468		A-1	_5
SUBAREA LOSS RATE DATA	(AMC II):					
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp	Ap	SCS	
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
COMMERCIAL	C	4.50	0.23	0.100	09	
	С	1.20	0.25	0.850	69	
RESIDENTIAL						
".4 DWELLING/ACRE"					69	
SUBAREA AVERAGE PERVIC				1.25		
SUBAREA AVERAGE PERVIC						
SUBAREA AREA (ACRES) =						
EFFECTIVE AREA (ACRES)					= 0.09	
AREA-AVERAGED Fp (INCH/					100.00	
TOTAL AREA (ACRES) =	45.8	PEAK	FLOW RATE	(CFS) =	139.06	
******	******	******	*******	*******	*******	***
FLOW PROCESS FROM NODE						
	114.00	TO NODE	114.00 1	.5 CODE =	01	
>>>>ADDITION OF SUBAR	EA TO MAIN	LINE PEAK	FLOW<			
	:=======		=======			
MAINLINE Tc(MIN.) =						_
* 25 YEAR RAINFALL IN		CH/HR) =	3.468		OA	-3
SUBAREA LOSS RATE DATA	,					
DEVELOPMENT TYPE/	SCS SOIL		Fp	Ap	SCS	
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
NATURAL FAIR COVER						
"OPEN BRUSH"	С	5.30	0.25	1.000	77	
NATURAL FAIR COVER						
"WOODLAND, GRASS"	С	0.30	0.25	1.000	77	
SUBAREA AVERAGE PERVIC	US LOSS RA	TE, Fp(IN	CH/HR) = 0	.25		
SUBAREA AVERAGE PERVIC						
SUBAREA AREA(ACRES) =						
EFFECTIVE AREA(ACRES)	= 51.40	O AREA-	AVERAGED Fm	n(INCH/HR)	= 0.11	
AREA-AVERAGED Fp (INCH/	HR) = 0.24	4 AREA-A	VERAGED Ap	= 0.46		
TOTAL AREA (ACRES) =	51.4	PEAK	FLOW RATE	(CFS) =	155.28	
Data: 09/14/2019	File nom	O. DA2A25U	C DEC		Page 12	

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>>>>COMPUTE PIPE-FLO	STIMATED PI	PESIZE (NO	N-PRESSURE		
ELEVATION DATA: UPSTR FLOW LENGTH (FEET) = DEPTH OF FLOW IN 42. PIPE-FLOW VELOCITY (FE ESTIMATED PIPE DIAMET PIPE-FLOW (CFS) = PIPE TRAVEL TIME (MIN. LONGEST FLOWPATH FROM	EAM(FEET) = 1017.00 M 0 INCH PIPE ET/SEC.) = ER(INCH) = 155.28) = 0.87 NODE 11	565.00 ANNING'S N IS 32.6 19.38 42.00 Tc (MIN. 0.00 TO NO	DOWNSTREAM = 0.013 INCHES NUMBER OF 1) = 9.83 DE 115.0	M(FEET) = PIPES = 3 00 = 29	535.00 1 55.00 FEET.

>>>>ADDITION OF SUBA			FLOW<<<<<		
MAINLINE Tc(MIN.) = * 25 YEAR RAINFALL I	9.83 NTENSITY(IN	CH/HR) =	3.290	Z	4-16
SUBAREA LOSS RATE DAT. DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL PUBLIC PARK	SCS SOIL	AREA	Fp	Ар	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL	В	3.40	0.30	0.100	56
COMMERCIAL	С	11.00	0.25	0.100	69
PUBLIC PARK	С	1.80	0.25	0.850	69
RESIDENTIAL					
".4 DWELLING/ACRE"	С	1.50	0.25	0.900	69
COMMERCIAL	D	3.20	0.20	0.100	75
SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI				.25	
SUBAREA AREA (ACRES) =	JUS AKEA EK	ACTION, AP	= U.ZZZ	2) - 60	0.1
EFFECTIVE AREA (ACRES)					
AREA-AVERAGED Fp (INCH					0.10
TOTAL AREA (ACRES) =	72.3	PEAK	FLOW RATE(CFS) =	207.88

FLOW PROCESS FROM NOD		TO NODE	100.00 1	 	 2T
>>>>COMPUTE PIPE-FLO	W TRAVEL TI	ME THRU SU	BAREA<		
>>>>USING COMPUTER-E	STIMATED PI	PESIZE (NO	N-PRESSURE	FLOW) <<<<	<
ELEVATION DATA: UPSTR				M(FEET) =	480.00
FLOW LENGTH (FEET) =					
DEPTH OF FLOW IN 42.			INCHES		
PIPE-FLOW VELOCITY (FE					4
ESTIMATED PIPE DIAMET		42.00	NUMBER OF 1	PIPES =	Τ
PIPE-FLOW(CFS) =		ma /MTN	\ _ 10 F'	7	
PIPE TRAVEL TIME (MIN. LONGEST FLOWPATH FROM) = U./4	U UU TO MO) = 10.5	/)	65 NN 🗁 🗁 🗂
MONJEST LEGMENTE LKOM	וו מעטאו	0.00 IO NO	100.0	JU - 4U	OJ.UU FEEI.
		also also also also also also also also	******	******	******
******	******	****			

 ZO YEAK KAINFALL IN 	10.57 TENSITY(IN	CH/HR) =	3.158		A-17
SUBAREA LOSS RATE DATA	(AMC II):				
DEVELOPMENT TYPE/ LAND USE COMMERCIAL	SCS SOIL	AREA	Fp	Ap	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL	В	3.10	0.30	0.100	56
PUBLIC PARK	В	1.40	0.30	0.850	56
RESIDENTIAL					
".4 DWELLING/ACRE" COMMERCIAL	В	1.10	0.30	0.900	56
COMMERCIAL	С	5.10	0.25	0.100	69
PUBLIC PARK	С	1.90	0.25	0.850	69
RESIDENTIAL					
".4 DWELLING/ACRE"			0.25		69
SUBAREA AVERAGE PERVIO				.27	
SUBAREA AVERAGE PERVIO					
SUBAREA AREA(ACRES) =					
EFFECTIVE AREA(ACRES)					= 0.10
AREA-AVERAGED Fp(INCH/					
TOTAL AREA (ACRES) =	88.5	PEAK	FLOW RATE (CFS) =	243.49

FLOW PROCESS FROM NODE				S CODE =	81
>>>>ADDITION OF SUBAR					
////ADDITION OF SUBAR					
MAINLINE Tc(MIN.) =	10.57				_
* 25 YEAR RAINFALL IN	TENSITY (IN	CH/HR) =	3.158		A-1
SUBAREA LOSS RATE DATA	(AMC II):	,			
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fρ	αA	SCS
DEVELOPMENT TYPE/ LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL	D	2.70	0.20	0.100	75
PUBLIC PARK	D	0.10	0.20 0.20	0.850	75
RESIDENTIAL					
".4 DWELLING/ACRE"	D	0.50	0.20	0.900	75
SUBAREA AVERAGE PERVIO					
SUBAREA AVERAGE PERVIO					
SUDAREA AVEKAGE PEKVIU				c) – 0	2.4
	3.30	SUBARE	A KUNUFF (CF	31 - 3.	4 7
SUBAREA AREA(ACRES) =	3.30 = 91.8	SUBARE 0 AREA-	A RUNOFF(CF AVERAGED Fm	(INCH/HR)	= 0.10
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES)	= 91.8	0 AREA-	AVERAGED Fm	(INCH/HR)	= 0.10
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) AREA-AVERAGED Fp(INCH/	= 91.8 HR) $=$ 0.2	0 AREA- 5 AREA-A	AVERAGED Fm VERAGED Ap	(INCH/HR) = 0.40	= 0.10
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES)	= 91.8 HR) $=$ 0.2	0 AREA- 5 AREA-A	AVERAGED Fm VERAGED Ap	(INCH/HR) = 0.40	= 0.10
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED Fp (INCH/ TOTAL AREA (ACRES) =	= 91.8 HR) = 0.2 91.8	0 AREA- 5 AREA-A PEAK	AVERAGED Fm VERAGED Ap FLOW RATE((INCH/HR) = 0.40 CFS) =	= 0.10 252.72
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED Fp (INCH/ TOTAL AREA (ACRES) =	= 91.8 HR) = 0.2 91.8	0 AREA- 5 AREA-A PEAK	AVERAGED Fm VERAGED Ap FLOW RATE((INCH/HR) = 0.40 CFS) =	= 0.10 252.72 *******
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED Fp (INCH/ TOTAL AREA (ACRES) =	= 91.8 HR) = 0.2 91.8	0 AREA- 5 AREA-A PEAK	AVERAGED Fm VERAGED Ap FLOW RATE((INCH/HR) = 0.40 CFS) =	= 0.10 252.72 *******
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED Fp (INCH/ TOTAL AREA (ACRES) = ***********************************	= 91.8 HR) = 0.2 91.8 ************	0 AREA-5 AREA-A PEAK ******** TO NODE	AVERAGED FM VERAGED Ap FLOW RATE(********* 108.00 I	(INCH/HR) = 0.40 CFS) = ************ S CODE =	= 0.10 252.72 *******
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED Fp (INCH/ TOTAL AREA (ACRES) = ***********************************	= 91.8 HR) = 0.2 91.8 ********* 108.00 DENT STREA	0 AREA- 5 AREA-A PEAK ******* TO NODE M FOR CON	AVERAGED FM VERAGED Ap FLOW RATE(********* 108.00 I	(INCH/HR) = 0.40 CFS) = ******** S CODE =	= 0.10 252.72 *******
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED Fp (INCH/ TOTAL AREA (ACRES) = ***********************************	= 91.8 HR) = 0.2 91.8 ********* 108.00 DENT STREA	0 AREA- 5 AREA-A PEAK ******* TO NODE M FOR CON	AVERAGED FM VERAGED Ap FLOW RATE(********* 108.00 I	(INCH/HR) = 0.40 CFS) = ******** S CODE =	= 0.10 252.72 *******
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED Fp (INCH/ TOTAL AREA (ACRES) = ***********************************	= 91.8 HR) = 0.2 91.8 ******** 108.00 DENT STREA US CONFLUE =========	0 AREA- 5 AREA-A PEAK ******* TO NODE M FOR CON	AVERAGED FM VERAGED Ap FLOW RATE(********* 108.00 I	(INCH/HR) = 0.40 CFS) = ******** S CODE =	= 0.10 252.72 *******
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED Fp (INCH/ TOTAL AREA (ACRES) = ********************************* FLOW PROCESS FROM NODE	= 91.8 HR) = 0.2 91.8 ********* 108.00 DENT STREA US CONFLUE ======== S = 2 FOR INDEP	0 AREA-5 AREA-A PEAK ********* TO NODE M FOR CON NCED STRE ====================================	AVERAGED FM VERAGED Ap FLOW RATE(********* 108.00 I	(INCH/HR) = 0.40 CFS) = ******** S CODE = 	= 0.10 252.72 *******
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED Fp (INCH/ TOTAL AREA (ACRES) = ******************** FLOW PROCESS FROM NODE	= 91.8 HR) = 0.2 91.8 ********** 108.00 DENT STREA US CONFLUE ====================================	0 AREA-5 AREA-A PEAK ********* TO NODE M FOR CON NCED STRE ENDENT ST 10.57	AVERAGED FM VERAGED Ap FLOW RATE(********* 108.00 I	(INCH/HR) = 0.40 CFS) = ******** S CODE = 	= 0.10 252.72 *******
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED Fp (INCH/ TOTAL AREA (ACRES) = *********************** FLOW PROCESS FROM NODE	= 91.8 HR) = 0.2 91.8 ********** 108.00 DENT STREA US CONFLUE ====================================	0 AREA-5 AREA-A PEAK ********* TO NODE M FOR CON NCED STRE ENDENT ST 10.57	AVERAGED FM VERAGED Ap FLOW RATE(********* 108.00 I	(INCH/HR) = 0.40 CFS) = ******** S CODE = 	= 0.10 252.72 *******
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED Fp (INCH/ TOTAL AREA (ACRES) = ********************************* FLOW PROCESS FROM NODE	= 91.8 HR) = 0.2 91.8 ********** 108.00 DENT STREA US CONFLUE ======== S = 2 FOR INDEP MIN.) = H/HR) =	0 AREA-5 AREA-A PEAK ********* TO NODE M FOR CON NCED STRE ENDENT ST 10.57 3.16	AVERAGED FM VERAGED Ap FLOW RATE(********* 108.00 I	(INCH/HR) = 0.40 CFS) = ******** S CODE = 	= 0.10 252.72 *******
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED Fp (INCH/ TOTAL AREA (ACRES) = ********************* FLOW PROCESS FROM NODE	= 91.8 HR) = 0.2 91.8 ********* 108.00 DENT STREA US CONFLUE ====================================	0 AREA-5 AREA-A PEAK ********* TO NODE	AVERAGED FM VERAGED Ap FLOW RATE(********* 108.00 I	(INCH/HR) = 0.40 CFS) = ******** S CODE = 	= 0.10 252.72 *******
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED Fp (INCH/ TOTAL AREA (ACRES) = ******************* FLOW PROCESS FROM NODE	= 91.8 HR) = 0.2 91.8 ********* 108.00 DENT STREA US CONFLUE ====================================	0 AREA-5 AREA-A PEAK ********* TO NODE	AVERAGED FM VERAGED Ap FLOW RATE(********* 108.00 I	(INCH/HR) = 0.40 CFS) = ******** S CODE = 	= 0.10 252.72 *******
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED Fp (INCH/ TOTAL AREA (ACRES) = ****************** FLOW PROCESS FROM NODE	= 91.8 HR) = 0.2 91.8 ************************************	0 AREA-5 AREA-A PEAK ********* TO NODE M FOR CON NCED STRE ====================================	AVERAGED FM VERAGED Ap FLOW RATE(********* 108.00 I FLUENCE<<<< AM VALUES<< ===================================	(INCH/HR) = 0.40 CFS) = ******** S CODE = 	= 0.10 252.72 *******
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED Fp (INCH/ TOTAL AREA (ACRES) = ****************** FLOW PROCESS FROM NODE	= 91.8 HR) = 0.2 91.8 ********* 108.00 DENT STREA US CONFLUE ======== S = 2 FOR INDEP MIN.) = H/HR) = HR) = 0.1 HR) = 0.2 40 ACRES) =	0 AREA-5 AREA-A PEAK ********** TO NODE	AVERAGED FM VERAGED Ap FLOW RATE(********* 108.00 I FLUENCE<<<< AM VALUES<< ===================================	(INCH/HR) = 0.40 CFS) = ******** S CODE = 	= 0.10 252.72 *******
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED Fp (INCH/ TOTAL AREA (ACRES) = ********************* *FLOW PROCESS FROM NODE	= 91.8 HR) = 0.2 91.8 ********* 108.00 DENT STREA US CONFLUE ======== S = 2 FOR INDEP MIN.) = H/HR) = HR) = 0.1 HR) = 0.2 40 ACRES) = S) =	0 AREA-5 AREA-A PEAK ********** TO NODE M FOR CON NCED STRE = ENDENT ST 10.57 3.16 0 5 91.80	AVERAGED FM VERAGED Ap FLOW RATE(********* 108.00 I FLUENCE<<<< AM VALUES<< REAM 2 ARE	(INCH/HR) = 0.40 CFS) = ******** S CODE = 	= 0.10 252.72 *******

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 Date: 08/14/2018
 File name: PA3A25HC.RES
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 Date: 08/14/2018
 File name: PA3A25HC.RES

** CONFLUENCE DATA ** STREAM Q Tc Intensity Fp(NUMBER (CFS) (MIN.) (INCH/HR) (INCH 1 274.29 17.36 2.385 0.25(2 252.72 10.57 3.158 0.25(Fm) Ap /HR) 0.05) 0.22 0.10) 0.40	Ae (ACRES) 130.8 91.8	HEADWATER NODE 100.00 110.00
RAINFALL INTENSITY AND TIME OF CONCENTRAT CONFLUENCE FORMULA USED FOR 2 STREAMS.	ION RATIO		
** PEAK FLOW RATE TABLE ** STREAM Q Tc Intensity Fp(NUMBER (CFS) (MIN.) (INCH/HR) (INCH 1 475.12 10.57 3.158 0.25(2 463.10 17.36 2.385 0.25(0.08) 0.32	171.4	110.00
COMPUTED CONFLUENCE ESTIMATES ARE AS FOLI PEAK FLOW RATE (CFS) = 475.12 Tc (MI EFFECTIVE AREA (ACRES) = 171.42 AREA AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-A TOTAL AREA (ACRES) = 222.6 LONGEST FLOWPATH FROM NODE 100.00 TO N	N.) = 10.5 -AVERAGED Fm(VERAGED Ap =	INCH/HR) 0.32	

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU S	ON-PRESSURE F	•	
ELEVATION DATA: UPSTREAM(FEET) = 480.00 FLOW LENGTH(FEET) = 900.00 MANNING'S DEPTH OF FLOW IN 81.0 INCH PIPE IS 64.9 PIPE-FLOW VELOCITY(FEET/SEC.) = 15.45 ESTIMATED PIPE DIAMETER(INCH) = 81.00 PIPE-FLOW(CFS) = 475.12 PIPE TRAVEL TIME(MIN.) = 0.97 Tc(MIN.) LONGEST FLOWPATH FROM NODE 100.00 TO N	DOWNSTREAM(N = 0.013 INCHES NUMBER OF PI	FEET) = PES = 1	473.00
**************************************	128.00 IS	CODE = 8	1
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK	FLOW<		
MAINLINE TC(MIN.) = 11.54 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = SUBAREA LOSS RATE DATA(AMC II): DEVELOPMENT TYPE/ SCS SOIL AREA LAND USE GROUP (ACRES) COMMERCIAL B 1.10	Fp (INCH/HR) (0.30 0.25 (CH/HR) = 0.2 (p = 0.100 (A RUNOFF (CFS) AVERAGED Fm (I VERAGED Ap = 1 FLOW RATE (CF	Ap DECIMAL) 0.100 0.100 6 = 12.6 NCH/HR) = 0.31	X-19 scs cn 56 69 0.08

```
FLOW PROCESS FROM NODE 128.00 TO NODE 128.00 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.) = 11.54
 RAINFALL INTENSITY (INCH/HR) = 3.01
 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp (INCH/HR) = 0.25
 AREA-AVERAGED Ap = 0.31
 EFFECTIVE STREAM AREA(ACRES) = 176.12
 TOTAL STREAM AREA(ACRES) = 227.30
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 475.12
*******************
 FLOW PROCESS FROM NODE 120.00 TO NODE 121.00 IS CODE = 21
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
______
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 329.00
 ELEVATION DATA: UPSTREAM(FEET) = 640.00 DOWNSTREAM(FEET) = 634.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 6.880
                                                A - 2.0
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 4.027
 SUBAREA To AND LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                           αA
                                                SCS Tc
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
     LAND USE
 COMMERCIAL
                    С
                          0.50
                                   0.25 0.100 69 6.88
 PUBLIC PARK
                     С
                            0.20
                                   0.25
                                          0.850 69 10.93
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                  C 2.70
                                   0.25 0.200 69 7.33
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                     C 1.40
                                   0.25
                                          0.900 69 11.02
 PUBLIC PARK
                            0.10
                                    0.20
                                          0.850
                                                 75 10.93
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                     D 1.30
                                   0.20
                                          0.200
                                                 75 7.33
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.381
 SUBAREA RUNOFF(CFS) = 21.95
 TOTAL AREA (ACRES) = 6.20 PEAK FLOW RATE (CFS) =
******************
 FLOW PROCESS FROM NODE 121.00 TO NODE 121.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc(MIN.) = 6.88
                                                  A-20
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 4.027
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                Fp
                                          Αр
    LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL)
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                 D 0.20
                                0.20 0.900
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
```

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```
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.900
 SUBAREA AREA(ACRES) = 0.20
                            SUBAREA RUNOFF (CFS) = 0.69
 EFFECTIVE AREA(ACRES) = 6.40 AREA-AVERAGED Fm(INCH/HR) = 0.10
 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.40
 TOTAL AREA (ACRES) = 6.4
                             PEAK FLOW RATE (CFS) =
******************
 FLOW PROCESS FROM NODE 121.00 TO NODE 122.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 634.00 DOWNSTREAM(FEET) = 626.00
 FLOW LENGTH (FEET) = 425.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 24.0 INCH PIPE IS 15.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 10.34
 ESTIMATED PIPE DIAMETER (INCH) = 24.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
                22.64
 PIPE TRAVEL TIME (MIN.) = 0.69 Tc (MIN.) = 7.56
 LONGEST FLOWPATH FROM NODE 120.00 TO NODE 122.00 =
                                                754.00 FEET.
*******************
 FLOW PROCESS FROM NODE 122.00 TO NODE 122.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc(MIN.) = 7.56
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.816
 SUBAREA LOSS RATE DATA (AMC II):
                                 Fp
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                            αA
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" C 5.40
                                    0.25
                                           0.200 69
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                    C 2.40
                                    0.25
                                           0.900 69
 COMMERCIAL
                            0.70
                                    0.25
                                           0.100
                                                69
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                    D 0.60
                                    0.20
                                           0.900
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.423
 SUBAREA AREA(ACRES) = 9.10
                           SUBAREA RUNOFF (CFS) = 30.41
 EFFECTIVE AREA(ACRES) = 15.50 AREA-AVERAGED Fm(INCH/HR) = 0.10
 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.41
 TOTAL AREA (ACRES) = 15.5
                             PEAK FLOW RATE(CFS) =
*****************
 FLOW PROCESS FROM NODE 122.00 TO NODE 123.00 IS CODE = 31
-----
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 626.00 DOWNSTREAM(FEET) = 606.00
 FLOW LENGTH (FEET) = 1030.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 30.0 INCH PIPE IS 23.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 12.58
 ESTIMATED PIPE DIAMETER (INCH) = 30.00
                               NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 51.84
 PIPE TRAVEL TIME (MIN.) = 1.36 Tc (MIN.) = 8.93
```

>>>>ADDITION OF SUBARE	EA TO MAIN	NLINE PEAK	FLOW<		
======================================	8.93		=======	=======	=======
* 25 YEAR RAINFALL INT			3.474		A-2
SUBAREA LOSS RATE DATA					
DEVELOPMENT TYPE/ LAND USE	SCS SOII	AREA	Fp	Ар	SCS
	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
APARTMENTS	C	7.60	0.25 0.25	0.200	69
COMMERCIAL	C	1.40	0.25	0.100	69
RESIDENTIAL "11+ DWELLINGS/ACRE"	C	2 30	0.25	0.200	60
RESIDENTIAL	C	2.30	0.23	0.200	09
".4 DWELLING/ACRE"	C	6 50	0.25	0 900	69
DESTDENUTAL					
"3-4 DWELLINGS/ACRE"	C	8.40	0.25	0.600	69
"3-4 DWELLINGS/ACRE" APARTMENTS	D	0.50	0.20	0.200	75
SUBAREA AVERAGE PERVIOU					
SUBAREA AVERAGE PERVIOU					
SUBAREA AREA(ACRES) =	26.70	SUBARE	A RUNOFF(CF	(S) = 80.	53
EFFECTIVE AREA(ACRES) =	= 42.2	20 AREA-	AVERAGED Fm	(INCH/HR)	= 0.11
AREA-AVERAGED Fp(INCH/F	HR) = 0.2	25 AREA-A	VERAGED Ap	= 0.46	
TOTAL AREA (ACRES) =					
**************************************	********* 123.00 EA TO MAIN	*********) TO NODE 	********* 123.00 I 	******** S CODE =	******* 81
**************************************	********* 123.00 EA TO MAIN	**********) TO NODE	********* 123.00 I FLOW<<<<	******** S CODE =	****** 81
**************************************	********* 123.00 EA TO MAIN	**********) TO NODE	********* 123.00 I FLOW<<<<	******** S CODE =	******* 81
**************************************	********* 123.00 EA TO MAIN 8.93 FENSITY(IN (AMC II):	*********) TO NODE NLINE PEAK	********** 123.00 I	********* S CODE =	******** 81 A-2
**************************************	********* 123.00 EA TO MAIN 8.93 FENSITY(IN (AMC II):	*********) TO NODE NLINE PEAK	********** 123.00 I	********* S CODE =	******** 81 A-2
**************************************	23.00 EA TO MAIN EEA TO MAIN EEA TO MAIN (8.93 (AMC II): SCS SOII GROUP	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	********** 123.00 I FLOW<>>> 3.474 Fp (INCH/HR)	******* S CODE =	**************************************
******************** FLOW PROCESS FROM NODE	23.00 EA TO MAIN EEA TO MAIN EEA TO MAIN (8.93 (AMC II): SCS SOII GROUP	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	********** 123.00 I FLOW<>>> 3.474 Fp (INCH/HR)	******* S CODE =	**************************************
****************** FLOW PROCESS FROM NODE	23.00 EA TO MAIN EEA TO MAIN EEA TO MAIN (8.93 (AMC II): SCS SOII GROUP	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	********** 123.00 I	******* S CODE =	**************************************
******************* FLOW PROCESS FROM NODE	123.00 EA TO MAIN 8.93 TENSITY(IN (AMC II): SCS SOII GROUP D D	********* TO NODE TO NODE ICH/HR) = AREA (ACRES) 0.30 1.10	********** 123.00 I FLOW<<<<< 3.474 Fp (INCH/HR) 0.20 0.20	******** S CODE =	**************************************
******************* FLOW PROCESS FROM NODE	123.00 EA TO MAIN 8.93 TENSITY(IN (AMC II): SCS SOII GROUP D D	********* TO NODE TO NODE ICH/HR) = AREA (ACRES) 0.30 1.10	********** 123.00 I FLOW<<<<< 3.474 Fp (INCH/HR) 0.20 0.20	******** S CODE =	**************************************
****************** FLOW PROCESS FROM NODE	123.00 EA TO MAIN 8.93 TENSITY(IN (AMC II): SCS SOII GROUP D D D	NCH/HR) =	********** 123.00 I FLOW<<<<< 3.474 Fp (INCH/HR) 0.20 0.20 0.20	******** S CODE = Ap (DECIMAL) 0.100 0.850 0.200	**************************************
****************** FLOW PROCESS FROM NODE	123.00 EA TO MAIN 8.93 TENSITY(IN (AMC II): SCS SOII GROUP D D D	NCH/HR) =	********** 123.00 I FLOW<<<<< 3.474 Fp (INCH/HR) 0.20 0.20 0.20	******** S CODE = Ap (DECIMAL) 0.100 0.850 0.200	**************************************
******************** FLOW PROCESS FROM NODE	123.00 EA TO MAIN 8.93 TENSITY(IN (AMC II): SCS SOII GROUP D D D	NCH/HR) =	********** 123.00 I FLOW<<<<< 3.474 Fp (INCH/HR) 0.20 0.20 0.20 0.20	******** S CODE = Ap (DECIMAL) 0.100 0.850 0.200 0.900	**************************************
************************** FLOW PROCESS FROM NODE	123.00 EA TO MAIN 8.93 TENSITY(IN (AMC II): SCS SOII GROUP D D D D	NCH/HR) =	********** 123.00 I FLOW<<<<< 3.474 Fp (INCH/HR) 0.20 0.20 0.20 0.20 0.20 0.20	******** S CODE = Ap (DECIMAL) 0.100 0.850 0.200 0.900 0.600	**************************************
******************** FLOW PROCESS FROM NODE	123.00 EA TO MAIN 8.93 TENSITY(IN (AMC II): SCS SOII GROUP D D D D US LOSS RA	*********) TO NODE	********* 123.00 I FLOW< 3.474 Fp (INCH/HR) 0.20 0.20 0.20 0.20 0.20 CH/HR) = 0	******** S CODE = Ap (DECIMAL) 0.100 0.850 0.200 0.900 0.600	**************************************
******************* FLOW PROCESS FROM NODE	******** 123.00 EA TO MAIN ===================================	********* TO NODE TO NODE LINE PEAK CHARLE AREA (ACRES) 0.30 1.10 2.00 3.80 ATE, FP(IN ARCTION, A	********** 123.00 I FLOW<<<<< ========= 3.474 Fp (INCH/HR) 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.2	Ap (DECIMAL) 0.100 0.850 0.200 0.900 0.600 .20	**************************************
******************* FLOW PROCESS FROM NODE	******** 123.00 EA TO MAIN ===================================	********* TO NODE TO NODE LINE PEAK CHARLE AREA (ACRES) 0.30 1.10 2.00 3.80 ATE, FP(IN ARCTION, A	********** 123.00 I FLOW<<<<< ========= 3.474 Fp (INCH/HR) 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.2	Ap (DECIMAL) 0.100 0.850 0.200 0.900 0.600 .20	**************************************
******************* FLOW PROCESS FROM NODE	123.00	********* TO NODE TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.30 1.10 2.00 3.80 3.80 ATE, Fp(IN RACTION, A SUBARE 20 AREA-	********* 123.00 I FLOW<<<<< ================================	******** S CODE = Ap (DECIMAL) 0.100 0.850 0.200 0.900 0.600 .20 S) = 33.	**************************************
******************* FLOW PROCESS FROM NODE	123.00	********* TO NODE TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.30 1.10 2.00 3.80 3.80 ATE, Fp(IN RACTION, A SUBARE 20 AREA-	********* 123.00 I FLOW<<<<< ================================	******** S CODE = Ap (DECIMAL) 0.100 0.850 0.200 0.900 0.600 .20 S) = 33.	**************************************
******************* FLOW PROCESS FROM NODE	123.00	********* TO NODE TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.30 1.10 2.00 3.80 3.80 ATE, Fp(IN RACTION, A SUBARE 20 AREA-	********* 123.00 I FLOW<<<<< ================================	******** S CODE = Ap (DECIMAL) 0.100 0.850 0.200 0.900 0.600 .20 S) = 33.	**************************************
******************* FLOW PROCESS FROM NODE	123.00	********* TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.30 1.10 2.00 3.80 ATE, Fp(IN RACTION, A SUBARE 20 AREA- PEAK	********* 123.00 I FLOW<<<<< ================================	******** S CODE = Ap (DECIMAL) 0.100 0.850 0.200 0.900 0.600 .20 S) = 33. (INCH/HR) = 0.50 CFS) =	**************************************

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______
 ELEVATION DATA: UPSTREAM(FEET) = 606.00 DOWNSTREAM(FEET) = 604.00
 FLOW LENGTH (FEET) = 222.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 54.0 INCH PIPE IS 40.3 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 12.61
 ESTIMATED PIPE DIAMETER (INCH) = 54.00
                               NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 160.72
 PIPE TRAVEL TIME (MIN.) = 0.29 Tc (MIN.) = 9.22
 LONGEST FLOWPATH FROM NODE 120.00 TO NODE 124.00 = 2006.00 FEET.
*****************
 FLOW PROCESS FROM NODE 124.00 TO NODE 124.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc(MIN.) = 9.22
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.411
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 APARTMENTS
                   C
                            0.10
                                   0.25
                                           0.200
 COMMERCIAL
                    C
                            1.60
                                    0.25
                                           0.100
                            0.20
                                   0.25
                                           0.850 69
 PUBLIC PARK
                    С
                     D
                            0.30
                                    0.20
                                           0.200
                                                 7.5
 APARTMENTS
 COMMERCIAL
                            2.10
                                    0.20
                                           0.100
             D
                                           0.850 75
 PUBLIC PARK
                          0.60
                                    0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.231
 SUBAREA AREA(ACRES) = 4.90 SUBAREA RUNOFF(CFS) = 14.82
 EFFECTIVE AREA(ACRES) = 58.10 AREA-AVERAGED Fm(INCH/HR) = 0.11
 AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.48
 TOTAL AREA (ACRES) =
                 58.1
                           PEAK FLOW RATE(CFS) =
******************
 FLOW PROCESS FROM NODE 124.00 TO NODE 124.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
_____
 MAINLINE Tc (MIN.) = 9.22
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.411
 SUBAREA LOSS RATE DATA(AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                 Fp
                                       αA
                                                 SCS
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" D 0.20
                                         0.200 75
                                 0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.200
 SUBAREA AREA(ACRES) = 0.20 SUBAREA RUNOFF(CFS) = 0.61
 EFFECTIVE AREA(ACRES) = 58.30 AREA-AVERAGED Fm(INCH/HR) = 0.11
 AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.48
 TOTAL AREA (ACRES) = 58.3 PEAK FLOW RATE (CFS) = 173.14
*****************
 FLOW PROCESS FROM NODE 124.00 TO NODE 125.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <>>>
```

```
ELEVATION DATA: UPSTREAM(FEET) = 604.00 DOWNSTREAM(FEET) = 546.00
 FLOW LENGTH (FEET) = 1271.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 42.0 INCH PIPE IS 29.7 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 23.78
 ESTIMATED PIPE DIAMETER (INCH) = 42.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 173.14
 PIPE TRAVEL TIME (MIN.) = 0.89 Tc (MIN.) = 10.11
 LONGEST FLOWPATH FROM NODE 120.00 TO NODE 125.00 = 3277.00 FEET.
*******************
 FLOW PROCESS FROM NODE 125.00 TO NODE 125.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc(MIN.) = 10.11
                                                   \Delta - 25
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.238
 SUBAREA LOSS RATE DATA(AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                             0.50
 APARTMENTS
                     С
                                     0.25
                                             0.200
 COMMERCIAL
                     C
                             1.20
                                      0.25
                                             0.100
                                                    69
 RESIDENTIAL
                    C 1.20
D 0.10
 ".4 DWELLING/ACRE"
                                     0.25
                                             0.900
                                                    69
 APARTMENTS
                                      0.20
                                             0.200
                                                    7.5
                             1.60
 COMMERCIAL
                                     0.20
                                            0.100
                                                    7.5
 RESIDENTIAL
 ".4 DWELLING/ACRE" D 3.00
                                     0.20 0.900
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.550
                             SUBAREA RUNOFF(CFS) = 21.33
 SUBAREA AREA(ACRES) = 7.60
 EFFECTIVE AREA(ACRES) = 65.90 AREA-AVERAGED Fm(INCH/HR) = 0.11
 AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.48
 TOTAL AREA (ACRES) =
                  65.9
                              PEAK FLOW RATE(CFS) =
                                                 185.37
*****************
 FLOW PROCESS FROM NODE 125.00 TO NODE 125.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc(MIN.) = 10.11
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.238
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                   Fρ
                                                   SCS
                                             Aρ
                    GROUP (ACRES) (INCH/HR) (DECIMAL)
                            1.90
                                      0.25
                                             0.200
 APARTMENTS
                     С
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                    C 0.60
                                      0.25
                                             0.900
                                                    69
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"
                   C
                             0.30
                                     0.25
                                             0.600
                                                    69
                             5.00
                                      0.20
                                             0.200
                                                    75
 APARTMENTS
 PUBLIC PARK
                              2.30
                                      0.20
                                             0.850
                                                    7.5
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                    D
                             3.50
                                      0.20
                                             0.900
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.530
 SUBAREA AREA(ACRES) = 13.60
                            SUBAREA RUNOFF(CFS) = 38.28
 EFFECTIVE AREA(ACRES) = 79.50 AREA-AVERAGED Fm(INCH/HR) = 0.11
 AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.49
```

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```
TOTAL AREA (ACRES) = 79.5 PEAK FLOW RATE (CFS) =
                                                 223.66
********************
 FLOW PROCESS FROM NODE 125.00 TO NODE 125.00 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
_____
 MAINLINE Tc(MIN.) = 10.11
                                           A-25.1
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.238
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                 Fр
                                           Αp
                                                 SCS
     LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE" D 10.20
                                           0.600 75
                                    0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.600
 SUBAREA AREA(ACRES) = 10.20
                           SUBAREA RUNOFF (CFS) = 28.62
 EFFECTIVE AREA(ACRES) = 89.70 AREA-AVERAGED Fm(INCH/HR) = 0.11
 AREA-AVERAGED Fp (INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.50
 TOTAL AREA (ACRES) =
                    89.7
                            PEAK FLOW RATE(CFS) =
*******************
 FLOW PROCESS FROM NODE 125.00 TO NODE 126.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 546.00 DOWNSTREAM(FEET) = 525.00
 FLOW LENGTH (FEET) = 562.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 48.0 INCH PIPE IS 37.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 23.87
 ESTIMATED PIPE DIAMETER (INCH) = 48.00
                               NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 252.28
 PIPE TRAVEL TIME (MIN.) = 0.39 Tc (MIN.) = 10.51
 LONGEST FLOWPATH FROM NODE 120.00 TO NODE 126.00 = 3839.00 FEET.
********************
 FLOW PROCESS FROM NODE 126.00 TO NODE 126.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
_____
 MAINLINE Tc(MIN.) = 10.51
                                                A - 2.6
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.169
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                 Fp
                                           Αp
                                                 SCS
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
                    C
                            5.90
                                           0.200
                                                 69
 APARTMENTS
                                   0.25
 COMMERCIAL
                    С
                                           0.100
                            0.10
                                    0.25
                                                69
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                            0.60
                                    0.25
                                           0.900
                                                 69
                    C
 APARTMENTS
                     D
                            6.00
                                    0.20
                                           0.200
                                                 75
 COMMERCIAL
                            1.10
                                    0.20
                                           0.100
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                     D
                            4.70
                                    0.20
                                           0.900
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.395
 SUBAREA AREA(ACRES) = 18.40
                           SUBAREA RUNOFF (CFS) = 51.08
 EFFECTIVE AREA(ACRES) = 108.10 AREA-AVERAGED Fm(INCH/HR) = 0.11
```

```
AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.49
 TOTAL AREA (ACRES) =
                    108.1
                             PEAK FLOW RATE (CFS) =
                                                  297.79
*******************
 FLOW PROCESS FROM NODE 126.00 TO NODE 127.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 525.00 DOWNSTREAM(FEET) = 514.00
 FLOW LENGTH (FEET) = 607.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 60.0 INCH PIPE IS 44.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 19.16
 ESTIMATED PIPE DIAMETER (INCH) = 60.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 297.79
 PIPE TRAVEL TIME (MIN.) = 0.53 Tc (MIN.) = 11.03
 LONGEST FLOWPATH FROM NODE 120.00 TO NODE 127.00 = 4446.00 FEET.
******************
 FLOW PROCESS FROM NODE 127.00 TO NODE 127.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc(MIN.) = 11.03
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.082
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/
                  SCS SOIL AREA
                                  Fρ
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                     В
                            1.50
                                  0.30
                                           0.100
                            0.20
                                                  56
 PUBLIC PARK
                      B
                                    0.30
                                           0.850
                     C
                           1.10
                                           0.200
                                                  69
 APARTMENTS
                                    0.25
 COMMERCIAL
                     C 12.70
                                    0.25
                                           0.100
                                                  69
 PUBLIC PARK
                            0.80
                                     0.25
                                           0.850
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                    С
                            4.10
                                    0.25
                                           0.900
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.303
 SUBAREA AREA(ACRES) = 20.40
                            SUBAREA RUNOFF (CFS) = 55.18
 EFFECTIVE AREA(ACRES) = 128.50 AREA-AVERAGED Fm(INCH/HR) = 0.10
 AREA-AVERAGED Fp (INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.46
 TOTAL AREA (ACRES) = 128.5 PEAK FLOW RATE (CFS) =
                                                344.53
******************
 FLOW PROCESS FROM NODE 127.00 TO NODE 127.00 IS CODE = 81
 >>>>ADDITION OF SUBARFA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc (MIN.) = 11.03
                                                 A-2.7
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.082
 SUBAREA LOSS RATE DATA (AMC II):
                                 Fр
 DEVELOPMENT TYPE/
                   SCS SOIL AREA
                                            Αp
                    GROUP (ACRES) (INCH/HR) (DECIMAL)
     LAND USE
 COMMERCIAL
                    D
                           1.20
                                 0.20
                                           0.100
                                                  7.5
 PUBLIC PARK
                      D
                           1.50
                                    0.20
                                           0.850
                                                  7.5
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                          0.10
                                    0.20
                                           0.900
                    D
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.530
```

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TOTAL AREA (ACRES) =	= 131.3 /HR) $=$ 0.2	0 AREA- 2 AREA-A	AVERAGED Fn VERAGED Ap	= 0.46	= 0.10

>>>>ADDITION OF SUBAR					
 MAINLINE Tc(MIN.) =					
MAINLINE Tc(MIN.) = * 25 YEAR RAINFALL IN	NTENSITY(IN	CH/HR) =	3.082		A-28
SUBAREA LOSS RATE DATA	A(AMC II):	ADEA	En	7	000
DEVELOPMENT TYPE/ LAND USE	SCS SOIT	(ACDEC)	tp /TNCU/UD/	AP	SCS N CN
COMMERCIAL	GROOF	1 00	U 3U	0 100	56
COMMERCIAL	B C	1 30	0.30	0.100	69
COMMERCIAL	D	12 60	0.25	0.100	75
PUBLIC PARK	ח	1 10	0.20 0.20	0.850	75
RESIDENTIAL	D	1.10	0.20	0.000	. 0
"11+ DWELLINGS/ACRE" RESIDENTIAL	D	0.10	0.20	0.200	75
".4 DWELLING/ACRE"	D	2.10	0.20	0.900	75
SUBAREA AVERAGE PERVIO					
SUBAREA AVERAGE PERVIO					
SUBAREA AREA(ACRES) =	18.20	SUBARE	A RUNOFF (CI	rs) = 49	.68
EFFECTIVE AREA(ACRES)	= 149.5	0 AREA-	AVERAGED Fn	n(INCH/HR)	
AREA-AVERAGED Fp (INCH,	/HR) = 0.2	2 AREA-A	VERAGED Ap	= 0.43	
TOTAL AREA (ACRES) =					401.71
				S CODE =	
>>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-ES	N TRAVEL TI STIMATED PI	ME THRU S PESIZE (N	 UBAREA<<<< ON-PRESSURE	:	<<
>>>>COMPUTE PIPE-FLOW	N TRAVEL TI STIMATED PI ====================================	ME THRU S PESIZE (N ====================================	UBAREA<	E FLOW) <<<- 	473.00
>>>>COMPUTE PIPE-FLOW >>>>>USING COMPUTER-ES ELEVATION DATA: UPSTREAT FLOW LENGTH (FEET) = DEPTH OF FLOW IN 54.(PIPE-FLOW VELOCITY (FEE ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM	N TRAVEL TI STIMATED PI 	ME THRU S PESIZE (N ====================================	UBAREA<	FLOW) <<< FLOW) <<< M(FEET) = PIPES = 3 00 = 5:	473.00 1 187.00 FEET.
>>>>COMPUTE PIPE-FLOW >>>>>USING COMPUTER-ES ELEVATION DATA: UPSTREAT FLOW LENGTH (FEET) = DEPTH OF FLOW IN 54.(PIPE-FLOW VELOCITY (FEE ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM	N TRAVEL TI STIMATED PI 	ME THRU S PESIZE (N ====================================	UBAREA<	FLOW) <<< FLOW) <<< M(FEET) = PIPES = 3 00 = 5:	473.00 1 187.00 FEET.
>>>>COMPUTE PIPE-FLOW >>>>>USING COMPUTER-ES ELEVATION DATA: UPSTREAT FLOW LENGTH (FEET) = DEPTH OF FLOW IN 54.(PIPE-FLOW VELOCITY (FEE ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM	N TRAVEL TI STIMATED PI ====================================	ME THRU S PESIZE (N ====================================	UBAREA<<>> ON-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 11.4 ODE 128. ************ 128.00 1	FIOW) <<< M(FEET) = PIPES = 00 = 5: ************************************	473.00 1 187.00 FEET.
>>>>COMPUTE PIPE-FLOW >>>>>USING COMPUTER-ES ELEVATION DATA: UPSTRIFLOW LENGTH (FEET) = DEPTH OF FLOW IN 54.0 PIPE-FLOW VELOCITY (FEE ESTIMATED PIPE DIAMETE PIPE-FLOW (CFS) = 4 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM ************************************	N TRAVEL TI STIMATED PI	ME THRU S PESIZE (N ====================================	UBAREA<<<<< ON-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF 1.) = 11.4 ODE 128. ************** 128.00 1	E FLOW) <<< E FLOW) <<< M (FEET) = PIPES = 3 00 = 5: S CODE = Ap (DECIMAL)	473.00 1 187.00 FEET. ************** 81 A-29 SCS CN
>>>>COMPUTE PIPE-FLOW >>>>>USING COMPUTER-ES ELEVATION DATA: UPSTRIFLOW LENGTH (FEET) = DEPTH OF FLOW IN 54.0 PIPE-FLOW VELOCITY (FEE ESTIMATED PIPE DIAMETE PIPE-FLOW (CFS) = 4 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM ************************************	N TRAVEL TI STIMATED PI	ME THRU S PESIZE (N ====================================	UBAREA<<<<< ON-PRESSURE ======== DOWNSTREA N = 0.013 INCHES NUMBER OF 1.) = 11.4 ODE 128. ************ 128.00 1 FLOW<<<<=================================	Ap (DECIMAL) 0.100	473.00 1 187.00 FEET. *********** 81 A-29 SCS CN 69

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SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.223
 SUBAREA AREA (ACRES) = 2.60 SUBAREA RUNOFF (CFS) = 6.94
 EFFECTIVE AREA(ACRES) = 152.10 AREA-AVERAGED Fm(INCH/HR) = 0.10
 AREA-AVERAGED Fp (INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.43
 TOTAL AREA (ACRES) = 152.1 PEAK FLOW RATE (CFS) =
                                               401.71
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
*******************
 FLOW PROCESS FROM NODE 128.00 TO NODE 128.00 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.) = 11.43
 RAINFALL INTENSITY (INCH/HR) = 3.02
 AREA-AVERAGED Fm(INCH/HR) = 0.10
 AREA-AVERAGED Fp (INCH/HR) = 0.22
 AREA-AVERAGED Ap = 0.43
 EFFECTIVE STREAM AREA(ACRES) = 152.10
 TOTAL STREAM AREA(ACRES) = 152.10
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 401.71
 ** CONFLUENCE DATA **
  STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
          (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
  NUMBER
   1 475.12 11.54 3.005 0.25(0.08) 0.31 176.1 110.00
   1 463.10 18.33 2.312 0.25(0.07) 0.29 227.3 100.00
         401.71 11.43 3.021 0.22(0.10) 0.43 152.1 120.00
 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
         874.96 11.43 3.021 0.23(0.09) 0.37 326.6 120.00
  1
   2 874.62 11.54 3.005 0.24(0.09) 0.36 328.2 110.00
         767.47 18.33 2.312 0.24(0.08) 0.34 379.4 100.00
 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE (CFS) = 874.96 Tc (MIN.) = 11.43
 EFFECTIVE AREA (ACRES) = 326.56 AREA-AVERAGED Fm (INCH/HR) = 0.09
 AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.37
 TOTAL AREA (ACRES) = 379.4
 LONGEST FLOWPATH FROM NODE 100.00 TO NODE 128.00 = 6371.00 FEET.
*******************
 FLOW PROCESS FROM NODE 128.00 TO NODE 129.00 IS CODE = 31
______
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 473.00 DOWNSTREAM(FEET) = 455.00
 FLOW LENGTH (FEET) = 1494.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 96.0 INCH PIPE IS 72.6 INCHES
```

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PIPE-FLOW VELOCITY (FEET/SEC.) = 21.44 ESTIMATED PIPE DIAMETER (INCH) = 96.00NUMBER OF PIPES = 1 PIPE-FLOW(CFS) = 874.96PIPE TRAVEL TIME (MIN.) = 1.16 Tc (MIN.) = 12.59LONGEST FLOWPATH FROM NODE 100.00 TO NODE 129.00 = 7865.00 FEET. ****************** FLOW PROCESS FROM NODE 129.00 TO NODE 129.00 IS CODE = 81 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>> ______ MAINLINE Tc(MIN.) = 12.59 $\Delta - 30$ * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.860 SUBAREA LOSS RATE DATA (AMC II): DEVELOPMENT TYPE/ SCS SOIL AREA Fρ SCS Αp LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN COMMERCIAL В 0.60 0.30 0.100 56 RESIDENTIAL ".4 DWELLING/ACRE" 0.60 0.30 0.900 56 COMMERCIAL С 1.80 0.25 0.100 69 RESIDENTIAL ".4 DWELLING/ACRE" 1.40 0.25 0.900 69 75 COMMERCIAL D 0.80 0.20 0.100 RESIDENTIAL ".4 DWELLING/ACRE" D 1.60 0.20 0.900 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.524 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF (CFS) = 16.74EFFECTIVE AREA(ACRES) = 333.36 AREA-AVERAGED Fm(INCH/HR) = 0.09 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.37TOTAL AREA (ACRES) = 386.2 PEAK FLOW RATE(CFS) = 874.96 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE ****************** FLOW PROCESS FROM NODE 129.00 TO NODE 129.00 IS CODE = 81 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW< _____ MAINLINE Tc(MIN.) = 12.59A - 31* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.860 SUBAREA LOSS RATE DATA (AMC II): DEVELOPMENT TYPE/ SCS SOIL AREA Αp SCS LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN 2.50 56 COMMERCIAL В 0.30 0.100 В 0.30 0.850 56 PUBLIC PARK 0.30 RESIDENTIAL "11+ DWELLINGS/ACRE" 0.10 0.30 0.200 56 RESIDENTIAL ".4 DWELLING/ACRE" 0.10 0.30 0.900 56 RESIDENTIAL "3-4 DWELLINGS/ACRE" 1.50 0.30 0.600 56 RESIDENTIAL "5-7 DWELLINGS/ACRE" В 0.20 0.30 0.500 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.30 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.344 SUBAREA RUNOFF (CFS) = 11.66 SUBAREA AREA (ACRES) = 4.70EFFECTIVE AREA(ACRES) = 338.06 AREA-AVERAGED Fm(INCH/HR) = 0.09 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.37

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TOTAL AREA (ACRES) = 390.9 PEAK FLOW RATE (CFS) = 874.96 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE ****************** FLOW PROCESS FROM NODE 129.00 TO NODE 129.00 IS CODE = 81 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW< ______ MAINLINE Tc(MIN.) = 12.59A - 31* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.860 SUBAREA LOSS RATE DATA (AMC II): DEVELOPMENT TYPE/ SCS SOIL AREA Fр GROUP (ACRES) (INCH/HR) (DECIMAL) CN LAND USE RESIDENTIAL "8-10 DWELLINGS/ACRE" В 2.90 0.30 0.400 56 COMMERCIAL С 4.70 0.25 0.100 69 PUBLIC PARK С 1.30 0.25 0.850 69 RESIDENTIAL "11+ DWELLINGS/ACRE" 0.90 0.25 0.200 69 RESIDENTIAL ".4 DWELLING/ACRE" 0.10 0.25 0.900 69 RESIDENTIAL "3-4 DWELLINGS/ACRE" С 3.80 0.25 0.600 69 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.386 SUBAREA AREA(ACRES) = 13.70 SUBAREA RUNOFF(CFS) = 34.02 EFFECTIVE AREA(ACRES) = 351.76 AREA-AVERAGED Fm(INCH/HR) = 0.09 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.37 TOTAL AREA(ACRES) = 404.6 PEAK FLOW RATE (CFS) = ****************** FLOW PROCESS FROM NODE 129.00 TO NODE 129.00 IS CODE = 81 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW< _____ MAINLINE Tc (MIN.) = 12.59 $\Delta - 31$ * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.860 SUBAREA LOSS RATE DATA (AMC II): DEVELOPMENT TYPE/ SCS SOIL AREA Fρ Αp GROUP (ACRES) (INCH/HR) (DECIMAL) LAND USE RESIDENTIAL "5-7 DWELLINGS/ACRE" 0.25 0.500 69 С 4.40 RESIDENTIAL 0.70 0.25 0.400 69 "8-10 DWELLINGS/ACRE" 75 5.00 0.20 0.100 COMMERCIAL D PUBLIC PARK 0.10 0.20 0.850 7.5 RESIDENTIAL "11+ DWELLINGS/ACRE" 10.30 0.20 0.200 7.5 RESIDENTIAL ".4 DWELLING/ACRE" 0.10 0.900 75 D 0.20 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.253 SUBAREA AREA(ACRES) = 20.60 SUBAREA RUNOFF(CFS) = 51.98 EFFECTIVE AREA(ACRES) = 372.36 AREA-AVERAGED Fm(INCH/HR) = 0.09 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.36 TOTAL AREA (ACRES) = 425.2 PEAK FLOW RATE(CFS) = *****************

FLOW PROCESS FROM NODE	129.00	TO NODE	129.00 I:	S CODE =	81	_
>>>>ADDITION OF SUBAREA						_
MAINLINE TC(MIN.) = 12 * 25 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(A DEVELOPMENT TYPE/	.59 NSITY(IN MC II):	CH/HR) =	2.860		A-31	
LAND USE RESIDENTIAL	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)		
"3-4 DWELLINGS/ACRE" RESIDENTIAL	D	1.30	0.20	0.600	75	
"5-7 DWELLINGS/ACRE" RESIDENTIAL	D	3.90	0.20	0.500	75	
"8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA(ACRES) =	LOSS RA AREA FR	TE, Fp(ING ACTION, A _l	p = 0.487	.20		
EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/HR	379.8	6 AREA-	AVERAGED Fm	(INCH/HR)	= 0.09	
TOTAL AREA (ACRES) =					948.45	
**************************************						*
>>>>COMPUTE PIPE-FLOW T >>>>USING COMPUTER-ESTI	MATED PI	PESIZE (N	ON-PRESSURE		:< :=======	_
ELEVATION DATA: UPSTREAM FLOW LENGTH(FEET) = 178 DEPTH OF FLOW IN 84.0 I PIPE-FLOW VELOCITY(FEET/ESTIMATED PIPE DIAMETER(PIPE-FLOW(CFS) = 948 PIPE TRAVEL TIME(MIN.) = LONGEST FLOWPATH FROM NO	6.00 M NCH PIPE SEC.) = INCH) = .45 1.04	ANNING'S 1 IS 67.8 28.49 84.00 Tc(MIN	N = 0.013 INCHES NUMBER OF 1	PIPES =	1	
**************************************						*
>>>>ADDITION OF SUBAREA						_
MAINLINE Tc(MIN.) = 13 * 25 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(A	.64 NSITY(IN	CH/HR) =			A-32	
DEVELOPMENT TYPE/	SCS SOIL	AREA	-	Ap		
LAND USE COMMERCIAL	GROUP B	1.30	(INCH/HR) 0.30	0.100	CN 56	
RESIDENTIAL ".4 DWELLING/ACRE"	В	1.20	0.30	0.900	56	
RESIDENTIAL "3-4 DWELLINGS/ACRE"	В	0.10	0.30	0.600	56	
COMMERCIAL	C	1.30	0.25	0.100	69	
PUBLIC PARK	С	0.10	0.25	0.850	69	
RESIDENTIAL ".4 DWELLING/ACRE" CHEADEA AVERAGE DERVIOUS			0.25		69	
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS				. 4 1		

AREA-AVERAGED Fp(INCH/HF TOTAL AREA(ACRES) = NOTE: PEAK FLOW RATE DEF	R) = 0.24 439.7	AREA-AV AREA-AV PEAK	VERAGED Fm ERAGED Ap : FLOW RATE(S) = 16. (INCH/HR) = 0.37 CFS) =	= 0.0	9
**************************************	130.00 T	O NODE				*****
>>>>ADDITION OF SUBAREA	A TO MAINLI	NE PEAK				
MAINLINE Tc(MIN.) = 13 * 25 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(F	3.64 ENSITY(INCH		2.734		4−3	2
DEVELOPMENT TYPE/ LAND USE RESIDENTIAL		AREA ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	
"3-4 DWELLINGS/ACRE"	C D	2.50	0.25 0.20	0.600 0.100	69 75	
".4 DWELLING/ACRE" RESIDENTIAL	D	1.30	0.20	0.900	75	
"3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED FP (INCH/HF TOTAL AREA(ACRES) = NOTE: PEAK FLOW RATE DEE	S LOSS RATE S AREA FRAC' 7.90 394.76 R) = 0.24 447.6	, Fp(INC TION, Ap SUBAREA AREA-A AREA-AV PEAK	CH/HR) = 0 0 = 0.599 A RUNOFF(CF) VERAGED Fm ERAGED Ap : FLOW RATE(.22 S) = 18. (INCH/HR) = 0.37	52 = 0.0	
**************************************						****
>>>>MAIN-STREAM MEMORY						
*****	*****	*****				
FLOW PROCESS FROM NODE >>>>>RATIONAL METHOD INI	TIAL SUBAR	 EA ANALY	SIS<<<<		21	
FLOW PROCESS FROM NODE >>>>RATIONAL METHOD INI >>USE TIME-OF-CONCENTRAT	TIAL SUBAR	EA ANALY APH FOR	SIS<<<< INITIAL SU		21 	
FLOW PROCESS FROM NODE >>>>>RATIONAL METHOD INI	TIAL SUBAR	EA ANALY APH FOR ====================================	SIS<<<< INITIAL SU	BAREA<<	=====	
FLOW PROCESS FROM NODE >>>>RATIONAL METHOD INI >>USE TIME-OF-CONCENTRATE INITIAL SUBAREA FLOW-LEN ELEVATION DATA: UPSTREAM TC = K*[(LENGTH** 3.00)/ SUBAREA ANALYSIS USED MI * 25 YEAR RAINFALL INTE SUBAREA TC AND LOSS RATE DEVELOPMENT TYPE/	TIAL SUBAR. TION NOMOGR. TION NOMOGR. TION NOMOGR. TION TO THE THE TO TH	EA ANALY APH FOR ====================================	SIS<<<< INITIAL SUI 00 DOWNSTRE.]**0.20 9.312 3.392 Fp	BAREA<< ======== AM(FEET) =	67 OA	5.00 — 4
FLOW PROCESS FROM NODE >>>>RATIONAL METHOD INI >>USE TIME-OF-CONCENTRATE INITIAL SUBAREA FLOW-LEN ELEVATION DATA: UPSTREAM TC = K*[(LENGTH** 3.00)/ SUBAREA ANALYSIS USED MI * 25 YEAR RAINFALL INTE SUBAREA TC AND LOSS RATE DEVELOPMENT TYPE/	TIAL SUBARITION NOMOGRATION NOMOGRATION (FEET) : ((ELEVATION INIMUM TC (MINIMUM TC (MINIM	EA ANALY APH FOR ====================================	SIS<<<< INITIAL SUI 00 DOWNSTRE.]**0.20 9.312 3.392 Fp	BAREA<< ======== AM (FEET) = Ap (DECIMAL)	67 OA SCS CN	 5.00 4

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SUBAREA RUNOFF(CFS) = 5.37 TOTAL AREA(ACRES) = 1.90 PEAK FLOW RATE(CFS) = 5.37

>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<>>> >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)
ELEVATION DATA: UPSTREAM(FEET) = 675.00 DOWNSTREAM(FEET) = 635.00 CHANNEL LENGTH THRU SUBAREA(FEET) = 421.00 CHANNEL SLOPE = 0.0950 CHANNEL BASE(FEET) = 0.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.040 MAXIMUM DEPTH(FEET) = 20.00 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.186 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" C 4.90 0.25 1.000 77 NATURAL FAIR COVER
"WOODLAND, GRASS" C 2.40 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 15.03 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 6.44 AVERAGE FLOW DEPTH(FEET) = 0.88 TRAVEL TIME(MIN.) = 1.09 Tc(MIN.) = 10.40
SUBAREA AREA (ACRES) = 7.30 SUBAREA RUNOFF (CFS) = 19.29 EFFECTIVE AREA (ACRES) = 9.20 AREA-AVERAGED Fm (INCH/HR) = 0.25 AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 1.00 TOTAL AREA (ACRES) = 9.2 PEAK FLOW RATE (CFS) = 24.31 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 1.06 FLOW VELOCITY(FEET/SEC.) = 7.25 LONGEST FLOWPATH FROM NODE 150.00 TO NODE 152.00 = 751.00 FEET.

>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
ELEVATION DATA: UPSTREAM(FEET) = 635.00 DOWNSTREAM(FEET) = 631.00 FLOW LENGTH(FEET) = 501.00 MANNING'S N = 0.013 DEPTH OF FLOW IN 27.0 INCH PIPE IS 20.5 INCHES PIPE-FLOW VELOCITY(FEET/SEC.) = 7.50 ESTIMATED PIPE DIAMETER(INCH) = 27.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 24.31 PIPE TRAVEL TIME(MIN.) = 1.11 Tc(MIN.) = 11.52 LONGEST FLOWPATH FROM NODE 150.00 TO NODE 153.00 = 1252.00 FEET.
FLOW PROCESS FROM NODE 153.00 TO NODE 153.00 IS CODE = 81
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
MAINLINE TC(MIN.) = 11.52 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.008

	AMC II):		_		OA-6
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
NATURAL FAIR COVER					
"OPEN BRUSH"	С	5.10	0.25	1.000	77
NATURAL FAIR COVER "WOODLAND, GRASS"	~	4 00	0.05	1 000	
					/ /
SUBAREA AVERAGE PERVIOUS				. 25	
SUBAREA AVERAGE PERVIOUS					F.0
SUBAREA AREA (ACRES) =					
EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/H					= 0.25
TOTAL AREA (ACRES) =	18 3	DFAK	VERAGED AP	- 1.00	15 13
TOTAL ANEA (ACNES) -	10.5	LEAN	LTOM IVETE (CF5) -	13.13

FLOW PROCESS FROM NODE			154.00 I	S CODE =	31
>>>>COMPUTE PIPE-FLOW !	TRAVEL TIM	E THRU SI	JBAREA<<<<		
>>>>USING COMPUTER-EST		,		,	
ELEVATION DATA DECEMBEAN					
ELEVATION DATA: UPSTREAM				м(геет) =	030.00
FLOW LENGTH (FEET) = 7:					
DEPTH OF FLOW IN 48.0			INCHES		
PIPE-FLOW VELOCITY(FEET, ESTIMATED PIPE DIAMETER			MIIMDED OF	DIDEC -	1
PIPE-FLOW(CFS) = 4!		40.00	NUMBER OF	PIPES =	Τ.
		To /MIN	\ _ 1/1	0	
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO	= 2.30	TC (MIN	.) = 14.1	0	
				nn - 10	63 UU EEE
**************************************	*****	*****	*****	*****	******
*******	******* 154.00	TO NODE	********* 154.00 I	*****	******
**************************************	********* 154.00 A TO MAINI	******** TO NODE	********* 154.00 I 	******** S CODE =	****** 81
**************************************	********* 154.00 A TO MAINI 4.10	******* TO NODE JINE PEAK	**************************************	********* S CODE =	****** 81
**************************************	********* 154.00 A TO MAINI 4.10 ENSITY(INC	TO NODE LINE PEAK CH/HR) =	**************************************	********* S CODE =	******* 81
**************************************	********* 154.00 A TO MAINI 4.10 ENSITY(INC	TO NODE JINE PEAK CH/HR) =	********* 154.00 I FLOW<<<< 2.683	********* S CODE = 	******** 81 OA-
******************* FLOW PROCESS FROM NODE	********** 154.00 A TO MAINI 4.10 ENSITY(INC AMC II): SCS SOIL	TO NODE JINE PEAK CH/HR) = AREA	********* 154.00 I FLOW<<<< 2.683	******** S CODE =	**************************************
******************* FLOW PROCESS FROM NODE	********** 154.00 A TO MAINI 4.10 ENSITY(INC AMC II): SCS SOIL	TO NODE JINE PEAK CH/HR) = AREA	********* 154.00 I FLOW<<<< 2.683	******** S CODE =	**************************************
****************** FLOW PROCESS FROM NODE	********* 154.00 A TO MAINI 4.10 ENSITY(INC AMC II): SCS SOIL GROUP	TO NODE INE PEAK EH/HR) = AREA (ACRES)	********* 154.00 I FLOW<<<<< 2.683 Fp (INCH/HR)	******* S CODE =	**************************************
******************* FLOW PROCESS FROM NODE	********* 154.00 A TO MAINI 4.10 ENSITY(INC AMC II): SCS SOIL GROUP	TO NODE INE PEAK EH/HR) = AREA (ACRES)	********* 154.00 I FLOW<<<<< 2.683 Fp (INCH/HR)	******* S CODE =	**************************************
****************** FLOW PROCESS FROM NODE	154.00 A TO MAINI BENSITY (INC AMC II): SCS SOIL GROUP C	TO NODE INE PEAK CH/HR) = AREA (ACRES) 0.30	********** 154.00 I FLOW<<<<< 2.683 Fp (INCH/HR) 0.25	******** S CODE =	**************************************
****************** FLOW PROCESS FROM NODE	154.00 A TO MAINI BENSITY (INC AMC II): SCS SOIL GROUP C	TO NODE INE PEAK CH/HR) = AREA (ACRES) 0.30	********** 154.00 I FLOW<<<<< 2.683 Fp (INCH/HR) 0.25	******** S CODE =	**************************************
****************** FLOW PROCESS FROM NODE	154.00 A TO MAINI ENSITY(INC AMC II): SCS SOIL GROUP C	TO NODE INE PEAK CH/HR) = AREA (ACRES) 0.30 5.70	********** 154.00 I FLOW<<<<< 2.683 Fp (INCH/HR) 0.25 0.25	******** S CODE = Ap (DECIMAL) 1.000 1.000	**************************************
***************** FLOW PROCESS FROM NODE	154.00 A TO MAINI ENSITY(INC AMC II): SCS SOIL GROUP C	TO NODE INE PEAK CH/HR) = AREA (ACRES) 0.30 5.70	********** 154.00 I FLOW<<<<< 2.683 Fp (INCH/HR) 0.25	******** S CODE = Ap (DECIMAL) 1.000 1.000	**************************************
****************** FLOW PROCESS FROM NODE	********* 154.00 A TO MAINI ENSITY(INC AMC II): SCS SOIL GROUP C C	TO NODE INE PEAK CH/HR) = AREA (ACRES) 0.30 5.70 3.40	********** 154.00 I FLOW<<<<< 2.683 Fp (INCH/HR) 0.25 0.25 0.25	******** S CODE = Ap (DECIMAL) 1.000 1.000 1.000	**************************************
****************** FLOW PROCESS FROM NODE	154.00 A TO MAINI ENSITY(INC AMC II): SCS SOIL GROUP C	TO NODE INE PEAK CH/HR) = AREA (ACRES) 0.30 5.70 3.40	********** 154.00 I FLOW<<<<< 2.683 Fp (INCH/HR) 0.25 0.25	******** S CODE = Ap (DECIMAL) 1.000 1.000 1.000	**************************************
****************** FLOW PROCESS FROM NODE	A TO MAINI A TO MAINI A TO MAINI CONSTRUCTION ANC II): SCS SOIL GROUP C C C	TO NODE INE PEAK CH/HR) = AREA (ACRES) 0.30 5.70 3.40 0.10	********** 154.00 I FLOW<<<<< 2.683 Fp (INCH/HR) 0.25 0.25 0.25 0.25	******** S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000	**************************************
******************* FLOW PROCESS FROM NODE	A TO MAINI A TO MAINI A TO MAINI CONSTRUCTION ANC II): SCS SOIL GROUP C C C	TO NODE INE PEAK CH/HR) = AREA (ACRES) 0.30 5.70 3.40 0.10	********** 154.00 I FLOW<<<<< 2.683 Fp (INCH/HR) 0.25 0.25 0.25	******** S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000	**************************************
****************** FLOW PROCESS FROM NODE	A TO MAINI A TO MAINI A TO MAINI CONSTRUCTION ANC II): SCS SOIL GROUP C C C C D	TO NODE INE PEAK EH/HR) = AREA (ACRES) 0.30 5.70 3.40 0.10 2.10	********** 154.00 I FLOW<<<<< 2.683 Fp (INCH/HR) 0.25 0.25 0.25 0.25 0.25	******** S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000	**************************************
******************* FLOW PROCESS FROM NODE	********* 154.00 A TO MAINI	TO NODE INE PEAK CH/HR) = AREA (ACRES) 0.30 5.70 3.40 0.10 2.10 1.60	********** 154.00 I FLOW<<<<< 2.683 Fp (INCH/HR) 0.25 0.25 0.25 0.25 0.20 0.20	******** S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 1.000	**************************************
************************** FLOW PROCESS FROM NODE	********* 154.00 A TO MAINI 4.10 ENSITY(INC AMC II): SCS SOIL GROUP C C C D D S LOSS RAT	TO NODE TINE PEAK TO NODE TINE PEAK CH/HR) = AREA (ACRES) 0.30 5.70 3.40 0.10 2.10 1.60 TE, FP(INC	********** 154.00 I FLOW<<<<< 2.683 Fp (INCH/HR) 0.25 0.25 0.25 0.20 0.20 CH/HR) = 0	******** S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 1.000	**************************************
**************************************	********* 154.00 A TO MAINI	TO NODE INE PEAK CH/HR) = AREA (ACRES) 0.30 5.70 3.40 0.10 2.10 1.60 TE, FP(INC ACTION, A)	********** 154.00 I FLOW<<<<< 2.683 Fp (INCH/HR) 0.25 0.25 0.25 0.20 0.20 CH/HR) = 0 p = 1.000	******** S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 1.000	**************************************
**************************************	********* 154.00 A TO MAINI	TO NODE INE PEAK CH/HR) = AREA (ACRES) 0.30 5.70 3.40 0.10 2.10 1.60 EF, FP(ING CCTION, A) SUBARE.	********** 154.00 I FLOW<<<<< 2.683 Fp (INCH/HR) 0.25 0.25 0.25 0.20 CH/HR) = 0 p = 1.000 A RUNOFF(CF	******** S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 24 S) = 29.	**************************************
**************************************	********* 154.00 A TO MAINI	******** TO NODE INE PEAK CH/HR) = AREA (ACRES) 0.30 5.70 3.40 0.10 2.10 1.60 E, Fp(INI CCTION, Ap SUBARE AREA- AREA	********* 154.00 I FLOW<<<<< 2.683 Fp (INCH/HR) 0.25 0.25 0.25 0.20 CH/HR) = 0 0 = 1.000 A RUNOFF(CF AVERAGED FM	******** S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 24 (S) = 29. (INCH/HR)	**************************************
**************************************	********* 154.00 A TO MAINI ======== 4.10 ENSITY(INC AMC II): SCS SOIL GROUP C C C D D S LOSS RAT S AREA FRA 13.20 31.50 R) = 0.24	TO NODE INE PEAK CH/HR) = AREA (ACRES) 0.30 5.70 3.40 0.10 2.10 1.60 E, Fp(ING CTION, A) SUBARE AREA-A' AREA-A' AREA-A' AREA-A'	********* 154.00 I FLOW<<<<< 2.683 Fp (INCH/HR) 0.25 0.25 0.25 0.20 0.20 CH/HR) = 0 p = 1.000 A RUNOFF(CF AVERAGED FM VERAGED AP	******** S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 24 (S) = 29. (INCH/HR) = 1.00	**************************************

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	A TO MAINI	LINE PEAK	FLOW<			
MAINLINE Tc(MIN.) = 14	======================================				======	
* 25 YEAR RAINFALL INTE		CH/HR) =	2.683	(-AC	7
SUBAREA LOSS RATE DATA (A	AMC II):	011/ 1111/	2.000	`	O 11	′
DEVELOPMENT TYPE/			Fp	Ap	SCS	
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
NATURAL FAIR COVER						
•			0.20		82	
SUBAREA AVERAGE PERVIOUS				1.20		
SUBAREA AVERAGE PERVIOUS SUBAREA AREA(ACRES) =				79) - 0	15	
EFFECTIVE AREA (ACRES) =						
AREA-AVERAGED Fp(INCH/H	R) = 0.24	4 AREA-A	VERAGED Ap	= 1.00	****	
TOTAL AREA (ACRES) =	31.7	PEAK	FLOW RATE	(CFS) =	69.59	
******		+++++++	++++++++	. + + + + + + + + +	++++++	
FLOW PROCESS FROM NODE						
>>>>COMPUTE PIPE-FLOW T						
>>>>USING COMPUTER-EST						
PIPE TRAVEL TIME (MIN.) =	= 2.52		.) = 16.6			
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO	= 2.52 DDE 150	0.00 TO N	ODE 155.	52 .00 = 28 *******	73.00 FE	
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO ************************************	= 2.52 DDE 150 ************************************	0.00 TO N ******* TO NODELINE PEAK	.) = 16.6 ODE 155. *********** 155.00 1	52 00 = 28 ************************************	73.00 FF	****
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO *********** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAREA MAINLINE TO (MIN.) = 16	= 2.52 DDE 15(************************************	0.00 TO N ****** TO NODE LINE PEAK	.) = 16.6 ODE 155. *********** 155.00 I	52 00 = 28 ************************************	73.00 FF	****
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO ************ FLOW PROCESS FROM NODE	= 2.52 DDE 15(************************************	0.00 TO N ****** TO NODE LINE PEAK	.) = 16.6 ODE 155. *********** 155.00 I	52 00 = 28 ************************************	73.00 FF	****
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO ************ FLOW PROCESS FROM NODE	= 2.52 DDE 15(******** 155.00 A TO MAINI 6.62 ENSITY(ING	0.00 TO N ******* TO NODE LINE PEAK CH/HR) =	.) = 16.6 ODE 155. *********** 155.00 I 	52 00 = 28 ************************************	73.00 FF ******* 81 OA-	****
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO ********************* FLOW PROCESS FROM NODE	= 2.52 DDE 15(******** 155.00 A TO MAINI 6.62 ENSITY(ING	0.00 TO N ******* TO NODE LINE PEAK CH/HR) =	.) = 16.6 ODE 155. *********** 155.00 I 	52 00 = 28 ************************************	73.00 FF ******* 81 OA-	****
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO ****************** FLOW PROCESS FROM NODE	= 2.52 DDE 15(******** 155.00 A TO MAINI 6.62 ENSITY(ING	0.00 TO N ******* TO NODE LINE PEAK CH/HR) =	.) = 16.6 ODE 155. *********** 155.00 I 	52 00 = 28 ************************************	73.00 FF ******* 81 OA-	****
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO ******************** FLOW PROCESS FROM NODE	= 2.52 DDE 150 ******** 155.00 A TO MAINI 6.62 ENSITY(INC AMC II): SCS SOIL GROUP	0.00 TO N ******* TO NODE LINE PEAK ====== CH/HR) = AREA (ACRES)	.) = 16.6 ODE 155. *********** 155.00 1	Ap (DECIMAL)	73.00 FF ******* 81 OA- SCS CN	****
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO ********************** FLOW PROCESS FROM NODE	= 2.52 DDE 150 ******** 155.00 A TO MAINI 6.62 ENSITY(INC AMC II): SCS SOIL GROUP	0.00 TO N ******* TO NODE LINE PEAK ====== CH/HR) = AREA (ACRES)	.) = 16.6 ODE 155. *********** 155.00 1	Ap (DECIMAL)	73.00 FF ******* 81 OA- SCS CN	****
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO *********************** FLOW PROCESS FROM NODE	= 2.52 DDE 150 ******** 155.00 A TO MAINI 6.62 ENSITY(INC AMC II): SCS SOIL GROUP	0.00 TO N ******* TO NODE LINE PEAK ====== CH/HR) = AREA (ACRES) 1.60	.) = 16.6 ODE 155. *********** 155.00 1	Ap (DECIMAL) 1.000	73.00 FF ******* 81 OA- SCS CN 75	****
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO *********************** FLOW PROCESS FROM NODE	= 2.52 DDE 150 ********* 155.00	0.00 TO N ******* TO NODE LINE PEAK ====== CH/HR) = AREA (ACRES) 1.60	C.) = 16.6 ODE 155. ************ 155.00 1 	Ap (DECIMAL) 1.000 1.000	73.00 FF ******* 81 OA- SCS CN 75	****
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO ********************** FLOW PROCESS FROM NODE	= 2.52 DDE 150 ********* 155.00	0.00 TO N ******* TO NODE LINE PEAK ====== CH/HR) = AREA (ACRES) 1.60	C.) = 16.6 ODE 155. ************ 155.00 1 	Ap (DECIMAL) 1.000 1.000	73.00 FF ******* 81 OA- SCS CN 75	****
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO ******************** FLOW PROCESS FROM NODE	= 2.52 DDE 150 ********* 155.00	0.00 TO N ******* TO NODE LINE PEAK ====== CH/HR) = AREA (ACRES) 1.60 1.60 1.80	C.) = 16.6 ODE 155. ***********************************	Ap (DECIMAL) 1.000 1.000	73.00 FF ******* 81 SCS CN 75 77 81	****
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO ******************* FLOW PROCESS FROM NODE	= 2.52 DDE 150 ********* 155.00	0.00 TO N ******* TO NODE LINE PEAK CH/HR) = AREA (ACRES) 1.60 1.80 1.50	**************************************	Ap (DECIMAL) 1.000 1.000 1.000 1.000	73.00 FF ******* 81 SCS CN 75 77 81	****
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO ******************* FLOW PROCESS FROM NODE	= 2.52 DDE 150 ********* 155.00	0.00 TO N ******* TO NODE LINE PEAK ======= CH/HR) = AREA (ACRES) 1.60 1.80 1.50 TE, FP(IN	FLOW<<<<<	Ap (DECIMAL) 1.000 1.000 1.000 1.000	73.00 FF ******* 81 SCS CN 75 77 81	****
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO ********************* FLOW PROCESS FROM NODE	= 2.52 DDE 150 ********* 155.00	0.00 TO N ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 1.60 1.60 1.50 TE, FP(IN ACTION, A SUBARE	C) = 16.6 ODE 155. ********* 155.00 I FLOW<<<<< ======= 2.444 FP (INCH/HR) 0.25 0.20 0.20 CH/HR) = 0 P = 1.000 A RUNOFF(CE	Ap (DECIMAL) 1.000 1.000 1.000 1.000 222 FS) = 12.	73.00 FE ******* 81 OA- SCS CN 75 77 81 83	****
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO ******************** FLOW PROCESS FROM NODE	= 2.52 DDE 150 ********** 155.00	0.00 TO N ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 1.60 1.60 1.80 1.50 TE, FP(IN ACTION, A SUBARE 0 AREA-	********** 155.00 I ********* 155.00 I FLOW< *** ******** 155.00 I OLIVERATE OF TRANSPORTER OF TRANSPORT	Ap (DECIMAL) 1.000 1.000 1.000 1.000 22 FS) = 12.n(INCH/HR)	73.00 FE ******* 81 OA- SCS CN 75 77 81 83	****
>>>>ADDITION OF SUBAREA MAINLINE TC (MIN.) = 16 * 25 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA (A DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER	= 2.52 DDE 150 ********* 155.00	0.00 TO N ******* TO NODE LINE PEAK CH/HR) = AREA (ACRES) 1.60 1.60 1.50 IF, Fp(IN ACTION, A SUBARE 0 AREA-A 4 AREA-A	********** 155.00 I ********* 155.00 I FLOW<<<<< ================================	Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000	73.00 FE ******* 81 OA- SCS CN 75 77 81 83 98 = 0.24	****

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******************
 FLOW PROCESS FROM NODE 155.00 TO NODE 156.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
 ELEVATION DATA: UPSTREAM(FEET) = 629.00 DOWNSTREAM(FEET) = 610.00
 FLOW LENGTH (FEET) = 796.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 33.0 INCH PIPE IS 26.4 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 14.87
 ESTIMATED PIPE DIAMETER (INCH) = 33.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 75.76
 PIPE TRAVEL TIME (MIN.) = 0.89 Tc (MIN.) = 17.51
 LONGEST FLOWPATH FROM NODE 150.00 TO NODE 156.00 = 3669.00 FEET.
*******************
 FLOW PROCESS FROM NODE 156.00 TO NODE 156.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc (MIN.) = 17.51
                                                  OA-9
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.373
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                  SCS
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF" C 1.90 0.25 1.000 75
 NATURAL FAIR COVER
 "CHAPARRAL, NARROWLEAF" C
                            0.40
                                    0.25
                                           1.000
                                                  81
 NATURAL FAIR COVER
                                    0.25 1.000
                                                  77
 "OPEN BRUSH"
                      C
                            1.30
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF"
                   D
                            4.50
                                     0.20 1.000
                                                  81
 NATURAL FAIR COVER
 "CHAPARRAL, NARROWLEAF"
                      D 1.30
                                    0.20
                                          1.000
                                                  86
 NATURAL FAIR COVER
 "OPEN BRUSH"
                      D 3.70
                                  0.20 1.000
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 13.10 SUBAREA RUNOFF (CFS) = 25.46
 EFFECTIVE AREA(ACRES) = 51.30 AREA-AVERAGED Fm(INCH/HR) = 0.23
 AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 51.3
                             PEAK FLOW RATE(CFS) =
******************
 FLOW PROCESS FROM NODE 156.00 TO NODE 130.00 IS CODE = 31
______
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 610.00 DOWNSTREAM(FEET) = 410.00
 FLOW LENGTH (FEET) = 6198.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 36.0 INCH PIPE IS 25.9 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 18.11
 ESTIMATED PIPE DIAMETER (INCH) = 36.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 98.77
 PIPE TRAVEL TIME (MIN.) = 5.70 Tc (MIN.) = 23.22
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LONGEST FLOWPATH FROM NODE 150.00 TO NODE 130.00 = 9867.00 FEET.
FLOW PROCESS FROM NODE 130.00 TO NODE 130.00 IS CODE = 11
______
 >>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<
 ** MAIN STREAM CONFLUENCE DATA **
                 Tc Intensity Fp(Fm)
  STREAM
            Q
                                           Ae
                                                   HEADWATER
  NUMBER
           (CFS) (MIN.) (INCH/HR) (INCH/HR)
                                            (ACRES) NODE
   1
          98.77 23.22 2.023 0.23(0.23) 1.00
                                             51.3 150.00
 LONGEST FLOWPATH FROM NODE 150.00 TO NODE 130.00 = 9867.00 FEET.
 ** MEMORY BANK # 1 CONFLUENCE DATA **
  STREAM
           0
                 Tc Intensity Fp(Fm)
                                      Ap Ae HEADWATER
  NUMBER
          (CFS) (MIN.) (INCH/HR) (INCH/HR)
                                            (ACRES) NODE
    1
          948.45 13.64 2.734 0.24(0.09) 0.37
                                            394.8
                                                     120.00
    2
          947.84 13.74 2.722 0.24(0.09) 0.37
                                             396.4
                                                     110.00
    3
          837.78 20.61
                        2.164 0.24(0.08) 0.36
                                              447.6
                                                      100.00
 LONGEST FLOWPATH FROM NODE
                       100.00 TO NODE
                                     130.00 = 9651.00 FEET.
 ** PEAK FLOW RATE TABLE **
  STREAM
        0
                 Tc Intensity Fp(Fm) Ap Ae
                                                   HEADWATER
  NUMBER
          (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
    1
        1029.51 13.64 2.734 0.24(0.10) 0.42
                                            424.9
                                                    120.00
         1029.14 13.74 2.722 0.24(0.10) 0.42
                                             426.8
                                                     110.00
         932.37 20.61 2.164 0.24(0.10) 0.41
                                            493.1
                                                    100.00
         879.77 23.22 2.023 0.24(0.10) 0.42
                                            498.9
                                                     150.00
  TOTAL AREA (ACRES) =
                       498.9
 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) = 1029.51 Tc(MIN.) = 13.635
 EFFECTIVE AREA(ACRES) = 424.90 AREA-AVERAGED Fm(INCH/HR) = 0.10
 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.42
 TOTAL AREA(ACRES) = 498.9
 LONGEST FLOWPATH FROM NODE 150.00 TO NODE 130.00 = 9867.00 FEET.
********************
 FLOW PROCESS FROM NODE 130.00 TO NODE 130.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
_____
 MAINLINE Tc(MIN.) = 13.64
                                                  A - 33
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.734
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                    Fρ
                                             Αp
                                                   SCS
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 AGRICULTURAL POOR COVER
                             1.60
 "FALLOW"
                                     0.30
                                            1.000
                                                    86
 NATURAL FAIR COVER
                             1.30
                                     0.30
 "OPEN BRUSH"
                                            1.000
                                                    66
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                             2.60
                                     0.30
                                             0.900
                                                   56
 NATURAL FAIR COVER
                             1.90
                                      0.30
                                            1.000
                                                    65
 "WOODLAND, GRASS"
 AGRICULTURAL POOR COVER
 "FALLOW"
                             0.70
                                     0.25
                                            1.000
      Date: 08/14/2018
                     File name: PA3A25HC.RES
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NATURAL FAIR COVER "OPEN BRUSH" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED Fp (INCH/HR TOTAL AREA (ACRES) = NOTE: PEAK FLOW RATE DEF	LOSS RATE, AREA FRACT 8.90 433.80) = 0.24 507.8 AULTED TO U	Fp(ING FION, Ap SUBAREA AREA-A AREA-AN PEAK JPSTREAN	D = 0.971 A RUNOFF (CFS AVERAGED Fm VERAGED AP = FLOW RATE (CM VALUE	29 S) = 19.6 INCH/HR) = 0.43 EFS) = 1	53 = 0.10 1029.51
FLOW PROCESS FROM NODE	130.00 TC	NODE	130.00 IS	CODE = 8	31
>>>>ADDITION OF SUBAREA				.=======	========
MAINLINE Tc(MIN.) = 13 * 25 YEAR RAINFALL INTE	.64 NSITY(INCH/	/HR) =	2.734	Z \	33
SUBAREA LOSS RATE DATA(A DEVELOPMENT TYPE/ LAND USE PUBLIC PARK	SCS SOIL	AREA	Fp	Ap	SCS
LAND USE	GROUP (A	ACRES)	(INCH/HR)	(DECIMAL)	CN
PUBLIC PARK	С	0.10	0.25	0.850	69
KESIDENTIAL					
".4 DWELLING/ACRE"	С	1.50	0.25	0.900	69
NATURAL FAIR COVER					
"WOODLAND, GRASS"	С	0.40	0.25	1.000	77
NATURAL FAIR COVER					
"OPEN BRUSH"	D	0.10	0.20	1.000	83
RESIDENTIAL					
".4 DWELLING/ACRE"			0.20		75
SUBAREA AVERAGE PERVIOUS	LOSS RATE,	Fp(INC	CH/HR) = 0.	24	
SUBAREA AVERAGE PERVIOUS	AREA FRACT	TION, Ap	0.919		
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	2.40	SUBAREA	A RUNOFF (CFS	5) = 5.4	13
EFFECTIVE AREA(ACRES) =	436.20	AREA-A	AVERAGED Fm	INCH/HR) =	= 0.10
AREA-AVERAGED Fp(INCH/HR) = 0.24	AREA-AV	/ERAGED Ap =	0.43	
TOTAL AREA (ACRES) =					1032.92
=======================================					
END OF STUDY SUMMARY: TOTAL AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED Fp (INCH/HR PEAK FLOW RATE (CFS) =	0.24	AREA-AV			0.10
** PEAK FLOW RATE TABLE	**				
STREAM O TC	Intensity	/ Fp(I	m) Ap	Ae	HEADWATER
NUMBER (CFS) (MIN.) (INCH/HR)	(INCH	/HR)	(ACRES)	NODE
1 1032 92 13 6	4 2 734	0 24 (0 10) 0 43	436 2	120 00
STREAM Q TC NUMBER (CFS) (MIN. 1 1032.92 13.6 2 1032.59 13.7	4 2.722	0.24(0.10) 0.43	438 1	110.00
3 936.15 20.6	1 2 164	0.21(0.10) 0.13	504.4	100.00
4 881.43 23.2	2 2 023	0.21(0.10) 0.43	510 2	150.00
4 001.43 23.2					
					-
END OF RATIONAL METHOD A					
PAD OF MATTOMAN METHOD A	TATATA				

NATURAL FAIR COVER

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

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Analysis prepared by:

* RMV PA-3 SUBWATERSHED B BODR 2022 * RATIONAL METHOD HYDROLOGY MODEL LOCAL * 100-YR HC JULY 2022 ROKAMOTO ****************** FILE NAME: PA3B00HC.DAT TIME/DATE OF STUDY: 13:13 07/11/2022 ______ USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION: _______ --*TIME-OF-CONCENTRATION MODEL*--USER SPECIFIED STORM EVENT (YEAR) = 100.00 SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00 SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.90 *DATA BANK RAINFALL USED* *ANTECEDENT MOISTURE CONDITION (AMC) III 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) 1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150 2 32.0 27.0 0.020/0.020/ --- 0.67 2.00 0.0312 0.167 0.0150 3 13.0 8.0 0.020/0.020/ --- 0.33 1.00 0.0312 0.125 0.0150 GLOBAL STREET FLOW-DEPTH CONSTRAINTS: 1. Relative Flow-Depth = 1.00 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 203.00 TO NODE 204.00 IS CODE = 21 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS< >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<< ______ INITIAL SUBAREA FLOW-LENGTH (FEET) = 305.00 ELEVATION DATA: UPSTREAM(FEET) = 410.00 DOWNSTREAM(FEET) = 402.00

SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA	TENSITY (IN	NCH/HR) =	5.467			
DEVELOPMENT TYPE/			Fn	Ар	SCS	Τс
LAND USE	GROUP	(ACRES)	(TNCH/HR)	(DECIMAL)	CN	(MTN
COMMERCIAL	B	0.30	0.30	0.100	76	6.
RESIDENTIAL	2	0.00	0.00	0.100	, 0	•
"11+ DWELLINGS/ACRE"	В	0.20	0.30	0.200	76	6.
RESIDENTIAL	_	0.20	0.00	0.200		
".4 DWELLING/ACRE"	В	0.10	0.30	0.900	76	9. 6.
".4 DWELLING/ACRE" COMMERCIAL	C	0.30	0.25	0.100	86	6.
RESIDENTIAL	Ü	0.00	0.20	0.100	0.0	•
"11+ DWELLINGS/ACRE"	С	0.60	0.25	0.200	86	6.
SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA RUNOFF(CFS) =	US LOSS RA US AREA FE 7.30	ATE, Fp(IN RACTION, A	CH/HR) = 0 p = 0.207	.28		
TOTAL AREA (ACRES) =	1.50	PEAK FLOW	RATE (CFS)	= 7.3	0	
******	*****	******	*****	*****	****	****
FLOW PROCESS FROM NODE						
>>>>COMPUTE STREET FL						
>>>> (STREET TABLE SEC	TION # 1	USED) <<<	<			
UPSTREAM ELEVATION (FEE	(T) = 402	00 DOMNIC	mpnam nrnm	m = 0.1 (DD D m)	_ 2	85 00
STREET LENGTH (FEET) =	515.00				= 3	00.00
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL	= 30.00 CROSSFALI	CURB HEIGHT CURB H	GHT (INCHES) AK (FEET) =	= 8.0	= 3	
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO	= 30.00 CROSSFALI	CURB HEIGHT CURB H	GHT (INCHES) AK (FEET) =	= 8.0	= 3	
DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFA	= 30.00 CROSSFALI L(DECIMAL)	CURB HEIO L GRADEBRE D = 0.018 L) = 0.0	GHT (INCHES) AK (FEET) =	= 8.0	= 3	
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFA SPECIFIED NUMBER OF HA	= 30.00 CROSSFALI L (DECIMAL) LL (DECIMAL) LL (STREETS	CURB HEIGHT CURB H	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2	= 8.0	= 3	
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFA SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA	= 30.00 CROSSFALI L (DECIMAL) LL (DECIMAL) LFSTREETS LL (DECIMAL)	CURB HEIGHT L GRADEBRE. L GRADEBRE. L = 0.018 L) = 0.0 CARRYING CARRYING L) = 0.0	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20	20.00		B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFA SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LLSTREETS LL(DECIMAL) TOR for St	CURB HEID L GRADEBRE D = 0.018 L) = 0.0 CARRYING CARRYING CARRYING CARRYING	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur	= 8.0 20.00 b-to-curb)	=	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFA SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LLSTREETS LL(DECIMAL) TOR for St	CURB HEID L GRADEBRE D = 0.018 L) = 0.0 CARRYING CARRYING Caretflow	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur	= 8.0 20.00 b-to-curb)	=	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFA SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC Manning's FRICTION FAC	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LLSTREETS LL(DECIMAL) TOR for St	CURB HEID L GRADEBRE D = 0.018 L) = 0.0 CARRYING CARRYING treetflow ack-of-Wal	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur k Flow Sect	= 8.0 20.00 b-to-curb) ion = 0.0	= 0200	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFA SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC **TRAVEL TIME COMPUT	= 30.00 CROSSFALL L(DECIMAL) LL(DECIMAL) LLSTREETS LL(DECIMAL) TOR for St TOR for Ba	CURB HEID L GRADEBRE D = 0.018 L) = 0.0 CARRYING L) = 0.0 treetflow ack-of-Wal ESTIMATED	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur k Flow Sect FLOW (CFS) =	= 8.0 20.00 b-to-curb) ion = 0.0	= 0200	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFA SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC Manning's FRICTION FAC	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LLSTREETS LL(DECIMAL) TOR for St TOR for Ba	CURB HEID L GRADEBRE D = 0.018 L) = 0.0 CARRYING L) = 0.0 treetflow ack-of-Wal ESTIMATED G ESTIMATE	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur k Flow Sect FLOW (CFS) =	= 8.0 20.00 b-to-curb) ion = 0.0	= 0200	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC Manning's FRICTION FAC **TRAVEL TIME COMPUT STREETFLOW MODEL RES STREET FLOW DEPTH (FE	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LLSTREETS LL(DECIMAL) TOR for St TOR for Ba ED USING F ULTS USING ET) = 0.3	CURB HEID L GRADEBRE D = 0.018 L) = 0.0 CARRYING CARRYING CARRYING CARRYING CARRYING CARRYING CESTIMATE S ESTIMATE 39	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur k Flow Sect FLOW (CFS) =	= 8.0 20.00 b-to-curb) ion = 0.0	= 0200	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC **TRAVEL TIME COMPUT STREETFLOW MODEL RES STREET FLOW DEPTH (FE HALFSTREET FLOOD WID	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LLSTREETS LL(DECIMAL) TOR for St TOR for Ba ED USING H ULTS USING ET) = 0.3 TH(FEET) =	CURB HEIGHT CURB H	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur k Flow Sect FLOW (CFS) = D FLOW:	= 8.0 20.00 b-to-curb) ion = 0.0	= 0200	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC **TRAVEL TIME COMPUT STREETFLOW MODEL RES STREET FLOW DEPTH (FE HALFSTREET FLOOD WID AVERAGE FLOW VELOCIT	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LL(DECIMAL) TOR for St TOR for Ba ED USING H ULTS USING ET) = 0 TH(FEET) = Y(FEET/SEG	CURB HEIGHT CURB H	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur k Flow Sect FLOW (CFS) = D FLOW: .45	= 8.0 20.00 b-to-curb) ion = 0.0	= 0200	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC **TRAVEL TIME COMPUT STREETFLOW MODEL RES STREET FLOW DEPTH (FE HALFSTREET FLOOD WID AVERAGE FLOW VELOCIT PRODUCT OF DEPTH&VEL	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LL(DECIMAL) TOR for St TOR for Ba ED USING H ULTS USING ET) = 0 TH(FEET) = Y(FEET/SEG OCITY(FT*I	CURB HEIGHT CURB H	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur k Flow Sect FLOW (CFS) = D FLOW: .45 1.71	= 8.0 20.00 b-to-curb) ion = 0.1	= 0200	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC **TRAVEL TIME COMPUT STREETFLOW MODEL RES STREET FLOW DEPTH (FE HALFSTREET FLOOD WID AVERAGE FLOW VELOCIT PRODUCT OF DEPTH&VEL STREET FLOW TRAVEL TIM	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LLSTREETS LL(DECIMAL) TOR for St TOR for Ba ED USING F ULTS USING ET) = 0 TH(FEET) = 1 Y(FEET/SEG OCITY(FT*F EE(MIN.) =	CURB HEIGHT CURB H	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur k Flow Sect FLOW (CFS) = D FLOW: .45 1.71 TC (MIN.) =	= 8.0 20.00 b-to-curb) ion = 0.1	= 0200	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC **TRAVEL TIME COMPUT STREETFLOW MODEL RES STREET FLOW DEPTH (FE HALFSTREET FLOOD WID AVERAGE FLOW VELOCIT PRODUCT OF DEPTH&VEL STREET FLOW TRAVEL TIM * 100 YEAR RAINFALL IN	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LLFSTREETS LL(DECIMAI TOR for St TOR for Be ED USING H ULTS USING ET) = 0.3 ETH(FEET) = 0.5 ETH(FEET) = 0.5 ETH(FEET) = 0.7 ETH(FEET	CURB HEIGHT CURB H	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur k Flow Sect FLOW (CFS) = D FLOW: .45 1.71 TC (MIN.) =	= 8.0 20.00 b-to-curb) ion = 0.1	= 0200	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC **TRAVEL TIME COMPUT STREETFLOW MODEL RES STREET FLOW DEPTH (FE HALFSTREET FLOW DEPTH (FE HALFSTREET FLOW VELOCIT PRODUCT OF DEPTH&VEL STREET FLOW TRAVEL TIM * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LLSTREETS LL(DECIMAI TOR for St TOR for Ba ED USING F ULTS USING ET) = 0.3 TH(FEET) = 0.5 TH(FEET) = 0.5 TH(FEET/SEC OCITY(FT*F IE(MIN.) = TENSITY(II) L(AMC III)	CURB HEIGHT CURB H	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur k Flow Sect FLOW(CFS) = D FLOW: .45 1.71 TC (MIN.) = 4.682	= 8.0 20.00 b-to-curb) ion = 0.1 14.09	= 22200 8	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC **TRAVEL TIME COMPUT STREETFLOW MODEL RES STREET FLOW DEPTH (FE HALFSTREET FLOOD WID AVERAGE FLOW VELOCIT PRODUCT OF DEPTH&VEL STREET FLOW TRAVEL TIM * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LL(DECIMAL) LLSTREETS LL(DECIMAL) TOR for St TOR for Be ED USING H ULTS USING LET) = 0.5 TH(FEET) = 0 TH(FEET) = 0 COLTY (FT*H LE (MIN.) = TENSITY (II) CAMC III) SCS SOII	CURB HEIGHT CURB H	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur k Flow Sect FLOW(CFS) = D FLOW: .45 1.71 TC (MIN.) = 4.682 Fp	= 8.0 20.00 b-to-curb) ion = 0.1 14.09	= 20200 8	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC **TRAVEL TIME COMPUT STREETFLOW MODEL RES STREET FLOW DEPTH (FE HALFSTREET FLOOD WEL AVERAGE FLOW VELOCIT PRODUCT OF DEPTH&VEL STREET FLOW TRAVEL TIM * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LLSTREETS LL(DECIMAL) TOR for St TOR for Ba ED USING H ULTS USING ET) = 0.3 TH(FEET) = 0.5 TH(FEET) = Y(FEET/SEC OCITY(FT*H E(MIN.) = TENSITY(II) SCS SOII GROUP	CURB HEIGHT CURB HEIGHT CURB HEIGHT CURB HEIGHT CURB HEIGHT COUNTY COUNT	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur k Flow Sect FLOW (CFS) = D FLOW: .45 1.71 TC (MIN.) = 4.682 Fp (INCH/HR)	= 8.0 20.00 b-to-curb) ion = 0.0 14.00 8.13 Ap (DECIMAL)	= 22200 8 SCS CN	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC **TRAVEL TIME COMPUT STREETFLOW MODEL RES STREET FLOW DEPTH (FE HALFSTREET FLOOD WID AVERAGE FLOW VELOCIT PRODUCT OF DEPTH&VEL STREET FLOW TRAVEL TIM * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LL(DECIMAL) TOR for St TOR for Bt T	CURB HEIGHT CURB H	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur k Flow Sect FLOW (CFS) = D FLOW: .45 1.71 TC (MIN.) = 4.682 Fp (INCH/HR) 0.30	= 8.0 20.00 b-to-curb) ion = 0.4 14.09 8.13 Ap (DECIMAL) 0.100	= 0200 8 SCS CN 76	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL OUTSIDE STREET CROSSFA SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC **TRAVEL TIME COMPUT STREETFLOW MODEL RES STREET FLOW DEPTH (FE HALFSTREET FLOOD WID AVERAGE FLOW VELOCIT PRODUCT OF DEPTH&VEL STREET FLOW TRAVEL TIM * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LLSTREETS LL(DECIMAL) TOR for St TOR for Ba ED USING H ULTS USING ET) = 0.3 TH(FEET) = 0.5 TH(FEET) = Y(FEET/SEC OCITY(FT*H E(MIN.) = TENSITY(II) SCS SOII GROUP	CURB HEIGHT CURB HEIGHT CURB HEIGHT CURB HEIGHT CURB HEIGHT COUNTY COUNT	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur k Flow Sect FLOW (CFS) = D FLOW: .45 1.71 TC (MIN.) = 4.682 Fp (INCH/HR) 0.30	= 8.0 20.00 b-to-curb) ion = 0.4 14.09 8.13 Ap (DECIMAL) 0.100	= 0200 8 SCS CN 76	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC **TRAVEL TIME COMPUT STREETFLOW MODEL RES STREET FLOW DEPTH (FE HALFSTREET FLOOD WID AVERAGE FLOW VELOCIT PRODUCT OF DEPTH&VEL STREET FLOW TRAVEL TIM * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LL(DECIMAL) LESTREETS LL(DECIMAL) TOR for St TOR GROUP SC SOII GROUP B C	CURB HEID L GRADEBRE D = 0.018 L) = 0.0 CARRYING L) = 0.0 treetflow ack-of-Wal ESTIMATED G ESTIMATE 39 = 12.46 C.) = 4 FT/SEC.) = 4 FT/SEC.) = 1.93 NCH/HR) = : L AREA (ACRES) 0.40 0.50	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur k Flow Sect FLOW (CFS) = D FLOW: .45 1.71 TC (MIN.) = 4.682 Fp (INCH/HR) 0.30 0.25	= 8.0 20.00 b-to-curb) ion = 0.4 14.03 8.13 Ap (DECIMAL) 0.100 0.100	= 0200 8 SCS CN 76 86	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC **TRAVEL TIME COMPUT STREETFLOW MODEL RES STREET FLOW DEPTH (FE HALFSTREET FLOOD WID AVERAGE FLOW VELOCIT PRODUCT OF DEPTH&VEL STREET FLOW TRAVEL TIM * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE"	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LL(DECIMAL) TOR for St TOR for Bt T	CURB HEIGHT CURB H	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur k Flow Sect FLOW (CFS) = D FLOW: .45 1.71 TC (MIN.) = 4.682 Fp (INCH/HR) 0.30 0.25	= 8.0 20.00 b-to-curb) ion = 0.4 14.03 8.13 Ap (DECIMAL) 0.100 0.100	= 0200 8 SCS CN 76 86	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC **TRAVEL TIME COMPUT STREETFLOW MODEL RES STREET FLOW DEPTH (FE HALFSTREET FLOOD WID AVERAGE FLOW VELOCIT PRODUCT OF DEPTH&VEL STREET FLOW TRAVEL TIM * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LL(DECIMAI LFSTREETS LL(DECIMAI TTOR for St TTOR ST	CURB HEID L GRADEBRE D = 0.018 L) = 0.0 CARRYING L) = 0.0 treetflow ack-of-Wal ESTIMATED G ESTIMATE 39 = 12.46 C.) = 4 FT/SEC.) = 1.93 NCH/HR) = : L AREA (ACRES) 0.40 0.50 0.80	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur k Flow Sect FLOW (CFS) = D FLOW: .45	= 8.0 20.00 b-to-curb) ion = 0.1 14.03 8.13 Ap (DECIMAL) 0.100 0.100 0.200	= 02000 8 SCS CN 76 86	B-
STREET HALFWIDTH (FEET) DISTANCE FROM CROWN TO INSIDE STREET CROSSFAL OUTSIDE STREET CROSSFAL OUTSIDE STREET CROSSFA SPECIFIED NUMBER OF HA STREET PARKWAY CROSSFA Manning's FRICTION FAC MANNING'S FRICTION FAC **TRAVEL TIME COMPUT STREETFLOW MODEL RES STREET FLOW DEPTH (FE HALFSTREET FLOW DEPTH (FE HALFSTREET FLOW VELOCIT PRODUCT OF DEPTHAVEL STREET FLOW TRAVEL TIME ** 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE / LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL	= 30.00 CROSSFALI L(DECIMAL) LL(DECIMAL) LL(DECIMAL) LESTREETS LL(DECIMAL) TOR for St TOR GROUP SC SOII GROUP B C	CURB HEID L GRADEBRE D = 0.018 L) = 0.0 CARRYING L) = 0.0 treetflow ack-of-Wal ESTIMATED G ESTIMATE 39 = 12.46 C.) = 4 FT/SEC.) = 1.93 NCH/HR) = : L AREA (ACRES) 0.40 0.50 0.80	GHT (INCHES) AK (FEET) = 18 RUNOFF = 2 20 Section (cur k Flow Sect FLOW (CFS) = D FLOW: .45 1.71 TC (MIN.) = 4.682 Fp (INCH/HR) 0.30 0.25	= 8.0 20.00 b-to-curb) ion = 0.1 14.03 8.13 Ap (DECIMAL) 0.100 0.100 0.200	= 20200 8 SCS CN 76 86	B-(

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SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.512
 SUBAREA AREA(ACRES) = 3.30
                              SUBAREA RUNOFF(CFS) = 13.51
 EFFECTIVE AREA(ACRES) = 4.80 AREA-AVERAGED Fm(INCH/HR) = 0.11
 AREA-AVERAGED Fp(INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.42
 TOTAL AREA(ACRES) = 4.8
                                PEAK FLOW RATE(CFS) =
                                                         19.75
 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.42 HALFSTREET FLOOD WIDTH(FEET) = 14.41
 FLOW VELOCITY (FEET/SEC.) = 4.82 DEPTH*VELOCITY (FT*FT/SEC.) = 2.02
 LONGEST FLOWPATH FROM NODE 203.00 TO NODE 205.00 = 820.00 FEET.
*******************
 FLOW PROCESS FROM NODE 205.00 TO NODE 206.00 IS CODE = 62
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
_____
 UPSTREAM ELEVATION(FEET) = 385.00 DOWNSTREAM ELEVATION(FEET) = 375.00
 STREET LENGTH (FEET) = 386.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
                                                           B-7
 INSIDE STREET CROSSFALL(DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH (FEET) = 0.46
   HALFSTREET FLOOD WIDTH (FEET) = 16.76
   AVERAGE FLOW VELOCITY (FEET/SEC.) = 4.62
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 2.13
 STREET FLOW TRAVEL TIME (MIN.) = 1.39 Tc (MIN.) = 9.53
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.276
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                 αA
                                                        SCS
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 COMMERCIAL
                      B
                                0.30
                                         0.30
                                                 0.100
                                                        76
                       С
                                0.40
                                         0.25
                                                 0.100
                                                       86
 COMMERCIAL
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" B
                                0.10
                                         0.30
                                                 0.200
                                                        76
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" C
                                0.30
                                                 0.200
                                         0.25
                                                       86
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                                0.20
                                                 0.900
                                         0.30
                                                        76
 RESIDENTIAL
 ".4 DWELLING/ACRE" C 1.50
                                         0.25
                                                 0.900
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.600
 SUBAREA AREA (ACRES) = 2.80 SUBAREA RUNOFF (CFS) = 10.39
 EFFECTIVE AREA(ACRES) = 7.60 AREA-AVERAGED Fm(INCH/HR) = 0.13
 AREA-AVERAGED Fp(INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.48
 TOTAL AREA (ACRES) = 7.6 PEAK FLOW RATE (CFS) =
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END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.48 HALFSTREET FLOOD WIDTH(FEET) = 17.62
 FLOW VELOCITY (FEET/SEC.) = 4.79 DEPTH*VELOCITY (FT*FT/SEC.) = 2.28
 LONGEST FLOWPATH FROM NODE 203.00 TO NODE 206.00 = 1206.00 FEET.
*******************
 FLOW PROCESS FROM NODE 206.00 TO NODE 206.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc(MIN.) = 9.53
                                                     B-8
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.276
 SUBAREA LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                 Fρ
                                                 SCS
    LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                   В
                            0.70 0.30 0.100
                                                 76
                          2.50
 COMMERCIAL
                    С
                                   0.25
                                          0.100
                                                 86
 COMMERCIAL
                    D
                          0.30
                                    0.20
                                          0.100
                                                 91
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" B 0.30
                                    0.30
                                          0.200
                                                  76
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" C 0.10
                                    0.25
                                          0.200
                                                  86
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                   D 0.20 0.20 0.200
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.115
 SUBAREA AREA (ACRES) = 4.10 SUBAREA RUNOFF (CFS) = 15.67
 EFFECTIVE AREA(ACRES) = 11.70 AREA-AVERAGED Fm(INCH/HR) = 0.09
 AREA-AVERAGED Fp(INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.35
 TOTAL AREA (ACRES) = 11.7 PEAK FLOW RATE (CFS) =
                                               44.06
************************
 FLOW PROCESS FROM NODE 206.00 TO NODE 206.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
_____
 MAINLINE Tc(MIN.) = 9.53
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.276
                                                    B-8
 SUBAREA LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                Fp
                                         αA
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
   LAND USE
 RESIDENTIAL
 ".4 DWELLING/ACRE" B 2.60
                                    0.30
                                          0.900
                                                 76
 RESIDENTIAL
 ".4 DWELLING/ACRE" C 9.30
                                    0.25
                                          0.900
                                                  86
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                    D
                          1.50
                                    0.20 0.900
                                                 91
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.900
 SUBAREA AREA(ACRES) = 13.40
                           SUBAREA RUNOFF(CFS) = 48.81
 EFFECTIVE AREA(ACRES) = 25.10 AREA-AVERAGED Fm(INCH/HR) = 0.17
 AREA-AVERAGED Fp(INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.65
 TOTAL AREA (ACRES) = 25.1 PEAK FLOW RATE (CFS) =
*****************
 FLOW PROCESS FROM NODE 206.00 TO NODE 207.00 IS CODE = 31
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FLOW LENGTH (FEET) = 123 DEPTH OF FLOW IN 39.0 PIPE-FLOW VELOCITY (FEET, ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 92 PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO	17.00 MM INCH PIPE /SEC.) = (INCH) = 2.87 = 1.42 DDE 203	ANNING'S 1S 28.4 14.33 39.00 TC (MIN 3.00 TO N	NUMBER OF .) = 10.9 ODE 207.	PIPES = 4 00 = 24	1 23.00 FEET.
FLOW PROCESS FROM NODE	207.00	TO NODE		S CODE =	
>>>>ADDITION OF SUBAREA					
MAINLINE Tc(MIN.) = 10 * 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(I DEVELOPMENT TYPE/	0.94 ENSITY(INC AMC III):	CH/HR) =	3.950		B-
LAND USE	CRUID	(ACRES)	rp (TNCH/HR)	(DECIMAL)	CM
COMMERCIAL	В	2.40	0.30	0.100	76
	C		0.25		
COMMERCIAL			0.20		
RESIDENTIAL					
".4 DWELLING/ACRE"	В	2.10	0.30	0.900	76
RESIDENTIAL					
".4 DWELLING/ACRE"	С	0.30	0.25	0.900	86
RESIDENTIAL					
".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/HI TOTAL AREA(ACRES) =	S LOSS RAT S AREA FRA 5.80 30.90 R) = 0.26	TE, Fp(IN ACTION, A SUBARE AREA-A	p = 0.500 A RUNOFF(CF AVERAGED Fm VERAGED Ap	.28 (S) = 19. (INCH/HR) = 0.62	89 = 0.16

>>>>COMPUTE PIPE-FLOW T	IMATED PII	PESIZE (N	ON-PRESSURE	FLOW) <<<	
ELEVATION DATA: UPSTREAM FLOW LENGTH (FEET) = 102 DEPTH OF FLOW IN 45.0 PIPE-FLOW VELOCITY (FEET, ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 105 PIPE TRAVEL TIME (MIN.)	M(FEET) = 21.00 MF INCH PIPE /SEC.) = (INCH) = 5.39 = 1.46	353.00 ANNING'S IS 34.3 11.67 45.00 Tc (MIN	DOWNSTREAN = 0.013 INCHES NUMBER OF .) = 12.4	M(FEET) = PIPES = 0	343.00
LONGEST FLOWPATH FROM NO					

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MAINLINE Tc(MIN.) = 1 * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA	TENSITY(IN				B-10
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp	Ap	SCS
COMMERCIAL.	R	1 40	0 30	0 100	76
COMMERCIAL COMMERCIAL	C	1 10	0.30 0.25	0.100	86
RESIDENTIAL	C	1.10	0.25	0.100	00
".4 DWELLING/ACRE" RESIDENTIAL	В	1.90	0.30	0.900	76
".4 DWELLING/ACRE" RESIDENTIAL	C	1.60	0.25	0.900	86
"8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOU	JS LOSS RA	TE, Fp(INC	CH/HR) = 0		76
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	6.20 = 37.1	SUBAREA O AREA-A	RUNOFF(CF VERAGED Fm	(INCH/HR)	
AREA-AVERAGED Fp(INCH/FTOTAL AREA(ACRES) =	HR) = 0.2 37.1	6 AREA-AV PEAK	ERAGED Ap	= 0.61 CFS) =	117.44
**************************************	208.00	TO NODE	209.00 I	S CODE =	31
>>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-ES	TRAVEL TI	ME THRU SU PESIZE (NO	JBAREA<	FLOW) <<<	
FLOW LENGTH(FEET) = 9 DEPTH OF FLOW IN 57.0 PIPE-FLOW VELOCITY(FEET ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 1: PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM 1	INCH PIPE T/SEC.) = R(INCH) = L7.44 = 1.93 NODE 20	IS 44.5 7.92 57.00 Tc(MIN.	INCHES NUMBER OF) = 14.3 DE 209.	3 00 = 43	60.00 FEET.
FLOW PROCESS FROM NODE					
>>>>ADDITION OF SUBAR					========
MAINLINE Tc(MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA	TENSITY (IN		3.385		B-11
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap	SCS
DEVELOPMENT TYPE/ LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL	В	0.30	0.30	0.100	76
COMMERCIAL	C	0.60	0.30 0.25	0.100	86
COMMERCIAL	D	0.70	0.20	0.100	91
RESIDENTIAL		0 40			7.0
".4 DWELLING/ACRE" RESIDENTIAL					
".4 DWELLING/ACRE" RESIDENTIAL	С	0.80	0.25	0.900	86
".4 DWELLING/ACRE"	D	0.40	0.20	0 000	0.1
SUBAREA AVERAGE PERVIO					<i>9</i> ±
SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) =	JS AREA FR. 3.20	ACTION, Ap	= 0.500 RUNOFF(CF	S) = 9.	39 = 0.16

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AREA-AVERAGED Fp (INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.60
 TOTAL AREA (ACRES) =
                  40.3
                           PEAK FLOW RATE (CFS) = 117.44
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
*****************
 FLOW PROCESS FROM NODE 209.00 TO NODE 209.10 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 340.00 DOWNSTREAM(FEET) = 331.00
 FLOW LENGTH (FEET) = 960.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 48.0 INCH PIPE IS 35.3 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 11.87
 ESTIMATED PIPE DIAMETER (INCH) = 48.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 117.44
 PIPE TRAVEL TIME (MIN.) = 1.35 Tc (MIN.) = 15.68
 LONGEST FLOWPATH FROM NODE 203.00 TO NODE 209.10 = 5320.00 FEET.
********************
 FLOW PROCESS FROM NODE 209.10 TO NODE 209.10 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
_____
 MAINLINE Tc(MIN.) = 15.68
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.215
                                                    B-12
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                SCS
    LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                    B
                           1.00
                                   0.30
                                          0.100
                                                76
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                                               76
                  В
                           0.40
                                   0.30
                                          0.200
 COMMERCIAL
                     С
                           0.40
                                   0.25
                                          0.100 86
 COMMERCIAL
                     D
                           2.20
                                   0.20
                                          0.100 91
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                           0.70
                                   0.20
                                          0.200
 RESIDENTIAL
 "8-10 DWELLINGS/ACRE"
                   D 1.10
                                 0.20
                                          0.400
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.176
                          SUBAREA RUNOFF(CFS) = 16.58
 SUBAREA AREA(ACRES) = 5.80
 EFFECTIVE AREA(ACRES) = 46.10 AREA-AVERAGED Fm(INCH/HR) = 0.14
 AREA-AVERAGED Fp(INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.55
 TOTAL AREA (ACRES) = 46.1 PEAK FLOW RATE (CFS) = 127.49
*****************
 FLOW PROCESS FROM NODE 209.10 TO NODE 230.00 IS CODE = 31
______
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 331.00 DOWNSTREAM(FEET) = 330.00
 FLOW LENGTH (FEET) = 205.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 54.0 INCH PIPE IS 43.2 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 9.34
 ESTIMATED PIPE DIAMETER(INCH) = 54.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 127.49
 PIPE TRAVEL TIME (MIN.) = 0.37 Tc (MIN.) = 16.04
```

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LONGEST FLOWPATH FROM NODE 203.00 TO NODE 230.00 = 5525.00 FEET.
******************
 FLOW PROCESS FROM NODE 230.00 TO NODE 230.00 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.) = 16.04
 RAINFALL INTENSITY (INCH/HR) = 3.17
 AREA-AVERAGED Fm(INCH/HR) = 0.14
 AREA-AVERAGED Fp (INCH/HR) = 0.26
 AREA-AVERAGED Ap = 0.55
 EFFECTIVE STREAM AREA(ACRES) = 46.10
 TOTAL STREAM AREA (ACRES) = 46.10
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 127.49
*******************
 FLOW PROCESS FROM NODE 210.00 TO NODE 211.00 IS CODE = 21
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
______
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 328.00
 ELEVATION DATA: UPSTREAM(FEET) = 426.00 DOWNSTREAM(FEET) = 423.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
                                                  B-14
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.407
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.594
 SUBAREA To AND LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/
                 SCS SOIL AREA
                                  Fρ
                                          Aр
                                                SCS Tc
    LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" B 0.50 0.30 0.200
                                                76
                                                    8.41
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                   C 1.20 0.25 0.200
                                                86
                                                     8.41
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.200
 SUBAREA RUNOFF (CFS) = 6.95
 TOTAL AREA (ACRES) = 1.70 PEAK FLOW RATE (CFS) =
******************
 FLOW PROCESS FROM NODE 211.00 TO NODE 212.00 IS CODE = 31
......
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 423.00 DOWNSTREAM(FEET) = 421.00
 FLOW LENGTH (FEET) = 385.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 18.0 INCH PIPE IS 14.2 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 4.63
 ESTIMATED PIPE DIAMETER (INCH) = 18.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
                6.95
 PIPE TRAVEL TIME (MIN.) = 1.39 Tc (MIN.) = 9.79
 LONGEST FLOWPATH FROM NODE 210.00 TO NODE 212.00 = 713.00 FEET.
******************
```

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FLOW PROCESS FROM NODE	212.00	TO NODE	212.00 IS	S CODE = 8	1
>>>>ADDITION OF SUBAREA					
MAINLINE TC(MIN.) = 9. * 100 YEAR RAINFALL INTEN	.79 ISITY(INC	H/HR) =	4.209		B-15
DEVELOPMENT TYPE/ S LAND USE RESIDENTIAL	GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
"11+ DWELLINGS/ACRE" RESIDENTIAL					
"11+ DWELLINGS/ACRE" RESIDENTIAL	С	1.40	0.25	0.200	86
"11+ DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA(ACRES) =	LOSS RATA	E, Fp(INC CTION, Ap SUBARE	CH/HR) = 0 D = 0.200 A RUNOFF (CFS	.24 S) = 16.1	0
EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/HR)	6.00	AREA-A	AVERAGED Fm	(INCH/HR) =	0.05
TOTAL AREA (ACRES) =					22.46
**************************************	212.00	TO NODE			
>>>>COMPUTE PIPE-FLOW TF	MATED PIP	ESIZE (NO	N-PRESSURE	,	
ELEVATION DATA: UPSTREAM FLOW LENGTH(FEET) = 56° DEPTH OF FLOW IN 27.0 IN PIPE-FLOW VELOCITY(FEET/S ESTIMATED PIPE DIAMETER(I PIPE-FLOW(CFS) = 22° PIPE TRAVEL TIME(MIN.) = LONGEST FLOWPATH FROM NOI	(FEET) = 7.00 MA NCH PIPE SEC.) = ENCH) = 46	421.00 NNING'S N IS 17.3 8.33 27.00	DOWNSTREAM 1 = 0.013 INCHES NUMBER OF M	M(FEET) = PIPES = 1	415.00
**************************************			213.00 IS		
>>>>ADDITION OF SUBAREA					
MAINLINE Tc(MIN.) = 10. * 100 YEAR RAINFALL INTEN SUBAREA LOSS RATE DATA(AN	.93 NSITY(INC. MC III):	H/HR) =	3.953		B-16
DEVELOPMENT TYPE/ LAND USE			Fp (INCH/HR)		
RESIDENTIAL "11+ DWELLINGS/ACRE"	В	1.90	0.30	0.200	76
RESIDENTIAL "11+ DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	LOSS RATAREA FRA	E, Fp(INC CTION, Ap SUBAREA	CH/HR) = 0 D = 0.200 A RUNOFF (CFS	.26 S) = 26.6	8

AREA-AVERAGED Fp (INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.20

PEAK FLOW RATE (CFS) = 47.76

13.6

TOTAL AREA (ACRES) =

FLOW PROCESS FROM NODE 213.00 TO NODE 214.00 IS CODE = 31 ______ >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA< >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<< _____ ELEVATION DATA: UPSTREAM(FEET) = 415.00 DOWNSTREAM(FEET) = 409.00 FLOW LENGTH (FEET) = 747.00 MANNING'S N = 0.013DEPTH OF FLOW IN 36.0 INCH PIPE IS 25.3 INCHES PIPE-FLOW VELOCITY(FEET/SEC.) = 8.99ESTIMATED PIPE DIAMETER (INCH) = 36.00 NUMBER OF PIPES = 1 47.76 PIPE-FLOW(CFS) = PIPE TRAVEL TIME (MIN.) = 1.38 Tc (MIN.) = 12.31LONGEST FLOWPATH FROM NODE 210.00 TO NODE 214.00 = 2027.00 FEET. ****************** FLOW PROCESS FROM NODE 214.00 TO NODE 214.00 IS CODE = 81 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>> ______ MAINLINE Tc (MIN.) = 12.31B-17 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.692 SUBAREA LOSS RATE DATA (AMC III): DEVELOPMENT TYPE/ SCS SOIL AREA Fр Aр LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN B 0.60 C 0.30 0.30 0.100 76 COMMERCIAL COMMERCIAL 0.25 0.100 86 RESIDENTIAL "11+ DWELLINGS/ACRE" C 0.20 0.25 0.200 86 RESIDENTIAL В 2.90 0.30 0.400 76 "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" C 11.40 0.25 0.400 RESIDENTIAL "8-10 DWELLINGS/ACRE" D 0.90 0.20 0.400 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.381 SUBAREA AREA(ACRES) = 16.30 SUBAREA RUNOFF(CFS) = 52.72 EFFECTIVE AREA(ACRES) = 29.90 AREA-AVERAGED Fm(INCH/HR) = 0.08 AREA-AVERAGED Fp (INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.30TOTAL AREA(ACRES) = 29.9 PEAK FLOW RATE(CFS) = ******************* FLOW PROCESS FROM NODE 214.00 TO NODE 215.00 IS CODE = 31 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA< >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<< _____ ELEVATION DATA: UPSTREAM(FEET) = 409.00 DOWNSTREAM(FEET) = 382.00 FLOW LENGTH (FEET) = 1002.00 MANNING'S N = 0.013DEPTH OF FLOW IN 36.0 INCH PIPE IS 27.6 INCHES PIPE-FLOW VELOCITY(FEET/SEC.) = 16.70ESTIMATED PIPE DIAMETER (INCH) = 36.00 NUMBER OF PIPES = 1 PIPE-FLOW(CFS) = 97.28 PIPE TRAVEL TIME (MIN.) = 1.00 Tc (MIN.) = 13.31 LONGEST FLOWPATH FROM NODE 210.00 TO NODE 215.00 = 3029.00 FEET. **********************

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>>>>ADDITION OF SUBAREA					=======
MAINLINE Tc(MIN.) = 13 * 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(ENSITY(IN		3.530		B-18
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL					
"5-7 DWELLINGS/ACRE" RESIDENTIAL	В	7.10	0.30	0.500	76
"5-7 DWELLINGS/ACRE" RESIDENTIAL			0.25		86
"5-7 DWELLINGS/ACRE" RESIDENTIAL	D	0.30	0.20	0.500	91
"8-10 DWELLINGS/ACRE" RESIDENTIAL					
"8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU: SUBAREA AVERAGE PERVIOU: SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	S LOSS RA' S AREA FRA 33.30	TE, Fp(IN ACTION, A SUBARE	CH/HR) = 0 p = 0.419 A RUNOFF(CF	.28 S) = 102.	30
TOTAL AREA(ACRES) = ************************** FLOW PROCESS FROM NODE	63.2 ******* 215.00	7 AREA-A PEAK ******* TO NODE	VERAGED Ap FLOW RATE(********* 215.00 I	= 0.36 CFS) = ******	195.24
TOTAL AREA (ACRES) = ****************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAREA MAINLINE TC (MIN.) = 1: * 100 YEAR RAINFALL INTE	63.2 ******** 215.00 A TO MAINI ==================================	7 AREA-A' PEAK ******** TO NODE LINE PEAK CH/HR) =	VERAGED Ap FLOW RATE(******** 215.00 I FLOW<>>>	= 0.36 CFS) = ******** S CODE =	195.24
>>>>ADDITION OF SUBARE; MAINLINE Tc(MIN.) = 1: * 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(; DEVELOPMENT TYPE/ LAND USE	63.2 ******** 215.00 A TO MAINI 3.31 BNSITY(INAMC III):	7 AREA-A' PEAK ******** TO NODELINE PEAKCH/HR) =	VERAGED Ap FLOW RATE(********* 215.00 I FLOW<<<< 3.530	= 0.36 CFS) = ********* S CODE =	195.24 ******** 81 B-18
TOTAL AREA (ACRES) = ****************** FLOW PROCESS FROM NODE	63.2 ******** 215.00 A TO MAIN: =======: 3.31 ENSITY(IN: AMC III): SCS SOIL GROUP D S LOSS RA! S AREA FRI 0.30 63.5(R) = 0.2'	7 AREA-A' PEAK ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.30 TE, FP(IN' ACTION, A' SUBARE. 0 AREA-A' 7 AREA-A'	VERAGED Ap FLOW RATE(********* 215.00 I FLOW<<<< GRAPH	= 0.36 CFS) = ********* S CODE = 	195.24 ******** 81 B-18 SCS CN 91 93 = 0.10
TOTAL AREA (ACRES) = ******************* FLOW PROCESS FROM NODE	63.2 ******** 215.00 A TO MAINI ==================================	7 AREA-A' PEAK ******** TO NODE AREA (ACRES) 0.30 TE, FP(IN: ACTION, A: SUBARE. 7 AREA-A' PEAK ******** TO NODE	VERAGED Ap FLOW RATE(********** 215.00 I FLOW< 3.530 Fp (INCH/HR) 0.20 CH/HR) = 0.400 A RUNOFF (CFAVERAGED AP FLOW RATE(********** 218.00 I	= 0.36 CFS) = ********* *************************	195.24 ******** 81 B-18 SCS CN 91 93 = 0.10 196.17 **********
TOTAL AREA (ACRES) = ******************** FLOW PROCESS FROM NODE	63.2 ********* 215.00 A TO MAINI ===================================	7 AREA-A' PEAK ******** TO NODE	VERAGED Ap FLOW RATE(**********	= 0.36 CFS) = ******** S CODE = Ap (DECIMAL) 0.400 .20 S) = 0. (INCH/HR) = 0.36 CFS) = ******** S CODE = FLOW) <<<<	195.24 ********* 81 B-18 SCS CN 91 93 = 0.10 196.17 ***********************************

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LONGEST FLOWPATH FROM					

FLOW PROCESS FROM NODE					
>>>>ADDITION OF SUBAR					======
MAINLINE Tc(MIN.) = * 100 YEAR RAINFALL IN	TENSITY(IN		3.301		B-2
SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/	SCS SOIL	AREA	Fρ	Aρ	SCS
DEVELOPMENT TYPE/ LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
RESIDENTIAL					
"11+ DWELLINGS/ACRE" RESIDENTIAL	В	7.70	0.30	0.200	76
RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL	С	0.40	0.25	0.200	86
"11+ DWELLINGS/ACRE"	D	1.70	0.20	0.200	91
"5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO	US LOSS RA	TE, Fp(IN	CH/HR) = 0		76
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES)	= 73.7	0 AREA-	AVERAGED Fm	n(INCH/HR)	= 0.09
AREA-AVERAGED Fo(INCH/					
******	*****	*****	*****	= 0.34 (CFS) =	*****
**************************************	********* 218.00 	******* TO NODE 	******** 219.00 I 	= 0.34 (CFS) = ************************************	****** 31
**************** FLOW PROCESS FROM NODE	******** 218.00 TRAVEL TI TIMATED PI ======= AM(FEET) = 106.00 M INCH PIPE T/SEC.) =	******** TO NODE ME THRU S' PESIZE (N' 373.00 ANNING'S I IS 41.8	********** 219.00 I	= 0.34 (CFS) = ************************************	******** 31 < ======= 347.00
******************** FLOW PROCESS FROM NODE	******** 218.00 TRAVEL TI TIMATED PI ====== AM(FEET) = 106.00 M INCH PIPE T/SEC.) = R(INCH) =	******** TO NODE ME THRU S' PESIZE (N' 373.00 ANNING'S I IS 41.8	********** 219.00 I	= 0.34 (CFS) = ************************************	******** 31 < ======= 347.00
***************** FLOW PROCESS FROM NODE	******** 218.00 TRAVEL TI TIMATED PI ======= AM(FEET) = 106.00 M INCH PIPE T/SEC.) = R(INCH) = 12.84 = 2.30	******** TO NODE ME THRU S' PESIZE (N' 373.00 ANNING'S I IS 41.8 15.27 57.00 Tc (MIN	********** 219.00 I	= 0.34 (CFS) = ************************************	******** 31 < ====== 347.00
**************** FLOW PROCESS FROM NODE	******** 218.00 TRAVEL TI TIMATED PI ======== AM(FEET) = 106.00 m INCH PIPE T/SEC.) = R(INCH) = 12.84 = 2.30 NODE 21	******** TO NODE ME THRU S' PESIZE (N' 373.00 ANNING'S IS 41.8 15.27 57.00 TC (MIN 0.00 TO N'	********** 219.00 I	= 0.34 (CFS) = ************************************	********* 31 < 347.00 1 53.00 FEE
**************** FLOW PROCESS FROM NODE	******** 218.00 TRAVEL TI TIMATED PI ======= AM(FEET) = 106.00 m INCH PIPE T/SEC.) = R(INCH) = 12.84 = 2.30 NODE 21 ********** 219.00	******** TO NODE	*********** 219.00 I	= 0.34 CCFS) = ************************************	********* 31 < ====== 347.00 1 53.00 FEE ********
******************* FLOW PROCESS FROM NODE	******** 218.00 TRAVEL TI TIMATED PI ======== AM(FEET) = 106.00 M INCH PIPE T/SEC.) = R(INCH) = 12.84 = 2.30 NODE 21 ********* 219.00	******** TO NODE	*********** 219.00 I	= 0.34 CCFS) = ************************************	********* 31 < ====== 347.00 1 53.00 FEE ********
**************************************	******** 218.00 TRAVEL TI TIMATED PI ====== AM(FEET) = 106.00 M INCH PIPE T/SEC.) = R(INCH) = 12.84 = 2.30 NODE 21 ********* 219.00 EA TO MAIN ======== 17.27 TENSITY(IN	******** TO NODE	********** 219.00 I UBAREA<<<< ON-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 17.2 ODE 219. ********* 219.00 I FLOW<<<<<	= 0.34 CCFS) = ************************************	********* 31 < ====== 347.00 1 53.00 FEE ********
**************************************	******** 218.00 TRAVEL TI TIMATED PI ====== AM(FEET) = 106.00 M INCH PIPE T/SEC.) = R(INCH) = 12.84 = 2.30 NODE 21 ********* 219.00 EA TO MAIN ======== 17.27 TENSITY(IN	******** TO NODE	********** 219.00 I UBAREA<<<< ON-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 17.2 ODE 219. ********* 219.00 I FLOW<<<<<	= 0.34 CCFS) = ************************************	******** 31 347.00 1 53.00 FEE ********
**************************************	******** 218.00 TRAVEL TI TIMATED PI ======== AM(FEET) = 106.00 M INCH PIPE T/SEC.) = R(INCH) = 12.84 = 2.30 NODE 21 ********* 219.00 EA TO MAIN ===================================	******** TO NODE	********** 219.00 I	= 0.34 (CFS) = ************************************	********* 31 347.00 1 53.00 FEE ******** 81 B-: SCS CN
***************** FLOW PROCESS FROM NODE	******* 218.00 TRAVEL TI TIMATED PI ======= AM(FEET) = 106.00 M INCH PIPE T/SEC.) = R(INCH) = 12.84 = 2.30 NODE 21 ******** EA TO MAIN ====================================	******** TO NODE	********** 219.00 I	= 0.34 (CFS) = ********* S CODE = C FLOW) <<<< EM (FEET) = PIPES = 7 00 = 63 ********* S CODE = Ap (DECIMAL) 0.100	********* 31 347.00 1 53.00 FEE ******** 81 B-: SCS CN 86
>>>>COMPUTE PIPE-FLOW >>>>>USING COMPUTER-ES ====================================	******** 218.00 TRAVEL TI TIMATED PI ======= AM(FEET) = 106.00 M INCH PIPE T/SEC.) = R(INCH) = 12.84 = 2.30 NODE 21 ********* EA TO MAIN ===================================	******** TO NODE	********** 219.00 I	= 0.34 (CFS) = ********** S CODE = C FLOW) <<<< ======= M(FEET) = PIPES = 27 00 = 63 ********** S CODE =	********* 31 347.00 1 53.00 FEE ******** 81 B-: SCS CN

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PUBLIC PARK	D	8.50	0.20	0.850	91
RESIDENTIAL					
"11+ DWELLINGS/ACRE"					52
SUBAREA AVERAGE PERVIOUS				22	
SUBAREA AVERAGE PERVIOUS				:) = 38	2.1
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	88 40	AREA-1	A KUNOFF (CFS AVERAGED Fm (TNCH/HR)	= 0.10
AREA-AVERAGED Fp (INCH/HR	0.26	AREA-AV	/ERAGED Ap =	0.40	0.10
TOTAL AREA (ACRES) =					233.86

>>>>ADDITION OF SUBAREA					
MAINLINE Tc (MIN.) = 17					========
* 100 YEAR RAINFALL INTE	.27 NSTTY(INC	H/HR) =	3.042		B-23
SUBAREA LOSS RATE DATA (AI			0.012		
			Fp	Ар	SCS
DEVELOPMENT TYPE/ LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	В	2.90	0.30	0.200	76
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	С	2.90	0.25	0.200	86
RESIDENTIAL "11+ DWELLINGS/ACRE"	D	04.00	0.00	0 000	0.1
"II+ DWELLINGS/ACKE" RESIDENTIAL	D	24.00	0.20	0.200	91
".4 DWELLING/ACRE"	D	0 10	0.20	0 900	91
RESIDENTIAL	D	0.10	0.20	0.500	J±
"5-7 DWELLINGS/ACRE"	В	0.20	0.30	0.500	76
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	С	0.10	0.25	0.500	86
SUBAREA AVERAGE PERVIOUS	LOSS RAT	E, Fp(IN	CH/HR) = 0.	22	
SUBAREA AVERAGE PERVIOUS	AREA FRA	CTION, Ap	0.205		
SUBAREA AREA (ACRES) =	30.20	SUBARE	A RUNOFF (CFS	81.	47
EFFECTIVE AREA (ACRES) =					= 0.09
AREA-AVERAGED Fp (INCH/HR) = 0.25	AREA-AV	/ERAGED Ap =	0.35	215 22
TOTAL AREA (ACRES) =	118.6	PEAK	FLOW RATE (C	(FS) =	315.33
******	******	******	*****	*****	*****
FLOW PROCESS FROM NODE					
>>>>ADDITION OF SUBAREA		INE PEAK	FLOW<<<<	=======	========
MAINLINE Tc(MIN.) = 17	.27				
* 100 YEAR RAINFALL INTE		H/HR) =	3.042		B-23
SUBAREA LOSS RATE DATA(A	MC III):				
DEVELOPMENT TYPE/					
	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
RESIDENTIAL					
"8-10 DWELLINGS/ACRE"	В	0.50	0.30	0.400	76
RESIDENTIAL	^	1 40	0.05	0 400	0.6
"8-10 DWELLINGS/ACRE"	С	1.40	0.25	0.400	86
RESIDENTIAL "8-10 DWELLINGS/ACRE"	D	7 40	0.20	0 400	01
"8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS					ЭI
SUBAREA AVERAGE PERVIOUS				<u>~</u> ⊥	
SUBAREA AREA(ACRES) =		_	A RUNOFF(CFS	() = 24	75
	- • • • •	0001111111		, 21.	· -
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EFFECTIVE AREA(ACRES) = 127.90 AREA-AVERAGED Fm(INCH/HR) = 0.09
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.35
 TOTAL AREA (ACRES) = 127.9 PEAK FLOW RATE (CFS) =
                                             340.07
*******************
 FLOW PROCESS FROM NODE 219.00 TO NODE 230.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 347.00 DOWNSTREAM(FEET) = 330.00
 FLOW LENGTH (FEET) = 1244.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 66.0 INCH PIPE IS 49.6 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 17.77
 ESTIMATED PIPE DIAMETER (INCH) = 66.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 340.07
 PIPE TRAVEL TIME (MIN.) = 1.17 Tc (MIN.) = 18.43
 LONGEST FLOWPATH FROM NODE 210.00 TO NODE 230.00 = 7597.00 FEET.
*******************
 FLOW PROCESS FROM NODE 230.00 TO NODE 230.00 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc (MIN.) = 18.43
                                                  B-27
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 2.930
 SUBAREA LOSS RATE DATA(AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA FP Ap
                                              SCS
    LAND USE
                GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                  B 3.20 0.30 0.100 76
                  D 0.70 0.20 0.100 91
 COMMERCIAL
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" B 0.90 0.30 0.200
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" D 0.30 0.20 0.200 91
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.28
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.124
 SUBAREA AREA(ACRES) = 5.10 SUBAREA RUNOFF(CFS) = 13.29
 EFFECTIVE AREA(ACRES) = 133.00 AREA-AVERAGED Fm(INCH/HR) = 0.09
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.34
 TOTAL AREA (ACRES) = 133.0 PEAK FLOW RATE (CFS) =
                                             340.49
*****************
 FLOW PROCESS FROM NODE 230.00 TO NODE 230.00 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.) = 18.43
 RAINFALL INTENSITY (INCH/HR) = 2.93
 AREA-AVERAGED Fm(INCH/HR) = 0.09
 AREA-AVERAGED Fp(INCH/HR) = 0.25
 AREA-AVERAGED Ap = 0.34
 EFFECTIVE STREAM AREA(ACRES) = 133.00
 TOTAL STREAM AREA(ACRES) = 133.00
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 340.49
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** CONFILIE	ENCE DATA	**							
COMETION									
STREAM	Q	Tc	Intensit	ty Fp(I	Fm)	Аp	Ae	HEADW	ATER
NUMBER	(CFS)	(MIN.)	(INCH/HF	R) (INCH/	/HR)		(ACRES)	NOD	Ε
1	127.49	16.04	3.172	2 0.26(0.14)	0.55	46.1	2	03.00
STREAM NUMBER 1 2	340.49	18.43	2.930	0.25(0.09)	0.34	133.0	2	10.00
RAINFALL I CONFLUENCE					ION RAT	PIO			
** PEAK FI	OW BATE	PARTE *	k						
STREAM	0 10111 .	ТС	Intensit	-v Fn(F	Fm)	Δn	ΔΑ	HEYDW	I A TER
NUMBER	(CES)	(MTN)	(INCH/HE	S) (INCH	/HR)	110	(ACRES)	NOD	E.
1	449 11	16 04	3 172	2 0 25/	0 101	0 40	161 9	2	U3 UU
STREAM NUMBER 1 2	457.77	18.43	2.930	0.25(0.10)	0.40	179.1	2	10.00
					,				
COMPUTED OF PEAK FLOW EFFECTIVE AREA-AVERATOTAL AREALONGEST FI	RATE(CFS) AREA(ACRI AGED Fp(IN A(ACRES) =	= ES) = NCH/HR) = 1	457.77 179.10 = 0.25 L79.1	Tc (MIN) AREA- AREA-AV	N.) = -AVERAG VERAGED	GED Fm) Ap =	(INCH/HR) 0.40		
******	******	******		******	*****	*****	******	*****	*****
FLOW PROCE									
>>>>COMPU	JTE PIPE-I	FLOW TRA	AVEL TIME	E THRU SU	JBAREA<	:<<<			
>>>>USING	COMPUTER	R-ESTIMA	ATED PIPE	ESIZE (NO	ON-PRES	SURE I		<	
>>>>USING	COMPUTER	R-ESTIMA	ATED PIPE	ESIZE (NO	ON-PRES	SSURE I			.=====
>>>>USING	G COMPUTER DATA: UPS CH(FEET) = FLOW IN S VELOCITY PIPE DIAN (CFS) = EL TIME (M:	R-ESTIMP ======= STREAM(I = 389. 51.0 ING (FEET/SE METER(IN 457.7	ATED PIPE 	330.00 NNING'S N IS 38.8 39.54 51.00	ON-PRES DOWNS N = 0. INCHES NUMBER	SSURE I	(FEET) =	293.	
>>>>USING ========= ELEVATION FLOW LENGT DEPTH OF F PIPE-FLOW ESTIMATED PIPE-FLOW(PIPE TRAVE LONGEST FI	COMPUTER COMPUTER COMPUTER CH (FEET) = CLOW IN S VELOCITY PIPE DIAN (CFS) = CL TIME (M. COMPATH FR	R-ESTIM/ ======= STREAM(F = 389. 51.0 INC (FEET/SF METER(IN 457.7 IN.) = ROM NODE	ATED PIPE FEET) = .00 MAN CH PIPE I EC.) = 3 NCH) = 5 77 0.16 E 210.	330.00 NNING'S N IS 38.8 39.54 51.00 Tc (MIN.	DN-PRES DOWNS N = 0. INCHES NUMBER .) =	SSURE 1 STREAM 013 S R OF P: 18.60 231.00	(FEET) = IPES = 0 = 79	293. 1 86.00	FEET.
>>>>USING ====================================	CCOMPUTER COMPUTER COMPUTER CH (FEET) = CLOW IN S VELOCITY PIPE DIAN (CFS) = CL TIME (M: COMPATH FR	R-ESTIMA ======= STREAM(I = 389, 51.0 ING (FEET/SI METER(IN 457.7 IN.) = ROM NODE	ATED PIPE FEET) = .00 MAN CH PIPE I EC.) = 3 NCH) = 5 77 0.16 E 210.	330.00 NNING'S N IS 38.8 39.54 51.00 Tc (MIN00 TO NC	DN-PRES DOWNS DOWNS N = 0. INCHES NUMBER .) = DDE	SSURE 1 STREAM 013 S 0F P: 18.60 231.00	(FEET) = IPES = 0 = 79	293. 1 86.00	FEET.
>>>>USING ELEVATION FLOW LENGT DEPTH OF F PIPE-FLOW ESTIMATED PIPE-FLOW PIPE TRAVE LONGEST FI *********** FLOW PROCE	CCOMPUTER COMPUTER COMPUTER CH (FEET) = CLOW IN S VELOCITY PIPE DIAN (CFS) = CL TIME (M: COMPATH FR	R-ESTIMA 	ATED PIPE FEET) = .00 MAN CH PIPE I ECC.) = 3 NCH) = 5 77 0.16 E 210.	330.00 330.00 NNING'S N S 38.8 39.54 51.00 Tc (MIN00 TO NO	DN-PRES DON-PRES DOWNS N = 0. INCHES NUMBER .) = DDE *******	STREAM 013 S 18.60 231.00 IS	(FEET) = IPES = 0 = 79 ************ CODE =	293. 1 86.00	FEET.
>>>>USING ELEVATION FLOW LENGT DEPTH OF F PIPE-FLOW ESTIMATED PIPE-FLOW LONGEST FI ********** FLOW PROCE >>>>>ADDIT	COMPUTER COM	R-ESTIMA ======= STREAM(H = 389. 51.0 INC (FEET/SE METER(IN 457. IN.) = ROM NODE ********* NODE JBAREA 1	ATED PIPE FEET) = .00 MAN CH PIPE I EC.) = 3 NCH) = 5 77 0.16 E 210.	330.00 330.00 NNING'S N IS 38.8 39.54 51.00 Tc (MIN00 TO NO	DN-PRES DON-PRES DOWNS N = 0. INCHES NUMBER .) = DDDE ******* 231 FLOW<	STREAM 013 3 3 4 0F P: 18.60 231.00 IS	(FEET) = IPES = 0 = 79 ********** CODE =	293. 1 86.00 *****	FEET. *****
>>>>USING ELEVATION FLOW LENGT DEPTH OF F PIPE-FLOW ESTIMATED PIPE-FLOW LONGEST FI ********* FLOW PROCE ->>>>ADDIT MAINLINE T	COMPUTER COM	R-ESTIMA ======= STREAM(IF = 389. 51.0 INC (FEET/SF METER(IN 457. IN.) = ROM NODE ******* NODE JBAREA 1 ====================================	ATED PIPE 	330.00 NNING'S N IS 38.8 39.54 51.00 Tc (MIN00 TO NO **********************************	DN-PRES DOWNS DOWN	STREAM 013 3 4 OF P: 18.60 231.00 IS 4 00 IS	(FEET) = IPES = 79 ********* CODE =	293. 1 86.00 *****	FEET. *****
>>>>USING ELEVATION FLOW LENGT DEPTH OF F PIPE-FLOW ESTIMATED PIPE-FLOW LONGEST FI ********* FLOW PROCE ->>>>ADDIT MAINLINE T	COMPUTER COM	R-ESTIMA ======= STREAM(IF = 389. 51.0 INC (FEET/SF METER(IN 457. IN.) = ROM NODE ******* NODE JBAREA 1 ====================================	ATED PIPE 	330.00 NNING'S N IS 38.8 39.54 51.00 Tc (MIN00 TO NO **********************************	DN-PRES DOWNS DOWN	STREAM 013 3 4 OF P: 18.60 231.00 IS 4 00 IS	(FEET) = IPES = 79 ********* CODE =	293. 1 86.00 *****	FEET. *****
>>>>USING ELEVATION FLOW LENGT DEPTH OF F PIPE-FLOW ESTIMATED PIPE-FLOW PIPE TRAVE LONGEST FI ********* FLOW PROCE ->>>>ADDIT MAINLINE T * 100 YEAF SUBAREA LC	COMPUTER COM	R-ESTIMA ======= STREAM(IF = 389. 51.0 INC (FEET/SH METER(IN 457. IN.) = ROM NODE ******* NODE JBAREA 1 JBAREA 2 JBAREA 2 JBAREA 3 JBAREA 3 JBAREA 4 JBAREA	ATED PIPE FEET) = .00 MAN CH PIPE I EC.) = 3 NCH) = 5 77 0.16 E 210. ************************************	330.00 NNING'S N IS 38.8 39.54 51.00 Tc (MIN00 TO NO ********** TO NODE INE PEAK H/HR) =	DN-PRES DOWNS DOWN	SURE 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	(FEET) = IPES = 0 = 79 *********** CODE =	293. 1 86.00 ******	FEET. *****
>>>>USING ELEVATION FLOW LENGT DEPTH OF F PIPE-FLOW ESTIMATED PIPE-FLOW PIPE TRAVE LONGEST FI ********* FLOW PROCE ->>>>ADDIT MAINLINE T * 100 YEAF SUBAREA LC	COMPUTER COM	R-ESTIMA ======= STREAM(IF = 389. 51.0 INC (FEET/SH METER(IN 457. IN.) = ROM NODE ******* NODE JBAREA 1 JBAREA 2 JBAREA 2 JBAREA 3 JBAREA 3 JBAREA 4 JBAREA	ATED PIPE FEET) = .00 MAN CH PIPE I EC.) = 3 NCH) = 5 77 0.16 E 210. ************************************	330.00 NNING'S N IS 38.8 39.54 51.00 Tc (MIN00 TO NO ********** TO NODE INE PEAK H/HR) =	DN-PRES DOWNS DOWN	SURE 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	(FEET) = IPES = 0 = 79 *********** CODE =	293. 1 86.00 ******	FEET. *****
>>>>USING ELEVATION FLOW LENGT DEPTH OF F PIPE-FLOW ESTIMATED PIPE-FLOW LONGEST FI ********* FLOW PROCE ->>>>ADDIT * 100 YEAF SUBAREA LC DEVELOPME	C(MIN.) = C(CMIN.) = C(CMIN.	R-ESTIMA ======= STREAM(IF = 389. 51.0 INC (FEET/SH METER(IN 457. IN.) = ROM NODE ******* NODE JBAREA 1 LINTENS DATA (AMC SC	ATED PIPE FEET) = .00 MAN CH PIPE I EC.) = 3 NCH) = 5 77 0.16 E 210. ********** 231.00 I	330.00 NNING'S N IS 38.8 39.54 51.00 TC (MIN00 TO NO ********* TO NODE INE PEAK H/HR) = AREA	DN-PRES DOWNS ON = 0. INCHES NUMBER .) = DDE ******* 231. FLOW<< 2.915 Fp	SURE 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	(FEET) = IPES = 0 = 79 ********* CODE = Ap	293. 1 86.00 ****** 81	FEET. *****
>>>>USING ELEVATION FLOW LENGT DEPTH OF F PIPE-FLOW ESTIMATED PIPE-FLOW LONGEST FI ********* FLOW PROCE	G COMPUTER G COMPUTER DATA: UPS CH (FEET) = FLOW IN S VELOCITY PIPE DIAN (CFS) = CL TIME (M: COWPATH FR CHARLES COMPONIE COM	R-ESTIMA ======= STREAM(IF = 389. 51.0 INC (FEET/SH METER(IN 457. IN.) = ROM NODE ******* NODE JBAREA 1 LINTENS DATA (AMC SC	ATED PIPE FEET) = .00 MAN CH PIPE I EC.) = 3 NCH) = 5 77 0.16 E 210. ******** 231.00 T FO MAINLI GO MAINLI GO MAINLI CO MAINLI	330.00 NNING'S N IS 38.8 39.54 51.00 TC (MIN00 TO NO ********* TO NODE INE PEAK H/HR) = AREA	DN-PRES DON-PRES DOWNS N = 0. INCHES NUMBER .) = DDE ******* 231. FLOW<< 2.915 Fp (INCH/	SURE 18	(FEET) = IPES = 0 = 79 ******* CODE = Ap (DECIMAL)	293. 1 86.00 ****** 81 SCS CN	FEET. *****
>>>>USING ELEVATION FLOW LENGT DEPTH OF F PIPE-FLOW ESTIMATED PIPE-FLOW LONGEST FI ********* FLOW PROCE	C COMPUTER C	R-ESTIMA ======= STREAM(IF = 389. 51.0 INC (FEET/SH METER(IN 457. IN.) = ROM NODE ******* NODE JBAREA 1 LINTENS DATA (AMC SC	ATED PIPE FEET) = .00 MAN CH PIPE I EC.) = 3 NCH) = 5 77 0.16 E 210. ********* 231.00 I CO MAINLI GO MAINLI GO MAINLI	330.00 NNING'S N IS 38.8 39.54 51.00 TC (MIN00 TO NO ********* FO NODE INE PEAK H/HR) = AREA (ACRES) 2.00	DN-PRES DON-PRES DOWNS N = 0. INCHES NUMBER .) = DDE ******* 2.915 Fp (INCH/ 0.	SSURE 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	(FEET) = IPES = 0 = 79 ******** CODE =	293. 1 86.00 ****** 81 SCS CN 52	FEET. *****
>>>>USING ELEVATION FLOW LENGT DEPTH OF F PIPE-FLOW ESTIMATED PIPE-FLOW LONGEST FI ********** FLOW PROCE	C COMPUTEI C C C C C C C C C C C C C C C C C C C	R-ESTIMA ======= STREAM(IF = 389. 51.0 INC (FEET/SH METER(IN 457. IN.) = ROM NODE ******* NODE JBAREA 1 LINTENS DATA (AMC SC	ATED PIPE FEET) = .00 MAN CH PIPE I EC.) = 3 NCH) = 5 77 0.16 E 210. ******** 231.00 T FO MAINLI GO MAINLI GO MAINLI CO MAINLI	330.00 NNING'S N S 38.8 39.54 51.00 Tc (MIN00 TO NO ********** FO NODE	DN-PRES DON-PRES DOWNS N = 0. INCHES NUMBER .) = DDE ******* 231. FLOW<< 2.915 Fp (INCH/ 0. 0.	STREAM 013 3 18.60 231.00 IS 18.40 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16	(FEET) = IPES = 0 = 79 ******** CODE =	293. 1 86.00 ****** 81 SCS CN 52 76	FEET. *****
>>>>USING ====================================	G COMPUTER COMPUTER CH (FEET) = PLOW IN S VELOCITY PIPE DIAN COMPATH FR	R-ESTIMA ======= STREAM(IF = 389. 51.0 INC (FEET/SH METER(IN 457. IN.) = ROM NODE ******* NODE JBAREA 1 LINTENS DATA (AMC SC	ATED PIPE FEET) = .00 MAN CH PIPE I EC.) = 3 NCH) = 5 77 0.16 E 210. ********* 231.00 I	330.00 NNING'S N IS 38.8 39.54 51.00 TC (MIN00 TO NO ********* FO NODE INE PEAK H/HR) = AREA (ACRES) 2.00	DN-PRES DON-PRES DOWNS N = 0. INCHES NUMBER .) = DDE ******* 231. FLOW<< 2.915 Fp (INCH/ 0. 0.	SSURE 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	(FEET) = IPES = 0 = 79 ******** CODE =	293. 1 86.00 ****** 81 SCS CN 52	FEET. *****
>>>>USING ELEVATION FLOW LENGT DEPTH OF F PIPE-FLOW ESTIMATED PIPE-FLOW LONGEST FI ********* FLOW PROCE	G COMPUTER G COMPUTER DATA: UPS CH (FEET) = PLOW IN S VELOCITY PIPE DIAN (CFS) = CL TIME (M: LOWPATH FR CSS FROM N COMPATH FR CSS FROM N COMPATH FR	R-ESTIMA ======= STREAM(IF = 389. 51.0 INC (FEET/SH METER(IN 457. IN.) = ROM NODE ******* NODE JBAREA 1 LINTENS DATA (AMC SC	ATED PIPE FEET) = .00 MAN CH PIPE I EC.) = 3 NCH) = 5 77 0.16 E 210. ********* 231.00 T	330.00 330.00 NNING'S N IS 38.8 39.54 51.00 Tc (MIN00 TO NO *********** TO NODE INE PEAK	DN-PRES DOWNS N = 0. INCHES NUMBER .) = DDE ******* 231. FLOW< 2.915 Fp (INCH/ 0. 0.	SSURE 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Ap (DECIMAL) 0.100 0.100 0.100	293. 1 86.00 ***** 81 SCS CN 52 76 86	FEET. *****
>>>>USING ELEVATION FLOW LENGT DEPTH OF F PIPE-FLOW ESTIMATED PIPE-FLOW LONGEST FI ********* FLOW PROCE	G COMPUTER G COMPUTER DATA: UPS CH (FEET) = FLOW IN S VELOCITY PIPE DIAN (CFS) = EL TIME (M: LOWPATH FR CSS FROM N COMPATH FR	R-ESTIMA ======= STREAM(IF = 389.51.0 IN(FEET/SEMETER(IN 457.7 IN.) = ROM NODE	ATED PIPE FEET) = .00 MAN CH PIPE I EC.) = 3 NCH) = 5 77 0.16 E 210. ********* 231.00 I	330.00 NNING'S N S 38.8 39.54 51.00 Tc (MIN00 TO NO ********** FO NODE	DN-PRES DOWNS N = 0. INCHES NUMBER .) = DDE ******* 231. FLOW< 2.915 Fp (INCH/ 0. 0.	STREAM 013 3 18.60 231.00 IS 18.40 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16	Ap (DECIMAL) 0.100 0.100 0.100	293. 1 86.00 ****** 81 SCS CN 52 76	FEET. *****
>>>>USING ELEVATION FLOW LENGT DEPTH OF F PIPE-FLOW ESTIMATED PIPE-FLOW LONGEST FI ********* FLOW PROCE	G COMPUTER G COMPUTER DATA: UPS CH (FEET) = FLOW IN S VELOCITY PIPE DIAN (CFS) = GL TIME (MI LOWPATH FR CSS FROM N COMPATH FR CSS FROM N COMPATH FR	R-ESTIMA ======= STREAM(IF = 389.51.0 IN(FEET/SEMETER(IN 457.7 IN.) = ROM NODE	ATED PIPE FEET) = .00 MAN CH PIPE I EC.) = 3 NCH) = 5 77 0.16 E 210. ********* 231.00 T	330.00 NNING'S N IS 38.8 39.54 51.00 Tc (MIN00 TO NO ********* TO NODE	DN-PRES DOM-PRES DOWNS N = 0. INCHES NUMBER .) = DDDE ******* 231 FLOW<< 2.915 Fp (INCH/ 0. 0. 0.	SSURE 18 STREAM 013 S	Ap (DECIMAL) 0.100 0.100 0.100 1.000	293. 1 86.00 ***** 81 SCS CN 52 76 86 92	FEET. *****
>>>>USING ELEVATION FLOW LENGT DEPTH OF F PIPE-FLOW ESTIMATED PIPE-FLOW LONGEST FI ********* FLOW PROCE	G COMPUTER G COMPUTER DATA: UPS CH (FEET) = FLOW IN S VELOCITY PIPE DIAN (CFS) = GL TIME (MI LOWPATH FR CSS FROM N COMPATH FR CSS FROM N COMPATH FR	R-ESTIMA ======= STREAM(H = 389. 51.0 INC (FEET/SE METER(IN 457. IN.) = ROM NODE JBAREA 1 ======= 1 18.6 L INTENE DATA (AMC COVER	ATED PIPE FEET) = .00 MAN CH PIPE I EC.) = 3 NCH) = 5 77 0.16 E 210. ********* 231.00 T	330.00 NNING'S N IS 38.8 39.54 51.00 Tc (MIN00 TO NO ********* TO NODE	DN-PRES DOWNS N = 0. INCHES NUMBER .) = DDE ******* 231. FLOW< 2.915 Fp (INCH/ 0. 0.	SSURE 18 STREAM 013 S	Ap (DECIMAL) 0.100 0.100 0.100 1.000	293. 1 86.00 ***** 81 SCS CN 52 76 86	FEET. *****
>>>>USING ELEVATION FLOW LENGT DEPTH OF F PIPE-FLOW ESTIMATED PIPE-FLOW LONGEST FI ********* FLOW PROCE	G COMPUTER G COMPUTER DATA: UPS CH (FEET) = FLOW IN S VELOCITY PIPE DIAN (CFS) = CL TIME (MI LOWPATH FR CSS FROM N COMPATH FR	R-ESTIMA ======= STREAM(H = 389. 51.0 INC (FEET/SE METER(IN 457. IN.) = ROM NODE JBAREA 1 ======= 1 18.6 L INTENE DATA (AMC COVER	ATED PIPE FEET) = .00 MAN CH PIPE I EC.) = 3 NCH) = 5 77 0.16 E 210. ********* 231.00 T	330.00 NNING'S N IS 38.8 39.54 51.00 Tc (MIN00 TO NO ********* FO NODE INE PEAK AREA (ACRES) 2.00 4.60 5.60 1.60 0.70	DN-PRES DOM-PRES DOWNS N = 0. INCHES NUMBER .) = DDDE ******* 231 FLOW<< 2.915 Fp (INCH/ 0. 0. 0.	SSURE 18.50 118.60 231.00 15 231.00 15 25 25 30	Ap (DECIMAL) 0.100 0.100 1.000 1.000	293. 1 86.00 ***** 81 SCS CN 52 76 86 92	FEET. *****

File name: PA3B00HC.RES

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Date: 07/21/2022

EFFECTIVE AREA (ACRES) = AREA-AVERAGED Fp (INCH/I TOTAL AREA (ACRES) =	14.70 = 193.80 HR) = 0.20	5 AREA-AVI	RUNOFF(CF VERAGED Fm ERAGED Ap	(INCH/HR) = 0.39	= 0.10
**************************************	231.00	TO NODE	231.00 I	S CODE =	81
>>>>ADDITION OF SUBAR	EA TO MAIN	LINE PEAK	FLOW<		
MAINLINE Tc(MIN.) =		=======		=======	
* 100 YEAR RAINFALL IN			2.915		B-2
SUBAREA LOSS RATE DATA	(AMC III):				
DEVELOPMENT TYPE/ LAND USE PUBLIC PARK	SCS SOIL	AREA	Fp	Ap	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
PUBLIC PARK	В	7.30	0.30	0.850	76
	C	0.80	0.25	0.850	86
PUBLIC PARK	D	0.20	0.20	0.850	91
RESIDENTIAL	_				= 0
".4 DWELLING/ACRE"	А	0.10	0.40	0.900	52
RESIDENTIAL ".4 DWELLING/ACRE"	D.	4 00	0 20	0 000	7.6
RESIDENTIAL	В	4.00	0.30	0.900	76
".4 DWELLING/ACRE"	C	4 20	0.25	0 000	0.6
SUBAREA AVERAGE PERVIOU					86
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/F	16.60 = 210.4 HR) = 0.2	SUBAREA O AREA-AVI 6 AREA-AVI	RUNOFF(CF VERAGED Fm ERAGED Ap	(INCH/HR) = 0.42	= 0.11
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED Fp (INCH/I TOTAL AREA (ACRES) = ************************************	16.60 = 210.4 HR) = 0.2 210.4 ************************************	SUBAREA O AREA-AV 6 AREA-AVI PEAK I	RUNOFF(CF VERAGED FM ERAGED Ap FLOW RATE(************************************	(INCH/HR) = 0.42 CFS) = ************************************	= 0.11 531.26 ******
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED Fp (INCH/I TOTAL AREA (ACRES) = ***********************************	16.60 = 210.4 HR) = 0.2 210.4 ************ 231.00 	SUBAREA O AREA-AVI FEAK TO NODE LINE PEAK SUBAREA AREA-AVI PEAK TO NODE	RUNOFF(CF VERAGED FM ERAGED Ap FLOW RATE(********** 231.00 I	(INCH/HR) = 0.42 CFS) = ************ S CODE =	= 0.11 531.26 *********
>>>>ADDITION OF SUBARI MAINLINE TC(MIN.) = 1 * 100 YEAR RAINFALL IN: SUBAREA LOSS RATE DATA	16.60 = 210.4 HR) = 0.2 210.4 ********* 231.00	SUBAREA O AREA-AVI PEAK I ******** TO NODE LINE PEAK I CH/HR) = 2	RUNOFF (CF VERAGED FM ERAGED Ap FLOW RATE(********** 231.00 I 	(INCH/HR) = 0.42 CFS) = ********* S CODE =	= 0.11 531.26 ******** 81
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/I TOTAL AREA (ACRES) = ***********************************	16.60 = 210.4 HR) = 0.2 210.4 ********* 231.00	SUBAREA O AREA-AVI PEAK I ******** TO NODE LINE PEAK I CH/HR) = :	RUNOFF (CF VERAGED FM ERAGED AP FLOW RATE (************************************	(INCH/HR) = 0.42 CFS) = *********** S CODE = 	= 0.11 531.26 ********* 81
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/I TOTAL AREA (ACRES) = ***********************************	16.60 = 210.4 HR) = 0.2 210.4 ********* 231.00	SUBAREA O AREA-AVI PEAK I ******** TO NODE LINE PEAK I CH/HR) = :	RUNOFF (CF VERAGED FM ERAGED AP FLOW RATE (************************************	(INCH/HR) = 0.42 CFS) = *********** S CODE = 	= 0.11 531.26 ********* 81
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/I TOTAL AREA (ACRES) = *********************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARI MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL INSUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL	16.60 = 210.4 HR) = 0.2 210.4 ********* 231.00	SUBAREA O AREA-AVI PEAK I ********* TO NODE LINE PEAK I CH/HR) = 2 AREA (ACRES)	RUNOFF (CF VERAGED FM ERAGED AP FLOW RATE(********* 231.00 I	Ap (DECIMAL)	= 0.11 531.26 ********* 81
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED Fp (INCH/I TOTAL AREA (ACRES) = ***********************************	16.60 = 210.4 HR) = 0.2 210.4 ********** 231.00	SUBAREA O AREA-AVI FEAK I ********* TO NODE LINE PEAK I CH/HR) = 2 AREA (ACRES)	RUNOFF (CF VERAGED FM ERAGED AP FLOW RATE(********* 231.00 I FLOW<<<<< 2.915 Fp (INCH/HR) 0.25	Ap (DECIMAL) 0.10 (INCH/HR) 0.42 (CFS) = ************ *********** Ap (DECIMAL)	= 0.11 531.26 ********* 81
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED Fp (INCH/I TOTAL AREA (ACRES) = ***********************************	16.60 = 210.4 HR) = 0.2 210.4 ********** 231.00	SUBAREA O AREA-AVI FEAK I ********* TO NODE LINE PEAK I CH/HR) = 2 AREA (ACRES)	RUNOFF (CF VERAGED FM ERAGED AP FLOW RATE(********* 231.00 I FLOW<<<<< 2.915 Fp (INCH/HR) 0.25	Ap (DECIMAL) 0.10 (INCH/HR) 0.42 (CFS) = ************ *********** Ap (DECIMAL)	= 0.11 531.26 ********* 81
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/I TOTAL AREA (ACRES) = *********************** FLOW PROCESS FROM NODE	16.60 = 210.4 HR) = 0.2 210.4 ********** 231.00	SUBAREA O AREA-AVI FEAK I ********* TO NODE LINE PEAK I CH/HR) = 2 AREA (ACRES)	RUNOFF (CF VERAGED FM ERAGED AP FLOW RATE(********* 231.00 I FLOW<<<<< 2.915 Fp (INCH/HR) 0.25	Ap (DECIMAL)	= 0.11 531.26 ********* 81
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/I TOTAL AREA (ACRES) = ***********************************	16.60 = 210.4 HR) = 0.2 210.4 ********* 231.00	SUBAREA O AREA-AVI PEAK I ********* TO NODE LINE PEAK I CH/HR) = 2 AREA (ACRES) 0.50 0.10	RUNOFF (CF VERAGED FM ERAGED AP FLOW RATE(********** 231.00 I FLOW<<<<< 2.915 Fp (INCH/HR) 0.25 0.30	Ap (DECIMAL) Ap (DECIMAL) 0.500 1.000	= 0.11 531.26 ********* 81
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/I TOTAL AREA (ACRES) = ***********************************	16.60 = 210.4 HR) = 0.2 210.4 ********** 231.00	SUBAREA O AREA-AVI PEAK I ********* TO NODE LINE PEAK I CH/HR) = 2 AREA (ACRES) 0.50 0.10	RUNOFF (CF VERAGED FM ERAGED AP FLOW RATE(********* 231.00 I FLOW<<<<< 2.915 Fp (INCH/HR) 0.25	Ap (DECIMAL) Ap (DECIMAL) 0.500 1.000	= 0.11 531.26 ********* 81
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/I TOTAL AREA (ACRES) = ***********************************	16.60 = 210.4 HR) = 0.2 210.4 ********** 231.00 EA TO MAIN: 18.60 TENSITY(ING (AMC III): SCS SOIL GROUP C B C	SUBAREA O AREA-AVI FEAK I ********* TO NODE LINE PEAK I CH/HR) = 2 AREA (ACRES) 0.50 0.10 0.40	RUNOFF (CF VERAGED FM ERAGED AP FLOW RATE(********* 231.00 I FLOW<<<<< 2.915 Fp (INCH/HR) 0.25 0.30 0.25	Ap (DECIMAL) 0.500 1.000 1.000	= 0.11 531.26 ********* 81
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/I TOTAL AREA (ACRES) = ***********************************	16.60 = 210.4 HR) = 0.2 210.4 ********** 231.00 EA TO MAIN: ENSITY(ING (AMC III): SCS SOIL GROUP C B C B	SUBAREA 0 AREA-AVI 6 AREA-AVI PEAK 1 ********** TO NODE LINE PEAK 1 AREA (ACRES) 0.50 0.10 0.40 2.30	RUNOFF (CF VERAGED FM ERAGED AP FLOW RATE(********** 231.00 I	Ap (DECIMAL) 0.500 1.000 0.500	= 0.11 531.26 ********* 81
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/I TOTAL AREA (ACRES) = ***********************************	16.60 = 210.4 HR) = 0.2 210.4 ********** 231.00 EA TO MAIN: ====================================	SUBAREA 0 AREA-AVI 6 AREA-AVI PEAK 1 ********* ********* ******** ******	RUNOFF (CF VERAGED FM ERAGED AP FLOW RATE(********** 231.00 I	Ap (DECIMAL) 0.500 1.000 0.500	= 0.11 531.26 ********* 81
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/I TOTAL AREA (ACRES) = ***********************************	16.60 = 210.4 HR) = 0.2 210.4 ********** 231.00 EA TO MAIN: 18.60 TENSITY(IN (AMC III): SCS SOIL GROUP C B C B US LOSS RA' US AREA FRU	SUBAREA O AREA-AVI PEAK I ********* TO NODE LINE PEAK I AREA (ACRES) O.50 O.10 O.40 2.30 TE, FP(INCI ACTION, AP	RUNOFF (CF VERAGED FM ERAGED AP FLOW RATE(*********** 231.00 I 	Ap (DECIMAL) 0.500 1.000 0.500 .28	= 0.11 531.26 ************************************
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/I TOTAL AREA (ACRES) = ***********************************	16.60 = 210.4 HR) = 0.2 210.4 ********** 231.00 EA TO MAIN: ENERGY (IN (AMC III): SCS SOIL GROUP C B C B US LOSS RA' US AREA FR. 3.30	SUBAREA O AREA-AVI PEAK I ********* TO NODE LINE PEAK I AREA (ACRES) O.50 O.10 O.40 2.30 TE, FP(INCI ACTION, AP SUBAREA	RUNOFF (CF VERAGED FM ERAGED AP FLOW RATE(********** 231.00 I	Ap (DECIMAL) 0.500 1.000 0.500 28 S) = 8.	= 0.11 531.26 ************************************
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/I TOTAL AREA (ACRES) = ***********************************	16.60 = 210.4 HR) = 0.2 210.4 ********** 231.00	SUBAREA O AREA-AVI PEAK I ********* TO NODE LINE PEAK I CH/HR) = 2 AREA (ACRES) O.50 O.10 0.40 2.30 TE, FP(INCI ACTION, AP SUBAREA O AREA-AV	RUNOFF (CF VERAGED FM ERAGED AP FLOW RATE(********** 231.00 I FLOW<<<<< 2.915 Fp (INCH/HR) 0.25 0.30 0.25 0.30 H/HR) = 0 RUNOFF (CF VERAGED FM	Ap (DECIMAL) 0.500 1.000 1.000 0.500 28 (INCH/HR)	= 0.11 531.26 ************************************
SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/I TOTAL AREA (ACRES) = ***********************************	16.60 = 210.4 HR) = 0.2 210.4 ********* 231.00	SUBAREA O AREA-AVI PEAK I ********* TO NODE LINE PEAK I CH/HR) = 2 AREA (ACRES) O.50 O.10 O.40 2.30 TE, Fp(INCI ACTION, Ap SUBAREA O AREA-AVI 6 AREA-AVI 6 AREA-AVI 6 AREA-AVI 6 AREA-AVI	RUNOFF (CF VERAGED FM ERAGED AP FLOW RATE(********** 231.00 I FLOW<<<<< 2.915 Fp (INCH/HR) 0.25 0.30 0.25 0.30 H/HR) = 0.576 ENOFF (CF VERAGED FM SRAGED AP	Ap (DECIMAL) 0.500 1.000 1.000 0.500 28 (S) = 8.1(INCH/HR) 0.43	= 0.11 531.26 ************************************

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TOTAL AREA (ACRES) = 213.7 TC (MIN.) = 18.60

EFFECTIVE AREA (ACRES) = 213.70 AREA-AVERAGED Fm (INCH/HR) = 0.11

AREA-AVERAGED Fp (INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.427

PEAK FLOW RATE (CFS) = 539.43

** PEAK FLOW RATE TABLE **

STREAM	Q	Tc	Intensity	Fp(Fm)	Аp	Ae	HEADWATER
NUMBER	(CFS)	(MIN.)	(INCH/HR)	(INCH/HR)		(ACRES)	NODE
1	537.78	16.21	3.154	0.26(0.11)	0.43	196.5	203.00
2	539.43	18.60	2.915	0.26(0.11)	0.43	213.7	210.00
=========							

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 SUBWATERSHED B BODR 2022 * RATIONAL METHOD HYDROLOGY MODEL LOCAL * 25-YR HC SEPT 2022 ROKAMOTO FILE NAME: PA3B25HC.DAT TIME/DATE OF STUDY: 11:49 09/16/2022 ______ USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION: _____ --*TIME-OF-CONCENTRATION MODEL*--USER SPECIFIED STORM EVENT (YEAR) = 25.00 SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00 SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.90 *DATA BANK RAINFALL USED* *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) 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150 1 30.0 2 32.0 27.0 0.020/0.020/ --- 0.67 2.00 0.0312 0.167 0.0150 3 13.0 8.0 0.020/0.020/ ---0.33 1.00 0.0312 0.125 0.0150 GLOBAL STREET FLOW-DEPTH CONSTRAINTS: 1. Relative Flow-Depth = 1.00 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 203.00 TO NODE 204.00 IS CODE = 21 ______ >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<< _____ INITIAL SUBAREA FLOW-LENGTH (FEET) = 305.00 ELEVATION DATA: UPSTREAM(FEET) = 410.00 DOWNSTREAM(FEET) = 402.00

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Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 6.206 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 4.268 SUBAREA To AND LOSS RATE DATA (AMC II): DEVELOPMENT TYPE/ SCS SOIL AREA SCS Tc LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.) COMMERCIAL в 0.30 0.30 0.100 6.21 56 RESIDENTIAL "11+ DWELLINGS/ACRE" в 0.20 0.30 0.200 56 6.61 RESIDENTIAL ".4 DWELLING/ACRE" в 0.10 0.30 0.900 56 9.94 C 0.30 COMMERCIAL 0.25 0.100 6.21 RESIDENTIAL "11+ DWELLINGS/ACRE" C 0.60 0.25 0.200 6.61 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.28 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.207 SUBAREA RUNOFF(CFS) = 5.69TOTAL AREA (ACRES) = 1.50 PEAK FLOW RATE (CFS) = ****************** FLOW PROCESS FROM NODE 204.00 TO NODE 205.00 IS CODE = 62 ______ >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA< >>>> (STREET TABLE SECTION # 1 USED) <<<< ______ UPSTREAM ELEVATION(FEET) = 402.00 DOWNSTREAM ELEVATION(FEET) = 385.00 STREET LENGTH (FEET) = 515.00 CURB HEIGHT (INCHES) = 8.0 STREET HALFWIDTH (FEET) = 30.00DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00 INSIDE STREET CROSSFALL(DECIMAL) = 0.018 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200 **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 10.90 STREETFLOW MODEL RESULTS USING ESTIMATED FLOW: STREET FLOW DEPTH(FEET) = 0.36HALFSTREET FLOOD WIDTH (FEET) = 11.13 AVERAGE FLOW VELOCITY (FEET/SEC.) = 4.19PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 1.51 STREET FLOW TRAVEL TIME (MIN.) = 2.05 Tc (MIN.) = 8.26 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.632 SUBAREA LOSS RATE DATA (AMC II): DEVELOPMENT TYPE/ SCS SOIL AREA αA SCS GROUP (ACRES) (INCH/HR) (DECIMAL) CN LAND USE COMMERCIAL В 0.40 0.30 0.100 56 COMMERCIAL С 0.50 0.25 0.100 69 RESIDENTIAL "11+ DWELLINGS/ACRE" C 0.80 0.25 0.200 69 RESIDENTIAL ".4 DWELLING/ACRE" 0.40 0.30 0.900 56 RESIDENTIAL ".4 DWELLING/ACRE" 1.20 0.25 0.900 69

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SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.512
 SUBAREA AREA (ACRES) = 3.30 SUBAREA RUNOFF (CFS) = 10.39
 EFFECTIVE AREA(ACRES) = 4.80 AREA-AVERAGED Fm(INCH/HR) = 0.11
 AREA-AVERAGED Fp(INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.42
 TOTAL AREA(ACRES) = 4.8
                                PEAK FLOW RATE (CFS) =
                                                         15.21
 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.39 HALFSTREET FLOOD WIDTH(FEET) = 12.93
 FLOW VELOCITY (FEET/SEC.) = 4.51 DEPTH*VELOCITY (FT*FT/SEC.) = 1.77
 LONGEST FLOWPATH FROM NODE 203.00 TO NODE 205.00 = 820.00 FEET.
*******************
 FLOW PROCESS FROM NODE 205.00 TO NODE 206.00 IS CODE = 62
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
_____
 UPSTREAM ELEVATION(FEET) = 385.00 DOWNSTREAM ELEVATION(FEET) = 375.00
 STREET LENGTH (FEET) = 386.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL(DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH (FEET) = 0.43
   HALFSTREET FLOOD WIDTH (FEET) = 15.04
   AVERAGE FLOW VELOCITY (FEET/SEC.) = 4.33
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 1.87
 STREET FLOW TRAVEL TIME (MIN.) = 1.48 Tc (MIN.) = 9.74
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.307
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                 αA
                                                       SCS
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 COMMERCIAL
                      B
                                0.30
                                         0.30
                                                 0.100 56
                      С
                                0.40
                                                 0.100
                                                       69
 COMMERCIAL
                                         0.25
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" B
                               0.10
                                         0.30
                                                 0.200
                                                       56
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" C
                                0.30
                                                0.200
                                         0.25
                                                       69
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                                0.20
                                         0.30
                                                0.900
 RESIDENTIAL
 ".4 DWELLING/ACRE" C 1.50
                                         0.25
                                                0.900
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.600
 SUBAREA AREA (ACRES) = 2.80 SUBAREA RUNOFF (CFS) = 7.95
 EFFECTIVE AREA(ACRES) = 7.60 AREA-AVERAGED Fm(INCH/HR) = 0.13
 AREA-AVERAGED Fp(INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.48
 TOTAL AREA (ACRES) = 7.6 PEAK FLOW RATE (CFS) = 21.76
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END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.45 HALFSTREET FLOOD WIDTH(FEET) = 15.82
 FLOW VELOCITY (FEET/SEC.) = 4.48 DEPTH*VELOCITY (FT*FT/SEC.) = 1.99
 LONGEST FLOWPATH FROM NODE 203.00 TO NODE 206.00 = 1206.00 FEET.
************************
 FLOW PROCESS FROM NODE 206.00 TO NODE 206.00 IS CODE = 81
_____
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc(MIN.) = 9.74
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.307
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                Fρ
    LAND USE
                 GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                  В
                          0.70 0.30 0.100 56
                          2.50
 COMMERCIAL
                   С
                                  0.25
                                         0.100
                                                69
 COMMERCIAL
                   D 0.30
                                  0.20
                                         0.100
                                                75
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" B 0.30
                                   0.30
                                         0.200
                                                56
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" C 0.10
                                   0.25
                                         0.200
                                                69
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                   D 0.20 0.20 0.200
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.115
 SUBAREA AREA (ACRES) = 4.10 SUBAREA RUNOFF (CFS) = 12.10
 EFFECTIVE AREA(ACRES) = 11.70 AREA-AVERAGED Fm(INCH/HR) = 0.09
 AREA-AVERAGED Fp(INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.35
 TOTAL AREA (ACRES) = 11.7 PEAK FLOW RATE (CFS) =
                                              33.85
*****************
 FLOW PROCESS FROM NODE 206.00 TO NODE 206.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
_____
 MAINLINE Tc(MIN.) = 9.74
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.307
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                Fp
                                        Аp
                 GROUP (ACRES) (INCH/HR) (DECIMAL) CN
   LAND USE
 RESIDENTIAL
 ".4 DWELLING/ACRE" B 2.60
                                   0.30
                                         0.900
                                                56
 RESIDENTIAL
 ".4 DWELLING/ACRE" C 9.30
                                   0.25
                                         0.900
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                   D
                         1.50
                                   0.20 0.900
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.900
 SUBAREA AREA(ACRES) = 13.40
                          SUBAREA RUNOFF(CFS) = 37.13
 EFFECTIVE AREA(ACRES) = 25.10 AREA-AVERAGED Fm(INCH/HR) = 0.17
 AREA-AVERAGED Fp(INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.65
 TOTAL AREA (ACRES) = 25.1 PEAK FLOW RATE (CFS) =
******************
 FLOW PROCESS FROM NODE 206.00 TO NODE 207.00 IS CODE = 31
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>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
                                                                       MAINLINE Tc(MIN.) = 12.79
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
                                                                       * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.835
_____
                                                                       SUBAREA LOSS RATE DATA (AMC II):
 ELEVATION DATA: UPSTREAM(FEET) = 375.00 DOWNSTREAM(FEET) = 353.00
                                                                       DEVELOPMENT TYPE/ SCS SOIL AREA
                                                                                                       Fρ
                                                                                                               Aρ
 FLOW LENGTH (FEET) = 1217.00 MANNING'S N = 0.013
                                                                           LAND USE
                                                                                        GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                                         B 1.40 0.30
 DEPTH OF FLOW IN 36.0 INCH PIPE IS 25.1 INCHES
                                                                       COMMERCIAL
                                                                                                                 0.100
                                                                                          C 1.10
                                                                                                          0.25
 PIPE-FLOW VELOCITY(FEET/SEC.) = 13.47
                                                                       COMMERCIAL
                                                                                                                 0.100
 ESTIMATED PIPE DIAMETER (INCH) = 36.00 NUMBER OF PIPES = 1
                                                                       RESIDENTIAL
                                                                       ".4 DWELLING/ACRE" B 1.90
                                                                                                          0.30
                                                                                                                 0.900
 PIPE-FLOW(CFS) = 70.98
 PIPE TRAVEL TIME (MIN.) = 1.51 Tc (MIN.) = 11.25
                                                                       RESIDENTIAL
 LONGEST FLOWPATH FROM NODE 203.00 TO NODE 207.00 = 2423.00 FEET.
                                                                       ".4 DWELLING/ACRE"
                                                                                          C 1.60
                                                                                                          0.25
                                                                                                                 0.900
                                                                       RESIDENTIAL
*******************
                                                                                          B 0.20 0.30 0.400
                                                                       "8-10 DWELLINGS/ACRE"
 FLOW PROCESS FROM NODE 207.00 TO NODE 207.00 IS CODE = 81
                                                                       SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.28
                                                                       SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.561
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
                                                                       SUBAREA AREA(ACRES) = 6.20 SUBAREA RUNOFF(CFS) = 14.95
_____
                                                                       EFFECTIVE AREA(ACRES) = 37.10 AREA-AVERAGED Fm(INCH/HR) = 0.16
 MAINLINE Tc(MIN.) = 11.25
                                                                       AREA-AVERAGED Fp(INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.61
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.049
                                                                       TOTAL AREA (ACRES) = 37.1 PEAK FLOW RATE (CFS) =
 SUBAREA LOSS RATE DATA (AMC II):
                                                                      *****************
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                         Ар
                                                 SCS
                                 Fp
    LAND USE
                 GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                       FLOW PROCESS FROM NODE 208.00 TO NODE 209.00 IS CODE = 31
                   В
                            2.40
                                          0.100 56
                                                                      ______
 COMMERCIAL
                                   0.30
                    С
 COMMERCIAL
                            0.20
                                    0.25
                                           0.100
                                                 69
                                                                       >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
                                                7.5
 COMMERCIAL
                    D
                            0.30
                                   0.20
                                           0.100
                                                                       >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <>>>
                                                                      _____
 RESIDENTIAL
 ".4 DWELLING/ACRE" B
                                                                       ELEVATION DATA: UPSTREAM(FEET) = 343.00 DOWNSTREAM(FEET) = 340.00
                            2.10
                                    0.30
                                           0.900
                                                                       FLOW LENGTH (FEET) = 916.00 MANNING'S N = 0.013
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                   С
                           0.30
                                   0.25
                                          0.900
                                                69
                                                                       DEPTH OF FLOW IN 51.0 INCH PIPE IS 40.7 INCHES
 RESIDENTIAL
                                                                       PIPE-FLOW VELOCITY(FEET/SEC.) = 7.36
 ".4 DWELLING/ACRE"
                          0.50
                                         0.900 75
                                                                       ESTIMATED PIPE DIAMETER (INCH) = 51.00 NUMBER OF PIPES = 1
                   D
                                   0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.28
                                                                       PIPE-FLOW(CFS) =
                                                                                      89.33
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.500
                                                                       PIPE TRAVEL TIME (MIN.) = 2.07 Tc (MIN.) = 14.86
                                                                       LONGEST FLOWPATH FROM NODE 203.00 TO NODE 209.00 = 4360.00 FEET.
 SUBAREA AREA(ACRES) = 5.80
                           SUBAREA RUNOFF (CFS) = 15.19
 EFFECTIVE AREA(ACRES) = 30.90 AREA-AVERAGED Fm(INCH/HR) = 0.16
                                                                      *****************
 AREA-AVERAGED Fp(INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.62
 TOTAL AREA (ACRES) = 30.9 PEAK FLOW RATE (CFS) =
                                                                       FLOW PROCESS FROM NODE 209.00 TO NODE 209.00 IS CODE = 81
*******************
                                                                       >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
 FLOW PROCESS FROM NODE 207.00 TO NODE 208.00 IS CODE = 31
                                                                      _____
                                                                       MAINLINE Tc(MIN.) = 14.86
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
                                                                       * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.604
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
                                                                       SUBAREA LOSS RATE DATA (AMC II):
_____
                                                                        DEVELOPMENT TYPE/ SCS SOIL AREA
 ELEVATION DATA: UPSTREAM(FEET) = 353.00 DOWNSTREAM(FEET) = 343.00
                                                                                         GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                           LAND USE
 FLOW LENGTH (FEET) = 1021.00 MANNING'S N = 0.013
                                                                       COMMERCIAL
                                                                                          в 0.30 0.30
                                                                                                                 0.100
 DEPTH OF FLOW IN 42.0 INCH PIPE IS 29.8 INCHES
                                                                                                0.60
                                                                                                          0.25
                                                                                                                 0.100
                                                                       COMMERCIAL
 PIPE-FLOW VELOCITY (FEET/SEC.) = 11.02
                                                                       COMMERCIAL
                                                                                          D 0.70
                                                                                                          0.20
                                                                                                                 0.100
 ESTIMATED PIPE DIAMETER (INCH) = 42.00 NUMBER OF PIPES = 1
                                                                       RESIDENTIAL
                                                                       ".4 DWELLING/ACRE"
                                                                                          B 0.40
                                                                                                          0.30
                                                                                                                 0.900
 PIPE-FLOW(CFS) = 80.33
 PIPE TRAVEL TIME (MIN.) = 1.54 Tc (MIN.) = 12.79
                                                                       RESIDENTIAL
 LONGEST FLOWPATH FROM NODE 203.00 TO NODE 208.00 = 3444.00 FEET.
                                                                       ".4 DWELLING/ACRE" C
                                                                                                  0.80
                                                                                                          0.25
                                                                                                                 0.900
                                                                       RESIDENTIAL
*****************
                                                                       ".4 DWELLING/ACRE"
                                                                                           D
                                                                                                 0.40
                                                                                                          0.20
                                                                                                                 0.900
 FLOW PROCESS FROM NODE 208.00 TO NODE 208.00 IS CODE = 81
                                                                       SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
                                                                       SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.500
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
                                                                       SUBAREA AREA (ACRES) = 3.20 SUBAREA RUNOFF (CFS) = 7.14
                                                                       EFFECTIVE AREA(ACRES) = 40.30 AREA-AVERAGED Fm(INCH/HR) = 0.16
```

SCS

56

69

56

69

69

7.5

56

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```
AREA-AVERAGED Fp (INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.60
 TOTAL AREA (ACRES) =
                  40.3
                                                 89.33
                           PEAK FLOW RATE (CFS) =
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
******************
 FLOW PROCESS FROM NODE 209.00 TO NODE 209.10 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 340.00 DOWNSTREAM(FEET) = 331.00
 FLOW LENGTH (FEET) = 960.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 42.0 INCH PIPE IS 33.2 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 10.94
 ESTIMATED PIPE DIAMETER (INCH) = 42.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 89.33
 PIPE TRAVEL TIME (MIN.) = 1.46 Tc (MIN.) = 16.32
 LONGEST FLOWPATH FROM NODE 203.00 TO NODE 209.10 = 5320.00 FEET.
********************
 FLOW PROCESS FROM NODE 209.10 TO NODE 209.10 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
_____
 MAINLINE Tc(MIN.) = 16.32
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.469
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                        Ap SCS
    LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                   B
                           1.00
                                   0.30
                                          0.100 56
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                  В
                           0.40
                                   0.30
                                          0.200 56
 COMMERCIAL
                     С
                           0.40
                                   0.25
                                          0.100 69
 COMMERCIAL
                           2.20
                                   0.20
                                          0.100 75
                     D
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                           0.70
                                   0.20
                                          0.200
                                               75
 RESIDENTIAL
 "8-10 DWELLINGS/ACRE"
                   D 1.10
                                 0.20
                                          0.400
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.176
                          SUBAREA RUNOFF(CFS) = 12.69
 SUBAREA AREA(ACRES) = 5.80
 EFFECTIVE AREA(ACRES) = 46.10 AREA-AVERAGED Fm(INCH/HR) = 0.14
 AREA-AVERAGED Fp (INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.55
 TOTAL AREA(ACRES) = 46.1 PEAK FLOW RATE(CFS) =
*****************
 FLOW PROCESS FROM NODE 209.10 TO NODE 230.00 IS CODE = 31
______
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 331.00 DOWNSTREAM(FEET) = 330.00
 FLOW LENGTH (FEET) = 205.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 51.0 INCH PIPE IS 36.6 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 8.87
 ESTIMATED PIPE DIAMETER(INCH) = 51.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 96.55
 PIPE TRAVEL TIME (MIN.) = 0.39 Tc (MIN.) = 16.71
```

```
LONGEST FLOWPATH FROM NODE 203.00 TO NODE 230.00 = 5525.00 FEET.
******************
 FLOW PROCESS FROM NODE 230.00 TO NODE 230.00 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.) = 16.71
 RAINFALL INTENSITY (INCH/HR) = 2.44
 AREA-AVERAGED Fm(INCH/HR) = 0.14
 AREA-AVERAGED Fp (INCH/HR) = 0.26
 AREA-AVERAGED Ap = 0.55
 EFFECTIVE STREAM AREA(ACRES) = 46.10
 TOTAL STREAM AREA(ACRES) = 46.10
 PEAK FLOW RATE (CFS) AT CONFLUENCE =
                               96.55
*******************
 FLOW PROCESS FROM NODE 210.00 TO NODE 211.00 IS CODE = 21
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
______
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 328.00
 ELEVATION DATA: UPSTREAM(FEET) = 426.00 DOWNSTREAM(FEET) = 423.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.407
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.595
 SUBAREA To AND LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/
                 SCS SOIL AREA
                                  Fр
                                         Ар
                                                SCS Tc
     LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" B 0.50 0.30 0.200
                                                 56
                                                    8.41
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                   C 1.20 0.25 0.200
                                                 69
                                                     8.41
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.200
 SUBAREA RUNOFF (CFS) = 5.42
 TOTAL AREA (ACRES) = 1.70 PEAK FLOW RATE (CFS) =
******************
 FLOW PROCESS FROM NODE 211.00 TO NODE 212.00 IS CODE = 31
......
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 423.00 DOWNSTREAM(FEET) = 421.00
 FLOW LENGTH (FEET) = 385.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 18.0 INCH PIPE IS 11.7 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 4.47
 ESTIMATED PIPE DIAMETER (INCH) = 18.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
                 5.42
 PIPE TRAVEL TIME (MIN.) = 1.44 Tc (MIN.) = 9.84
 LONGEST FLOWPATH FROM NODE 210.00 TO NODE 212.00 = 713.00 FEET.
******************
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FLOW PROCESS FROM NODE 213.00 TO NODE 214.00 IS CODE = 31 _____ >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA< >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<< _____ ELEVATION DATA: UPSTREAM(FEET) = 415.00 DOWNSTREAM(FEET) = 409.00 FLOW LENGTH (FEET) = 747.00 MANNING'S N = 0.013DEPTH OF FLOW IN 33.0 INCH PIPE IS 22.8 INCHES PIPE-FLOW VELOCITY (FEET/SEC.) = 8.45 ESTIMATED PIPE DIAMETER (INCH) = 33.00 NUMBER OF PIPES = 1 37.05 PIPE-FLOW(CFS) = PIPE TRAVEL TIME (MIN.) = 1.47 Tc (MIN.) = 12.53LONGEST FLOWPATH FROM NODE 210.00 TO NODE 214.00 = 2027.00 FEET. **************** FLOW PROCESS FROM NODE 214.00 TO NODE 214.00 IS CODE = 81 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>> ______ MAINLINE Tc (MIN.) = 12.53* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.868 SUBAREA LOSS RATE DATA (AMC II): DEVELOPMENT TYPE/ SCS SOIL AREA Fρ αA LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN В 0.60 0.30 56 COMMERCIAL 0.100 COMMERCIAL С 0.30 0.25 0.100 69 RESIDENTIAL "11+ DWELLINGS/ACRE" C 0.20 0.25 0.200 69 RESIDENTIAL "8-10 DWELLINGS/ACRE" 2.90 0.30 0.400 В 56 RESIDENTIAL "8-10 DWELLINGS/ACRE" C 11.40 0.25 0.400 RESIDENTIAL "8-10 DWELLINGS/ACRE" D 0.90 0.20 0.400 75 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.381 SUBAREA AREA(ACRES) = 16.30 SUBAREA RUNOFF(CFS) = 40.64 EFFECTIVE AREA(ACRES) = 29.90 AREA-AVERAGED Fm(INCH/HR) = 0.08 AREA-AVERAGED Fp (INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.30TOTAL AREA (ACRES) = 29.9 PEAK FLOW RATE (CFS) = ****************** FLOW PROCESS FROM NODE 214.00 TO NODE 215.00 IS CODE = 31 ______ >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA< >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<< _____ ELEVATION DATA: UPSTREAM(FEET) = 409.00 DOWNSTREAM(FEET) = 382.00 FLOW LENGTH (FEET) = 1002.00 MANNING'S N = 0.013DEPTH OF FLOW IN 33.0 INCH PIPE IS 24.8 INCHES PIPE-FLOW VELOCITY(FEET/SEC.) = 15.72ESTIMATED PIPE DIAMETER (INCH) = 33.00 NUMBER OF PIPES = 1 PIPE-FLOW(CFS) = 75.11 PIPE TRAVEL TIME (MIN.) = 1.06 Tc (MIN.) = 13.59LONGEST FLOWPATH FROM NODE 210.00 TO NODE 215.00 = 3029.00 FEET. ******************

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FLOW PROCESS FROM NODE 215.00 TO			PIPE-FLOW(CFS) = 150.94 PIPE TRAVEL TIME(MIN.) = 1.77 Tc(MIN.) = 15.36
>>>>ADDITION OF SUBAREA TO MAINLIN			LONGEST FLOWPATH FROM NODE 210.00 TO NODE 218.00 = 4247.00 FEET.
MAINLINE Tc(MIN.) = 13.59			***********************
* 25 YEAR RAINFALL INTENSITY(INCH/SUBAREA LOSS RATE DATA(AMC II):	HR) = 2.739		FLOW PROCESS FROM NODE 218.00 TO NODE 218.00 IS CODE = 81
DEVELOPMENT TYPE/ SCS SOIL	AREA Fp CRES) (INCH/HR) (DE	Ap SCS	>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
RESIDENTIAL GROOT (A	CKEO) (INCII/IIK) (DI	CINAL) CN	MAINLINE Tc(MIN.) = 15.36
"11+ DWELLINGS/ACRE" B RESIDENTIAL	2.40 0.30	0.200 56	* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.555 SUBAREA LOSS RATE DATA(AMC II):
"5-7 DWELLINGS/ACRE" B RESIDENTIAL	7.10 0.30	0.500 56	DEVELOPMENT TYPE/ SCS SOIL AREA FP AP SCS LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
"5-7 DWELLINGS/ACRE" C RESIDENTIAL	3.60 0.25	0.500 69	RESIDENTIAL "11+ DWELLINGS/ACRE" B 7.70 0.30 0.200 56
"5-7 DWELLINGS/ACRE" D	0.30 0.20).500 75	RESIDENTIAL
RESIDENTIAL "8-10 DWELLINGS/ACRE" B	10.50 0.30 (0.400 56	"11+ DWELLINGS/ACRE" C 0.40 0.25 0.200 69 RESIDENTIAL
RESIDENTIAL "8-10 DWELLINGS/ACRE" C	9.40 0.25 (0.400 69	"11+ DWELLINGS/ACRE" D 1.70 0.20 0.200 75 RESIDENTIAL
SUBAREA AVERAGE PERVIOUS LOSS RATE, SUBAREA AVERAGE PERVIOUS AREA FRACT	ION, $Ap = 0.419$	70.50	"5-7 DWELLINGS/ACRE" B 0.40 0.30 0.500 56 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.28
SUBAREA AREA (ACRES) = 33.30 EFFECTIVE AREA (ACRES) = 63.20 AREA-AVERAGED Fp(INCH/HR) = 0.27		CH/HR) = 0.10	SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.212 SUBAREA AREA(ACRES) = 10.20 SUBAREA RUNOFF(CFS) = 22.91 EFFECTIVE AREA(ACRES) = 73.70 AREA-AVERAGED FM(INCH/HR) = 0.09
TOTAL AREA (ACRES) = 63.2	PEAK FLOW RATE (CFS)		AREA-AVERAGED Fp(INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.34 TOTAL AREA(ACRES) = 73.7 PEAK FLOW RATE(CFS) = 163.37
FLOW PROCESS FROM NODE 215.00 TO	E PEAK FLOW<		**************************************
MAINLINE Tc(MIN.) = 13.59			>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<< >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
* 25 YEAR RAINFALL INTENSITY(INCH/SUBAREA LOSS RATE DATA(AMC II): DEVELOPMENT TYPE/ SCS SOIL LAND USE GROUP (AMC II): LAND USE GROUP (AMC III): "8-10 DWELLINGS/ACRE" D SUBAREA AVERAGE PERVIOUS LOSS RATE, SUBAREA AVERAGE PERVIOUS AREA FRACT SUBAREA AREA(ACRES) = 0.30	AREA FP CRES) (INCH/HR) (DE 0.30 0.20 (FP(INCH/HR) = 0.20	Ap SCS ECIMAL) CN	ELEVATION DATA: UPSTREAM(FEET) = 373.00 DOWNSTREAM(FEET) = 347.00 FLOW LENGTH(FEET) = 2106.00 MANNING'S N = 0.013 DEPTH OF FLOW IN 51.0 INCH PIPE IS 38.5 INCHES PIPE-FLOW VELOCITY(FEET/SEC.) = 14.23 ESTIMATED PIPE DIAMETER(INCH) = 51.00 NUMBER OF PIPES = 1 PIPE-FLOW(CFS) = 163.37 PIPE TRAVEL TIME(MIN.) = 2.47 TC(MIN.) = 17.83 LONGEST FLOWPATH FROM NODE 210.00 TO NODE 219.00 = 6353.00 FEET.
EFFECTIVE AREA (ACRES) = 63.50 AREA-AVERAGED FP (INCH/HR) = 0.27 TOTAL AREA (ACRES) = 63.5	AREA-AVERAGED Fm(INC AREA-AVERAGED Ap = (CH/HR) = 0.10).36	**************************************

FLOW PROCESS FROM NODE 215.00 TO	NODE 218.00 IS CO	DDE = 31	>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
>>>>COMPUTE PIPE-FLOW TRAVEL TIME '	THRU SUBAREA<<<< IZE (NON-PRESSURE FLO	DW) <<<<	MAINLINE TC(MIN.) = 17.83 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.349 SUBAREA LOSS RATE DATA(AMC II):
ELEVATION DATA: UPSTREAM(FEET) = FLOW LENGTH(FEET) = 1218.00 MANN	382.00 DOWNSTREAM(FE		DEVELOPMENT TYPE/ SCS SOIL AREA FP AP SCS LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN COMMERCIAL C 0.20 0.25 0.100 69
DEPTH OF FLOW IN 54.0 INCH PIPE IS PIPE-FLOW VELOCITY(FEET/SEC.) = 11			COMMERCIAL D 2.40 0.20 0.100 75 PUBLIC PARK B 1.20 0.30 0.850 56
ESTIMATED PIPE DIAMETER (INCH) = 54		ES = 1	PUBLIC PARK C 1.70 0.25 0.850 69

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PUBLIC PARK	D	8.50	0.20	0.850	75
RESIDENTIAL "11+ DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS	S LOSS RAT	E, Fp(IN	CH/HR) = 0		32
SUBAREA AVERAGE PERVIOUS	3 AREA FRA	ACTION, Ap	0.686		
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	14.70	SUBAREA	A RUNOFF (CF:	S) = 29.	08
EFFECTIVE AREA(ACRES) =	88.40) AREA-A	AVERAGED Fm	(INCH/HR)	= 0.10
AREA-AVERAGED Fp(INCH/HF TOTAL AREA(ACRES) =	R) = 0.26	AREA-AV	/ERAGED Ap :	= 0.40	
TOTAL AREA (ACRES) =	88.4	PEAK	FLOW RATE (CFS) =	178.75

FLOW PROCESS FROM NODE					
>>>>ADDITION OF SUBARE					
MAINLINE Tc(MIN.) = 17					=======
* 25 YEAR RAINFALL INTE		CH/HR) =	2.349		
SUBAREA LOSS RATE DATA (A	AMC TT) ·				
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fρ	αA	SCS
DEVELOPMENT TYPE/ LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
RESIDENTIAL		(/	, , ,	,	
"11+ DWELLINGS/ACRE"	В	2.90	0.30	0.200	56
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	С	2.90	0.25	0.200	69
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	D	24.00	0.20	0.200	75
RESIDENTIAL					
".4 DWELLING/ACRE"	D	0.10	0.20	0.900	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	В	0.20	0.30	0.500	56
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	С	0.10	0.25	0.500	69
SUBAREA AVERAGE PERVIOUS	S LOSS RAT	E, Fp(IN	CH/HR) = 0	.22	
SUBAREA AVERAGE PERVIOUS					
SUBAREA AREA(ACRES) =					
EFFECTIVE AREA(ACRES) =	118.60	AREA-A	AVERAGED Fm	(INCH/HR)	= 0.09
AREA-AVERAGED Fp(INCH/HF TOTAL AREA(ACRES) =	R) = 0.25	AREA-AV	/ERAGED Ap :	= 0.35	
TOTAL AREA (ACRES) =	118.6	PEAK	FLOW RATE (CFS) =	241.38
******	*******	******	*****	*******	********
FLOW PROCESS FROM NODE					
>>>>ADDITION OF SUBAREA					
					.=======
MAINLINE Tc(MIN.) = 17 * 25 YEAR RAINFALL INTE		'H/HR\ =	2 349		
SUBAREA LOSS RATE DATA (A	,		2.515		
DEVELOPMENT TYPE/	SCS SOTT	AREA	Fρ	An	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
RESIDENTIAL	01.001	(11011110)	(11.011/1111/	(2201111)	U. .
"8-10 DWELLINGS/ACRE"	В	0.50	0.30	0.400	56
RESIDENTIAL	_	- • • •			
"8-10 DWELLINGS/ACRE"	С	1.40	0.25	0.400	69
RESIDENTIAL	-				
"8-10 DWELLINGS/ACRE"	D	7.40	0.20	0.400	75
SUBAREA AVERAGE PERVIOUS					
SUBAREA AVERAGE PERVIOUS					
SUBAREA AREA(ACRES) =				S) = 18.	95
. ,			, -		
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EFFECTIVE AREA(ACRES) = 127.90 AREA-AVERAGED Fm(INCH/HR) = 0.09
 AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.35
 TOTAL AREA (ACRES) = 127.9 PEAK FLOW RATE (CFS) =
                                               260.33
*******************
 FLOW PROCESS FROM NODE 219.00 TO NODE 230.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 347.00 DOWNSTREAM(FEET) = 330.00
 FLOW LENGTH (FEET) = 1244.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 60.0 INCH PIPE IS 44.6 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 16.65
 ESTIMATED PIPE DIAMETER (INCH) = 60.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 260.33
 PIPE TRAVEL TIME (MIN.) = 1.25 Tc (MIN.) = 19.07
 LONGEST FLOWPATH FROM NODE 210.00 TO NODE 230.00 = 7597.00 FEET.
*******************
 FLOW PROCESS FROM NODE 230.00 TO NODE 230.00 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc (MIN.) = 19.07
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.261
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA FP Ap
                                               SCS
                 GROUP (ACRES) (INCH/HR) (DECIMAL) CN
    LAND USE
 COMMERCIAL
                  B 3.20 0.30 0.100 56
                  D 0.70 0.20 0.100 75
 COMMERCIAL
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" B 0.90 0.30 0.200
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" D 0.30 0.20 0.200 75
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.28
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.124
 SUBAREA AREA(ACRES) = 5.10 SUBAREA RUNOFF(CFS) = 10.22
 EFFECTIVE AREA(ACRES) = 133.00 AREA-AVERAGED Fm(INCH/HR) = 0.09
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.34
 TOTAL AREA (ACRES) = 133.0 PEAK FLOW RATE (CFS) =
                                               260.41
******************
 FLOW PROCESS FROM NODE 230.00 TO NODE 230.00 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.) = 19.07
 RAINFALL INTENSITY (INCH/HR) = 2.26
 AREA-AVERAGED Fm(INCH/HR) = 0.09
 AREA-AVERAGED Fp(INCH/HR) = 0.25
 AREA-AVERAGED Ap = 0.34
 EFFECTIVE STREAM AREA(ACRES) = 133.00
 TOTAL STREAM AREA(ACRES) = 133.00
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 260.41
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** CONFLUENCE DATA **						SUBAREA AVERAGE PERVIO SUBAREA AREA(ACRES) =		
STREAM Q	Tc Intensity H	'p(Fm) Ap	Ae	HEADWATER		EFFECTIVE AREA(ACRES)	= 193.80	А
NUMBER (CFS) (M	IN.) (INCH/HR) (IN	ICH/HR)	(ACRES)	NODE		AREA-AVERAGED Fp(INCH/	HR) = 0.25	AR
1 96.55 1	6.71 2.437 0.2	6(0.14) 0.55	5 46.1	203.00		TOTAL AREA (ACRES) =	193.8	
2 260 41 1	9 07 2 261 0 3	5 (0 0 0 0) 0 34	1 133 (210.00		EFFECTIVE AREA (ACRES) AREA-AVERAGED Fp (INCH/ TOTAL AREA (ACRES) =	130.0	
STREAM Q NUMBER (CFS) (M 1 96.55 1 2 260.41 1	2.201 0.2	.5(0.05) 0.5	1 133.0	210.00		*****		
RAINFALL INTENSITY AN						FLOW PROCESS FROM NODE		
						FLOW PROCESS FROM NODE		
CONFLUENCE FORMULA US	ED FOR Z STREAMS.							
						>>>>ADDITION OF SUBAR		
** PEAK FLOW RATE TAB								====
STREAM Q	Tc Intensity I	'p(Fm) Ap	Ae	HEADWATER		MAINLINE Tc(MIN.) =		
NUMBER (CFS) (M	IN.) (INCH/HR) (IN	ICH/HR)	(ACRES)	NODE		* 25 YEAR RAINFALL IN		
NUMBER (CFS) (M 1 343.13 1 2 349.57 1	6.71 2.437 0.2	5 (0.10) 0.40	162.6	203.00		SUBAREA LOSS RATE DATA	(AMC II):	
2 349.57 1	9.07 2.261 0.2	5 (0.10) 0.40	179.1	210.00		DEVELOPMENT TYPE/	SCS SOIL	AR
						LAND USE	GROUP	(ACR
COMPUTED CONFLUENCE E						PUBLIC PARK	В	7
PEAK FLOW RATE(CFS) =	349.57 Tc	MIN.) = 19	9.07			DEVELOPMENT TYPE/ LAND USE PUBLIC PARK PUBLIC PARK PUBLIC PARK PUBLIC PARK	С	0
EFFECTIVE AREA(ACRES)	= 179.10 AF	EA-AVERAGED I	m(INCH/HR)	= 0.10		PUBLIC PARK	D	0
AREA-AVERAGED Fp (INCH						RESIDENTIAL		
TOTAL AREA(ACRES) =						RESIDENTIAL ".4 DWELLING/ACRE"	Δ	0
LONGEST FLOWPATH FROM		NODE 230	00 = 75	97 OO FEET		RESIDENTIAL		Ü
EGNOEGI TEGNITITI TROT	NODE 210.00 10	NODE 200	.00	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		".4 DWELLING/ACRE"	B	4
******	******	*****	********	******		RESIDENTIAL	Б	1
ELOW DROCECC EDOM NOD	E 220 00 EQ NO	221 00 3	C CODE -	21		".4 DWELLING/ACRE"	0	1
FLOW PROCESS FROM NOD	E 230.00 TO NOI	JE 231.00 J	IS CODE =	31				
						SUBAREA AVERAGE PERVIO		,
>>>>COMPUTE PIPE-FLO						SUBAREA AVERAGE PERVIO		
>>>>USING COMPUTER-E						SUBAREA AREA(ACRES) =		
=======================================						EFFECTIVE AREA(ACRES)		
ELEVATION DATA: UPSTR	EAM(FEET) = 330.	00 DOWNSTREA	AM(FEET) =	293.00		AREA-AVERAGED Fp(INCH/	HR) = 0.26	AR
FLOW LENGTH (FEET) =	369.00 MANNING	S N = 0.013				TOTAL AREA (ACRES) =	210.4	
DEPTH OF FLOW IN 45.	O INCH PIPE IS 36	.4 INCHES						
PIPE-FLOW VELOCITY (FE	ET/SEC.) = 36.52					*******	******	****
ESTIMATED PIPE DIAMET	ER(INCH) = 45.00	NUMBER OF	PIPES =	1		FLOW PROCESS FROM NODE		
PIPE-FLOW(CFS) =	349.57							
PIPE TRAVEL TIME (MIN.) = 0.18 Tc(N	IIN.) = 19.2	2.5			>>>>ADDITION OF SUBAR	EA TO MAINL	INE
LONGEST FLOWPATH FROM	NODE 210.00 TO	NODE 231.	.00 = 79	986.00 FEET.		=======================================		====
						MAINLINE Tc(MIN.) =	19.25	
******	*****	*****	******	******		* 25 YEAR RAINFALL IN		H/HR
FLOW PROCESS FROM NOD	E 231 00 TO NOT	E 231 00 1	IS CODE =	81		SUBAREA LOSS RATE DATA		
FLOW PROCESS FROM NOD								
>>>>ADDITION OF SUBA						DEVELOPMENT TYPE/	CDOID	()(C)
					.	LAND USE RESIDENTIAL	GROOF	(ACN
						RESIDENTIAL	0	0
MAINLINE Tc(MIN.) =		0.040				"5-7 DWELLINGS/ACRE"	C	0
* 25 YEAR RAINFALL I		= 2.249				NATONAL PAIN COVEN		
SUBAREA LOSS RATE DAT						"WOODLAND, GRASS"	В	0
DEVELOPMENT TYPE/						NATURAL FAIR COVER		
LAND USE	GROUP (ACRES	(INCH/HR)	(DECIMAL)	CN		"WOODLAND, GRASS"	С	0
COMMERCIAL	A 2.0	0.40	0.100	32		RESIDENTIAL		
COMMERCIAL	В 4.6	0.30	0.100	56		"5-7 DWELLINGS/ACRE"	В	2
COMMERCIAL	C 5.6	0.25	0.100	69		SUBAREA AVERAGE PERVIO	US LOSS RAT	E, F
NATURAL FAIR COVER						SUBAREA AVERAGE PERVIO		
"OPEN BRUSH"	C 1.6	0.25	1.000	77		SUBAREA AREA(ACRES) =		SU
AGRICULTURAL FAIR COV			,			EFFECTIVE AREA(ACRES)		
"ORCHARDS"	в 0.7	0.30	1.000	65		AREA-AVERAGED Fp(INCH/		
AGRICULTURAL FAIR COV		0.50	1.000	00		TOTAL AREA (ACRES) =	213.7	111/
"ORCHARDS"	D 0.2	0.20	1.000	82		======================================		
SUBAREA AVERAGE PERVI				02				
SUDARLA AVEKAGE PEKVI	OUD LUDD KATE, PP	INCU(UK) = (1.41			END OF STUDY SUMMARY:		

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SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.253 SUBAREA RUNOFF(CFS) = 28.85 AREA-AVERAGED Fm(INCH/HR) = 0.10AREA-AVERAGED Ap = 0.39PEAK FLOW RATE(CFS) = 375.27 ********** NODE 231.00 IS CODE = 81 PEAK FLOW< 4R) = 2.249AREA Fр Aр SCS CRES) (INCH/HR) (DECIMAL) CN 7.30 0.30 0.850 56 0.80 0.25 0.850 69 0.20 0.20 0.850 75 0.10 0.40 0.900 32 4.00 0.30 0.900 56 4.20 0.900 0.25 69 Fp(INCH/HR) = 0.28ION, Ap = 0.875SUBAREA RUNOFF(CFS) = 29.89 AREA-AVERAGED Fm(INCH/HR) = 0.11AREA-AVERAGED Ap = 0.42PEAK FLOW RATE(CFS) = 405.16 ******** NODE 231.00 IS CODE = 81 PEAK FLOW< -----4R) = 2.249Fр Аp SCS CRES) (INCH/HR) (DECIMAL) CN 0.50 0.25 0.500 69 0.10 0.30 1.000 65 0.40 0.25 1.000 77 2.30 0.30 0.500 56 Fp(INCH/HR) = 0.28ION, Ap = 0.576SUBAREA RUNOFF (CFS) = 6.20AREA-AVERAGED Fm(INCH/HR) = 0.11AREA-AVERAGED Ap = 0.43PEAK FLOW RATE(CFS) = _____

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TOTAL AREA (ACRES) = 213.7 TC (MIN.) = 19.25

EFFECTIVE AREA (ACRES) = 213.70 AREA-AVERAGED Fm (INCH/HR) = 0.11

AREA-AVERAGED Fp (INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.427

PEAK FLOW RATE (CFS) = 411.35

** PEAK FLOW RATE TABLE **

STREAM	Q	Tc	Intensity	Fp(Fm)	Аp	Ae	HEADWATER
NUMBER	(CFS)	(MIN.)	(INCH/HR)	(INCH/HR)		(ACRES)	NODE
1	409.98	16.89	2.422	0.26(0.11)	0.43	197.2	203.00
2	411.35	19.25	2.249	0.26(0.11)	0.43	213.7	210.00
=========							

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:

* RMV PA-3 BODR 2022 - SUBWATERSHED C * RATIONAL METHOD HYDROLOGY MODEL LOCAL * 100-YR HC SEPT 2022 ROKAMOTO ****************** FILE NAME: PA3C00HC.DAT TIME/DATE OF STUDY: 19:22 09/17/2022 ______ USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION: ______ --*TIME-OF-CONCENTRATION MODEL*--USER SPECIFIED STORM EVENT (YEAR) = 100.00 SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00 SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.90 *DATA BANK RAINFALL USED* *ANTECEDENT MOISTURE CONDITION (AMC) III 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) 20.0 0.018/0.018/0.020 0.67 2.00 0.0313 0.167 0.0150 1 30.0 2 32.0 27.0 0.200/0.200/ --- 0.67 2.00 0.0312 0.167 0.0150 3 13.0 8.0 0.200/0.200/ --- 0.33 1.00 0.3120 0.125 0.0150 GLOBAL STREET FLOW-DEPTH CONSTRAINTS: 1. Relative Flow-Depth = 1.00 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 300.00 TO NODE 301.00 IS CODE = 21 ______ >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS< >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<< ______ INITIAL SUBAREA FLOW-LENGTH (FEET) = 330.00 ELEVATION DATA: UPSTREAM(FEET) = 644.00 DOWNSTREAM(FEET) = 641.00

```
Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.438
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.584
 SUBAREA To AND LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                        SCS Tc
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" D 1.60 0.20 0.200
                                                         91
                                                             8.44
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.200
 SUBAREA RUNOFF (CFS) = 6.54
 TOTAL AREA (ACRES) = 1.60 PEAK FLOW RATE (CFS) =
************************
 FLOW PROCESS FROM NODE 301.00 TO NODE 302.00 IS CODE = 62
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
______
 UPSTREAM ELEVATION(FEET) = 641.00 DOWNSTREAM ELEVATION(FEET) = 637.00
 STREET LENGTH (FEET) = 470.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL (DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
                                                  14.13
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH (FEET) = 0.46
   HALFSTREET FLOOD WIDTH (FEET) = 16.68
   AVERAGE FLOW VELOCITY (FEET/SEC.) = 2.64
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 1.21
 STREET FLOW TRAVEL TIME (MIN.) = 2.97 Tc (MIN.) = 11.41
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.857
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                         SCS
                                      Fр
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                              0.10 0.20
 COMMERCIAL
                      D
                                                 0.100
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" D 4.30
                                         0.20
                                                 0.200
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.198
 SUBAREA AREA (ACRES) = 4.40 SUBAREA RUNOFF (CFS) = 15.12
 EFFECTIVE AREA(ACRES) = 6.00 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 0.20
 TOTAL AREA (ACRES) = 6.0 PEAK FLOW RATE (CFS) =
                                                          20.61
 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.51 HALFSTREET FLOOD WIDTH(FEET) = 19.41
 FLOW VELOCITY (FEET/SEC.) = 2.90 DEPTH*VELOCITY (FT*FT/SEC.) = 1.47
 LONGEST FLOWPATH FROM NODE 300.00 TO NODE 302.00 =
                                                       800.00 FEET.
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FLOW PROCESS FROM NODE 302.00 TO NODE 303.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
 ELEVATION DATA: UPSTREAM(FEET) = 637.00 DOWNSTREAM(FEET) = 634.00
 FLOW LENGTH (FEET) = 563.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 27.0 INCH PIPE IS 21.2 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 6.14
 ESTIMATED PIPE DIAMETER (INCH) = 27.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
                20.61
 PIPE TRAVEL TIME (MIN.) = 1.53 Tc (MIN.) = 12.93
 LONGEST FLOWPATH FROM NODE 300.00 TO NODE 303.00 = 1363.00 FEET.
***********************
 FLOW PROCESS FROM NODE 303.00 TO NODE 303.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc (MIN.) = 12.93
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.589
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                Fρ
    LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" C
                         5.60
                                         0.200 86
                                0.25
 RESIDENTIAL
                   D 2.40
 "11+ DWELLINGS/ACRE"
                                  0.20
                                         0.200
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.200
 SUBAREA AREA(ACRES) = 8.00
                           SUBAREA RUNOFF (CFS) = 25.50
 EFFECTIVE AREA(ACRES) = 14.00 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.20
 TOTAL AREA (ACRES) =
                   14.0
                            PEAK FLOW RATE(CFS) =
                                                44.67
FLOW PROCESS FROM NODE 303.00 TO NODE 304.00 IS CODE = 31
-----
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 634.00 DOWNSTREAM(FEET) = 630.00
 FLOW LENGTH (FEET) = 1072.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 39.0 INCH PIPE IS 29.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 6.55
 ESTIMATED PIPE DIAMETER (INCH) = 39.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
                44.67
 PIPE TRAVEL TIME (MIN.) = 2.73 Tc (MIN.) = 15.66
 LONGEST FLOWPATH FROM NODE 300.00 TO NODE 304.00 = 2435.00 FEET.
******************
 FLOW PROCESS FROM NODE 304.00 TO NODE 304.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
_____
 MAINLINE Tc(MIN.) = 15.66
```

* 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA			3.217		
			Fn	Λn	ccc
DEVELOPMENT TYPE/ LAND USE	CDOLLD	(ACDEC)	(TMCU/UD)	(DECIMAL)	CM
COMMERCIAL	C	2 90	0.25	0 100	86
COMMERCIAL COMMERCIAL	D	4 50	0.25	0.100	91
PUBLIC PARK	D	0 10	0.20	0.100	91
RESIDENTIAL	D	0.10	0.20	0.030	91
"11+ DWELLINGS/ACRE"	С	5.70	0.25	0.200	86
RESIDENTIAL "11+ DWELLINGS/ACRE"	D	2.40	0.20	0.200	91
RESIDENTIAL					
"8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU					86
SUBAREA AVERAGE PERVIOU	JS AREA FRA	ACTION, A	0.164		
SUBAREA AREA(ACRES) =				S) = 46.	06
EFFECTIVE AREA(ACRES) =	= 30.10	AREA-	AVERAGED Fm	(INCH/HR)	
AREA-AVERAGED Fp (INCH/H					0.0.00
TOTAL AREA (ACRES) =	30.1	PEAK	FLOW RATE (CFS) =	86.03
******	******	*****	*****	*****	*****
FLOW PROCESS FROM NODE					
>>>>ADDITION OF SUBARE					
MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL IN' SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE SCHOOL SCHOOL SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED Fp (INCH/F TOTAL AREA (ACRES) = ***********************************	TENSITY (INC (AMC III): SCS SOIL GROUP C D JS LOSS RAT 12.40 = 42.50 HR) = 0.22 42.5 *********** 304.00 TRAVEL TIM	AREA (ACRES) 5.70 6.70 TE, FP(INGACTION, A) SUBAREA ACTION, A) PEAK TO NODE TE THRU SI PESIZE (NO	Fp (INCH/HR) 0.25 0.20 CH/HR) = 0 0 0 = 0.600 A RUNOFF (CF AVERAGED FM VERAGED AP FLOW RATE (************************************	0.600 0.600 .22 S) = 34. (INCH/HR) = = 0.30 CFS) = ********* S CODE = 	86 91 40 = 0.07 120.44 ***********************************
ELEVATION DATA: UPSTREATED FLOW LENGTH (FEET) = 12 DEPTH OF FLOW IN 45.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 12 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE	290.00 MF INCH PIPE F/SEC.) = R(INCH) = 20.44 = 1.48 NODE 300	ANNING'S 1 IS 31.7 14.50 45.00 Tc (MIN 0.00 TO NO	N = 0.013 INCHES NUMBER OF .) = 17.1 DDE 305.	PIPES = 4 00 = 37	1 25.00 FEET. *****
>>>>ADDITION OF SUBAR					

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	========		========		====	======
MAINLINE Tc(MIN.) =	17.14				_	_
* 100 YEAR RAINFALL IN		TH/HR) =	3 054			
SUBAREA LOSS RATE DATA			3.034			
DEVELOPMENT TYPE /	(AMC III):	7057	Esp	7) 10	000	
DEVELOPMENT TYPE/	SCS SUIL	AKEA	FP ()	Ap	SCS	
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
COMMERCIAL	С	1.00	0.25 0.20	0.100	86	
COMMERCIAL	D	0.90	0.20	0.100	91	
RESIDENTIAL						
"11+ DWELLINGS/ACRE"	С	0.60	0.25	0.200	86	
RESIDENTIAL						
"11+ DWELLINGS/ACRE"	D	0.10	0.20	0.200	91	
SCHOOL	С		0.25			
SCHOOL	D		0.20			
SUBAREA AVERAGE PERVIO	=				21	
				• 22		
SUBAREA AVERAGE PERVIO				۵) ۵		
SUBAREA AREA (ACRES) =	3.20	SUBARE	A RUNOFF (CF	S) = 8.	66	
EFFECTIVE AREA(ACRES)	= 45.70) AREA-	AVERAGED Fm	(INCH/HR) :	= 0.	07
AREA-AVERAGED Fp(INCH/	HR) = 0.22	2 AREA-A	VERAGED Ap	= 0.30		
TOTAL AREA (ACRES) =	45.7	PEAK	FLOW RATE (CFS) =	122.	88
*******	******	*****	*****	*****	****	*****
FLOW PROCESS FROM NODE	305.00	TO NODE	305.00 I	S CODE =	82	
>>>>ADD SUBAREA RUNOF	F TO MAINI.	NE. AT M	ATNITHE TC.	<i><<<<</i>		
>>>> (AND COMPUTE INIT		-				
======================================						
TNITHTAI CHDADEA ELOM I	ENCULI (EEEm)	- 2660	0.0			
INITIAL SUBAREA FLOW-L	ENGTH (FEET)	= 3668	.00	334 (5555)	_	10 00
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE	ENGTH (FEET) AM (FEET) =	= 3668 663.0	.00 0 DOWNSTRE	AM(FEET) =	6	10.00
ELEVATION DATA: UPSTRE	AM(FEET) =	663.0	0 DOWNSTRE	AM(FEET) =	6	10.00
ELEVATION DATA: UPSTRE Tc = K*[(LENGTH** 3.00	AM(FEET) =	663.0 ON CHANGE	0 DOWNSTRE	AM(FEET) =	6	10.00
ELEVATION DATA: UPSTRE	AM(FEET) =	663.0 ON CHANGE	0 DOWNSTRE	AM(FEET) =	6	10.00
ELEVATION DATA: UPSTRE Tc = K*[(LENGTH** 3.00	AM(FEET) =)/(ELEVATION MINIMUM TO	663.0 ON CHANGE (MIN.) =	0 DOWNSTRE)]**0.20 18.909	AM(FEET) =	6	10.00
Tc = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN	AM(FEET) =)/(ELEVATION MINIMUM TO TENSITY(INC	663.0 ON CHANGE (MIN.) = CH/HR) =	0 DOWNSTRE)]**0.20 18.909	AM(FEET) =	6	10.00
Tc = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA	AM (FEET) =) / (ELEVATION MINIMUM TO TENSITY (INC TE DATA (AMO	663.0 ON CHANGE (MIN.) = CH/HR) = C III):	0 DOWNSTRE)]**0.20 18.909 2.887			
Tc = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA	AM (FEET) =) / (ELEVATION MINIMUM TO TENSITY (INC TE DATA (AMO	663.0 ON CHANGE (MIN.) = CH/HR) = C III):	0 DOWNSTRE)]**0.20 18.909 2.887			
Tc = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE	AM(FEET) =)/(ELEVATIC MINIMUM TC TENSITY(INC TE DATA(AMC SCS SOIL GROUP	063.0 ON CHANGE (MIN.) = CH/HR) = C III): AREA (ACRES)	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL	AM(FEET) =) / (ELEVATIO MINIMUM TO TENSITY (INC TE DATA (AMC SCS SOIL GROUP C	0N CHANGE (MIN.) = CH/HR) = C III): AREA (ACRES) 1.70	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25	Ap (DECIMAL) 0.100	SCS CN 86	Tc (MIN.) 18.91
Tc = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL	AM(FEET) =)/(ELEVATIC MINIMUM TC TENSITY(INC TE DATA(AMC SCS SOIL GROUP	0N CHANGE (MIN.) = CH/HR) = C III): AREA (ACRES) 1.70	0 DOWNSTRE)]**0.20 18.909 2.887	Ap (DECIMAL) 0.100	SCS CN 86	Tc (MIN.) 18.91
TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL	AM(FEET) =) / (ELEVATIC MINIMUM TC TENSITY(INC TE DATA (AMC SCS SOIL GROUP C D	0N CHANGE (MIN.) = CH/HR) = C III): AREA (ACRES) 1.70 4.40	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20	Ap (DECIMAL) 0.100 0.100	SCS CN 86 91	Tc (MIN.) 18.91 18.91
TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL	AM(FEET) =) / (ELEVATIC MINIMUM TC TENSITY(INC TE DATA (AMC SCS SOIL GROUP C D	0N CHANGE (MIN.) = CH/HR) = C III): AREA (ACRES) 1.70 4.40	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20	Ap (DECIMAL) 0.100 0.100	SCS CN 86 91	Tc (MIN.) 18.91 18.91
Tc = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL	AM(FEET) =) / (ELEVATIC MINIMUM TC TENSITY(INC TE DATA (AMC SCS SOIL GROUP C D	0N CHANGE (MIN.) = CH/HR) = C III): AREA (ACRES) 1.70 4.40	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20	Ap (DECIMAL) 0.100 0.100	SCS CN 86 91	Tc (MIN.) 18.91 18.91
ELEVATION DATA: UPSTRE Tc = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL	AM(FEET) =)/(ELEVATION MINIMUM TO TENSITY(INC TE DATA (AMC SCS SOIL GROUP C D C	000 CHANGE (MIN.) = CH/HR) = C III): AREA (ACRES) 1.70 4.40 0.60	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20 0.25	Ap (DECIMAL) 0.100 0.100	SCS CN 86 91	Tc (MIN.) 18.91 18.91 20.15
TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE"	AM(FEET) =)/(ELEVATION MINIMUM TO TENSITY(INC TE DATA (AMC SCS SOIL GROUP C D C	000 CHANGE (MIN.) = CH/HR) = C III): AREA (ACRES) 1.70 4.40 0.60	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20	Ap (DECIMAL) 0.100 0.100	SCS CN 86 91	Tc (MIN.) 18.91 18.91 20.15
ELEVATION DATA: UPSTRE Tc = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL	AM(FEET) =)/(ELEVATION MINIMUM TO TENSITY(INC TE DATA (AMC SCS SOIL GROUP C D C D	663.0 ON CHANGE (MIN.) = CH/HR) = C III): AREA (ACRES) 1.70 4.40 0.60 1.30	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20 0.25 0.20	Ap (DECIMAL) 0.100 0.100 0.200	SCS CN 86 91 86	Tc (MIN.) 18.91 18.91 20.15
Tc = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE"	AM(FEET) =)/(ELEVATION MINIMUM TO TENSITY(INC TE DATA (AMC SCS SOIL GROUP C D C D	663.0 ON CHANGE (MIN.) = CH/HR) = C III): AREA (ACRES) 1.70 4.40 0.60 1.30	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20 0.25 0.20	Ap (DECIMAL) 0.100 0.100 0.200	SCS CN 86 91 86	Tc (MIN.) 18.91 18.91 20.15
ELEVATION DATA: UPSTRE TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "RESIDENTIAL "3-4 DWELLINGS/ACRE"	AM(FEET) =)/(ELEVATIO MINIMUM TO TENSITY(INO TE DATA(AMO SCS SOIL GROUP C D C D D	0N CHANGE (MIN.) = CH/HR) = CIII): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.20	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600	SCS CN 86 91 86 91	Tc (MIN.) 18.91 18.91 20.15 20.15
TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE"	AM(FEET) =)/(ELEVATIO MINIMUM TO TENSITY(INC TE DATA(AMC SCS SOIL GROUP C D C D C D C	0N CHANGE (MIN.) = CH/HR) = CIII): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.20 0.25	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600	SCS CN 86 91 86 91	Tc (MIN.) 18.91 18.91 20.15 20.15
TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO	AM(FEET) =)/(ELEVATIO MINIMUM TO TENSITY(INO TE DATA(AMO SCS SOIL GROUP C D C D C US LOSS RAT	0N CHANGE (MIN.) = CH/HR) = CIII): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 FE, FP(IN	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600	SCS CN 86 91 86 91	Tc (MIN.) 18.91 18.91 20.15 20.15
TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO	AM(FEET) =)/(ELEVATIO MINIMUM TO TENSITY(INO TE DATA(AMO SCS SOIL GROUP C D C D C US LOSS RAT	0N CHANGE (MIN.) = CH/HR) = CIII): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 FE, FP(IN	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600	SCS CN 86 91 86 91	Tc (MIN.) 18.91 18.91 20.15 20.15
TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO	AM(FEET) =)/(ELEVATIO MINIMUM TO TENSITY(INO TE DATA(AMO SCS SOIL GROUP C D C D C US LOSS RAT US AREA FRA	0N CHANGE (MIN.) = CH/HR) = CIII): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 TE, FP(IN ACTION, A	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0 p = 0.387	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600	SCS CN 86 91 86 91 91	Tc (MIN.) 18.91 18.91 20.15 20.15 25.63
TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO	AM(FEET) =)/(ELEVATIO MINIMUM TO TENSITY(INO TE DATA(AMO SCS SOIL GROUP C D C D C US LOSS RAT US AREA FRA	0N CHANGE (MIN.) = CH/HR) = CIII): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 TE, FP(IN ACTION, A	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0 p = 0.387	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600	SCS CN 86 91 86 91 91	Tc (MIN.) 18.91 18.91 20.15 20.15 25.63
TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA(ACRES) =	AM(FEET) =)/(ELEVATION MINIMUM TOTENSITY(INCITE DATA(AMOSCS SOIL GROUP C D C D C US LOSS RATUS AREA FRA	663.0 ON CHANGE (MIN.) = CH/HR) = CIII): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 FE, FP(IN ACTION, A INITIAL S	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0 p = 0.387 UBAREA RUNO	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600	SCS CN 86 91 86 91 91	Tc (MIN.) 18.91 18.91 20.15 20.15 25.63
TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA(ACRES) = ** ADD SUBAREA RUNOFF	AM(FEET) =)/(ELEVATIO MINIMUM TO TENSITY(INO TE DATA(AMO SCS SOIL GROUP C D C D C US LOSS RAT US AREA FRA 17.90 TO MAINLINE	663.0 ON CHANGE (MIN.) = CH/HR) = CIII): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 FE, FP(IN ACTION, A INITIAL S	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0 p = 0.387 UBAREA RUNO	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600	SCS CN 86 91 86 91 91	Tc (MIN.) 18.91 18.91 20.15 20.15 25.63
TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA(ACRES) = ** ADD SUBAREA RUNOFF MAINLINE TC (MIN.) =	AM(FEET) =)/(ELEVATION MINIMUM TO TENSITY(INC TENSITY(INC TE DATA (AMC SCS SOIL GROUP C D C D C US LOSS RAT US AREA FRE 17.90 TO MAINLINE 17.14	663.0 ON CHANGE (MIN.) = 2H/HR) = 2 III): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 FE, FP(IN ACTION, A CINITIAL S E AT MAIN	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0 p = 0.387 UBAREA RUNO LINE Tc:	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600	SCS CN 86 91 86 91 91	Tc (MIN.) 18.91 18.91 20.15 20.15 25.63
TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA(ACRES) = ** ADD SUBAREA RUNOFF MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN	AM(FEET) =)/(ELEVATION MINIMUM TOTENSITY(INC TENSITY(INC TE DATA (AMC SCS SOIL GROUP C D C D C US LOSS RAT US AREA FRA 17.90 TO MAINLINE 17.14 TENSITY(INC	663.0 ON CHANGE (MIN.) = CH/HR) = CIII): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 FE, FP(IN ACTION, A INITIAL S E AT MAIN CH/HR) =	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0 p = 0.387 UBAREA RUNO LINE TC: 3.054	Ap (DECIMAL) 0.100 0.100 0.200 0.600 0.600 .21 FF(CFS) =	SCS CN 86 91 86 91 86 45.	Tc (MIN.) 18.91 18.91 20.15 20.15 25.63 25.63
TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA(ACRES) = ** ADD SUBAREA RUNOFF MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN	AM(FEET) =)/(ELEVATION MINIMUM TOTENSITY(INC TENSITY(INC TE DATA (AMC SCS SOIL GROUP C D C D C US LOSS RAT US AREA FRA 17.90 TO MAINLINE 17.14 TENSITY(INC	663.0 ON CHANGE (MIN.) = CH/HR) = CIII): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 FE, FP(IN ACTION, A INITIAL S E AT MAIN CH/HR) =	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0 p = 0.387 UBAREA RUNO LINE TC: 3.054	Ap (DECIMAL) 0.100 0.100 0.200 0.600 0.600 .21 FF(CFS) =	SCS CN 86 91 86 91 86 45.	Tc (MIN.) 18.91 18.91 20.15 20.15 25.63 25.63
TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA(ACRES) = ** ADD SUBAREA RUNOFF MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES)	AM(FEET) = AM(FEE	663.0 ON CHANGE (MIN.) = CH/HR) = C III): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 FE, FP(IN ACTION, A INITIAL S E AT MAIN CH/HR) = SUBARE O AREA-	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0 p = 0.387 UBAREA RUNO LINE Tc: 3.054 A RUNOFF(CF AVERAGED FM	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600 .21 FF(CFS) =	SCS CN 86 91 86 91 45.	Tc (MIN.) 18.91 18.91 20.15 20.15 25.63 25.63
TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA (ACRES) = ** ADD SUBAREA RUNOFF MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES)	AM(FEET) = AM(FEE	663.0 ON CHANGE (MIN.) = CH/HR) = C III): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 FE, FP(IN ACTION, A INITIAL S E AT MAIN CH/HR) = SUBARE O AREA-	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0 p = 0.387 UBAREA RUNO LINE Tc: 3.054 A RUNOFF(CF AVERAGED FM	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600 .21 FF(CFS) =	SCS CN 86 91 86 91 45.	Tc (MIN.) 18.91 18.91 20.15 20.15 25.63 25.63
TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED * 100 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL (COMMERCIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA (ACRES) = ** ADD SUBAREA RUNOFF MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN	AM(FEET) = AM(FEE	663.0 ON CHANGE (MIN.) = CH/HR) = C III): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 FE, FP(IN ACTION, A INITIAL S E AT MAIN CH/HR) = SUBARE O AREA-	0 DOWNSTRE)]**0.20 18.909 2.887 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0 p = 0.387 UBAREA RUNO LINE Tc: 3.054 A RUNOFF(CF AVERAGED FM	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600 .21 FF(CFS) =	SCS CN 86 91 86 91 45.	Tc (MIN.) 18.91 18.91 20.15 20.15 25.63 25.63

Date: 08/07/2023

>>>>USING COMPUTER-ES	TRAVEL TIME THRU SUBAREA<	
ELEVATION DATA: UPSTRE. FLOW LENGTH(FEET) = 1 DEPTH OF FLOW IN 39.0 PIPE-FLOW VELOCITY(FEE ESTIMATED PIPE DIAMETE PIPE-FLOW(CFS) = 1 PIPE TRAVEL TIME(MIN.)	AM(FEET) = 610.00 DOWNSTREAM(FEET) = 5 537.00 MANNING'S N = 0.013 INCH PIPE IS 31.5 INCHES P/SEC.) = 23.78 R(INCH) = 39.00 NUMBER OF PIPES = 1	35.00
FLOW PROCESS FROM NODE	317.00 TO NODE 317.00 IS CODE = 81	
>>>>ADDITION OF SUBAR	EA TO MAINLINE PEAK FLOW<	
	TENSITY(INCH/HR) = 2.949	
SUBAREA LOSS RATE DATA	(AMC III):	
DEVELOPMENT TYPE/	SCS SOIL AREA Fp Ap SC	S
LAND USE	GROUP (ACRES) (INCH/HR) (DECIMAL) C	N
COMMERCIAL COMMERCIAL	D 0.40 0.20 0.100 0	1
PIBLIC PARK	C 0.10 0.25 0.850 8	6
RESIDENTIAL	0 0.10 0.20 0.000 0	
SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO	C 0.20 0.25 0.500 8 US LOSS RATE, Fp(INCH/HR) = 0.25 US AREA FRACTION, Ap = 0.139 4.00 SUBAREA RUNOFF(CFS) = 10.49	6
	= 67.60 AREA-AVERAGED Fm(INCH/HR) =	0.07
AREA-AVERAGED Fp(INCH/	HR) = 0.22 AREA-AVERAGED Ap = 0.31 67.6 PEAK FLOW RATE(CFS) = 17	

	DENT STREAM FOR CONFLUENCE<<<<	=====:
TIME OF CONCENTRATION () RAINFALL INTENSITY (INC AREA-AVERAGED Fm (INCH/ AREA-AVERAGED Fp (INCH/ AREA-AVERAGED Ap = 0. EFFECTIVE STREAM AREA (ACRE	FOR INDEPENDENT STREAM 1 ARE: MIN.) = 18.22 1/HR) = 2.95 HR) = 0.07 HR) = 0.22 B1 ACRES) = 67.60	
	**************************************	*****

File name: PA3C00HC.RES Page 5 Date: 08/07/2023 File name: PA3C00HC.RES Page 6

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______
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 330.00
 ELEVATION DATA: UPSTREAM(FEET) = 629.00 DOWNSTREAM(FEET) = 625.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 7.474
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.914
 SUBAREA TC AND LOSS RATE DATA (AMC III):
                                                      SCS Tc
  DEVELOPMENT TYPE/
                  SCS SOIL AREA
     LAND USE
                     GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 COMMERCIAL
                      D
                               0.10
                                       0.20
                                               0.100
                                                      91
                                                          7.47
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                              1.10
                                       0.25
                                               0.200
                                                     86
                                                           7.97
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" D 0.20
                                       0.20 0.200 91 7.97
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.193
 SUBAREA RUNOFF (CFS) = 6.13
 TOTAL AREA (ACRES) = 1.40 PEAK FLOW RATE (CFS) =
*********************
 FLOW PROCESS FROM NODE 311.00 TO NODE 312.00 IS CODE = 62
______
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
______
 UPSTREAM ELEVATION (FEET) = 625.00 DOWNSTREAM ELEVATION (FEET) = 623.00
 STREET LENGTH (FEET) = 300.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL(DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) = 0.45
   HALFSTREET FLOOD WIDTH (FEET) = 16.13
   AVERAGE FLOW VELOCITY (FEET/SEC.) = 2.31
   PRODUCT OF DEPTH&VELOCITY (FT*FT/SEC.) = 1.04
 STREET FLOW TRAVEL TIME (MIN.) = 2.16 Tc (MIN.) =
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.248
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                      Fр
                                                αA
                                                      SCS
                     GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 COMMERCIAL
                      С
                             1.50
                                       0.25
                                               0.100
 COMMERCIAL
                      D
                               0.20
                                       0.20
                                               0.100
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                    С
                              0.70
                                       0.25
                                               0.200
                                                     86
 RESIDENTIAL
                      D 0.50
                                               0.200
 "11+ DWELLINGS/ACRE"
                                       0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.141
```

```
SUBAREA AREA (ACRES) = 2.90 SUBAREA RUNOFF (CFS) = 11.00
 EFFECTIVE AREA(ACRES) = 4.30 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp (INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.16
 TOTAL AREA(ACRES) = 4.3
                            PEAK FLOW RATE(CFS) =
                                                  16.29
 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.49 HALFSTREET FLOOD WIDTH(FEET) = 18.55
 FLOW VELOCITY (FEET/SEC.) = 2.49 DEPTH*VELOCITY (FT*FT/SEC.) = 1.23
 LONGEST FLOWPATH FROM NODE 310.00 TO NODE 312.00 = 630.00 FEET.
*****************
 FLOW PROCESS FROM NODE 312.00 TO NODE 313.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 623.00 DOWNSTREAM(FEET) = 620.00
 FLOW LENGTH (FEET) = 369.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 24.0 INCH PIPE IS 16.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 6.90
 ESTIMATED PIPE DIAMETER (INCH) = 24.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 16.29
 PIPE TRAVEL TIME (MIN.) = 0.89 Tc (MIN.) = 10.53
 LONGEST FLOWPATH FROM NODE 310.00 TO NODE 313.00 =
*******************
 FLOW PROCESS FROM NODE 313.00 TO NODE 313.00 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
_____
 MAINLINE Tc(MIN.) = 10.53
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.038
 SUBAREA LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                    С
                          1.90 0.25
                                         0.100
                                                  86
                     D
                           2.50
                                    0.20
                                           0.100
                                                  91
 COMMERCIAL
 RESIDENTIAL
                  C 0.80
                                    0.25
 "11+ DWELLINGS/ACRE"
                                           0.200
                                                  86
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                     D 0.70
                                    0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.125
 SUBAREA AREA (ACRES) = 5.90
                           SUBAREA RUNOFF (CFS) = 21.29
 EFFECTIVE AREA(ACRES) = 10.20 AREA-AVERAGED Fm(INCH/HR) = 0.03
 AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.14
 TOTAL AREA (ACRES) = 10.2
                             PEAK FLOW RATE(CFS) =
FLOW PROCESS FROM NODE 313.00 TO NODE 314.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 620.00 DOWNSTREAM(FEET) = 615.00
 FLOW LENGTH (FEET) = 338.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 30.0 INCH PIPE IS 19.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 10.66
```

ESTIMATED PIPE DIAMETE PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM	36.78				

FLOW PROCESS FROM NODE	314.00	TO NODE	314.00 I	S CODE = 8	31
>>>>ADDITION OF SUBAR	EA TO MAIN	LINE PEAK	FLOW<<<<		
MAINLINE Tc(MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA	TENSITY (IN		3.926		
DEVELOPMENT TYPE/	SCS SOII	AREA	Fp	Ар	SCS
DEVELOPMENT TYPE/ LAND USE COMMERCIAL	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL	С	0.20	0.25	0.100	86
COMMERCIAL	D	0.10	0.20	0.100	91
PUBLIC PARK	С	0.20	0.25	0.850	86
RESIDENTIAL					
"11+ DWELLINGS/ACRE" RESIDENTIAL	С	6.10	0.25	0.200	86
"11+ DWELLINGS/ACRE"	D	6.10	0.20	0.200	91
SUBAREA AVERAGE PERVIO	US LOSS RA	TE, Fp(JN	CH/HR) = 0	.23	
SUBAREA AVERAGE PERVIO					
SUBAREA AREA(ACRES) =	12.70	SUBARE	A RUNOFF(CF	s) = 44.3	34
EFFECTIVE AREA(ACRES)	= 22.9	0 AREA-	AVERAGED Fm	(INCH/HR) =	= 0.04
AREA-AVERAGED Fp(INCH/ TOTAL AREA(ACRES) =	HR) = 0.2	3 AREA-A	VERAGED Ap	= 0.18	
TOTAL AREA (ACRES) =	22.9	PEAK	FLOW RATE (CFS) =	80.09
FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-ES	TRAVEL TI	ME THRU S	 UBAREA<<<<		
ELEVATION DATA: UPSTRE FLOW LENGTH (FEET) = DEPTH OF FLOW IN 33.0 PIPE-FLOW VELOCITY (FEE ESTIMATED PIPE DIAMETE PIPE-FLOW (CFS) = PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM	AM(FEET) = 578.00 M INCH PIPE T/SEC.) = R(INCH) = 80.09 = 0.62	615.00 IANNING'S IS 26.8 15.51 33.00 Tc (MIN	DOWNSTREAN = 0.013 INCHES NUMBER OF .) = 11.6	M(FEET) = PIPES = :	600.00
**************************************	315.00	TO NODE	315.00 I	S CODE = 8	31
>>>>ADDITION OF SUBAR					
MAINLINE Tc(MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA	TENSITY (IN		3.805	======	
DEVELOPMENT TYPE/			Fp	Ap	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL	С	1.70	0.25	0.100	86
COMMERCIAL	D	1.30	0.20	0.100	91
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	С	3.00	0.25	0.200	86
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DECIDENTIAL					
RESIDENTIAL "11+ DWELLINGS/ACRE"	Д	2 10	0.20	0 200	91
RESIDENTIAL	D	2.10	0.20	0.200	71
"5-7 DWELLINGS/ACRE"	C	3 70	0.25	0.500	86
RESIDENTIAL	C	3.70	0.25	0.500	00
"5-7 DWELLINGS/ACRE"	D	6 00	0.20	0.500	0.1
SUBAREA AVERAGE PERVIOU					91
SUBAREA AVERAGE PERVIOU				. 22	
SUBAREA AREA (ACRES) =	17 00	ACTION, AP	- 0.34/	c) – F0	7.4
EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/H	= 40.7	O AREA-A	VERAGED III	(INCH/HK)	= 0.06
TOTAL AREA (ACRES) =	40.7	Z AKŁA-AV PEAK	EKAGED AP FLOW RATE(= 0.25 CFS) =	137.33

FLOW PROCESS FROM NODE	313.00	TO NODE	310.00 1		21
>>>>COMPUTE PIPE-FLOW	TRAVEL TI	ME THRU SU	BAREA<		
>>>>USING COMPUTER-EST					
ELEVATION DATA: UPSTREA				M(FEET) =	209.00
FLOW LENGTH (FEET) = 21					
DEPTH OF FLOW IN 48.0			INCHES		
PIPE-FLOW VELOCITY (FEET				DIDEC	1
ESTIMATED PIPE DIAMETER		48.00	NUMBER OF	PIPES =	1
PIPE-FLOW(CFS) = 13	37.33				
PIPE TRAVEL TIME (MIN.)					
TOMCEGE ELORIDAMII EDOM A					ioi nn fef
LONGEST FLOWPATH FROM N	NODE 21	0.00 TO NO	DF 210.	00 - 40	/JI.00 FEE
**************************************	******	*****	*****	******	******
*******	316.00	********* TO NODE	******** 316.00 I	******	******
**************************************	316.00 EA TO MAIN	********* TO NODE	******** 316.00 I	******	******
**************************************	316.00 	********* TO NODELINE PEAK	********* 316.00 I FLOW<<<<<	******	******
**************************************	316.00 EA TO MAIN: ====================================	********* TO NODE LINE PEAK	********* 316.00 I FLOW<<<<<	******	******
**************************************	316.00 EA TO MAIN BEA TO MAIN BEASTRY (IN GAMC III):	******** TO NODE LINE PEAK	********* 316.00 I FLOW<<<<< ================================	******** S CODE =	********
************************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC(MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/	316.00 	******** TO NODE LINE PEAK CH/HR) = AREA	********* 316.00 I FLOW<<<< =================================	********* S CODE =	******* 81
******************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE	316.00 	******** TO NODE LINE PEAK CH/HR) = AREA	********* 316.00 I FLOW<<<< =================================	********* S CODE =	******* 81
FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL INTO SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL	316.00 EA TO MAIN: 14.18 PENSITY (IN: (AMC III): SCS SOIL GROUP	******* TO NODE LINE PEAK CH/HR) = AREA (ACRES)	******** 316.00 I FLOW<<<< =================================	********* S CODE =	******** 81 SCS CN
************************* FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE Tc(MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE"	316.00 EA TO MAIN: 14.18 PENSITY (IN: (AMC III): SCS SOIL GROUP	******* TO NODE LINE PEAK CH/HR) = AREA (ACRES)	******** 316.00 I FLOW<<<< =================================	********* S CODE =	******** 81 SCS CN
****************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE Tc (MIN.) = 1 * 100 YEAR RAINFALL INTO SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL	316.00 EA TO MAIN: 14.18 FENSITY(IN: (AMC III): SCS SOIL GROUP C	******** TO NODE LINE PEAK ====================================	******** 316.00 I FLOW<<<< 3.405 Fp (INCH/HR) 0.25	******** S CODE = Ap (DECIMAL) 0.200	********** 81
************************* FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE Tc(MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE"	316.00 EA TO MAIN: 14.18 FENSITY(IN: (AMC III): SCS SOIL GROUP C	******** TO NODE LINE PEAK ====================================	******** 316.00 I FLOW<<<< 3.405 Fp (INCH/HR) 0.25	******** S CODE = Ap (DECIMAL) 0.200	********** 81
****************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE Tc (MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL	316.00 EA TO MAIN: 14.18 TENSITY(IN: (AMC III): SCS SOIL GROUP C D	******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30	********* 316.00 I FLOW<<<<< ====== 3.405 Fp (INCH/HR) 0.25 0.20	******** S CODE = Ap (DECIMAL) 0.200 0.900	********* 81
***************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE Tc (MIN.) = 1 * 100 YEAR RAINFALL INTO SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE"	316.00 EA TO MAIN: 14.18 TENSITY(IN: (AMC III): SCS SOIL GROUP C D	******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30	********* 316.00 I FLOW<<<<< ====== 3.405 Fp (INCH/HR) 0.25 0.20	******** S CODE = Ap (DECIMAL) 0.200 0.900	********* 81
****************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE Tc (MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL	316.00 EA TO MAIN: 14.18 TENSITY(IN: (AMC III): SCS SOIL GROUP C D	******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30	********* 316.00 I FLOW<<<<< ====== 3.405 Fp (INCH/HR) 0.25 0.20	******** S CODE = Ap (DECIMAL) 0.200 0.900	********* 81
****************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE Tc (MIN.) = 1 * 100 YEAR RAINFALL INTO SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLINGS/ACRE"	316.00 EA TO MAIN: 14.18 TENSITY(IN: (AMC III): SCS SOIL GROUP C D	******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30 6.80	********* 316.00 I FLOW<<<< 3.405 Fp (INCH/HR) 0.25 0.20 0.25	******** S CODE = Ap (DECIMAL) 0.200 0.900 0.500	**************************************
******************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL IN: SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ". 4 DWELLING/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE"	316.00 EA TO MAIN: EA TO MAIN: 14.18 TENSITY(IN: (AMC III): SCS SOIL GROUP C D C	******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10	********* 316.00 I FLOW<<<< 3.405 Fp (INCH/HR) 0.25 0.20 0.25 0.20	******** S CODE = Ap (DECIMAL) 0.200 0.900 0.500	**************************************
******************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE Tc (MIN.) = 1 * 100 YEAR RAINFALL INTO SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU	316.00 EA TO MAIN: 14.18 TENSITY(IN: (AMC III): SCS SOIL GROUP C D C D US LOSS RA'	******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10 TE, FP(INC	********* 316.00 I FLOW<<<< 3.405 Fp (INCH/HR) 0.25 0.20 0.25 0.20 H/HR) = 0	******** S CODE = Ap (DECIMAL) 0.200 0.900 0.500	**************************************
********************* FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE Tc (MIN.) = 1 * 100 YEAR RAINFALL INTO SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS	316.00 EA TO MAIN: EBA TO MAIN: COLUMN (AMC III): COLUMN CARROLL COLUMN CARROLL DOLUMN CARROLL	******** TO NODE LINE PEAK = CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10 TE, FP(INC ACTION, Ap	********* 316.00 I FLOW<<<<< ======== 3.405	******** S CODE =	**************************************
************************* FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE Tc (MIN.) = 1 * 100 YEAR RAINFALL INTO SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) =	316.00	******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10 TE, FP(INC ACTION, AP SUBAREA	******** 316.00 I FLOW<<<<< ======== 3.405	******** S CODE = Ap (DECIMAL) 0.200 0.900 0.500 0.500 .21 S) = 78.	**************************************
**************************************	316.00	******** TO NODE LINE PEAK ======== CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10 TE, FP(INC ACTION, Ap SUBAREA 0 AREA-A	******** 316.00 I FLOW<<<< ======== 3.405	******** S CODE = Ap (DECIMAL) 0.200 0.500 0.500 .21 S) = 78. (INCH/HR)	**************************************
******************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL INTO SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) =	316.00	******** TO NODE LINE PEAK ======== CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10 TE, Fp(INC ACTION, Ap SUBAREA 0 AREA-A 2 AREA-AV	******** 316.00 I FLOW<<<< ======== 3.405	******** S CODE = Ap (DECIMAL) 0.200 0.500 0.500 21 S) = 78. (INCH/HR) = 0.35	**************************************
************************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE ***********************************	********* 316.00 EA TO MAIN: ===================================	******** TO NODE LINE PEAK ======== CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10 TE, FP(INC ACTION, AP SUBAREA 0 AREA-AV PEAK	******** 316.00 I FLOW<<<<< ======== 3.405	******** S CODE = Ap (DECIMAL) 0.200 0.500 0.500 21 S) = 78. (INCH/HR) = 0.35 CFS) =	**************************************
**************************************	********* 316.00 EA TO MAIN: ===================================	******** TO NODE LINE PEAK ======== CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10 TE, FP(INC ACTION, AP SUBAREA 0 AREA-AV PEAK **********	******** 316.00 I FLOW<<<<< ================================	******** S CODE = Ap (DECIMAL) 0.200 0.500 0.500 21 S) = 78. (INCH/HR) = 0.35 CFS) = *********	********* 81 SCS CN 86 91 86 91 97 = 0.08 201.65
**************************************	********* 316.00 EA TO MAIN: ===================================	******** TO NODE LINE PEAK ====================================	******** 316.00 I FLOW<<<<< ======== 3.405	******** S CODE = Ap (DECIMAL) 0.200 0.500 0.500 21 S) = 78. (INCH/HR) = 0.35 CFS) = ********* S CODE =	**************************************
**************************************	********* 316.00 EA TO MAIN:	******** TO NODE LINE PEAK ====================================	******** 316.00 I FLOW<<<<< ======== 3.405	******** S CODE = Ap (DECIMAL) 0.200 0.900 0.500 .21 S) = 78. (INCH/HR) = 0.35 CFS) = ********* S CODE =	**************************************

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RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 ELEVATION DATA: UPSTREAM(FEET) = 569.00 DOWNSTREAM(FEET) = 535.00
                                                                        CONFLUENCE FORMULA USED FOR 2 STREAMS.
 FLOW LENGTH (FEET) = 759.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 42.0 INCH PIPE IS 34.4 INCHES
                                                                        ** PEAK FLOW RATE TABLE **
 PIPE-FLOW VELOCITY (FEET/SEC.) = 23.94
                                                                        STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
                                                                        NUMBER
 ESTIMATED PIPE DIAMETER (INCH) = 42.00 NUMBER OF PIPES = 1
                                                                                 (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
                                                                                408.42 14.71 3.335 0.22(0.08) 0.35 139.4 310.00
 PIPE-FLOW(CFS) = 201.65
                                                                         1
 PIPE TRAVEL TIME (MIN.) = 0.53 Tc (MIN.) = 14.71
                                                                                393.89 18.22 2.949 0.22(0.08) 0.35 152.4
                                                                                                                          300.00
 LONGEST FLOWPATH FROM NODE 310.00 TO NODE 317.00 = 4850.00 FEET.
                                                                        COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
*****************
                                                                        PEAK FLOW RATE (CFS) = 408.42 Tc (MIN.) = 14.71
 FLOW PROCESS FROM NODE 317.00 TO NODE 317.00 IS CODE = 81
                                                                        EFFECTIVE AREA(ACRES) = 139.36 AREA-AVERAGED Fm(INCH/HR) = 0.08
                                                                        AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.35
                                                                        TOTAL AREA(ACRES) = 152.4
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
                                                                        LONGEST FLOWPATH FROM NODE 300.00 TO NODE 317.00 = 5262.00 FEET.
 MAINLINE Tc(MIN.) = 14.71
                                                                      *******************
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.335
 SUBAREA LOSS RATE DATA (AMC III):
                                                                        FLOW PROCESS FROM NODE 317.00 TO NODE 307.00 IS CODE = 31
  DEVELOPMENT TYPE/ SCS SOIL AREA
     LAND USE
                 GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                        >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 COMMERCIAL
                   C 0.40
                                   0.25
                                           0.100
                                                                       >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
 COMMERCIAL
                   D
                          0.10
                                    0.20
                                           0.100 91
                                                                      _____
                                                                        ELEVATION DATA: UPSTREAM(FEET) = 535.00 DOWNSTREAM(FEET) = 374.00
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                   С
                            0.70
                                    0.25
                                           0.900
                                                                        FLOW LENGTH (FEET) = 3798.00 MANNING'S N = 0.013
                                                 86
 RESIDENTIAL
                                                                        DEPTH OF FLOW IN 57.0 INCH PIPE IS 43.1 INCHES
 "5-7 DWELLINGS/ACRE" C 8.90
                                           0.500
                                    0.25
                                                86
                                                                        PIPE-FLOW VELOCITY (FEET/SEC.) = 28.41
 RESIDENTIAL
                                                                        ESTIMATED PIPE DIAMETER (INCH) = 57.00 NUMBER OF PIPES = 1
 "5-7 DWELLINGS/ACRE"
                  D 7.40
                                    0.20 0.500 91
                                                                        PIPE-FLOW(CFS) = 408.42
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
                                                                        PIPE TRAVEL TIME (MIN.) = 2.23 Tc (MIN.) = 16.93
                                                                        LONGEST FLOWPATH FROM NODE 300.00 TO NODE 307.00 = 9060.00 FEET.
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.505
 SUBAREA AREA (ACRES) = 17.50 SUBAREA RUNOFF (CFS) = 50.70
                                                                      *******************
 EFFECTIVE AREA(ACRES) = 84.80 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.38
                                                                        FLOW PROCESS FROM NODE 307.00 TO NODE 307.00 IS CODE = 81
 TOTAL AREA (ACRES) = 84.8 PEAK FLOW RATE (CFS) = 248.07
                                                                      ______
                                                                        >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
*******************
                                                                      ______
 FLOW PROCESS FROM NODE 317.00 TO NODE 317.00 IS CODE = 1
                                                                        MAINLINE Tc(MIN.) = 16.93
                                                                        * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.076
 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE <<<<
                                                                        SUBAREA LOSS RATE DATA (AMC III):
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES
                                                                        DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap
_____
                                                                                        GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                                          С
 TOTAL NUMBER OF STREAMS = 2
                                                                        APARTMENTS
                                                                                                 0.10 0.25
                                                                                                                0.200
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
                                                                        COMMERCIAL
                                                                                          A
                                                                                                 1.40 0.40 0.100
                                                                                                 4.80 0.30 0.100
 TIME OF CONCENTRATION (MIN.) = 14.71
                                                                        COMMERCIAL
                                                                                          В
 RAINFALL INTENSITY (INCH/HR) = 3.33
                                                                        COMMERCIAL
                                                                                           С
                                                                                                 5.00 0.25
                                                                                                                  0.100
                                                                                                          0.20
 AREA-AVERAGED Fm(INCH/HR) = 0.08
                                                                        COMMERCIAL
                                                                                           D
                                                                                                   3.70
                                                                                                                 0.100
                                                                        PUBLIC PARK
                                                                                                   5.00
 AREA-AVERAGED Fp(INCH/HR) = 0.22
                                                                                           D
                                                                                                           0.20 0.850
                                                                        SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 AREA-AVERAGED Ap = 0.38
                                                                        SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.288
 EFFECTIVE STREAM AREA(ACRES) = 84.80
 TOTAL STREAM AREA(ACRES) = 84.80
                                                                        SUBAREA AREA(ACRES) = 20.00 SUBAREA RUNOFF(CFS) = 54.23
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 248.07
                                                                        EFFECTIVE AREA(ACRES) = 159.36 AREA-AVERAGED Fm(INCH/HR) = 0.08
                                                                        AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.35
 ** CONFLUENCE DATA **
                                                                        TOTAL AREA (ACRES) = 172.4 PEAK FLOW RATE (CFS) = 430.17
  STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
                                                                      ******************
  NUMBER
        (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
   1
         175.24 18.22 2.949 0.22(0.07) 0.31 67.6 300.00
                                                                        FLOW PROCESS FROM NODE 307.00 TO NODE 307.00 IS CODE = 81
         248.07 14.71 3.335 0.22(0.08) 0.38 84.8 310.00
                                                                        >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
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SUBAREA LOSS RATE DATA(<i>I</i> DEVELOPMENT TYPE/			Fρ	Aρ	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
RESIDENTIAL					
11+ DWELLINGS/ACRE" RESIDENTIAL					
"11+ DWELLINGS/ACRE" RESIDENTIAL					
".4 DWELLING/ACRE" RESIDENTIAL					
".4 DWELLING/ACRE" RESIDENTIAL					
".4 DWELLING/ACRE" RESIDENTIAL	D	2.50	0.20	0.900	91
"5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS	S LOSS RAT S AREA FRA	TE, Fp(INACTION, A	CH/HR) = 0 p = 0.364	.23	
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/H	181.26	AREA-	AVERAGED Fm	(INCH/HR)	
AREA-AVERAGED FP(INCH/HE TOTAL AREA(ACRES) =	n, – 0.22 1943	DEAK	VERAGED AP FLOW RATE(- 0.33 CFS) =	489.17
FLOW PROCESS FROM NODE	307.00 A TO MAINI	TO NODE	307.00 I	S CODE =	81
FLOW PROCESS FROM NODE	307.00 A TO MAINI BENSITY(ING AMC III):	TO NODE LINE PEAK CH/HR) =	307.00 I FLOW<<<<	S CODE =	81
FLOW PROCESS FROM NODE	307.00 A TO MAINI 6.93 ENSITY(INC AMC III): SCS SOIL	TO NODE LINE PEAK CH/HR) = AREA	307.00 I FLOW<<<<	S CODE =	81 scs
FLOW PROCESS FROM NODE	307.00 A TO MAINI	TO NODE LINE PEAK CH/HR) = AREA (ACRES)	307.00 I FLOW<>>> 3.076 Fp (INCH/HR)	S CODE =	81 SCS CN
FLOW PROCESS FROM NODE	307.00 A TO MAINI 6.93 ENSITY(ING AMC III): SCS SOIL GROUP C	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 4.50	307.00 I FLOW<>>> 3.076 Fp (INCH/HR) 0.25	Ap (DECIMAL)	81 SCS CN 86
FLOW PROCESS FROM NODE	307.00 A TO MAINI GENERAL SERVICE AMC III): SCS SOIL GROUP C D B	TO NODE	307.00 I FLOW<>>> 3.076 Fp (INCH/HR) 0.25 0.20 0.30	Ap (DECIMAL) 0.500 0.500 0.600	81 SCS CN 86 91 76
FLOW PROCESS FROM NODE	307.00 A TO MAINI 6.93 ENSITY(ING AMC III): SCS SOIL GROUP C D B	TO NODE	307.00 I FLOW<>>> 3.076 Fp (INCH/HR) 0.25 0.20 0.30	Ap (DECIMAL) 0.500 0.500 0.600	81 SCS CN 86 91 76
FLOW PROCESS FROM NODE	307.00 A TO MAINI 6.93 ENSITY(ING AMC III): SCS SOIL GROUP C D B C D	TO NODE	307.00 I FLOW< 3.076 Fp (INCH/HR) 0.25 0.20 0.30 0.25 0.20	Ap (DECIMAL) 0.500 0.500 0.600 0.600 0.600	81 SCS CN 86 91 76
FLOW PROCESS FROM NODE	307.00 A TO MAINI	TO NODE	307.00 I FLOW<><<< 3.076 Fp (INCH/HR) 0.25 0.20 0.30 0.25 0.20 CH/HR) = 0 p = 0.574	Ap (DECIMAL) 0.500 0.500 0.600 0.600 0.600	81
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SCHOOL SCHOOL SCHOOL SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	307.00 A TO MAINI	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 4.50 1.40 2.20 6.80 7.90 TE, FP(IN: ACTION, A: SUBARE. 5. AREA	307.00 I FLOW<<<< 3.076 Fp (INCH/HR) 0.25 0.20 0.30 0.25 0.20 CH/HR) = 0 p = 0.574 A RUNOFF(CF AVERAGED FM	Ap (DECIMAL) 0.500 0.500 0.600 0.600 0.600 0.23 S) = 60. (INCH/HR)	81 SCS CN 86 91 76 86 91 35 = 0.08
FLOW PROCESS FROM NODE	307.00 A TO MAINI	TO NODE	307.00 I FLOW<><<< 3.076 Fp (INCH/HR) 0.25 0.20 0.30 0.25 0.20 CH/HR) = 0 p = 0.574 A RUNOFF(CF AVERAGED FM VERAGED Ap	Ap (DECIMAL) 0.500 0.500 0.600 0.600 0.600 0.600 (INCH/HR) 0.37	81 SCS CN 86 91 76 86 91 35 = 0.08
FLOW PROCESS FROM NODE	307.00 A TO MAINI	TO NODE	307.00 I FLOW<<<< 3.076 Fp (INCH/HR) 0.25 0.20 0.30 0.25 0.20 CH/HR) = 0.574 A RUNOFF (CF AVERAGED FM VERAGED AP FLOW RATE (Ap (DECIMAL) 0.500 0.500 0.600 0.600 0.600 0.600 (INCH/HR) = 0.37 CFS) =	81 SCS CN 86 91 76 86 91 35 = 0.08
FLOW PROCESS FROM NODE	307.00 A TO MAINI	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 4.50 1.40 2.20 6.80 7.90 TE, FP(IN: ACTION, A: SUBARE. AREA-A: PEAK ********** TO NODE	307.00 I FLOW< 3.076 Fp (INCH/HR) 0.25 0.20 0.30 0.25 0.20 CH/HR) = 0 p = 0.574 A RUNOFF(CF AVERAGED FM VERAGED FF VERAGED AP FLOW RATE(***********************************	Ap (DECIMAL) 0.500 0.500 0.600 0.600 0.600 (INCH/HR) = 0.37 CFS) = ********** S CODE =	81 SCS CN 86 91 76 86 91 35 = 0.08 549.52

```
PIPE-FLOW VELOCITY (FEET/SEC.) = 37.96
 ESTIMATED PIPE DIAMETER (INCH) = 57.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 549.52
 PIPE TRAVEL TIME (MIN.) = 0.37 Tc (MIN.) = 17.31
 LONGEST FLOWPATH FROM NODE 300.00 TO NODE 330.00 = 9907.00 FEET.
*********************
 FLOW PROCESS FROM NODE 330.00 TO NODE 330.00 IS CODE = 1
 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<
______
 TOTAL NUMBER OF STREAMS = 3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION (MIN.) = 17.31
 RAINFALL INTENSITY (INCH/HR) = 3.04
 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.22
 AREA-AVERAGED Ap = 0.37
 EFFECTIVE STREAM AREA(ACRES) = 204.06
 TOTAL STREAM AREA(ACRES) = 217.10
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 549.52
*******************
 FLOW PROCESS FROM NODE 320.00 TO NODE 321.00 IS CODE = 21
______
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
______
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 330.00
 ELEVATION DATA: UPSTREAM(FEET) = 636.00 DOWNSTREAM(FEET) = 633.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.438
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.584
 SUBAREA To AND LOSS RATE DATA(AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                Fр
                                         Ap SCS Tc
    LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" C 2.80 0.25 0.200 86 8.44
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.200
 SUBAREA RUNOFF (CFS) = 11.43
 TOTAL AREA (ACRES) = 2.80 PEAK FLOW RATE (CFS) =
*******************
 FLOW PROCESS FROM NODE 321.00 TO NODE 322.00 IS CODE = 62
______
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
______
 UPSTREAM ELEVATION(FEET) = 633.00 DOWNSTREAM ELEVATION(FEET) = 628.00
 STREET LENGTH (FEET) = 360.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL (DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
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SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
                                             24.85
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) = 0.50
  HALFSTREET FLOOD WIDTH (FEET) = 18.95
  AVERAGE FLOW VELOCITY (FEET/SEC.) = 3.66
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 1.83
 STREET FLOW TRAVEL TIME (MIN.) = 1.64 Tc (MIN.) = 10.08
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.140
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                   SCS
                                     Fρ
                                             Aр
     LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                    D 0.10 0.20 0.100 91
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" C 6.30
                                     0.25
                                            0.200 86
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                   D
                             0.20
                                     0.20
                                            0.200 91
                      C
                             0.70
                                     0.25
                                            0.600 86
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.237
 SUBAREA AREA(ACRES) = 7.30
                            SUBAREA RUNOFF (CFS) = 26.82
 EFFECTIVE AREA(ACRES) = 10.10 AREA-AVERAGED Fm(INCH/HR) = 0.06
 AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.23
 TOTAL AREA (ACRES) = 10.1 PEAK FLOW RATE (CFS) =
                                                    37.12
 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.56 HALFSTREET FLOOD WIDTH(FEET) = 22.23
 FLOW VELOCITY (FEET/SEC.) = 4.03 DEPTH*VELOCITY (FT*FT/SEC.) = 2.26
 LONGEST FLOWPATH FROM NODE 320.00 TO NODE 322.00 = 690.00 FEET.
******************
 FLOW PROCESS FROM NODE 322.00 TO NODE 323.00 IS CODE = 31
______
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 628.00 DOWNSTREAM(FEET) = 624.00
 FLOW LENGTH (FEET) = 750.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 36.0 INCH PIPE IS 24.4 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 7.27
 ESTIMATED PIPE DIAMETER (INCH) = 36.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
                 37.12
 PIPE TRAVEL TIME (MIN.) = 1.72 Tc (MIN.) = 11.80
 LONGEST FLOWPATH FROM NODE 320.00 TO NODE 323.00 = 1440.00 FEET.
*****************
 FLOW PROCESS FROM NODE 323.00 TO NODE 323.00 IS CODE = 81
-----
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc(MIN.) = 11.80
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.783
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                  Fρ
                                                   SCS
```

LAND USE					
PUBLIC PARK PUBLIC PARK	C D	2.00	0.25	0.850 0.850	86 91
RESIDENTIAL	ע	2.10	0.20	0.650	91
"11+ DWELLINGS/ACRE" RESIDENTIAL	С	5.60	0.25	0.200	86
	D	0.90	0.20	0.200	91
"11+ DWELLINGS/ACRE" SCHOOL					
SCHOOL				0.600	91
SUBAREA AVERAGE PERVIOU				.23	
SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) =				(C) - 46 C	12
EFFECTIVE AREA(ACRES) =	24 1	0 AREA-	A KUNOFF (CF AVERAGED Fm	(TNCH/HR) =	.s = 0.09
AREA-AVERAGED Fp(INCH/H	R) = 0.2	4 AREA-A	VERAGED Ap	= 0.38	0.03
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) =	24.1	PEAK	FLOW RATE (CFS) =	80.10

FLOW PROCESS FROM NODE					31
>>>>ADDITION OF SUBARE	A TO MAIN	LINE PEAK	FLOW<		
MAINLINE Tc(MIN.) = 1		=======	=======	=======	=======
* 100 YEAR RAINFALL INT		CH/HR) =	3.783		
SUBAREA LOSS RATE DATA(AMC III):	,			
DEVELOPMENT TYPE/ LAND USE APARTMENTS	SCS SOII	AREA	Fp	Аp	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
					86
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU				.23	
SUBAREA AREA (ACRES) =				(S) = 0.3	34
EFFECTIVE AREA(ACRES) =	24.2	0 AREA-	AVERAGED Fm	(INCH/HR) =	0.09
AREA-AVERAGED Fp(INCH/H	R) = 0.2	4 AREA-A	VERAGED Ap	= 0.38	
TOTAL AREA (ACRES) =	24.2	PEAK	FLOW RATE (CFS) =	80.44
*******	+++++++	+++++++	++++++++	++++++++	
FLOW PROCESS FROM NODE					
>>>>COMPUTE PIPE-FLOW					
>>>>USING COMPUTER-EST					
ELEVATION DATA: UPSTREA					
FLOW LENGTH (FEET) = 8				M(FEEI) -	014.00
DEPTH OF FLOW IN 39.0					
PIPE-FLOW VELOCITY (FEET	/SEC.) =	11.42			
ESTIMATED PIPE DIAMETER	(INCH) =	39.00	NUMBER OF	PIPES = 1	
PIPE-FLOW(CFS) = 8		- /24-22		0	
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N	= 1.29	TC (MIN	.) = 13.0	9 - 222	7 00 5555
LONGEST FLOWFAIR FROM N	ODE J2	.U.UU IO IN	JDE J24.	00 - 232	./.UU FEE1.
*******	*****	*****	*****	*****	*****
FLOW PROCESS FROM NODE	324.00	TO NODE	324.00 I	S CODE = 8	1
>>>>ADDITION OF SUBARE				========	========
MAINLINE Tc(MIN.) = 1					
* 100 YEAR RAINFALL INT		CH/HR) =	3.564		
SUBAREA LOSS RATE DATA(
DEVELOPMENT TYPE/	SCS SOII	AREA	Fp	Аp	SCS
D-1- 00/07/0005	F.''	DAGGGG	0.050) 1/
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LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL	С	1.10	0.25	0.100	86
COMMERCIAL	D	1.10	0.25 0.20	0.100	91
PUBLIC PARK	C	3 10	0.25	0.850	86
PUBLIC PARK	D	2.10	0.20	0.050	91
	D	2.00	0.20	0.030	91
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	С	4.80	0.25	0.200	86
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	D	3.40	0.20	0.200	91
SUBAREA AVERAGE PERVIOU					
				.23	
SUBAREA AVERAGE PERVIOU					
SUBAREA AREA(ACRES) =	16.10	SUBARE	A RUNOFF(CF	S) = 50.1	27
EFFECTIVE AREA(ACRES) =					= 0.09
AREA-AVERAGED Fp(INCH/	HR) = 0.2	23 AREA-A	VERAGED Ap	= 0.39	
TOTAL AREA (ACRES) =	40 3	PEAK	FLOW RATE(CFS) =	125 94

>>>>COMPUTE PIPE-FLOW					,
>>>>USING COMPUTER-ES					
ELEVATION DATA: UPSTREA	AM(FEET) =	= 614.00	DOWNSTREA	M(FEET) =	571.00
FLOW LENGTH (FEET) = 18	805.00 M	MANNING'S	N = 0.013		
DEPTH OF FLOW IN 42.0					
			INCHES		
PIPE-FLOW VELOCITY (FEE	T/SEC.) =	17.20			
ESTIMATED PIPE DIAMETER	R(INCH) =	42.00	NUMBER OF	PIPES =	1
PIPE-FLOW(CFS) = 12	25.94				
		Tc (MIN	.) = 14.8	4	
PIPE TRAVEL TIME (MIN.)	= 1.75				22 00 EEEM
	= 1.75				32.00 FEET.
PIPE TRAVEL TIME (MIN.)	= 1.75 NODE 32	20.00 TO N	ODE 325.	00 = 41	
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM 1 ************************************	= 1.75 NODE 32 ************************************	20.00 TO N ********) TO NODE	ODE 325.	00 = 41	*****
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM 1 ************************************	= 1.75 NODE 32 ************************************	20.00 TO N ********) TO NODE	ODE 325. ******** 325.00 I	00 = 41	*****
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM 1 ************************************	= 1.75 NODE 32 *********** 325.00 	20.00 TO N ********) TO NODE ULINE PEAK	ODE 325. ******** 325.00 I	00 = 41 ******** S CODE =	*****
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM 1 ************************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARI	= 1.75 NODE 32 *********** 325.00 	20.00 TO N ********) TO NODE ULINE PEAK	ODE 325. ******* 325.00 I FLOW<<<<	00 = 41 ******** S CODE =	*****
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE ***********************************	= 1.75 NODE 32 ********** 325.00 	20.00 TO N ********) TO NODE NLINE PEAK	0DE 325. *********** 325.00 I 	00 = 41 ******** S CODE =	*****
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARR MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL IN	= 1.75 NODE 32 ********** 325.00	20.00 TO N ********) TO NODE NLINE PEAK	0DE 325. *********** 325.00 I 	00 = 41 ******** S CODE =	*****
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = * 100 YEAR RAINFALL INSUBAREA LOSS RATE DATA	= 1.75 NODE 32 ********** 325.00	20.00 TO N ********) TO NODE NLINE PEAK UCH/HR) =	0DE 325. ********* 325.00 I FLOW<>>> 3.317	00 = 41 ********* S CODE =	****** 81
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE ******************* FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARR MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/	= 1.75 NODE 32 ********** 325.00	20.00 TO N ******** TO NODE NLINE PEAK NCH/HR) = AREA	ODE 325. ********* 325.00 I FLOW<<<<< 3.317 Fp	00 = 41 ******* S CODE =	********** 81
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM 1 ****************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARI MAINLINE Tc (MIN.) = 1 * 100 YEAR RAINFALL IN: SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE	= 1.75 NODE 32 ********** 325.00	20.00 TO N ******** TO NODE NLINE PEAK NCH/HR) = AREA	0DE 325. ********* 325.00 I FLOW<>>> 3.317	00 = 41 ******* S CODE =	********** 81
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM 1 ***************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARI MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN: SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL	= 1.75 NODE 32 ********** 325.00 EA TO MAIN =======14.84 TENSITY(IN (AMC III): SCS SOII GROUP	20.00 TO N ******* TO NODE LINE PEAK CH/HR) = AREA (ACRES)	325. *********** 325.00 I FLOW<<<<< 3.317 Fp (INCH/HR)	00 = 41 ******* S CODE = Ap (DECIMAL)	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM 1 ***************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARI MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN: SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL	= 1.75 NODE 32 ********** 325.00 EA TO MAIN =======14.84 TENSITY(IN (AMC III): SCS SOII GROUP	20.00 TO N ******* TO NODE LINE PEAK CH/HR) = AREA (ACRES)	325. *********** 325.00 I FLOW<<<<< 3.317 Fp (INCH/HR)	00 = 41 ******* S CODE = Ap (DECIMAL)	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE ***********************************	= 1.75 NODE 32 ********** 325.00 EA TO MAIN =======14.84 TENSITY(IN (AMC III): SCS SOII GROUP	20.00 TO N ******* TO NODE LINE PEAK CH/HR) = AREA (ACRES)	325. *********** 325.00 I FLOW<<<<< 3.317 Fp (INCH/HR)	00 = 41 ******* S CODE = Ap (DECIMAL)	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE ******************************* FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARI MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL	= 1.75 NODE 32 ********** 325.00	20.00 TO N ********) TO NODE NLINE PEAK NCH/HR) = CAREA (ACRES) 3.10	325. ********* 325.00 I FLOW<<<<< 3.317 Fp (INCH/HR) 0.25	00 = 41 ******* S CODE = Ap (DECIMAL) 0.200	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE **************************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARI MAINLINE TC (MIN.) = 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE"	= 1.75 NODE 32 ********** 325.00	20.00 TO N ********) TO NODE NLINE PEAK NCH/HR) = CAREA (ACRES) 3.10	325. ********* 325.00 I FLOW<<<<< 3.317 Fp (INCH/HR) 0.25	00 = 41 ******* S CODE = Ap (DECIMAL) 0.200	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE *************************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARI MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL	= 1.75 NODE 32 ********** 325.00 EA TO MAIN ====================================	20.00 TO N ********) TO NODE ILINE PEAK ICH/HR) = AREA (ACRES) 3.10 5.00	325. ********* 325.00 I FLOW<<<<< 3.317 Fp (INCH/HR) 0.25 0.20	00 = 41 ******* S CODE = Ap (DECIMAL) 0.200 0.200	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE ******************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARI MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL	= 1.75 NODE 32 ********** 325.00 EA TO MAIN ====================================	20.00 TO N ********) TO NODE ILINE PEAK ICH/HR) = AREA (ACRES) 3.10 5.00	325. ********* 325.00 I FLOW<<<<< 3.317 Fp (INCH/HR) 0.25	00 = 41 ******* S CODE = Ap (DECIMAL) 0.200 0.200	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NODE ***************************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARI MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN. SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "12- TABLE TO THE TO TH	= 1.75 NODE 32 ********** 325.00 EA TO MAIN ====================================	20.00 TO N ********) TO NODE ILINE PEAK ICH/HR) = AREA (ACRES) 3.10 5.00	325. ********* 325.00 I FLOW<<<<< 3.317 Fp (INCH/HR) 0.25 0.20	00 = 41 ******* S CODE = Ap (DECIMAL) 0.200 0.200	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE ******************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARITION * 100 YEAR RAINFALL IN. SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL "RESIDENTIAL "RESIDENTIAL "RESIDENTIAL	= 1.75 NODE 32 ********** 325.00 EA TO MAIN ====================================	20.00 TO N ********) TO NODE NLINE PEAK NCH/HR) = C AREA (ACRES) 3.10 5.00 0.20	325. ********* 325.00 I FLOW<<<<< 3.317 Fp (INCH/HR) 0.25 0.20 0.25	00 = 41 ******* S CODE = Ap (DECIMAL) 0.200 0.200 0.900	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE ******************* FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARI MAINLINE TC (MIN.) = : * 100 YEAR RAINFALL IN. SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE"	= 1.75 NODE 32 ********** 325.00 EA TO MAIN ====================================	20.00 TO N ********) TO NODE NLINE PEAK NCH/HR) = C AREA (ACRES) 3.10 5.00 0.20	325. ********* 325.00 I FLOW<<<<< 3.317 Fp (INCH/HR) 0.25 0.20 0.25	00 = 41 ******* S CODE = Ap (DECIMAL) 0.200 0.200 0.900	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE ******************* FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARI *************** MAINLINE TC (MIN.) = 1 ** 100 YEAR RAINFALL IN: SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL	= 1.75 NODE 32 *********** 325.00	20.00 TO N ********) TO NODE NLINE PEAK NCH/HR) = C AREA (ACRES) 3.10 5.00 0.20 1.20	325. ********* 325.00 I FLOW<<<< 3.317 Fp (INCH/HR) 0.25 0.20 0.25 0.20	Ap (DECIMAL) 0.200 0.200 0.900 0.900	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE ******************* FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARI MAINLINE Tc (MIN.) = : * 100 YEAR RAINFALL IN. SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE"	= 1.75 NODE 32 *********** 325.00	20.00 TO N ********) TO NODE NLINE PEAK NCH/HR) = C AREA (ACRES) 3.10 5.00 0.20 1.20	325. ********* 325.00 I FLOW<<<< 3.317 Fp (INCH/HR) 0.25 0.20 0.25 0.20	Ap (DECIMAL) 0.200 0.200 0.900 0.900	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE ************************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARI MAINLINE TC (MIN.) = : * 100 YEAR RAINFALL IN: SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".7 DWELLING/ACRE" RESIDENTIAL ".7 DWELLINGS/ACRE"	= 1.75 NODE 32 *********** 325.00	20.00 TO N ********) TO NODE NLINE PEAK NCH/HR) = C AREA (ACRES) 3.10 5.00 0.20 1.20	325. ********* 325.00 I FLOW<<<< 3.317 Fp (INCH/HR) 0.25 0.20 0.25 0.20	Ap (DECIMAL) 0.200 0.200 0.900 0.900	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NO ******************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARN **100 YEAR RAINFALL IN' SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLINGS/ACRE" RESIDENTIAL "ESIDENTIAL "ESIDENTIAL "ESIDENTIAL "CESIDENTIAL" RESIDENTIAL "CESIDENTIAL" RESIDENTIAL "CESIDENTIAL" RESIDENTIAL	= 1.75 NODE 32 *********** 325.00	20.00 TO N ********) TO NODE NLINE PEAK NCH/HR) = (ACRES) 3.10 5.00 0.20 1.20 13.90	325. ********* 325.00 I FLOW<<<<< 3.317 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25	Ap (DECIMAL) 0.200 0.200 0.900 0.500	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NO ********************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARN **100 YEAR RAINFALL IN. SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE"	= 1.75 NODE 32 *********** 325.00	20.00 TO N ********) TO NODE NLINE PEAK AREA (ACRES) 3.10 5.00 0.20 1.20 13.90 18.60	325. ********* 325.00 I FLOW<<<<< 3.317 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 0.20	Ap (DECIMAL) 0.200 0.900 0.900 0.500 0.500	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE ****************************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARI MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL IN.* SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU	= 1.75 NODE 32 *********** 325.00	20.00 TO N ********) TO NODE NLINE PEAK NCH/HR) = AREA (ACRES) 3.10 5.00 0.20 1.20 13.90 18.60 ATE, Fp(IN	325. ********* 325.00 I FLOW<<<<< 3.317 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 0.20 0.45 0.20 0.45 0.20 0.45 0.40 0.45 0.40 0.45 0.40 0.45 0.40 0.45	Ap (DECIMAL) 0.200 0.900 0.900 0.500 0.500	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE ******************************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARN MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE"	= 1.75 NODE 32 *********** 325.00	20.00 TO N ********) TO NODE NLINE PEAK NCH/HR) = AREA (ACRES) 3.10 5.00 0.20 1.20 13.90 18.60 ATE, Fp(IN	325. ********* 325.00 I FLOW<<<<< 3.317 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 0.20 CH/HR) = 0	Ap (DECIMAL) 0.200 0.900 0.900 0.500 0.500	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NODE ***********************************	= 1.75 NODE 32 *********** 325.00	20.00 TO N ********) TO NODE NLINE PEAK NCH/HR) = CAREA (ACRES) 3.10 5.00 0.20 1.20 13.90 18.60 ATE, Fp(IN RACTION, A	325. ********* 325.00 I FLOW<<<<< 3.317 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 0.20 0.455	00 = 41 ******* S CODE = Ap (DECIMAL) 0.200 0.200 0.900 0.900 0.500 0.500 0.500	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE *************************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARY ***************** MAINLINE Tc (MIN.) = 1. * 100 YEAR RAINFALL IN. SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) =	= 1.75 NODE 32 *********** 325.00	20.00 TO N ********) TO NODE NLINE PEAK NCH/HR) = (ACRES) 3.10 5.00 0.20 1.20 13.90 18.60 ATE, FP(IN RACTION, A SUBARE	325. ********* 325.00 I FLOW<<<<< 3.317 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.455 A RUNOFF(CF	00 = 41 ******* S CODE = Ap (DECIMAL) 0.200 0.200 0.900 0.500 0.500 22 S) = 121.	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE ****************************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARR MAINLINE TC (MIN.) = 1. * 100 YEAR RAINFALL IN. SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUSUBAREA AVERAGE PERVIOUSUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) =	= 1.75 NODE 32 *********** 325.00	20.00 TO N ******** TO NODE TO NODE	325. ********* 325.00 I FLOW< 3.317 Fp (INCH/HR) 0.25 0.20 0.25 0.20 CH/HR) = 0 p = 0.455 A RUNOFF(CF AVERAGED FM	Ap (DECIMAL) 0.200 0.200 0.900 0.500 0.500 .22 S) = 121. (INCH/HR)	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE *************************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARY ***************** MAINLINE Tc (MIN.) = 1. * 100 YEAR RAINFALL IN. SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) =	= 1.75 NODE 32 *********** 325.00	20.00 TO N ******** TO NODE TO NODE	325. ********* 325.00 I FLOW< 3.317 Fp (INCH/HR) 0.25 0.20 0.25 0.20 CH/HR) = 0 p = 0.455 A RUNOFF(CF AVERAGED FM	Ap (DECIMAL) 0.200 0.200 0.900 0.500 0.500 .22 S) = 121. (INCH/HR)	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE ****************************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARR MAINLINE TC (MIN.) = 1. * 100 YEAR RAINFALL IN. SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUSUBAREA AVERAGE PERVIOUSUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) =	= 1.75 NODE 32 *********** 325.00	20.00 TO N ******** TO NODE LINE PEAK NCH/HR) = AREA (ACRES) 3.10 5.00 0.20 1.20 13.90 18.60 ATE, FP(IN RACTION, A SUBARE 30 AREA-A 23 AREA-A	325. ********* 325.00 I FLOW<<<<< 3.317 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.455 A RUNOFF(CF AVERAGED FM VERAGED AP	Ap (DECIMAL) 0.200 0.200 0.900 0.500 0.500 .22 S) = 121. (INCH/HR)	**************************************

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	325.00				******
		TO NODE	326 NN T		
				S CODE =	31
>>>>USING COMPUTER-ESTI			UBAREA<<<<		<
ELEVATION DATA: UPSTREAM		571.00	DOWNSTREA		497.00
FLOW LENGTH (FEET) = 109				(137.00
DEPTH OF FLOW IN 42.0 I	NCH PIPE	IS 33.0	INCHES		
PIPE-FLOW VELOCITY (FEET/	/SEC.) =	29.43			
ESTIMATED PIPE DIAMETER ((INCH) =	42.00	NUMBER OF	PIPES =	1
PIPE-FLOW(CFS) = 238					
PIPE TRAVEL TIME (MIN.) =	= 0.62	Tc (MIN	.) = 15.4	6	
LONGEST FLOWPATH FROM NC	DE 320	.00 TO N	DDE 326.	00 = 52	22.00 FEET
******	*****	*****	*****	*****	******
FLOW PROCESS FROM NODE					
>>>>ADDITION OF SUBAREA	A TO MAINL	INE PEAK	FLOW<		
MAINLINE Tc(MIN.) = 15		:=====:	=======	=======	=======
* 100 YEAR RAINFALL INTE		H/HR) =	3.240		
SUBAREA LOSS RATE DATA (A	AMC III):				
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL	В	1.00	0.30 0.25	0.100	76
COMMERCIAL	D	12.90	0.20	0.100	91
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	D	0.30	0.20	0.200	91
RESIDENTIAL	_	0.00	0 20	0 000	7.6
".4 DWELLING/ACRE" RESIDENTIAL	В	0.90	0.30	0.900	76
".4 DWELLING/ACRE"	C	12 80	0.25	0 900	86
SUBAREA AVERAGE PERVIOUS					00
SUBAREA AVERAGE PERVIOUS				•20	
SUBAREA AREA(ACRES) =				S) = 95.	94
EFFECTIVE AREA(ACRES) =					
AREA-AVERAGED Fp (INCH/HR	R) = 0.23	AREA-A	VERAGED Ap	= 0.42	
TOTAL AREA (ACRES) =	116.3	PEAK	FLOW RATE(CFS) =	328.84

FLOW PROCESS FROM NODE	326.00	TO NODE	326.00 I	S CODE =	81
>>>>ADDITION OF SUBAREA	A TO MAINL	INE PEAK	FLOW<		
MAINLINE Tc(MIN.) = 15	5.46				
* 100 YEAR RAINFALL INTE		H/HR) =	3.240		
SUBAREA LOSS RATE DATA (A			-		222
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap	SCS
TAND HET	GROHP	(ACKES)	(INCH/HR)	(DECIMAL)	CN
LAND USE	011001				
LAND USE RESIDENTIAL		23 20	0 20	0 000	01
LAND USE RESIDENTIAL ".4 DWELLING/ACRE"		23.20	0.20	0.900	91
LAND USE RESIDENTIAL			0.20		

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"5-7 DWELLINGS/ACRE"
                  D
                          0.30
                                  0.20 0.500 91
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.890
                            SUBAREA RUNOFF (CFS) = 65.59
 SUBAREA AREA (ACRES) = 23.80
 EFFECTIVE AREA(ACRES) = 140.10 AREA-AVERAGED Fm(INCH/HR) = 0.11
 AREA-AVERAGED Fp (INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.50
 TOTAL AREA (ACRES) =
                 140.1
                             PEAK FLOW RATE(CFS) =
                                                 394.43
*********************
 FLOW PROCESS FROM NODE 326.00 TO NODE 327.00 IS CODE = 31
______
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 497.00 DOWNSTREAM(FEET) = 445.00
 FLOW LENGTH (FEET) = 1732.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 60.0 INCH PIPE IS 45.4 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 24.74
 ESTIMATED PIPE DIAMETER (INCH) = 60.00
                               NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
                 394.43
 PIPE TRAVEL TIME (MIN.) = 1.17 Tc (MIN.) = 16.63
 LONGEST FLOWPATH FROM NODE 320.00 TO NODE 327.00 =
******************
 FLOW PROCESS FROM NODE 327.00 TO NODE 327.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
_____
 MAINLINE Tc (MIN.) = 16.63
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.108
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/
                SCS SOIL AREA
                                 Fρ
                                           Аp
                                                 SCS
     LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                   C 4.80 0.25
                                           0.100 86
 COMMERCIAL
                    D
                            4.80
                                    0.20
                                           0.100 91
 PUBLIC PARK
                    С
                            0.10
                                    0.25
                                           0.850 86
                          6.30
                                           0.850 91
 PUBLIC PARK
                    D
                                    0.20
 RESIDENTIAL
                  B 5.00
 "11+ DWELLINGS/ACRE"
                                    0.30
                                           0.200 76
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                    С
                           43.30
                                    0.25
                                           0.200
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.250
 SUBAREA AREA (ACRES) = 64.30
                            SUBAREA RUNOFF (CFS) = 176.47
 EFFECTIVE AREA(ACRES) = 204.40 AREA-AVERAGED Fm(INCH/HR) = 0.10
 AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.42
 TOTAL AREA (ACRES) = 204.4
                             PEAK FLOW RATE(CFS) =
******************
 FLOW PROCESS FROM NODE 327.00 TO NODE 327.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc(MIN.) = 16.63
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.108
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                 Fр
                                                 SCS
                                         Aр
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
```

	D	38.70	0.20	0.200	91
RESIDENTIAL					
".4 DWELLING/ACRE" RESIDENTIAL	С	2.30	0.25	0.900	86
".4 DWELLING/ACRE"					91
SUBAREA AVERAGE PERVIC				.21	
SUBAREA AVERAGE PERVIC					
SUBAREA AREA(ACRES) =					
EFFECTIVE AREA(ACRES)	= 249.0	0 AREA-A	VERAGED Fm	(INCH/HR)	= 0.09
AREA-AVERAGED Fp (INCH/					676 50
TOTAL AREA (ACRES) =	249.0	PEAK	FLOW RATE (CFS) =	6/6.53

FLOW PROCESS FROM NODE					
>>>>COMPUTE PIPE-FLOW	TRAVEL TI	ME THRU SU	JBAREA<		
>>>>USING COMPUTER-ES					
======================================					
FLOW LENGTH (FEET) = 2				. ,	
DEPTH OF FLOW IN 69.0	INCH PIPE	IS 53.2	INCHES		
PIPE-FLOW VELOCITY (FEE					
ESTIMATED PIPE DIAMETE		69.00	NUMBER OF	PIPES =	1
PIPE-FLOW(CFS) = 6	76.53				
PIPE TRAVEL TIME (MIN.)	= 1.41	Tc (MIN.	18.0	4	
LONGEST FLOWPATH FROM	NODE 32	0.00 TO NO	DDE 328.	00 = 96	18.00 FEET.
******	*****	*******	*****	******	*****
FLOW PROCESS FROM NODE	328.00	TO NODE	328.00 I	S CODE =	81
>>>>ADDITION OF SUBAR					
 MAINLINE Tc(MIN.) =				=======	========
* 100 YEAR RAINFALL IN		CH/HR) =	2 966		
SIBAREA LOSS RATE DATA	(AMC TIT) ·				
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fn	An	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
APARTMENTS	А	0.50	0.40	0.200	52
					JZ
APARTMENTS	В	14.80	0.30	0.200	76
DEVELOPMENT TYPE/ LAND USE APARTMENTS APARTMENTS APARTMENTS	B C	14.80 1.90	0.30 0.25	0.200	76 86
APARTMENTS APARTMENTS APARTMENTS	B C D	14.80 1.90 9.90	0.30 0.25 0.20	0.200 0.200 0.200	76 86 91
APARTMENTS	D	9.90	0.23	0.200	91
APARTMENTS	B C D A B	9.90 1.80	0.23	0.200 0.200 0.100	91 52
APARTMENTS APARTMENTS COMMERCIAL	D A B	9.90 1.80 8.40	0.20 0.40 0.30	0.200 0.200 0.100 0.100	91 52
APARIMENTS APARTMENTS COMMERCIAL COMMERCIAL SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC	D A B DUS LOSS RA DUS AREA FR	9.90 1.80 8.40 TE, Fp(INC	0.23 0.20 0.40 0.30 CH/HR) = 0 0 = 0.173	0.200 0.200 0.100 0.100	91 52 76
APARIMENTS APARTMENTS COMMERCIAL COMMERCIAL SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA (ACRES) =	D A B OUS LOSS RA OUS AREA FR 37.30	9.90 1.80 8.40 TE, Fp(INC ACTION, Ap SUBAREA	0.23 0.20 0.40 0.30 CH/HR) = 0 0 = 0.173 A RUNOFF (CF	0.200 0.200 0.100 0.100 .27 S) = 98.	91 52 76
APARIMENTS APARTMENTS COMMERCIAL COMMERCIAL SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES)	D A B DUS LOSS RA DUS AREA FR 37.30 = 286.3	9.90 1.80 8.40 TE, Fp(INC ACTION, Ap SUBAREA 0 AREA-A	0.25 0.20 0.40 0.30 CH/HR) = 0 0 = 0.173 A RUNOFF (CF	0.200 0.200 0.100 0.100 .27 S) = 98. (INCH/HR)	91 52 76
APARIMENTS APARTMENTS COMMERCIAL COMMERCIAL SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH/	D A B DUS LOSS RA DUS AREA FR 37.30 = 286.3 (HR) = 0.2	9.90 1.80 8.40 TE, Fp(INC ACTION, Ap SUBAREA 0 AREA-A	0.25 0.20 0.40 0.30 CH/HR) = 0 0 = 0.173 A RUNOFF(CF AVERAGED FM VERAGED AP	0.200 0.200 0.100 0.100 .27 S) = 98. (INCH/HR) = 0.37	01 01 01 000 01
APARIMENTS APARIMENTS COMMERCIAL COMMERCIAL SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES)	D A B DUS LOSS RA DUS AREA FR 37.30 = 286.3 (HR) = 0.2	9.90 1.80 8.40 TE, Fp(INC ACTION, Ap SUBAREA 0 AREA-A	0.25 0.20 0.40 0.30 CH/HR) = 0 0 = 0.173 A RUNOFF(CF AVERAGED FM VERAGED AP	0.200 0.200 0.100 0.100 .27 S) = 98. (INCH/HR) = 0.37	91 52 76 01 = 0.08
APARTMENTS APARTMENTS COMMERCIAL COMMERCIAL SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH/ TOTAL AREA (ACRES) =	D A B OUS LOSS RA VUS AREA FR 37.30 = 286.3 (HR) = 0.2 286.3	9.90 1.80 8.40 TE, Fp(INC ACTION, Ap SUBAREA 0 AREA-A 3 AREA-AV PEAK	0.25 0.20 0.40 0.30 CH/HR) = 0 0 = 0.173 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(0.200 0.200 0.100 0.100 .27 S) = 98. (INCH/HR) = 0.37 CFS) =	91 52 76 01 = 0.08
APARIMENTS APARTMENTS COMMERCIAL COMMERCIAL SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) AREA-AVERAGED FP(INCH/ TOTAL AREA(ACRES) =	D A B DUS LOSS RA VUS AREA FR 37.30 = 286.3 (HR) = 0.2 286.3	9.90 1.80 8.40 TE, Fp(INC ACTION, Ap SUBAREA 0 AREA-AV PEAK	0.25 0.20 0.40 0.30 CH/HR) = 0 0 = 0.173 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(0.200 0.200 0.100 0.100 .27 S) = 98. (INCH/HR) = 0.37 CFS) =	01 = 0.08 742.79
APARIMENTS APARTMENTS COMMERCIAL COMMERCIAL SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) AREA-AVERAGED FP(INCH/ TOTAL AREA(ACRES) = ************************************	D A B OUS LOSS RA VUS AREA FR 37.30 = 286.3 (HR) = 0.2 286.3	9.90 1.80 8.40 TE, Fp(INC ACTION, Ap SUBAREA 0 AREA-A 3 AREA-AV PEAK	0.25 0.20 0.40 0.30 CH/HR) = 0 0 = 0.173 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(0.200 0.200 0.100 0.100 .27 S) = 98. (INCH/HR) = 0.37 CFS) = ************ S CODE =	01 52 76 01 = 0.08 742.79 ************************************
APARTMENTS APARTMENTS COMMERCIAL COMMERCIAL SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) AREA-AVERAGED FP(INCH/ TOTAL AREA(ACRES) = ************************************	D A B OUS LOSS RA VUS AREA FR 37.30 = 286.3 (HR) = 0.2 286.3	9.90 1.80 8.40 TE, Fp(INC ACTION, Ap SUBAREA 0 AREA-AV PEAK ************************************	0.25 0.20 0.40 0.30 CH/HR) = 0 0 = 0.173 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(************************************	0.200 0.200 0.100 0.100 .27 S) = 98. (INCH/HR) = 0.37 CFS) = ************ S CODE =	01 52 76 01 = 0.08 742.79 ************************************
APARIMENTS APARTMENTS COMMERCIAL COMMERCIAL SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH/ TOTAL AREA (ACRES) = ************************************	D A B OUS LOSS RA DUS AREA FR 37.30 = 286.3 (HR) = 0.2 286.3 ************* C 328.00 REA TO MAIN	9.90 1.80 8.40 TE, Fp(INC ACTION, Ap SUBAREA 0 AREA-AV PEAK ************************************	0.25 0.20 0.40 0.30 CH/HR) = 0 0 = 0.173 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(************************************	0.200 0.200 0.100 0.100 .27 S) = 98. (INCH/HR) = 0.37 CFS) = ************ S CODE =	01 = 0.08 742.79 ************************************
APARTMENTS APARTMENTS COMMERCIAL COMMERCIAL SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) AREA-AVERAGED FP(INCH/ TOTAL AREA(ACRES) = ***********************************	D A B OUS LOSS RA DUS AREA FR 37.30 = 286.3 (HR) = 0.2 286.3 ************ 328.00 REA TO MAIN	9.90 9.90 1.80 8.40 TE, Fp(INC ACTION, Ap SUBAREA 0 AREA-AV PEAK ************************************	0.25 0.20 0.40 0.30 CH/HR) = 0 0 = 0.173 A RUNOFF (CF VERAGED FM VERAGED AP FLOW RATE (************************************	0.200 0.200 0.100 0.100 .27 S) = 98. (INCH/HR) = 0.37 CFS) = ************ S CODE =	01 = 0.08 742.79 ************************************
APARTMENTS APARTMENTS COMMERCIAL COMMERCIAL SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) AREA-AVERAGED FP(INCH/ TOTAL AREA(ACRES) = ************************************	D A B OUS LOSS RA DUS AREA FR 37.30 = 286.3 (HR) = 0.2 286.3 ************ 328.00 REA TO MAIN	9.90 9.90 1.80 8.40 TE, Fp(INC ACTION, Ap SUBAREA 0 AREA-AV PEAK ************************************	0.25 0.20 0.40 0.30 CH/HR) = 0 0 = 0.173 A RUNOFF (CF VERAGED FM VERAGED AP FLOW RATE (************************************	0.200 0.200 0.100 0.100 .27 S) = 98. (INCH/HR) = 0.37 CFS) = ************ S CODE =	01 = 0.08 742.79 ************************************

File name: PA3C00HC.RES

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RESIDENTIAL

Date: 08/07/2023

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SUBAREA LOSS RATE DATA(AMC III):		_	_	
DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL PUBLIC PARK PUBLIC PARK	SCS SOIL	AREA	F'p	Ap	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL	C	14.00	0.25	0.100	00
COMMERCIAL	D C	14.00	0.20	0.100	91
PUBLIC PARK	C	1.40	0.25	0.850	01
PUBLIC PARK	Д	0.30	0.20	0.850	91
RESIDENTIAL "11+ DWELLINGS/ACRE"	7\	0.20	0.40	0 200	5.2
TI+ DWELLINGS/ACKE	А	0.20	0.40	0.200	32
RESIDENTIAL "11+ DWELLINGS/ACRE"					
SUBAREA AVERAGE PERVIOU					7 0
SUBAREA AVERAGE PERVIOU				.23	
				2) - 62 5	77
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	23.0U 210.10	SUBARE	A KUNOFF (CF:	(TNCII/ID) -	- 0.00
AREA-AVERAGED Fp(INCH/H	210.10	וג גיסטג	TEDICED IN -	(INCH/HK) -	- 0.00
TOTAL AREA (ACRES) =	210 1	ALEA-A	- Ar Gen Word	- U.SS	005 57
TOTAL AREA (ACRES) -	310.1	LUAN	FLOW RAIE(JE3) -	003.37
*****	*****	*****	*****	*****	****
FLOW PROCESS FROM NODE	328.00	TO NODE	328.00 TS	S CODE = 8	R1
>>>>ADDITION OF SUBARE					
MAINLINE Tc(MIN.) = 1	8.04				
* 100 YEAR RAINFALL INT		H/HR) =	2.966		
SUBAREA LOSS RATE DATA (AMC TIT) ·				
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fρ	αA	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
RESTDENTIAL.					
"11+ DWELLINGS/ACRE" RESIDENTIAL	С	12.20	0.25	0.200	86
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	D	17.60	0.20	0.200	91
RESIDENTIAL					
".4 DWELLING/ACRE"	В	0.30	0.30	0.900	76
RESIDENTIAL					
".4 DWELLING/ACRE"	С	0.90	0.25	0.900	86
RESTDENTIAL.					
".4 DWELLING/ACRE"	D	9 30	0.20	0 900	91
RESIDENTIAL	D	3.30	0.20	0.500	71
"5-7 DWELLINGS/ACRE"	B	0.20	0.30	0.500	76
SUBAREA AVERAGE PERVIOU					70
SUBAREA AVERAGE PERVIOU				. 2 1	
SUBAREA AREA (ACRES) =				3) = 105 1	15
EFFECTIVE AREA (ACRES) =					
AREA-AVERAGED Fp(INCH/H					- 0.00
TOTAL AREA (ACRES) =	350 6	DENE.	- Ar Gen Word	- 0.30	010 72
TOTAL ANDA (ACRES) =	220.0	LTWV	THOM KAIE (JE 0 -	J±U•12
******	******	*****	*****	*****	*****
FLOW PROCESS FROM NODE					
			320.00 1		
>>>>ADDITION OF SUBARE	A TO MATNI	TNE PEAK	FI.OW<<<<		
=======================================					========
MAINLINE Tc(MIN.) = 1					
* 100 YEAR RAINFALL INT		'H/HR\ =	2 966		
SUBAREA LOSS RATE DATA(.11/111// —	2.500		
DEVELOPMENT TYPE/		ת יחם ת	Fn	λn	aca
			Fp	Ap	
LAND USE	GROUP	(ACKES)	(INCH/HR)	(DECIMAT)	CIN
RESIDENTIAL					

"5-7 DWELLINGS/ACRE"	С	5.30	0.25	0.500	86
	-				
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	D	28.30	0.20	0.500	91
RESIDENTIAL					
"8-10 DWELLINGS/ACRE"	С	3.80	0.25	0.400	86
RESIDENTIAL					
"8-10 DWELLINGS/ACRE"	D	4.10	0.20	0.400	91
SCHOOL	С	0.30	0.25	0.600	86
SCHOOL	D	0.30	0.20	0.600	91
SUBAREA AVERAGE PERVIO					
SUBAREA AVERAGE PERVIO		_			
SUBAREA AREA(ACRES) =				s) = 108	.54
EFFECTIVE AREA (ACRES)					
AREA-AVERAGED Fp(INCH/					
TOTAL AREA (ACRES) =	392.7	PEAK F	TLOW RATE (CFS) =	1019.27
				/	
******	*****	******	******	******	******
FLOW PROCESS FROM NODE	328.00	TO NODE	329.00 I	S CODE =	31
>>>>COMPUTE PIPE-FLOW					
>>>>USING COMPUTER-ES		,		,	
=======================================					
ELEVATION DATA: UPSTRE				M(FEET) =	320.00
FLOW LENGTH (FEET) = 1	154.00 M	ANNING'S N	= 0.013		
DEPTH OF FLOW IN 96.0	INCH PIPE	IS 74.2 1	INCHES		
PIPE-FLOW VELOCITY (FEE					
ESTIMATED PIPE DIAMETE	R(INCH) =	96.00 N	NUMBER OF	PIPES =	1
PIPE-FLOW(CFS) = 10	10 07				
FIRE-LTOM(CLS) - IO	19.27				
		Tc (MIN.)	= 18.8	2	
		Tc(MIN.)	= 18.8	2	772 00 5557
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM		Tc(MIN.)	= 18.8 DE 329.	2 00 = 107	772.00 FEET
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM	= 0.79 NODE 320				
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM	= 0.79 NODE 320	*****	******	******	******
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM	= 0.79 NODE 320 ***********	**************************************	******** 329.00 I	********** S CODE =	******
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM *********** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR	= 0.79 NODE 320 ********** 329.00	*********** TO NODE	********* 329.00 I 	******** S CODE =	****** 81
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM *********** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR	= 0.79 NODE 320 *********** 329.00	*********** TO NODE	********* 329.00 I 	******** S CODE =	****** 81
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM ********** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) =	= 0.79 NODE 320 *********** 329.00	TO NODE	329.00 I 329.00 S FLOW<	******** S CODE =	****** 81
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM ********** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN	= 0.79 NODE 320 ********** 329.00	TO NODE LINE PEAK H	329.00 I 329.00 S FLOW<	******** S CODE =	****** 81
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM *********** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA	= 0.79 NODE 320 ********** 329.00	TO NODE	329.00 I 	******** S CODE = 	******* 81
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM: **************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/	= 0.79 NODE 320 *********** 329.00	TO NODE LINE PEAK H CH/HR) = 2	329.00 I 	********* S CODE =	******** 81
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM: **************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/	= 0.79 NODE 320 *********** 329.00	TO NODE LINE PEAK H CH/HR) = 2	329.00 I 	********* S CODE =	******** 81
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM *********** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA	= 0.79 NODE 320 ********** 329.00	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 11.60	329.00 I 	********* S CODE = Ap (DECIMAL) 0.100	******** 81 SCS CN 52
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM ************ FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE	= 0.79 NODE 320 ********** 329.00	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 11.60	329.00 I 	********* S CODE = Ap (DECIMAL) 0.100	******** 81 SCS CN 52
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM: *********** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL	= 0.79 NODE 320 ********** 329.00	TO NODE LINE PEAK H CH/HR) = 2	329.00 I 	********* S CODE = Ap (DECIMAL) 0.100	******** 81 SCS CN 52
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM: ************ FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL	= 0.79 NODE 320 ********** 329.00	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 11.60	329.00 I 	********* S CODE = Ap (DECIMAL) 0.100	******** 81 SCS CN 52
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM ************ FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAR MAINLINE Tc (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL COMMERCIAL RESIDENTIAL	= 0.79 NODE 320 *********** 329.00	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 11.60 6.70 12.80	********** 329.00 I FLOW<<<< 2.895 Fp (INCH/HR) 0.40 0.30 0.25	********* S CODE =	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM ************* FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL COMMERCIAL RESIDENTIAL ".4 DWELLING/ACRE"	= 0.79 NODE 320 *********** 329.00	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 11.60 6.70 12.80	********** 329.00 I FLOW<<<< 2.895 Fp (INCH/HR) 0.40 0.30 0.25	********* S CODE =	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM: **************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE Tc (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL COMMERCIAL RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL	= 0.79 NODE 320 *********** 329.00	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 11.60 6.70 12.80 0.20	329.00 I FLOW<<<< 2.895 Fp (INCH/HR) 0.40 0.30 0.25 0.40	********* S CODE = Ap (DECIMAL) 0.100 0.100 0.100 0.900	************ \$1
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM **************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE Tc (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL COMMERCIAL RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE"	= 0.79 NODE 320 *********** 329.00	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 11.60 6.70 12.80 0.20 0.20	********* 329.00 I FLOW<<<<< 2.895 Fp (INCH/HR) 0.40 0.30 0.25 0.40 0.30	********* S CODE = Ap (DECIMAL) 0.100 0.100 0.100 0.900	************ \$1
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM: **************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE Tc (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL COMMERCIAL RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIO	= 0.79 NODE 320 *********** 329.00	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 11.60 6.70 12.80 0.20 0.20 FE, FP(INCH	********* 329.00 I FLOW<<<<< 2.895 Fp (INCH/HR) 0.40 0.30 0.25 0.40 0.30 H/HR) = 0	********* S CODE = Ap (DECIMAL) 0.100 0.100 0.100 0.900	************ \$1
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM: ***************** FLOW PROCESS FROM NODE	= 0.79 NODE 320 *********** 329.00	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 11.60 6.70 12.80 0.20 0.20 FE, FP(INCHACTION, AP	********* 329.00 I FLOW<<<<< 2.895 Fp (INCH/HR) 0.40 0.30 0.25 0.40 0.30 H/HR) = 0 = 0.110	Ap (DECIMAL) 0.100 0.100 0.100 0.900 0.900 0.32	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM: ***************** FLOW PROCESS FROM NODE	= 0.79 NODE 320 ************ 329.00	TO NODE LINE PEAK F CH/HR) = 2 AREA (ACRES) 11.60 6.70 12.80 0.20 FE, FP (INCHACTION, AP SUBAREA	********* 329.00 I FLOW<<<<< 2.895 Fp (INCH/HR) 0.40 0.30 0.25 0.40 0.30 H/HR) = 0 = 0.110 RUNOFF(CF	Ap (DECIMAL) 0.100 0.100 0.100 0.900 0.900 32 S) = 81.	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM: ****************** FLOW PROCESS FROM NODE	= 0.79 NODE 320 *********** 329.00	TO NODE LINE PEAK I CH/HR) = 2 AREA (ACRES) 11.60 6.70 12.80 0.20 FE, FP (INCHACTION, AP SUBAREA D AREA-AV	********* 329.00 I FLOW<<<<< 2.895 Fp (INCH/HR) 0.40 0.30 0.25 0.40 0.30 H/HR) = 0 = 0.110 RUNOFF(CF /ERAGED Fm	Ap (DECIMAL) 0.100 0.100 0.100 0.900 0.900 32 S) = 81. (INCH/HR)	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM: ***************** FLOW PROCESS FROM NODE	= 0.79 NODE 320 ************ 329.00	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 11.60 6.70 12.80 0.20 TE, FP(INCHACTION, AP SUBAREA CONTRACTOR APEA-AV CONTRACTOR AP CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR AP CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR AP CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR AP CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR AP CONTRACTOR	********* 329.00 I FLOW<<<< 2.895 Fp (INCH/HR) 0.40 0.30 0.25 0.40 0.30 H/HR) = 0 = 0.110 RUNOFF (CF /ERAGED Ap	Ap (DECIMAL) 0.100 0.100 0.100 0.900 0.900 0.900 0.32 S) = 81. (INCH/HR) = 0.35	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM: ****************** FLOW PROCESS FROM NODE	= 0.79 NODE 320 ************ 329.00	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 11.60 6.70 12.80 0.20 TE, FP(INCHACTION, AP SUBAREA CONTRACTOR APEA-AV CONTRACTOR AP CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR AP CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR AP CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR AP CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR APEA-AV CONTRACTOR AP CONTRACTOR	********* 329.00 I FLOW<<<< 2.895 Fp (INCH/HR) 0.40 0.30 0.25 0.40 0.30 H/HR) = 0 = 0.110 RUNOFF (CF /ERAGED Ap	Ap (DECIMAL) 0.100 0.100 0.100 0.900 0.900 0.900 0.32 S) = 81. (INCH/HR) = 0.35	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM: ***************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAR ===================================	= 0.79 NODE 320 ************ 329.00	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 11.60 6.70 12.80 0.20 TE, FP(INCH ACTION, AP SUBAREA D AREA-AV PEAK H	329.00 I FLOW<<<< 2.895 Fp (INCH/HR) 0.40 0.30 0.25 0.40 0.30 H/HR) = 0 = 0.110 RUNOFF (CF //ERAGED FM CRAGED Ap FLOW RATE (Ap (DECIMAL) 0.100 0.100 0.100 0.900 0.900 0.900 0.32 S) = 81. (INCH/HR) = 0.35 CFS) =	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM: ***************** FLOW PROCESS FROM NODE	= 0.79 NODE 320 ************* 329.00	TO NODE LINE PEAK F CH/HR) = 2 AREA (ACRES) 11.60 6.70 12.80 0.20 TE, FP(INCHACTION, AP SUBAREA D AREA-AV PEAK F ***********************************	********* 329.00 I FLOW<<<<<	Ap (DECIMAL) 0.100 0.100 0.100 0.900 0.900 0.905 S) = 81. (INCH/HR) = 0.35 CFS) =	**************************************

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>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 320.00 DOWNSTREAM(FEET) = 310.00
 FLOW LENGTH (FEET) = 1981.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 120.0 INCH PIPE IS 94.7 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 16.17
 ESTIMATED PIPE DIAMETER (INCH) = 120.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 1075.00
 PIPE TRAVEL TIME (MIN.) = 2.04 Tc (MIN.) = 20.87
 LONGEST FLOWPATH FROM NODE 320.00 TO NODE 330.00 = 12753.00 FEET.
*******************
 FLOW PROCESS FROM NODE 330.00 TO NODE 330.00 IS CODE = 1
 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE <<<
______
 TOTAL NUMBER OF STREAMS = 3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 20.87
 RAINFALL INTENSITY (INCH/HR) = 2.73
 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.22
 AREA-AVERAGED Ap = 0.35
 EFFECTIVE STREAM AREA(ACRES) = 424.20
 TOTAL STREAM AREA(ACRES) = 424.20
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 1075.00
******************
 FLOW PROCESS FROM NODE 390.00 TO NODE 391.00 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) = 860.00 DOWNSTREAM(FEET) = 775.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.195
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.364
 SUBAREA To AND LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                 Fp
                                          Ap SCS Tc
    LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
 "CHAPARRAL, NARROWLEAF" C 0.20 0.25 1.000 95 9.20
 NATURAL FAIR COVER
                     C 1.20
                                  0.25
                                         1.000
                                                      9.20
 "OPEN BRUSH"
                                                92
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF (CFS) = 5.18
 TOTAL AREA(ACRES) = 1.40 PEAK FLOW RATE(CFS) =
*****************
 FLOW PROCESS FROM NODE 391.00 TO NODE 392.00 IS CODE = 51
______
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <>>>
```

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ELEVATION DATA: UPSTREA	M(FEET) =	775.00	DOWNSTRE	AM(FEET) =	70	0.00
CHANNEL LENGTH THRU SUB	AREA (FEET)	= 545.	00 CHANN	EL SLOPE =	0.13	76
CHANNEL BASE (FEET) =						
MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT				.00		
SUBAREA LOSS RATE DATA(1.021			
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fρ	Ap	SCS	
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
NATURAL FAIR COVER		(,	(==:, ==:,	(,		
"CHAPARRAL, NARROWLEAF"	С	1.70	0.25	1.000	95	
NATURAL FAIR COVER						
"CHAPARRAL, NARROWLEAF"	D	0.60	0.20	1.000	97	
SUBAREA AVERAGE PERVIOU						
SUBAREA AVERAGE PERVIOU	S AREA FRA	CTION, Ap	= 1.000			
TRAVEL TIME COMPUTED US	ING ESTIMA	TED FLOW (CFS) =	9.11		
TRAVEL TIME THRU SUBARE						
AVERAGE FLOW DEPTH(FEET) = 0.68	TRAVEL	TIME (MIN.) = 1.40		
Tc(MIN.) = 10.59						
SUBAREA AREA (ACRES) =	2.30	SUBAR	REA RUNOFF(CFS) =	7.84	
EFFECTIVE AREA(ACRES) =	3.70	AREA	-AVERAGED	Fm(INCH/HR) =	0.24
AREA-AVERAGED Fp(INCH/H	R) = 0.2	4 AREA-A	VERAGED Ap	= 1.00	10	F 0
TOTAL AREA (ACRES) =	3.7	PEA	IN FLOW RAT	E(CFS) =	12	. 39
END OF SUBAREA CHANNEL	FI.OW HYDRA	JII.TCS ·				
DEPTH(FEET) = 0.77 F			(EC) = 7	0.2		
LONGEST FLOWPATH FROM N	ODE 390	1.00 TO NO	DE 392.	00 = 8	62.00	FEET.
Tonolor remining river in	022	.00 10 110			02.00	
******	******	*****	*****	*****	*****	*****
FLOW PROCESS FROM NODE						
>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU	L CHANNEL	FLOW<				
>>>>COMPUTE TRAPEZOIDA	L CHANNEL BAREA (EXI	FLOW<<<<	: :MENT) <<<<			
>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ===================================	L CHANNEL BAREA (EXI ======= M(FEET) =	FLOW<<<<< STING ELE 700.00	MENT) <<<< DOWNSTRE	======================================	===== 63	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU ===================================	L CHANNEL BAREA (EXI ======= M(FEET) = AREA(FEET)	FLOW<<<<< STING ELE 700.00 = 1093.	MENT) <<<< DOWNSTRE	======================================	===== 63	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU ===================================	L CHANNEL BAREA (EXI ======= M(FEET) = AREA(FEET) 0.00 "Z	FLOW<<<<< STING ELE 700.00 = 1093.	EMENT) <<<< DOWNSTRE 00 CHANN = 3.000	======================================	===== 63	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU ===================================	L CHANNEL BAREA (EXI ======= M(FEET) = AREA(FEET) 0.00 "Z 0 MAXIMU	FLOW<<<< STING ELE 700.00 = 1093. " FACTOR IM DEPTH(F	MENT) <<<< DOWNSTRE DOWNSTRE 00 CHANN = 3.000 TEET) = 20	======================================	===== 63	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU ===================================	L CHANNEL BAREA (EXI ======== M(FEET) = AREA(FEET) 0.00 "Z 0 MAXIMU ENSITY(INC	FLOW<<<< STING ELE 700.00 = 1093. U FACTOR JM DEPTH(F CH/HR) =	MENT) <<<< DOWNSTRE DOWNSTRE 00 CHANN = 3.000 TEET) = 20	======================================	===== 63	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU ===================================	L CHANNEL BAREA (EXI ======= M(FEET) = AREA(FEET) 0.00 "Z 0 MAXIMU ENSITY(INC AMC III):	FLOW<<<< STING ELE 700.00 = 1093. "FACTOR JM DEPTH(FCH/HR) =	DOWNSTRE 00 CHANN = 3.000 CEET) = 20	======================================	===== 63 0.05	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU ===================================	L CHANNEL BAREA (EXI ======== M(FEET) = AREA(FEET) 0.00 "Z 0 MAXIMU ENSITY(INC AMC III): SCS SOIL	FLOW<<<< STING ELE 700.00 = 1093. " FACTOR M DEPTH(FCH/HR) = AREA	MENT) <<<< DOWNSTRE 00 CHANN = 3.000 MEET) = 20 3.556 Fp	AM(FEET) = EL SLOPE = .00	63 0.05	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU ===================================	L CHANNEL BAREA (EXI ======== M(FEET) = AREA(FEET) 0.00 "Z 0 MAXIMU ENSITY(INC AMC III): SCS SOIL	FLOW<<<< STING ELE 700.00 = 1093. " FACTOR M DEPTH(FCH/HR) = AREA	MENT) <<<< DOWNSTRE 00 CHANN = 3.000 MEET) = 20 3.556 Fp	AM(FEET) = EL SLOPE = .00	63 0.05	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER	L CHANNEL BAREA (EXI ======== M(FEET) = AREA (FEET) 0.00 "Z 0 MAXIMU ENSITY(INC AMC III): SCS SOIL GROUP	FLOW<<<< STING ELE 700.00 = 1093. "FACTOR MM DEPTH(F CH/HR) = AREA (ACRES)	DMENT) <<<< DOWNSTRE O CHANN = 3.000 DEET) = 20 3.556 Fp (INCH/HR)	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL)	63 0.05 SCS CN	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU ==================================	L CHANNEL BAREA (EXI ======== M(FEET) = AREA (FEET) 0.00 "Z 0 MAXIMU ENSITY(INC AMC III): SCS SOIL GROUP	FLOW<<<< STING ELE 700.00 = 1093. "FACTOR MM DEPTH(F CH/HR) = AREA (ACRES)	DMENT) <<<< DOWNSTRE O CHANN = 3.000 DEET) = 20 3.556 Fp (INCH/HR)	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL)	63 0.05 SCS CN	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER	L CHANNEL BAREA (EXI ====================================	FLOW<<<<< STING ELE 700.00 = 1093. " FACTOR IM DEPTH (F.H/HR) = AREA (ACRES) 1.40	EMENT) <<<< 	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000	63 0.05 SCS CN 91	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF"	L CHANNEL BAREA (EXI ====================================	FLOW<<<<< STING ELE 700.00 = 1093. " FACTOR IM DEPTH (F.H/HR) = AREA (ACRES) 1.40	EMENT) <<<< 	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000	63 0.05 SCS CN 91	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER	L CHANNEL BAREA (EXI ====================================	FLOW<<<<< STING ELE 700.00 = 1093. " FACTOR IM DEPTH(F EH/HR) = AREA (ACRES) 1.40 8.40	EMENT) <<<< 	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000	63 0.05 SCS CN 91	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER	L CHANNEL BAREA (EXI ====================================	FLOW<<<<< STING ELE 700.00 = 1093. " FACTOR IM DEPTH(F EH/HR) = AREA (ACRES) 1.40 8.40	EMENT) <<<< 	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000	63 0.05 SCS CN 91	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH"	L CHANNEL BAREA (EXI ====================================	FLOW<<<<< STING ELE 700.00 = 1093. " FACTOR MM DEPTH (F.H/HR) = AREA (ACRES) 1.40 8.40 2.70	EMENT) <<<< 	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000	63 0.05 SCS CN 91 95	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER	L CHANNEL BAREA (EXI ========= M(FEET) = AREA (FEET) 0.00 "Z 0 MAXIMU ENSITY (INC AMC III): SCS SOIL GROUP C C C D	FLOW<<<<< STING ELE 700.00 = 1093. " FACTOR IM DEPTH (F EH/HR) = AREA (ACRES) 1.40 8.40 2.70 0.40	EMENT) <<<<< 	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000	63 0.05 SCS CN 91 95 92	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	L CHANNEL BAREA (EXI ========= M(FEET) = AREA (FEET) 0.00 "Z 0 MAXIMU ENSITY (INC AMC III): SCS SOIL GROUP C C C D	FLOW<<<<< STING ELE 700.00 = 1093. " FACTOR IM DEPTH (F EH/HR) = AREA (ACRES) 1.40 8.40 2.70 0.40	EMENT) <<<<< 	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000	63 0.05 SCS CN 91 95 92	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER	L CHANNEL BAREA (EXI ========= M(FEET) = AREA (FEET) 0.00 "Z 0 MAXIMU ENSITY (INC AMC III): SCS SOIL GROUP C C C D	FLOW<><<< STING ELE 700.00 = 1093. "FACTOR IM DEPTH (F CH/HR) = AREA (ACRES) 1.40 8.40 2.70 0.40 9.20	EMENT) <<<<< 	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000 1.000	SCS CN 91 95 92 95	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH"	L CHANNEL BAREA (EXI ========= M(FEET) = AREA (FEET) 0.00 "Z 0 MAXIMU ENSITY(INC AMC III): SCS SOIL GROUP C C C D D	FLOW<><<< STING ELE 700.00 = 1093. "FACTOR IM DEPTH(F CH/HR) = AREA (ACRES) 1.40 8.40 2.70 0.40 9.20 0.60	EMENT) <<<<< 	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000	SCS CN 91 95 92 95	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" SUBAREA AVERAGE PERVIOU	L CHANNEL BAREA (EXI ====================================	FLOW<><>< ESTING ELE 700.00 = 1093. "FACTOR MM DEPTH(F CH/HR) = AREA (ACRES) 1.40 8.40 2.70 0.40 9.20 0.60 EF, FP(INC	EMENT) <<<<<	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000	SCS CN 91 95 92 95	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU	L CHANNEL BAREA (EXI ====================================	FLOW<><>< ESTING ELE 700.00 = 1093. "FACTOR M DEPTH(F CH/HR) = AREA (ACRES) 1.40 8.40 2.70 0.40 9.20 0.60 EF, FP(INC ACTION, Ap	EMENT) <<<<<	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 1.000	SCS CN 91 95 92 95	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US	L CHANNEL BAREA (EXI ========= M(FEET) = AREA (FEET) 0.00 "Z 0 MAXIMU ENSITY (INC AMC III): SCS SOIL GROUP C C C D D D S LOSS RAT S AREA FRA ING ESTIMA	FLOW<><>< ESTING ELE 700.00 = 1093. "FACTOR M DEPTH(F CH/HR) = AREA (ACRES) 1.40 8.40 2.70 0.40 9.20 0.60 EF, FP(INC ACTION, AP ATED FLOW(CMENT) <<<<< 	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 46.69	63 0.05 SCS CN 91 95 92 95 97	===== 5.00
>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU	L CHANNEL BAREA (EXI ====================================	FLOW<><>< ESTING ELE 700.00 = 1093. "FACTOR M DEPTH (FCH/HR) = AREA (ACRES) 1.40 8.40 2.70 0.40 9.20 0.60 TE, FP(INC ACTION, AP ATED FLOW(I VELOCITY	CMENT) <<<<<	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 46.69) = 7.15	63 0.05 SCS CN 91 95 92 95 97	===== 5.00

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Tc(MIN.) = 13.14
                                                                             SUBAREA LOSS RATE DATA (AMC III):
 SUBAREA AREA(ACRES) = 22.70 SUBAREA RUNOFF(CFS) = 68.01
                                                                              DEVELOPMENT TYPE/ SCS SOIL AREA
                                                                                                                  Fρ
                                                                                                                           Αp
 EFFECTIVE AREA (ACRES) = 26.40 AREA-AVERAGED Fm(INCH/HR) = 0.23
                                                                                 LAND USE
                                                                                               GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 1.00
                                                                             NATURAL FAIR COVER
 TOTAL AREA (ACRES) = 26.4 PEAK FLOW RATE (CFS) =
                                                    79.05
                                                                             "OPEN BRUSH"
                                                                                                          2.50
                                                                                                                  0.20
                                                                                                                         1.000
                                                                             NATURAL FAIR COVER
                                                                                                 D 0.10 0.20 1.000
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
                                                                             "WOODLAND, GRASS"
 DEPTH(FEET) = 1.80 FLOW VELOCITY(FEET/SEC.) = 8.15
                                                                             SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 LONGEST FLOWPATH FROM NODE 390.00 TO NODE 393.00 = 1955.00 FEET.
                                                                             SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
                                                                             SUBAREA AREA(ACRES) = 2.60 SUBAREA RUNOFF(CFS) = 7.21
******************
                                                                             EFFECTIVE AREA(ACRES) = 46.30 AREA-AVERAGED Fm(INCH/HR) = 0.23
 FLOW PROCESS FROM NODE 393.00 TO NODE 394.00 IS CODE = 51
                                                                             AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 1.00
                                                                             TOTAL AREA(ACRES) = 46.3 PEAK FLOW RATE(CFS) =
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
                                                                           *******************
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <>>>
_____
                                                                             FLOW PROCESS FROM NODE 394.00 TO NODE 395.00 IS CODE = 51
 ELEVATION DATA: UPSTREAM(FEET) = 635.00 DOWNSTREAM(FEET) = 598.00
                                                                            ______
 CHANNEL LENGTH THRU SUBAREA (FEET) = 904.00 CHANNEL SLOPE = 0.0409
                                                                             >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
                                                                             >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <>>>
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 20.00
                                                                           ______
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.280
                                                                             ELEVATION DATA: UPSTREAM(FEET) = 598.00 DOWNSTREAM(FEET) = 573.00
 SUBAREA LOSS RATE DATA (AMC III):
                                                                             CHANNEL LENGTH THRU SUBAREA (FEET) = 701.00 CHANNEL SLOPE = 0.0357
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                                             CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
                                   Fp
                                              Αp
                                                    SCS
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                             MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 20.00
     LAND USE
 NATURAL FAIR COVER
                                                                             * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.115
 "CHAPARRAL, BROADLEAF"
                                              1.000
                                                     91
                    C
                              1.60
                                       0.25
                                                                             SUBAREA LOSS RATE DATA (AMC III):
                                                                             DEVELOPMENT TYPE/
                                                                                               SCS SOIL AREA
                                                                                                                  Fρ
 NATURAL FAIR COVER
                                                                                                                          αA
                              5.50
                                       0.25
                                              1.000
                                                     95
 "CHAPARRAL, NARROWLEAF"
                                                                                 LAND USE
                                                                                                 GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 NATURAL FAIR COVER
                                                                             NATURAL FAIR COVER
 "OPEN BRUSH"
                              1.80
                                       0.25
                                              1.000
                                                     92
                                                                             "CHAPARRAL, BROADLEAF"
                                                                                                          6.30
                                                                                                                   0.25
                                                                                                                          1.000
 NATURAL FAIR COVER
                                                                             NATURAL FAIR COVER
                                                                                                          0.20
                                                                                                                          1.000
 "WOODLAND, GRASS"
                              0.60
                                       0.25
                                              1.000
                                                     92
                                                                             "CHAPARRAL, BROADLEAF"
                                                                                                   D
                                                                                                                   0.20
 NATURAL FAIR COVER
                                                                             NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF"
                       D
                              1.00
                                       0.20
                                              1.000
                                                     95
                                                                             "CHAPARRAL, NARROWLEAF"
                                                                                                          5.90
                                                                                                                   0.25
                                                                                                                          1.000
 NATURAL FAIR COVER
                                                                             NATURAL FAIR COVER
 "CHAPARRAL, NARROWLEAF"
                       D
                              6.80
                                      0.20
                                             1.000
                                                                             "CHAPARRAL, NARROWLEAF"
                                                                                                         12.70
                                                                                                                   0.20
                                                                                                                          1.000
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
                                                                             NATURAL FAIR COVER
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
                                                                             "OPEN BRUSH"
                                                                                                   С
                                                                                                          6.80
                                                                                                                   0.25
                                                                                                                          1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 102.82
                                                                             NATURAL FAIR COVER
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.54
                                                                             "OPEN BRUSH"
                                                                                                          3.20
                                                                                                                   0.20
                                                                                                                         1.000
                                                                                                   D
 AVERAGE FLOW DEPTH (FEET) = 2.13 TRAVEL TIME (MIN.) = 2.00
                                                                             SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 Tc(MIN.) = 15.14
                                                                             SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 17.30 SUBAREA RUNOFF (CFS) = 47.52
                                                                             TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 172.81
 EFFECTIVE AREA (ACRES) = 43.70 AREA-AVERAGED Fm(INCH/HR) = 0.23
                                                                             TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.19
 AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 1.00
                                                                             AVERAGE FLOW DEPTH (FEET) = 2.65 TRAVEL TIME (MIN.) = 1.43
 TOTAL AREA (ACRES) = 43.7 PEAK FLOW RATE (CFS) = 119.99
                                                                             Tc(MIN.) = 16.57
                                                                             SUBAREA AREA(ACRES) = 35.10
                                                                                                           SUBAREA RUNOFF (CFS) = 91.22
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
                                                                             EFFECTIVE AREA(ACRES) = 81.40 AREA-AVERAGED Fm(INCH/HR) = 0.23
 DEPTH(FEET) = 2.26 FLOW VELOCITY(FEET/SEC.) = 7.86
                                                                             AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 1.00
 LONGEST FLOWPATH FROM NODE 390.00 TO NODE 394.00 = 2859.00 FEET.
                                                                             TOTAL AREA (ACRES) = 81.4 PEAK FLOW RATE (CFS) = 211.54
******************
                                                                             END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 FLOW PROCESS FROM NODE 394.00 TO NODE 394.00 IS CODE = 81
                                                                             DEPTH (FEET) = 2.86 FLOW VELOCITY (FEET/SEC.) = 8.60
______
                                                                             LONGEST FLOWPATH FROM NODE 390.00 TO NODE 395.00 = 3560.00 FEET.
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
                                                                           *****************
______
 MAINLINE Tc(MIN.) = 15.14
                                                                             FLOW PROCESS FROM NODE 395.00 TO NODE 395.00 IS CODE = 81
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.280
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SCS

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91

95

95

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96

>>>>ADDITION OF SUBARE					
MAINLINE Tc(MIN.) = 1	6.57				
* 100 YEAR RAINFALL INT			3.115		
SUBAREA LOSS RATE DATA (Elec	7) 10	CCC
DEVELOPMENT TYPE/	CDUILD 2C2 201F	AKEA (ACDEC)	tp /TMCU/UD/	(DECIMAL)	CN
LAND USE RESIDENTIAL	GIVOUL	(ACMED)	(111011/1111)	(DECIMAL)	CIV
".4 DWELLING/ACRE"					
RESIDENTIAL	C	1.00	0.23	0.300	00
".4 DWELLING/ACRE"	D	2.70	0.20	0.900	91
MATRIDAT DATE COMED					
"WOODLAND, GRASS"	С	0.50	0.25	1.000	92
NATURAL FAIR COVER					
"WOODLAND, GRASS"	D	0.10	0.20	1.000	95
SUBAREA AVERAGE PERVIOU		TE, Fp(IN	CH/HR) = 0	.22	
SUBAREA AVERAGE PERVIOU	IS AREA FR	ACTION, A	p = 0.914		
SUBAREA AREA(ACRES) =	4.30	SUBARE	A RUNOFF (CF	S) = 11.2	28
EFFECTIVE AREA(ACRES) =	85.7	0 AREA-	AVERAGED Fm	(INCH/HR) =	= 0.23
AREA-AVERAGED Fp (INCH/H					
TOTAL AREA (ACRES) =	85.7	PEAK	FLOW RATE (CFS) =	222.82

FLOW PROCESS FROM NODE				S CODE = :	31
>>>>COMPUTE PIPE-FLOW					
>>>>USING COMPUTER-EST					,
				12011)	
ELEVATION DATA: UPSTREA FLOW LENGTH(FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY(FEET	M(FEET) = 886.00 M INCH PIPE '/SEC.) =	573.00 ANNING'S 1 IS 39.5 18.89	DOWNSTREAN = 0.013	M(FEET) =	437.00
ELEVATION DATA: UPSTREA FLOW LENGTH(FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY(FEET ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 22 PIPE TRAVEL TIME(MIN.)	M(FEET) = 186.00 M INCH PIPE 1/SEC.) = 12.82 = 5.55	573.00 ANNING'S I IS 39.5 18.89 51.00 Tc(MIN	DOWNSTREAN = 0.013 INCHES NUMBER OF .) = 22.1	M(FEET) = PIPES = :	437.00 1
ELEVATION DATA: UPSTREA FLOW LENGTH(FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY(FEET ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 22 PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N	M(FEET) = .86.00 M INCH PIPE 7/SEC.) = .(INCH) = .2.82 = 5.55 MODE 39	573.00 ANNING'S 1 IS 39.5 18.89 51.00 Tc (MIN 0.00 TO N	DOWNSTREAN = 0.013 INCHES NUMBER OF .) = 22.1 DDE 370.	M(FEET) = PIPES = : 1 00 = 98	437.00 1 46.00 FEET.
ELEVATION DATA: UPSTREA FLOW LENGTH(FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY(FEET ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 22 PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N	M(FEET) = 86.00 M INCH PIPE '/SEC.) = ((INCH) = 2.82 = 5.55 IODE 39	573.00 ANNING'S 1 IS 39.5 18.89 51.00 Tc (MIN 0.00 TO N	DOWNSTREAN = 0.013 INCHES NUMBER OF .) = 22.1 DDE 370.	M(FEET) = PIPES = : 1 00 = 98	437.00 1 46.00 FEET.
ELEVATION DATA: UPSTREA FLOW LENGTH(FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY(FEET ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 22 PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N	M(FEET) = 86.00 M INCH PIPE '/SEC.) = ((INCH) = 2.82 = 5.55 IODE 39	573.00 ANNING'S 1 IS 39.5 18.89 51.00 Tc (MIN 0.00 TO N	DOWNSTREAN = 0.013 INCHES NUMBER OF .) = 22.1 DDE 370.	M(FEET) = PIPES = : 1 00 = 98	437.00 1 46.00 FEET.
ELEVATION DATA: UPSTREA FLOW LENGTH(FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY(FEET ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 22 PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N	M(FEET) = 86.00 M INCH PIPE 1/SEC.) = 8(INCH) = 12.82 = 5.55 IODE 39	573.00 ANNING'S 1 IS 39.5 18.89 51.00 Tc (MIN 0.00 TO N ******** TO NODE	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 DDE 370. ************ 371.00 I	M(FEET) = PIPES = : 1 00 = 98	437.00 1 46.00 FEET.
ELEVATION DATA: UPSTREA FLOW LENGTH(FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY(FEET ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 22 PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N	M(FEET) = 86.00 M INCH PIPE '/SEC.) = ((INCH) = 2.82 = 5.55 IODE 39 *********	573.00 ANNING'S 1 IS 39.5 18.89 51.00 Tc (MIN 0.00 TO N ******* TO NODE FLOW<<<<	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 ODE 370.	M(FEET) = PIPES = : 1 00 = 988* ********** S CODE = !	437.00 1 46.00 FEET.
ELEVATION DATA: UPSTREA FLOW LENGTH(FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY(FEET ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 22 PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ************************************	M(FEET) = 86.00 M INCH PIPE 7/SEC.) = 10(INCH) = 12.82 = 5.55 INCH 39 ***********************************	573.00 ANNING'S: IS 39.5 18.89 51.00 Tc(MIN 0.00 TO NO ******** TO NODE FLOW<<< </td <td>DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 DDE 370. ************************************</td> <td>M(FEET) = PIPES = 1 1 00 = 986 ************************************</td> <td>437.00 1 46.00 FEET. ********</td>	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 DDE 370. ************************************	M(FEET) = PIPES = 1 1 00 = 986 ************************************	437.00 1 46.00 FEET. ********
ELEVATION DATA: UPSTREA FLOW LENGTH (FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 22 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ************************************	M(FEET) = 86.00 M INCH PIPE 7/SEC.) = 10(INCH) = 12.82 = 5.55 INCH 39 ***********************************	573.00 ANNING'S: IS 39.5 18.89 51.00 Tc(MIN 0.00 TO NO ******** TO NODE FLOW<<< </td <td>DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 DDE 370. ************************************</td> <td>M(FEET) = PIPES = 1 1 00 = 986 ************************************</td> <td>437.00 1 46.00 FEET. ********</td>	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 DDE 370. ************************************	M(FEET) = PIPES = 1 1 00 = 986 ************************************	437.00 1 46.00 FEET. ********
ELEVATION DATA: UPSTREAE FLOW LENGTH (FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 22 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ************************************	M(FEET) = 86.00 M INCH PIPE 7/SEC.) = 8 (INCH) = 12.82 = 5.55 INCH 39 M ************************************	573.00 ANNING'S: IS 39.5 18.89 51.00 TC (MIN 0.00 TO N ******* TO NODE	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 ODE 370. ********** 371.00 I	M(FEET) = PIPES = 1 1 00 = 986 ********** S CODE = 5	437.00 1 46.00 FEET. ********* 51
ELEVATION DATA: UPSTREAFLOW LENGTH (FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 22 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ***********************************	M(FEET) = 86.00 M INCH PIPE 7/SEC.) = 8 (INCH) = 12.82 = 5.55 INCH 39 M MARCH 370.00 M MAR	573.00 ANNING'S: IS 39.5 18.89 51.00 Tc (MIN 0.00 TO N ******* TO NODE	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 ODE 370. ********** 371.00 I	M(FEET) = PIPES = 1 1 00 = 984 ********** S CODE = !	437.00 1 46.00 FEET. ********* 51
ELEVATION DATA: UPSTREAE FLOW LENGTH (FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 22 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ***********************************	M(FEET) = 86.00 M INCH PIPE 7/SEC.) = 8(INCH) = 12.82 = 5.55 INCH 370.00 M ANNEL CHANNEL BAREA (EXECUTE EXECUTE EXECUT	573.00 ANNING'S: IS 39.5 18.89 51.00 Tc (MIN 0.00 TO N ******* TO NODE FLOW<<<< ISTING EL 437.0) = 1963 Z" FACTOR UM DEPTH (DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 ODE 370. ********** 371.00 I	M(FEET) = PIPES = 1 1 00 = 984 ********** S CODE = !	437.00 1 46.00 FEET. ********* 51
ELEVATION DATA: UPSTREAR FLOW LENGTH (FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 22 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE ***********************************	M(FEET) = 86.00 M INCH PIPE 7/SEC.) = 8 (INCH) = 12.82 = 5.55 INCH 370.00 M HANNEL BAREA (EX EXECUTE EX	573.00 ANNING'S: IS 39.5 18.89 51.00 Tc (MIN 0.00 TO N ******* TO NODE FLOW<<<< ISTING EL 437.0) = 1963 Z" FACTOR UM DEPTH (DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 ODE 370. ********** 371.00 I	M(FEET) = PIPES = 1 1 00 = 984 ********** S CODE = !	437.00 1 46.00 FEET. ********* 51
ELEVATION DATA: UPSTREAR FLOW LENGTH (FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 22 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE ***********************************	M(FEET) = 86.00 M INCH PIPE 7/SEC.) = 8 (INCH) = 12.82 = 5.55 INCH 370.00 M ********** L CHANNEL BAREA (EX EXECUTE EX	573.00 ANNING'S: IS 39.5 18.89 51.00 TC (MIN 0.00 TO N ******* TO NODE	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 ODE 370. ********** 371.00 I	M(FEET) = PIPES = 1 1 00 = 984 ********** ********** ********** ****	437.00 1 46.00 FEET. ********* 51 345.00 0.0469
ELEVATION DATA: UPSTREAE FLOW LENGTH (FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 22 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N *********************** FLOW PROCESS FROM NODE >>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SUB ELEVATION DATA: UPSTREAE CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/	M(FEET) = 86.00 M INCH PIPE 7/SEC.) = 8(INCH) = 12.82 = 5.55 INCH 39 ********* 370.00 ********* L CHANNEL BAREA (EX EXECUTE EX	573.00 ANNING'S: IS 39.5 18.89 51.00 TC (MIN 0.00 TO N ******* TO NODE	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 ODE 370. ********** 371.00 I EMMENT) <<<<========0 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 20 2.434 Fp	M(FEET) = PIPES = 1 1 00 = 98 ********* ********* ********* *****	437.00 1 46.00 FEET. ********* 51 345.00 0.0469 SCS
ELEVATION DATA: UPSTREAE FLOW LENGTH (FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 22 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ************************************	M(FEET) = 86.00 M INCH PIPE 7/SEC.) = 8(INCH) = 12.82 = 5.55 INCH 39 ********* 370.00 ********* L CHANNEL BAREA (EX EXECUTE EX	573.00 ANNING'S: IS 39.5 18.89 51.00 TC (MIN 0.00 TO NO ******* *** ******* *** ****** *** **	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 ODE 370. ********** 371.00 I	M(FEET) = PIPES = 1 1 00 = 984 ********** ********** ********** ****	437.00 1 46.00 FEET. ********* 51 345.00 0.0469 SCS
ELEVATION DATA: UPSTREAR FLOW LENGTH (FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 22 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NO ************************************	M(FEET) = 86.00 M INCH PIPE 7/SEC.) = 8(INCH) = 12.82 = 5.55 IODE 39 ********* ATO 00	573.00 ANNING'S: IS 39.5 18.89 51.00 TC (MIN 0.00 TO N ******* TO NODE FLOW<<<< ISTING EL: 437.0) = 1963 Z" FACTOR UM DEPTH (CH/HR) = AREA (ACRES)	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 ODE 370. ********** 371.00 I	M(FEET) = PIPES = 1 1 00 = 98 ******** S CODE = !	437.00 1 46.00 FEET. ********* 51 345.00 0.0469 SCS CN
ELEVATION DATA: UPSTREAR FLOW LENGTH (FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 22 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NO ************************************	M(FEET) = 86.00 M INCH PIPE 7/SEC.) = 8(INCH) = 12.82 = 5.55 INCH 39 ********* 370.00 ********* L CHANNEL BAREA (EX EXECUTE EX	573.00 ANNING'S: IS 39.5 18.89 51.00 TC (MIN 0.00 TO N ******* TO NODE	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 ODE 370. ********** 371.00 I EMMENT) <<<<========0 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 20 2.434 Fp	M(FEET) = PIPES = 1 1 00 = 98 ********* ********* ********* *****	437.00 1 46.00 FEET. ********* 51 345.00 0.0469 SCS
ELEVATION DATA: UPSTREAR FLOW LENGTH (FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 22 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ************************ FLOW PROCESS FROM NODE >>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SUB CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER	M(FEET) = 86.00 M INCH PIPE 7/SEC.) = 12.82 = 5.55 IODE 39 *********** 370.00 ********** 1. CHANNEL BAREA (EX EX E	573.00 ANNING'S: IS 39.5 18.89 51.00 Tc (MIN 0.00 TO N ******* TO NODE FLOW<<<< ISTING EL: 437.0) = 1963 Z" FACTOR UM DEPTH (CH/HR) = AREA (ACRES) 0.50	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 DDE 370. ********** 371.00 I	M(FEET) = PIPES = 1 1 00 = 986 ********** S CODE = 5	437.00 1 46.00 FEET. ********* 51 345.00 0.0469 SCS CN 60
ELEVATION DATA: UPSTREAR FLOW LENGTH (FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 22 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ************************************	M(FEET) = 86.00 M INCH PIPE 7/SEC.) = 12.82 = 5.55 IODE 39 ********** 370.00 ********** ******** ********* *******	573.00 ANNING'S: IS 39.5 18.89 51.00 Tc (MIN 0.00 TO NO ******** TO NODE	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 ODE 370. ********** 371.00 I	M(FEET) = PIPES = 1 1 00 = 986 ********* S CODE = 5	437.00 1 46.00 FEET. ********* 51 345.00 0.0469 SCS CN 60 91
ELEVATION DATA: UPSTREAR FLOW LENGTH (FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 22 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N *********************** ************	M(FEET) = 86.00 M INCH PIPE 7/SEC.) = 12.00 M INCH PIPE 1/SEC.) = 12.00 M INCH SECOND 1/SECOND 1/SE	573.00 ANNING'S: IS 39.5 18.89 51.00 Tc (MIN 0.00 TO NO ******** TO NODE	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 DDE 370. ********** 371.00 I	M(FEET) = PIPES = 1 1 00 = 988 ********* S CODE = 5	437.00 1 46.00 FEET. ********* 51 345.00 0.0469 SCS CN 60 91 52
ELEVATION DATA: UPSTREAR FLOW LENGTH (FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 22 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NOTE ***********************************	M(FEET) = 86.00 M INCH PIPE 7/SEC.) = 12.00 (INCH) = 12.82 = 5.55 INCH 39 ********* 370.00 ********** ATO CHANNEL BBAREA (EX SEED OF 10.00 " M(FEET) = 10.00 MAXIM SENSITY(IN AMC III): SCS SOIL GROUP A C A B	573.00 ANNING'S: IS 39.5 18.89 51.00 Tc (MIN 0.00 TO NO ******** TO NODE	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 DDE 370. ********** 371.00 I	M(FEET) = PIPES = 1 1 00 = 988 ********* S CODE = 5	437.00 1 46.00 FEET. ********* 51 345.00 0.0469 SCS CN 60 91 52 76
ELEVATION DATA: UPSTREAE FLOW LENGTH (FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 22 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ********************** ************	M(FEET) = 86.00 M INCH PIPE 7/SEC.) = 12.00 M INCH PIPE 1/SEC.) = 12.00 M INCH SECOND 1/SECOND 1/SE	573.00 ANNING'S: IS 39.5 18.89 51.00 Tc (MIN 0.00 TO NO ******** TO NODE	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 DDE 370. ********** 371.00 I	M(FEET) = PIPES = 1 1 00 = 988 ********* S CODE = 5	437.00 1 46.00 FEET. ********* 51 345.00 0.0469 SCS CN 60 91 52
ELEVATION DATA: UPSTREAR FLOW LENGTH (FEET) = 62 DEPTH OF FLOW IN 51.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 22 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM NO ************************************	M(FEET) = 86.00 M INCH PIPE 7/SEC.) = 12.00 (INCH) = 12.82 = 5.55 INCH 39 ********** 370.00 ********* ATO CHANNEL BAREA (EX EX E	573.00 ANNING'S: IS 39.5 18.89 51.00 Tc (MIN 0.00 TO NO ******** TO NODE	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 22.1 DDE 370. ********** 371.00 I	M(FEET) = PIPES = 1 1 00 = 988 ********* S CODE = 5	437.00 1 46.00 FEET. ********* 51 345.00 0.0469 SCS CN 60 91 52 76

COMMERCIAL SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET TC (MIN.) = 25.48 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) = NOTE: PEAK FLOW RATE DE	S LOSS RA'S AREA FRI S AREA FRI ING ESTIMA A BASED OI) = 2.80 6.00 91.70 R) = 0.2	ACTION, Ap ATED FLOW(C N VELOCITY() TRAVEL SUBARE) AREA- 23 AREA-AV PEAK	/HR) = 0 = 0.265 FS) = FEET/SEC. TIME (MIN. A RUNOFF (O AVERAGED AP FLOW RATE	229.17 0 = 9.72 0 = 3.36 CFS) = 1 Fm (INCH/HR = 0.95	2.70) = 0.22
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.77 F LONGEST FLOWPATH FROM N	LOW VELOC: ODE 390	ITY(FEET/SE	E 371.	00 = 118	
FLOW PROCESS FROM NODE					
>>>>ADDITION OF SUBARE		LINE PEAK F	LOW<<<<		
					=======
MAINLINE Tc(MIN.) = 2 * 100 YEAR RAINFALL INT		TH/HD) = 2	131		
SUBAREA LOSS RATE DATA (.434		
DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES) (Fp INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER					
NATURAL FAIR COVER "GRASS" NATURAL FAIR COVER "GRASS"	A	1.40	0.40	1.000	70
NATURAL FAIR COVER	0	2 00	0.05	1 000	0.2
"GRASS" NATURAL FAIR COVER	C	2.80	0.25	1.000	93
"GRASS"	D	0.10	0.20	1.000	96
NATURAL FAIR COVER					
"OPEN BRUSH"	A	0.40	0.40	1.000	66
NATURAL FAIR COVER	_			4 000	
"OPEN BRUSH" NATURAL FAIR COVER "OPEN BRUSH"	В	0.30	0.30	1.000	84
"OPEN BRIISH"	C	3.40	0.25	1 000	92
SUBAREA AVERAGE PERVIOU					32
SUBAREA AVERAGE PERVIOU	S AREA FRA	ACTION, Ap	= 1.000		
SUBAREA AREA(ACRES) =	8.40	SUBAREA	RUNOFF (CF	5) = 16.	26
EFFECTIVE AREA(ACRES) =	100.10	AREA-AV	ERAGED Fm	(INCH/HR)	= 0.22
AREA-AVERAGED Fp(INCH/H					
TOTAL AREA (ACRES) =				CFS) =	222.82
NOTE: PEAK FLOW RATE DE	FAULTED TO) UPSTREAM	VALUE		
******	*****	******	*****	*****	*****
FLOW PROCESS FROM NODE					
>>>>ADDITION OF SUBARE	A TO MAIN	LINE PEAK F	LOW<<<<		
			======		========
MAINLINE Tc(MIN.) = 2			404		
* 100 YEAR RAINFALL INT			.434		
SUBAREA LOSS RATE DATA(. DEVELOPMENT TYPE/			Fn	Ар	SCS
LAND USE	GROUP	(ACRES) (INCH/HR)		
NATURAL FAIR COVER	011001	(1101/110)		(50011.1111)	J11
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"OPEN BRUSH"	D	0.80	0.20	1.000	96	******************
	A		0.40	0.850	52	FLOW PROCESS FROM NODE 330.00 TO NODE 330.00 IS CODE = 1
					86	FLOW PROCESS FROM NODE 330.00 TO NODE 330.00 TS CODE = 1
PUBLIC PARK	C D	3.60	0.25	0.850		
PUBLIC PARK RESIDENTIAL	Д	2.50	0.20	0.850	91	>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<
".4 DWELLING/ACRE"	7	2.40	0.40	0.900	52	
RESIDENTIAL	А	2.40	0.40	0.900	32	TOTAL NUMBER OF STREAMS = 3
".4 DWELLING/ACRE"	D	0.70	0.30	0.900	76	CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 3 ARE:
SUBAREA AVERAGE PERVIO					70	
				1.21		TIME OF CONCENTRATION (MIN.) = 26.27
SUBAREA AVERAGE PERVIO				30) 00	2.2	RAINFALL INTENSITY (INCH/HR) = 2.39
SUBAREA AREA (ACRES) =						AREA-AVERAGED Fm (INCH/HR) = 0.22
EFFECTIVE AREA(ACRES)					= 0.22	AREA-AVERAGED Fp(INCH/HR) = 0.24
AREA-AVERAGED Fp(INCH/						AREA-AVERAGED Ap = 0.94
TOTAL AREA (ACRES) =				(CFS) =	222.82	EFFECTIVE STREAM AREA(ACRES) = 117.20
NOTE: PEAK FLOW RATE D	EFAULTED TO	O UPSTREAM	VALUE			TOTAL STREAM AREA(ACRES) = 117.20
**********						PEAK FLOW RATE (CFS) AT CONFLUENCE = 233.12
						++ CONTRACTOR DATE: ++
FLOW PROCESS FROM NODE						** CONFLUENCE DATA **
						STREAM Q TC Intensity Fp(Fm) Ap Ae HEADWATER
>>>>ADDITION OF SUBAR						NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
		=======	=======		========	1 549.52 17.31 3.038 0.22(0.08) 0.37 204.1 310.00
MAINLINE Tc(MIN.) =		/				1 523.10 20.83 2.731 0.22(0.08) 0.37 217.1 300.00
* 100 YEAR RAINFALL IN	,		2.434			2 1075.00 20.87 2.729 0.22(0.08) 0.35 424.2 320.00
SUBAREA LOSS RATE DATA						3 233.12 26.27 2.391 0.24(0.22) 0.94 117.2 390.00
DEVELOPMENT TYPE/			Fp	Ap		
	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
RESIDENTIAL						CONFLUENCE FORMULA USED FOR 3 STREAMS.
".4 DWELLING/ACRE"	С	3.50	0.25	0.900	86	
RESIDENTIAL						** PEAK FLOW RATE TABLE **
".4 DWELLING/ACRE"	D	1.10	0.20	0.900	91	STREAM Q TC Intensity Fp(Fm) Ap Ae HEADWATER
RESIDENTIAL						NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
"8-10 DWELLINGS/ACRE"	С	0.10	0.25	0.400	86	1 1744.34 17.31 3.038 0.23(0.10) 0.43 633.1 310.00
NATURAL FAIR COVER						2 1811.26 20.83 2.731 0.23(0.10) 0.43 733.6 300.00
"WOODLAND, GRASS"	В	0.20	0.30	1.000	83	3 1811.60 20.87 2.729 0.23(0.10) 0.43 734.4 320.00
NATURAL FAIR COVER						4 1627.24 26.27 2.391 0.23(0.10) 0.45 758.5 390.00
"WOODLAND, GRASS"	C	1.90	0.25	1.000	92	
SUBAREA AVERAGE PERVIO	US LOSS RA	TE, Fp(INC	H/HR) = 0	.24		COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
SUBAREA AVERAGE PERVIO	US AREA FR	ACTION, Ap	= 0.924			PEAK FLOW RATE(CFS) = 1811.60 Tc(MIN.) = 20.87
SUBAREA AREA(ACRES) =	6.80	SUBAREA	RUNOFF (CF	r(S) = 13.	52	EFFECTIVE AREA(ACRES) = 734.39 AREA-AVERAGED Fm(INCH/HR) = 0.10
EFFECTIVE AREA(ACRES)	= 117.2	O AREA-A	VERAGED Fm	n(INCH/HR)	= 0.22	AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.43
AREA-AVERAGED Fp(INCH/	HR) = 0.2	4 AREA-AVI	ERAGED Ap	= 0.94		TOTAL AREA (ACRES) = 758.5
TOTAL AREA (ACRES) =					233.12	LONGEST FLOWPATH FROM NODE 390.00 TO NODE 330.00 = 12874.00 FEET.
*******	******	*****	******	******	******	************************************
FLOW PROCESS FROM NODE						FLOW PROCESS FROM NODE 330.00 TO NODE 331.00 IS CODE = 31
>>>>COMPUTE PIPE-FLOW						>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
>>>>USING COMPUTER-ES		•		,		>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
ELEVATION DATA: UPSTRE	,			M(FEET) =	310.00	ELEVATION DATA: UPSTREAM(FEET) = 310.00 DOWNSTREAM(FEET) = 280.00
FLOW LENGTH (FEET) = 1						FLOW LENGTH (FEET) = 374.00 MANNING'S N = 0.013
DEPTH OF FLOW IN 48.0			INCHES			DEPTH OF FLOW IN 87.0 INCH PIPE IS 68.4 INCHES
PIPE-FLOW VELOCITY (FEE						PIPE-FLOW VELOCITY(FEET/SEC.) = 52.00
ESTIMATED PIPE DIAMETE		48.00	NUMBER OF	PIPES =	1	ESTIMATED PIPE DIAMETER(INCH) = 87.00 NUMBER OF PIPES = 1
, ,	33.12					PIPE-FLOW(CFS) = 1811.60
PIPE TRAVEL TIME (MIN.)						PIPE TRAVEL TIME(MIN.) = 0.12 Tc(MIN.) = 20.99
LONGEST FLOWPATH FROM	NODE 39	0.00 TO NO	DE 330.	00 = 128	74.00 FEET.	LONGEST FLOWPATH FROM NODE 390.00 TO NODE 331.00 = 13248.00 FEET.

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>>>>ADDITION OF SUBAR					
 MAINLINE Tc(MIN.) =					
* 100 YEAR RAINFALL IN		CH/HR) =	2.720		
CUDADDA TOCC DAME DAME	\/NMO TTT\.				
DEVELOPMENT TYPE/ LAND USE APARTMENTS APARTMENTS APARTMENTS	SCS SOIL	AREA	Fp	Ap	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
APARTMENTS	A	17.50	0.40	0.200	52
APARTMENTS	В	1.50	0.30 0.25	0.200	76
	С	0.70	0.25	0.200	86
NATURAL POOR COVER					
"BARREN"	D	0.10	0.20	1.000	98
COMMERCIAL			0.40		
COMMERCIAL	B B	U./U	0.30	0.100	76
SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO				.39	
SUBAREA AREA (ACRES) =	65 10	SIIRAPE	P = 0.132	'S) = 156	3.4
EFFECTIVE AREA (ACRES)					
AREA-AVERAGED Fp (INCH/					0.03
TOTAL AREA (ACRES) =					1889.01
*******	******	******	*****	******	******
FLOW PROCESS FROM NODE	331.00	TO MODE			0.1
>>>>ADDITION OF SUBAR	REA TO MAIN 20.99	LINE PEAK	FLOW<<<<		
>>>>ADDITION OF SUBAR 	REA TO MAIN 20.99 NTENSITY(IN A(AMC III):	LINE PEAK ======= CH/HR) =	FLOW<<<< =================================		
>>>>ADDITION OF SUBAR ====================================	REA TO MAIN 20.99 NTENSITY(IN A(AMC III):	LINE PEAK ======= CH/HR) =	FLOW<<<< =================================		
>>>>ADDITION OF SUBAR ====================================	REA TO MAIN 20.99 WTENSITY(IN A(AMC III): SCS SOIL GROUP C	LINE PEAK ====================================	FLOW<<<< 2.720 Fp (INCH/HR) 0.25	Ap (DECIMAL) 0.100	SCS CN 86
>>>>ADDITION OF SUBAR MAINLINE TC(MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER	REA TO MAIN 20.99 WIENSITY(IN A(AMC III): SCS SOIL GROUP C D	LINE PEAK ====================================	FLOW<<<<2 2.720 Fp (INCH/HR) 0.25 0.20	Ap (DECIMAL) 0.100 0.100	SCS CN 86 91
>>>>ADDITION OF SUBAR MAINLINE TC(MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL	REA TO MAIN 20.99 WIENSITY(IN A(AMC III): SCS SOIL GROUP C D	LINE PEAK ====================================	FLOW<<<<2 2.720 Fp (INCH/HR) 0.25 0.20	Ap (DECIMAL) 0.100 0.100	SCS CN 86 91
>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER	REA TO MAIN 20.99 WIENSITY(IN A(AMC III): SCS SOIL GROUP C D D	LINE PEAK ====================================	FLOW<<<<2 2.720 Fp (INCH/HR) 0.25 0.20 0.20	Ap (DECIMAL) 0.100 0.100	SCS CN 86 91
>>>> ADDITION OF SUBAR MAINLINE TC(MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVICE SUBAREA AVERAGE PERVICE	REA TO MAIN 20.99 WIENSITY(IN A(AMC III): SCS SOIL GROUP C D D D D D US LOSS RA DUS AREA FR	LINE PEAK ====================================	Fp (INCH/HR) 0.25 0.20 CH/HR) = 0 0 p = 0.115	Ap (DECIMAL) 0.100 0.100 1.000	SCS CN 86 91
>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA (ACRES) =	REA TO MAIN 20.99 NTENSITY(IN A(AMC III): SCS SOIL GROUP C D D D DUS LOSS RA DUS AREA FR. 6.20	LINE PEAK	FLOW<<<<< ================================	Ap (DECIMAL) 0.100 0.100 1.000 .21	SCS CN 86 91 95
>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES)	REA TO MAIN 20.99 NTENSITY(IN A(AMC III): SCS SOIL GROUP C D D DUS LOSS RA DUS AREA FR 6.20 805.6	LINE PEAK	FLOW<<<<< ================================	Ap (DECIMAL) 0.100 0.100 1.000 .21 (S) = 15.000 (INCH/HR)	SCS CN 86 91 95
>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES)	REA TO MAIN 20.99 NTENSITY(IN A(AMC III): SCS SOIL GROUP C D D DUS LOSS RA DUS AREA FR 6.20 805.6	LINE PEAK	FLOW<<<<< ================================	Ap (DECIMAL) 0.100 0.100 1.000 .21 (S) = 15.000 (INCH/HR)	SCS CN 86 91 95
>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES)	REA TO MAIN 20.99 NTENSITY(IN A(AMC III): SCS SOIL GROUP C D D DUS LOSS RA DUS AREA FR 6.20 805.6	LINE PEAK	FLOW<<<<< ================================	Ap (DECIMAL) 0.100 0.100 1.000 .21 (S) = 15.000 (INCH/HR)	SCS CN 86 91 95
>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH/ TOTAL AREA (ACRES) =	REA TO MAIN 20.99 NTENSITY(IN A(AMC III): SCS SOIL GROUP C D D DUS LOSS RA DUS AREA FR 6.20 = 805.6 /HR) = 0.2 829.8	LINE PEAK	FLOW<*** 2.720 Fp (INCH/HR) 0.25 0.20 CH/HR) = 0 p = 0.115 A RUNOFF (CF AVERAGED FM VERAGED AP FLOW RATE (Ap (DECIMAL) 0.100 0.100 1.000 1.21 (S) = 15.0 (INCH/HR) = 0.41 CFS) =	SCS CN 86 91 95 04 = 0.09 1904.05
MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVICE SUBAREA AVERAGE PERVICE SUBAREA AVERAGE PERVICE SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH/ TOTAL AREA (ACRES) =	REA TO MAIN 20.99 NTENSITY(IN A(AMC III): SCS SOIL GROUP C D D DUS LOSS RA DUS AREA FR 6.20 = 805.6 /HR) = 0.2 829.8	LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10 0.10 TE, Fp(IN ACTION, A SUBARE 9 AREA-A PEAK *********	FLOW<<<< <pre>FP (INCH/HR) 0.25 0.20 CH/HR) = 0 P = 0.115 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(</pre>	Ap (DECIMAL) 0.100 0.100 1.000 1.000 1.010 1.000 1.010	SCS CN 86 91 95 04 = 0.09 1904.05
MAINLINE TC(MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVICE SUBAREA AVERAGE PERVICE SUBAREA AVERAGE PERVICE SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH/ TOTAL AREA (ACRES) =	REA TO MAIN 20.99 NTENSITY(IN A(AMC III): SCS SOIL GROUP C D D DUS LOSS RA DUS AREA FR 6.20 = 805.6 /HR) = 0.2 829.8	LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10 0.10 TE, Fp(IN ACTION, A SUBARE 9 AREA-A PEAK *********	FLOW<<<< <pre>FP (INCH/HR) 0.25 0.20 CH/HR) = 0 P = 0.115 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(</pre>	Ap (DECIMAL) 0.100 0.100 1.000 1.000 1.010 1.000 1.010	SCS CN 86 91 95 04 = 0.09 1904.05
MAINLINE TC(MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH/ TOTAL AREA (ACRES) = ***********************************	D DUS LOSS RA DUS AREA FR 6.20 = 805.6 (HR) = 0.2 829.8	LINE PEAK	FLOW<-< 2.720 Fp (INCH/HR) 0.25 0.20 CH/HR) = 0 p = 0.115 A RUNOFF (CF AVERAGED FM VERAGED AP FLOW RATE (************************************	Ap (DECIMAL) 0.100 0.100 1.000 1.000 1.000 1.001 1.000	SCS CN 86 91 95 04 = 0.09 1904.05
MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVICE SUBAREA AVERAGE PERVICE SUBAREA AVERAGE PERVICE SUBAREA AVERAGE PERVICE SUBAREA ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH, TOTAL AREA (ACRES) = ***********************************	D DUS LOSS RA DUS AREA FR 6.20 = 805.66 (/HR) = 0.2 829.8	LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10 0.10 TE, Fp(IN ACTION, A SUBARE 9 AREA- 3 AREA-A PEAK ******** TO NODE NTO MEMOR	FLOW<-< 2.720 Fp (INCH/HR) 0.25 0.20 CH/HR) = 0 p = 0.115 A RUNOFF (CF AVERAGED FR VERAGED Ap FLOW RATE (*********** 331.00 I	Ap (DECIMAL) 0.100 0.100 1.000 1.21 (INCH/HR) = 0.41 CFS) = ***********************************	SCS CN 86 91 95 04 = 0.09 1904.05
MAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVICE SUBAREA AVERAGE PERVICE SUBAREA AVERAGE PERVICE SUBAREA AVERAGE PERVICE SUBAREA ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH, TOTAL AREA (ACRES) = ***********************************	D DUS LOSS RA DUS AREA FR 6.20 = 805.66 (/HR) = 0.2 829.8	LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10 0.10 TE, Fp(IN ACTION, A SUBARE 9 AREA- 3 AREA-A PEAK ******** TO NODE NTO MEMOR	FLOW<-< 2.720 Fp (INCH/HR) 0.25 0.20 CH/HR) = 0 p = 0.115 A RUNOFF (CF AVERAGED FR VERAGED Ap FLOW RATE (*********** 331.00 I	Ap (DECIMAL) 0.100 0.100 1.000 1.21 (INCH/HR) = 0.41 CFS) = ***********************************	SCS CN 86 91 95 04 = 0.09 1904.05
>>>>ADDITION OF SUBARMAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVICE SUBAREA AVERAGE PERVICE SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = EFFECTIVE AREA (ACRES) = ************************************	D DUS LOSS RA DUS AREA FR 6.20 = 805.6 ('HR) = 0.2 829.8	LINE PEAK ====================================	FLOW<<<<= 2.720 Fp (INCH/HR) 0.25 0.20 CH/HR) = 0 p = 0.115 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(*********** 331.00 I Y BANK # 1	Ap (DECIMAL) 0.100 0.100 1.000 1.21 (INCH/HR) = 0.41 CFS) = ***********************************	SCS CN 86 91 95 04 = 0.09 1904.05 ************************************
>>>>ADDITION OF SUBARMAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVICE SUBAREA AVERAGE PERVICE SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = EFFECTIVE AREA (ACRES) = ************************************	D DUS LOSS RA DUS AREA FR 6.20 = 805.6 (HR) = 0.2 829.8	LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10 0.10 TE, Fp(IN ACTION, A SUBARE 9 AREA- 3 AREA-A PEAK ********** TO NODE NTO MEMOR ***********	FLOW<<<< 2.720 Fp (INCH/HR) 0.25 0.20 0.20 CH/HR) = 0 p = 0.115 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(************ 331.00 I Y BANK # 1 **********************************	Ap (DECIMAL) 0.100 0.100 1.000	SCS CN 86 91 95 04 = 0.09 1904.05 ************************************
>>>>ADDITION OF SUBARMAINLINE TC (MIN.) = * 100 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVICE SUBAREA AVERAGE PERVICE SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH./ TOTAL AREA (ACRES) = ************************************	D DUS LOSS RA DUS AREA FR 6.20 = 805.6 (HR) = 0.2 829.8 ************ E 331.00	LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10 0.10 TE, Fp(IN ACTION, A SUBARE 9 AREA- 3 AREA-A PEAK ********* TO NODE ********* TO NODE	FLOW<<<<= 2.720 Fp (INCH/HR) 0.25 0.20 0.20 CH/HR) = 0 p = 0.115 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(********** 331.00 I ********** 331.00 I	Ap (DECIMAL) 0.100 0.100 1.000	SCS CN 86 91 95 04 = 0.09 1904.05 ************************************

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FLOW PROCESS FROM NODE 400.00 TO NODE 401.00 IS CODE = 21
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
______
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 314.00
 ELEVATION DATA: UPSTREAM(FEET) = 618.00 DOWNSTREAM(FEET) = 590.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 6.048
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 5.548
 SUBAREA To AND LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                     Fρ
                                                       SCS Tc
                      GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
     LAND USE
 RESIDENTIAL
 "8-10 DWELLINGS/ACRE" C 1.20 0.25 0.400 86 6.05
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.400
 SUBAREA RUNOFF(CFS) = 5.88
 TOTAL AREA(ACRES) = 1.20 PEAK FLOW RATE(CFS) =
                                                   5.88
*******************
 FLOW PROCESS FROM NODE 401.00 TO NODE 402.00 IS CODE = 62
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
______
 UPSTREAM ELEVATION(FEET) = 590.00 DOWNSTREAM ELEVATION(FEET) = 588.00
 STREET LENGTH (FEET) = 274.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL(DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH (FEET) = 0.53
   HALFSTREET FLOOD WIDTH (FEET) = 20.66
   AVERAGE FLOW VELOCITY (FEET/SEC.) = 2.78
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 1.48
 STREET FLOW TRAVEL TIME (MIN.) = 1.64 Tc (MIN.) = 7.69
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.834
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                     Fp
                                                       SCS
                                                Αp
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE" C 3.30 0.25 0.600 86
 RESIDENTIAL
 "8-10 DWELLINGS/ACRE"
                      С
                             4.40
                                        0.25
                                                0.400
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.486
 SUBAREA AREA (ACRES) = 7.70
                            SUBAREA RUNOFF (CFS) = 32.66
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EFFECTIVE AREA(ACRES) = 8.90 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.47
 TOTAL AREA(ACRES) = 8.9 PEAK FLOW RATE(CFS) =
 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.62 HALFSTREET FLOOD WIDTH(FEET) = 25.43
 FLOW VELOCITY (FEET/SEC.) = 3.16 DEPTH*VELOCITY (FT*FT/SEC.) = 1.95
 LONGEST FLOWPATH FROM NODE 400.00 TO NODE 402.00 = 588.00 FEET.
*************
 FLOW PROCESS FROM NODE 402.00 TO NODE 403.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 588.00 DOWNSTREAM(FEET) = 581.00
 FLOW LENGTH (FEET) = 805.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 33.0 INCH PIPE IS 22.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 8.77
 ESTIMATED PIPE DIAMETER (INCH) = 33.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 37.77
 PIPE TRAVEL TIME (MIN.) = 1.53 Tc (MIN.) = 9.22
 LONGEST FLOWPATH FROM NODE 400.00 TO NODE 403.00 = 1393.00 FEET.
******************
 FLOW PROCESS FROM NODE 403.00 TO NODE 403.00 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc(MIN.) = 9.22
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.357
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                   Fρ
                                          αA
                                                 SCS
     LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 NATURAL FAIR COVER
 "OPEN BRUSH"
                     С
                            0.10
                                    0.25
                                           1.000
                                                 92
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                    С
                            2.00
                                    0.25
                                           0.900
                                                  86
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"
                            8.80
                                    0.25
                                           0.600
                                                 86
 RESIDENTIAL
 "8-10 DWELLINGS/ACRE"
                                           0.400
                                                 76
                     В
                            0.10
                                    0.30
 RESIDENTIAL
                          4.90
 "8-10 DWELLINGS/ACRE"
                    С
                                    0.25
                                           0.400
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.577
 SUBAREA AREA(ACRES) = 15.90 SUBAREA RUNOFF(CFS) = 60.28
 EFFECTIVE AREA(ACRES) = 24.80 AREA-AVERAGED Fm(INCH/HR) = 0.14
 AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.54
 TOTAL AREA (ACRES) = 24.8 PEAK FLOW RATE (CFS) =
******************
 FLOW PROCESS FROM NODE 403.00 TO NODE 403.00 IS CODE = 1
 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<
______
 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
```

```
RAINFALL INTENSITY (INCH/HR) = 4.36
 AREA-AVERAGED Fm(INCH/HR) = 0.14
 AREA-AVERAGED Fp (INCH/HR) = 0.25
 AREA-AVERAGED Ap = 0.54
 EFFECTIVE STREAM AREA(ACRES) = 24.80
 TOTAL STREAM AREA(ACRES) = 24.80
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 94.23
*******************
 FLOW PROCESS FROM NODE 430.00 TO NODE 431.00 IS CODE = 21
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
_____
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 329.00
 ELEVATION DATA: UPSTREAM(FEET) = 725.00 DOWNSTREAM(FEET) = 630.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.196
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.364
 SUBAREA To AND LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                    Fp
                                             Дp
                                                     SCS Tc
                     GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
                                                         (MIN.)
 NATURAL FAIR COVER
 "CHAPARRAL, NARROWLEAF" C
                            0.10
                                       0.25
                                             1.000
                                                      95
                                                          9.20
 NATURAL FAIR COVER
                      C 1.30
                                       0.25
                                              1.000
                                                     92
                                                          9.20
 "OPEN BRUSH"
 NATURAL FAIR COVER
 "OPEN BRUSH"
                            0.10 0.20 1.000
                                                     96
                                                          9.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 5.56
 TOTAL AREA (ACRES) = 1.50 PEAK FLOW RATE (CFS) =
************************
 FLOW PROCESS FROM NODE 431.00 TO NODE 432.00 IS CODE = 51
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <
_____
 ELEVATION DATA: UPSTREAM(FEET) = 630.00 DOWNSTREAM(FEET) = 597.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 196.00 CHANNEL SLOPE = 0.1684
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 20.00
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.242
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                      Fρ
                                               Aр
                                                     SCS
                     GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 NATURAL FAIR COVER
 "CHAPARRAL, NARROWLEAF" D 0.10
                                       0.20
                                             1.000
                                                      97
 NATURAL FAIR COVER
 "OPEN BRUSH"
                       C 1.70
                                       0.25
                                              1.000
                                                      92
 NATURAL FAIR COVER
 "OPEN BRUSH"
                       D
                              0.10
                                       0.20
                                              1.000
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
```

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TIME OF CONCENTRATION (MIN.) = 9.22

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TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.01
                                                                          PIPE-FLOW VELOCITY (FEET/SEC.) = 21.16
 AVERAGE FLOW DEPTH (FEET) = 0.65 TRAVEL TIME (MIN.) = 0.47
                                                                          ESTIMATED PIPE DIAMETER (INCH) = 21.00 NUMBER OF PIPES = 1
                                                                         PIPE-FLOW(CFS) = 31.70
 Tc(MIN.) = 9.66
 SUBAREA AREA(ACRES) = 1.90 SUBAREA RUNOFF(CFS) = 6.84
                                                                         PIPE TRAVEL TIME (MIN.) = 0.01 Tc (MIN.) = 11.57
 EFFECTIVE AREA(ACRES) = 3.40 AREA-AVERAGED Fm(INCH/HR) = 0.25
                                                                         LONGEST FLOWPATH FROM NODE 430.00 TO NODE 403.00 = 1055.00 FEET.
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 1.00
                                                                        *******************
 TOTAL AREA (ACRES) = 3.4 PEAK FLOW RATE (CFS) = 12.23
                                                                          FLOW PROCESS FROM NODE 403.00 TO NODE 403.00 IS CODE = 1
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 0.74 FLOW VELOCITY(FEET/SEC.) = 7.54
                                                                         >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE <<<
 LONGEST FLOWPATH FROM NODE 430.00 TO NODE 432.00 = 525.00 FEET.
                                                                         >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<
                                                                        ______
TOTAL NUMBER OF STREAMS = 2
 FLOW PROCESS FROM NODE 432.00 TO NODE 433.00 IS CODE = 51
                                                                          CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
                                                                          TIME OF CONCENTRATION (MIN.) = 11.57
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
                                                                          RAINFALL INTENSITY (INCH/HR) = 3.83
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <<<<
                                                                          AREA-AVERAGED Fm(INCH/HR) = 0.23
_____
                                                                          AREA-AVERAGED Fp (INCH/HR) = 0.25
 ELEVATION DATA: UPSTREAM(FEET) = 597.00 DOWNSTREAM(FEET) = 582.00
                                                                          AREA-AVERAGED Ap = 0.94
 CHANNEL LENGTH THRU SUBAREA (FEET) = 520.00 CHANNEL SLOPE = 0.0288
                                                                          EFFECTIVE STREAM AREA(ACRES) = 9.80
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
                                                                          TOTAL STREAM AREA(ACRES) = 9.80
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 20.00
                                                                          PEAK FLOW RATE (CFS) AT CONFLUENCE = 31.70
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.827
 SUBAREA LOSS RATE DATA (AMC III):
                                                                          ** CONFLUENCE DATA **
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                                          STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                                   (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
     LAND USE
                                                                          NUMBER
                                                                          1
                                                                                   94.23 9.22 4.357 0.25 (0.14) 0.54 24.8
 NATURAL FAIR COVER
                           3.70
                                     0.25
                                            1.000
                                                  92
                                                                                   31.70 11.57 3.825 0.25(0.23) 0.94 9.8 430.00
 "OPEN BRUSH"
                    C
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                    С
                             1.20
                                     0.25
                                            0.900
                                                                          RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
                                                                          CONFLUENCE FORMULA USED FOR 2 STREAMS.
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE" C
                             1.20
                                     0.25
                                            0.600
                                                  86
                                                                          ** PEAK FLOW RATE TABLE **
 NATURAL FAIR COVER
 "WOODLAND, GRASS"
                      С
                             0.30
                                     0.25 1.000 92
                                                                          STREAM
                                                                                Q Tc Intensity Fp(Fm) Ap Ae
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
                                                                                   (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.906
                                                                          1
                                                                                  123.22 9.22 4.357 0.25(0.16) 0.64 32.6 400.00
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 22.61
                                                                            2
                                                                                  114.06 11.57 3.825 0.25(0.16) 0.65 34.6
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 4.55
 AVERAGE FLOW DEPTH (FEET) = 1.29 TRAVEL TIME (MIN.) = 1.90
                                                                          COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
                                                                          PEAK FLOW RATE (CFS) = 123.22 Tc (MIN.) = 9.22
 Tc(MIN.) = 11.56
 SUBAREA AREA(ACRES) = 6.40 SUBAREA RUNOFF(CFS) = 20.74
                                                                          EFFECTIVE AREA(ACRES) = 32.61 AREA-AVERAGED Fm(INCH/HR) = 0.16
 EFFECTIVE AREA(ACRES) = 9.80 AREA-AVERAGED Fm(INCH/HR) = 0.23
                                                                          AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.64
 AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.94
                                                                          TOTAL AREA (ACRES) = 34.6
 TOTAL AREA(ACRES) = 9.8
                             PEAK FLOW RATE(CFS) =
                                                                          LONGEST FLOWPATH FROM NODE 400.00 TO NODE 403.00 = 1393.00 FEET.
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
                                                                        ******************
                                                                          FLOW PROCESS FROM NODE 403.00 TO NODE 404.00 IS CODE = 31
 DEPTH (FEET) = 1.46 FLOW VELOCITY (FEET/SEC.) = 4.94
 LONGEST FLOWPATH FROM NODE 430.00 TO NODE 433.00 = 1045.00 FEET.
                                                                         ______
                                                                          >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
*****************
                                                                         >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<
 FLOW PROCESS FROM NODE 433.00 TO NODE 403.00 IS CODE = 31
                                                                        ______
-----
                                                                          ELEVATION DATA: UPSTREAM(FEET) = 581.00 DOWNSTREAM(FEET) = 570.00
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
                                                                          FLOW LENGTH (FEET) = 1056.00 MANNING'S N = 0.013
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <>>>
                                                                          DEPTH OF FLOW IN 48.0 INCH PIPE IS 35.1 INCHES
______
                                                                         PIPE-FLOW VELOCITY (FEET/SEC.) = 12.50
 ELEVATION DATA: UPSTREAM(FEET) = 582.00 DOWNSTREAM(FEET) = 581.00
                                                                          ESTIMATED PIPE DIAMETER (INCH) = 48.00 NUMBER OF PIPES = 1
 FLOW LENGTH (FEET) = 10.00 MANNING'S N = 0.013
                                                                         PIPE-FLOW(CFS) = 123.22
 DEPTH OF FLOW IN 21.0 INCH PIPE IS 12.5 INCHES
                                                                         PIPE TRAVEL TIME (MIN.) = 1.41 Tc (MIN.) = 10.63
```

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File name: PA3C00HC.RFS

Date: 08/07/2023 File name: PA3C00HC.RES Page 36

400.00

HEADWATER

430.00

FLOW PROCESS FROM NODE					81
>>>>ADDITION OF SUBARE	CA TO MAINI	LINE PEAK	FLOW<		
MAINLINE Tc(MIN.) = 1		======	=======	=======	=======
* 100 YEAR RAINFALL INT		CH/HR) =	4.016		
SUBAREA LOSS RATE DATA					
DEVELOPMENT TYPE/			Fр	qΑ	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL.	С	0.10	0.25	0.100	86
COMMERCIAL	D	0.10	0.25 0.20	0.100	91
NATURAL FAIR COVER					
"OPEN BRUSH"	С	0.10	0.25	1.000	92
RESIDENTIAL					
".4 DWELLING/ACRE"	С	4.90	0.25	0.900	86
RESIDENTIAL					
".4 DWELLING/ACRE"	D	1.50	0.20	0.900	91
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"					86
SUBAREA AVERAGE PERVIOU				.24	
SUBAREA AVERAGE PERVIOU			•		
SUBAREA AREA(ACRES) =					
EFFECTIVE AREA(ACRES) =					= 0.17
AREA-AVERAGED Fp(INCH/H	IR) = 0.25	5 AREA-A	VERAGED Ap	= 0.68	
TOTAL AREA (ACRES) =	42.3	DE V K			
FLOW PROCESS FROM NODE	404.00	******** TO NODE	********* 404.00 I	******** S CODE =	********* 81
FLOW PROCESS FROM NODE	404.00 CA TO MAINI	******** TO NODE	********* 404.00 I 	******* S CODE =	******* 81
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC(MIN.) = 1	404.00 GA TO MAINI	******** TO NODE LINE PEAK	********* 404.00 I FLOW<<<<	******* S CODE =	******* 81
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC(MIN.) = 1 * 100 YEAR RAINFALL INT	404.00 	******** TO NODE LINE PEAK CH/HR) =	********* 404.00 I FLOW<<<<	******* S CODE =	******* 81
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC(MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA	404.00 	********* TO NODE LINE PEAK CH/HR) =	********* 404.00 I FLOW<<<< 4.016	******** S CODE = 	******** 81
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE Tc(MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/	404.00 CA TO MAINI 0.63 CENSITY (INC AMC III): SCS SOIL	******** TO NODE LINE PEAK CH/HR) = AREA	********* 404.00 I FLOW<<<<< 4.016	******** S CODE =	******** 81
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE Tc(MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/	404.00 CA TO MAINI 0.63 CENSITY (INC AMC III): SCS SOIL	******** TO NODE LINE PEAK CH/HR) = AREA	********* 404.00 I FLOW<<<<< 4.016	******** S CODE =	******** 81
FLOW PROCESS FROM NODE	404.00 A TO MAINI CA TO MAINI CA TO MAINI CANCILII: SCS SOIL GROUP	TO NODE LINE PEAK CH/HR) = AREA (ACRES)	********* 404.00 I FLOW<<<<< 4.016 Fp (INCH/HR)	******** S CODE = Ap (DECIMAL)	********* 81 scs cn
FLOW PROCESS FROM NODE	404.00 A TO MAINI CA TO MAINI CA TO MAINI CANCILII: SCS SOIL GROUP	TO NODE LINE PEAK CH/HR) = AREA (ACRES)	********* 404.00 I FLOW<<<<< 4.016 Fp (INCH/HR)	******** S CODE = Ap (DECIMAL)	********* 81 scs cn
FLOW PROCESS FROM NODE	404.00 A TO MAINI CA TO MAINI CANC III): SCS SOIL GROUP C	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80	********** 404.00 I FLOW<<<<< 4.016 Fp (INCH/HR) 0.25	******** S CODE = Ap (DECIMAL) 0.500	********* 81 scs cn
FLOW PROCESS FROM NODE	404.00 A TO MAINI CA TO MAINI CANC III): SCS SOIL GROUP C	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80	********** 404.00 I FLOW<<<<< 4.016 Fp (INCH/HR) 0.25	******** S CODE = Ap (DECIMAL) 0.500	********* 81 scs cn
FLOW PROCESS FROM NODE	404.00 A TO MAINI CO.63 ENSITY(INC (AMC III): SCS SOIL GROUP C	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80 4.20	********* 404.00 I FLOW<<<<< 4.016 Fp (INCH/HR) 0.25 0.20	******** S CODE =	********* 81
FLOW PROCESS FROM NODE	404.00 A TO MAINI CA TO MAINI CAMC III): SCS SOIL GROUP C D	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80 4.20 1.10	********** 404.00 I FLOW<<<<< 4.016 Fp (INCH/HR) 0.25 0.20 0.25	******** S CODE = Ap (DECIMAL) 0.500 0.500 0.400	********* 81
FLOW PROCESS FROM NODE	404.00 TA TO MAINI TO MA	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80 4.20 1.10 TE, FP(INC	4.016 Fp (INCH/HR) 0.25 0.20 0.25 CH/HR) = 0	******** S CODE = Ap (DECIMAL) 0.500 0.500 0.400 .23	********* 81 ======== SCS CN 86 91
FLOW PROCESS FROM NODE	404.00 A TO MAINI O.63 ENSITY(INC AMC III): SCS SOIL GROUP C D C US LOSS RAT	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80 4.20 1.10 TE, FP(ING ACTION, A)	4.016 Fp (INCH/HR) 0.25 0.20 0.25 CH/HR) = 0 p = 0.492	******** S CODE =	**************************************
FLOW PROCESS FROM NODE	404.00 A TO MAINI COLOR OF THE COLOR OF TH	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80 4.20 1.10 TE, Fp(ING ACTION, A) SUBARE.	********* 404.00 I FLOW<<<<< 4.016 Fp (INCH/HR) 0.25 0.20 0.25 CH/HR) = 0 0 = 0.492 A RUNOFF(CF	******** S CODE = Ap (DECIMAL) 0.500 0.500 0.400 .23 S) = 49.	*********** 81 SCS CN 86 91 86
FLOW PROCESS FROM NODE	404.00 A TO MAINI CONSTRUCTION CONSTRUCTI	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80 4.20 1.10 FE, FP(ING ACTION, AN SUBARE, L AREA-	********* 404.00 I FLOW<<<<< 4.016 Fp (INCH/HR) 0.25 0.20 0.25 CH/HR) = 0 0 = 0.492 A RUNOFF(CF AVERAGED FM	******** S CODE = Ap (DECIMAL) 0.500 0.500 0.400 .23 S) = 49. (INCH/HR)	*********** 81 SCS CN 86 91 86
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUSUBAREA AVERAGE PERVIOUSUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) =	404.00 A TO MAINI CONTROL OF THE PROPERTY (INC. AMC III): SCS SOIL GROUP C D C US LOSS RAF. 14.10 54.41 IR) = 0.24	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80 4.20 1.10 FE, FP(ING ACTION, AP SUBARE, I AREA-A 4 AREA-A	********* 404.00 I FLOW<<<<< 4.016 Fp (INCH/HR) 0.25 0.20 0.25 CH/HR) = 0 p = 0.492 A RUNOFF (CF AVERAGED FM VERAGED Ap	******** S CODE = Ap (DECIMAL) 0.500 0.500 0.400 .23 S) = 49. (INCH/HR) = 0.63	*********** 81 SCS CN 86 91 86 50 = 0.15
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/F TOTAL AREA (ACRES) =	404.00 A TO MAINI CA TO MAINI CA TO MAINI CA TO MAINI CA TO MAINI	********* TO NODE	********* 404.00 I FLOW<<<<< 4.016 Fp (INCH/HR) 0.25 0.20 0.25 CH/HR) = 0 0 = 0.492 A RUNOFF(CF AVERAGED FM VERAGED Ap FLOW RATE(******** S CODE = Ap (DECIMAL) 0.500 0.500 0.400 .23 S) = 49. (INCH/HR) = 0.63 CFS) =	*********** 81 SCS CN 86 91 86 50 = 0.15 189.15
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/FI TOTAL AREA (ACRES) =	######################################	********** TO NODE	********* 404.00 I FLOW<<<<<	******** S CODE = Ap (DECIMAL) 0.500 0.500 0.400 .23 S) = 49. (INCH/HR) = 0.63 CFS) = ********	************ 81 SCS CN 86 91 86 50 = 0.15 189.15 **********
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/F TOTAL AREA (ACRES) = ***********************************	######################################	********* TO NODE	********* 404.00 I FLOW<<<<<	******** S CODE = Ap (DECIMAL) 0.500 0.500 0.400 .23 S) = 49. (INCH/HR) = 0.63 CFS) = ********* S CODE =	************ 81 SCS CN 86 91 86 50 = 0.15 189.15 ************
>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUSUBAREA AVERAGE PERVIOUSUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/F	######################################	********* TO NODE	********* 404.00 I FLOW<<<<< 4.016 Fp (INCH/HR) 0.25 0.20 0.25 CH/HR) = 0 0 = 0.492 A RUNOFF(CF AVERAGED FM VERAGED FM VERAGED AP FLOW RATE(********** 405.00 I	******** S CODE = Ap (DECIMAL) 0.500 0.500 0.400 .23 S) = 49. (INCH/HR) = 0.63 CFS) = ******** S CODE =	********** 81

PIPE-FLOW VELOCITY(FEET ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 18	INCH PIPE (SEC.) = (INCH) = (9.15	8.97 69.00	NUMBER OF		1
PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N	= 2.83 ODE 40	Tc(MIN 0.00 TO N	.) = 13.4 ODE 405.	6 00 = 39	75.00 FEE'

>>>>ADDITION OF SUBARE					
=======================================					
MAINLINE Tc(MIN.) = 1					
* 100 YEAR RAINFALL INT			3.507		
SUBAREA LOSS RATE DATA (AMC III):	3 0 0 3	П.,	7)	000
DEVELOPMENT TYPE/ LAND USE	SCS SOIT	AKEA	fp (TNCH/HD)	AP	SUS
COMMEDCIAI	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CIN 9.6
COMMERCIAL PUBLIC PARK	C	1 90	0.25 0.25	0.100	96
PUBLIC PARK	ח	0.40	0.20	0.850	91
RESIDENTIAL	D	0.10	0.20	0.000	71
".4 DWELLING/ACRE"	С	1.80	0.25	0.900	86
RESIDENTIAL	Ŭ	1.00	0.20	0.300	
".4 DWELLING/ACRE"	D	2.80	0.20	0.900	91
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	С	6.10	0.25	0.500	86
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) =	67.4 IR) = 0.2	1 AREA- 4 AREA-A	AVERAGED Fm VERAGED Ap	(INCH/HR) = 0.64	= 0.16
TOTAL TANDA (NONDO)	03.1	1 11111	I DOW IVIID (CIDI	203.30
*******	*****	******	*****	*****	*****
FLOW PROCESS FROM NODE	405.00	TO NODE	405.00 I	S CODE =	81
>>>>ADDITION OF SUBARE					
>>>>ADDITION OF SUBARE					======
>>>>ADDITION OF SUBARE ====================================	3.46 ENSITY(IN	CH/HR) =	=======		:======:
>>>>ADDITION OF SUBARE ====================================	3.46 ENSITY(IN	:====== ICH/HR) =	3.507	=======	
>>>>ADDITION OF SUBARE MAINLINE Tc(MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/	3.46 ENSITY(IN AMC III):	CH/HR) =	3.507 Fp	======= Ap	SCS
>>>>ADDITION OF SUBARE ====================================	3.46 ENSITY(IN AMC III):	CH/HR) =	3.507 Fp	======= Ap	SCS
>>>>ADDITION OF SUBARE ===================================	3.46 PENSITY(IN AMC III): SCS SOIL GROUP	CH/HR) = AREA (ACRES)	3.507 Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
>>>>ADDITION OF SUBARE ===================================	3.46 PENSITY(IN AMC III): SCS SOIL GROUP	CH/HR) = AREA (ACRES)	3.507 Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
>>>> ADDITION OF SUBARE ===================================	3.46 ENSITY(IN AMC III): SCS SOIL GROUP	CH/HR) = AREA (ACRES) 11.20	3.507 Fp (INCH/HR) 0.20	Ap (DECIMAL)	SCS CN 91
>>>> ADDITION OF SUBARE ===================================	3.46 ENSITY(IN AMC III): SCS SOIL GROUP	CH/HR) = AREA (ACRES) 11.20	3.507 Fp (INCH/HR) 0.20	Ap (DECIMAL)	SCS CN 91
>>>> ADDITION OF SUBARE ===================================	3.46 ENSITY(IN AMC III): SCS SOIL GROUP D C	CCH/HR) = AREA (ACRES) 11.20 7.80	3.507 Fp (INCH/HR) 0.20 0.25	Ap (DECIMAL) 0.500 0.400	SCS CN 91 86
>>>> ADDITION OF SUBARE	3.46 ENSITY(IN AMC III): SCS SOIL GROUP D C	CCH/HR) = AREA (ACRES) 11.20 7.80 1.40	3.507 Fp (INCH/HR) 0.20 0.25 0.20	Ap (DECIMAL) 0.500 0.400 0.400	SCS CN 91 86
>>>> ADDITION OF SUBARE	3.46 ENSITY(IN AMC III): SCS SOIL GROUP D C D IS LOSS RA	CCH/HR) = AREA (ACRES) 11.20 7.80 1.40 TE, FP(IN	3.507 Fp (INCH/HR) 0.20 0.25 0.20 CH/HR) = 0	Ap (DECIMAL) 0.500 0.400 0.400	SCS CN 91 86
>>>> ADDITION OF SUBARE ===================================	3.46 PENSITY(IN AMC III): SCS SOIL GROUP D C D SIS LOSS RA SIS AREA FR	CH/HR) = AREA (ACRES) 11.20 7.80 1.40 ATE, FP(IN	3.507 Fp (INCH/HR) 0.20 0.25 0.20 CH/HR) = 0 p = 0.455	Ap (DECIMAL) 0.500 0.400 0.400 .22	SCS CN 91 86
>>>> ADDITION OF SUBARE ====================================	3.46 PENSITY(IN AMC III): SCS SOIL GROUP D C D SIS LOSS RA SIS AREA FR 20.40	CCH/HR) = AREA (ACRES) 11.20 7.80 1.40 ATE, FP(IN ACTION, A SUBARE	3.507 Fp (INCH/HR) 0.20 0.25 0.20 CH/HR) = 0 p = 0.455 A RUNOFF(CF	Ap (DECIMAL) 0.500 0.400 0.400 .22 S) = 62.	SCS CN 91 86 91
>>>> ADDITION OF SUBARE ===================================	3.46 PENSITY(IN AMC III): SCS SOIL GROUP C D C D SIS LOSS RA SIS AREA FR 20.40 87.8	CH/HR) = AREA (ACRES) 11.20 7.80 1.40 ATE, FP(IN ACTION, A SUBARE 1 AREA-	3.507 Fp (INCH/HR) 0.20 0.25 0.20 CH/HR) = 0 p = 0.455 A RUNOFF(CF AVERAGED FM	Ap (DECIMAL) 0.500 0.400 0.400 .22 (S) = 62.	SCS CN 91 86 91

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**************************************			********* 406.00 I			RESIDENTIAL "5-7 DWELLINGS/ACRE" D 0.10 0.20 0.500 91
>>>>COMPUTE PIPE-FLOW						RESIDENTIAL "8-10 DWELLINGS/ACRE" B 0.10 0.30 0.400 76
>>>>USING COMPUTER-ES	STIMATED PI	PESIZE (N	ON-PRESSURE	FLOW) <<<	<<	SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
=======================================						SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.868
ELEVATION DATA: UPSTRE	EAM(FEET) =	565.00	DOWNSTREA	M(FEET) =	495.00	SUBAREA AREA (ACRES) = 7.40 SUBAREA RUNOFF (CFS) = 20.57
FLOW LENGTH (FEET) = 2	2168.00 M	MANNING'S	N = 0.013			EFFECTIVE AREA(ACRES) = 156.01 AREA-AVERAGED Fm(INCH/HR) = 0.11
DEPTH OF FLOW IN 51.0						AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.47
PIPE-FLOW VELOCITY (FEE			11.01120			TOTAL AREA (ACRES) = 158.0 PEAK FLOW RATE (CFS) = 446.83
ESTIMATED PIPE DIAMETE			NUMBER OF	DIDEC -	1	TOTAL MAIN (MAIN)
	,	31.00	NOMBER OF	LILES -	1	****************
PIPE-FLOW(CFS) = 2		m (1471)	15.0	2		
PIPE TRAVEL TIME (MIN.)	•	•	*		142 00 BBBB	FLOW PROCESS FROM NODE 406.00 TO NODE 406.00 IS CODE = 81
LONGEST FLOWPATH FROM					143.00 FEET.	>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
**************************************						MAINLINE Tc(MIN.) = 15.03
						* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.293
>>>>ADDITION OF SUBAR	REA TO MATN	II.TNE PEAK	FI.OW<<<<			SUBAREA LOSS RATE DATA (AMC III):
======================================						
MAINLINE TC(MIN.) =		/	2 222			LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
* 100 YEAR RAINFALL IN			3.293			RESIDENTIAL
SUBAREA LOSS RATE DATA						"8-10 DWELLINGS/ACRE" C 9.30 0.25 0.400 86
DEVELOPMENT TYPE/	SCS SOII	AREA	Fp	Ap	SCS	RESIDENTIAL
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	"8-10 DWELLINGS/ACRE" D 0.90 0.20 0.400 91
COMMERCIAL	С	5.50	0.25	0.100	86	SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
COMMERCIAL	D	1.90	0.20	0.100	91	SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.400
PUBLIC PARK	C		0.25	0.850	86	SUBAREA AREA(ACRES) = 10.20 SUBAREA RUNOFF(CFS) = 29.33
PUBLIC PARK	D	0.90	0.20	0.850	91	EFFECTIVE AREA (ACRES) = 166.21 AREA-AVERAGED Fm (INCH/HR) = 0.11
	D	0.30	0.20	0.000	JΤ	AREA-AVERAGED Fp (INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.46
RESIDENTIAL	~	26.46	0.05	0 000	0.6	
"11+ DWELLINGS/ACRE" RESIDENTIAL	С	36.40	0.25	0.200	86	TOTAL AREA (ACRES) = 168.2 PEAK FLOW RATE (CFS) = 476.15
"11+ DWELLINGS/ACRE"	D	13.60	0.20	0.200	91	********************
) I	FLOW PROCESS FROM NODE 406.00 TO NODE 407.00 IS CODE = 31
SUBAREA AVERAGE PERVIC				. 4		FLOW PROCESS FROM NODE 400.00 TO NODE 407.00 IS CODE = 31
SUBAREA AVERAGE PERVIC			-	0) 177	0.0	
SUBAREA AREA(ACRES) =			A RUNOFF (CF			>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA
EFFECTIVE AREA(ACRES)					= 0.11	>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <>>>
AREA-AVERAGED Fp(INCH/						
TOTAL AREA (ACRES) =	150.6	PEAK	FLOW RATE (CFS) =	426.25	ELEVATION DATA: UPSTREAM(FEET) = 495.00 DOWNSTREAM(FEET) = 395.00 FLOW LENGTH(FEET) = 2905.00 MANNING'S N = 0.013
******	*****	*****	*****	****	*****	DEPTH OF FLOW IN 63.0 INCH PIPE IS 47.3 INCHES
FLOW PROCESS FROM NODE	E 406.00) TO NODE	406 NO T	S CODE =	81	PIPE-FLOW VELOCITY (FEET/SEC.) = 27.34
						ESTIMATED PIPE DIAMETER (INCH) = 63.00 NUMBER OF PIPES = 1
>>>>ADDITION OF SUBAR				· -		PIPE-FLOW(CFS) = 476.15
>>>>ADDITION OF SUBAR						
			====			PIPE TRAVEL TIME (MIN.) = 1.77 Tc (MIN.) = 16.80
MAINLINE TC(MIN.) =		/	2 222			LONGEST FLOWPATH FROM NODE 400.00 TO NODE 407.00 = 9048.00 FEET.
* 100 YEAR RAINFALL IN	,		3.293			
SUBAREA LOSS RATE DATA						*****************
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap	SCS	FLOW PROCESS FROM NODE 407.00 TO NODE 407.00 IS CODE = 81
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
RESIDENTIAL						>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
".4 DWELLING/ACRE"	С	4.70	0.25	0.900	86	
RESIDENTIAL						MAINLINE Tc(MIN.) = 16.80
".4 DWELLING/ACRE"	D	2.10	0.20	0.900	91	* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.089
RESIDENTIAL	D	2.10	0.20	0.500	J±	SUBAREA LOSS RATE DATA (AMC III):
	0	0 10	0.05	0 600	0.6	
"3-4 DWELLINGS/ACRE"	С	0.10	0.25	0.600	86	DEVELOPMENT TYPE/ SCS SOIL AREA FP AP SCS
RESIDENTIAL						LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
"5-7 DWELLINGS/ACRE"	С	0.30	0.25	0.500	86	APARTMENTS D 0.30 0.20 0.200 91
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COMMERCIAL	В	0.60	0.30	0.100	76	"5-7 DWELLINGS/ACRE"	В	1.50	0.30	0.500	76
COMMERCIAL	С	9.10	0.25	0.100	86	 RESIDENTIAL					
COMMERCIAL	D C	6.70	0.20	0.100	91	 "5-7 DWELLINGS/ACRE"	С	5.10	0.25	0.500	86
PUBLIC PARK	С	0.50	0.25	0.850	86	 RESIDENTIAL					
PUBLIC PARK	D	2.60	0.20	0.850	91	 "5-7 DWELLINGS/ACRE"	D	0.90	0.20	0.500	91
SUBAREA AVERAGE PERVIOU	JS LOSS RA	TE, Fp(IN	CH/HR) = 0	.22		 SUBAREA AVERAGE PERVIO	US LOSS RA	TE, Fp(IN	CH/HR) = 0	.23	
SUBAREA AVERAGE PERVIOU	JS AREA FR	ACTION, A	p = 0.219			 SUBAREA AVERAGE PERVIOU	US AREA FR	ACTION, A	p = 0.579		
SUBAREA AREA(ACRES) =	19.80	SUBARE	A RUNOFF (CF	S) = 54.	20	 SUBAREA AREA(ACRES) =	37.50	SUBARE	A RUNOFF (CF	'S) = 99.	75
EFFECTIVE AREA(ACRES) =	= 186.0	1 AREA-	AVERAGED Fm	(INCH/HR)	= 0.10	 EFFECTIVE AREA(ACRES) =	= 240.33	1 AREA-	AVERAGED Fm	(INCH/HR)	= 0.11
AREA-AVERAGED Fp(INCH/H						 AREA-AVERAGED Fp(INCH/					
TOTAL AREA (ACRES) =	188.0	PEAK	FLOW RATE (CFS) =	499.90	 TOTAL AREA (ACRES) =	242.3	PEAK	FLOW RATE (CFS) =	645.19
******						******					
FLOW PROCESS FROM NODE	407.00	TO NODE	407.00 1	S CODE =	81	FLOW PROCESS FROM NODE					
>>>>ADDITION OF SUBARE	EA TO MAIN	LINE PEAK	FLOW<			>>>>ADDITION OF SUBAR					
MAINLINE Tc(MIN.) = 1						MAINLINE Tc(MIN.) =					
* 100 YEAR RAINFALL INT	TENSITY(IN	CH/HR) =	3.089			 * 100 YEAR RAINFALL IN	TENSITY (IN	CH/HR) =	3.089		
SUBAREA LOSS RATE DATA((AMC III):					 SUBAREA LOSS RATE DATA	(AMC III):				
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ар	SCS	 DEVELOPMENT TYPE/			Fp	Ар	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	 LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
RESIDENTIAL						 RESIDENTIAL					
"11+ DWELLINGS/ACRE"	A	0.60	0.40	0.200	52	 "8-10 DWELLINGS/ACRE"	В	3.50	0.30	0.400	76
RESIDENTIAL						 RESIDENTIAL					
"11+ DWELLINGS/ACRE"	В	2.40	0.30	0.200	76	 "8-10 DWELLINGS/ACRE"	C	8.40	0.25	0.400	86
RESIDENTIAL						 RESIDENTIAL					
"11+ DWELLINGS/ACRE"	С	10.60	0.25	0.200	86	 "8-10 DWELLINGS/ACRE"	D	2.80	0.20	0.400	91
RESIDENTIAL						 SCHOOL	В	0.60	0.30	0.600	76
"11+ DWELLINGS/ACRE"	D	0.60	0.20	0.200	91	 SCHOOL	C	1.50	0.25	0.600	86
RESIDENTIAL						 SCHOOL	D	3.50	0.20	0.600	91
".4 DWELLING/ACRE"	С	1.90	0.25	0.900	86	 SUBAREA AVERAGE PERVIO	US LOSS RA	TE, Fp(IN	CH/HR) = 0	.24	
RESIDENTIAL						 SUBAREA AVERAGE PERVIO					
".4 DWELLING/ACRE"	D	0.70	0.20	0.900	91	 SUBAREA AREA(ACRES) =	20.30	SUBARE	A RUNOFF (CF	(S) = 54.	43
SUBAREA AVERAGE PERVIOU	JS LOSS RA	TE, Fp(IN	CH/HR) = 0	.25		 EFFECTIVE AREA(ACRES) =	= 260.63	1 AREA-	AVERAGED Fm	(INCH/HR)	= 0.11
SUBAREA AVERAGE PERVIOU	JS AREA FR	ACTION, A	p = 0.308			 AREA-AVERAGED Fp(INCH/	HR) = 0.24	4 AREA-A	VERAGED Ap	= 0.45	
SUBAREA AREA(ACRES) =	16.80	SUBARE	A RUNOFF (CF	s) = 45.	54	 TOTAL AREA (ACRES) =	262.6	PEAK	FLOW RATE (CFS) =	699.62
EFFECTIVE AREA(ACRES) =					= 0.10						
AREA-AVERAGED Fp(INCH/H	HR) = 0.2	4 AREA-A	VERAGED Ap	= 0.42		 *******	*****	******	******	******	******
TOTAL AREA (ACRES) =	204.8	PEAK	FLOW RATE (CFS) =	545.44	FLOW PROCESS FROM NODE					

						 >>>>COMPUTE PIPE-FLOW					. ,
FLOW PROCESS FROM NODE	407.00	TO NODE	407.00 1	5 CODE =	81	>>>>USING COMPUTER-ES				,	
>>>>ADDITION OF SUBARE						ELEVATION DATA: UPSTREA	AM(FEET) =	395.00	DOWNSTREA	M(FEET) =	372.00
						 FLOW LENGTH (FEET) =	661.00 M	ANNING'S	N = 0.013		
MAINLINE Tc(MIN.) = 1	16.80					 DEPTH OF FLOW IN 72.0	INCH PIPE	IS 55.1	INCHES		
* 100 YEAR RAINFALL INT	TENSITY (IN	CH/HR) =	3.089			 PIPE-FLOW VELOCITY (FEE:	T/SEC.) =	30.12			
SUBAREA LOSS RATE DATA((AMC III):					 ESTIMATED PIPE DIAMETER	R(INCH) =	72.00	NUMBER OF	PIPES =	1
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap	SCS	PIPE-FLOW(CFS) = 69	99.62				
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	PIPE TRAVEL TIME (MIN.)	= 0.37	Tc (MIN	.) = 17.1	.7	
RESIDENTIAL						LONGEST FLOWPATH FROM 1	NODE 400	0.00 TO N	ODE 430.	00 = 97	09.00 FEET.
"3-4 DWELLINGS/ACRE"	С	14.30	0.25	0.600	86						
RESIDENTIAL						*******	*****	******	*****	******	******
"3-4 DWELLINGS/ACRE"	D	15.30	0.20	0.600	91	FLOW PROCESS FROM NODE	430.00	TO NODE	430.00 I	S CODE =	10
RESIDENTIAL											
"5-7 DWELLINGS/ACRE"	A	0.40	0.40	0.500	52	>>>>MAIN-STREAM MEMORY	Y COPIED O	NTO MEMOR	Y BANK # 2	<<<<	
RESIDENTIAL								=======			

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*******************
 FLOW PROCESS FROM NODE 430.00 TO NODE 430.00 IS CODE = 13
 >>>>CLEAR THE MAIN-STREAM MEMORY<
_____
 FLOW PROCESS FROM NODE 410.00 TO NODE 411.00 IS CODE = 21
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
_____
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 328.00
 ELEVATION DATA: UPSTREAM(FEET) = 535.00 DOWNSTREAM(FEET) = 495.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 6.368
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 5.387
 SUBAREA To AND LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                        Aр
                                               SCS Tc
                                  Fр
    LAND USE
                 GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                   D 0.50
                                0.20
                                        0.900
                                              91 7.53
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"
                  D 0.20
                                               91 6.37
                                   0.20
                                         0.600
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.814
 SUBAREA RUNOFF (CFS) =
                   3.29
 TOTAL AREA (ACRES) =
                   0.70 PEAK FLOW RATE(CFS) =
*******************
 FLOW PROCESS FROM NODE 411.00 TO NODE 412.00 IS CODE = 31
______
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 495.00 DOWNSTREAM(FEET) = 490.00
 FLOW LENGTH (FEET) = 267.00 MANNING'S N = 0.013
 ESTIMATED PIPE DIAMETER (INCH) INCREASED TO 18.000
 DEPTH OF FLOW IN 18.0 INCH PIPE IS 6.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 6.35
 ESTIMATED PIPE DIAMETER (INCH) = 18.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
                 3.29
 PIPE TRAVEL TIME (MIN.) = 0.70 Tc (MIN.) = 7.07
 LONGEST FLOWPATH FROM NODE 410.00 TO NODE 412.00 =
**********************
 FLOW PROCESS FROM NODE 412.00 TO NODE 412.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
_____
 MAINLINE Tc (MIN.) = 7.07
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 5.074
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/
                  SCS SOIL AREA
                                  Fρ
    LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 RESIDENTIAL
```

".4 DWELLING/ACRE"	С	0.90	0.25	0.900	86	
RESIDENTIAL ".4 DWELLING/ACRE"	D	0.20	0.20	0 000	0.1	
RESIDENTIAL						
"3-4 DWELLINGS/ACRE"	D	0.10	0.20	0.600	91	
RESIDENTIAL "5-7 DWELLINGS/ACRE"	C	0.10	0.25	0 500	86	
RESIDENTIAL	C	0.10	0.25	0.500	00	
"5-7 DWELLINGS/ACRE"					91	
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS				.23		
SUBAREA AREA(ACRES) =	1.70	SUBAREA	RUNOFF (CFS	S) = 7.	48	
EFFECTIVE AREA(ACRES) =	2.40	AREA-AV	ERAGED Fm	(INCH/HR)	= 0.18	
AREA-AVERAGED Fp(INCH/HR	R) = 0.22	AREA-AVE	RAGED Ap =	= 0.80	10 50	
TOTAL AREA (ACRES) =	2.4	PEAK F	LOW RATE(CFS) =	10.58	
******	******	******	*****	*****	******	**
FLOW PROCESS FROM NODE						
>>>>COMPUTE PIPE-FLOW T						
>>>>USING COMPUTER-ESTI					<	
					=======	
ELEVATION DATA: UPSTREAM				M(FEET) =	480.00	
FLOW LENGTH (FEET) = 52 DEPTH OF FLOW IN 18.0 I						
PIPE-FLOW VELOCITY (FEET/			NCHES			
ESTIMATED PIPE DIAMETER (UMBER OF I	PIPES =	1	
PIPE-FLOW(CFS) = 10	.58					
PIPE TRAVEL TIME (MIN.) =					15 00 000	,
LONGEST FLOWPATH FROM NO	DE 410	J.UU TO NOD	E 413.()U = II	13.00 FEE1	
						•
******	******					
FLOW PROCESS FROM NODE	413.00	**************************************	******** 413.00 IS	******** G CODE =	******** 81	
	413.00	************ TO NODE	******** 413.00 IS	******** G CODE =	******** 81	
FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAREA	413.00 TO MAINI	*********** TO NODE	********* 413.00 IS	******** G CODE =	******* 81 	***
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAREA MAINLINE TC(MIN.) = 8	413.00 TO MAINI	TO NODE	**************************************	******** G CODE =	******* 81 	***
FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAREA	413.00 TO MAINI 	********* TO NODE LINE PEAK F	**************************************	******** G CODE =	******* 81 	***
FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAREA MAINLINE Tc(MIN.) = 8 * 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(A	413.00 TO MAINI 	TO NODE	**************************************	******** 3 CODE = 	******* 81 	***
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAREA MAINLINE TC(MIN.) = 8 * 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(A DEVELOPMENT TYPE/ LAND USE	413.00 TO MAINI 	TO NODE	**************************************	******** 3 CODE = 	******* 81 	***
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAREA MAINLINE TC(MIN.) = 8 * 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(A DEVELOPMENT TYPE/ LAND USE RESIDENTIAL	413.00 A TO MAINI B.08 INSITY(INC MMC III): SCS SOIL GROUP	TO NODE LINE PEAK F CH/HR) = 4 AREA (ACRES) (413.00 IS LOW<<<<	******** S CODE = Ap (DECIMAL)	**************************************	***
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAREA MAINLINE TC(MIN.) = 8 * 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(A DEVELOPMENT TYPE/ LAND USE	413.00 A TO MAINI B.08 INSITY(INC MMC III): SCS SOIL GROUP	TO NODE LINE PEAK F CH/HR) = 4 AREA (ACRES) (413.00 IS LOW<<<<	******** S CODE = Ap (DECIMAL)	**************************************	***
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAREA MAINLINE Tc(MIN.) = 8 * 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(A DEVELOPMENT TYPE/ LAND USE RESIDENTIAL ".4 DWELLING/ACRE"	413.00 A TO MAINI 3.08 CNSITY(INC MC III): SCS SOIL GROUP C	TO NODE LINE PEAK F CH/HR) = 4 AREA (ACRES) (2.00	*********** 413.00 IS LOW<<<<	******** S CODE =	**************************************	***
FLOW PROCESS FROM NODE	413.00 A TO MAINI SEES SOR SOR SITY (INC. MC III): SCS SOIL GROUP C D	TO NODE LINE PEAK F CH/HR) = 4 AREA (ACRES) (2.00 0.40	413.00 IS LOW<<<<701 Fp INCH/HR) 0.25 0.20	Ap (DECIMAL) 0.900 0.900	**************************************	***
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAREA ** 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA (A DEVELOPMENT TYPE/ LAND USE RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLINGS/ACRE"	413.00 A TO MAINI SEES SOR SOR SITY (INC. MC III): SCS SOIL GROUP C D	TO NODE LINE PEAK F CH/HR) = 4 AREA (ACRES) (2.00 0.40	413.00 IS LOW<<<<701 Fp INCH/HR) 0.25 0.20	Ap (DECIMAL) 0.900 0.900	**************************************	***
FLOW PROCESS FROM NODE	413.00 A TO MAINI BELLE SONS ENSITY(INC LMC III): SCS SOIL GROUP C D C	TO NODE LINE PEAK F CH/HR) = 4 AREA (ACRES) (2.00 0.40 0.40	********** 413.00 IS LOW<<<<701 Fp INCH/HR) 0.25 0.20 0.25	Ap (DECIMAL) 0.900 0.900 0.500	**************************************	***
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAREA ** 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA (A DEVELOPMENT TYPE/ LAND USE RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLINGS/ACRE"	413.00 A TO MAINI BELLE SONS ENSITY(INC LMC III): SCS SOIL GROUP C D C	TO NODE LINE PEAK F CH/HR) = 4 AREA (ACRES) (2.00 0.40 0.40 0.30	********** 413.00 IS LOW<<<<<701 Fp INCH/HR) 0.25 0.20 0.25 0.20	Ap (DECIMAL) 0.900 0.900 0.500	**************************************	***
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAREA ** 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(A DEVELOPMENT TYPE/ LAND USE RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS	413.00 TO MAINI ONE ONE ONE CO CO D CO LOSS RATE SAREA FRA	TO NODE LINE PEAK F CH/HR) = 4 AREA (ACRES) (2.00 0.40 0.40 0.30 TE, FP(INCH ACTION, AP	********* 413.00 IS	Ap (DECIMAL) 0.900 0.900 0.500 0.500	**************************************	***
FLOW PROCESS FROM NODE	413.00 A TO MAINI 3.08 ENSITY(INC MC III): SCS SOIL GROUP C D C D S LOSS RAT S AREA FRA 3.10	TO NODE LINE PEAK F CH/HR) = 4 AREA (ACRES) (2.00 0.40 0.40 0.30 TE, FP(INCH ACTION, AP SUBAREA	********* 413.00 IS	Ap (DECIMAL) 0.900 0.500 0.500 24 3) = 12.	**************************************	***
FLOW PROCESS FROM NODE	413.00 A TO MAINI 3.08 ENSITY(INC MC III): SCS SOIL GROUP C D C D C A LOSS RAT A AREA FRA 3.10 5.50	TO NODE LINE PEAK F CH/HR) = 4 AREA (ACRES) (2.00 0.40 0.40 0.40 0.40 CTION, Ap SUBAREA O AREA-AV	********* 413.00 IS	Ap (DECIMAL) 0.900 0.500 0.500 24 S) = 12. (INCH/HR)	**************************************	***
FLOW PROCESS FROM NODE	413.00 A TO MAINI 3.08 ENSITY(INC MC III): SCS SOIL GROUP C D C D C A LOSS RAT A AREA FRA 3.10 5.50	TO NODE LINE PEAK F CH/HR) = 4 AREA (ACRES) (2.00 0.40 0.40 0.40 0.40 CTION, Ap SUBAREA O AREA-AV	********* 413.00 IS	Ap (DECIMAL) 0.900 0.500 0.500 24 S) = 12. (INCH/HR)	**************************************	***
FLOW PROCESS FROM NODE	413.00 A TO MAINI BERNALL SONS LOSS SOIL GROUP C D C D S LOSS RAT 3.10 5.50 8) = 0.23 5.5	TO NODE LINE PEAK F CH/HR) = 4 AREA (ACRES) (2.00 0.40 0.40 0.40 0.40 O.40 O.40	********* 413.00 IS	Ap (DECIMAL) 0.900 0.500 0.500 24 8) = 12. (INCH/HR) = 0.80 CFS) =	**************************************	
FLOW PROCESS FROM NODE	413.00 A TO MAINI BEEFFER 5.08 INSITY(INC MC III): SCS SOIL GROUP C D C D S LOSS RAT 3.10 5.50 8) = 0.23 5.5	TO NODE LINE PEAK F CH/HR) = 4 AREA (ACRES) (2.00 0.40 0.40 0.40 0.40 O.40 O.40 O.40 O.40 ACTION, Ap SUBAREA OAREA-AVE PEAK F	********* 413.00 IS	Ap (DECIMAL) 0.900 0.500 0.500 0.500 (INCH/HR) 0.80 CFS) =	**************************************	
FLOW PROCESS FROM NODE	413.00 A TO MAINI BEEFFER 5.08 INSITY(INC MC III): SCS SOIL GROUP C D C D S LOSS RAT 3.10 5.50 8) = 0.23 5.5	TO NODE LINE PEAK F CH/HR) = 4 AREA (ACRES) (2.00 0.40 0.40 0.40 0.40 O.40 O.40 O.40 O.40 ACTION, Ap SUBAREA OAREA-AVE PEAK F	********* 413.00 IS	Ap (DECIMAL) 0.900 0.500 0.500 0.500 (INCH/HR) 0.80 CFS) =	**************************************	

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>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 480.00 DOWNSTREAM(FEET) = 470.00
 FLOW LENGTH (FEET) = 310.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 21.0 INCH PIPE IS 14.6 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 12.54
 ESTIMATED PIPE DIAMETER (INCH) = 21.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 22.35
 PIPE TRAVEL TIME (MIN.) = 0.41 Tc (MIN.) = 8.49
 LONGEST FLOWPATH FROM NODE 410.00 TO NODE 414.00 = 1425.00 FEET.
******************
 FLOW PROCESS FROM NODE 414.00 TO NODE 414.00 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
_____
 MAINLINE Tc(MIN.) = 8.49
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.569
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                          Аp
                                                 SCS
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
    LAND USE
                    С
                           1.50
                                   0.25
                                          0.100 86
 COMMERCIAL
 COMMERCIAL
                    D
                            0.10
                                    0.20
                                           0.100
                                                91
 RESIDENTIAL
                                                                       COMMERCIAL
 ".4 DWELLING/ACRE" C
                            2.80
                                    0.25
                                           0.900
                                                86
                                                                       COMMERCIAL
 RESIDENTIAL
                                                                       RESIDENTIAL
 ".4 DWELLING/ACRE"
                   D
                            1.00
                                    0.20
                                           0.900
                                                91
 RESIDENTIAL
                                                                       RESIDENTIAL
 "5-7 DWELLINGS/ACRE" C
                            0.20
                                          0.500
                                    0.25
                                                 86
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"
                  D 0.10
                                    0.20
                                          0.500
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.654
 SUBAREA AREA (ACRES) = 5.70 SUBAREA RUNOFF (CFS) = 22.64
 EFFECTIVE AREA(ACRES) = 11.20 AREA-AVERAGED Fm(INCH/HR) = 0.17
 AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.73
 TOTAL AREA (ACRES) = 11.2
                           PEAK FLOW RATE(CFS) =
*****************
 FLOW PROCESS FROM NODE 414.00 TO NODE 414.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc(MIN.) = 8.49
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.569
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 APARTMENTS
                    С
                          0.10
                                 0.25 0.200 86
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.200
 SUBAREA AREA(ACRES) = 0.10 SUBAREA RUNOFF(CFS) = 0.41
 EFFECTIVE AREA(ACRES) = 11.30 AREA-AVERAGED Fm(INCH/HR) = 0.17
 AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.72
 TOTAL AREA (ACRES) =
                11.3 PEAK FLOW RATE (CFS) = 44.74
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FLOW PROCESS FROM NODE 414.00 TO NODE 415.00 IS CODE = 31
______
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 470.00 DOWNSTREAM(FEET) = 445.00
 FLOW LENGTH (FEET) = 528.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 24.0 INCH PIPE IS 18.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 16.92
 ESTIMATED PIPE DIAMETER (INCH) = 24.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 44.74
 PIPE TRAVEL TIME (MIN.) = 0.52 Tc (MIN.) = 9.01
 LONGEST FLOWPATH FROM NODE 410.00 TO NODE 415.00 = 1953.00 FEET.
****************
 FLOW PROCESS FROM NODE 415.00 TO NODE 415.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc(MIN.) = 9.01
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.416
 SUBAREA LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                               Fρ
                                         αA
    LAND USE
                 GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                  C 0.90 0.25 0.100
                                               86
                   D
                        0.60
                                  0.20
                                        0.100
                                               91
 "5-7 DWELLINGS/ACRE" C 6.30
                                  0.25
                                        0.500
                                               86
 "5-7 DWELLINGS/ACRE" D 3.70
                                  0.20 0.500
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.448
 SUBAREA AREA(ACRES) = 11.50
                         SUBAREA RUNOFF (CFS) = 44.63
 EFFECTIVE AREA(ACRES) = 22.80 AREA-AVERAGED Fm(INCH/HR) = 0.14
 AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.58
 TOTAL AREA (ACRES) =
                22.8 PEAK FLOW RATE(CFS) =
*****************
 FLOW PROCESS FROM NODE 415.00 TO NODE 416.00 IS CODE = 31
______
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <>>>
______
 ELEVATION DATA: UPSTREAM(FEET) = 445.00 DOWNSTREAM(FEET) = 415.00
 FLOW LENGTH (FEET) = 650.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 33.0 INCH PIPE IS 22.6 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 20.23
 ESTIMATED PIPE DIAMETER (INCH) = 33.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 87.82
 PIPE TRAVEL TIME (MIN.) = 0.54 Tc (MIN.) = 9.54
 LONGEST FLOWPATH FROM NODE 410.00 TO NODE 416.00 = 2603.00 FEET.
FLOW PROCESS FROM NODE 416.00 TO NODE 416.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
```

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```
MAINLINE Tc(MIN.) = 9.54
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.272
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                   Fρ
                                             Αp
                                                   SCS
     LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                     С
 APARTMENTS
                            1.60
                                      0.25
                                             0.200
                                                    86
                             10.90
 APARTMENTS
                     D
                                      0.20
                                             0.200
                                                    86
                      С
                             1.30
                                      0.25
                                             0.100
 COMMERCIAL
                      D
                             1.30
                                      0.20
                                             0.100
                                                    91
 COMMERCIAL
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                             1.10
                                      0.25
                                             0.200
                                                    86
 RESIDENTIAL
                             7.00
 "11+ DWELLINGS/ACRE"
                      D
                                      0.20
                                             0.200
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.189
 SUBAREA AREA (ACRES) = 23.20
                             SUBAREA RUNOFF (CFS) = 88.39
 EFFECTIVE AREA(ACRES) = 46.00 AREA-AVERAGED Fm(INCH/HR) = 0.09
 AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.38
 TOTAL AREA (ACRES) = 46.0 PEAK FLOW RATE (CFS) = 173.26
FLOW PROCESS FROM NODE 416.00 TO NODE 416.00 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
_____
 MAINLINE Tc (MIN.) = 9.54
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.272
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                     Fρ
                                              Aр
                                                   SCS
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"
                              0.40
                                      0.20
                                             0.600
                                                    91
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"
                              4.90
                                      0.25
                                             0.500
                                                    86
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"
                              9.30
                                      0.20
                                             0.500
                                                    91
 RESIDENTIAL
 "8-10 DWELLINGS/ACRE"
                              0.30
                                      0.25
                                             0.400
                                                    86
 RESIDENTIAL
 "8-10 DWELLINGS/ACRE"
                             0.10
                                      0.20
                                             0.400
                      D
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.500
 SUBAREA AREA (ACRES) = 15.00 SUBAREA RUNOFF (CFS) = 56.21
 EFFECTIVE AREA(ACRES) = 61.00 AREA-AVERAGED Fm(INCH/HR) = 0.09
 AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.41
 TOTAL AREA (ACRES) =
                   61.0 PEAK FLOW RATE(CFS) =
*********************
 FLOW PROCESS FROM NODE 416.00 TO NODE 416.00 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.) = 9.54
 RAINFALL INTENSITY (INCH/HR) = 4.27
 AREA-AVERAGED Fm(INCH/HR) = 0.09
 AREA-AVERAGED Fp (INCH/HR) = 0.22
```

```
AREA-AVERAGED Ap = 0.41
 EFFECTIVE STREAM AREA(ACRES) = 61.00
 TOTAL STREAM AREA(ACRES) = 61.00
 PEAK FLOW RATE (CFS) AT CONFLUENCE =
                               229.47
FLOW PROCESS FROM NODE 420.00 TO NODE 421.00 IS CODE = 21
______
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
______
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 328.00
 ELEVATION DATA: UPSTREAM(FEET) = 535.00 DOWNSTREAM(FEET) = 495.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 6.368
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 5.387
 SUBAREA TC AND LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                 SCS
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
     LAND USE
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                          0.70
                                    0.20
                                           0.900
                                                  91
                                                      7.53
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"
                     D
                          0.20
                                    0.20
                                           0.600
                                                      6.37
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.833
                   4.23
 SUBAREA RUNOFF(CFS) =
 TOTAL AREA (ACRES) =
                    0.90 PEAK FLOW RATE(CFS) =
                                              4.23
******************
 FLOW PROCESS FROM NODE 421.00 TO NODE 422.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 495.00 DOWNSTREAM(FEET) = 487.00
 FLOW LENGTH (FEET) = 308.00 MANNING'S N = 0.013
 ESTIMATED PIPE DIAMETER (INCH) INCREASED TO 18.000
 DEPTH OF FLOW IN 18.0 INCH PIPE IS 6.3 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 7.66
 ESTIMATED PIPE DIAMETER (INCH) = 18.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
                 4.23
 PIPE TRAVEL TIME (MIN.) = 0.67 Tc (MIN.) = 7.04
 LONGEST FLOWPATH FROM NODE 420.00 TO NODE 422.00 =
*************************
 FLOW PROCESS FROM NODE 422.00 TO NODE 422.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc(MIN.) = 7.04
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 5.087
 SUBAREA LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                 Fp
                                           Aр
                                                 SCS
    LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL)
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                     D
                          1.30
                                    0.20
                                           0.900
                                                  91
 RESIDENTIAL
```

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```
"3-4 DWELLINGS/ACRE" D 0.50 0.20 0.600 91
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.817
 SUBAREA AREA(ACRES) = 1.80 SUBAREA RUNOFF(CFS) = 7.98
 EFFECTIVE AREA(ACRES) = 2.70 AREA-AVERAGED Fm(INCH/HR) = 0.16
 AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 0.82
                  2.7 PEAK FLOW RATE (CFS) = 11.96
 TOTAL AREA (ACRES) =
******************
 FLOW PROCESS FROM NODE 422.00 TO NODE 423.00 IS CODE = 31
_____
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 487.00 DOWNSTREAM(FEET) = 478.00
 FLOW LENGTH (FEET) = 373.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 18.0 INCH PIPE IS 11.9 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 9.67
 ESTIMATED PIPE DIAMETER (INCH) = 18.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 11.96
 PIPE TRAVEL TIME (MIN.) = 0.64 Tc (MIN.) = 7.68
 LONGEST FLOWPATH FROM NODE 420.00 TO NODE 423.00 = 1009.00 FEET.
*****************
 FLOW PROCESS FROM NODE 423.00 TO NODE 423.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc(MIN.) = 7.68
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.838
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/
                SCS SOIL AREA
                                    Fρ
                                            αA
     LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                            0.80
                                    0.30
                                           0.900
                                                 76
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                            1.20
                                    0.25
                                           0.900
                                                  86
                     С
 RESIDENTIAL
                                           0.900
 ".4 DWELLING/ACRE"
                      D
                             0.20
                                    0.20
                                                  91
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"
                            0.40
                                    0.30
                                           0.600
                                                  76
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"
                            1.70
                                    0.25
                                           0.600
                                                  86
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"
                   D 0.10
                                    0.20
                                           0.600 91
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.750
 SUBAREA AREA(ACRES) = 4.40 SUBAREA RUNOFF(CFS) = 18.38
 EFFECTIVE AREA(ACRES) = 7.10 AREA-AVERAGED Fm(INCH/HR) = 0.18
 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.78
 TOTAL AREA (ACRES) = 7.1 PEAK FLOW RATE (CFS) = 29.74
*****************
 FLOW PROCESS FROM NODE 423.00 TO NODE 424.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
```

```
ELEVATION DATA: UPSTREAM(FEET) = 478.00 DOWNSTREAM(FEET) = 454.00
 FLOW LENGTH (FEET) = 995.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 24.0 INCH PIPE IS 17.7 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 11.99
 ESTIMATED PIPE DIAMETER (INCH) = 24.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
                 29.74
 PIPE TRAVEL TIME (MIN.) = 1.38 Tc (MIN.) = 9.06
 LONGEST FLOWPATH FROM NODE 420.00 TO NODE 424.00 = 2004.00 FEET.
*****************
 FLOW PROCESS FROM NODE 424.00 TO NODE 424.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc(MIN.) = 9.06
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.400
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                 Fp
                                          Αp
                                                  SCS
    LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                     С
                            0.80
                                    0.25
                                           0.200
 APARTMENTS
 APARTMENTS
                      D
                            0.40
                                     0.20
                                           0.200
                                                   91
 PUBLIC PARK
                    В
                           0.90
                                     0.30
                                           0.850
                                                   76
                                            0.850
                                                   86
 PUBLIC PARK
                           0.40
                                     0.25
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                    в 0.10
                                     0.30
                                           0.900
                                                   76
 RESIDENTIAL
 ".4 DWELLING/ACRE" C 0.70
                                    0.25 0.900
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.626
                            SUBAREA RUNOFF(CFS) = 12.57
 SUBAREA AREA(ACRES) = 3.30
 EFFECTIVE AREA(ACRES) = 10.40 AREA-AVERAGED Fm(INCH/HR) = 0.18
 AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.73
 TOTAL AREA (ACRES) = 10.4
                             PEAK FLOW RATE(CFS) =
                                                   39.51
******************
 FLOW PROCESS FROM NODE 424.00 TO NODE 424.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc (MIN.) = 9.06
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.400
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                  Fp
                                                  SCS
                                            Αp
    LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE" B 3.30
                                    0.30
                                           0.600
                                                   76
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE" C 2.10 0.25 0.600
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.28
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.600
 SUBAREA AREA(ACRES) = 5.40
                            SUBAREA RUNOFF (CFS) = 20.57
 EFFECTIVE AREA(ACRES) = 15.80 AREA-AVERAGED Fm(INCH/HR) = 0.18
 AREA-AVERAGED Fp (INCH/HR) = 0.26 AREA-AVERAGED Ap = 0.69
 TOTAL AREA(ACRES) = 15.8 PEAK FLOW RATE(CFS) =
*****************
 FLOW PROCESS FROM NODE 424.00 TO NODE 416.00 IS CODE = 31
```

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```
>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
                                                                        FLOW PROCESS FROM NODE 416.00 TO NODE 416.00 IS CODE = 1
                                                                      _____
_____
 ELEVATION DATA: UPSTREAM(FEET) = 454.00 DOWNSTREAM(FEET) = 415.00
                                                                        >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE <<<<
 FLOW LENGTH (FEET) = 1555.00 MANNING'S N = 0.013
                                                                        >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES
 DEPTH OF FLOW IN 30.0 INCH PIPE IS 23.9 INCHES
                                                                      _____
 PIPE-FLOW VELOCITY(FEET/SEC.) = 14.31
                                                                        TOTAL NUMBER OF STREAMS = 2
 ESTIMATED PIPE DIAMETER (INCH) = 30.00 NUMBER OF PIPES = 1
                                                                        CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 PIPE-FLOW(CFS) = 60.08
                                                                        TIME OF CONCENTRATION (MIN.) = 10.87
 PIPE TRAVEL TIME (MIN.) = 1.81 Tc (MIN.) = 10.87
                                                                        RAINFALL INTENSITY (INCH/HR) = 3.96
 LONGEST FLOWPATH FROM NODE 420.00 TO NODE 416.00 = 3559.00 FEET.
                                                                        AREA-AVERAGED Fm(INCH/HR) = 0.12
                                                                        AREA-AVERAGED Fp (INCH/HR) = 0.23
AREA-AVERAGED Ap = 0.50
 FLOW PROCESS FROM NODE 416.00 TO NODE 416.00 IS CODE = 81
                                                                        EFFECTIVE STREAM AREA(ACRES) = 43.00
                                                                        TOTAL STREAM AREA(ACRES) = 43.00
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
                                                                        PEAK FLOW RATE (CFS) AT CONFLUENCE = 148.90
______
                                                                        ** CONFLUENCE DATA **
 MAINLINE Tc(MIN.) = 10.87
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.964
                                                                        STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
 SUBAREA LOSS RATE DATA (AMC III):
                                                                        NUMBER
                                                                                 (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                         Ap SCS
                                                                         1
                                                                                229.47 9.54 4.272 0.22(0.09) 0.41 61.0 410.00
                                 Fρ
    LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                                148.90 10.87 3.964 0.23(0.12) 0.50 43.0 420.00
                   C 3.70
                                           0.200 86
 APARTMENTS
                                   0.25
                    D
                            6.80
                                    0.20
                                           0.200 91
                                                                        RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 APARTMENTS
 RESIDENTIAL
                                                                        CONFLUENCE FORMULA USED FOR 2 STREAMS.
                                                86
 "11+ DWELLINGS/ACRE" C
                            0.70
                                    0.25
                                           0.200
                                                                        ** PEAK FLOW RATE TABLE **
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" D
                            2.60
                                           0.200
                                                                               Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
                                    0.20
                                                91
                                                                                 (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
 RESIDENTIAL
                                                                        NUMBER
                                                                         1
                                                                                370.59 9.54 4.272 0.23(0.10) 0.45 98.7 410.00
 "3-4 DWELLINGS/ACRE"
                            2.20
                                    0.25
                                           0.600
                                                                                361.44 10.87 3.964 0.23(0.10) 0.45 104.0 420.00
 RESIDENTIAL
                          9.90
 "3-4 DWELLINGS/ACRE"
                   D
                                    0.20
                                           0.600
                                                                        COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.387
                                                                        PEAK FLOW RATE (CFS) = 370.59 Tc (MIN.) =
                                                                                                              9.54
 SUBAREA AREA(ACRES) = 25.90 SUBAREA RUNOFF(CFS) = 90.50
                                                                        EFFECTIVE AREA(ACRES) = 98.73 AREA-AVERAGED Fm(INCH/HR) = 0.10
 EFFECTIVE AREA(ACRES) = 41.70 AREA-AVERAGED Fm(INCH/HR) = 0.12
                                                                        AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.45
 AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.50
                                                                        TOTAL AREA(ACRES) = 104.0
 TOTAL AREA (ACRES) = 41.7 PEAK FLOW RATE (CFS) = 144.38
                                                                        LONGEST FLOWPATH FROM NODE 420.00 TO NODE 416.00 = 3559.00 FEET.
**********************
                                                                      ********************
 FLOW PROCESS FROM NODE 416.00 TO NODE 416.00 IS CODE = 81
                                                                        FLOW PROCESS FROM NODE 416.00 TO NODE 417.00 IS CODE = 31
                                                                      ______
 >>>>ADDITION OF SUBARFA TO MAINLINE PEAK FLOW<>>>
                                                                        >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
______
                                                                        >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
 MAINLINE Tc(MIN.) = 10.87
                                                                      ______
                                                                        ELEVATION DATA: UPSTREAM(FEET) = 415.00 DOWNSTREAM(FEET) = 395.00
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.964
 SUBAREA LOSS RATE DATA (AMC III):
                                                                        FLOW LENGTH (FEET) = 1084.00 MANNING'S N = 0.013
                                                                        DEPTH OF FLOW IN 63.0 INCH PIPE IS 50.0 INCHES
  DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap
                                                 SCS
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
                                                                        PIPE-FLOW VELOCITY (FEET/SEC.) = 20.12
                                                                        ESTIMATED PIPE DIAMETER (INCH) = 63.00 NUMBER OF PIPES = 1
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE" D
                          1.30
                                    0.20
                                         0.500 91
                                                                        PIPE-FLOW(CFS) = 370.59
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
                                                                        PIPE TRAVEL TIME (MIN.) = 0.90 Tc (MIN.) = 10.44
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.500
                                                                       LONGEST FLOWPATH FROM NODE 420.00 TO NODE 417.00 = 4643.00 FEET.
 SUBAREA AREA(ACRES) = 1.30 SUBAREA RUNOFF(CFS) = 4.52
                                                                      *******************
 EFFECTIVE AREA(ACRES) = 43.00 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.50
                                                                        FLOW PROCESS FROM NODE 417.00 TO NODE 417.00 IS CODE = 81
 TOTAL AREA (ACRES) = 43.0 PEAK FLOW RATE (CFS) = 148.90
                                                                        >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
```

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MAINLINE Tc(MIN.) =	10.44				
* 100 YEAR RAINFALL IN			4.058		
SUBAREA LOSS RATE DATA			_	_	~~~
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	F'p	Ap	SCS
	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL	C	1.70	0.25 0.20	0.100	01
COMMERCIAL PUBLIC PARK	D	2.90	0.20	0.100	91
RESIDENTIAL	D	3.00	0.20	0.030	91
"11+ DWELLINGS/ACRE"	С	4.50	0.25	0.200	86
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	D	4.50	0.20	0.200	91
RESIDENTIAL					
".4 DWELLING/ACRE"	D	0.10	0.20	0.900	91
SUBAREA AVERAGE PERVIO	US LOSS RA	TE, Fp(INC	CH/HR) = 0	.21	
SUBAREA AVERAGE PERVIO					
SUBAREA AREA (ACRES) =					
EFFECTIVE AREA (ACRES)	= 116.0	3 AREA-A	AVERAGED Fm	(INCH/HR)	= 0.10
AREA-AVERAGED Fp (INCH/					410 60
TOTAL AREA (ACRES) =	121.3	PEAK	FLOW RATE (CFS) =	413.08
******	******	******	*****	******	*****
FLOW PROCESS FROM NODE	417.00	TO NODE	417.00 T	S CODE =	81
>>>>ADDITION OF SUBARI	EA TO MAIN	LINE PEAK	FLOW<		
* 100 YEAR RAINFALL IN'SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/ITOTAL AREA (ACRES) =	(AMC III): SCS SOIL GROUP C D US LOSS RA 1.00 = 117.0 HR) = 0.2 122.3	AREA (ACRES) 0.80 0.20 TE, FP(INC ACTION, AK SUBAREA 3 AREA-AX PEAK	Fp (INCH/HR) 0.25 0.20 CH/HR) = 0 0 = 0.400 A RUNOFF (CF AVERAGED FM ERAGED AP FLOW RATE (0.400 0.400 .24 S) = 3. (INCH/HR) = 0.43 CFS) =	86 91 57 = 0.10 417.24
FLOW PROCESS FROM NODE	417.00	TO NODE	430.00 I	S CODE =	31
>>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-ES	TIMATED PI	PESIZE (NO	N-PRESSURE	,	
ELEVATION DATA: UPSTRE, FLOW LENGTH (FEET) = 1.1 DEPTH OF FLOW IN 69.0 PIPE-FLOW VELOCITY (FEE ESTIMATED PIPE DIAMETE) PIPE-FLOW (CFS) = 4.1 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM 1	AM(FEET) = 572.00 M INCH PIPE T/SEC.) = R(INCH) = 17.24 = 1.38	395.00 ANNING'S N IS 54.3 19.03 69.00	DOWNSTREAM J = 0.013 INCHES NUMBER OF .) = 11.8	M(FEET) = PIPES =	372.00

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************************* FLOW PROCESS FROM NODE 430.00 TO NODE 430.00 IS CODE = 81 ______ >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW< _____ MAINLINE Tc (MIN.) = 11.82* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.780 SUBAREA LOSS RATE DATA (AMC III): DEVELOPMENT TYPE/ SCS SOIL AREA Fр Aр SCS LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN COMMERCIAL В 0.70 0.30 0.100 76 С 0.20 0.25 0.100 COMMERCIAL 86 COMMERCIAL 0.40 0.20 0.100 91 5.70 PUBLIC PARK В 0.30 0.850 76 С PUBLIC PARK 4.50 0.25 0.850 86 PUBLIC PARK D 9.40 0.20 0.850 91 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.803 SUBAREA AREA(ACRES) = 20.90 SUBAREA RUNOFF(CFS) = 67.46 EFFECTIVE AREA(ACRES) = 137.93 AREA-AVERAGED Fm(INCH/HR) = 0.11 AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.48TOTAL AREA(ACRES) = 143.2 PEAK FLOW RATE(CFS) = ******************* FLOW PROCESS FROM NODE 430.00 TO NODE 430.00 IS CODE = 81 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>> _____ MAINLINE Tc(MIN.) = 11.82* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.780 SUBAREA LOSS RATE DATA (AMC III): DEVELOPMENT TYPE/ SCS SOIL AREA Fρ Αp SCS LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN PUBLIC PARK A 0.70 0.40 0.850 PUBLIC PARK В 8.90 0.30 0.850 76 PUBLIC PARK С 1.20 0.25 0.850 86 3.70 0.850 PUBLIC PARK D 0.20 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.28 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.850 SUBAREA AREA(ACRES) = 14.50 SUBAREA RUNOFF (CFS) = 46.27EFFECTIVE AREA(ACRES) = 152.43 AREA-AVERAGED Fm(INCH/HR) = 0.12 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.52 TOTAL AREA (ACRES) = 157.7 PEAK FLOW RATE(CFS) = 501.69 ******************* FLOW PROCESS FROM NODE 430.00 TO NODE 430.00 IS CODE = 11 >>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY _____ ** MAIN STREAM CONFLUENCE DATA ** STREAM Q Tc Intensity Fp(Fm) Ae HEADWATER Дp NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE 1 501.69 11.82 3.780 0.24(0.12) 0.52 152.4 410.00 487.11 13.15 3.555 0.24(0.12) 0.52 157.7 420.00 LONGEST FLOWPATH FROM NODE 420.00 TO NODE 430.00 = 6215.00 FEET.

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** MEMORY BANK # 2 CONFLUENCE DATA **

STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE	TOTAL AREA(ACRES) = 461.6 PEAK FLOW RATE(CFS) = 1194.15
1 699.62 17.17 3.051 0.24(0.11) 0.45 260.6 400.00	** PEAK FLOW RATE TABLE **
2 648.10 19.72 2.818 0.24(0.11) 0.45 262.6 430.00	STREAM Q TC Intensity Fp(Fm) Ap Ae HEADWATER
LONGEST FLOWPATH FROM NODE 400.00 TO NODE 430.00 = 9709.00 FEET.	NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
201022 12011111 11011 1022 100100 10 1022 100100 3100100 12211	1 1198.97 12.39 3.678 0.24(0.11) 0.45 373.1 410.00
** PEAK FLOW RATE TABLE **	2 1205.87 13.73 3.468 0.24 (0.11) 0.45 398.7 420.00
STREAM Q TC Intensity Fp(Fm) Ap Ae HEADWATER	3 1194.15 17.75 2.994 0.24 (0.11) 0.45 459.6 400.00
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE	4 1106.41 20.31 2.771 0.24(0.11) 0.45 461.6 430.00
1 1102.30 11.82 3.780 0.24(0.11) 0.48 331.8 410.00	NEW PEAK FLOW DATA ARE:
2 1114.68 13.15 3.555 0.24(0.11) 0.48 357.4 420.00	
, ,	PEAK FLOW RATE (CFS) = 1205.87 Tc (MIN.) = 13.73
3 1115.30 17.17 3.051 0.24(0.11) 0.48 418.3 400.00	AREA-AVERAGED Fm (INCH/HR) = 0.11 AREA-AVERAGED Fp (INCH/HR) = 0.24
4 1030.71 19.72 2.818 0.24(0.11) 0.48 420.3 430.00	AREA-AVERAGED Ap = 0.45 EFFECTIVE AREA(ACRES) = 398.65
TOTAL AREA(ACRES) = 420.3	*****************
CONDUMED CONTROL TOTAL TO A DE LO DOLLOVO	
COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:	FLOW PROCESS FROM NODE 431.00 TO NODE 431.00 IS CODE = 81
PEAK FLOW RATE (CFS) = 1115.30 Tc (MIN.) = 17.170	
EFFECTIVE AREA (ACRES) = 418.31 AREA-AVERAGED Fm (INCH/HR) = 0.11	>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.48	
TOTAL AREA (ACRES) = 420.3	MAINLINE TC (MIN.) = 13.73
LONGEST FLOWPATH FROM NODE 400.00 TO NODE 430.00 = 9709.00 FEET.	* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.468
***************	SUBAREA LOSS RATE DATA (AMC III):
	DEVELOPMENT TYPE/ SCS SOIL AREA FP AP SCS
FLOW PROCESS FROM NODE 430.00 TO NODE 431.00 IS CODE = 31	LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
	COMMERCIAL C 0.50 0.25 0.100 86
>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<	COMMERCIAL D 0.40 0.20 0.100 91
>>>>using computer-estimated pipesize (non-pressure flow) <<<<	SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
	SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.100
ELEVATION DATA: UPSTREAM(FEET) = 372.00 DOWNSTREAM(FEET) = 300.00	SUBAREA AREA(ACRES) = 0.90 SUBAREA RUNOFF(CFS) = 2.79
FLOW LENGTH(FEET) = 1358.00 MANNING'S N = 0.013	EFFECTIVE AREA(ACRES) = 399.55 AREA-AVERAGED Fm(INCH/HR) = 0.11
DEPTH OF FLOW IN 78.0 INCH PIPE IS 62.2 INCHES	AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.45
PIPE-FLOW VELOCITY(FEET/SEC.) = 39.33	TOTAL AREA(ACRES) = 462.5 PEAK FLOW RATE(CFS) = 1208.66
ESTIMATED PIPE DIAMETER(INCH) = 78.00 NUMBER OF PIPES = 1	
PIPE-FLOW(CFS) = 1115.30	*******************
PIPE TRAVEL TIME (MIN.) = 0.58 Tc (MIN.) = 17.75	FLOW PROCESS FROM NODE 431.00 TO NODE 331.00 IS CODE = 11
LONGEST FLOWPATH FROM NODE 400.00 TO NODE 431.00 = 11067.00 FEET.	
	>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<

FLOW PROCESS FROM NODE 431.00 TO NODE 431.00 IS CODE = 81	
	** MAIN STREAM CONFLUENCE DATA **
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<	STREAM Q TC Intensity Fp(Fm) Ap Ae HEADWATER
	NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
MAINLINE Tc(MIN.) = 17.75	1 1201.93 12.39 3.678 0.24(0.11) 0.45 374.0 410.00
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.994	2 1208.66 13.73 3.468 0.24(0.11) 0.45 399.6 420.00
SUBAREA LOSS RATE DATA (AMC III):	3 1196.55 17.75 2.994 0.24(0.11) 0.45 460.5 400.00
DEVELOPMENT TYPE/ SCS SOIL AREA FP AP SCS	4 1108.64 20.31 2.771 0.24(0.11) 0.45 462.5 430.00
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN	LONGEST FLOWPATH FROM NODE 400.00 TO NODE 331.00 = 11067.00 FEET.
APARTMENTS A 7.40 0.40 0.200 52	
APARTMENTS B 15.00 0.30 0.200 76	** MEMORY BANK # 1 CONFLUENCE DATA **
APARTMENTS C 5.80 0.25 0.200 86	STREAM Q TC Intensity Fp(Fm) Ap Ae HEADWATER
APARTMENTS D 2.50 0.20 0.200 91	NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
COMMERCIAL A 9.10 0.40 0.100 52	1 1859.02 17.43 3.026 0.23(0.09) 0.40 704.4 310.00
COMMERCIAL B 1.50 0.30 0.100 76	2 1903.90 20.95 2.722 0.23(0.09) 0.41 804.9 300.00
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.32	3 1904.05 20.99 2.720 0.23(0.09) 0.41 805.7 320.00
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.174	4 1708.18 26.39 2.385 0.23(0.10) 0.42 829.8 390.00
SUBAREA AREA (ACRES) = 41.30 SUBAREA RUNOFF (CFS) = 109.23	LONGEST FLOWPATH FROM NODE 390.00 TO NODE 331.00 = 13248.00 FEET.
EFFECTIVE AREA(ACRES) = 459.61 AREA-AVERAGED Fm(INCH/HR) = 0.11	
AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.45	** PEAK FLOW RATE TABLE **
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STREAM NUMBER 1 2 3 4 5 6 7	Q (CFS) 2818.24 2894.56 3056.53 3059.64 3004.40 2992.24 2991.37 2656 13	Tc (MIN.) 12.39 13.73 17.43 17.75 20.31 20.95 20.99 26.39	Intensity (INCH/HR) 3.678 3.468 3.026 2.994 2.771 2.722 2.720 2.385	Fp(Fm) (INCH/HR) 0.24(0.10) 0.24(0.10) 0.24(0.10) 0.24(0.10) 0.24(0.10) 0.24(0.10) 0.24(0.10)	0.42 0.42 0.42 0.42 0.42 0.42	Ae (ACRES) 875.0 954.5 1160.0 1174.0 1249.2 1267.4 1268.2 1292.3	HEADWATER NODE 410.00 420.00 310.00 400.00 430.00 300.00 320.00
8	2656.13 AREA (ACRES)	26.39	2.720 2.385 1292.3	0.24(0.10)		1292.3	390.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 3059.64 Tc (MIN.) = 17.746

EFFECTIVE AREA(ACRES) = 1174.01 AREA-AVERAGED Fm(INCH/HR) = 0.10

AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.42

TOTAL AREA(ACRES) = 1292.3

LONGEST FLOWPATH FROM NODE 390.00 TO NODE 331.00 = 13248.00 FEET.

END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 1292.3 TC (MIN.) = 17.75

EFFECTIVE AREA(ACRES) = 1174.01 AREA-AVERAGED Fm(INCH/HR) = 0.10

AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.419

PEAK FLOW RATE(CFS) = 3059.64

** PEAK FLOW RATE TABLE **

STREAM	Q	Tc	Intensity	Fp(Fm)	Аp	Ae	HEADWATER
NUMBER	(CFS)	(MIN.)	(INCH/HR)	(INCH/HR)		(ACRES)	NODE
1	2818.24	12.39	3.678	0.24(0.10)	0.42	875.0	410.00
2	2894.56	13.73	3.468	0.24(0.10)	0.42	954.5	420.00
3	3056.53	17.43	3.026	0.24(0.10)	0.42	1160.0	310.00
4	3059.64	17.75	2.994	0.24(0.10)	0.42	1174.0	400.00
5	3004.40	20.31	2.771	0.24(0.10)	0.42	1249.2	430.00
6	2992.24	20.95	2.722	0.24(0.10)	0.42	1267.4	300.00
7	2991.37	20.99	2.720	0.24(0.10)	0.42	1268.2	320.00
8	2656.13	26.39	2.385	0.24(0.10)	0.43	1292.3	390.00

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:

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* RMV PA-3 BODR 2022 - SUBWATERSHED C
* RATIONAL METHOD HYDROLOGY MODEL LOCAL
* 25-YR HC SEPT 2022 ROKAMOTO
 FILE NAME: PA3C25HC.DAT
 TIME/DATE OF STUDY: 19:27 09/17/2022
______
 USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
______
              --*TIME-OF-CONCENTRATION MODEL*--
 USER SPECIFIED STORM EVENT (YEAR) = 25.00
 SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
 SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
 *DATA BANK RAINFALL USED*
 *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)
          20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150
 1 30.0
 2 32.0 27.0 0.200/0.200/ --- 0.67 2.00 0.0312 0.167 0.0150
 3 13.0
         8.0 0.200/0.200/ --- 0.33 1.00 0.3120 0.125 0.0150
 GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
  1. Relative Flow-Depth = 1.00 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 300.00 TO NODE 301.00 IS CODE = 21
.....
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
______
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 330.00
 ELEVATION DATA: UPSTREAM(FEET) = 644.00 DOWNSTREAM(FEET) = 641.00
```

```
Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
                                                          C1-1
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.438
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.587
 SUBAREA To AND LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                         SCS Tc
     LAND USE
                      GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 RESIDENTIAL
                              1.60 0.20 0.200
                                                         7.5
                                                            8.44
 "11+ DWELLINGS/ACRE" D
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.200
 SUBAREA RUNOFF (CFS) = 5.11
 TOTAL AREA (ACRES) = 1.60 PEAK FLOW RATE (CFS) =
************************
 FLOW PROCESS FROM NODE 301.00 TO NODE 302.00 IS CODE = 62
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
______
 UPSTREAM ELEVATION(FEET) = 641.00 DOWNSTREAM ELEVATION(FEET) = 637.00
 STREET LENGTH (FEET) = 470.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
                                                           C1-2
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL(DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
                                                    10.99
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH (FEET) = 0.43
   HALFSTREET FLOOD WIDTH (FEET) = 15.04
   AVERAGE FLOW VELOCITY (FEET/SEC.) = 2.48
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 1.07
 STREET FLOW TRAVEL TIME (MIN.) = 3.16 Tc (MIN.) = 11.59
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.997
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                         SCS
                                      Fр
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                              0.10
 COMMERCIAL
                      D
                                         0.20
                                                 0.100
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" D 4.30
                                                         7.5
                                         0.20
                                                 0.200
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.198
 SUBAREA AREA (ACRES) = 4.40 SUBAREA RUNOFF (CFS) = 11.71
 EFFECTIVE AREA(ACRES) = 6.00 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp(INCH/HR) = 0.20 AREA-AVERAGED Ap = 0.20
 TOTAL AREA (ACRES) = 6.0 PEAK FLOW RATE (CFS) =
                                                       15.97
 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.48 HALFSTREET FLOOD WIDTH(FEET) = 17.54
 FLOW VELOCITY (FEET/SEC.) = 2.71 DEPTH*VELOCITY (FT*FT/SEC.) = 1.29
 LONGEST FLOWPATH FROM NODE 300.00 TO NODE 302.00 =
                                                       800.00 FEET.
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FLOW PROCESS FROM NODE 302.00 TO NODE 303.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
 ELEVATION DATA: UPSTREAM(FEET) = 637.00 DOWNSTREAM(FEET) = 634.00
 FLOW LENGTH (FEET) = 563.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 27.0 INCH PIPE IS 17.4 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 5.91
 ESTIMATED PIPE DIAMETER (INCH) = 27.00
                               NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
                15.97
 PIPE TRAVEL TIME (MIN.) = 1.59 Tc (MIN.) = 13.18
 LONGEST FLOWPATH FROM NODE 300.00 TO NODE 303.00 = 1363.00 FEET.
*********************
 FLOW PROCESS FROM NODE 303.00 TO NODE 303.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
_____
 MAINLINE Tc (MIN.) = 13.18
                                                 C1-3
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.787
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                  Fρ
    LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 RESIDENTIAL
                          5.60
                                          0.200
 "11+ DWELLINGS/ACRE"
                  С
                                   0.25
                                               69
 RESIDENTIAL
                           2.40
                                          0.200
 "11+ DWELLINGS/ACRE"
                    D
                                   0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.200
 SUBAREA AREA(ACRES) = 8.00
                           SUBAREA RUNOFF (CFS) = 19.73
 EFFECTIVE AREA(ACRES) = 14.00 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp (INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.20
 TOTAL AREA (ACRES) =
                   14.0
                            PEAK FLOW RATE(CFS) =
                                                34.56
FLOW PROCESS FROM NODE 303.00 TO NODE 304.00 IS CODE = 31
._____
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 634.00 DOWNSTREAM(FEET) = 630.00
 FLOW LENGTH (FEET) = 1072.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 36.0 INCH PIPE IS 26.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 6.18
 ESTIMATED PIPE DIAMETER (INCH) = 36.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
                 34.56
 PIPE TRAVEL TIME (MIN.) = 2.89 Tc (MIN.) = 16.07
 LONGEST FLOWPATH FROM NODE 300.00 TO NODE 304.00 = 2435.00 FEET.
******************
 FLOW PROCESS FROM NODE 304.00 TO NODE 304.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
_____
 MAINLINE Tc (MIN.) = 16.07
```

* 25 YEAR RAINFALL IN		CH/HR) =	2.491		C1-4
SUBAREA LOSS RATE DATA			_	_	
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp	Ap	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL	С	2.90	0.25 0.20	0.100	69
COMMERCIAL	D	4.50	0.20	0.100	75
PUBLIC PARK	D	0.10	0.20	0.850	75
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	С	5.70	0.25	0.200	69
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	D	2.40	0.20	0.200	75
RESIDENTIAL					
"8-10 DWELLINGS/ACRE"	С	0.50	0.25	0.400	69
SUBAREA AVERAGE PERVIO	US LOSS RAT	E, Fp(IN	CH/HR) = 0	.23	
SUBAREA AVERAGE PERVIO	US AREA FRA	ACTION, A	p = 0.164		
SUBAREA AREA(ACRES) =	16.10	SUBAREA	A RUNOFF (CF	S) = 35.	54
EFFECTIVE AREA(ACRES) =					
AREA-AVERAGED Fp(INCH/	HR) = 0.23	AREA-A	VERAGED Ap :	= 0.18	
TOTAL AREA (ACRES) =					66.38
*****	*****	*****	*****	*****	*****
FLOW PROCESS FROM NODE	304.00	TO NODE	304.00 I	S CODE =	81
>>>>ADDITION OF SUBAR		LINE PEAK	FLOW<		
=======================================					========
MAINLINE Tc(MIN.) =	16.07				C1-4
* 25 YEAR RAINFALL IN		CH/HR) =	2.491		C 1-4
SUBAREA LOSS RATE DATA					
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp	Ар	SCS
	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	
SCHOOL	С	5.70	0.25 0.20	0.600	69
SCHOOL					75
SUBAREA AVERAGE PERVIO				.22	
SUBAREA AVERAGE PERVIO					
SUBAREA AREA(ACRES) =	12.40	SUBARE	A RUNOFF (CF	S) = 26.	31
EFFECTIVE AREA(ACRES) =	= 42.50) AREA-	AVERAGED Fm	(INCH/HR)	= 0.07
AREA-AVERAGED Fp(INCH/	HR) = 0.22	AREA-A	VERAGED Ap :	= 0.30	
TOTAL AREA (ACRES) =	42.5	PEAK	FLOW RATE (CFS) =	92.68

FLOW PROCESS FROM NODE	304.00	TO NODE	305.00 I	S CODE =	31
>>>>COMPUTE PIPE-FLOW					,
>>>>USING COMPUTER-ES					
ELEVATION DATA: UPSTREA					
FLOW LENGTH (FEET) = 13				n(rhbl) -	010.00
DEPTH OF FLOW IN 39.0					
PIPE-FLOW VELOCITY (FEE			INCIED		
			MUMDED OF	DIDEC -	1
ESTIMATED PIPE DIAMETER		J9.UU	NUMBER OF	rires =	Τ
PIPE-FLOW(CFS) =	24.00	m ~ /MT37	\ _ 17 0	n	
PIPE TRAVEL TIME (MIN.)	= 1.61	TC (MIN	.) = 1/.6	8 27	05 00 5555
LONGEST FLOWPATH FROM 1	NODE 30(UU TO NO	שעע 305.	υυ = 37	ZO.UU FEET.
******	******	******	*****	*****	*****
FLOW PROCESS FROM NODE					
THOW PROCESS FROM NODE	303.00	TO MODE	303.00 1	2 CONF -	
>>>>ADDITION OF SUBAR	EA TO MATNI	INE PEAK	FI.OW<<<<		

Date: 09/30/2022 File name: PA3C25HC.RES Page 3 Date: 09/30/2022 File name: PA3C25HC.RES Page 4

MAINLINE Tc(MIN.) =	17.68				C	1-5
* 25 YEAR RAINFALL IN	TENSITY (IN	CH/HR) =	2.360		J	
SUBAREA LOSS RATE DATA	(AMC II):					
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp	Аp	SCS	
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
COMMERCIAL	С	1.00	0.25	0.100	69	
COMMERCIAL	D	0.90	0.25 0.20	0.100	75	
RESIDENTIAL						
"11+ DWELLINGS/ACRE"	С	0.60	0.25	0.200	69	
RESIDENTIAL						
"11+ DWELLINGS/ACRE"	D	0.10	0.20	0.200	7.5	
SCHOOL	С	0.10	0.20 0.25	0.600	69	
SCHOOL	D		0.20			
SUBAREA AVERAGE PERVIO					, 0	
SUBAREA AVERAGE PERVIO				•		
SUBAREA AREA(ACRES) =	3 20	SIIRARE	A RINOFF/CF	(2) = 6	66	
EFFECTIVE AREA (ACRES)	= 45 71	OODMIN APFA	AVEDACED Em	(TNCH/HP)	= 0	0.7
AREA-AVERAGED EN (INCU/	HR) = 0 2	O VDEV-V	MEBACED y~	= U 3U	0.	U 1
AREA-AVERAGED Fp(INCH/ TOTAL AREA(ACRES) =	111() - 0.2	תוחם מוחשב	. EIUM DYUU.\ .^TIVUGED Wb	CEG) -	Q./I	3./
TOTAL ANEA (ACKED) -	٦٥./	EDAN	THOM DATE (010) -	J4 •	JI
******	*****	******	******	******	****	*****
FLOW PROCESS FROM NODE	303.00	TO NODE	303.00 1	3 CODE =	02	
ann gunanea numon	T TO MATNI	TATE A TO M				
>>>>ADD SUBAREA RUNOF				<<<<<		
>>>> (AND COMPUTE INIT						
INITIAL SUBAREA FLOW-L	ENGTH (FEET)) = 3668	.00			10.00
	ENGTH (FEET)) = 3668	.00		6	10.00
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE	ENGTH (FEET) AM (FEET) =) = 3668 663.0	.00 0 DOWNSTRE	AM(FEET) =		
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE Tc = K*[(LENGTH** 3.00	ENGTH (FEET) AM (FEET) =) = 3668 663.0 ON CHANGE	.00 0 DOWNSTRE)]**0.20	AM(FEET) =		10.00
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE Tc = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED	ENGTH (FEET) AM (FEET) =) / (ELEVATION MINIMUM TC) = 3668 663.0 ON CHANGE (MIN.) =	.00 0 DOWNSTRE)]**0.20 18.909	AM(FEET) =		
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE Tc = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED 1 * 25 YEAR RAINFALL IN	ENGTH (FEET) AM (FEET) =) / (ELEVATION MINIMUM TO TENSITY (INC.)) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) =	.00 0 DOWNSTRE)]**0.20 18.909	AM(FEET) =		
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE. Tc = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED 1 * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA	ENGTH (FEET AM (FEET) =) / (ELEVATIO MINIMUM TO TENSITY (INO TE DATA (AMO SCS SOIL) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II):	.00 0 DOWNSTRE)]**0.20 18.909 2.272	AM(FEET) =	C1	1-6
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE. Tc = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED 1 * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/	ENGTH (FEET AM (FEET) =) / (ELEVATIO MINIMUM TO TENSITY (INO TE DATA (AMO SCS SOIL) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II):	.00 0 DOWNSTRE)]**0.20 18.909 2.272	AM(FEET) =	C1	1-6
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE. Tc = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED 1 * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA	ENGTH (FEET AM (FEET) =) / (ELEVATIO MINIMUM TO TENSITY (INO TE DATA (AMO SCS SOIL) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II):	.00 0 DOWNSTRE)]**0.20 18.909 2.272	AM(FEET) =	C1	1-6
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE. Tc = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED 1 * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA	ENGTH (FEET AM (FEET) =) / (ELEVATIO MINIMUM TO TENSITY (INO TE DATA (AMO SCS SOIL) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II):	.00 0 DOWNSTRE)]**0.20 18.909 2.272	AM(FEET) =	C1	1-6
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED: * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL	ENGTH (FEET AM (FEET) =) / (ELEVATIO MINIMUM TO TENSITY (INO TE DATA (AMO SCS SOIL) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II):	.00 0 DOWNSTRE)]**0.20 18.909 2.272	AM(FEET) =	C1	1-6
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE. TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED: * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL	ENGTH (FEET) AM (FEET) =) / (ELEVATIO MINIMUM TO TENSITY (IN) TE DATA (AM) SCS SOIL GROUP C D) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40	.00 0 DOWNSTRE)]**0.20 18.909 2.272 Fp (INCH/HR) 0.25 0.20	Ap (DECIMAL) 0.100 0.100	SCS CN 69 75	Tc (MIN.) 18.91 18.91
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE. TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED: * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE"	ENGTH (FEET) AM (FEET) =) / (ELEVATIO MINIMUM TO TENSITY (IN) TE DATA (AM) SCS SOIL GROUP C D) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40	.00 0 DOWNSTRE)]**0.20 18.909 2.272 Fp (INCH/HR) 0.25 0.20	Ap (DECIMAL) 0.100 0.100	SCS CN 69 75	Tc (MIN.) 18.91 18.91
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE. TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED 1 * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL RESIDENTIAL	ENGTH (FEET; AM (FEET) =) / (ELEVATIO MINIMUM TO TENSITY (INO TE DATA (AMO SCS SOIL GROUP C D C) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40 0.60	.00 0 DOWNSTRE)]**0.20 18.909 2.272 Fp (INCH/HR) 0.25 0.20 0.25	Ap (DECIMAL) 0.100 0.100 0.200	SCS CN 69 75	Tc (MIN.) 18.91 18.91 20.15
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE. TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED 1 * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE"	ENGTH (FEET; AM (FEET) =) / (ELEVATIO MINIMUM TO TENSITY (INO TE DATA (AMO SCS SOIL GROUP C D C) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40 0.60	.00 0 DOWNSTRE)]**0.20 18.909 2.272 Fp (INCH/HR) 0.25 0.20 0.25	Ap (DECIMAL) 0.100 0.100 0.200	SCS CN 69 75	Tc (MIN.) 18.91 18.91
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE. TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED: * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL	ENGTH (FEET; AM (FEET) =) / (ELEVATION MINIMUM TO TENSITY (INC TE DATA (AMO SCS SOIL GROUP C D C D C) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40 0.60 1.30	.00 0 DOWNSTRE)]**0.20 18.909 2.272 Fp (INCH/HR) 0.25 0.20 0.25 0.20	Ap (DECIMAL) 0.100 0.100 0.200 0.200	SCS CN 69 75	Tc (MIN.) 18.91 18.91 20.15 20.15
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED: * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE"	ENGTH (FEET; AM (FEET) =) / (ELEVATION MINIMUM TO TENSITY (INC TE DATA (AMO SCS SOIL GROUP C D C D C) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40 0.60 1.30	.00 0 DOWNSTRE)]**0.20 18.909 2.272 Fp (INCH/HR) 0.25 0.20 0.25 0.20	Ap (DECIMAL) 0.100 0.100 0.200 0.200	SCS CN 69 75	Tc (MIN.) 18.91 18.91 20.15
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE. TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED : * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "RESIDENTIAL	ENGTH (FEET; AM (FEET) =) / (ELEVATI MINIMUM TC TENSITY (INC TE DATA (AMC SCS SOIL GROUP C D C D D) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10	.00 0 DOWNSTRE)]**0.20 18.909 2.272 Fp (INCH/HR) 0.25 0.20 0.25 0.20	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600	SCS CN 69 75 69 75	Tc (MIN.) 18.91 18.91 20.15 20.15 25.63
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE. TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED: * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL	ENGTH (FEET; AM (FEET) =) / (ELEVATI MINIMUM TC TENSITY (INC TE DATA (AMC SCS SOIL GROUP C D C D D) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10	.00 0 DOWNSTRE)]**0.20 18.909 2.272 Fp (INCH/HR) 0.25 0.20 0.25 0.20	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600	SCS CN 69 75 69 75	Tc (MIN.) 18.91 18.91 20.15 20.15 25.63
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED: * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE"	ENGTH (FEET; AM (FEET) =) / (ELEVATIC MINIMUM TC TENSITY (INC TE DATA (AMC SCS SOIL GROUP C D C D C D) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80	.00 0 DOWNSTRE)]**0.20 18.909 2.272 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.20 0.25	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600 0.600	SCS CN 69 75 69 75	Tc (MIN.) 18.91 18.91 20.15 20.15 25.63
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE. TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED: * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO	ENGTH (FEET; AM (FEET) =) / (ELEVATIC MINIMUM TC TENSITY (INC TE DATA (AMC SCS SOIL GROUP C D C D C US LOSS RAS) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 TE, Fp(IN	.00 0 DOWNSTRE)]**0.20 18.909 2.272 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600 0.600 .21	SCS CN 69 75 69 75	Tc (MIN.) 18.91 18.91 20.15 20.15 25.63
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED: * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO	ENGTH (FEET; AM (FEET) =) / (ELEVATIC MINIMUM TC TENSITY (INC TE DATA (AMC SCS SOIL GROUP C D C D C US LOSS RA: US AREA FRE) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 TE, Fp(IN ACTION, A	.00 0 DOWNSTRE 0.20 18.909 2.272 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0 p = 0.387	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600 0.600 .21	SCS CN 69 75 69 75 75	Tc (MIN.) 18.91 18.91 20.15 25.63 25.63
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE. TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED : * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO	ENGTH (FEET; AM (FEET) =) / (ELEVATIC MINIMUM TC TENSITY (INC TE DATA (AMC SCS SOIL GROUP C D C D C US LOSS RA: US AREA FRE) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 TE, Fp(IN ACTION, A	.00 0 DOWNSTRE 0.20 18.909 2.272 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0 p = 0.387	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600 0.600 .21	SCS CN 69 75 69 75 75	Tc (MIN.) 18.91 18.91 20.15 25.63 25.63
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED: * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA(ACRES) =	ENGTH (FEET; AM (FEET) =) / (ELEVATIC MINIMUM TC TENSITY (INC TE DATA (AMC SCS SOIL GROUP C D C D C US LOSS RA: US AREA FR: 17.90) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 TE, Fp(IN ACTION, A INITIAL S	.00 0 DOWNSTRE 0.20 18.909 2.272 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0 p = 0.387 UBAREA RUNO	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600 0.600 .21	SCS CN 69 75 69 75 75	Tc (MIN.) 18.91 18.91 20.15 25.63 25.63
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED: * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA(ACRES) = ** ADD SUBAREA RUNOFF	ENGTH (FEET; AM (FEET) =) / (ELEVATIC MINIMUM TC TENSITY (INC TE DATA (AMC SCS SOIL GROUP C D C D C US LOSS RA: US AREA FR: 17.90) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 TE, Fp(IN ACTION, A INITIAL S	.00 0 DOWNSTRE 0.20 18.909 2.272 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0 p = 0.387 UBAREA RUNO	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600 0.600 .21	SCS CN 69 75 69 75 75	Tc (MIN.) 18.91 18.91 20.15 25.63 25.63
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE. TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED 1 * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL COMMERCIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA (ACRES) = ** ADD SUBAREA RUNOFF MAINLINE TC (MIN.) =	ENGTH (FEET; AM (FEET) =) / (ELEVATION MINIMUM TO TENSITY (INC TE DATA (AMC SCS SOIL GROUP C D C D C US LOSS RAM US AREA FRO 17.90 TO MAINLINI 17.68) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 TE, FP(IN ACTION, A INITIAL S	.00 0 DOWNSTRE 1	Ap (DECIMAL) 0.100 0.100 0.200 0.200 0.600 0.600 .21	SCS CN 69 75 69 75 75	Tc (MIN.) 18.91 18.91 20.15 25.63 25.63
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED: * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL COMMERCIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA(ACRES) = ** ADD SUBAREA RUNOFF MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN	ENGTH (FEET; AM (FEET) =) / (ELEVATION MINIMUM TO TENSITY (INC TE DATA (AMC SCS SOIL GROUP C D C D C US LOSS RAM 17.90 TO MAINLING 17.68 TENSITY (INC) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 TE, FP(IN ACTION, A ACTION, A CH/HR) =	.00 0 DOWNSTRE 0.20 18.909 2.272 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0 p = 0.387 UBAREA RUNO LINE Tc: 2.360	Ap (DECIMAL) 0.100 0.100 0.200 0.600 0.600 .21 FF(CFS) =	SCS CN 69 75 69 75 75 69	Tc (MIN.) 18.91 18.91 20.15 25.63 25.63
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED: * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL COMMERCIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA(ACRES) = ** ADD SUBAREA RUNOFF MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBAREA AREA(ACRES) =	ENGTH (FEET; AM (FEET) =) / (ELEVATION MINIMUM TO TENSITY (INC TE DATA (AMC SCS SOIL GROUP C D C D C US LOSS RA: 17.90 TO MAINLINI 17.68 TENSITY (INC 17.90) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 TE, FP(IN ACTION, A AINITIAL S E AT MAIN CH/HR) = SUBARE	.00 0 DOWNSTRE 1	Ap (DECIMAL) 0.100 0.100 0.200 0.600 0.600 .21 FF(CFS) =	SCS CN 69 75 69 75 69 35.	Tc (MIN.) 18.91 18.91 20.15 25.63 25.63
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED: * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL COMMERCIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA(ACRES) = ** ADD SUBAREA RUNOFF MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES)	ENGTH (FEET; AM (FEET) =) / (ELEVATION MINIMUM TO TENSITY (INC TE DATA (AMC SCS SOIL GROUP C D C D C US LOSS RA' US AREA FRO 17.90 TO MAINLINI 17.68 TENSITY (INC 17.90 = 63.60) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 TE, FP(IN ACTION, A INITIAL S E AT MAIN CH/HR) = SUBARE 0 AREA-	.00 0 DOWNSTRE 0.20 18.909 2.272 Fp (INCH/HR) 0.25 0.20 0.25 0.20 0.25 CH/HR) = 0 p = 0.387 UBAREA RUNO LINE Tc: 2.360 A RUNOFF(CF AVERAGED FM	Ap (DECIMAL) 0.100 0.100 0.200 0.600 .21 FF (CFS) =	SCS CN 69 75 69 75 69 35.	Tc (MIN.) 18.91 18.91 20.15 25.63 25.63
INITIAL SUBAREA FLOW-L ELEVATION DATA: UPSTRE TC = K*[(LENGTH** 3.00 SUBAREA ANALYSIS USED: * 25 YEAR RAINFALL IN SUBAREA TC AND LOSS RA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL COMMERCIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" RESIDENTIAL "3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA(ACRES) = ** ADD SUBAREA RUNOFF MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBAREA AREA(ACRES) =	ENGTH (FEET; AM (FEET) =) / (ELEVATION MINIMUM TO TENSITY (INC TE DATA (AMC SCS SOIL GROUP C D C D C US LOSS RA' US AREA FRO 17.90 TO MAINLINI 17.68 TENSITY (INC 17.90 = 63.60 HR) = 0.22) = 3668 663.0 ON CHANGE (MIN.) = CH/HR) = C II): AREA (ACRES) 1.70 4.40 0.60 1.30 7.10 2.80 TE, FP(IN ACTION, A INITIAL S E AT MAIN CH/HR) = SUBARE 0 AREA-A	.00 0 DOWNSTRE 1	Ap (DECIMAL) 0.100 0.100 0.200 0.600 .21 FF (CFS) = 36. (INCH/HR) = 0.32	SCS CN 69 75 69 75 69 35.	Tc (MIN.) 18.91 18.91 20.15 25.63 25.63

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FLOW PROCESS FROM NODE 305.00 TO NODE 317.00 IS CODE = 31
______
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 610.00 DOWNSTREAM(FEET) = 535.00
 FLOW LENGTH (FEET) = 1537.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 36.0 INCH PIPE IS 27.7 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 22.48
 ESTIMATED PIPE DIAMETER (INCH) = 36.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 131.03
 PIPE TRAVEL TIME (MIN.) = 1.14 Tc (MIN.) = 18.82
 LONGEST FLOWPATH FROM NODE 300.00 TO NODE 317.00 = 5262.00 FEET.
******************
 FLOW PROCESS FROM NODE 317.00 TO NODE 317.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc (MIN.) = 18.82
                                                C1-7
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.278
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                               Fр
                                         Αр
    LAND USE
                 GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                    С
                         3.30 0.25
                                       0.100
 COMMERCIAL
                    D
                          0.40
                                  0.20
                                         0.100
                                               7.5
 PUBLIC PARK
                   C
                         0.10 0.25 0.850 69
 RESIDENTIAL
                 C 0.20
 "5-7 DWELLINGS/ACRE"
                                  0.25 0.500
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.139
 SUBAREA AREA(ACRES) = 4.00
                          SUBAREA RUNOFF (CFS) = 8.08
 EFFECTIVE AREA(ACRES) = 67.60 AREA-AVERAGED Fm(INCH/HR) = 0.07
 AREA-AVERAGED Fp (INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.31
 TOTAL AREA(ACRES) = 67.6
                            PEAK FLOW RATE(CFS) =
                                              134.41
FLOW PROCESS FROM NODE 317.00 TO NODE 317.00 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.) = 18.82
 RAINFALL INTENSITY (INCH/HR) = 2.28
 AREA-AVERAGED Fm(INCH/HR) = 0.07
 AREA-AVERAGED Fp (INCH/HR) = 0.22
 AREA-AVERAGED Ap = 0.31
 EFFECTIVE STREAM AREA(ACRES) = 67.60
                      67.60
 TOTAL STREAM AREA(ACRES) =
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 134.41
*******************
 FLOW PROCESS FROM NODE 310.00 TO NODE 311.00 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) = 330.00
 ELEVATION DATA: UPSTREAM(FEET) = 629.00 DOWNSTREAM(FEET) =
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
                                                        C1-10
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 7.474
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.842
 SUBAREA TC AND LOSS RATE DATA(AMC II):
                                                      SCS Tc
  DEVELOPMENT TYPE/
                  SCS SOIL AREA
     LAND USE
                     GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 COMMERCIAL
                       D
                               0.10
                                       0.20
                                               0.100
                                                      75 7.47
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                               1.10
                                       0.25
                                               0.200
                                                      69
                                                           7.97
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" D
                              0.20
                                       0.20
                                             0.200 75 7.97
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.193
 SUBAREA RUNOFF (CFS) =
                     4.78
 TOTAL AREA (ACRES) = 1.40 PEAK FLOW RATE (CFS) =
*********************
 FLOW PROCESS FROM NODE 311.00 TO NODE 312.00 IS CODE = 62
______
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
______
 UPSTREAM ELEVATION (FEET) = 625.00 DOWNSTREAM ELEVATION (FEET) = 623.00
 STREET LENGTH (FEET) = 300.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL(DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
                                                  9.05
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) = 0.42
   HALFSTREET FLOOD WIDTH (FEET) = 14.57
   AVERAGE FLOW VELOCITY (FEET/SEC.) = 2.17
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 0.92
                                                       C1-11
 STREET FLOW TRAVEL TIME (MIN.) = 2.31 Tc (MIN.) =
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.299
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                       Fρ
                                                αA
                                                      SCS
                     GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 COMMERCIAL
                      C
                              1.50
                                       0.25
                                               0.100
 COMMERCIAL
                       D
                               0.20
                                       0.20
                                               0.100
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                    С
                              0.70
                                       0.25
                                               0.200
                                                     69
 RESIDENTIAL
                      D 0.50
                                               0.200
 "11+ DWELLINGS/ACRE"
                                       0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.141
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SUBAREA AREA (ACRES) = 2.90 SUBAREA RUNOFF (CFS) = 8.52
 EFFECTIVE AREA(ACRES) = 4.30 AREA-AVERAGED Fm(INCH/HR) = 0.04
 AREA-AVERAGED Fp (INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.16
 TOTAL AREA (ACRES) = 4.3
                            PEAK FLOW RATE(CFS) =
                                                  12.62
 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.46 HALFSTREET FLOOD WIDTH(FEET) = 16.76
 FLOW VELOCITY (FEET/SEC.) = 2.34 DEPTH*VELOCITY (FT*FT/SEC.) = 1.08
 LONGEST FLOWPATH FROM NODE 310.00 TO NODE 312.00 = 630.00 FEET.
******************
 FLOW PROCESS FROM NODE 312.00 TO NODE 313.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 623.00 DOWNSTREAM(FEET) = 620.00
 FLOW LENGTH (FEET) = 369.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 21.0 INCH PIPE IS 16.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 6.40
 ESTIMATED PIPE DIAMETER (INCH) = 21.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 12.62
 PIPE TRAVEL TIME (MIN.) = 0.96 Tc (MIN.) = 10.74
 LONGEST FLOWPATH FROM NODE 310.00 TO NODE 313.00 =
*******************
 FLOW PROCESS FROM NODE 313.00 TO NODE 313.00 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
_____
 MAINLINE Tc (MIN.) = 10.74
                                                  C1-12
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.129
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                   Fρ
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                    С
                           1.90 0.25
                                           0.100
                                                  69
                     D
                            2.50
                                    0.20
                                           0.100
                                                  75
 COMMERCIAL
 RESIDENTIAL
                  C 0.80
                                    0.25
                                           0.200
 "11+ DWELLINGS/ACRE"
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                          0.70
                                    0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.125
 SUBAREA AREA (ACRES) = 5.90
                           SUBAREA RUNOFF (CFS) = 16.46
 EFFECTIVE AREA(ACRES) = 10.20 AREA-AVERAGED Fm(INCH/HR) = 0.03
 AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.14
 TOTAL AREA (ACRES) = 10.2
                             PEAK FLOW RATE(CFS) =
FLOW PROCESS FROM NODE 313.00 TO NODE 314.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 620.00 DOWNSTREAM(FEET) = 615.00
 FLOW LENGTH (FEET) = 338.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 27.0 INCH PIPE IS 18.2 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 9.98
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ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 2 PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N	8.43 = 0.56	Tc (MIN	.) = 11.33	1	

>>>>ADDITION OF SUBARE.		LINE PEAK	FLOW<		
MAINLINE Tc(MIN.) = 1 * 25 YEAR RAINFALL INT	1.31 ENSITY(ING				C1-13
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp	Ap	SCS
COMMERCIAL	C	(ACKES)	(INCH/HK) 0 25	(DECIMAL)	69
COMMERCIAL	ח	0.20	0.25 0.20	0.100	75
			0.25		
RESIDENTIAL	C	0.20	0.23	0.050	0.5
"11+ DWELLINGS/ACRE" RESIDENTIAL	С	6.10	0.25	0.200	69
"11+ DWELLINGS/ACRE"	D	6.10	0.20	0.200	75
SUBAREA AVERAGE PERVIOU					-
SUBAREA AVERAGE PERVIOU					
SUBAREA AREA(ACRES) =	12.70	SUBARE	A RUNOFF (CF:	34.3	20
EFFECTIVE AREA(ACRES) =	22.9	0 AREA-	AVERAGED Fm	(INCH/HR)	= 0.04
AREA-AVERAGED Fp(INCH/H	R) = 0.2	3 AREA-A	VERAGED Ap =	= 0.18	
TOTAL AREA (ACRES) =	22.9	PEAK	FLOW RATE (CFS) =	61.81
>>>>COMPUTE PIPE-FLOW '	IMATED PI	PESIZE (N	ON-PRESSURE		
ELEVATION DATA: UPSTREAL FLOW LENGTH (FEET) = 5 DEPTH OF FLOW IN 30.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 6 PIPE TRAVEL TIME (MIN.)	M(FEET) = 78.00 M INCH PIPE /SEC.) = (INCH) = 1.81 = 0.66	615.00 ANNING'S 1 IS 24.2 14.56 30.00 Tc (MIN	DOWNSTREAM N = 0.013 INCHES NUMBER OF 1 .) = 11.9	M(FEET) = PIPES =	600.00

>>>>ADDITION OF SUBARE		LINE PEAK			
MAINLINE Tc(MIN.) = 1 * 25 YEAR RAINFALL INT: SUBAREA LOSS RATE DATA(.	1.97 ENSITY(IN			======	C1-14
DEVELOPMENT TYPE/			Fp		SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)		
COMMERCIAL	C	1.70	0.25	0.100	69
COMMERCIAL	D	1.30	0.20	0.100	75
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	С	3.00	0.25	0.200	69
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RESIDENTIAL "11+ DWELLINGS/ACRE"	D	2.10	0.20	0.200	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE" RESIDENTIAL	С	3.70	0.25	0.500	69
"5-7 DWELLINGS/ACRE"	D	6.00	0.20	0.500	75
SUBAREA AVERAGE PERVIOU					
SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) =	JS AREA FR	ACTION, Ar	0.347		92
EFFECTIVE AREA(ACRES) =	40.7	0 AREA-A	AVERAGED Fm	(INCH/HR)	= 0.06
AREA-AVERAGED Fp(INCH/H	4R) = 0.2	2 AREA-AV	/ERAGED Ap	= 0.25	
TOTAL AREA (ACRES) =	40.7	PEAK	FLOW RATE (CFS) =	105.74
******	******	*******	******	******	*****
FLOW PROCESS FROM NODE					
>>>>COMPUTE PIPE-FLOW	TRAVEL TI	ME THRU SI	JBAREA<		
>>>>USING COMPUTER-EST					<
ELEVATION DATA: UPSTREA	AM(FEET) =	600.00	DOWNSTREA	M(FEET) =	569.00
FLOW LENGTH (FEET) = 21	76.00 M	ANNING'S N	1 = 0.013		
DEPTH OF FLOW IN 42.0	INCH PIPE	IS 32.0	INCHES		
PIPE-FLOW VELOCITY (FEET	T/SEC.) =	13.45			
ESTIMATED PIPE DIAMETER	R(INCH) =	42.00	NUMBER OF	PIPES =	1
PIPE-FLOW(CFS) = 10	5.74				
PIPE TRAVEL TIME (MIN.)	= 2.70	Tc (MIN.	.) = 14.6	7	
LONGEST FLOWPATH FROM N					91.00 FEE

FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE	316.00 EA TO MAIN	TO NODE	316.00 I		
FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC(MIN.) = 1	316.00 EA TO MAIN ========	TO NODE	316.00 I		81
FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE Tc(MIN.) = 1 * 25 YEAR RAINFALL INT	316.00 EA TO MAIN ====================================	TO NODE LLINE PEAK CH/HR) =	316.00 I		
>>>>ADDITION OF SUBARE MAINLINE Tc(MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA	316.00 	TO NODE LINE PEAK CH/HR) =	316.00 I FLOW<<<< 2.623	S CODE =	81 C1-1
>>>>ADDITION OF SUBARE MAINLINE Tc(MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/	316.00 EA TO MAIN EAST MAIN CENSITY (IN (AMC II): SCS SOIL	TO NODE LINE PEAK ICH/HR) =	316.00 I FLOW<>>> 2.623	S CODE = 	81 C1-1
>>>>ADDITION OF SUBARE MAINLINE TC(MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE	316.00 EA TO MAIN EAST MAIN CENSITY (IN (AMC II): SCS SOIL	TO NODE LINE PEAK ICH/HR) =	316.00 I FLOW<>>> 2.623	S CODE = 	81 C1-1
FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE Tc(MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL	316.00 EA TO MAIN	TO NODE LINE PEAK CH/HR) = AREA (ACRES)	316.00 I FLOW<>>> 2.623 Fp (INCH/HR)	S CODE = Ap (DECIMAL)	C1-1
FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE Tc (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE"	316.00 EA TO MAIN	TO NODE LINE PEAK CH/HR) = AREA (ACRES)	316.00 I FLOW<>>> 2.623 Fp (INCH/HR)	S CODE = Ap (DECIMAL)	C1-1
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE Tc(MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL	316.00 EA TO MAIN ENSITY(IN (AMC II): SCS SOIL GROUP C	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40	316.00 I FLOW<<<< 2.623 Fp (INCH/HR) 0.25	Ap (DECIMAL)	81 C1-1 SCS CN 69
FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE Tc (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE"	316.00 EA TO MAIN ENSITY(IN (AMC II): SCS SOIL GROUP C	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40	316.00 I FLOW<<<< 2.623 Fp (INCH/HR) 0.25	Ap (DECIMAL)	81 C1-1 SCS CN 69
FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL RESIDENTIAL RESIDENTIAL	316.00 EA TO MAIN 4.67 PENSITY(IN (AMC II): SCS SOIL GROUP C	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30	316.00 I FLOW<><<< 2.623 Fp (INCH/HR) 0.25 0.20	Ap (DECIMAL) 0.200 0.900	81 C1-1 SCS CN 69
PLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE Tc (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLINGS/ACRE"	316.00 EA TO MAIN 4.67 PENSITY(IN (AMC II): SCS SOIL GROUP C	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30	316.00 I FLOW<><<< 2.623 Fp (INCH/HR) 0.25 0.20	Ap (DECIMAL) 0.200 0.900	81 C1-1 SCS CN 69
FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL	316.00 EA TO MAIN	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30 6.80	316.00 I FLOW<><<< 2.623 Fp (INCH/HR) 0.25 0.20 0.25	Ap (DECIMAL) 0.200 0.900 0.500	81 C1-1 SCS CN 69 75
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE"	316.00 EA TO MAIN 4.67 CENSITY(IN (AMC II): SCS SOIL GROUP C D C	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10	316.00 I FLOW<><<< 2.623 Fp (INCH/HR) 0.25 0.20 0.25	Ap (DECIMAL) 0.200 0.900 0.500	81 C1-1 SCS CN 69 75
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU	316.00 EA TO MAIN 4.67 PENSITY(IN (AMC II): SCS SOIL GROUP C D C D US LOSS RA	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10 TE, Fp(INC	316.00 I FLOW<><<< 2.623 Fp (INCH/HR) 0.25 0.20 0.25 0.20 CH/HR) = 0	Ap (DECIMAL) 0.200 0.900 0.500	81 C1-1 SCS CN 69 75
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS	316.00 ZA TO MAIN 4.67 CENSITY(IN (AMC II): SCS SOIL GROUP C D C D JS LOSS RA JS AREA FR	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10 TE, Fp(INC ACTION, AK	316.00 I FLOW< <<< 2.623 Fp (INCH/HR) 0.25 0.20 0.25 0.20 CH/HR) = 0 0 = 0.500	Ap (DECIMAL) 0.200 0.900 0.500 0.500	81 C1-1 SCS CN 69 75 69 75
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) =	316.00 EA TO MAIN 4.67 CENSITY(IN (AMC II): SCS SOIL GROUP C D C D C D SS LOSS RA JS AREA FR 26.60	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10 TE, FP(INC ACTION, AF SUBAREA	316.00 I FLOW< << 2.623 Fp (INCH/HR) 0.25 0.20 0.25 0.20 CH/HR) = 0 D = 0.500 A RUNOFF (CF	Ap (DECIMAL) 0.200 0.900 0.500 0.500 .21 S) = 60.	81
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES)	316.00 TA TO MAIN TENSITY (IN (AMC II): SCS SOIL GROUP C D C D US LOSS RA US AREA FR 26.60 67.3	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10 TE, FP(INCACTION, AREA SUBAREA 0 AREA-A	316.00 I FLOW< << 2.623 Fp (INCH/HR) 0.25 0.20 0.25 0.20 CH/HR) = 0 D = 0.500 A RUNOFF (CF AVERAGED FM	Ap (DECIMAL) 0.200 0.900 0.500 0.500 .21 S) = 60. (INCH/HR)	81
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/F	316.00 TA TO MAIN 4.67 TENSITY(IN (AMC II): SCS SOIL GROUP C D C D US LOSS RA US AREA FR 26.60 = 67.3 HR) = 0.2	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10 TE, FP(INCACTION, AREA SUBAREA 0 AREA-A 2 AREA-A	316.00 I FLOW< << 2.623 Fp (INCH/HR) 0.25 0.20 0.25 0.20 CH/HR) = 0 0 = 0.500 A RUNOFF(CF AVERAGED FM /ERAGED Ap	Ap (DECIMAL) 0.200 0.900 0.500 0.500 .21 S) = 60. (INCH/HR) = 0.35	81
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES)	316.00 TA TO MAIN 4.67 TENSITY(IN (AMC II): SCS SOIL GROUP C D C D US LOSS RA US AREA FR 26.60 = 67.3 HR) = 0.2	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10 TE, FP(INCACTION, AREA SUBAREA 0 AREA-A 2 AREA-A	316.00 I FLOW< << 2.623 Fp (INCH/HR) 0.25 0.20 0.25 0.20 CH/HR) = 0 0 = 0.500 A RUNOFF(CF AVERAGED FM /ERAGED Ap	Ap (DECIMAL) 0.200 0.900 0.500 0.500 .21 S) = 60. (INCH/HR) = 0.35	81
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/F	316.00 ATO MAIN	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10 TE, Fp(INC ACTION, AF SUBAREI 0 AREA-1 2 AREA-AV PEAK	316.00 I FLOW< 2.623 Fp (INCH/HR) 0.25 0.20 0.25 0.20 CH/HR) = 0 0 = 0.500 A RUNOFF (CF AVERAGED FM /ERAGED AP FLOW RATE (Ap (DECIMAL) 0.200 0.900 0.500 .21 S) = 60. (INCH/HR) = 0.35 CFS) =	81 C1-1 SCS CN 69 75 69 75 154.28
FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/F TOTAL AREA (ACRES) =	316.00 A TO MAIN	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10 TE, Fp(INC ACTION, AK SUBAREA 0 AREA-A 2 AREA-A PEAK	316.00 I FLOW<<<<<	Ap (DECIMAL) 0.200 0.900 0.500 0.500 .21 S) = 60. (INCH/HR) = 0.35 CFS) =	81
FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/F TOTAL AREA (ACRES) = ***********************************	316.00 A TO MAIN	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10 TE, Fp(INC ACTION, AK SUBAREA 0 AREA-A 2 AREA-A PEAK	316.00 I FLOW<<<< 2.623 Fp (INCH/HR) 0.25 0.20 0.25 0.20 CH/HR) = 0 D = 0.500 A RUNOFF (CF AVERAGED FM VERAGED FM VERAGED AP FLOW RATE (************************************	Ap (DECIMAL) 0.200 0.900 0.500 0.500 .21 S) = 60. (INCH/HR) = 0.35 CFS) =	81 C1-1 SCS CN 69 75 69 75 49 75 **********************************
FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/F TOTAL AREA (ACRES) = ***********************************	316.00	TO NODE CH/HR) = AREA (ACRES) 0.40 0.30 6.80 19.10 TE, Fp(INCACTION, AF SUBAREA-AC AREA-AC PEAK TO NODE ***********************************	316.00 I FLOW<<<<<	Ap (DECIMAL) 0.200 0.900 0.500 0.500 (INCH/HR) = 0.35 CFS) = ********* S CODE =	81 C1-1 SCS CN 69 75 69 75 49 75 **********************************

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RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 ELEVATION DATA: UPSTREAM(FEET) = 569.00 DOWNSTREAM(FEET) = 535.00
                                                                       CONFLUENCE FORMULA USED FOR 2 STREAMS.
 FLOW LENGTH (FEET) = 759.00 MANNING'S N = 0.013
                                                                       ** PEAK FLOW RATE TABLE **
 DEPTH OF FLOW IN 39.0 INCH PIPE IS 29.8 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 22.70
                                                                        STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
                                                                        NUMBER
                                                                                (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
 ESTIMATED PIPE DIAMETER(INCH) = 39.00 NUMBER OF PIPES = 1
                                                                                312.63 15.22 2.569 0.22(0.08) 0.35 139.5 310.00
 PIPE-FLOW(CFS) = 154.28
                                                                        1
 PIPE TRAVEL TIME (MIN.) = 0.56 Tc (MIN.) = 15.22
                                                                               301.85 18.82 2.278 0.22(0.08) 0.35 152.4
 LONGEST FLOWPATH FROM NODE 310.00 TO NODE 317.00 = 4850.00 FEET.
                                                                       COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
******************
                                                                       PEAK FLOW RATE (CFS) = 312.63 Tc (MIN.) = 15.22
 FLOW PROCESS FROM NODE 317.00 TO NODE 317.00 IS CODE = 81
                                                                       EFFECTIVE AREA(ACRES) = 139.49 AREA-AVERAGED Fm(INCH/HR) = 0.08
                                                                       AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.35
                                                                       TOTAL AREA(ACRES) = 152.4
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
                                                                       LONGEST FLOWPATH FROM NODE 300.00 TO NODE 317.00 = 5262.00 FEET.
 MAINLINE Tc(MIN.) = 15.22
                                                  C1-16
                                                                      *******************
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.569
 SUBAREA LOSS RATE DATA (AMC II):
                                                                       FLOW PROCESS FROM NODE 317.00 TO NODE 307.00 IS CODE = 31
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                 Fρ
     LAND USE
                 GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                       >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 COMMERCIAL
                  C 0.40
                                   0.25
                                          0.100
                                                                       >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<
 COMMERCIAL
                   D
                          0.10
                                    0.20
                                          0.100 75
                                                                      _____
                                                                       ELEVATION DATA: UPSTREAM(FEET) = 535.00 DOWNSTREAM(FEET) = 374.00
 RESIDENTIAL
 ".4 DWELLING/ACRE" C
                           0.70
                                    0.25
                                          0.900
                                                69
                                                                       FLOW LENGTH (FEET) = 3798.00 MANNING'S N = 0.013
 RESIDENTIAL
                                                                       DEPTH OF FLOW IN 51.0 INCH PIPE IS 39.6 INCHES
 "5-7 DWELLINGS/ACRE" C 8.90
                                          0.500
                                    0.25
                                                69
                                                                       PIPE-FLOW VELOCITY (FEET/SEC.) = 26.45
 RESIDENTIAL
                                                                       ESTIMATED PIPE DIAMETER (INCH) = 51.00 NUMBER OF PIPES = 1
 "5-7 DWELLINGS/ACRE" D 7.40
                                   0.20 0.500 75
                                                                       PIPE-FLOW(CFS) = 312.63
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
                                                                       PIPE TRAVEL TIME (MIN.) = 2.39 Tc (MIN.) = 17.62
                                                                       LONGEST FLOWPATH FROM NODE 300.00 TO NODE 307.00 = 9060.00 FEET.
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.505
 SUBAREA AREA (ACRES) = 17.50 SUBAREA RUNOFF (CFS) = 38.63
                                                                      ******************
 EFFECTIVE AREA(ACRES) = 84.80 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.38
                                                                       FLOW PROCESS FROM NODE 307.00 TO NODE 307.00 IS CODE = 81
 TOTAL AREA (ACRES) = 84.8 PEAK FLOW RATE (CFS) = 189.60
                                                                      ______
                                                                       >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
*******************
                                                                      ______
                                                                       MAINLINE Tc (MIN.) = 17.62
 FLOW PROCESS FROM NODE 317.00 TO NODE 317.00 IS CODE = 1
                                                                       * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.365
                                                                       SUBAREA LOSS RATE DATA (AMC II):
 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES
                                                                        DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap
_____
                                                                                        GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                                         С
 TOTAL NUMBER OF STREAMS = 2
                                                                       APARTMENTS
                                                                                                0.10 0.25 0.200
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
                                                                       COMMERCIAL
                                                                                          A
                                                                                                1.40 0.40 0.100
                                                                                                4.80 0.30 0.100 56
 TIME OF CONCENTRATION (MIN.) = 15.22
                                                                       COMMERCIAL
                                                                                          В
                                                                       COMMERCIAL
 RAINFALL INTENSITY (INCH/HR) = 2.57
                                                                                                5.00 0.25
                                                                                                                 0.100
                                                                                                         0.20
 AREA-AVERAGED Fm(INCH/HR) = 0.08
                                                                       COMMERCIAL
                                                                                          D
                                                                                                  3.70
                                                                                                                 0.100
                                                                       PUBLIC PARK
                                                                                                  5.00
 AREA-AVERAGED Fp(INCH/HR) = 0.22
                                                                                          D
                                                                                                          0.20 0.850
                                                                       SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.22
 AREA-AVERAGED Ap = 0.38
                                                                       SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.288
 EFFECTIVE STREAM AREA(ACRES) = 84.80
                                                                       SUBAREA AREA (ACRES) = 20.00 SUBAREA RUNOFF (CFS) = 41.44
 TOTAL STREAM AREA(ACRES) = 84.80
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 189.60
                                                                       EFFECTIVE AREA(ACRES) = 159.49 AREA-AVERAGED Fm(INCH/HR) = 0.08
                                                                       AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.35
 ** CONFLUENCE DATA **
                                                                       TOTAL AREA (ACRES) = 172.4 PEAK FLOW RATE (CFS) = 328.50
  STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
                                                                      *****************
  NUMBER
        (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
   1
         134.41 18.82 2.278 0.22(0.07) 0.31 67.6 300.00
                                                                       FLOW PROCESS FROM NODE 307.00 TO NODE 307.00 IS CODE = 81
         189.60 15.22 2.569 0.22(0.08) 0.38 84.8 310.00
                                                                       >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
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300.00

UBAREA LOSS RATE DATA(ENSITY (INC	CH/HR) =	2.365		C1-17
DEVELODMENT TYPE /	AMC II).	ADEA	Fn	Δn	909
DEVELOPMENT TYPE/ LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
ESIDENTIAL	~	4 00	0.05	0.000	60
11+ DWELLINGS/ACRE" ESIDENTIAL					
11+ DWELLINGS/ACRE" ESIDENTIAL	D	12.70	0.20	0.200	75
.4 DWELLING/ACRE" ESIDENTIAL	В	1.10	0.30	0.900	56
.4 DWELLING/ACRE" ESIDENTIAL	С	1.50	0.25	0.900	69
.4 DWELLING/ACRE"	D	2.50	0.20	0.900	75
ESIDENTIAL 5-7 DWELLINGS/ACRE"	В	0.10	0.30	0.500	56
UBAREA AREA(ACRES) = FFECTIVE AREA(ACRES) = REA-AVERAGED Fp(INCH/H OTAL AREA(ACRES) =	= 181.39 $= 0.22$	AREA-A	AVERAGED Fm VERAGED Ap	(INCH/HR) = 0.35	= 0.08
*******	******	*****	*****	*****	*****
LOW PROCESS FROM NODE					
>>>>ADDITION OF SUBARE	CA TO MAINI	LINE PEAK	FLOW<		
>>>>ADDITION OF SUBARE ====================================	CA TO MAINI ======== .7.62 PENSITY(INC	LINE PEAK ======= CH/HR) =	FLOW<<<<	=======	
>>>>ADDITION OF SUBARE ====================================	TA TO MAINI TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO	LINE PEAK ======= CH/HR) =	FLOW<<<< =================================	======	C1-17
>>>>ADDITION OF SUBARE ====================================	TA TO MAINI TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO	LINE PEAK ======= CH/HR) =	FLOW<<<< =================================	======	C1-17
>>>>ADDITION OF SUBARE ====================================	ZA TO MAINI 7.62 ZENSITY(INC ZAMC II): SCS SOIL GROUP	LINE PEAK ======= CH/HR) = AREA (ACRES)	FLOW<<<< 2.365 Fp (INCH/HR)	Ap (DECIMAL)	C1-17 SCS CN
>>>>ADDITION OF SUBARE ====================================	A TO MAINI 7.62 ENSITY(INC AMC II): SCS SOIL GROUP C	LINE PEAK CH/HR) = AREA (ACRES) 4.50	FLOW<<<< 2.365 Fp (INCH/HR) 0.25	Ap (DECIMAL)	C1-17 SCS CN 69
>>>>ADDITION OF SUBARE ====================================	ZA TO MAINI ZA TO	INE PEAK CH/HR) = AREA (ACRES) 4.50 1.40	FLOW<<<< 2.365 Fp (INCH/HR) 0.25 0.20	Ap (DECIMAL) 0.500 0.500	C1-17 SCS CN 69 75
>>>>ADDITION OF SUBARE ====================================	ZA TO MAINI ZA TO	INE PEAK	FLOW<<<< 2.365 Fp (INCH/HR) 0.25 0.20 0.30	Ap (DECIMAL) 0.500 0.500 0.600	C1-17 SCS CN 69 75 56
>>>>ADDITION OF SUBARE ====================================	ZA TO MAINI ZA TO	INE PEAK	FLOW<<<<< 2.365 Fp (INCH/HR) 0.25 0.20 0.30 0.25	Ap (DECIMAL) 0.500 0.500 0.600 0.600	C1-17 SCS CN 69 75 56 69
>>>>ADDITION OF SUBARE ====================================	TA TO MAINI THE TOTAL TO MAINI THE TOTAL TO MAINI THE TOTAL TO THE TOTAL THE TOTAL TO THE TOTAL	INE PEAK	FLOW<<<< =================================	Ap (DECIMAL) 0.500 0.500 0.600 0.600 0.600 23 S) = 45. (INCH/HR) = 0.37	C1-17 SCS CN 69 75 56 69 75 77 = 0.08
>>>>ADDITION OF SUBARE ====================================	TA TO MAINI THE TOTAL TO MAINI THE TOTAL TO MAINI THE TOTAL TO THE TOTAL THE TOTAL TO THE TOTAL	INE PEAK	FLOW<<<< =================================	Ap (DECIMAL) 0.500 0.500 0.600 0.600 0.600 23 S) = 45. (INCH/HR) = 0.37	C1-17 SCS CN 69 75 56 69 75 77 = 0.08
>>>>ADDITION OF SUBARE ====================================	CA TO MAINI	INE PEAK	FLOW<<<< =================================	Ap (DECIMAL) 0.500 0.500 0.600 0.600 0.600 0.600 (INCH/HR) = 0.37 CFS) =	C1-17 SCS CN 69 75 56 69 75 77 = 0.08 419.25
>>>>ADDITION OF SUBARE ====================================	ZA TO MAINI 27.62 ZENSITY(INC (AMC II): SCS SOIL GROUP C D B C D US LOSS RAT JS AREA FRA 22.80 = 204.19 IR) = 0.22 217.1	INE PEAK	FLOW<<<<< ================================	Ap (DECIMAL) 0.500 0.500 0.600 0.600 0.600 0.600 .23 S) = 45. (INCH/HR) = 0.37 CFS) = ********** S CODE =	C1-17 SCS CN 69 75 56 69 75 77 = 0.08 419.25
>>>>ADDITION OF SUBARE ====================================	TRAVEL TIM	INE PEAK	FLOW<<<< =================================	Ap (DECIMAL) 0.500 0.500 0.600 0.600 0.600 .23 S) = 45. (INCH/HR) = 0.37 CFS) = ********* S CODE =	C1-17 SCS CN 69 75 56 69 75 77 = 0.08 419.25 ***********************************

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PIPE-FLOW VELOCITY (FEET/SEC.) = 35.33
 ESTIMATED PIPE DIAMETER (INCH) = 51.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 419.25
 PIPE TRAVEL TIME (MIN.) = 0.40 Tc (MIN.) = 18.02
 LONGEST FLOWPATH FROM NODE 300.00 TO NODE 330.00 = 9907.00 FEET.
*******************
 FLOW PROCESS FROM NODE 330.00 TO NODE 330.00 IS CODE = 1
 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<
_____
 TOTAL NUMBER OF STREAMS = 3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION (MIN.) = 18.02
 RAINFALL INTENSITY (INCH/HR) = 2.34
 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.22
 AREA-AVERAGED Ap = 0.37
 EFFECTIVE STREAM AREA(ACRES) = 204.19
 TOTAL STREAM AREA(ACRES) = 217.10
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 419.25
*******************
 FLOW PROCESS FROM NODE 320.00 TO NODE 321.00 IS CODE = 21
______
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
______
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 330.00
 ELEVATION DATA: UPSTREAM(FEET) = 636.00 DOWNSTREAM(FEET) =
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.438
                                                  C1-20
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.587
 SUBAREA To AND LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                Fр
                                         Aρ
    LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 RESIDENTIAL
 "11+ DWELLINGS/ACRE" C 2.80 0.25 0.200 69 8.44
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.200
 SUBAREA RUNOFF (CFS) = 8.91
 TOTAL AREA (ACRES) = 2.80 PEAK FLOW RATE (CFS) =
                                             8.91
*******************
 FLOW PROCESS FROM NODE 321.00 TO NODE 322.00 IS CODE = 62
______
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
______
 UPSTREAM ELEVATION(FEET) = 633.00 DOWNSTREAM ELEVATION(FEET) = 628.00
 STREET LENGTH (FEET) = 360.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL (DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
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SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
                                              19.33
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) = 0.47
  HALFSTREET FLOOD WIDTH (FEET) = 17.15
                                                    C1-21
  AVERAGE FLOW VELOCITY (FEET/SEC.) = 3.43
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 1.61
 STREET FLOW TRAVEL TIME (MIN.) = 1.75 Tc (MIN.) = 10.19
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.224
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/
                 SCS SOIL AREA
                                                    SCS
                                     Fρ
                                              Aр
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                     D
                            0.10 0.20
                                             0.100
                                                    75
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                             6.30
                                      0.25
                                             0.200
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"
                      D
                             0.20
                                      0.20
                                             0.200 75
 SCHOOL
                       С
                              0.70
                                      0.25
                                             0.600 69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.237
 SUBAREA AREA(ACRES) = 7.30
                             SUBAREA RUNOFF (CFS) = 20.80
 EFFECTIVE AREA(ACRES) = 10.10 AREA-AVERAGED Fm(INCH/HR) = 0.06
 AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.23
 TOTAL AREA(ACRES) = 10.1 PEAK FLOW RATE(CFS) =
                                                     28.79
 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.52 HALFSTREET FLOOD WIDTH(FEET) = 20.12
 FLOW VELOCITY (FEET/SEC.) = 3.78 DEPTH*VELOCITY (FT*FT/SEC.) = 1.97
 LONGEST FLOWPATH FROM NODE 320.00 TO NODE 322.00 = 690.00 FEET.
******************
 FLOW PROCESS FROM NODE 322.00 TO NODE 323.00 IS CODE = 31
______
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 628.00 DOWNSTREAM(FEET) = 624.00
 FLOW LENGTH (FEET) = 750.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 33.0 INCH PIPE IS 22.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 6.83
 ESTIMATED PIPE DIAMETER (INCH) = 33.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
                  28.79
 PIPE TRAVEL TIME (MIN.) = 1.83 Tc (MIN.) = 12.02
 LONGEST FLOWPATH FROM NODE 320.00 TO NODE 323.00 = 1440.00 FEET.
****************
 FLOW PROCESS FROM NODE 323.00 TO NODE 323.00 IS CODE = 81
._____
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc (MIN.) = 12.02
                                                    C1-22
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.936
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                   SCS
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			(INCH/HR)		
PUBLIC PARK	C	2.00	0.25 0.20	0.850	69
PUBLIC PARK	D	2.10	0.20	0.850	75
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	С	5.60	0.25	0.200	69
RESIDENTIAL					
"11+ DWELLINGS/ACRE"	D	0.90	0.20 0.25	0.200	75
SCHOOL					
SCHOOL	D		0.20		75
SUBAREA AVERAGE PERVIOU		_		.23	
SUBAREA AVERAGE PERVIOU					
SUBAREA AREA(ACRES) =	14.00	SUBARE	A RUNOFF (CF	(s) = 35.5	56
EFFECTIVE AREA(ACRES) =					= 0.09
AREA-AVERAGED Fp(INCH/H	R) = 0.2	:4 AREA-A	VERAGED Ap	= 0.38	
TOTAL AREA (ACRES) =	24.1	PEAK	FLOW RATE (CFS) =	61.74

FLOW PROCESS FROM NODE	323.00	TO NODE	323.00 I	S CODE = 8	81
	MATN		ET OWA CACA		
>>>>ADDITION OF SUBARE					
MATNITUD D-/MIN) 1					
MAINLINE Tc(MIN.) = 1 * 25 YEAR RAINFALL INT	Z.UZ ENGTEV/TN	ICII /IID) —	2 026		C1-22
^ ZO IEAR RAINFALL INT	VMC TT).	ICH/HK) =	2.930		
SUBAREA LOSS RATE DATA(. DEVELOPMENT TYPE/			En	7. 00	CCC
DEVELOPMENT TIPE/	SCS SULL	AKEA	rp /TNCU/UD/	AP	SCS
LAND USE APARTMENTS	GROUP	(ACRES)	(INCH/HK)	(DECIMAL)	CN 60
SUBAREA AVERAGE PERVIOU					09
SUBAREA AVERAGE PERVIOU				. 23	
				(C) - 0 (26
SUBAREA AREA (ACRES) =	0.10	SUBARE	A RUNOFF (CF	S) = U.2	20
EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/H					= 0.09
TOTAL AREA (ACRES) =	K) = 0.2	4 AKLA-A	VERAGED AP	= 0.30	60.00
TOTAL AREA (ACRES) =	24.2	PEAN	FLOW RATE (CFS) =	02.00
	*******	******	********	*****	*****

**************************************	323.00	TO NODE	324.00 I		
**************************************	323.00	TO NODE	324.00 I	S CODE = 3	
************************* FLOW PROCESS FROM NODE	323.00 TRAVEL TI	TO NODE	324.00 I UBAREA<	S CODE = 3	31
******************* FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-EST	323.00 TRAVEL TI IMATED PI	TO NODE	324.00 I UBAREA<<<< ON-PRESSURE	S CODE = 3	31
****************** FLOW PROCESS FROM NODE	323.00 TRAVEL TI	TO NODE ME THRU S PESIZE (N	324.00 I UBAREA<<<< ON-PRESSURE	S CODE = 3	31 <
**************** FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-EST ELEVATION DATA: UPSTREA	323.00 TRAVEL TI IMATED PI M(FEET) =	TO NODE ME THRU S PESIZE (No	324.00 I UBAREA<<<< ON-PRESSURE DOWNSTREA	S CODE = 3	31 <
***************** FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-EST ELEVATION DATA: UPSTREA FLOW LENGTH (FEET) = 8	323.00 TRAVEL TI IMATED PI ======= M(FEET) = 87.00 M	TO NODE ME THRU S' PESIZE (NO 624.00 MANNING'S	324.00 I UBAREA<<<< ON-PRESSURE DOWNSTREA N = 0.013	S CODE = 3	31 <
****************** FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-EST ELEVATION DATA: UPSTREA FLOW LENGTH (FEET) = 8 DEPTH OF FLOW IN 36.0	323.00 TRAVEL TI IMATED PI M(FEET) = 87.00 M INCH PIPE	ME THRU S' PESIZE (N' 624.00 MANNING'S 1	324.00 I UBAREA<<<< ON-PRESSURE DOWNSTREA N = 0.013	S CODE = 3	31 <
****************** FLOW PROCESS FROM NODE	323.00 TRAVEL TI IMATED PI ====== M(FEET) = 87.00 M INCH PIPE /SEC.) =	TO NODE ME THRU S PESIZE (NO 624.00 IANNING'S IS 27.3 10.79	324.00 I UBAREA< ON-PRESSURE DOWNSTREA N = 0.013 INCHES	S CODE = 3 FLOW) <<<<=================================	31 < < =================================
****************** FLOW PROCESS FROM NODE	323.00 TRAVEL TI IMATED PI ======= M(FEET) = 87.00 M INCH PIPE /SEC.) = (INCH) =	TO NODE ME THRU S PESIZE (NO 624.00 IANNING'S IS 27.3 10.79	324.00 I UBAREA< ON-PRESSURE DOWNSTREA N = 0.013 INCHES	S CODE = 3 FLOW) <<<<=================================	31 < < =================================
****************** FLOW PROCESS FROM NODE	323.00 TRAVEL TI IMATED PI ======= M(FEET) = 87.00 M INCH PIPE /SEC.) = (INCH) = 2.00	ME THRU S PESIZE (N 6 624.00 ANNING'S 1 10.79 36.00	324.00 I UBAREA< ON-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF	S CODE = 3 FLOW) <<<<=================================	31 < < =================================
******************* FLOW PROCESS FROM NODE	323.00 TRAVEL TI IMATED PI ======= M(FEET) = 87.00 M INCH PIPE /SEC.) = (INCH) = 2.00 = 1.37	ME THRU S PESIZE (N 624.00 ANNING'S 1 10.79 36.00 Tc (MIN	324.00 I UBAREA<<<<< ON-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 13.3	S CODE = 3 FLOW) <<<<- ========= M(FEET) = PIPES = 3	31
****************** FLOW PROCESS FROM NODE	323.00 TRAVEL TI IMATED PI ======= M(FEET) = 87.00 M INCH PIPE /SEC.) = (INCH) = 2.00 = 1.37	ME THRU S PESIZE (N 624.00 ANNING'S 1 10.79 36.00 Tc (MIN	324.00 I UBAREA<<<<< ON-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 13.3	S CODE = 3 FLOW) <<<<- ========= M(FEET) = PIPES = 3	31
******************* FLOW PROCESS FROM NODE	323.00 TRAVEL TI IMATED PI M(FEET) = 87.00 M INCH PIPE (SEC.) = (INCH) = 2.00 = 1.37 ODE 32	ME THRU S' PESIZE (NO ESTABLE SERVICES AND S	J24.00 I UBAREA< CN-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 13.3 DDE 324.	FLOW) <<<<=================================	31
******************* FLOW PROCESS FROM NODE >>>>>COMPUTE PIPE-FLOW >>>>>USING COMPUTER-EST ===================================	323.00 TRAVEL TI IMATED PI M(FEET) = 87.00 M INCH PIPE (SEC.) = (INCH) = 2.00 = 1.37 ODE 32	ME THRU S' PESIZE (No 624.00 IANNING'S 1 10.79 36.00 Tc (MIN 10.00 TO No	J24.00 I UBAREA< CN-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 13.3 DDE 324.	FLOW) <<<<=================================	31
****************** FLOW PROCESS FROM NODE >>>>>COMPUTE PIPE-FLOW >>>>>USING COMPUTER-EST ===================================	323.00 TRAVEL TI IMATED PI M(FEET) = 87.00 M INCH PIPE (SEC.) = (INCH) = 2.00 = 1.37 ODE 32	ME THRU S' PESIZE (No 624.00 IANNING'S 1 10.79 36.00 Tc (MIN 10.00 TO No	J24.00 I UBAREA< CN-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 13.3 DDE 324.	FLOW) <<<<=================================	31
******************* FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-EST ===================================	323.00	ME THRU S' PESIZE (NO CONTROL OF STATE	324.00 I UBAREA<<<<< ON-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 13.3 DDE 324. ***********************************	FLOW) <<<<=================================	31
******************* FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-EST ===================================	323.00 TRAVEL TI IMATED PI M(FEET) = 87.00 M INCH PIPE /SEC.) = (INCH) = 2.00 DDE 32 ********** 324.00 A TO MAIN	ME THRU S ME THRU S PESIZE (N 624.00 IANNING'S 1 10.79 36.00 Tc (MIN 0.00 TO N ********* TO NODE	324.00 I UBAREA<<<<< ON-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 13.3 DDE 324. ***********************************	S CODE = 3 FLOW) <<<<=================================	31
******************* FLOW PROCESS FROM NODE	323.00 TRAVEL TI IMATED PI ======= M(FEET) = 87.00 M INCH PIPE /SEC.) = (INCH) = 2.00 = 1.37 ODE 32 ********** 324.00 A TO MAIN	ME THRU S ME THRU S PESIZE (N 624.00 IANNING'S 1 10.79 36.00 Tc (MIN 0.00 TO N ********* TO NODE	324.00 I UBAREA<<<<< ON-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 13.3 DDE 324. ************ 324.00 I FLOW<<<<<	S CODE = 3 FLOW) <<<<=================================	31
******************* FLOW PROCESS FROM NODE	323.00 TRAVEL TI IMATED PI ### M(FEET) = 87.00 M INCH PIPE /SEC.) = (INCH) = 2.00 = 1.37 ODE 32 ********** 324.00 A TO MAIN ### MAIN ### A TO MAIN ### MAIN ### A TO MAIN	ME THRU S PESIZE (N 624.00 IANNING'S 10.79 36.00 TC (MIN 0.00 TO N ********* TO NODE	324.00 I UBAREA< CN-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 13.3 DDE 324. ************** 324.00 I FLOW< COMMON TREA FLOW< COMMON TREA STREAM TREAM TRE	S CODE = 3 FLOW) <<<<=================================	31
********************* FLOW PROCESS FROM NODE	323.00 TRAVEL TI IMATED PI ======= M(FEET) = 87.00 M INCH PIPE /SEC.) = (INCH) = 2.00 = 1.37 ODE 32 ********** 324.00 A TO MAIN ======= 3.39 ENSITY(IN	TO NODE ME THRU S PESIZE (N 624.00 IANNING'S 1 10.79 36.00 Tc (MIN 0.00 TO N ********* TO NODE ILINE PEAK	324.00 I UBAREA< CN-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 13.3 DDE 324. ************** 324.00 I FLOW< COMMON TREA FLOW< COMMON TREA STREAM TREAM TRE	S CODE = 3 FLOW) <<<<=================================	31
******************** FLOW PROCESS FROM NODE	323.00 TRAVEL TI IMATED PI ### M(FEET) = 87.00 M INCH PIPE /SEC.) = (INCH) = 2.00 = 1.37 ODE 32 ********** 324.00 A TO MAIN ### MAIN ### ATO MAIN	TO NODE ME THRU S PESIZE (N 624.00 IANNING'S I 10.79 36.00 Tc (MIN 10.00 TO N ********** TO NODE ILINE PEAK	324.00 I UBAREA<<<<< ON-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 13.3 DDE 324. ************* 324.00 I FLOW<<<<<	S CODE = 3 FLOW) <<<<=================================	614.00 1 27.00 FEET. **********************************
********************* FLOW PROCESS FROM NODE	323.00 TRAVEL TI IMATED PI ### M(FEET) = 87.00 M INCH PIPE /SEC.) = (INCH) = 2.00 = 1.37 ODE 32 ********** 324.00 A TO MAIN ### MAIN ### ATO MAIN	TO NODE ME THRU S PESIZE (N 624.00 IANNING'S I 10.79 36.00 Tc (MIN 10.00 TO N ********** TO NODE ILINE PEAK	324.00 I UBAREA< CN-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 13.3 DDE 324. ************** 324.00 I FLOW< COMMON TREA FLOW< COMMON TREA STREAM TREAM TRE	S CODE = 3 FLOW) <<<<=================================	31
******************** FLOW PROCESS FROM NODE	323.00	TO NODE ME THRU S PESIZE (N 624.00 IANNING'S 1 10.79 36.00 TC (MIN 0.00 TO N ********* TO NODE LLINE PEAK CHARLES ICH/HR) =	324.00 I	S CODE = 3 FLOW) <<<<=================================	614.00 1 27.00 FEET. **********************************

GROUP (ACRES) (INCH/HR) (DECIMAL) CN

LAND HISE

			(INCH/HR)		
COMMERCIAL	С	1.10	0.25	0.100	69
COMMERCIAL	D	1.10	0.20 0.25	0.100	75
PUBLIC PARK					
PUBLIC PARK	D	2.60	0.20	0.850	75
RESIDENTIAL					
"11+ DWELLINGS/ACRE" RESIDENTIAL	С	4.80	0.25	0.200	69
"11+ DWELLINGS/ACRE"	D	3.40	0.20	0.200	75
SUBAREA AVERAGE PERVIOUSUBAREA AVERAGE PERVIOUSUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/FTOTAL AREA (ACRES) =	JS AREA FR 16.10 = 40.3 HR) = 0.2	RACTION, A SUBARE 30 AREA- 33 AREA-A	p = 0.416 A RUNOFF(CF AVERAGED Fm VERAGED Ap	S) = 38. (INCH/HR) = 0.39	

FLOW PROCESS FROM NODE					
>>>>COMPUTE PIPE-FLOW >>>>>USING COMPUTER-EST	IMATED PI	PESIZE (N	ON-PRESSURE	FLOW) <<<<	
PIPE-FLOW(CFS) = 9	R(INCH) = 96.86				
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ************************************	06.86 = 1.91 NODE 32 ************************************	0.00 TO N ******* TO NODE	ODE 325. ******** 325.00 I	00 = 41	******
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N **************************** FLOW PROCESS FROM NODE	06.86 = 1.91 NODE 32 *********** 325.00 	0.00 TO N ******* TO NODE ILINE PEAK	**************************************	00 = 41 ******* S CODE =	********* 81
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM M ********************** FLOW PROCESS FROM NODE	06.86 = 1.91 NODE 32 ********* 325.00 	0.00 TO N ******* TO NODE ILINE PEAK	**************************************	00 = 41 ********** S CODE =	******** 81
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ********** FLOW PROCESS FROM NODE	06.86 = 1.91 NODE 32 ********* 325.00 EA TO MAIN ====================================	******** TO NODE ILINE PEAK ICH/HR) =	**************************************	00 = 41 ******** S CODE =	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/	06.86 = 1.91 10DE 32 325.00 325.00 325.00 325.00 325.3	******** TO NODE LINE PEAK CH/HR) =	325.00 I 325.00 I 55.00 I 55.0	00 = 41 ******* S CODE =	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N *********** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL	06.86 = 1.91 NODE 32 ********** 325.00 	******** TO NODE LINE PEAK CHARN = CHARN = CAREA (ACRES)	325.00 I 325.00 I 5.00	00 = 41 ******* S CODE = Ap (DECIMAL)	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ********** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE Tc (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE"	06.86 = 1.91 NODE 32 ********** 325.00 	******** TO NODE LINE PEAK CHARN = CHARN = CAREA (ACRES)	325.00 I 325.00 I 5.00	00 = 41 ******* S CODE = Ap (DECIMAL)	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE"	06.86 = 1.91 NODE 32 ********** 325.00 	********* TO NODE ILINE PEAK ICH/HR) = AREA (ACRES) 3.10	325.00 I ******** 325.00 I FLOW<>>< 2.561 Fp (INCH/HR) 0.25	00 = 41 ******* S CODE = Ap (DECIMAL) 0.200	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ************** FLOW PROCESS FROM NODE	06.86 = 1.91 NODE 32 ********** 325.00 	********* TO NODE ILINE PEAK CH/HR) = AREA (ACRES) 3.10 5.00	325.00 I ********* 325.00 I FLOW<<<<< 2.561 Fp (INCH/HR) 0.25 0.20	00 = 41 ******* S CODE = Ap (DECIMAL) 0.200 0.200	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ********** FLOW PROCESS FROM NODE	26.86 = 1.91 NODE 32 ********* 325.00	********* TO NODE ILINE PEAK CH/HR) = AREA (ACRES) 3.10 5.00 0.20	325.00 I ********* 325.00 I FLOW<<<<< 2.561 Fp (INCH/HR) 0.25 0.20 0.25	00 = 41 ******* S CODE = Ap (DECIMAL) 0.200 0.200 0.900	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ************** FLOW PROCESS FROM NODE	26.86 = 1.91 NODE 32 ********* 325.00	********* TO NODE ILINE PEAK CH/HR) = AREA (ACRES) 3.10 5.00 0.20	325.00 I ********* 325.00 I FLOW<<<<< 2.561 Fp (INCH/HR) 0.25 0.20 0.25	00 = 41 ******* S CODE = Ap (DECIMAL) 0.200 0.200 0.900	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE	06.86 = 1.91 NODE 32 ********** 325.00	#******** TO NODE TO NODE TO NO	325.00 I ********* 325.00 I FLOW<<<<< 2.561 Fp (INCH/HR) 0.25 0.20 0.25 0.20	00 = 41 ******* S CODE = Ap (DECIMAL) 0.200 0.200 0.900 0.900	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE	06.86 = 1.91 NODE 32 ********** 325.00	10.00 TO N ******** TO NODE TO NODE TO NODE TO NODE AREA (ACRES) 3.10 5.00 0.20 1.20 13.90 18.60	325.00 I ********* 325.00 I	Ap (DECIMAL) 0.200 0.900 0.900 0.500 0.500	**************************************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N ************** FLOW PROCESS FROM NODE	06.86 = 1.91 NODE 32 ********* 325.00	10.00 TO N ******** TO NODE ILINE PEAK ICH/HR) = AREA (ACRES) 3.10 5.00 0.20 1.20 13.90 18.60 ATE, Fp(IN RACTION, A SUBARE SUBARE SUBARE	325. ********* 325.00 I ********* 325.00 I FDOW< 2.561 FP (INCH/HR) 0.25 0.20 0.25 0.20 0.25 0.20 0.455 A RUNOFF (CF AVERAGED FM	Ap (DECIMAL) 0.200 0.200 0.900 0.500 0.500 .22 S) = 93. (INCH/HR)	**************************************

TOTAL AREA (ACRES) =	82.3	PEAK	FLOW RATE(CFS) =	182.60

>>>>COMPUTE PIPE-FLOW S	IMATED PI	PESIZE (N	ON-PRESSURE	FLOW) <<<	
ELEVATION DATA: UPSTREAN					497.00
FLOW LENGTH (FEET) = 109				, ,	
DEPTH OF FLOW IN 39.0	INCH PIPE	IS 28.8	INCHES		
PIPE-FLOW VELOCITY (FEET,	/SEC.) =	27.82			
ESTIMATED PIPE DIAMETER	(INCH) =	39.00	NUMBER OF	PIPES =	1
PIPE-FLOW(CFS) = 182					
PIPE TRAVEL TIME (MIN.)					
LONGEST FLOWPATH FROM NO	ODE 320	J.00 TO N	ODE 326.	00 = 52	222.00 FEET.
******	*****	*****	*****	*****	*******
FLOW PROCESS FROM NODE	326.00	TO NODE	326.00 I	S CODE =	81
>>>>ADDITION OF SUBAREA				========	.=======
MAINLINE Tc(MIN.) = 15					
* 25 YEAR RAINFALL INT			2.502		C1-2
SUBAREA LOSS RATE DATA (A					
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp	Ap	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL	В	1.00	0.30 0.25	0.100	56
COMMERCIAL	C -	6.10	0.25	0.100	69
	D	12.90	0.20	0.100	75
RESIDENTIAL "11+ DWELLINGS/ACRE"		0 20	0.00	0 000	7.5
RESIDENTIAL	ע	0.30	0.20	0.200	75
".4 DWELLING/ACRE"	D	0 00	0.30	0 900	56
RESIDENTIAL	ъ	0.50	0.50	0.500	30
".4 DWELLING/ACRE"	С	12.80	0.25	0.900	69
SUBAREA AVERAGE PERVIOUS					
SUBAREA AVERAGE PERVIOUS					
SUBAREA AREA(ACRES) =	34.00	SUBARE	A RUNOFF(CF	(S) = 73.	. 33
EFFECTIVE AREA(ACRES) =					
AREA-AVERAGED Fp(INCH/H	R) = 0.23	3 AREA-A	VERAGED Ap	= 0.42	
TOTAL AREA (ACRES) =	116.3	PEAK	FLOW RATE (CFS) =	251.50
******	*****	*****	*****	*****	******
FLOW PROCESS FROM NODE	326.00	TO NODE	326.00 I	S CODE =	81
>>>>ADDITION OF SUBAREA	A TO MAIN	LINE PEAK	FLOW<<<<		
				=======	
MAINLINE Tc(MIN.) = 15 * 25 YEAR RAINFALL INTE		TH/HR) =	2 502		C1-25
SUBAREA LOSS RATE DATA (A			2.502		0 1 20
			Fn	An	SCS
DEVELOPMENT TYPE/ LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
RESIDENTIAL	011001	(11011110)	(111011/1111)	(550 11.1111)	011
".4 DWELLING/ACRE"	D	23.20	0.20	0.900	75
RESIDENTIAL	-		J.20		· -
"5-7 DWELLINGS/ACRE"	С	0.30	0.25	0.500	69
RESIDENTIAL	-		,		
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SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/F TOTAL AREA(ACRES) =	JS LOSS RA JS AREA FR 23.80 = 140.1 IR) = 0.2 140.1	TE, Fp(IN ACTION, A SUBARE 0 AREA- 2 AREA-A PEAK	A RUNOFF(CF AVERAGED Fm VERAGED Ap FLOW RATE(.20 S) = 49. (INCH/HR) = 0.50 CFS) =	76 = 0.11 301.26
FLOW PROCESS FROM NODE	326.00	TO NODE	327.00 I	S CODE =	31
>>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-EST	IMATED PI	PESIZE (N	ON-PRESSURE	FLOW) <<<<	
ELEVATION DATA: UPSTREATE FLOW LENGTH (FEET) = 17 DEPTH OF FLOW IN 54.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 30 PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N	MM(FEET) = 232.00 M INCH PIPE E/SEC.) = 8(INCH) = 01.26	497.00 ANNING'S IS 41.3 23.09 54.00	DOWNSTREA N = 0.013 INCHES NUMBER OF	M(FEET) = PIPES =	445.00
**************************************	327.00	TO NODE	327.00 I	S CODE =	81
>>>>ADDITION OF SUBARE	CA TO MAIN	LINE PEAK	FLOW<		
MAINLINE TC(MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL PUBLIC PARK PUBLIC PARK	CENSITY(IN (AMC II): SCS SOIL GROUP C	AREA (ACRES) 4.80 4.80 0.10	Fp (INCH/HR) 0.25 0.20 0.25	Ap (DECIMAL) 0.100 0.100 0.850	75 69
			0.20	0.850	75
RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL		5.00	0.30	0.200	56
RESIDENTIAL "11+ DWELLINGS/ACRE"	C US LOSS RA US AREA FR 64.30 = 204.4 UR) = 0.2 204.4	5.00 43.30 TE, Fp(IN ACTION, A SUBARE 0 AREA- 3 AREA-A PEAK	0.30 0.25 CH/HR) = 0 p = 0.250 A RUNOFF(CF AVERAGED FM VERAGED Ap FLOW RATE(0.200 0.200 .23 S) = 135. (INCH/HR) = 0.42 CFS) =	56 69 32 = 0.10 423.39
RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/F TOTAL AREA (ACRES) = ***********************************	C US LOSS RA US AREA FR 64.30 = 204.4 UR) = 0.2 204.4 ********* 327.00	5.00 43.30 TE, Fp(IN ACTION, A SUBARE O AREA- 3 AREA-A PEAK ******** TO NODE	0.30 0.25 CH/HR) = 0 p = 0.250 A RUNOFF(CF AVERAGED FM VERAGED Ap FLOW RATE(************************************	0.200 0.200 .23 S) = 135. (INCH/HR) = 0.42 CFS) = ********* S CODE =	56 69 32 = 0.10 423.39 ***********************************
RESIDENTIAL "11+ DWELLINGS/ACRE" RESIDENTIAL "11+ DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/F TOTAL AREA (ACRES) = ***********************************	C SIS LOSS RA SIS AREA FR 64.30 = 204.4 SIR) = 0.2 204.4 ********* 327.00 CA TO MAIN ========= 7.20 CENSITY(IN (AMC II): SCS SOIL	5.00 43.30 TE, Fp(IN ACTION, A SUBARE 0 AREA-A PEAK ******** TO NODE LINE PEAK CH/HR) = AREA	0.30 0.25 CH/HR) = 0 p = 0.250 A RUNOFF(CF AVERAGED FM VERAGED Ap FLOW RATE(************************************	0.200 0.200 .23 S) = 135. (INCH/HR) = 0.42 CFS) = ********* S CODE =	56 69 32 = 0.10 423.39 ********** 81 C1-26 SCS

RESIDENTIAL "11+ DWELLINGS/ACRE"	П	38 70	0.20	0 200	75
RESIDENTIAL	D	30.70	0.20	0.200	, 0
".4 DWELLING/ACRE"	С	2.30	0.25	0.900	69
RESIDENTIAL					
".4 DWELLING/ACRE"	D	3.60	0.20	0.900	75
SUBAREA AVERAGE PERVIO				.21	
SUBAREA AVERAGE PERVIO	US AREA FRA	ACTION, Ap	= 0.293		
SUBAREA AREA(ACRES) =					
EFFECTIVE AREA(ACRES)	= 249.00	O AREA-AV	/ERAGED Fm	(INCH/HR)	= 0.09
AREA-AVERAGED Fp(INCH/	HR) = 0.22	2 AREA-AVI	ERAGED Ap	= 0.40	
TOTAL AREA (ACRES) =	249.0	PEAK I	FLOW RATE (CFS) =	517.17
*******	*****	******	*****	*****	*****
FLOW PROCESS FROM NODE					
>>>>COMPUTE PIPE-FLOW					
>>>>USING COMPUTER-ES	TIMATED PI	PESIZE (NON	N-PRESSURE	FLOW) <<<<	<
ELEVATION DATA: UPSTRE	AM(FEET) =	445.00	DOWNSTREA	M(FEET) =	338.00
FLOW LENGTH (FEET) = 2					
DEPTH OF FLOW IN 63.0	INCH PIPE	IS 47.5	INCHES		
PIPE-FLOW VELOCITY (FEE					
ESTIMATED PIPE DIAMETE	R(INCH) =	63.00 N	NUMBER OF	PIPES =	1
PIPE-FLOW(CFS) = 5	17.17				
PIPE TRAVEL TIME (MIN.)	= 1.50	Tc(MIN.)	= 18.7	0	
LONGEST FLOWPATH FROM	*****	******	******	*****	*****
LONGEST FLOWPATH FROM ************************************	********** 328.00 EA TO MAIN	********** TO NODE	******** 328.00 I 	******* S CODE =	*****
LONGEST FLOWPATH FROM : **************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR	328.00 EA TO MAINI	********** TO NODE LINE PEAK F	328.00 I	******* S CODE = 	****** 81
LONGEST FLOWPATH FROM : ************* FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAR MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN	********** 328.00	*********** TO NODE	328.00 I 	******** S CODE = 	******* 81 C1-27
LONGEST FLOWPATH FROM : ************* FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAR MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN	********** 328.00	*********** TO NODE	328.00 I 	******** S CODE = 	******* 81 C1-27
LONGEST FLOWPATH FROM THE STATE OF THE STATE	328.00	TO NODE LINE PEAK F CH/HR) = 2	328.00 I 	******** S CODE = 	******* 81
LONGEST FLOWPATH FROM THE STATE OF THE STATE	********* 328.00 EA TO MAIN: ====================================	TO NODE LINE PEAK F CH/HR) = 2 AREA (ACRES)	328.00 I 	******** S CODE = Ap (DECIMAL)	********* 81
LONGEST FLOWPATH FROM THE STATE OF THE STATE	********* 328.00 EA TO MAIN: ====================================	TO NODE LINE PEAK F CH/HR) = 2 AREA (ACRES)	328.00 I 	******** S CODE = Ap (DECIMAL)	******** 81
LONGEST FLOWPATH FROM THE STATE OF THE STATE	********* 328.00 EA TO MAIN! ===================================	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 0.50 14.80	********* 328.00 I FLOW<<<< 2.286 Fp (INCH/HR) 0.40 0.30	******** S CODE =	********* 81
LONGEST FLOWPATH FROM THE STATE OF THE STATE	********* 328.00 EA TO MAIN! ===================================	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 0.50 14.80	********* 328.00 I FLOW<<<< 2.286 Fp (INCH/HR) 0.40 0.30	******** S CODE =	********* 81
LONGEST FLOWPATH FROM TO THE PROOF STATEMENT OF SUBAR TO THE PROOF SUB	********* 328.00 EA TO MAIN: ===================================	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 0.50 14.80 1.90 9.90	********* 328.00 I FLOW<<<<< 2.286 Fp (INCH/HR) 0.40 0.30 0.25 0.20	******** S CODE = Ap (DECIMAL) 0.200 0.200 0.200 0.200 0.200	******** 81
LONGEST FLOWPATH FROM TO THE PROOF STATEMENT OF SUBAR TO THE PROOF SUB	********* 328.00 EA TO MAIN: ===================================	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 0.50 14.80 1.90 9.90	********* 328.00 I FLOW<<<<< 2.286 Fp (INCH/HR) 0.40 0.30 0.25 0.20	******** S CODE = Ap (DECIMAL) 0.200 0.200 0.200 0.200 0.200	******** 81
LONGEST FLOWPATH FROM TO THE PROOF THE PR	328.00 EA TO MAIN: ===================================	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 0.50 14.80 1.90 9.90 1.80 8.40	********* 328.00 I FLOW<<<<< 2.286 Fp (INCH/HR) 0.40 0.30 0.25 0.20 0.40 0.30	Ap (DECIMAL) 0.200 0.200 0.200 0.200 0.200 0.100 0.100	********* 81
LONGEST FLOWPATH FROM THE STATE OF THE STATE	328.00 EA TO MAIN: ===================================	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 0.50 14.80 1.90 9.90 1.80 8.40 TE, FP(INCH	********* 328.00 I FLOW<<<<<	Ap (DECIMAL) 0.200 0.200 0.200 0.200 0.200 0.100 0.100	********* 81
LONGEST FLOWPATH FROM I	328.00 EA TO MAIN: ===================================	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 0.50 14.80 1.90 9.90 1.80 8.40 TE, FP(INCHACTION, AP	********* 328.00 I FLOW<<<<<	Ap (DECIMAL) 0.200 0.200 0.200 0.200 0.100 0.100 0.27	********* 81
LONGEST FLOWPATH FROM : ***************** FLOW PROCESS FROM NODE	********* 328.00	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 0.50 14.80 1.90 9.90 1.80 8.40 IF, FP(INCHACTION, AP SUBAREA	********* 328.00 I FLOW<<<<<	Ap (DECIMAL) 0.200 0.200 0.200 0.100 0.100 .27	********* 81
LONGEST FLOWPATH FROM : ***************** FLOW PROCESS FROM NODE	********* 328.00	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 0.50 14.80 1.90 9.90 1.80 8.40 IE, FP(INCH ACTION, AP SUBAREA 0 AREA-AV	********* 328.00 I FLOW<<<<<	Ap (DECIMAL) 0.200 0.200 0.200 0.100 0.100 .27 S) = 75. (INCH/HR)	********* 81
LONGEST FLOWPATH FROM : **************** FLOW PROCESS FROM NODE	********* 328.00	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 0.50 14.80 1.90 9.90 1.80 8.40 IF, FP(INCH ACTION, AP SUBAREA 0 AREA-AVI 3 AREA-AVI	********* 328.00 I FLOW<<<<<	Ap (DECIMAL) 0.200 0.200 0.200 0.100 0.100 0.27 S) = 75. (INCH/HR) = 0.37	********* 81
LONGEST FLOWPATH FROM : ***************** FLOW PROCESS FROM NODE	********* 328.00	TO NODE LINE PEAK H CH/HR) = 2 AREA (ACRES) 0.50 14.80 1.90 9.90 1.80 8.40 IF, FP(INCH ACTION, AP SUBAREA 0 AREA-AVI 3 AREA-AVI	********* 328.00 I FLOW<<<<<	Ap (DECIMAL) 0.200 0.200 0.200 0.100 0.100 0.27 S) = 75. (INCH/HR) = 0.37	********* 81
LONGEST FLOWPATH FROM : ****************** FLOW PROCESS FROM NODE	********** 328.00	TO NODE LINE PEAK F CH/HR) = 2 AREA (ACRES) 0.50 14.80 1.90 9.90 1.80 8.40 TE, Fp(INCH ACTION, App SUBAREA 0 AREA-AV PEAK F	********* 328.00 I FLOW<<<<<	Ap (DECIMAL) 0.200 0.200 0.200 0.100 0.100 .27 S) = 75. (INCH/HR) = 0.37 CFS) =	********* 81 C1-27 SCS CN 32 56 69 75 32 56 17 = 0.08 567.47
LONGEST FLOWPATH FROM : ****************** FLOW PROCESS FROM NODE	**************************************	TO NODE LINE PEAK F CH/HR) = 2 AREA (ACRES) 0.50 14.80 1.90 9.90 1.80 8.40 IE, FP(INCHACTION, APACTION, APACTION	**************************************	Ap (DECIMAL) 0.200 0.200 0.200 0.100 0.27 S) = 75. (INCH/HR) = 0.37 CFS) = *********	********** ********** *********** ****
LONGEST FLOWPATH FROM : ***************** FLOW PROCESS FROM NODE	********** 328.00	TO NODE LINE PEAK F CH/HR) = 2 AREA (ACRES) 0.50 14.80 1.90 9.90 1.80 8.40 TE, Fp(INCH ACTION, Ap SUBAREA 0 AREA-AVI PEAK F TO NODE	********* 328.00 I FLOW<<<<<	******** S CODE = Ap (DECIMAL) 0.200 0.200 0.200 0.100 0.100 .27 S) = 75. (INCH/HR) = 0.37 CFS) = ********* S CODE =	********** 81
LONGEST FLOWPATH FROM : ****************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE APARTMENTS APARTMENTS APARTMENTS APARTMENTS COMMERCIAL COMMERCIAL SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH/ TOTAL AREA (ACRES) = ***********************************	********** 328.00	TO NODE LINE PEAK I AREA (ACRES) 0.50 14.80 1.90 9.90 1.80 8.40 IE, Fp(INCH ACTION, App SUBAREA 0 AREA-AVI PEAK I ***********************************	********* 328.00 I	Ap (DECIMAL) 0.200 0.200 0.100 0.100 0.27 S) = 75. (INCH/HR) = 0.37 CFS) = ********* S CODE =	********* 81
LONGEST FLOWPATH FROM : ******************* FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE APARTMENTS APARTMENTS APARTMENTS APARTMENTS COMMERCIAL COMMERCIAL COMMERCIAL SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = TOTAL AREA (ACRES) = ***********************************	********** 328.00	TO NODE LINE PEAK I AREA (ACRES) 0.50 14.80 1.90 9.90 1.80 8.40 IE, Fp(INCH ACTION, App SUBAREA 0 AREA-AVI PEAK I ***********************************	********* 328.00 I	Ap (DECIMAL) 0.200 0.200 0.100 0.100 0.27 S) = 75. (INCH/HR) = 0.37 CFS) = ********* S CODE =	********* 81
LONGEST FLOWPATH FROM : ****************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE APARTMENTS APARTMENTS APARTMENTS APARTMENTS COMMERCIAL COMMERCIAL SUBAREA AVERAGE PERVIO SUBAREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH/ TOTAL AREA (ACRES) = ***********************************	********** 328.00	TO NODE LINE PEAK I CH/HR) = 2 AREA (ACRES) 0.50 14.80 1.90 9.90 1.80 8.40 IE, Fp(INCHACTION, Ap SUBAREA 0 AREA-AVI PEAK I ***********************************	********* 328.00 I	Ap (DECIMAL) 0.200 0.200 0.100 0.100 0.27 S) = 75. (INCH/HR) = 0.37 CFS) = ********* S CODE =	********* 81
LONGEST FLOWPATH FROM : ******************* FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAR **************** MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE APARTMENTS APARTMENTS APARTMENTS APARTMENTS COMMERCIAL COMMERCIAL COMMERCIAL SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = ***********************************	********** 328.00	TO NODE LINE PEAK I CH/HR) = 2 AREA (ACRES) 0.50 14.80 1.90 9.90 1.80 8.40 IE, Fp(INCHACTION, Ap SUBAREA 0 AREA-AVI PEAK I ***********************************	********* 328.00 I	Ap (DECIMAL) 0.200 0.200 0.100 0.100 0.27 S) = 75. (INCH/HR) = 0.37 CFS) = ********* S CODE =	********* 81

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SUBAREA LOSS RATE DATA(AMC II):				C1-27
			Fn	Δn	SCS
DEVELOPMENT TYPE/ LAND USE	GROUP	(ACRES)	(TNCH/HR)	(DECIMAL)	CM
COMMERCIAI.	C1(001	7 60	0 25	0 100	69
COMMERCIAL COMMERCIAL	D	14 00	0.25 0.20	0.100	75
PUBLIC PARK	C	1 //	0.20	0.100	69
	0	0.30	0.25	0.050	75
PUBLIC PARK	Д	0.30	0.20	0.830	73
RESIDENTIAL		0.00	0 40	0 000	20
"11+ DWELLINGS/ACRE"	А	0.20	0.40	0.200	32
RESIDENTIAL					
"11+ DWELLINGS/ACRE"					56
SUBAREA AVERAGE PERVIOU				.23	
SUBAREA AVERAGE PERVIOU					
SUBAREA AREA(ACRES) =					
EFFECTIVE AREA(ACRES) =					= 0.08
AREA-AVERAGED Fp(INCH/H	(R) = 0.23	B AREA-A	VERAGED Ap	= 0.35	
TOTAL AREA (ACRES) =	310.1	PEAK	FLOW RATE (CFS) =	615.67

FLOW PROCESS FROM NODE					
>>>>ADDITION OF SUBARE	A TO MAINI	LINE PEAK	FLOW<		
MAINLINE TC (MIN.) = 1	8.70				
* 25 YEAR RAINFALL INT	ENSITY (INC	CH/HR) =	2.286		C1-27
SUBAREA LOSS RATE DATA (AMC II):				
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ар	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
LAND USE RESIDENTIAL					
"11+ DWELLINGS/ACRE"					
RESIDENTIAL	Ü	12.20	0.20	0.200	03
"11+ DWELLINGS/ACRE"	D	17 60	0.20	0 200	75
	D	17.00	0.20	0.200	75
RESIDENTIAL	D.	0 20	0 20	0 000	ГС
".4 DWELLING/ACRE"	В	0.30	0.30	0.900	36
RESIDENTIAL					
".4 DWELLING/ACRE"	С	0.90	0.25	0.900	69
RESIDENTIAL					
".4 DWELLING/ACRE"	D	9.30	0.20	0.900	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	В	0.20	0.30	0.500	56
SUBAREA AVERAGE PERVIOU					
SUBAREA AVERAGE PERVIOU					
SUBAREA AREA (ACRES) =				9) = 80	35
EFFECTIVE AREA(ACRES) =					
					0.00
AREA-AVERAGED Fp (INCH/H					606 02
TOTAL AREA (ACRES) =	350.6	PEAK	FLOW RATE(CFS) =	090.03
*******	*****	*****	******	******	******
FLOW PROCESS FROM NODE	328.00	TO MODE	3∠0.UU I	P CODE =	ΟŢ
>>>>ADDITION OF SUBARE	A TO MAINI	LINE PEAK	FLOW<<<<		
		======	=======	=======	
MAINLINE Tc(MIN.) = 1	8.70				C1-27
* 25 YEAR RAINFALL INT	ENSITY (INC	CH/HR) =	2.286		01-21
SUBAREA LOSS RATE DATA(AMC II):				
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Аp	SCS
LAND USE			(INCH/HR)	-	
RESIDENTIAL	011001	(1101/110)	(111011 / 1111 /)	(550 11.11.11)	011
AEQ I DENTIAL					

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Date: 09/30/2022

RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SCHOOL SCHOOL SUBAREA AVERAGE PERVIOUS I SUBAREA AVERAGE PERVIOUS I SUBAREA AVERAGE PERVIOUS I SUBAREA AREA (ACRES) = 42 EFFECTIVE AREA (ACRES) = 42 EFFECTIVE AREA (ACRES) = 33 TOTAL AREA (ACRES) = 33 **********************************	C D C D C D C D C D C D C D C D C D C D	3.80 4.10 0.30 0.30 0.30 E, Fp(INC CTION, Ap SUBAREA AREA-AV PEAK TO NODE	0.25 0.20 0.25 0.20 0.20 0.483 RUNOFF (CF VERAGED FM ERAGED AP FLOW RATE (************************************	0.400 0.400 0.600 0.600 .21 S) = 82. (INCH/HR) = 0.37 CFS) =	69 75 69 75 76 = 0.08 778.79
RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SCHOOL SCHOOL SUBAREA AVERAGE PERVIOUS A SUBAREA AVERAGE PERVIOUS A SUBAREA AVERAGE PERVIOUS A EFFECTIVE AREA (ACRES) = 42 EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/HR) TOTAL AREA (ACRES) = 33 **********************************	C D C D C D C D C D C D C D C D C D C D	3.80 4.10 0.30 0.30 0.30 E, Fp(INC CTION, Ap SUBAREA AREA-AV PEAK TO NODE	0.25 0.20 0.25 0.20 0.20 0.483 RUNOFF (CF VERAGED FM ERAGED AP FLOW RATE (************************************	0.400 0.400 0.600 0.600 .21 S) = 82. (INCH/HR) = 0.37 CFS) =	69 75 69 75 76 = 0.08 778.79
"8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SCHOOL SCHOOL SUBAREA AVERAGE PERVIOUS I SUBAREA AVERAGE PERVIOUS I SUBAREA AREA (ACRES) = 42 EFFECTIVE AREA (ACRES) = AREA-AVERAGED Fp (INCH/HR) TOTAL AREA (ACRES) = 33 **********************************	D C D C D C C D C C C D C C C C C C C C	4.10 0.30 0.30 0.30 EF, FP(INC CCTION, AP SUBAREA AREA-AV PEAK TO NODE	0.20 0.25 0.20 0.20 0.483 RUNOFF (CF VERAGED FM TERAGED AP TERAGED	0.400 0.600 0.600 .21 S) = 82. (INCH/HR) = 0.37 CFS) =	75 69 75 76 = 0.08 778.79
RESIDENTIAL "8-10 DWELLINGS/ACRE" SCHOOL SCHOOL SUBAREA AVERAGE PERVIOUS I SUBAREA AVERAGE PERVIOUS I SUBAREA AREA (ACRES) = 42 EFFECTIVE AREA (ACRES) = AREA-AVERAGED Fp (INCH/HR) TOTAL AREA (ACRES) = 3 ***********************************	D C D C D C C D C C C D C C C C C C C C	4.10 0.30 0.30 0.30 EF, FP(INC CCTION, AP SUBAREA AREA-AV PEAK TO NODE	0.20 0.25 0.20 0.20 0.483 RUNOFF (CF VERAGED FM TERAGED AP TERAGED	0.400 0.600 0.600 .21 S) = 82. (INCH/HR) = 0.37 CFS) =	75 69 75 76 = 0.08 778.79
SCHOOL SCHOOL SUBAREA AVERAGE PERVIOUS I SUBAREA AVERAGE PERVIOUS I SUBAREA AREA (ACRES) = 42 EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/HR) TOTAL AREA (ACRES) = 3 ***********************************	C D CONTROL OF THE PROPERTY OF	0.30 0.30 CE, Fp(INC CTION, Ap SUBAREA AREA-AV PEAK TO NODE	0.25 0.20 H/HR) = 0 0 = 0.483 RUNOFF(CF VERAGED FM TERAGED AP FLOW RATE(************************************	0.600 0.600 .21 S) = 82. (INCH/HR) = 0.37 CFS) =	69 75 76 = 0.08 778.79
SCHOOL SUBAREA AVERAGE PERVIOUS I SUBAREA AVERAGE PERVIOUS I SUBAREA AREA (ACRES) = 42 EFFECTIVE AREA (ACRES) = AREA-AVERAGED Fp (INCH/HR) TOTAL AREA (ACRES) = 3 ***********************************	D LOSS RATAREA FRA 2.10 392.70 = 0.22 392.7 ******** 328.00 AVEL TIM	0.30 EF, FP(INC ACTION, AP SUBAREA AREA-AV PEAK TO NODE	0.20 H/HR) = 0 0 = 0.483 RUNOFF(CF VERAGED FM TERAGED AP FLOW RATE(************************************	0.600 .21 S) = 82. (INCH/HR) = 0.37 CFS) =	75 76 = 0.08 778.79 ********
SUBAREA AVERAGE PERVIOUS I SUBAREA AVERAGE PERVIOUS I SUBAREA AREA (ACRES) = 42 EFFECTIVE AREA (ACRES) = AREA-AVERAGED Fp (INCH/HR) TOTAL AREA (ACRES) = 3 ***********************************	COSS RATAREA FRA 2.10 392.70 = 0.22 392.7 ******* 328.00 AVEL TIM	CE, Fp(INC CTION, Ap SUBAREA AREA-AV PEAK TO NODE E THRU SU	H/HR) = 0 0 = 0.483 RUNOFF(CF VERAGED FM TERAGED AP FLOW RATE(************************************	.21 S) = 82. (INCH/HR) = 0.37 CFS) =	76 = 0.08 778.79
SUBAREA AVERAGE PERVIOUS A SUBAREA AREA(ACRES) = 42 EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/HR) TOTAL AREA(ACRES) = 3 ***********************************	AREA FRA 2.10 392.70 = 0.22 392.7 ******* 328.00 AVEL TIM	CTION, Ap SUBAREA AREA-AV PEAK TO NODE THRU SU	0 = 0.483 RUNOFF(CF VERAGED FM TERAGED AP FLOW RATE(S) = 82. (INCH/HR) = 0.37 CFS) =	= 0.08 778.79 ******
SUBAREA AREA (ACRES) = 42 EFFECTIVE AREA (ACRES) = AREA-AVERAGED Fp (INCH/HR) TOTAL AREA (ACRES) = 3 **********************************	2.10 392.70 = 0.22 392.7 ******* 328.00 AVEL TIM ATED PIP	SUBAREA AREA-AV PEAK ******* TO NODE THRU SU	RUNOFF(CF VERAGED FM ERAGED Ap FLOW RATE((INCH/HR) = 0.37 CFS) =	= 0.08 778.79 ******
EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/HR) TOTAL AREA(ACRES) = ***********************************	392.70 = 0.22 392.7 ******* 328.00 	AREA-AV PEAK ******* TO NODE TE THRU SU	VERAGED FM ERAGED Ap FLOW RATE((INCH/HR) = 0.37 CFS) =	= 0.08 778.79 ******
AREA-AVERAGED Fp(INCH/HR) TOTAL AREA(ACRES) = 3 **********************************	= 0.22 392.7 ******** 328.00 AVEL TIM	PEAK PEAK ******* TO NODE TE THRU SU	ERAGED Ap : FLOW RATE(= 0.37 CFS) = ******	778.79 ******
TOTAL AREA(ACRES) = 33 *********************** FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW TRA >>>>USING COMPUTER-ESTIMA	392.7 ****** 328.00 AVEL TIM	PEAK ******* TO NODE TE THRU SU	**************************************	CFS) = ******	*****
*************************** FLOW PROCESS FROM NODE >>>>>COMPUTE PIPE-FLOW TRA >>>>USING COMPUTER-ESTIMA	******* 328.00 AVEL TIM	********* TO NODE	******** 329.00 I	*****	*****
FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW TRA >>>>USING COMPUTER-ESTIMA	328.00 AVEL TIM	TO NODE	329.00 I		
>>>>COMPUTE PIPE-FLOW TRA	AVEL TIM	E THRU SU		S CODE =	31
>>>>USING COMPUTER-ESTIMA	ATED PIP		BAREA///		
			トロバロン		
				,	< =======
FLOW LENGTH(FEET) = 1154. DEPTH OF FLOW IN 87.0 INC PIPE-FLOW VELOCITY(FEET/SI ESTIMATED PIPE DIAMETER(IN PIPE-FLOW(CFS) = 778. PIPE TRAVEL TIME(MIN.) = LONGEST FLOWPATH FROM NODE ***********************************	CH PIPE CC.) = NCH) = 79 0.84 E 320 ******* 329.00 TO MAINL	IS 66.8 22.88 87.00 Tc(MIN. 0.00 TO NO ***********************************	INCHES NUMBER OF) = 19.5 DE 329. ******** 329.00 I FLOW<<<<	4 00 = 107 ******** S CODE =	72.00 FEET ******** 81
* 25 YEAR RAINFALL INTENS			2.230		C1-28
* 25 YEAR RAINFALL INTENS SUBAREA LOSS RATE DATA (AMO	C II):			7	00
* 25 YEAR RAINFALL INTENS SUBAREA LOSS RATE DATA (AMO DEVELOPMENT TYPE/ SO	C II):			Ap	00
* 25 YEAR RAINFALL INTENS SUBAREA LOSS RATE DATA (AMC DEVELOPMENT TYPE/ SC LAND USE	C II): CS SOIL GROUP	AREA	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
* 25 YEAR RAINFALL INTENS SUBAREA LOSS RATE DATA (AMC DEVELOPMENT TYPE/ SC LAND USE	C II): CS SOIL GROUP	AREA	Fp (INCH/HR)	Ap (DECIMAL) 0.100	SCS CN
* 25 YEAR RAINFALL INTENS SUBAREA LOSS RATE DATA (AMC DEVELOPMENT TYPE/ SC LAND USE COMMERCIAL COMMERCIAL	C II): CS SOIL GROUP A B	AREA (ACRES) 11.60 6.70	Fp (INCH/HR) 0.40 0.30	0.100 0.100	SCS CN 32 56
* 25 YEAR RAINFALL INTENS SUBAREA LOSS RATE DATA (AMC DEVELOPMENT TYPE/ SC LAND USE COMMERCIAL COMMERCIAL COMMERCIAL	C II): CS SOIL GROUP A B	AREA (ACRES) 11.60 6.70	Fp (INCH/HR)	0.100 0.100	SCS CN 32 56
* 25 YEAR RAINFALL INTENS SUBAREA LOSS RATE DATA (AMC DEVELOPMENT TYPE/ SC LAND USE COMMERCIAL COMMERCIAL COMMERCIAL RESIDENTIAL	CS SOIL GROUP A B C	AREA (ACRES) 11.60 6.70 12.80	Fp (INCH/HR) 0.40 0.30 0.25	0.100 0.100 0.100	SCS CN 32 56 69
* 25 YEAR RAINFALL INTENS SUBAREA LOSS RATE DATA (AMC DEVELOPMENT TYPE/ SC LAND USE COMMERCIAL COMMERCIAL COMMERCIAL	CS SOIL GROUP A B C	AREA (ACRES) 11.60 6.70 12.80	Fp (INCH/HR) 0.40 0.30 0.25	0.100 0.100 0.100	SCS CN 32 56 69
* 25 YEAR RAINFALL INTENS SUBAREA LOSS RATE DATA (AMC DEVELOPMENT TYPE/ SC LAND USE COMMERCIAL COMMERCIAL COMMERCIAL RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL	CS SOIL GROUP A B C	AREA (ACRES) 11.60 6.70 12.80	Fp (INCH/HR) 0.40 0.30 0.25	0.100 0.100 0.100	SCS CN 32 56 69
* 25 YEAR RAINFALL INTENS SUBAREA LOSS RATE DATA (AMC DEVELOPMENT TYPE/ SC LAND USE COMMERCIAL COMMERCIAL COMMERCIAL RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL	C II): CS SOIL GROUP A B C	AREA (ACRES) 11.60 6.70 12.80 0.20	Fp (INCH/HR) 0.40 0.30 0.25 0.40	0.100 0.100 0.100 0.900	SCS CN 32 56 69
* 25 YEAR RAINFALL INTENS SUBAREA LOSS RATE DATA (AMC DEVELOPMENT TYPE/ SC LAND USE COMMERCIAL COMMERCIAL COMMERCIAL RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE"	C II): CS SOIL GROUP A B C A B C A B GOSS RAT	AREA (ACRES) 11.60 6.70 12.80 0.20 0.20 0.20	Fp (INCH/HR) 0.40 0.30 0.25 0.40 0.30 cH/HR) = 0	0.100 0.100 0.100 0.900	SCS CN 32 56 69
* 25 YEAR RAINFALL INTENS SUBAREA LOSS RATE DATA (AMO DEVELOPMENT TYPE/ SO LAND USE COMMERCIAL COMMERCIAL COMMERCIAL RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS IS SUBAREA AVERAGE PERVIOUS IS	C II): CS SOIL GROUP A B C A B LOSS RAT	AREA (ACRES) 11.60 6.70 12.80 0.20 0.20 E, Fp(INC	Fp (INCH/HR) 0.40 0.30 0.25 0.40 0.30 cH/HR) = 0 0.110	0.100 0.100 0.100 0.900 0.900	SCS CN 32 56 69 32 56
* 25 YEAR RAINFALL INTENS SUBAREA LOSS RATE DATA (AMO DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL COMMERCIAL RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS IS SUBAREA AVERAGE PERVIOUS IS SUBAREA AVERAGE PERVIOUS IS SUBAREA AREA (ACRES) = 33 EFFECTIVE AREA (ACRES) =	C II): CS SOIL GROUP A B C A B LOSS RAT AREA FRA 1.50 424.20	AREA (ACRES) 11.60 6.70 12.80 0.20 0.20 EF, FP(INC CCTION, AP SUBAREA AREA-A	Fp (INCH/HR) 0.40 0.30 0.25 0.40 0.30 H/HR) = 0 0.110 RUNOFF(CF VERAGED Fm	0.100 0.100 0.100 0.900 0.900 .32 S) = 62. (INCH/HR)	SCS CN 32 56 69 32 56
* 25 YEAR RAINFALL INTENS SUBAREA LOSS RATE DATA (AMO DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL COMMERCIAL RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS IS SUBAREA AVERAGE PERVIOUS ASUBAREA AREA (ACRES) = 33	C II): CS SOIL GROUP A B C A B LOSS RAT AREA FRA 1.50 424.20 = 0.22	AREA (ACRES) 11.60 6.70 12.80 0.20 0.20 EF, FP(INC ACTION, AP SUBAREA AREA-A	Fp (INCH/HR) 0.40 0.30 0.25 0.40 0.30 H/HR) = 0 0.110 RUNOFF (CF EVERAGED FM ERAGED Ap	0.100 0.100 0.100 0.900 0.900 .32 S) = 62. (INCH/HR) = 0.35	SCS CN 32 56 69 32 56

```
>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 320.00 DOWNSTREAM(FEET) = 310.00
 FLOW LENGTH (FEET) = 1981.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 108.0 INCH PIPE IS 86.2 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 15.08
 ESTIMATED PIPE DIAMETER (INCH) = 108.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 821.16
 PIPE TRAVEL TIME (MIN.) = 2.19 Tc (MIN.) = 21.73
 LONGEST FLOWPATH FROM NODE 320.00 TO NODE 330.00 = 12753.00 FEET.
********************
 FLOW PROCESS FROM NODE 330.00 TO NODE 330.00 IS CODE = 1
 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE <<<<
______
 TOTAL NUMBER OF STREAMS = 3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
 TIME OF CONCENTRATION (MIN.) = 21.73
 RAINFALL INTENSITY (INCH/HR) = 2.10
 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.22
 AREA-AVERAGED Ap = 0.35
 EFFECTIVE STREAM AREA(ACRES) = 424.20
 TOTAL STREAM AREA(ACRES) = 424.20
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 821.16
******************
 FLOW PROCESS FROM NODE 390.00 TO NODE 391.00 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) = 860.00 DOWNSTREAM(FEET) = 775.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.195
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.417
 SUBAREA To AND LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                 Fp
                                           Αp
                                                 SCS Tc
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
     LAND USE
 NATURAL FAIR COVER
 "CHAPARRAL, NARROWLEAF" C 0.20
                                                81 9.20
                                 0.25
                                         1.000
 NATURAL FAIR COVER
                     C 1.20
                                          1.000
 "OPEN BRUSH"
                                    0.25
                                                 77
                                                      9.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF (CFS) = 3.99
 TOTAL AREA(ACRES) = 1.40 PEAK FLOW RATE(CFS) =
*****************
 FLOW PROCESS FROM NODE 391.00 TO NODE 392.00 IS CODE = 51
._____
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <>>>
```

CHANNEL LENGTH THRU SUB.	AREA (FEET)	0.10.				6
CHANNEL BASE (FEET) =	0.00 "Z	" FACTOR :	= 3.000	0_01_	0.10	•
MANNING'S FACTOR = 0.04				.00	00	4 ~
* 25 YEAR RAINFALL INT					OC.	-2
SUBAREA LOSS RATE DATA (
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ар	SCS	
DEVELOPMENT TYPE/ LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
NATURAL FAIR COVER						
"CHAPARRAL, NARROWLEAF"	C	1.70	0.25	1.000	81	
NATURAL FAIR COVER						
"CHAPARRAL, NARROWLEAF"	D	0.60	0.20	1.000	86	
SUBAREA AVERAGE PERVIOU						
SUBAREA AVERAGE PERVIOU	S AREA FRA	CTION, Ap	= 1.000			
TRAVEL TIME COMPUTED US	ING ESTIMA	TED FLOW(CFS) =	6.99		
TRAVEL TIME THRU SUBARE						
AVERAGE FLOW DEPTH (FEET) = 0.62	TRAVEL	TIME (MIN.) = 1.50		
Tc(MIN) = 10.70						
SUBAREA AREA(ACRES) =	2.30	SUBAR	EA RUNOFF(CFS) =	6.00	
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	3.70	AREA:	-AVERAGED	Fm(INCH/HR	(1) = 0	.24
AREA-AVERAGED Fp(INCH/H: TOTAL AREA(ACRES) =	R) = 0.2	4 AREA-A	VERAGED Ap	= 1.00		
TOTAL AREA (ACRES) =	3.7	PEA	K FLOW RAT	E(CFS) =	9.	64
******	*****	******	******	*****	*****	***
FLOW PROCESS FROM NODE		TO NODE	393.00 I			
>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU:	L CHANNEL BAREA (EXI	TO NODEFLOW<<<< STING ELE	393.00 I MENT) <<<<			
>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU: ELEVATION DATA: UPSTREAL CHANNEL LENGTH THRU SUB.	L CHANNEL BAREA (EXI ======== M(FEET) = AREA(FEET)	TO NODE 	393.00 I MENT) <<<< DOWNSTRE.	======= AM(FEET) =	· ·====== · 635	.00
>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREAL CHANNEL LENGTH THRU SUB. CHANNEL BASE (FEET) =	L CHANNEL BAREA (EXI ====== M(FEET) = AREA(FEET) 0.00 "Z	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093.' " FACTOR:	393.00 I MENT) <<<< DOWNSTRE 00 CHANN = 3.000	======= AM(FEET) = EL SLOPE =		.00 5
>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREAL CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04	L CHANNEL BAREA (EXI ======= M(FEET) = AREA(FEET) 0.00 "Z 0 MAXIMU	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093. " FACTOR: M DEPTH(F)	393.00 I	======= AM(FEET) = EL SLOPE =		.00 5
>>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREAL CHANNEL LENGTH THRU SUB. CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT	L CHANNEL BAREA (EXI M(FEET) = AREA(FEET) 0.00 "Z 0 MAXIMU ENSITY(INC	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093.' " FACTOR: M DEPTH(FI H/HR) = 1	393.00 I	======= AM(FEET) = EL SLOPE =		.00 5
>>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU: ELEVATION DATA: UPSTREAI CHANNEL LENGTH THRU SUB. CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT: SUBAREA LOSS RATE DATA (L CHANNEL BAREA (EXI M(FEET) = AREA(FEET) 0.00 "Z 0 MAXIMU ENSITY(INC AMC II):	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093. " FACTOR: M DEPTH(FI H/HR) = :	393.00 I MENT) <<<<> DOWNSTRE 00 CHANN 3.000 EET) = 20 2.758	======= AM(FEET) = EL SLOPE =	635 0.059	.00 5
>>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU: ELEVATION DATA: UPSTREAI CHANNEL LENGTH THRU SUB. CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT: SUBAREA LOSS RATE DATA (L CHANNEL BAREA (EXI M(FEET) = AREA(FEET) 0.00 "Z 0 MAXIMU ENSITY(INC AMC II):	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093. " FACTOR: M DEPTH(FI H/HR) = :	393.00 I MENT) <<<<> DOWNSTRE 00 CHANN 3.000 EET) = 20 2.758	======= AM(FEET) = EL SLOPE =	635 0.059	.00 5
>>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU: ELEVATION DATA: UPSTREAI CHANNEL LENGTH THRU SUB. CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT: SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE	L CHANNEL BAREA (EXI	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093. " FACTOR: M DEPTH(FI H/HR) = : AREA (ACRES)	393.00 I MENT) <<<< DOWNSTRE 00 CHANN: = 3.000 EET) = 20 2.758 Fp (INCH/HR)	AM (FEET) = EL SLOPE = .00 Ap (DECIMAL)	======================================	.00 5
>>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU: ELEVATION DATA: UPSTREAI CHANNEL LENGTH THRU SUB. CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT: SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE	L CHANNEL BAREA (EXI	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093. " FACTOR: M DEPTH(FI H/HR) = : AREA (ACRES)	393.00 I MENT) <<<< DOWNSTRE 00 CHANN: = 3.000 EET) = 20 2.758 Fp (INCH/HR)	AM (FEET) = EL SLOPE = .00 Ap (DECIMAL)	======================================	.00 5
>>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU: ELEVATION DATA: UPSTREAI CHANNEL LENGTH THRU SUB. CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT: SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE	L CHANNEL BAREA (EXI	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093. " FACTOR: M DEPTH(FI H/HR) = : AREA (ACRES)	393.00 I MENT) <<<< DOWNSTRE 00 CHANN: = 3.000 EET) = 20 2.758 Fp (INCH/HR)	AM (FEET) = EL SLOPE = .00 Ap (DECIMAL)	======================================	.00 5
>>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SUB- ELEVATION DATA: UPSTREAL CHANNEL LENGTH THRU SUB- CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT: SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER	L CHANNEL BAREA (EXI ======== M(FEET) = AREA (FEET) 0.00 "Z 0 MAXIMU ENSITY (INC AMC II): SCS SOIL GROUP C	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093. " FACTOR: M DEPTH(F: H/HR) = : AREA (ACRES) 1.40	393.00 I MENT) <<<< DOWNSTRE OO CHANN 3.000 EET) = 20 2.758 Fp (INCH/HR) 0.25	AM (FEET) = EL SLOPE = .00	635 0.059 OC	.00 5
>>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREAL CHANNEL LENGTH THRU SUB. CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT. SUBAREA LOSS RATE DATA (. DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF"	L CHANNEL BAREA (EXI ======== M(FEET) = AREA (FEET) 0.00 "Z 0 MAXIMU ENSITY (INC AMC II): SCS SOIL GROUP C	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093. " FACTOR: M DEPTH(F: H/HR) = : AREA (ACRES) 1.40	393.00 I MENT) <<<< DOWNSTRE OO CHANN 3.000 EET) = 20 2.758 Fp (INCH/HR) 0.25	AM (FEET) = EL SLOPE = .00	635 0.059 OC	.00 5
>>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SUB- ELEVATION DATA: UPSTREAL CHANNEL LENGTH THRU SUB- CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT: SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER	L CHANNEL BAREA (EXI	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093. " FACTOR: M DEPTH(FI H/HR) = :: AREA (ACRES) 1.40 8.40	393.00 I	AM (FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000	SCS CN 75	.00 5
>>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SUB- ELEVATION DATA: UPSTREAL CHANNEL LENGTH THRU SUB- CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT: SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH"	L CHANNEL BAREA (EXI	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093. " FACTOR: M DEPTH(FI H/HR) = :: AREA (ACRES) 1.40 8.40	393.00 I MENT) <<<< DOWNSTRE OO CHANN 3.000 EET) = 20 2.758 Fp (INCH/HR) 0.25	AM (FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000	SCS CN 75	.00 5
>>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREAL CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER	L CHANNEL BAREA (EXI ======== M(FEET) = AREA (FEET) 0.00 "Z 0 MAXIMU ENSITY(INC AMC II): SCS SOIL GROUP C C C	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093. " FACTOR: M DEPTH(FI H/HR) = : AREA (ACRES) 1.40 8.40 2.70	393.00 I	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000	SCS CN 75 81	.00 5
>>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREAL CHANNEL LENGTH THRU SUB. CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT. SUBAREA LOSS RATE DATA (. DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	L CHANNEL BAREA (EXI	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093. " FACTOR: M DEPTH(FI H/HR) = : AREA (ACRES) 1.40 8.40 2.70	393.00 I	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000	SCS CN 75	.00 5
>>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREAL CHANNEL LENGTH THRU SUB. CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT: SUBAREA LOSS RATE DATA (. DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER	L CHANNEL BAREA (EXI	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093.' " FACTOR: M DEPTH(FI H/HR) = : AREA (ACRES) 1.40 8.40 2.70 0.40	393.00 I	Ap (DECIMAL) 1.000 1.000 1.000 1.000	SCS CN 75 81 77	.00 5
>>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREAL CHANNEL LENGTH THRU SUB. CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT. SUBAREA LOSS RATE DATA (. DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF"	L CHANNEL BAREA (EXI	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093. " FACTOR: M DEPTH(FI H/HR) = : AREA (ACRES) 1.40 8.40 2.70	393.00 I	Ap (DECIMAL) 1.000 1.000 1.000 1.000	SCS CN 75 81	.00 5
>>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREAL CHANNEL LENGTH THRU SUB. CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT. SUBAREA LOSS RATE DATA (. DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER	L CHANNEL BAREA (EXI ======= M(FEET) = AREA(FEET) 0.00 "Z 0 MAXIMU ENSITY(INC AMC II): SCS SOIL GROUP C C C D	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093. " FACTOR: M DEPTH(FI H/HR) = : AREA (ACRES) 1.40 8.40 2.70 0.40 9.20	393.00 I	AM (FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000 1.000	SCS CN 75 81 77 81 86	.00 5
>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREAL CHANNEL LENGTH THRU SUB. CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (. DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH"	L CHANNEL BAREA (EXI M(FEET) = AREA (FEET) 0.00 "Z 0 MAXIMU ENSITY(INC AMC II): SCS SOIL GROUP C C C D D	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093. " FACTOR: M DEPTH(FI H/HR) = : AREA (ACRES) 1.40 8.40 2.70 0.40 9.20 0.60	393.00 I	Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 1.000	SCS CN 75 81 77	.00 5
>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREAL CHANNEL LENGTH THRU SUB. CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (. DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" SUBAREA AVERAGE PERVIOU	L CHANNEL BAREA (EXI ====================================	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093. " FACTOR: M DEPTH(FI H/HR) = : AREA (ACRES) 1.40 8.40 2.70 0.40 9.20 0.60 E, FP(INC)	393.00 I MENT) <<<< DOWNSTRE. 00 CHANN: = 3.000 EET) = 20 2.758 Fp (INCH/HR) 0.25 0.25 0.25 0.20 0.20 0.20 H/HR) = 0	Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 1.000	SCS CN 75 81 77 81 86	.00 5
>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREAL CHANNEL LENGTH THRU SUB. CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS	L CHANNEL BAREA (EXI	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093. " FACTOR: M DEPTH(FI H/HR) = : AREA (ACRES) 1.40 8.40 2.70 0.40 9.20 0.60 E, Fp(INCI CTION, Ap	393.00 I MENT) <<<< DOWNSTRE. 00 CHANN: = 3.000 EET) = 20 2.758 Fp (INCH/HR) 0.25 0.25 0.25 0.20 0.20 0.20 H/HR) = 0 = 1.000	Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 1.000 1.000	SCS CN 75 81 77 81 86	.00 5
>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREAL CHANNEL LENGTH THRU SUB. CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (. DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER "OPEN BRUSH" SUBAREA AVERAGE PERVIOU	L CHANNEL BAREA (EXI	TO NODE FLOW<<<<< STING ELEI 700.00 = 1093.' " FACTOR: M DEPTH(FI H/HR) = : AREA (ACRES) 1.40 8.40 2.70 0.40 9.20 0.60 E, Fp(INCI CTION, Ap TED FLOW(393.00 I	Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 23 35.56	SCS CN 75 81 77 81 86 83	.00 5

ELEVATION DATA: IIPSTREAM(FEET) = 775 00 DOWNSTREAM(FEET) =

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Tc(MIN.) = 13.42
 SUBAREA AREA (ACRES) = 22.70 SUBAREA RUNOFF (CFS) = 51.70
 EFFECTIVE AREA (ACRES) = 26.40 AREA-AVERAGED Fm(INCH/HR) = 0.23
 AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 26.4
                              PEAK FLOW RATE(CFS) =
                                                      60.08
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 1.62 FLOW VELOCITY(FEET/SEC.) = 7.61
 LONGEST FLOWPATH FROM NODE 390.00 TO NODE 393.00 = 1955.00 FEET.
******************
 FLOW PROCESS FROM NODE 393.00 TO NODE 394.00 IS CODE = 51
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <
______
 ELEVATION DATA: UPSTREAM(FEET) = 635.00 DOWNSTREAM(FEET) = 598.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 904.00 CHANNEL SLOPE = 0.0409
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 20.00
                                                   OC1-4
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.537
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                  Fр
                                            Aр
                                                   SCS
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF" C 1.60
                                             1.000
                                                   7.5
                                     0.25
 NATURAL FAIR COVER
 "CHAPARRAL, NARROWLEAF" C 5.50
                                     0.25
                                             1.000
                                                   81
 NATURAL FAIR COVER
 "OPEN BRUSH"
                             1.80
                                      0.25
                                             1.000
                                                   77
 NATURAL FAIR COVER
 "WOODLAND, GRASS"
                             0.60
                                      0.25
                                             1.000
                                                   77
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF"
                      D
                             1.00
                                      0.20
                                             1.000
                                                  81
 NATURAL FAIR COVER
 "CHAPARRAL, NARROWLEAF"
                      D
                             6.80
                                     0.20
                                            1.000
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.06
 AVERAGE FLOW DEPTH(FEET) = 1.92 TRAVEL TIME(MIN.) = 2.13
 Tc(MIN.) = 15.56
 SUBAREA AREA (ACRES) = 17.30 SUBAREA RUNOFF (CFS) = 35.96
 EFFECTIVE AREA (ACRES) = 43.70 AREA-AVERAGED Fm (INCH/HR) = 0.23
 AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 43.7
                             PEAK FLOW RATE(CFS) =
                                                      90.79
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 2.03 FLOW VELOCITY(FEET/SEC.) = 7.33
 LONGEST FLOWPATH FROM NODE 390.00 TO NODE 394.00 = 2859.00 FEET.
********************
 FLOW PROCESS FROM NODE 394.00 TO NODE 394.00 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc(MIN.) = 15.56
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.537
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SUBAREA LOSS RATE DATA(A					OC1-
DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER "OPEN BRUSH"	D	2.50	0.20	1.000	83
NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVIOUS			0.20		82
SUBAREA AVERAGE PERVIOUS	S AREA FRA	CTION, A	p = 1.000		4.5
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/HI	46.30	AREA-	AVERAGED Fm	(INCH/HR) =	
TOTAL AREA (ACRES) =					96.26

FLOW PROCESS FROM NODE				S CODE = !	51
>>>>COMPUTE TRAPEZOIDAD >>>>TRAVELTIME THRU SUB	BAREA (EXI	STING EL	EMENT) <<<<		
ELEVATION DATA: UPSTREAM CHANNEL LENGTH THRU SUBA CHANNEL BASE (FEET) =	M(FEET) = AREA(FEET) 0.00 "Z	598.0 = 701	DOWNSTRE .00 CHANN = 3.000	AM(FEET) = EL SLOPE =	573.0
MANNING'S FACTOR = 0.040 * 25 YEAR RAINFALL INTE	ENSITY(INC	H/HR) =		.00	OC1-
SUBAREA LOSS RATE DATA(A DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp	Ap	SCS
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF" NATURAL FAIR COVER					75
"CHAPARRAL, BROADLEAF"	D	0.20	0.20	1.000	81
NATURAL FAIR COVER "CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER	С	5.90	0.25	1.000	81
"CHAPARRAL, NARROWLEAF" NATURAL FAIR COVER	D	12.70	0.20	1.000	86
"OPEN BRUSH" NATURAL FAIR COVER	С	6.80	0.25	1.000	77
"OPEN BRUSH" SUBAREA AVERAGE PERVIOUS			0.20 CH/HR) = 0		83
SUBAREA AVERAGE PERVIOUS TRAVEL TIME COMPUTED US:			•	130.68	
TRAVEL TIME THRU SUBAREZ AVERAGE FLOW DEPTH (FEET)					
Tc (MIN.) = 17.09 SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	35.10	SUBA	REA RUNOFF(CFS) = 68	3.82
AREA-AVERAGED Fp(INCH/H	81.40	AREA-	A-AVERAGED AVERAGED Ar	= 1.00) = 0.2
TOTAL AREA (ACRES) =					159.61
END OF SUBAREA CHANNEL 1 DEPTH(FEET) = 2.58 F1			SEC.) = 8	.02	
LONGEST FLOWPATH FROM NO					60.00 FEE
********		******	********	*****	*******

MAINLINE TC (MIN.) = 1 * 25 YEAR RAINFALL INT	TENSITY(IN		2.406		OC1-5
SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/			Fn	An	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
LAND USE RESIDENTIAL	011001	(1101120)	(211011) 1111)	(22021212)	01.
".4 DWELLING/ACRE"	С	1.00	0.25	0.900	69
RESIDENTIAL					
".4 DWELLING/ACRE"	D	2.70	0.20	0.900	75
NATURAL FAIR COVER					
"WOODLAND, GRASS"	С	0.50	0.25	1.000	77
NATURAL FAIR COVER					
"WOODLAND, GRASS"			0.20		82
SUBAREA AVERAGE PERVIOU				.22	
SUBAREA AVERAGE PERVIOU	JS AREA FR	ACTION, A	p = 0.914	(2)	F 4
SUBAREA AREA (ACRES) =	4.30	SUBARE.	A RUNOFF (CF	S) = 8.	54 - 0 22
EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/H	ID) = 03.7	3 NDFN-N	AVERAGED III VFDACFD An	= 1 00	- 0.23
TOTAL AREA (ACRES) =					168 15
TOTTLE TREET (HORLES)	00.7	1 1111	I LOW IWILD (010)	100.10
******	******	*****	*****	******	*****
FLOW PROCESS FROM NODE				S CODE =	31
>>>>COMPUTE PIPE-FLOW					
	TKAVLL II.	יכ טאחו חויו	UDAKEA////		
>>>> USING COMPUTER-EST ELEVATION DATA: UPSTREA FLOW LENGTH(FEET) = 62 DEPTH OF FLOW IN 45.0 PIPE-FLOW VELOCITY(FEET ESTIMATED PIPE DIAMETER	TIMATED PI ====================================	PESIZE (N ====================================	DOWNSTREA N = 0.013 INCHES	======================================	437.00
>>>> USING COMPUTER-EST ====================================	TIMATED PI 	PESIZE (N====================================	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 23.1 ODE 370.	M(FEET) = PIPES = 1 00 = 98	437.00 1 46.00 FEET.
>>>> USING COMPUTER-EST ELEVATION DATA: UPSTREA FLOW LENGTH(FEET) = 62 DEPTH OF FLOW IN 45.0 PIPE-FLOW VELOCITY(FEET	TIMATED PI 	PESIZE (N====================================	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 23.1 ODE 370.	M(FEET) = PIPES = 1 00 = 98	437.00 1 46.00 FEET.
>>>>USING COMPUTER-EST ====================================	TIMATED PI 	PESIZE (N====================================	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 23.1 ODE 370. ************** 371.00 I	M(FEET) = PIPES = 1 00 = 98 ********** S CODE =	437.00 1 46.00 FEET.
>>>>USING COMPUTER-EST ====================================	TIMATED PI AM (FEET) = 286.00 M INCH PIPE F/SEC.) = R(INCH) = 58.15 = 6.01 NODE 39 ********** 370.00	PESIZE (N====================================	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 23.1 ODE 370. ********* 371.00 I	M(FEET) = PIPES = 1 00 = 98 ******** S CODE =	437.00 1 46.00 FEET. ************ 51 345.00 0.0469
>>>>USING COMPUTER-EST ====================================	TIMATED PI AM (FEET) = 286.00 M INCH PIPE E/SEC.) = R(INCH) = 58.15 = 6.01 NODE 39 ********** 370.00	PESIZE (N	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 23.1 ODE 370. ********** 371.00 I	M(FEET) = PIPES = 1 00 = 98 ******** S CODE =	437.00 1 46.00 FEET. ************ 51 345.00 0.0469
>>>>USING COMPUTER-EST ====================================	TIMATED PI AM (FEET) = 286.00 M INCH PIPE F/SEC.) = R(INCH) = 58.15 = 6.01 NODE 39 ********* 370.00	PESIZE (N====================================	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 23.1 ODE 370. ********** 371.00 I	M(FEET) = PIPES = 1 00 = 98 ******** S CODE =	437.00 1 46.00 FEET. **************51
>>>>USING COMPUTER-EST ====================================	TIMATED PI AM (FEET) = 286.00 M INCH PIPE E/SEC.) = R(INCH) = 58.15 = 6.01 NODE 39 ********** 370.00	PESIZE (N	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 23.1 ODE 370. ********* 371.00 I	M(FEET) = PIPES = 1 00 = 98 ******** ******** ******** *******	437.00 1 46.00 FEET. ********* 345.00 0.0469 DC1-6
>>>>USING COMPUTER-EST ====================================	TIMATED PI ======== AM (FEET) = 286.00 M INCH PIPE (/SEC.) = R (INCH) = 588.15 = 6.01 NODE 39 ********* 370.00	PESIZE (N====================================	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 23.1 ODE 370. ********** 371.00 I	M(FEET) = PIPES = 1 00 = 98 ******** ******** ******** *******	437.00 1 46.00 FEET. ********* 51 345.00 0.0469 DC1-6 SCS
>>>>USING COMPUTER-EST ====================================	TIMATED PI ======== AM (FEET) = 286.00 M INCH PIPE (/SEC.) = R (INCH) = 588.15 = 6.01 NODE 39 ********* 370.00	PESIZE (N====================================	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 23.1 ODE 370. ********* 371.00 I	M(FEET) = PIPES = 1 00 = 98 ******** ******** ******** *******	437.00 1 46.00 FEET. ********* 51 345.00 0.0469 DC1-6 SCS
>>>>USING COMPUTER-EST ====================================	TIMATED PI ======== AM (FEET) = 286.00 M INCH PIPE (/SEC.) = R (INCH) = 588.15 = 6.01 NODE 39 ********* 370.00	PESIZE (N====================================	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 23.1 ODE 370. ********** 371.00 I	M(FEET) = PIPES = 1 00 = 98 ******** ******** ******** *******	437.00 1 46.00 FEET. ********* 51 345.00 0.0469 DC1-6 SCS
>>>>USING COMPUTER-EST ====================================	TIMATED PI ======== AM (FEET) = 286.00 M INCH PIPE t/SEC.) = R(INCH) = 588.15 = 6.01 NODE 39 ********** 370.00	PESIZE (N====================================	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 23.1 ODE 370. ********** 371.00 I	M(FEET) = PIPES = 1 00 = 98 ******** S CODE =	437.00 1 46.00 FEET. ********* 51 345.00 0.0469 DC1-6 SCS CN
>>>>USING COMPUTER-EST ====================================	TIMATED PI ======== AM (FEET) = 286.00 M INCH PIPE t/SEC.) = R(INCH) = 588.15 = 6.01 NODE 39 ********** 370.00	PESIZE (N====================================	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 23.1 ODE 370. ********** 371.00 I	M(FEET) = PIPES = 1 00 = 98 ******** S CODE =	437.00 1 46.00 FEET. ********* 51 345.00 0.0469 DC1-6 SCS CN
>>>>USING COMPUTER-EST ====================================	TIMATED PI ======== AM (FEET) = 286.00 M INCH PIPE P/SEC.) = R(INCH) = 68.15 = 6.01 NODE 39 ********** 370.00	PESIZE (N====================================	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 23.1 ODE 370. ********** 371.00 I	M(FEET) = PIPES = 1 00 = 98 ******* S CODE = AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000	437.00 1 46.00 FEET. ********* 51 345.00 0.0469 DC1-6 SCS CN 40
>>>>USING COMPUTER-EST ====================================	TIMATED PI ======== AM (FEET) = 286.00 M INCH PIPE 286.00 M INCH PIPE 286.15 = 6.01 NODE 39 ********** 370.00 AL CHANNEL JBAREA (EX ======= AM (FEET) = 3AREA (FEET 0.00 " 10 MAXIM (AMC II): SCS SOIL GROUP A C	PESIZE (N====================================	DOWNSTREA N = 0.013 INCHES NUMBER OF .) = 23.1 ODE 370. ********** 371.00 I	M(FEET) = PIPES = 1 00 = 98 ******** S CODE = AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000	437.00 1 46.00 FEET. ********* 51 345.00 0.0469 DC1-6 SCS CN 40 75

COMMERCIAL	D	1.10	0.20	0.100	75
SUBAREA AVERAGE PERVIO	US LOSS RAT	TE, Fp(INC	H/HR) = 0	.31	
SUBAREA AVERAGE PERVIO	US AREA FRA	ACTION, Ap	= 0.265		
TRAVEL TIME COMPUTED U	SING ESTIMA	ATED FLOW (CFS) =	172.97	
TRAVEL TIME THRU SUBAR					
AVERAGE FLOW DEPTH (FEE	T) = 2.52	2 TRAVEL	TIME (MIN.) = 3.61	
Tc(MIN.) = 26.72					
SUBAREA AREA(ACRES) =	6.00	SUBAR	EA RUNOFF(CFS) =	9.64
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES)	= 91.70) AREA	-AVERAGED	Fm(INCH/HR) = 0.22
AREA-AVERAGED Fp(INCH/	HR) = 0.2	23 AREA-A	VERAGED Ap	= 0.95	
TOTAL AREA (ACRES) =					
NOTE: PEAK FLOW RATE D					
END OF SUBAREA CHANNEL	EIOM HADDI	AIII TCS:			
DEPTH (FEET) = 2.50			FC) = 8	98	
LONGEST FLOWPATH FROM					00 00 EEET
LONGEST FLOWFAIR FROM	NODE 390	7.00 IO NO	DE 3/1.	00 - 110	09.00 FEE1.

FLOW PROCESS FROM NODE					81
>>>>ADDITION OF SUBAR					
 MAINLINE Tc(MIN.) =			======		
* 25 YEAR RAINFALL IN	TENSITY (INC	CH/HR) =	1.868		OC1-6
SUBAREA LOSS RATE DATA					
DEVELOPMENT TYPE/			Fn	An	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
NATURAL FAIR COVER	01.001	(1101/110)	(114011 / 1117)	(PHCILIUI)	CIA
"GRASS"	А	1 // 0	0.40	1 000	50
NATURAL FAIR COVER	A	1.40	0.40	1.000	50
"GRASS"	C	2 0 0	0.25	1.000	70
NATURAL FAIR COVER	C	4.00	∪.∠3	1.000	13
"GRASS"	D	0 10	0.20	1.000	0.4
"GRASS" NATURAL FAIR COVER	Д	0.10	U.ZU	1.000	04
	2	0.40	0.40	1 000	16
"OPEN BRUSH"	А	0.40	0.40	1.000	40
NATURAL FAIR COVER	_	0 00	0.00	1 000	
"OPEN BRUSH"	В	0.30	0.30	1.000	66
NATURAL FAIR COVER	-	2 42	0.05	4 000	
"OPEN BRUSH"					77
SUBAREA AVERAGE PERVIO				.28	
SUBAREA AVERAGE PERVIO					
SUBAREA AREA (ACRES) =					
EFFECTIVE AREA (ACRES)					= 0.22
AREA-AVERAGED Fp(INCH/	HR) = 0.23	3 AREA-AV	ERAGED Ap	= 0.95	
TOTAL AREA (ACRES) =				CFS) =	168.15
NOTE: PEAK FLOW RATE D	EFAULTED TO) UPSTREAM	VALUE		
******	******	******	******	*****	*****
FLOW PROCESS FROM NODE			371.00 I	S CODE =	81
ANNADDIMION OF CUDAD			ET OWZZZZ		
>>>>ADDITION OF SUBAR				=======	
MAINLINE Tc(MIN.) =		()			OC1-6
* 25 YEAR RAINFALL IN		CH/HR) =	1.868		
SUBAREA LOSS RATE DATA					
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp	Ap	SCS
	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
NATURAL FAIR COVER					
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"OPEN BRUSH" D 0.80 0.20 1.000 83 PUBLIC PARK A 0.10 0.40 0.850 32 PUBLIC PARK C 3.80 0.25 0.850 69 PUBLIC PARK D 2.50 0.20 0.850 75 RESIDENTIAL ".4 DWELLING/ACRE" A 2.40 0.40 0.900 32	
PUBLIC PARK A 0.10 0.40 0.850 32 PUBLIC PARK C 3.80 0.25 0.850 69 PUBLIC PARK D 2.50 0.20 0.850 75 RESIDENTIAL	
PUBLIC PARK D 2.50 0.20 0.850 75 RESIDENTIAL	
PUBLIC PARK D 2.50 0.20 0.850 75 RESIDENTIAL	
RESIDENTIAL	
.4 DWELLING/ACKE A 2.40 0.40 0.900 32	
DECIDENTI	
RESIDENTIAL ".4 DWELLING/ACRE" B 0.70 0.30 0.900 56	
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27	
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.877	
SUBAREA AREA(ACRES) = 10.30 SUBAREA RUNOFF(CFS) = 15.09 EFFECTIVE AREA(ACRES) = 110.40 AREA-AVERAGED Fm(INCH/HR) = 0.22	
AREA-AVERAGED Fp (INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.95	
TOTAL AREA (ACRES) = 110.4 PEAK FLOW RATE (CFS) = 168.15	
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE	
NOIE. TEAK FEOW KATE DEFAULTED TO OTSTREAM VALUE	
*******************	****
FLOW PROCESS FROM NODE 371.00 TO NODE 371.00 IS CODE = 81	
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<	
MAINLINE Tc(MIN.) = 26.72	
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 1.868	-6
SUBAREA LOSS RATE DATA(AMC II):	_
DEVELOPMENT TYPE/ SCS SOIL AREA FP AP SCS	
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN	
RESIDENTIAL (1997)	
".4 DWELLING/ACRE" C 3.50 0.25 0.900 69	
RESIDENTIAL	
".4 DWELLING/ACRE" D 1.10 0.20 0.900 75	
RESIDENTIAL	
"8-10 DWELLINGS/ACRE" C 0.10 0.25 0.400 69	
NATURAL FAIR COVER	
"WOODLAND, GRASS" B 0.20 0.30 1.000 65	
NATURAL FAIR COVER	
"WOODLAND, GRASS" C 1.90 0.25 1.000 77	
"WOODLAND, GRASS" C 1.90 0.25 1.000 77	
"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24	
"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.924	
"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.924 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 10.06	
"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.924 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 10.06 EFFECTIVE AREA(ACRES) = 117.20 AREA-AVERAGED Fm(INCH/HR) = 0.22	
"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.924 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 10.06 EFFECTIVE AREA(ACRES) = 117.20 AREA-AVERAGED Fm(INCH/HR) = 0.22 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.94	
"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.924 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 10.06 EFFECTIVE AREA(ACRES) = 117.20 AREA-AVERAGED Fm(INCH/HR) = 0.22	
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"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.924 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 10.06 EFFECTIVE AREA(ACRES) = 117.20 AREA-AVERAGED Fm(INCH/HR) = 0.22 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.94 TOTAL AREA(ACRES) = 117.2 PEAK FLOW RATE(CFS) = 173.46	
"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.924 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 10.06 EFFECTIVE AREA(ACRES) = 117.20 AREA-AVERAGED Fm(INCH/HR) = 0.22 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.94 TOTAL AREA(ACRES) = 117.2 PEAK FLOW RATE(CFS) = 173.46	****
"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.924 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 10.06 EFFECTIVE AREA(ACRES) = 117.20 AREA-AVERAGED Fm(INCH/HR) = 0.22 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.94 TOTAL AREA(ACRES) = 117.2 PEAK FLOW RATE(CFS) = 173.46	****
"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.924 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 10.06 EFFECTIVE AREA(ACRES) = 117.20 AREA-AVERAGED Fm(INCH/HR) = 0.22 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.94 TOTAL AREA(ACRES) = 117.2 PEAK FLOW RATE(CFS) = 173.46 ***********************************	****
"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.924 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 10.06 EFFECTIVE AREA(ACRES) = 117.20 AREA-AVERAGED Fm(INCH/HR) = 0.22 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.94 TOTAL AREA(ACRES) = 117.2 PEAK FLOW RATE(CFS) = 173.46 ***********************************	****
"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.924 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 10.06 EFFECTIVE AREA(ACRES) = 117.20 AREA-AVERAGED Fm(INCH/HR) = 0.22 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.94 TOTAL AREA(ACRES) = 117.2 PEAK FLOW RATE(CFS) = 173.46 ***********************************	****
"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.924 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 10.06 EFFECTIVE AREA(ACRES) = 117.20 AREA-AVERAGED Fm(INCH/HR) = 0.22 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.94 TOTAL AREA(ACRES) = 117.2 PEAK FLOW RATE(CFS) = 173.46 ***********************************	****
"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.924 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 10.06 EFFECTIVE AREA(ACRES) = 117.20 AREA-AVERAGED Fm(INCH/HR) = 0.22 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.94 TOTAL AREA(ACRES) = 117.2 PEAK FLOW RATE(CFS) = 173.46 ***********************************	****
"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.924 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 10.06 EFFECTIVE AREA(ACRES) = 117.20 AREA-AVERAGED Fm(INCH/HR) = 0.22 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.94 TOTAL AREA(ACRES) = 117.2 PEAK FLOW RATE(CFS) = 173.46 ***********************************	****
"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.924 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 10.06 EFFECTIVE AREA(ACRES) = 117.20 AREA-AVERAGED Fm(INCH/HR) = 0.22 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.94 TOTAL AREA(ACRES) = 117.2 PEAK FLOW RATE(CFS) = 173.46 ***********************************	****
"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.924 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 10.06 EFFECTIVE AREA(ACRES) = 117.20 AREA-AVERAGED Fm(INCH/HR) = 0.22 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.94 TOTAL AREA(ACRES) = 117.2 PEAK FLOW RATE(CFS) = 173.46 ***********************************	****
"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.924 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 10.06 EFFECTIVE AREA(ACRES) = 117.20 AREA-AVERAGED Fm(INCH/HR) = 0.22 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.94 TOTAL AREA(ACRES) = 117.2 PEAK FLOW RATE(CFS) = 173.46 ***********************************	****
"WOODLAND, GRASS" C 1.90 0.25 1.000 77 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.924 SUBAREA AREA(ACRES) = 6.80 SUBAREA RUNOFF(CFS) = 10.06 EFFECTIVE AREA(ACRES) = 117.20 AREA-AVERAGED Fm(INCH/HR) = 0.22 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.94 TOTAL AREA(ACRES) = 117.2 PEAK FLOW RATE(CFS) = 173.46 ***********************************	**** ==== 0

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************************* FLOW PROCESS FROM NODE 330.00 TO NODE 330.00 IS CODE = 1 ______ >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE< >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES _____ TOTAL NUMBER OF STREAMS = 3 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 3 ARE: TIME OF CONCENTRATION (MIN.) = 27.56RAINFALL INTENSITY (INCH/HR) = 1.84AREA-AVERAGED Fm(INCH/HR) = 0.22AREA-AVERAGED Fp(INCH/HR) = 0.24AREA-AVERAGED Ap = 0.94EFFECTIVE STREAM AREA(ACRES) = 117.20 TOTAL STREAM AREA(ACRES) = 117.20 PEAK FLOW RATE (CFS) AT CONFLUENCE = 173.46 ** CONFLUENCE DATA ** STREAM Q Tc Intensity Fp(Fm) HEADWATER Ae (CFS) (MIN.) (INCH/HR) (INCH/HR) NUMBER (ACRES) NODE 1 419.25 18.02 2.335 0.22(0.08) 0.37 204.2 310.00 1 399.74 21.62 2.106 0.22(0.08) 0.37 217.1 300.00 2 320.00 821.16 21.73 2.100 0.22(0.08) 0.35 424.2 173.46 27.56 1.836 0.24 (0.22) 0.94 117.2 390.00 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO CONFLUENCE FORMULA USED FOR 3 STREAMS. ** PEAK FLOW RATE TABLE ** STREAM 0 Tc Intensity Fp(Fm) Ap Ae HEADWATER NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE 1 1327.70 18.02 2.335 0.23(0.10) 0.43 632.4 310.00 1378.03 21.62 2.106 0.23(0.10) 0.43 731.0 300.00 3 1378.88 21.73 2.100 0.23(0.10) 0.43 733.7 320.00 1233.67 27.56 1.836 0.23(0.10) 0.45 758.5 390.00 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS: PEAK FLOW RATE (CFS) = 1378.88 Tc (MIN.) = 21.73 EFFECTIVE AREA(ACRES) = 733.73 AREA-AVERAGED Fm(INCH/HR) = 0.10 AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.43TOTAL AREA (ACRES) = 758.5 LONGEST FLOWPATH FROM NODE 390.00 TO NODE 330.00 = 12874.00 FEET. ****************** FLOW PROCESS FROM NODE 330.00 TO NODE 331.00 IS CODE = 31 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA< >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<< _____ ELEVATION DATA: UPSTREAM(FEET) = 310.00 DOWNSTREAM(FEET) = 280.00 FLOW LENGTH (FEET) = 374.00 MANNING'S N = 0.013DEPTH OF FLOW IN 78.0 INCH PIPE IS 62.5 INCHES PIPE-FLOW VELOCITY(FEET/SEC.) = 48.39

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LONGEST FLOWPATH FROM NODE 390.00 TO NODE 331.00 = 13248.00 FEET.

ESTIMATED PIPE DIAMETER (INCH) = 78.00 NUMBER OF PIPES = 1

PIPE TRAVEL TIME (MIN.) = 0.13 Tc (MIN.) = 21.86

PIPE-FLOW(CFS) = 1378.88

>>>>ADDITION OF SUBAR					
MAINLINE Tc(MIN.) = * 25 YEAR RAINFALL IN	21.86 NTENSITY(IN	CH/HR) =			
SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE APARTMENTS APARTMENTS APARTMENTS	A(AMC II); SCS SOIL	AREA	Fn	An	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
APARTMENTS	A	17.50	0.40	0.200	32
APARTMENTS	В	1.50	0.30	0.200	56
APARTMENTS	С	0.70	0.25	0.200	69
NATURAL POOR COVER					
"BARREN" COMMERCIAL	D	0.10	0.20 0.40	1.000	93
COMMERCIAL			0.30		56
SUBAREA AVERAGE PERVIO				.39	
SUBAREA AVERAGE PERVIO SUBAREA AREA(ACRES) =				'S) = 110	60
EFFECTIVE AREA (ACRES)	= 798.8	3 AREA-	AVERAGED Fm	(TNCH/HR)	= 0.09
AREA-AVERAGED Fp (INCH	/HR) = 0.23	3 AREA-A	VERAGED Ap	= 0.41	0.03
AREA-AVERAGED Fp(INCH) TOTAL AREA(ACRES) =	823.6	PEAK	FLOW RATE (CFS) =	1436.65

FLOW PROCESS FROM NODE	E 331.00 REA TO MAIN	TO NODE LINE PEAK	331.00 I	S CODE =	81
FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBARDA LOSS PATE DATE SUBARDA LOSS PATE DATE	E 331.00 REA TO MAIN 21.86 NTENSITY(INC	TO NODE LINE PEAK CH/HR) =	331.00 I FLOW<<<< 2.093	S CODE =	C1-30
FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBARDA LOSS PATE DATE SUBARDA LOSS PATE DATE	E 331.00 REA TO MAIN 21.86 NTENSITY(INC	TO NODE LINE PEAK CH/HR) =	331.00 I FLOW<<<< 2.093	S CODE =	C1-30
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBARDA LOSS PATE DATE SUBARDA LOSS PATE DATE	E 331.00 REA TO MAIN 21.86 NTENSITY(INC	TO NODE LINE PEAK CH/HR) =	331.00 I FLOW<<<< 2.093	S CODE =	C1-30
FLOW PROCESS FROM NODE >>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBARDA LOSS PATE DATE SUBARDA LOSS PATE DATE	E 331.00 REA TO MAIN 21.86 NTENSITY(INC	TO NODE LINE PEAK CH/HR) =	331.00 I FLOW<<<< 2.093	S CODE =	C1-30
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL	E 331.00 REA TO MAIN! 21.86 NTENSITY(IN A (AMC II): SCS SOIL GROUP C D	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10	331.00 I FLOW<<<< 2.093 Fp (INCH/HR) 0.25 0.20	Ap (DECIMAL) 0.100 0.100	81 C1-30 SCS CN 69 75
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE Tc(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL	E 331.00 REA TO MAIN! 21.86 NTENSITY(IN A (AMC II): SCS SOIL GROUP C D	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10	331.00 I FLOW<<<< 2.093 Fp (INCH/HR) 0.25 0.20	Ap (DECIMAL) 0.100 0.100	81 C1-30 SCS CN 69 75
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS"	E 331.00 REA TO MAIN! 21.86 NTENSITY(INA A(AMC II): SCS SOIL GROUP C D D	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10 0.10	331.00 I FLOW<<<< 2.093 Fp (INCH/HR) 0.25 0.20	Ap (DECIMAL) 0.100 0.100 1.000	81 C1-30 SCS CN 69 75
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVIO	E 331.00 REA TO MAIN! 21.86 NTENSITY(INA A(AMC II): SCS SOIL GROUP C D D D D DUS LOSS RAS	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10 0.10 TE, Fp(IN	331.00 I FLOW<<<<< 2.093 Fp (INCH/HR) 0.25 0.20 0.20 CH/HR) = 0	Ap (DECIMAL) 0.100 0.100 1.000	81 C1-30 SCS CN 69 75
FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVICE SUBAREA AVERAGE PERVICE SUBAREA AVERAGE PERVICE	E 331.00 REA TO MAINI 21.86 NTENSITY(ING A(AMC II): SCS SOIL GROUP C D D DUS LOSS RA: DUS AREA FRE	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10 0.10 TE, Fp(IN ACTION, A	331.00 I FLOW<<<< =================================	Ap (DECIMAL) 0.100 0.100 1.000	SCS CN 69 75 82
FLOW PROCESS FROM NODE >>>> ADDITION OF SUBAR MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVICE SUBAREA AVERAGE PERVICE SUBAREA AVERAGE PERVICE	E 331.00 REA TO MAINI 21.86 NTENSITY(ING A(AMC II): SCS SOIL GROUP C D D DUS LOSS RA: DUS AREA FRE	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10 0.10 TE, Fp(IN ACTION, A	331.00 I FLOW<<<< =================================	Ap (DECIMAL) 0.100 0.100 1.000	SCS CN 69 75 82
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES)	E 331.00 REA TO MAINI 21.86 NTENSITY(ING A(AMC II): SCS SOIL GROUP C D D DUS LOSS RAF 6.20 = 805.00	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10 0.10 TE, FP(IN ACTION, A SUBARE 3 AREA-	331.00 I FLOW<<<< 2.093 Fp (INCH/HR) 0.25 0.20 0.20 CH/HR) = 0 p = 0.115 A RUNOFF(CF AVERAGED FM	Ap (DECIMAL) 0.100 0.100 1.000 1.000 1.010 1.000 1.010	SCS CN 69 75 82 54 = 0.09
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES)	E 331.00 REA TO MAINI 21.86 NTENSITY(ING A(AMC II): SCS SOIL GROUP C D D DUS LOSS RAF 6.20 = 805.00	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10 0.10 TE, FP(IN ACTION, A SUBARE 3 AREA-	331.00 I FLOW<<<< 2.093 Fp (INCH/HR) 0.25 0.20 0.20 CH/HR) = 0 p = 0.115 A RUNOFF(CF AVERAGED FM	Ap (DECIMAL) 0.100 0.100 1.000 1.000 1.010 1.000 1.010	SCS CN 69 75 82 54 = 0.09
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FD (INCH, TOTAL AREA (ACRES) =	E 331.00 REA TO MAIN: 21.86 NTENSITY(ING A(AMC II): SCS SOIL GROUP C D D DUS LOSS RAF 6.20 = 805.0: /HR) = 0.2: 829.8	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10 0.10 ITE, FP(IN ACTION, A SUBARE 3 AREA- 4 PEAK	331.00 I FLOW<<<< 2.093 Fp (INCH/HR) 0.25 0.20 CH/HR) = 0 P = 0.115 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(Ap (DECIMAL) 0.100 0.100 1.000	C1-30 SCS CN 69 75 82 54 = 0.09 1448.20
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FD (INCH, TOTAL AREA (ACRES) =	E 331.00 REA TO MAINI 21.86 NTENSITY(ING A(AMC II): SCS SOIL GROUP C D D DUS LOSS RAM 6.20 = 805.00 /HR) = 0.23 829.8	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10 0.10 ITE, FP(IN ACTION, A SUBARE 3 AREA-A PEAK ***********************************	331.00 I FLOW<<<<	Ap (DECIMAL) 0.100 0.100 1.000 1.000 1.000 CFS) = 11.	SCS CN 69 75 82 54 = 0.09 1448.20 ********
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FD (INCH, TOTAL AREA (ACRES) =	E 331.00 REA TO MAINI 21.86 NTENSITY(ING A(AMC II): SCS SOIL GROUP C D D DUS LOSS RAM 6.20 = 805.00 /HR) = 0.23 829.8	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10 0.10 ITE, FP(IN ACTION, A SUBARE 3 AREA-A PEAK ***********************************	331.00 I FLOW<<<< =================================	Ap (DECIMAL) 0.100 0.100 1.000 1.000 1.000 CFS) = 11.	SCS CN 69 75 82 54 = 0.09 1448.20 ********
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = FFECTIVE AREA (ACRES) = ***********************************	E 331.00 REA TO MAIN: 21.86 NTENSITY(ING A(AMC II): SCS SOIL GROUP C D D DUS LOSS RAM 6.20 = 805.00 /HR) = 0.23 829.8 ***********************************	TO NODE LINE PEAK LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10 0.10 TE, Fp(IN ACTION, A SUBARE 3 AREA-A PEAK TO NODE NTO MEMOR	331.00 I FLOW<<<< 2.093 Fp (INCH/HR) 0.25 0.20 CH/HR) = 0.20 CH/HR) = 0.115 A RUNOFF (CF AVERAGED FM VERAGED FM VERAGED Ap FLOW RATE (*********** 331.00 I	Ap (DECIMAL) 0.100 0.100 1.000 1.000 CFS) = 11.1 (INCH/HR) = 0.40 CFS) = ***********************************	SCS CN 69 75 82 54 = 0.09 1448.20 *********
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC (MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVIO SUBAREA AVERAGE PERVIO SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = EFFECTIVE AREA (ACRES) TOTAL AREA (ACRES) = ***********************************	E 331.00 REA TO MAIN: 21.86 NTENSITY(ING A(AMC II): SCS SOIL GROUP C D D DUS LOSS RAM 6.20 = 805.00 /HR) = 0.23 829.8 ***********************************	TO NODE LINE PEAK LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10 0.10 TE, Fp(IN ACTION, A SUBARE 3 AREA-A PEAK TO NODE NTO MEMOR	331.00 I FLOW<<<< 2.093 Fp (INCH/HR) 0.25 0.20 CH/HR) = 0.20 CH/HR) = 0.115 A RUNOFF (CF AVERAGED FM VERAGED FM VERAGED Ap FLOW RATE (*********** 331.00 I	Ap (DECIMAL) 0.100 0.100 1.000 1.000 CFS) = 11.1 (INCH/HR) = 0.40 CFS) = ***********************************	SCS CN 69 75 82 54 = 0.09 1448.20 *********
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBAR MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "WOODLAND, GRASS" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = EFFECTIVE AREA (ACRES) = ***********************************	E 331.00 REA TO MAINI 21.86 NTENSITY(ING A(AMC II): SCS SOIL GROUP C D D DUS LOSS RAM 6.20 = 805.00 /HR) = 0.20 829.8 ***********************************	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 2.00 4.10 0.10 TE, Fp(IN ACTION, A SUBARE 3 AREA- 3 AREA- TO NODE NTO MEMOR NTO MEMOR	331.00 I	Ap (DECIMAL) 0.100 0.100 1.000 1.21 (INCH/HR) = 0.40 CFS) = ***********************************	81 C1-30 SCS CN 69 75 82 54 = 0.09 1448.20 ************************************

FLOW PROCESS FROM NODE 400.00 TO NODE 401.00 IS CODE = 21 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS< >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<< _______ INITIAL SUBAREA FLOW-LENGTH (FEET) = 314.00 ELEVATION DATA: UPSTREAM(FEET) = 618.00 DOWNSTREAM(FEET) = C2-1 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 6.048 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 4.331 SUBAREA To AND LOSS RATE DATA (AMC II): DEVELOPMENT TYPE/ SCS SOIL AREA Fρ GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.) LAND USE RESIDENTIAL "8-10 DWELLINGS/ACRE" C 1.20 0.25 0.400 69 6.05 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.400 SUBAREA RUNOFF (CFS) = 4.57TOTAL AREA(ACRES) = 1.20 PEAK FLOW RATE(CFS) = 4.57 ****************** FLOW PROCESS FROM NODE 401.00 TO NODE 402.00 IS CODE = 62 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA< >>>> (STREET TABLE SECTION # 1 USED) <<<< ______ UPSTREAM ELEVATION(FEET) = 590.00 DOWNSTREAM ELEVATION(FEET) = 588.00 STREET LENGTH (FEET) = 274.00 CURB HEIGHT (INCHES) = 8.0 STREET HALFWIDTH (FEET) = 30.00DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00 INSIDE STREET CROSSFALL(DECIMAL) = 0.018 C2-2 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200 **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 17.19 STREETFLOW MODEL RESULTS USING ESTIMATED FLOW: STREET FLOW DEPTH (FEET) = 0.50HALFSTREET FLOOD WIDTH (FEET) = 18.63 AVERAGE FLOW VELOCITY (FEET/SEC.) = 2.61 PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 1.29 STREET FLOW TRAVEL TIME (MIN.) = 1.75 Tc (MIN.) = 7.80 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.751 SUBAREA LOSS RATE DATA (AMC II): DEVELOPMENT TYPE/ SCS SOIL AREA Fρ SCS LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN RESIDENTIAL "3-4 DWELLINGS/ACRE" C 3.30 0.25 0.600 69 RESIDENTIAL "8-10 DWELLINGS/ACRE" С 4.40 0.25 0.400 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.486 SUBAREA AREA (ACRES) = 7.70 SUBAREA RUNOFF (CFS) = 25.15

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EFFECTIVE AREA(ACRES) = 8.90 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.47
 TOTAL AREA(ACRES) = 8.9 PEAK FLOW RATE(CFS) =
 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.57 HALFSTREET FLOOD WIDTH(FEET) = 22.93
 FLOW VELOCITY (FEET/SEC.) = 2.98 DEPTH*VELOCITY (FT*FT/SEC.) = 1.70
 LONGEST FLOWPATH FROM NODE 400.00 TO NODE 402.00 = 588.00 FEET.
*************
 FLOW PROCESS FROM NODE 402.00 TO NODE 403.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <>>>
_____
 ELEVATION DATA: UPSTREAM(FEET) = 588.00 DOWNSTREAM(FEET) = 581.00
 FLOW LENGTH (FEET) = 805.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 30.0 INCH PIPE IS 20.3 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 8.22
 ESTIMATED PIPE DIAMETER (INCH) = 30.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 29.10
 PIPE TRAVEL TIME (MIN.) = 1.63 Tc (MIN.) = 9.43
 LONGEST FLOWPATH FROM NODE 400.00 TO NODE 403.00 = 1393.00 FEET.
******************
 FLOW PROCESS FROM NODE 403.00 TO NODE 403.00 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
_____
 MAINLINE Tc(MIN.) = 9.43
                                                   C2-3
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.368
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                 Fρ
                                         αA
     LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 NATURAL FAIR COVER
 "OPEN BRUSH"
                    С
                            0.10
                                   0.25
                                          1.000
                                                77
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                   С
                            2.00
                                    0.25
                                          0.900
                                                 69
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE" C
                            8.80
                                    0.25
                                          0.600
                                                 69
 RESIDENTIAL
 "8-10 DWELLINGS/ACRE"
                                          0.400
                            0.10
                                   0.30
                                                56
 RESIDENTIAL
                          4.90
 "8-10 DWELLINGS/ACRE"
                   С
                                   0.25
                                          0.400
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.577
 SUBAREA AREA(ACRES) = 15.90 SUBAREA RUNOFF(CFS) = 46.13
 EFFECTIVE AREA(ACRES) = 24.80 AREA-AVERAGED Fm(INCH/HR) = 0.14
 AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.54
 TOTAL AREA (ACRES) = 24.8 PEAK FLOW RATE (CFS) = 72.16
******************
 FLOW PROCESS FROM NODE 403.00 TO NODE 403.00 IS CODE = 1
 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE <<<
______
 TOTAL NUMBER OF STREAMS = 2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
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RAINFALL INTENSITY (INCH/HR) = 3.37
 AREA-AVERAGED Fm(INCH/HR) = 0.14
 AREA-AVERAGED Fp (INCH/HR) = 0.25
 AREA-AVERAGED Ap = 0.54
 EFFECTIVE STREAM AREA(ACRES) = 24.80
 TOTAL STREAM AREA(ACRES) = 24.80
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 72.16
*******************
 FLOW PROCESS FROM NODE 430.00 TO NODE 431.00 IS CODE = 21
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
_____
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 329.00
 ELEVATION DATA: UPSTREAM(FEET) = 725.00 DOWNSTREAM(FEET) = 630.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc (MIN.) = 9.196
                                                     OC2-1
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.417
 SUBAREA To AND LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                   Fp
                                              Дp
                                                     SCS Tc
                     GROUP (ACRES) (INCH/HR) (DECIMAL)
                                                    CN (MIN.)
     LAND USE
 NATURAL FAIR COVER
 "CHAPARRAL, NARROWLEAF" C
                            0.10
                                      0.25
                                             1.000
                                                          9.20
                                                     81
 NATURAL FAIR COVER
                     C 1.30
                                      0.25
                                             1.000
                                                     77
                                                          9.20
 "OPEN BRUSH"
 NATURAL FAIR COVER
 "OPEN BRUSH"
                            0.10 0.20 1.000
                                                     83
                                                          9.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF (CFS) = 4.28
 TOTAL AREA (ACRES) = 1.50 PEAK FLOW RATE (CFS) =
************************
 FLOW PROCESS FROM NODE 431.00 TO NODE 432.00 IS CODE = 51
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <
_____
 ELEVATION DATA: UPSTREAM(FEET) = 630.00 DOWNSTREAM(FEET) = 597.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 196.00 CHANNEL SLOPE = 0.1684
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 20.00
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.316
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                      Fρ
                                              Aр
                     GROUP (ACRES) (INCH/HR) (DECIMAL)
     LAND USE
 NATURAL FAIR COVER
 "CHAPARRAL, NARROWLEAF"
                       D 0.10
                                      0.20
                                             1.000
                                                     86
 NATURAL FAIR COVER
 "OPEN BRUSH"
                       C 1.70
                                       0.25
                                             1.000
                                                     77
 NATURAL FAIR COVER
 "OPEN BRUSH"
                       D
                              0.10
                                      0.20
                                              1.000
                                                     8.3
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
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TIME OF CONCENTRATION (MIN.) = 9.43

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TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.56
                                                                           PIPE-FLOW VELOCITY (FEET/SEC.) = 19.66
 AVERAGE FLOW DEPTH (FEET) = 0.59 TRAVEL TIME (MIN.) = 0.50
 Tc(MIN.) = 9.69
 SUBAREA AREA(ACRES) = 1.90 SUBAREA RUNOFF(CFS) = 5.25
 EFFECTIVE AREA(ACRES) = 3.40 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 3.4 PEAK FLOW RATE (CFS) = 9.40
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 0.67 FLOW VELOCITY (FEET/SEC.) = 7.05
 LONGEST FLOWPATH FROM NODE 430.00 TO NODE 432.00 = 525.00 FEET.
FLOW PROCESS FROM NODE 432.00 TO NODE 433.00 IS CODE = 51
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 597.00 DOWNSTREAM(FEET) = 582.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 520.00 CHANNEL SLOPE = 0.0288
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 20.00
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.977
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                   SCS
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
                                                                           NUMBER
                                                                            1
 NATURAL FAIR COVER
                             3.70
                                     0.25
                                            1.000
                                                  77
 "OPEN BRUSH"
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                    С
                             1.20
                                     0.25
                                             0.900
                                                    69
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE" C
                             1.20
                                     0.25
                                            0.600
                                                   69
 NATURAL FAIR COVER
 "WOODLAND, GRASS"
                      С
                             0.30
                                     0.25 1.000 77
                                                                           STREAM
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.906
                                                                            1
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 17.33
                                                                             2
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 4.26
 AVERAGE FLOW DEPTH (FEET) = 1.16 TRAVEL TIME (MIN.) = 2.03
 Tc(MIN.) = 11.73
 SUBAREA AREA(ACRES) = 6.40 SUBAREA RUNOFF(CFS) = 15.84
 EFFECTIVE AREA(ACRES) = 9.80 AREA-AVERAGED Fm(INCH/HR) = 0.23
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.94
 TOTAL AREA(ACRES) = 9.8
                             PEAK FLOW RATE(CFS) =
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.32 FLOW VELOCITY (FEET/SEC.) = 4.61
 LONGEST FLOWPATH FROM NODE 430.00 TO NODE 433.00 = 1045.00 FEET.
*****************
 FLOW PROCESS FROM NODE 433.00 TO NODE 403.00 IS CODE = 31
-----
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <>>>
______
 ELEVATION DATA: UPSTREAM(FEET) = 582.00 DOWNSTREAM(FEET) = 581.00
 FLOW LENGTH (FEET) = 10.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 18.0 INCH PIPE IS 11.8 INCHES
```

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ESTIMATED PIPE DIAMETER (INCH) = 18.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 24.20
 PIPE TRAVEL TIME (MIN.) = 0.01 Tc (MIN.) = 11.74
 LONGEST FLOWPATH FROM NODE 430.00 TO NODE 403.00 = 1055.00 FEET.
*******************
 FLOW PROCESS FROM NODE 403.00 TO NODE 403.00 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.) = 11.74
 RAINFALL INTENSITY (INCH/HR) = 2.98
 AREA-AVERAGED Fm(INCH/HR) = 0.23
 AREA-AVERAGED Fp (INCH/HR) = 0.25
 AREA-AVERAGED Ap = 0.94
 EFFECTIVE STREAM AREA(ACRES) = 9.80
 TOTAL STREAM AREA(ACRES) = 9.80
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 24.20
 ** CONFLUENCE DATA **
  STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
          (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
          72.16 9.43 3.368 0.25(0.14) 0.54 24.8
                                                   400.00
          24.20 11.74 2.976 0.25(0.23) 0.94 9.8 430.00
 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR 2 STREAMS.
 ** PEAK FLOW RATE TABLE **
        Q Tc Intensity Fp(Fm) Ap Ae
                                                  HEADWATER
          (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
          94.39 9.43 3.368 0.25(0.16) 0.64 32.7 400.00
          87.61 11.74 2.976 0.25(0.16) 0.65 34.6
                                                   430.00
 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE (CFS) = 94.39 Tc (MIN.) = 9.43
 EFFECTIVE AREA(ACRES) = 32.68 AREA-AVERAGED Fm(INCH/HR) = 0.16
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.64
 TOTAL AREA (ACRES) = 34.6
 LONGEST FLOWPATH FROM NODE 400.00 TO NODE 403.00 = 1393.00 FEET.
*******************
 FLOW PROCESS FROM NODE 403.00 TO NODE 404.00 IS CODE = 31
______
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 581.00 DOWNSTREAM(FEET) = 570.00
 FLOW LENGTH (FEET) = 1056.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 42.0 INCH PIPE IS 33.3 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 11.54
 ESTIMATED PIPE DIAMETER (INCH) = 42.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 94.39
 PIPE TRAVEL TIME (MIN.) = 1.53 Tc (MIN.) = 10.96
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	404.00	TO NODE	404.00 I	S CODE =	81
>>>>ADDITION OF SUBAR		LINE PEAK	FLOW<		
MAINLINE Tc(MIN.) =	L0.96				CO 4
* 25 YEAR RAINFALL IN			3.094		C2-4
SUBAREA LOSS RATE DATA	(AMC II):	3.003	П	7	000
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp (TNCH/HD)	Ap	SCS
COMMERCIAL	C	(ACRES) 0 10	0.25	(DECIMAL)	69
COMMERCIAL	D	0.10	0.20	0.100	75
NATURAL FAIR COVER	2	0.10	0.20	0.100	, 0
"OPEN BRUSH"	С	0.10	0.25	1.000	77
RESIDENTIAL					
".4 DWELLING/ACRE" RESIDENTIAL					
".4 DWELLING/ACRE"	D	1.50	0.20	0.900	75
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"					69
SUBAREA AVERAGE PERVIO		, , ,		.24	
SUBAREA AVERAGE PERVIOU				۵۱ ۵۵	0.5
SUBAREA AREA (ACRES) =					
EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/I	= 40.3	8 AKEA	AVERAGED FM	(INCH/HK)	= 0.1/
AREA-AVERAGED FP(INCH/I TOTAL AREA(ACRES) =	18) = 0.2	AKEA-A	VERAGED AP	= U.00	106 27
TOTAL TAKEN (NONEO)	12.5	1 11111	I HOW IMITH (CID)	100.57
FLOW PROCESS FROM NODE	404.00	TO NODE	404.00 I		******** 81
FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARR MAINLINE TC(MIN.) =	404.00 EA TO MAIN	TO NODE LINE PEAK	404.00 I		81
FLOW PROCESS FROM NODE	404.00 EA TO MAIN: LO.96 PENSITY(ING	TO NODE LINE PEAK CH/HR) =	404.00 I FLOW<<<<	S CODE =	81 C2-4
FLOW PROCESS FROM NODE	404.00 EA TO MAIN: 10.96 FENSITY(ING (AMC II): SCS SOIL	TO NODE LINE PEAK CH/HR) = AREA	404.00 I FLOW<>>> 3.094	S CODE =	61 C2-4
FLOW PROCESS FROM NODE	404.00 EA TO MAIN:	TO NODE LINE PEAK CH/HR) = AREA (ACRES)	404.00 I FLOW<<<< 3.094 Fp (INCH/HR)	S CODE = Ap (DECIMAL)	C2-4 SCS CN
FLOW PROCESS FROM NODE	404.00 EA TO MAIN 10.96 TENSITY(IN (AMC II): SCS SOIL GROUP C	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80	404.00 I FLOW<<<< 3.094 Fp (INCH/HR) 0.25	Ap (DECIMAL)	C2-4 SCS CN 69
FLOW PROCESS FROM NODE	404.00 EA TO MAIN 10.96 TENSITY(IN (AMC II): SCS SOIL GROUP C	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80	404.00 I FLOW<<<< 3.094 Fp (INCH/HR) 0.25	Ap (DECIMAL)	C2-4 SCS CN 69
FLOW PROCESS FROM NODE	404.00 EA TO MAIN: 10.96 TENSITY(ING (AMC II): SCS SOIL GROUP C	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80 4.20	404.00 I FLOW<>>> 3.094 Fp (INCH/HR) 0.25 0.20	Ap (DECIMAL) 0.500 0.500	81 C2-4 SCS CN 69
FLOW PROCESS FROM NODE	404.00 EA TO MAIN: 10.96 TENSITY(ING (AMC II): SCS SOIL GROUP C D C US LOSS RA	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80 4.20 1.10 TE, FP(IN	404.00 I FLOW<><<< 3.094 Fp (INCH/HR) 0.25 0.20 0.25 CH/HR) = 0	Ap (DECIMAL) 0.500 0.500 0.400	81 C2-4 SCS CN 69
FLOW PROCESS FROM NODE	404.00 EA TO MAIN: 10.96 TENSITY(IN: (AMC II): SCS SOIL GROUP C D C US LOSS RA: US AREA FR:	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80 4.20 1.10 TE, FP(IN ACTION, A	### 404.00 I FLOW< 3.094 Fp (INCH/HR) 0.25 0.20 0.25 CH/HR) = 0 p = 0.492	Ap (DECIMAL) 0.500 0.500 0.400	81 C2-4 SCS CN 69 75
FLOW PROCESS FROM NODE	404.00 EA TO MAIN: 10.96 PENSITY(IN: (AMC II): SCS SOIL GROUP C D C US LOSS RA' JS AREA FR. 14.10	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80 4.20 1.10 TE, FP(IN ACTION, A SUBARE	### 404.00 I FLOW< 3.094 Fp (INCH/HR) 0.25 0.20 0.25 CH/HR) = 0 p = 0.492 A RUNOFF(CF	Ap (DECIMAL) 0.500 0.400 .23 S) = 37.	81 C2-4 SCS CN 69 75 69
FLOW PROCESS FROM NODE	404.00 EA TO MAIN: 10.96 PENSITY(IN: (AMC II): SCS SOIL GROUP C D C US LOSS RA' JS AREA FR 14.10 54.44	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80 4.20 1.10 TE, Fp(IN ACTION, A SUBARE 8 AREA-	### 404.00 I #### 51.00 ###	Ap (DECIMAL) 0.500 0.500 0.400 .23 S) = 37. (INCH/HR)	81
FLOW PROCESS FROM NODE	404.00 EA TO MAIN: 10.96 PENSITY(IN: (AMC II): SCS SOIL GROUP C D C US LOSS RA' JS AREA FR 14.10 54.44	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80 4.20 1.10 TE, Fp(IN ACTION, A SUBARE 8 AREA-	### 404.00 I #### 51.00 ###	Ap (DECIMAL) 0.500 0.500 0.400 .23 S) = 37. (INCH/HR)	81
FLOW PROCESS FROM NODE	404.00 EA TO MAIN: 10.96 PENSITY(IN: (AMC II): SCS SOIL GROUP C D C US LOSS RA' JS AREA FR 14.10 54.44	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80 4.20 1.10 TE, Fp(IN ACTION, A SUBARE 8 AREA-	### 404.00 I #### 51.00 ###	Ap (DECIMAL) 0.500 0.500 0.400 .23 S) = 37. (INCH/HR)	81
FLOW PROCESS FROM NODE	404.00 A TO MAIN: 10.96 PENSITY (IN: (AMC II): SCS SOIL GROUP C D C US LOSS RA' JS AREA FR. 14.10 54.44 RR) = 0.22 56.4	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80 4.20 1.10 TE, Fp(IN ACTION, A SUBARE 8 AREA- 4 AREA-A PEAK	### 404.00 I #### FLOW<** 3.094 Fp (INCH/HR) 0.25 0.20 0.25 CH/HR) = 0 p = 0.492 A RUNOFF (CF AVERAGED FM VERAGED AP FLOW RATE (Ap (DECIMAL) 0.500 0.500 0.400 .23 S) = 37. (INCH/HR) = 0.63 CFS) =	81 C2-4 SCS CN 69 75 69 80 = 0.15 144.16
FLOW PROCESS FROM NODE	404.00 AUA TO MAIN: 10.96 PENSITY (IN: (AMC II): SCS SOIL GROUP C D C JS LOSS RA' 14.10 = 54.4' 4R) = 0.2. 56.4	TO NODE LINE PEAK CH/HR) = AREA (ACRES) 8.80 4.20 1.10 TE, Fp(IN ACTION, A SUBARE 8 AREA- 4 AREA-A PEAK ********** TO NODE	### 404.00 I FLOW< 3.094 Fp (INCH/HR) 0.25 0.20 0.25 CH/HR) = 0 p = 0.492 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(*********** 405.00 I	Ap (DECIMAL) 0.500 0.500 0.400 .23 S) = 37. (INCH/HR) = 0.63 CFS) = ********** S CODE =	81 C2-4 SCS CN 69 75 69 80 = 0.15 144.16 ***********************************

ELEVATION DATA: UPSTREAM FLOW LENGTH(FEET) = 15.7 DEPTH OF FLOW IN 63.0 : PIPE-FLOW VELOCITY(FEET, ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 14.7 PIPE TRAVEL TIME(MIN.) = LONGEST FLOWPATH FROM NO	26.00 M INCH PIPE /SEC.) = (INCH) = 4.16 = 3.02 DDE 40	ANNING'S IS 46.5 8.42 63.00 Tc (MIN	N = 0.013 INCHES NUMBER OF .) = 13.9 ODE 405.	PIPES = 8 00 = 39	1 75.00 FEET.
FLOW PROCESS FROM NODE	405.00	TO NODE	405.00 I	S CODE =	81
>>>>ADDITION OF SUBAREA		LINE PEAK	FLOW<<<<		
MAINLINE TC(MIN.) = 1: * 25 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(A	ENSITY(IN AMC II):				C2-5
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp	Ap	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL PUBLIC PARK	С	0.10	0.25 0.25 0.20	0.100	69
PUBLIC PARK	С	1.80	0.25	0.850	69
	D	0.40	0.20	0.850	75
RESIDENTIAL					
".4 DWELLING/ACRE"	С	1.80	0.25	0.900	69
RESIDENTIAL					
".4 DWELLING/ACRE"	D	2.80	0.20	0.900	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	С	6.10	0.25	0.500	69
SUBAREA AVERAGE PERVIOUS SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED FP(INCH/HI TOTAL AREA(ACRES) =	13.00 67.4 $R) = 0.2$	SUBARE 8 AREA- 4 AREA-A	A RUNOFF(CF AVERAGED Fm VERAGED Ap	(INCH/HR) = 0.64	= 0.16
******	******	******	*****	*****	*****
FLOW PROCESS FROM NODE	405.00	TO NODE	405.00 I	S CODE =	81
>>>>ADDITION OF SUBAREA			 FLOW<<<<		
MAINLINE Tc(MIN.) = 1: * 25 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(3.98 ENSITY(IN	ICH/HR) =			C2-5
DEVELOPMENT TYPE/	SCS SOII	AREA	Fp	Дp	SCS
DEVELOPMENT TYPE/ LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
RESIDENTIAL		(,	(=== , === , ,	(,	
"5-7 DWELLINGS/ACRE" RESIDENTIAL	D	11.20	0.20	0.500	75
"8-10 DWELLINGS/ACRE" RESIDENTIAL	С	7.80	0.25	0.400	69
"8-10 DWELLINGS/ACRE"	D	1.40	0.20	0.400	75
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA(ACRES) =	S LOSS RA S AREA FR 20.40	TE, Fp(IN ACTION, A SUBARE	CH/HR) = 0 p = 0.455 A RUNOFF(CF	.22 (S) = 47.	68
EFFECTIVE AREA(ACRES) =					= 0.14
AREA-AVERAGED Fp(INCH/H	R) = 0.2	4 AREA-A	VERAGED Ap	= 0.60	
TOTAL AREA (ACRES) =	89.8	PEAK	FLOW RATE (CFS) =	201.93

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**************************************						RESIDENTIAL "5-7 DWELLINGS/ACRE" D 0.10 0.20 0.500 75
						RESIDENTIAL
>>>>COMPUTE PIPE-FLOW >>>>>USING COMPUTER-EST					<<	"8-10 DWELLINGS/ACRE" B 0.10 0.30 0.400 56 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
						SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.868
ELEVATION DATA: UPSTREA	,			M(FEET) =	495.00	SUBAREA AREA(ACRES) = 7.40 SUBAREA RUNOFF(CFS) = 15.47
FLOW LENGTH(FEET) = 21						EFFECTIVE AREA(ACRES) = 156.08 AREA-AVERAGED Fm(INCH/HR) = 0.11
DEPTH OF FLOW IN 45.0	INCH PIPE	IS 36.1	INCHES			AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.47
PIPE-FLOW VELOCITY (FEET	T/SEC.) =	21.28				TOTAL AREA(ACRES) = 158.0 PEAK FLOW RATE(CFS) = 339.34
ESTIMATED PIPE DIAMETER	R(INCH) =	45.00	NUMBER OF	PIPES =	1	
PIPE-FLOW(CFS) = 20						******************
PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N		,	*		143.00 FEET.	FLOW PROCESS FROM NODE 406.00 TO NODE 406.00 IS CODE = 81
*******************						>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
FLOW PROCESS FROM NODE	406.00	TO NODE	406.00 I	S CODE =	81	MAINLINE TC(MIN.) = 15.68 * 25 YEAR DAINWALL INTERNATIVATION (INC.) 2.526 * 25 YEAR DAINWALL INTERNATIVATION (INC.) 2.526
						* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.526
>>>>ADDITION OF SUBARE	EA TO MAIN	LINE PEAK	FLOW<			SUBAREA LOSS RATE DATA(AMC II):
						DEVELOPMENT TYPE/ SCS SOIL AREA FP AP SCS
MAINLINE Tc(MIN.) = 1	15.68				00.0	LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
* 25 YEAR RAINFALL INT	TENSITY(IN	CH/HR) =	2.526		C2-6	RESIDENTIAL
SUBAREA LOSS RATE DATA((AMC II):					"8-10 DWELLINGS/ACRE" C 9.30 0.25 0.400 69
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap	SCS	RESIDENTIAL
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	"8-10 DWELLINGS/ACRE" D 0.90 0.20 0.400 75
COMMERCIAL	С	5.50	0.25	0.100	69	SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
COMMERCIAL	D	1.90	0.20	0.100	75	SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.400
PUBLIC PARK	C	2.50	0.25	0.850	69	SUBAREA AREA (ACRES) = 10.20 SUBAREA RUNOFF (CFS) = 22.29
PUBLIC PARK		0.90	0.20	0.850	75	EFFECTIVE AREA (ACRES) = 166.28 AREA-AVERAGED Fm (INCH/HR) = 0.11
RESIDENTIAL	2	0.50	0.20	0.000	, 0	AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.46
"11+ DWELLINGS/ACRE"	С	36.40	0.25	0.200	69	TOTAL AREA (ACRES) = 168.2 PEAK FLOW RATE (CFS) = 361.63
RESIDENTIAL					•••	**************************************
"11+ DWELLINGS/ACRE"		13.60	0.20	0.200	75	
SUBAREA AVERAGE PERVIOU				.24		FLOW PROCESS FROM NODE 406.00 TO NODE 407.00 IS CODE = 31
SUBAREA AVERAGE PERVIOU						
SUBAREA AREA (ACRES) =			A RUNOFF (CF			>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA
EFFECTIVE AREA(ACRES) =					= 0.11	>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <>>>
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) =			-		323.87	ELEVATION DATA: UPSTREAM(FEET) = 495.00 DOWNSTREAM(FEET) = 395.00
						FLOW LENGTH (FEET) = 2905.00 MANNING'S N = 0.013
*********						DEPTH OF FLOW IN 57.0 INCH PIPE IS 42.5 INCHES
FLOW PROCESS FROM NODE						PIPE-FLOW VELOCITY (FEET/SEC.) = 25.55
						ESTIMATED PIPE DIAMETER(INCH) = 57.00 NUMBER OF PIPES = 1
>>>>ADDITION OF SUBARE						PIPE-FLOW(CFS) = 361.63
		======	=======			PIPE TRAVEL TIME (MIN.) = 1.90 Tc (MIN.) = 17.57
MAINLINE Tc (MIN.) = 1					COG	LONGEST FLOWPATH FROM NODE 400.00 TO NODE 407.00 = 9048.00 FEET.
* 25 YEAR RAINFALL INT	,		2.526		C2-6	
SUBAREA LOSS RATE DATA((AMC II):					******************
DEVELOPMENT TYPE/	SCS SOIL		Fp	Ap	SCS	FLOW PROCESS FROM NODE 407.00 TO NODE 407.00 IS CODE = 81
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
RESIDENTIAL						>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW
".4 DWELLING/ACRE"	С	4.70	0.25	0.900	69	
RESIDENTIAL						MAINLINE Tc(MIN.) = 17.57
".4 DWELLING/ACRE"	D	2.10	0.20	0.900	75	* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.368 C2-7
RESIDENTIAL						SUBAREA LOSS RATE DATA(AMC II):
"3-4 DWELLINGS/ACRE"	С	0.10	0.25	0.600	69	DEVELOPMENT TYPE/ SCS SOIL AREA FP AP SCS
RESIDENTIAL						LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
"5-7 DWELLINGS/ACRE"	С	0.30	0.25	0.500	69	APARTMENTS D 0.30 0.20 0.200 75
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GROUP (ACRES) (INCH/HR) (DECIMAL) CN D 0.30 0.20 0.200 75 Page 40 File name: PA3C25HC.RES

COMMERCIAL			0.30		
COMMERCIAL	С	9.10	0.25	0.100	69
COMMERCIAL	D	6.70	0.20 0.25	0.100	75
PUBLIC PARK					
			0.20		75
SUBAREA AVERAGE PERVIOU				.22	
SUBAREA AVERAGE PERVIOU			-		
SUBAREA AREA (ACRES) =					
EFFECTIVE AREA(ACRES) =					= 0.10
AREA-AVERAGED Fp (INCH/H	.R) = 0.24	AREA-A	VERAGED Ap	= 0.44	270 24
TOTAL AREA (ACRES) =	188.0	PEAK	FLOW RATE (CFS) =	3/9.34

FLOW PROCESS FROM NODE					81
>>>>ADDITION OF SUBARE					
MAINLINE Tc(MIN.) = 1	7.57				C2-7
* 25 YEAR RAINFALL INT			2.368		UZ-1
SUBAREA LOSS RATE DATA (
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
RESIDENTIAL		0 60	0 40	0 000	2.0
"11+ DWELLINGS/ACRE"	А	0.60	0.40	U.ZUU	32
RESIDENTIAL	Б	2 40	0.20	0 000	E.C.
"11+ DWELLINGS/ACRE" RESIDENTIAL	В	2.40	0.30	0.200	36
"11+ DWELLINGS/ACRE"	C	10 60	0.25	0 200	69
RESIDENTIAL	C	TO.00	0.23	0.200	עט
"11+ DWELLINGS/ACRE"	D	0.60	0.20	0 200	75
RESIDENTIAL	D	0.00	0.20	0.200	75
".4 DWELLING/ACRE"	C	1 90	0.25	0 900	69
RESIDENTIAL	C	1.50	0.25	0.500	03
".4 DWELLING/ACRE"	D	0.70	0.20	0.900	7.5
SUBAREA AVERAGE PERVIOU					, 0
SUBAREA AVERAGE PERVIOU					
SUBAREA AREA(ACRES) =			-	S) = 34.	64
EFFECTIVE AREA(ACRES) =					
AREA-AVERAGED Fp (INCH/H					
TOTAL AREA (ACRES) =					413.98

FLOW PROCESS FROM NODE					
>>>>ADDITION OF SUBARE					
MAINLINE Tc(MIN.) = 1	7.57				C2-7
* 25 YEAR RAINFALL INT	ENSITY (INC	CH/HR) =	2.368		02 1
SUBAREA LOSS RATE DATA(AMC II):				
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ар	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)		
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	С	14.30	0.25	0.600	69
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	15.30	0.20	0.600	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE"	A	0.40	0.40	0.500	32
RESIDENTIAL					
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"5-7 DWELLINGS/ACRE"			0.30		56
RESIDENTIAL	2	1.00	0.50	0.000	00
"5-7 DWELLINGS/ACRE" RESIDENTIAL	С	5.10	0.25	0.500	69
"5-7 DWELLINGS/ACRE"	D	0.90	0.20	0.500	75
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU				.23	
SUBAREA AREA (ACRES) =				s) = 75.	42
EFFECTIVE AREA(ACRES) =	240.38	3 AREA-A	VERAGED Fm	(INCH/HR)	= 0.11
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) =	(R) = 0.24 242.3	l AREA-AVI PEAK I	ERAGED Ap = FLOW RATE(0	= 0.45 CFS) =	489.39

FLOW PROCESS FROM NODE					91
>>>>ADDITION OF SUBARE					
MAINLINE Tc(MIN.) = 1	7.57				C2-7
* 25 YEAR RAINFALL INT			2.368		02 1
SUBAREA LOSS RATE DATA (П	3	000
DEVELOPMENT TYPE/	SCS SOIL	AREA	F'p	Ap	SCS
LAND USE RESIDENTIAL	GKUUP	(ACKES)	(INCH/HK)	(DECIMAL)	CIN
"8-10 DWELLINGS/ACRE"					
RESIDENTIAL	D	3.30	0.30	0.400	50
"8-10 DWELLINGS/ACRE"	C	8.40	0.25	0.400	69
RESIDENTIAL	•	0.10	0.20	0.100	
"8-10 DWELLINGS/ACRE"	D	2.80	0.20	0.400	75
SCHOOL	В	0.60	0.30	0.600	56
SCHOOL	С	1.50	0.30 0.25	0.600	56 69
SCHOOL	D		0.20	0.600	75
SUBAREA AVERAGE PERVIOU	S LOSS RAT	E, Fp(INC	H/HR) = 0	.24	
SUBAREA AVERAGE PERVIOU	S AREA FRA	ACTION, Ap	= 0.455		
SUBAREA AREA(ACRES) =	20.30	SUBAREA	RUNOFF (CF	s) = 41.	25
EFFECTIVE AREA(ACRES) =	260.68	AREA-A	VERAGED Fm	(INCH/HR)	= 0.11
/	(R) = 0.24	AREA-AVI	ERAGED Ap :	= 0.45	
AREA-AVERAGED Fp(INCH/H		PEAK 1	FLOW RATE(CFS) =	530.64
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) =	262.6				
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) =			*****	******	*****
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) =	******	*****			
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) = ***********************************	******** 407.00	**************************************	430.00 I	S CODE =	
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) =	*********** 407.00TRAVEL TIM	********** TO NODE	430.00 I: BAREA<	S CODE =	31
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) = ****************** FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-EST	********* 407.00 TRAVEL TIN IMATED PIE	TO NODE TO THRU SUPPESIZE (NODE	430.00 IS BAREA<<<< N-PRESSURE	S CODE =	31
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) = **************** FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-EST ELEVATION DATA: UPSTREA	407.00 TRAVEL TIN IMATED PIE	TO NODE TE THRU SUI PESIZE (NOI 395.00	430.00 ISBAREA<	S CODE = FLOW) <<<<	31
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) = ****************** FLOW PROCESS FROM NODE	********** 407.00 TRAVEL TIN IMATED PIF M (FEET) = 61.00 MF	TO NODE ME THRU SUI PESIZE (NOI 395.00 ANNING'S N	430.00 ISBAREA<	S CODE = FLOW) <<<<	31
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) = ******************** FLOW PROCESS FROM NODE	********* 407.00 TRAVEL TIN IMATED PIE M(FEET) = 61.00 MF INCH PIPE	TO NODE THRU SUI ETHRU SUI PESIZE (NOI 395.00 ANNING'S N IS 48.6	430.00 ISBAREA<	S CODE = FLOW) <<<<	31
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) = ********************* FLOW PROCESS FROM NODE ->>>>COMPUTE PIPE-FLOW >>>>VUSING COMPUTER-EST ELEVATION DATA: UPSTREA FLOW LENGTH(FEET) = 6 DEPTH OF FLOW IN 66.0 PIPE-FLOW VELOCITY(FEET	********* 407.00 TRAVEL TIM IMATED PIF	TO NODE THE THRU SUI PESIZE (NOI 395.00 ANNING'S N IS 48.6 1 28.28	HAREASSURE DOWNSTREAM 0.013 INCHES	S CODE = FLOW) <<<< ========= M(FEET) =	31
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) = ******************** FLOW PROCESS FROM NODE ->>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-EST ELEVATION DATA: UPSTREA FLOW LENGTH(FEET) = 6 DEPTH OF FLOW IN 66.0 PIPE-FLOW VELOCITY(FEET ESTIMATED PIPE DIAMETER	********* 407.00 TRAVEL TIM IMATED PIF	TO NODE THE THRU SUI PESIZE (NOI 395.00 ANNING'S N IS 48.6 1 28.28	HAREASSURE DOWNSTREAM 0.013 INCHES	S CODE = FLOW) <<<< ========= M(FEET) =	31
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) = ********************* FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-EST ELEVATION DATA: UPSTREA FLOW LENGTH(FEET) = 6 DEPTH OF FLOW IN 66.0 PIPE-FLOW VELOCITY(FEET ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 53	********* 407.00 TRAVEL TIN 'IMATED PIF M(FEET) = 61.00 MF INCH PIPE '/SEC.) = .(INCH) = 0.64	TO NODE PESIZE (NOI 395.00 ANNING'S N IS 48.6 2 28.28 66.00	HARDAN ISTANTIAN AND AND AND AND AND AND AND AND AND A	S CODE = FLOW) <<<< M(FEET) =	31
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) = ********************** FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>>USING COMPUTER-EST ===================================	********* 407.00 TRAVEL TIN IMATED PIF M(FEET) = 61.00 MM INCH PIPE /SEC.) = .(INCH) = 0.64 = 0.39	TO NODE TE THRU SUI TE THRU SUI TE THRU SUI TO NODE	HARDER OF DESCRIPTION OF THE PROPERTY OF THE P	S CODE = FLOW) <<<< M(FEET) = PIPES = 6	31
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) = ********************* FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-EST ELEVATION DATA: UPSTREA FLOW LENGTH(FEET) = 6 DEPTH OF FLOW IN 66.0 PIPE-FLOW VELOCITY(FEET ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 53	********* 407.00 TRAVEL TIN IMATED PIF M(FEET) = 61.00 MM INCH PIPE /SEC.) = .(INCH) = 0.64 = 0.39	TO NODE TE THRU SUI TE THRU SUI TE THRU SUI TO NODE	HARDER OF DESCRIPTION OF THE PROPERTY OF THE P	S CODE = FLOW) <<<< M(FEET) = PIPES = 6	31
AREA-AVERAGED FP(INCH/H TOTAL AREA(ACRES) = ********************* FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-EST ===================================	********* 407.00 TRAVEL TIN IMATED PIF ======== M(FEET) = 61.00 MP INCH PIPE /SEC.) = .(INCH) = 0.64 = 0.39 ODE 400	TO NODE TE THRU SUI PESIZE (NOI 395.00 ANNING'S N IS 48.6 1 28.28 66.00 I TC (MIN.)	HAREA<	S CODE = FLOW) <<<< M(FEET) = PIPES = 6 00 = 97	31 372.00
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) = ********************** FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>>USING COMPUTER-EST ===================================	********* 407.00	TO NODE THRU SUI TETHRU SUI	### 430.00 IS ### BAREA< ### ANOTHER	S CODE = FLOW) <<<< M(FEET) = PIPES = 6 00 = 97 *********** S CODE =	31 372.00 1 109.00 FEE

>>>>CLEAR THE MAIN-STI			========	========	=====	======

FLOW PROCESS FROM NODE						*****
>>>>RATIONAL METHOD IN	ATION NOMO	GRAPH FOR	INITIAL SU			
INITIAL SUBAREA FLOW-Li	ENGTH (FEET) = 328	.00			
Tc = K*[(LENGTH** 3.00)]	/(ELEVATIO	ON CHANGE)1**0.20			
SUBAREA ANALYSIS USED N * 25 YEAR RAINFALL INT SUBAREA TO AND LOSS RAT	MINIMUM TC TENSITY(IN	(MIN.) = CH/HR) =	6.368		C	2-10
DEVELOPMENT TYPE/ LAND USE			Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL	D	0.50	0.20	0.900	75	7.53
"3-4 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUSUBAREA AVERAGE PERVIOUSUBAREA RUNOFF(CFS) =	JS LOSS RA' JS AREA FR	TE, Fp(IN	ICH/HR) = 0		75	6.37
		PEAK FLOW	RATE(CFS)	= 2.5	5	
TOTAL AREA (ACRES) =		PEAK FLOW	RATE (CFS)	= 2.5	5	
TOTAL AREA(ACRES) =	0.70	*****	*****	*****	****	*****
TOTAL AREA(ACRES) =	0.70	*****	*****	*****	****	****
TOTAL AREA (ACRES) = **********************************	0.70 ******** 411.00	******* TO NODE	********* 412.00 I	*********** S CODE = :	****	*****
TOTAL AREA(ACRES) =	0.70 ******* 411.00 TRAVEL TI	******** TO NODE 	*********** 412.00 I	******** S CODE = :	**** 31 	*****
TOTAL AREA (ACRES) = ****************** FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-ES	0.70 ******* 411.00 TRAVEL TII FIMATED PI	******** TO NODE ME THRU S PESIZE (N	*********** 412.00 I UBAREA<<<<< ON-PRESSURE	********* S CODE = :: FLOW) <<<<	**** 31 <	
TOTAL AREA (ACRES) = ****************** FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-ES! ELEVATION DATA: UPSTREA	0.70 : 411.00 : TRAVEL TILIFIMATED PI	******** TO NODE ME THRU S PESIZE (N 495.00	********* 412.00 I UBAREA<<<<< ON-PRESSURE DOWNSTREA	********* S CODE = :: FLOW) <<<<	**** 31 <	
TOTAL AREA (ACRES) = ****************** FLOW PROCESS FROM NODE >>>>>COMPUTE PIPE-FLOW >>>>>USING COMPUTER-ES ELEVATION DATA: UPSTREA FLOW LENGTH (FEET) = 2	0.70 ********** 411.00 TRAVEL TII FIMATED PI *********** AM(FEET) = 267.00 M.	******** TO NODE ME THRU S PESIZE (N 495.00 ANNING'S	********* 412.00 I UBAREA<<<<< ON-PRESSURE DOWNSTREA N = 0.013	********* S CODE = :: FLOW) <<<<	**** 31 <	
TOTAL AREA (ACRES) = ***************** FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-ES! ELEVATION DATA: UPSTREA	0.70 :: ******** 411.00 TRAVEL TII FIMATED PI	******** TO NODE ME THRU S PESIZE (N 495.00 ANNING'S CREASED T	********* 412.00 I UBAREA<<<<< ON-PRESSURE DOWNSTREA N = 0.013 O 18.000	********* S CODE = :: FLOW) <<<<	**** 31 <	
TOTAL AREA (ACRES) = ******************** FLOW PROCESS FROM NODE >>>>>COMPUTE PIPE-FLOW >>>>>USING COMPUTER-ES! ELEVATION DATA: UPSTREA FLOW LENGTH (FEET) = 2 ESTIMATED PIPE DIAMETER	0.70 :: ******** 411.00 TRAVEL TII FIMATED PI	******** TO NODE ME THRU S PESIZE (N 495.00 ANNING'S CREASED T IS 5.3	********* 412.00 I UBAREA<<<<< ON-PRESSURE DOWNSTREA N = 0.013 O 18.000	********* S CODE = :: FLOW) <<<<	**** 31 <	
TOTAL AREA (ACRES) = ******************** FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-ESS ELEVATION DATA: UPSTREA FLOW LENGTH (FEET) = 2 ESTIMATED PIPE DIAMETEI DEPTH OF FLOW IN 18.0 PIPE-FLOW VELOCITY (FEESTIMATED PIPE DIAMETEI ESTIMATED PIPE DIAMETEI ESTIMATED PIPE DIAMETEI	0.70 :: ******** 411.00	******** TO NODE ME THRU S PESIZE (N 495.00 ANNING'S CREASED T IS 5.3 5.91	********* 412.00 I UBAREA<<<<< ON-PRESSURE DOWNSTREA N = 0.013 0 18.000 INCHES	******** S CODE = :: FLOW) <<<<: Height	***** 31 < ===== 490	
TOTAL AREA (ACRES) = ******************** FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>> USING COMPUTER-ES! ELEVATION DATA: UPSTREA FLOW LENGTH (FEET) = 2 ESTIMATED PIPE DIAMETER DEPTH OF FLOW IN 18.0 PIPE-FLOW VELOCITY (FEE! ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) =	0.70 :: ******** 411.00 TRAVEL TII FIMATED PI AM (FEET) = 267.00 M. R (INCH) INCH INCH PIPE F/SEC.) = R (INCH) = 2.55	******** TO NODE	********* 412.00 I UBAREA<<<<< ON-PRESSURE DOWNSTREA N = 0.013 O 18.000 INCHES NUMBER OF	******** S CODE = :: FLOW) <<<<: =================================	***** 31 < ===== 490	
TOTAL AREA (ACRES) = ***************** FLOW PROCESS FROM NODE >>>>>COMPUTE PIPE-FLOW >>>>>USING COMPUTER-ESS ELEVATION DATA: UPSTREATED FLOW LENGTH (FEET) = 2 ESTIMATED PIPE DIAMETER DEPTH OF FLOW IN 18.0 PIPE-FLOW VELOCITY (FEET) ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = PIPE TRAVEL TIME (MIN.)	0.70 :: ******** 411.00 TRAVEL TII FIMATED PI: ========: AM(FEET) = 267.00 M. R(INCH) INI INCH PIPE F/SEC.) = R(INCH) = 2.55 = 0.75	******** TO NODE ME THRU S PESIZE (N 495.00 ANNING'S CREASED T IS 5.3 5.91 18.00 Tc (MIN	********* 412.00 I	******** S CODE = :: FLOW) <<<<=================================	***** 31 < ===== 490	.00
TOTAL AREA (ACRES) = ******************** FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>> USING COMPUTER-ES! ELEVATION DATA: UPSTREA FLOW LENGTH (FEET) = 2 ESTIMATED PIPE DIAMETER DEPTH OF FLOW IN 18.0 PIPE-FLOW VELOCITY (FEE! ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) =	0.70 :: ******** 411.00 TRAVEL TII FIMATED PI: ========: AM(FEET) = 267.00 M. R(INCH) INI INCH PIPE F/SEC.) = R(INCH) = 2.55 = 0.75	******** TO NODE ME THRU S PESIZE (N 495.00 ANNING'S CREASED T IS 5.3 5.91 18.00 Tc (MIN	********* 412.00 I	******** S CODE = :: FLOW) <<<<=================================	***** 31 < ===== 490	.00
TOTAL AREA (ACRES) = ****************** FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-ESS ELEVATION DATA: UPSTREA FLOW LENGTH (FEET) = 2 ESTIMATED PIPE DIAMETER DEPTH OF FLOW IN 18.0 PIPE-FLOW VELOCITY (FEET) ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM 1	0.70 ******* 411.00 TRAVEL TII FIMATED PI. ===================================	******** TO NODE	********** 412.00 I UBAREA<<<<< ON-PRESSURE DOWNSTREA N = 0.013 O 18.000 INCHES NUMBER OF 1.) = 7.1 ODE 412.	******** S CODE = :: FLOW) <<<<: =================================	***** 31 490	.00
TOTAL AREA (ACRES) = ******************** FLOW PROCESS FROM NODE >>>>>COMPUTE PIPE-FLOW >>>>>USING COMPUTER-ES ELEVATION DATA: UPSTREA FLOW LENGTH (FEET) = 2 ESTIMATED PIPE DIAMETER DEPTH OF FLOW IN 18.0 PIPE-FLOW VELOCITY (FEET) ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = PIPE TRAVEL TIME (MIN.)	0.70 :: ********* 411.00 TRAVEL TII FIMATED PI: =======: AM(FEET) = 267.00 M. R(INCH) INI INCH PIPE F/SEC.) = R(INCH) = 2.55 = 0.75 NODE 41: **********	******** TO NODE ME THRU S PESIZE (N 495.00 ANNING'S CREASED T IS 5.3 5.91 18.00 Tc (MIN 0.00 TO N	********** 412.00 I UBAREA<<<<< ON-PRESSURE DOWNSTREA N = 0.013 O 18.000 INCHES NUMBER OF 1.) = 7.1 ODE 412. ***********************************	******** S CODE = FLOW) <<<<- =================================	***** 31 490 1 95.00 ****	.00
TOTAL AREA (ACRES) = ************************ FLOW PROCESS FROM NODE >>>>>COMPUTE PIPE-FLOW >>>>>USING COMPUTER-ES ELEVATION DATA: UPSTREA FLOW LENGTH (FEET) = 2 ESTIMATED PIPE DIAMETER DEPTH OF FLOW IN 18.0 PIPE-FLOW VELOCITY (FEET) ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM 19 ***********************************	0.70 :: ********* 411.00 TRAVEL TII FIMATED PI: =======: AM(FEET) = 267.00 M. R(INCH) INI INCH PIPE F/SEC.) = R(INCH) = 2.55 = 0.75 NODE 41: ********* 412.00 EA TO MAIN	******** TO NODE ME THRU S PESIZE (N 495.00 ANNING'S CREASED T IS 5.3 5.91 18.00 Tc (MIN 0.00 TO N ******** TO NODE LINE PEAK	********* 412.00 I UBAREA<<<< ON-PRESSURE DOWNSTREA N = 0.013 O 18.000 INCHES NUMBER OF 1.) = 7.1 ODE 412. ********** 412.00 I FLOW<<<<<	******** S CODE = FLOW) <<<<- =================================	***** 31 490 1 95.00 ****	.00 FEET.
TOTAL AREA (ACRES) = ************************ FLOW PROCESS FROM NODE >>>>>COMPUTE PIPE-FLOW >>>>>USING COMPUTER-ES ELEVATION DATA: UPSTREA FLOW LENGTH (FEET) = 2 ESTIMATED PIPE DIAMETER DEPTH OF FLOW IN 18.0 PIPE-FLOW VELOCITY (FEET) ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM 18 ***********************************	0.70 :: ******** 411.00 TRAVEL TII FIMATED PI ====================================	******** TO NODE ME THRU S PESIZE (N 495.00 ANNING'S CREASED T IS 5.3 5.91 18.00 Tc (MIN 0.00 TO N ******** TO NODE LINE PEAK	********* 412.00 I UBAREA<<<<< ON-PRESSURE DOWNSTREA N = 0.013 O 18.000 INCHES NUMBER OF 1.) = 7.1 ODE 412. ********** 412.00 I FLOW<<<<<	******** S CODE = FLOW) <<<<- =================================	***** 31 490 1 95.00 ****	.00 FEET.
TOTAL AREA (ACRES) = ************************ FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-ESS ELEVATION DATA: UPSTREA FLOW LENGTH (FEET) = 2 ESTIMATED PIPE DIAMETER DEPTH OF FLOW IN 18.0 PIPE-FLOW VELOCITY (FEESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM IN ***********************************	0.70 :: ********* 411.00 TRAVEL TII FIMATED PI ===================================	******** TO NODE	********* 412.00 I UBAREA<<<<< ON-PRESSURE DOWNSTREA N = 0.013 O 18.000 INCHES NUMBER OF 1.) = 7.1 ODE 412. ********* 412.00 I FLOW<<<<< ================================	******** S CODE = FLOW) <<<< =================================	***** 31 490 1 95.00 ***** 81	.00 FEET.
TOTAL AREA (ACRES) = ********************** FLOW PROCESS FROM NODE >>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-ESS ELEVATION DATA: UPSTREA FLOW LENGTH (FEET) = 2 ESTIMATED PIPE DIAMETEI DEPTH OF FLOW IN 18.0 PIPE-FLOW VELOCITY (FEESTIMATED PIPE DIAMETEI PIPE-FLOW (CFS) = PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM 10 ***********************************	0.70 ******** 411.00 TRAVEL TII FIMATED PI ===================================	******** TO NODE	********* 412.00 I UBAREA<<<<< ON-PRESSURE DOWNSTREA N = 0.013 O 18.000 INCHES NUMBER OF 1.) = 7.1 ODE 412. ********* 412.00 I FLOW<<<<< ================================	******* S CODE = FLOW) <<<< =================================	***** 31 490 1 95.00 ***** 81 SCS	.00 FEET.

RESIDENTIAL ".4 DWELLING/ACRE"					
	D	0.30	0.20	0.900	75
RESIDENTIAL "3-4 DWELLINGS/ACRE"	D	0.10	0.20	0.600	75
RESIDENTIAL					
"5-7 DWELLINGS/ACRE" RESIDENTIAL	С	0.10	0.25	0.500	69
"5-7 DWELLINGS/ACRE"					75
SUBAREA AVERAGE PERVIOU				.23	
SUBAREA AVERAGE PERVIOU					
SUBAREA AREA(ACRES) =					
EFFECTIVE AREA(ACRES) =					= 0.18
AREA-AVERAGED Fp(INCH/H	R) = 0.22	2 AREA-AVE	RAGED Ap	= 0.80	
TOTAL AREA (ACRES) =	2.4	PEAK F	LOW RATE (CFS) =	8.15
*******	******	******	******	******	*****
FLOW PROCESS FROM NODE					
>>>>COMPLIER DIDE FLOW	TD 7777 TT	AE WIIDII CIID	7 DE 7 / / / /		
>>>>COMPUTE PIPE-FLOW					~
>>>>USING COMPUTER-EST					
ELEVATION DATA: UPSTREA					
FLOW LENGTH (FEET) = 5					
ESTIMATED PIPE DIAMETER					
DEPTH OF FLOW IN 18.0					
PIPE-FLOW VELOCITY (FEET			NONED		
LILE-LPOM APPOCITI(LPF)	/ SEC.) -	0.14			
,	(TNOII) -	10 00 10	TIMPED OF	DIDEC -	1
ESTIMATED PIPE DIAMETER		18.00 N	UMBER OF	PIPES =	1
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) =	8.15				1
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.)	8.15 = 1.06	Tc(MIN.)	= 8.1	8	
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.)	8.15 = 1.06	Tc(MIN.)	= 8.1	8	
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N	8.15 = 1.06 ODE 410	Tc(MIN.)	= 8.1 E 413.	8 00 = 11	15.00 FEE
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ************************************	8.15 = 1.06 ODE 410 ************************************	Tc(MIN.) 0.00 TO NOD ************************************	= 8.1 E 413. ********	8 00 = 11 *****	15.00 FEE'
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ***********************************	8.15 = 1.06 ODE 410 ************************************	Tc(MIN.) .00 To NOD ******* TO NODE LINE PEAK F	= 8.1 E 413. ******** 413.00 I	8 00 = 11 ******** S CODE =	15.00 FEE
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ***********************************	8.15 = 1.06 ODE 410 ********** 413.00 	Tc(MIN.) .00 To NOD ******* TO NODE LINE PEAK F	= 8.1 E 413. ******** 413.00 I	8 00 = 11 ******** S CODE =	15.00 FEE
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC(MIN.) =	8.15 = 1.06 ODE 410 ********* 413.00 A TO MAINI ===================================	Tc(MIN.) 0.00 TO NOE ******** TO NODE	= 8.1 E 413. ******** 413.00 I	8 00 = 11 ******** S CODE =	15.00 FEE
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ******************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC(MIN.) = * 25 YEAR RAINFALL INT	8.15 = 1.06 ODE 410 ********* 413.00 A TO MAINI ======== 8.18 ENSITY(ING	Tc (MIN.) 0.00 TO NOD ******** TO NODE LINE PEAK F	= 8.1 E 413. ******** 413.00 I	8 00 = 11 ******** S CODE =	15.00 FEE
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE	8.15 = 1.06 ODE 410 ********* 413.00 	Tc (MIN.) 0.00 TO NOE ******** TO NODE	= 8.1 E 413. ******** 413.00 I LOW<<<<	8 00 = 11 ******** S CODE =	15.00 FEE' ******** 81
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE	8.15 = 1.06 ODE 410 ********** 413.00 	Tc(MIN.) 0.00 TO NOE ******** TO NODE LINE PEAK F	= 8.1 E 413. ********* 413.00 I LOW<<<<< =======	8 00 = 11 ******** S CODE =	15.00 FEE* ******* 81 C2-12 SCS
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE	8.15 = 1.06 ODE 410 ********** 413.00 	Tc (MIN.) 0.00 TO NOE ******** TO NODE	= 8.1 E 413. ********* 413.00 I LOW<<<<< =======	8 00 = 11 ******** S CODE =	15.00 FEE* ******* 81 C2-12 SCS
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N *********** FLOW PROCESS FROM NODE	8.15 = 1.06 ODE 410 ********** 413.00 	Tc(MIN.) 0.00 TO NOE ******** TO NODE LINE PEAK F CH/HR) = 3 AREA (ACRES) (= 8.1 E 413. ********* 413.00 I LOW<<<<< ======= .650 Fp INCH/HR)	8 00 = 11 ********* S CODE = Ap (DECIMAL)	15.00 FEE* ******* 81 C2-12 SCS CN
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE	8.15 = 1.06 ODE 410 ********** 413.00 	Tc(MIN.) 0.00 TO NOE ******** TO NODE LINE PEAK F CH/HR) = 3 AREA (ACRES) (= 8.1 E 413. ********* 413.00 I LOW<<<<< ======= .650 Fp INCH/HR)	8 00 = 11 ********* S CODE = Ap (DECIMAL)	15.00 FEE* ******* 81 C2-12 SCS CN
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ************ FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC(MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE RESIDENTIAL ".4 DWELLING/ACRE"	8.15 = 1.06 ODE 410 ********** 413.00 	Tc(MIN.) 0.00 TO NOE ******** TO NODE LINE PEAK F CH/HR) = 3 AREA (ACRES) (= 8.1 E 413. ********* 413.00 I LOW<<<<< ======= .650 Fp INCH/HR)	8 00 = 11 ********* S CODE = Ap (DECIMAL)	15.00 FEE* ******* 81 C2-12 SCS CN
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ************ FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC(MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE RESIDENTIAL ".4 DWELLING/ACRE"	8.15 = 1.06 ODE 410 ********* 413.00	Tc(MIN.) 0.00 TO NOE ******** TO NODE LINE PEAK F CH/HR) = 3 AREA (ACRES) (2.00	= 8.1 E 413. ********* 413.00 I 	8 00 = 11 ******** S CODE = Ap (DECIMAL) 0.900	15.00 FEE ******* 81 C2-12 SCS CN 69
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ************ FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC(MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE"	8.15 = 1.06 ODE 410 ********* 413.00	Tc(MIN.) 0.00 TO NOE ******** TO NODE LINE PEAK F CH/HR) = 3 AREA (ACRES) (2.00	= 8.1 E 413. ********* 413.00 I 	8 00 = 11 ******** S CODE = Ap (DECIMAL) 0.900	15.00 FEE ******* 81 C2-12 SCS CN 69
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE	8.15 = 1.06 ODE 410 ********* 413.00	Tc(MIN.) 0.00 TO NOD ********* TO NODE	= 8.1 E 413. ********* 413.00 I LOW<<<<< ======= .650 Fp INCH/HR) 0.25 0.20	8 00 = 11 ******** S CODE = Ap (DECIMAL) 0.900 0.900	15.00 FEE ******* 81 C2-12 SCS CN 69
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ******************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC(MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLINGS/ACRE"	8.15 = 1.06 ODE 410 ********* 413.00	Tc(MIN.) 0.00 TO NOD ********* TO NODE	= 8.1 E 413. ********* 413.00 I 	8 00 = 11 ******** S CODE = Ap (DECIMAL) 0.900 0.900	15.00 FEE ******* 81 C2-12 SCS CN 69 75
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE	8.15 = 1.06 ODE 410 ********* 413.00	Tc (MIN.) 0.00 TO NOD ********* TO NODE LINE PEAK F CH/HR) = 3 AREA (ACRES) (2.00 0.40 0.40	= 8.1 E 413. ********* 413.00 I 	8 00 = 11 ******** S CODE = Ap (DECIMAL) 0.900 0.900 0.500	15.00 FEE ******* 81 C2-12 SCS CN 69 75 69
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE TC(MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE"	8.15 = 1.06 ODE 410 ********* 413.00 A TO MAINI ===================================	Tc (MIN.) 0.00 TO NOE ******** TO NODE LINE PEAK F CH/HR) = 3 AREA (ACRES) (2.00 0.40 0.40 0.30	= 8.1 E 413. ********* 413.00 I 	8 00 = 11 ******** S CODE = Ap (DECIMAL) 0.900 0.900 0.500 0.500	15.00 FEE ******* 81 C2-12 SCS CN 69 75 69
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ****************** ***** ******* *****	8.15 = 1.06 ODE 410 ********* 413.00 A TO MAINI ===================================	Tc (MIN.) 0.00 TO NOE ******** TO NODE LINE PEAK F CH/HR) = 3 AREA (ACRES) (2.00 0.40 0.40 0.30 FE, FP (INCH	= 8.1 E 413. ********* 413.00 I 	8 00 = 11 ******** S CODE = Ap (DECIMAL) 0.900 0.900 0.500 0.500	15.00 FEE ******* 81 C2-12 SCS CN 69 75 69
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE ->>>>ADDITION OF SUBARE **************** MAINLINE TC(MIN.) = ** 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU	8.15 = 1.06 ODE 410 ********* 413.00 A TO MAINI ===================================	Tc (MIN.) 0.00 TO NOE ********* TO NODE	= 8.1 E 413. ********* 413.00 I LOW<<<< ======== .650 Fp INCH/HR) 0.25 0.20 0.25 0.20 //HR) = 0 = 0.810	8 00 = 11 ******** S CODE = Ap (DECIMAL) 0.900 0.900 0.500 0.500	15.00 FEE' ******** 81 C2-12 SCS CN 69 75 69 75
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE ->>>>ADDITION OF SUBARE **************** MAINLINE TC(MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLING/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) =	8.15 = 1.06 ODE 410 ********* 413.00	Tc (MIN.) 0.00 TO NOE ********* TO NODE	= 8.1 E 413. ******** 413.00 I LOW<<<<<650 Fp INCH/HR) 0.25 0.20 0.25 0.20 //HR) = 0 = 0.810 RUNOFF(CF	8 00 = 11 ******** S CODE = QP (DECIMAL) 0.900 0.500 0.500 0.500 .24 S) = 9.	15.00 FEE' ******** 81 C2-12 SCS CN 69 75 69 75
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ******************** FLOW PROCESS FROM NODE	8.15 = 1.06 ODE 410 ********* 413.00	Tc (MIN.) 0.00 TO NOE ********* TO NODE	= 8.1 E 413. ******** 413.00 I LOW<<<<< ======= .650 Fp INCH/HR) 0.25 0.20 /HR) = 0 = 0.810 RUNOFF(CF ERAGED FM	8 00 = 11 ********* S CODE = Ap (DECIMAL) 0.900 0.500 0.500 0.500 .24 S) = 9. (INCH/HR)	15.00 FEE' ******** 81 C2-12 SCS CN 69 75 69 75
ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE ->>>>ADDITION OF SUBARE **************** MAINLINE TC(MIN.) = * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".5-7 DWELLING/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) =	8.15 = 1.06 ODE 410 ********* 413.00	Tc (MIN.) 0.00 TO NOE ********* TO NODE	= 8.1 E 413. ******** 413.00 I LOW<<<<<650 Fp INCH/HR) 0.25 0.20 /HR) = 0 = 0.810 RUNOFF (CF ERAGED FM RAGED AP	8 00 = 11 ******** S CODE = QDECIMAL) 0.900 0.500 0.500 0.500 .24 S) = 9. (INCH/HR) = 0.80	15.00 FEE ******* 81 C2-12 SCS CN 69 75 69 75 64 = 0.19

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FLOW PROCESS FROM NODE	413.00	TO NODE	414.00 I	S CODE =	31
>>>>COMPUTE PIPE-FLOW >>>>USING COMPUTER-EST	TIMATED PIP	PESIZE (NO	N-PRESSURE	FLOW) <<<<	
ELEVATION DATA: UPSTREA FLOW LENGTH(FEET) = 3 DEPTH OF FLOW IN 18.0 PIPE-FLOW VELOCITY(FEET ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 1 PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM 1	AM(FEET) = 310.00 MA INCH PIPE I/SEC.) = R(INCH) = 17.14 = 0.45 NODE 410	480.00 ANNING'S N IS 14.1 11.53 18.00 Tc (MIN.	DOWNSTREAN = 0.013 INCHES NUMBER OF 1) = 8.6 DDE 414.	M(FEET) = PIPES = : 3 00 = 14:	470.00 1 25.00 FEET.
FLOW PROCESS FROM NODE	414.00	TO NODE	414.00 I	S CODE =	31
>>>>ADDITION OF SUBARE		INE PEAK	FLOW<		
 MAINLINE Tc(MIN.) =		:=======		=======	========
* 25 YEAR RAINFALL INT	rensity(inc	H/HR) =	3.541		C2-13
SUBAREA LOSS RATE DATA	(AMC II):				
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp	Ap	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL COMMERCIAL	C D	1.50	0.25	0.100	69
	D	0.10	0.20	0.100	75
RESIDENTIAL					
".4 DWELLING/ACRE"	С	2.80	0.25	0.900	69
RESIDENTIAL					
".4 DWELLING/ACRE"	D	1.00	0.20	0.900	75
RESIDENTIAL "5-7 DWELLINGS/ACRE"	С	0.20	0.25	0.500	69
RESIDENTIAL	_	0.10	0.00	0 500	5.5
"5-7 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/F TOTAL AREA (ACRES) =	US LOSS RAT US AREA FRA 5.70 = 11.20 HR) = 0.23	E, Fp(INC CTION, Ap SUBAREA AREA-A B AREA-AV	CH/HR) = 0 0 = 0.654 A RUNOFF(CF AVERAGED FM VERAGED Ap	.24 S) = 17.3 (INCH/HR) = 0.73	37 = 0.17
TOTAL AREA (ACRES) -	11.2	LEAN	THOW KAIL(CFS) -	33.91

>>>>ADDITION OF SUBARE					
MAINLINE Tc(MIN.) = * 25 YEAR RAINFALL INT	8.63 FENSITY(INC			======	C2-13
SUBAREA LOSS RATE DATA		AREA	Fp	An	SCS
SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/	SCS SOII.				
DEVELOPMENT TYPE/			(INCH/HR)	(DECIMAL)	CN
DEVELOPMENT TYPE/ LAND USE	GROUP	(ACRES)			
DEVELOPMENT TYPE/ LAND USE APARTMENTS	GROUP C	(ACRES) 0.10	0.25	0.200	
DEVELOPMENT TYPE/ LAND USE APARTMENTS SUBAREA AVERAGE PERVIOU	GROUP C US LOSS RAT	(ACRES) 0.10 PE, Fp(INC	0.25 CH/HR) = 0	0.200	
DEVELOPMENT TYPE/ LAND USE APARTMENTS SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU	GROUP C US LOSS RAT US AREA FRA	(ACRES) 0.10 TE, Fp(INC ACTION, Ap	0.25 CH/HR) = 0 0.200	0.200	69
DEVELOPMENT TYPE/ LAND USE APARTMENTS SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) =	GROUP C US LOSS RAT US AREA FRA 0.10	(ACRES) 0.10 E, Fp(INCACTION, Ap SUBAREA	0.25 CH/HR) = 0 D = 0.200 A RUNOFF(CF	0.200 .25 S) = 0.3	69 31
DEVELOPMENT TYPE/ LAND USE APARTMENTS SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED Fp (INCH/F	GROUP C US LOSS RAT US AREA FRA 0.10 = 11.30 HR) = 0.23	(ACRES) 0.10 CE, Fp(INCACTION, Ap SUBAREA AREA-A	0.25 CH/HR) = 0 D = 0.200 A RUNOFF(CF AVERAGED FM	0.200 .25 S) = 0.3 (INCH/HR) = 0.72	69 31 = 0.17
DEVELOPMENT TYPE/ LAND USE APARTMENTS SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED Fp (INCH/F	GROUP C US LOSS RAT US AREA FRA 0.10 = 11.30 HR) = 0.23	(ACRES) 0.10 CE, Fp(INCACTION, Ap SUBAREA AREA-A	0.25 CH/HR) = 0 D = 0.200 A RUNOFF(CF AVERAGED FM	0.200 .25 S) = 0.3 (INCH/HR) = 0.72	69 31 = 0.17
DEVELOPMENT TYPE/ LAND USE APARTMENTS SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	GROUP C US LOSS RAT US AREA FRA 0.10 = 11.30 HR) = 0.23	(ACRES) 0.10 CE, Fp(INCACTION, Ap SUBAREA AREA-A	0.25 CH/HR) = 0 D = 0.200 A RUNOFF(CF AVERAGED FM	0.200 .25 S) = 0.3 (INCH/HR) = 0.72	69 31 = 0.17

```
******************
 FLOW PROCESS FROM NODE 414.00 TO NODE 415.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
 ELEVATION DATA: UPSTREAM(FEET) = 470.00 DOWNSTREAM(FEET) = 445.00
 FLOW LENGTH (FEET) = 528.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 24.0 INCH PIPE IS 15.3 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 16.24
 ESTIMATED PIPE DIAMETER (INCH) = 24.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 34.29
 PIPE TRAVEL TIME (MIN.) = 0.54 Tc (MIN.) = 9.17
 LONGEST FLOWPATH FROM NODE 410.00 TO NODE 415.00 = 1953.00 FEET.
*******************
 FLOW PROCESS FROM NODE 415.00 TO NODE 415.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc (MIN.) = 9.17
                                                 C2-14
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.421
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap
    LAND USE
                 GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                   C 0.90 0.25 0.100 69
                         0.60 0.20 0.100 75
 COMMERCIAL
                   D
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE" C 6.30 0.25 0.500
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"
                   D 3.70 0.20 0.500 75
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.448
 SUBAREA AREA (ACRES) = 11.50 SUBAREA RUNOFF (CFS) = 34.34
 EFFECTIVE AREA(ACRES) = 22.80 AREA-AVERAGED Fm(INCH/HR) = 0.14
 AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.58
 TOTAL AREA(ACRES) = 22.8
                            PEAK FLOW RATE(CFS) =
                                              67.40
***********************
 FLOW PROCESS FROM NODE 415.00 TO NODE 416.00 IS CODE = 31
......
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 445.00 DOWNSTREAM(FEET) = 415.00
 FLOW LENGTH (FEET) = 650.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 30.0 INCH PIPE IS 20.4 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 18.95
 ESTIMATED PIPE DIAMETER(INCH) = 30.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
                67.40
 PIPE TRAVEL TIME (MIN.) = 0.57 Tc (MIN.) = 9.75
 LONGEST FLOWPATH FROM NODE 410.00 TO NODE 416.00 = 2603.00 FEET.
********************
 FLOW PROCESS FROM NODE 416.00 TO NODE 416.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
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* 25 YEAR RAINFALL INT	9.75 ENSITY(IN	CH/HR) =	3.306		C2-15
SIBAREA LOSS RATE DATA (AMC TT) .				_
DEVELOPMENT TYPE/ LAND USE APARTMENTS APARTMENTS COMMERCIAL	SCS SOTT	AREA	Fp	Aρ	SCS
I.AND HISE	GROUP	(ACRES)	(TNCH/HR)	(DECIMAL)	CN
A DARTMENTS	C	1 60	0 25	0 200	69
ADADTMENTS	D	10 90	0.20	0.200	75
COMMEDITAT	C	1 30	0.20	0.200	69
COMMEDCIAL	C	1 20	0.23	0.100	75
	Д	1.30	0.20	0.100	75
RESIDENTIAL	0	1 10	0.05	0 000	60
"11+ DWELLINGS/ACRE"	C	1.10	0.25	0.200	69
RESIDENTIAL	_		0.00	0 000	
"11+ DWELLINGS/ACRE"					/5
SUBAREA AVERAGE PERVIOU				.21	
SUBAREA AVERAGE PERVIOU	S AREA FR	ACTION, A	p = 0.189		
SUBAREA AREA(ACRES) =	23.20	SUBARE	A RUNOFF (CF	(S) = 68.3	21
EFFECTIVE AREA(ACRES) =	46.0	0 AREA-	AVERAGED Fm	(INCH/HR) :	= 0.09
AREA-AVERAGED Fp(INCH/H TOTAL AREA(ACRES) =	R) = 0.2	3 AREA-A	VERAGED Ap	= 0.38	
TOTAL AREA (ACRES) =	46.0	PEAK	FLOW RATE (CFS) =	133.26

FLOW PROCESS FROM NODE					
>>>>ADDITION OF SUBARE	A TO MAIN	LINE PEAK	FLOW<		
MAINLINE Tc(MIN.) =	9.75				C2-15
* 25 YEAR RAINFALL INT	ENSITY(IN	ICH/HR) =	3.306		02-13
SUBAREA LOSS RATE DATA (AMC II):				
DEVELOPMENT TYPE/ LAND USE RESIDENTIAL	SCS SOIL	AREA	Fp	Ap	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
RESIDENTIAL					
"3-4 DWELLINGS/ACRE"	D	0.40	0.20	0.600	75
RESIDENTIAL					
RESIDENTIAL	С	4.90	0.25	0.500	69
RESIDENTIAL "5-7 DWELLINGS/ACRE"	С	4.90	0.25	0.500	69
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL					
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE"					
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL	D	9.30	0.20	0.500	75
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE"	D	9.30	0.20	0.500	75
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL	D C	9.30	0.20	0.500	75 69
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE"	D C D	9.30 0.30 0.10	0.20 0.25 0.20	0.500 0.400 0.400	75 69
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU	D C D S LOSS RA	9.30 0.30 0.10 TE, Fp(IN	0.20 0.25 0.20 CH/HR) = 0	0.500 0.400 0.400	75 69
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU	D C D S LOSS RA S AREA FR	9.30 0.30 0.10 TE, Fp(IN	0.20 0.25 0.20 CH/HR) = 0 p = 0.500	0.500 0.400 0.400	75 69 75
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) =	D C D S LOSS RA S AREA FR 15.00	9.30 0.30 0.10 TE, Fp(IN ACTION, A SUBARE	0.20 0.25 0.20 CH/HR) = 0 p = 0.500 A RUNOFF(CF	0.500 0.400 0.400 .22 S) = 43.3	75 69 75 17
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	D C D S LOSS RA S AREA FR 15.00 61.0	9.30 0.30 0.10 TE, Fp(IN ACTION, A SUBARE 0 AREA-	0.20 0.25 0.20 CH/HR) = 0 p = 0.500 A RUNOFF(CF AVERAGED FM	0.500 0.400 0.400 .22 S) = 43.	75 69 75 17
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED FP(INCH/H	D C D S LOSS RA S AREA FR 15.00 61.0 R) = 0.2	9.30 0.30 0.10 TE, Fp(IN ACTION, A SUBARE 0 AREA- 2 AREA-A	0.20 0.25 0.20 CH/HR) = 0 p = 0.500 A RUNOFF (CF AVERAGED FM VERAGED Ap	0.500 0.400 0.400 .22 (S) = 43.1 (INCH/HR) = 0.41	75 69 75 17 = 0.09
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED FP(INCH/H	D C D S LOSS RA S AREA FR 15.00 61.0 R) = 0.2	9.30 0.30 0.10 TE, Fp(IN ACTION, A SUBARE 0 AREA- 2 AREA-A	0.20 0.25 0.20 CH/HR) = 0 p = 0.500 A RUNOFF (CF AVERAGED FM VERAGED Ap	0.500 0.400 0.400 .22 (S) = 43.1 (INCH/HR) = 0.41	75 69 75 17 = 0.09
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H	D C D S LOSS RA S AREA FR 15.00 61.0 R) = 0.2	9.30 0.30 0.10 TE, Fp(IN ACTION, A SUBARE 0 AREA- 2 AREA-A	0.20 0.25 0.20 CH/HR) = 0 p = 0.500 A RUNOFF (CF AVERAGED FM VERAGED Ap	0.500 0.400 0.400 .22 (S) = 43.1 (INCH/HR) = 0.41	75 69 75 17 = 0.09
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA(ACRES) =	D C D S LOSS RA S AREA FR 15.00 61.0 R) = 0.2 61.0	9.30 0.30 0.10 TE, Fp(IN ACTION, A SUBARE 0 AREA- 2 AREA-A PEAK	0.20 0.25 0.20 CH/HR) = 0 p = 0.500 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(0.500 0.400 0.400 .22 (S) = 43.3 (INCH/HR) = 0.41 CFS) =	75 69 75 17 = 0.09 176.42
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA(ACRES) =	D C D S LOSS RA S AREA FR 15.00 61.0 R) = 0.2 61.0	9.30 0.30 0.10 TE, Fp(IN, A SUBARE 0 AREA- 2 AREA-A PEAK	0.20 0.25 0.20 CH/HR) = 0 p = 0.500 A RUNOFF(CF AVERAGED FM VERAGED Ap FLOW RATE(0.500 0.400 0.400 .22 (S) = 43.3 (INCH/HR) = 0.41 CFS) =	75 69 75 17 = 0.09 176.42
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA(ACRES) =	D C D S LOSS RA S AREA FR 15.00 61.0 R) = 0.2 61.0	9.30 0.30 0.10 TE, Fp(IN, A SUBARE 0 AREA-A PEAK	0.20 0.25 0.20 CH/HR) = 0 p = 0.500 A RUNOFF(CF AVERAGED FM VERAGED Ap FLOW RATE(************************************	0.500 0.400 0.400 .22 S) = 43.: (INCH/HR) = 0.41 CFS) = ***********************************	75 69 75 17 = 0.09 176.42
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) = ***********************************	D C D S LOSS RA S AREA FR 15.00 61.0 R) = 0.2 61.0 ********* 416.00	9.30 0.30 0.10 TE, Fp(IN, A SUBARE 0 AREA-A PEAK ************************************	0.20 0.25 0.20 CH/HR) = 0.500 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(************************************	0.500 0.400 0.400 .22 S) = 43.: (INCH/HR) = 0.41 CFS) = ***********************************	75 69 75 17 = 0.09 176.42
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) = ***********************************	D C D S LOSS RA S AREA FR 15.00 61.0 R) = 0.2 61.0 ********* 416.00	9.30 0.30 0.10 TE, Fp(IN, A SUBARE 0 AREA-A PEAK ************************************	0.20 0.25 0.20 CH/HR) = 0 p = 0.500 A RUNOFF(CF AVERAGED FM VERAGED Ap FLOW RATE(********** 416.00 I	0.500 0.400 0.400 .22 S) = 43 (INCH/HR) = 0.41 CFS) = ***********************************	75 69 75 17 = 0.09 176.42 ********
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = EFFECTIVE AREA (ACRES) = TOTAL AREA (ACRES) = ***********************************	D C D S LOSS RA S AREA FR 15.00 61.0 R) = 0.2 61.0 ********* 416.00 ENT STREA	9.30 0.30 0.10 TE, Fp(IN, A SUBARE 0 AREA-A PEAK ************************************	0.20 0.25 0.20 CH/HR) = 0 p = 0.500 A RUNOFF(CF AVERAGED FM VERAGED Ap FLOW RATE(********** 416.00 I	0.500 0.400 0.400 .22 S) = 43 (INCH/HR) = 0.41 CFS) = ***********************************	75 69 75 17 = 0.09 176.42 ********
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) = ***********************************	D C D S LOSS RA S AREA FR 15.00 61.0 R) = 0.2 61.0 ********* 416.00 ENT STREA ====================================	9.30 0.30 0.10 TE, Fp(IN ACTION, A SUBARE 0 AREA-A PEAK ************************************	0.20 0.25 0.20 CH/HR) = 0 p = 0.500 A RUNOFF (CF AVERAGED FR VERAGED AP FLOW RATE (************************************	0.500 0.400 0.400 .22 S) = 43.1 (INCH/HR) = 0.41 CFS) = ********** S CODE =	75 69 75 17 = 0.09 176.42 ********
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) = ***********************************	D S LOSS RA S AREA FR 15.00 61.0 R) = 0.2 61.0 ********* 416.00 ENT STREA = 2 FOR INDEP	9.30 0.30 0.10 TE, Fp(IN ACTION, A SUBARE 0 AREA- 2 AREA-A PEAK TO NODE M FOR CON	0.20 0.25 0.20 CH/HR) = 0 p = 0.500 A RUNOFF (CF AVERAGED FR VERAGED AP FLOW RATE (************************************	0.500 0.400 0.400 .22 S) = 43.1 (INCH/HR) = 0.41 CFS) = ********** S CODE =	75 69 75 17 = 0.09 176.42 ********
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) = ***********************************	D C D S LOSS RA S AREA FR 15.00 61.0 R) = 0.2 61.0 ********* 416.00 ENT STREA = 2 FOR INDEP IN.) =	9.30 0.30 0.10 TE, Fp(IN ACTION, A SUBARE 0 AREA- 2 AREA-A FEAK TO NODE M FOR CON ENDENT ST 9.75	0.20 0.25 0.20 CH/HR) = 0 p = 0.500 A RUNOFF (CF AVERAGED FR VERAGED AP FLOW RATE (************************************	0.500 0.400 0.400 .22 S) = 43.1 (INCH/HR) = 0.41 CFS) = ********** S CODE =	75 69 75 17 = 0.09 176.42 ********
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) = ***********************************	D C D S LOSS RA S AREA FR 15.00 61.0 R) = 0.2 61.0 ********* 416.00 ENT STREA = = 2 FOR INDEP IN.) = /HR) =	9.30 0.30 0.10 TE, Fp(IN ACTION, A SUBARE 0 AREA- 2 AREA-A PEAK TO NODE M FOR CON ENDERT ST 9.75 3.31	0.20 0.25 0.20 CH/HR) = 0 p = 0.500 A RUNOFF (CF AVERAGED FR VERAGED AP FLOW RATE (************************************	0.500 0.400 0.400 .22 S) = 43.1 (INCH/HR) = 0.41 CFS) = ********** S CODE =	75 69 75 17 = 0.09 176.42 ********
RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "5-7 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" RESIDENTIAL "8-10 DWELLINGS/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) = ************************************	D C D S LOSS RA S AREA FR 15.00 61.0 R) = 0.2 61.0 ********* 416.00 ENT STREA = = 2 FOR INDEP IN.) = /HR) =	9.30 0.30 0.10 TE, Fp(IN ACTION, A SUBARE 0 AREA- 2 AREA-A PEAK TO NODE M FOR CON ENDERT ST 9.75 3.31	0.20 0.25 0.20 CH/HR) = 0 p = 0.500 A RUNOFF (CF AVERAGED FR VERAGED AP FLOW RATE (************************************	0.500 0.400 0.400 .22 S) = 43.1 (INCH/HR) = 0.41 CFS) = ********** S CODE =	75 69 75 17 = 0.09 176.42 ********
RESIDENTIAL '5-7 DWELLINGS/ACRE" RESIDENTIAL '5-7 DWELLINGS/ACRE" RESIDENTIAL '8-10 DWELLINGS/ACRE" RESIDENTIAL '8-10 DWELLINGS/ACRE" RUBAREA AVERAGE PERVIOU RUBAREA AVERAGE PERVIOU RUBAREA AVERAGE PERVIOU RUBAREA AREA (ACRES) = REFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H ROTAL AREA (ACRES) = ***********************************	D C D S LOSS RA S AREA FR 15.00 61.0 R) = 0.2 61.0 ********* 416.00 ENT STREA = = 2 FOR INDEP IN.) = /HR) =	9.30 0.30 0.10 TE, Fp(IN ACTION, A SUBARE 0 AREA- 2 AREA-A PEAK TO NODE M FOR CON ENDERT ST 9.75 3.31	0.20 0.25 0.20 CH/HR) = 0 p = 0.500 A RUNOFF (CF AVERAGED FR VERAGED AP FLOW RATE (************************************	0.500 0.400 0.400 .22 S) = 43.1 (INCH/HR) = 0.41 CFS) = ********** S CODE =	75 69 75 17 = 0.09 176.42 ********

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AREA-AVERAGED Fp (INCH/HR) = 0.22
 AREA-AVERAGED Ap = 0.41
 EFFECTIVE STREAM AREA(ACRES) = 61.00
 TOTAL STREAM AREA(ACRES) = 61.00
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 176.42
*******************
 FLOW PROCESS FROM NODE 420.00 TO NODE 421.00 IS CODE = 21
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
______
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 328.00
 ELEVATION DATA: UPSTREAM(FEET) = 535.00 DOWNSTREAM(FEET) = 495.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
                                                C2-20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 6.368
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 4.207
 SUBAREA To AND LOSS RATE DATA(AMC II):
                               Fp
 DEVELOPMENT TYPE/
                SCS SOIL AREA
                                               SCS Tc
                                       Ар
    LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                  D 0.70 0.20 0.900 75 7.53
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE" D 0.20 0.600 75 6.37
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.833
 SUBAREA RUNOFF (CFS) = 3.27
 TOTAL AREA(ACRES) = 0.90 PEAK FLOW RATE(CFS) =
*****************
 FLOW PROCESS FROM NODE 421.00 TO NODE 422.00 IS CODE = 31
______
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 495.00 DOWNSTREAM(FEET) = 487.00
 FLOW LENGTH (FEET) = 308.00 MANNING'S N = 0.013
 ESTIMATED PIPE DIAMETER (INCH) INCREASED TO 18.000
 DEPTH OF FLOW IN 18.0 INCH PIPE IS 5.5 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 7.13
 ESTIMATED PIPE DIAMETER (INCH) = 18.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 3.27
 PIPE TRAVEL TIME (MIN.) = 0.72 Tc (MIN.) = 7.09
 LONGEST FLOWPATH FROM NODE 420.00 TO NODE 422.00 = 636.00 FEET.
******************
 FLOW PROCESS FROM NODE 422.00 TO NODE 422.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc(MIN.) = 7.09
                                                 C2-21
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.959
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp
                                        Дp
    LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 RESIDENTIAL
 ".4 DWELLING/ACRE" D 1.30 0.20 0.900 75
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Date: 09/30/2022 File name: PA3C25HC.RES

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S AREA FRA 1.80 2.70 R) = 0.20	TE, Fp(IN ACTION, A SUBARE AREA- AREA-A	AVERAGED Fm VERAGED Ap	.20 S) = 6. (INCH/HR) = 0.82	15 = 0.16
2.7	PEAK	FLOW RATE (CFS) =	9.22
******	******	*****	******	*****
422.00	TO NODE	423.00 I	S CODE =	31
				<
				-=======
73.00 MA (INCH) INC INCH PIPE /SEC.) = (INCH) = 9.22 = 0.68 ODE 420 ************************************	ANNING'S CREASED T IS 10.0 9.14 18.00 TC (MIN 0.00 TO N ******* TO NODE	N = 0.013 O 18.000 INCHES NUMBER OF .) = 7.7 ODE 423. ************************************	PIPES = 7 00 = 10 ******** S CODE =	1 09.00 FEET. ***********************************
7.77				
TATO T TATO / TATO				(172-77
		3.759		C2-22
AMC II):				
AMC II): SCS SOIL	AREA	Fр	Ар	SCS
AMC II): SCS SOIL	AREA		Ар	SCS
AMC II): SCS SOIL GROUP	AREA (ACRES)	Fр	Ap (DECIMAL)	SCS CN
AMC II): SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	scs CN 56
AMC II): SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	scs CN 56
AMC II): SCS SOIL GROUP B C	AREA (ACRES) 0.80 1.20	Fp (INCH/HR) 0.30 0.25	Ap (DECIMAL) 0.900 0.900	SCS CN 56
AMC II): SCS SOIL GROUP	AREA (ACRES) 0.80 1.20	Fp (INCH/HR)	Ap (DECIMAL) 0.900 0.900	SCS CN 56
AMC II): SCS SOIL GROUP B C	AREA (ACRES) 0.80 1.20 0.20	Fp (INCH/HR) 0.30 0.25 0.20	Ap (DECIMAL) 0.900 0.900 0.900	SCS CN 56 69 75
AMC II): SCS SOIL GROUP B C	AREA (ACRES) 0.80 1.20 0.20	Fp (INCH/HR) 0.30 0.25	Ap (DECIMAL) 0.900 0.900 0.900	SCS CN 56 69 75
AMC II): SCS SOIL GROUP B C D	AREA (ACRES) 0.80 1.20 0.20 0.40	Fp (INCH/HR) 0.30 0.25 0.20 0.30	Ap (DECIMAL) 0.900 0.900 0.900 0.600	SCS CN 56 69 75 56
AMC II): SCS SOIL GROUP B C D	AREA (ACRES) 0.80 1.20 0.20 0.40	Fp (INCH/HR) 0.30 0.25 0.20	Ap (DECIMAL) 0.900 0.900 0.900 0.600	SCS CN 56 69 75 56
AMC II): SCS SOIL GROUP B C D B	AREA (ACRES) 0.80 1.20 0.20 0.40 1.70 0.10	Fp (INCH/HR) 0.30 0.25 0.20 0.30 0.25	Ap (DECIMAL) 0.900 0.900 0.900 0.600 0.600 0.600	SCS CN 56 69 75 56
AMC II): SCS SOIL GROUP B C D B C D S LOSS RAT	AREA (ACRES) 0.80 1.20 0.20 0.40 1.70 0.10 TE, FP(IN	Fp (INCH/HR) 0.30 0.25 0.20 0.30 0.25 0.20 CH/HR) = 0	Ap (DECIMAL) 0.900 0.900 0.900 0.600 0.600 0.600	SCS CN 56 69 75 56
AMC II): SCS SOIL GROUP B C D B C D S LOSS RAT	AREA (ACRES) 0.80 1.20 0.20 0.40 1.70 0.10 TE, FP(IN	Fp (INCH/HR) 0.30 0.25 0.20 0.30 0.25	Ap (DECIMAL) 0.900 0.900 0.900 0.600 0.600 0.600	SCS CN 56 69 75 56
AMC II): SCS SOIL GROUP B C D S LOSS RAT S AREA FRA 4.40	AREA (ACRES) 0.80 1.20 0.20 0.40 1.70 0.10 TE, Fp(IN ACTION, A SUBARE	Fp (INCH/HR) 0.30 0.25 0.20 0.30 0.25 0.20 CH/HR) = 0 p = 0.750 A RUNOFF (CF	Ap (DECIMAL) 0.900 0.900 0.900 0.600 0.600 0.600 .26	SCS CN 56 69 75 56 69 75
AMC II): SCS SOIL GROUP B C D S LOSS RAT S AREA FRA 4.40 7.10	AREA (ACRES) 0.80 1.20 0.20 0.40 1.70 0.10 TE, FP(IN IN ICTION, A SUBARE AREA-	Fp (INCH/HR) 0.30 0.25 0.20 0.30 0.25 0.20 CH/HR) = 0 p = 0.750 A RUNOFF(CF AVERAGED FM	Ap (DECIMAL) 0.900 0.900 0.900 0.600 0.600 0.600 26 (S) = 14.	SCS CN 56 69 75 56 69 75
AMC II): SCS SOIL GROUP B C D S LOSS RAT S AREA FRA 4.40 7.10	AREA (ACRES) 0.80 1.20 0.20 0.40 1.70 0.10 TE, FP(IN IN ICTION, A SUBARE AREA-	Fp (INCH/HR) 0.30 0.25 0.20 0.30 0.25 0.20 CH/HR) = 0 p = 0.750 A RUNOFF(CF AVERAGED FM	Ap (DECIMAL) 0.900 0.900 0.900 0.600 0.600 0.600 26 (S) = 14.	SCS CN 56 69 75 56 69 75
AMC II): SCS SOIL GROUP B C D S LOSS RAT S AREA FRA 4.40 7.10	AREA (ACRES) 0.80 1.20 0.20 0.40 1.70 0.10 TE, FP(IN IN ICTION, A SUBARE AREA-	Fp (INCH/HR) 0.30 0.25 0.20 0.30 0.25 0.20 CH/HR) = 0 p = 0.750 A RUNOFF (CF	Ap (DECIMAL) 0.900 0.900 0.900 0.600 0.600 0.600 26 (S) = 14.	SCS CN 56 69 75 56 69 75
AMC II): SCS SOIL GROUP B C D S LOSS RAT S AREA FRA 4.40 7.10 R) = 0.24 7.1	AREA (ACRES) 0.80 1.20 0.20 0.40 1.70 0.10 E, Fp(IN, A SUBARE AREA-A PEAK	Fp (INCH/HR) 0.30 0.25 0.20 0.30 0.25 0.20 CH/HR) = 0 p = 0.750 A RUNOFF(CF AVERAGED Fm VERAGED Ap FLOW RATE (Ap (DECIMAL) 0.900 0.900 0.900 0.600 0.600 0.600 .26 S) = 14. (INCH/HR) = 0.78 CFS) =	SCS CN 56 69 75 56 69 75
	2.70 2.7 ********* 422.00 TRAVEL TIM IMATED PIF 73.00 MP (INCH) INC INCH PIPE /SEC.) = (INCH) = 9.22 0.68 ODE 420 ********* 423.00 A TO MAINI 7.77	2.70 AREA- R) = 0.20 AREA-A 2.7 PEAK ****************** 422.00 TO NODE TRAVEL TIME THRU S IMATED PIPESIZE (N ===================================	2.70 AREA-AVERAGED FM 2.7 PEAK FLOW RATE(***********************************	M(FEET) = 487.00 DOWNSTREAM(FEET) = 73.00 MANNING'S N = 0.013 (INCH) INCREASED TO 18.000 INCH PIPE IS 10.0 INCHES /SEC.) = 9.14 (INCH) = 18.00 NUMBER OF PIPES = 9.22 = 0.68 Tc(MIN.) = 7.77 ODE 420.00 TO NODE 423.00 = 10 ***********************************

FLOW LENGTH(FEET) = DEPTH OF FLOW IN 21.	0 INCH PIPE	ANNING'S 1 IS 16.8	N = 0.013	M(FEET) =	454.00
PIPE-FLOW VELOCITY (FE ESTIMATED PIPE DIAMET PIPE-FLOW (CFS) =	ER(INCH) =		NUMBER OF	PIPES =	1
PIPE TRAVEL TIME (MIN.) = 1.50	Tc (MIN	.) = 9.2	7	
LONGEST FLOWPATH FROM					04.00 FE

FLOW PROCESS FROM NOD					81
>>>>ADDITION OF SUBA	REA TO MAINI		FLOW<		
MAINLINE Tc(MIN.) =	9.27				
* 25 YEAR RAINFALL I	NTENSITY (INC	H/HR) =	3.402		C2-23
SUBAREA LOSS RATE DAT					
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
APARTMENTS	С	0.80	0.25 0.20	0.200	69
APARTMENTS	D	0.40	0.20	0.200	75
PUBLIC PARK	B C	0.90	0.30	0.850 0.850	56
PUBLIC PARK	С	0.40	0.25	0.850	69
RESIDENTIAL					
".4 DWELLING/ACRE"	В	0.10	0.30	0.900	56
RESIDENTIAL ".4 DWELLING/ACRE"	C	0.70	0.25	0 900	69
SUBAREA AVERAGE PERVI					0,5
SUBAREA AVERAGE PERVI				• 2 1	
SUBAREA AREA (ACRES) =				S) = 9	60
EFFECTIVE AREA(ACRES)					
AREA-AVERAGED Fp(INCH	I/HR) = 0.25	AREA-A	VERAGED Ap	= 0.73	0.10
TOTAL AREA (ACRES) =	10.4	PEAK	FLOW RATE (CFS) =	30.17
		*****	*****	*****	*****
******	*****			0.0000	0.1
**************************************		TO NODE	424.00 I	S CODE =	0.1
FLOW PROCESS FROM NOD	E 424.00			S CODE = 1	
FLOW PROCESS FROM NOD	E 424.00	INE PEAK	FLOW<<<<		
FLOW PROCESS FROM NOT >>>>>ADDITION OF SUBA ===================================	DE 424.00 	JINE PEAK	FLOW<<<<		
FLOW PROCESS FROM NOT >>>>>ADDITION OF SUBA ===================================	AZ4.00 REA TO MAINI 9.27 NTENSITY (INC	INE PEAK ======== CH/HR) =	FLOW<<<<		
FLOW PROCESS FROM NOT >>>>>ADDITION OF SUBA ===================================	AZ4.00 AREA TO MAINI 9.27 NTENSITY(INC A(AMC II):	LINE PEAK	FLOW<<<<	======	C2-2
FLOW PROCESS FROM NOD >>>>>ADDITION OF SUBA ===================================	REA TO MAINI 9.27 NTENSITY(INC A(AMC II): SCS SOIL	LINE PEAK H/HR) = AREA	FLOW<<<< 3.402		C2-2
FLOW PROCESS FROM NOD >>>>> ADDITION OF SUBA ===================================	REA TO MAINI 9.27 NTENSITY(INC A(AMC II): SCS SOIL	LINE PEAK H/HR) = AREA	FLOW<<<<		C2-2
FLOW PROCESS FROM NOD >>>>>ADDITION OF SUBA MAINLINE TC(MIN.) = * 25 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE RESIDENTIAL	9.27 NTENSITY(INC A(AMC II): SCS SOIL GROUP	LINE PEAK CH/HR) = AREA (ACRES)	FLOW<<<<< 3.402 Fp (INCH/HR)	Ap	C2-2
FLOW PROCESS FROM NOD >>>>>ADDITION OF SUBA MAINLINE TC(MIN.) = * 25 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE RESIDENTIAL "3-4 DWELLINGS/ACRE"	9.27 NTENSITY(INC A(AMC II): SCS SOIL GROUP	LINE PEAK CH/HR) = AREA (ACRES)	FLOW<<<< 3.402	Ap	C2-2
FLOW PROCESS FROM NOD	PE 424.00 REA TO MAINI 9.27 NITENSITY(INC PA (AMC II): SCS SOIL GROUP B	JINE PEAK CH/HR) = AREA (ACRES) 3.30	FLOW<<<< 3.402 Fp (INCH/HR) 0.30	Ap (DECIMAL)	C2-2 scs cN 56
FLOW PROCESS FROM NOD	PE 424.00 REA TO MAINI 9.27 NTENSITY(INC CA(AMC II): SCS SOIL GROUP B C	INE PEAK CH/HR) = AREA (ACRES) 3.30 2.10	FLOW<<<< 3.402 Fp (INCH/HR) 0.30 0.25	Ap (DECIMAL) 0.600 0.600	C2-2 scs cN 56
FLOW PROCESS FROM NOD	PE 424.00 REA TO MAINI 9.27 NTENSITY (INC CA (AMC II): SCS SOIL GROUP B C OUS LOSS RAT	INE PEAK CH/HR) = AREA (ACRES) 3.30 2.10 CE, Fp(INC	FLOW<<<< 3.402 Fp (INCH/HR) 0.30 0.25 CH/HR) = 0	Ap (DECIMAL) 0.600 0.600	C2-2 scs cN 56
FLOW PROCESS FROM NOT	REA TO MAINI 9.27 NTENSITY(INC A(AMC II): SCS SOIL GROUP B C OUS LOSS RAT OUS AREA FRA	INE PEAK CH/HR) = AREA (ACRES) 3.30 2.10 CE, FP(INC ACTION, A)	Fp (INCH/HR) 0.30 0.25 CH/HR) = 0 0 = 0.600	Ap (DECIMAL) 0.600 0.600	C2-2 scs cN 56 69
FLOW PROCESS FROM NOT	PE 424.00 AREA TO MAINI 9.27 NTENSITY(INC A(AMC II): SCS SOIL GROUP B C COUS LOSS RAT COUS AREA FRA	INE PEAK CH/HR) = AREA (ACRES) 3.30 2.10 CE, FP(INCACTION, A) SUBAREJ	FLOW<<<<< 3.402 Fp (INCH/HR) 0.30 0.25 CH/HR) = 0 p = 0.600 A RUNOFF (CF	Ap (DECIMAL) 0.600 0.600 .28 S) = 15.	C2-2 SCS CN 56 69
FLOW PROCESS FROM NOT	PE 424.00 AREA TO MAINI 9.27 NTENSITY(INC A(AMC II): SCS SOIL GROUP B C OUS LOSS RAT OUS AREA FRA 5.40 15.80	INE PEAK CH/HR) = AREA (ACRES) 3.30 2.10 EE, FP(INI ACTION, A) SUBAREA AREA-1	FLOW<<<<< 3.402 Fp (INCH/HR) 0.30 0.25 CH/HR) = 0 0 = 0.600 A RUNOFF(CF AVERAGED FM	Ap (DECIMAL) 0.600 0.600 .28 (S) = 15.6 (INCH/HR)	C2-2 SCS CN 56 69
FLOW PROCESS FROM NOD	AZEA TO MAINI BEALTO MAINI 9.27 NTENSITY(INC A(AMC II): SCS SOIL GROUP B C OUS LOSS RAT OUS AREA FRA 5.40 15.80 1/HR) = 0.26	INE PEAK CH/HR) = AREA (ACRES) 3.30 2.10 CE, FP(ING ACTION, AJ SUBAREJ AREA-A	FLOW<<<<<	Ap (DECIMAL) 0.600 0.600 .28 (S) = 15.1 (INCH/HR) = 0.69	C2-2 SCS CN 56 69

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FLOW PROCESS FROM NODE 424.00 TO NODE 416.00 IS CODE = 31
                                                                        TOTAL AREA (ACRES) = 43.0 PEAK FLOW RATE (CFS) = 113.69
                                                                       ******************
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
                                                                        FLOW PROCESS FROM NODE 416.00 TO NODE 416.00 IS CODE = 1
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 454.00 DOWNSTREAM(FEET) = 415.00
                                                                        >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE <<<
 FLOW LENGTH (FEET) = 1555.00 MANNING'S N = 0.013
                                                                        >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<
 DEPTH OF FLOW IN 27.0 INCH PIPE IS 21.8 INCHES
                                                                       PIPE-FLOW VELOCITY (FEET/SEC.) = 13.34
                                                                        TOTAL NUMBER OF STREAMS = 2
 ESTIMATED PIPE DIAMETER(INCH) = 27.00 NUMBER OF PIPES = 1
                                                                        CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
                                                                        TIME OF CONCENTRATION (MIN.) = 11.21
 PIPE-FLOW(CFS) = 45.88
 PIPE TRAVEL TIME (MIN.) = 1.94 Tc (MIN.) = 11.21
                                                                        RAINFALL INTENSITY (INCH/HR) = 3.05
 LONGEST FLOWPATH FROM NODE 420.00 TO NODE 416.00 = 3559.00 FEET.
                                                                        AREA-AVERAGED Fm(INCH/HR) = 0.12
                                                                        AREA-AVERAGED Fp (INCH/HR) = 0.23
******************
                                                                        AREA-AVERAGED Ap = 0.50
 FLOW PROCESS FROM NODE 416.00 TO NODE 416.00 IS CODE = 81
                                                                        EFFECTIVE STREAM AREA(ACRES) = 43.00
                                                                        TOTAL STREAM AREA(ACRES) = 43.00
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
                                                                        PEAK FLOW RATE(CFS) AT CONFLUENCE =
_____
 MAINLINE Tc(MIN.) = 11.21
                                                                        ** CONFLUENCE DATA **
                                                  C2-24
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.054
                                                                         STREAM
                                                                                Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
 SUBAREA LOSS RATE DATA (AMC II):
                                                                         NUMBER
                                                                                  (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                         Ар
                                                                          1
                                                                                176.42 9.75 3.306 0.22(0.09) 0.41 61.0 410.00
                                 Fp
                                                 SCS
                                                                           2 113.69 11.21 3.054 0.23(0.12)0.50 43.0
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
                    C 3.70
 APARTMENTS
                                   0.25
                                           0.200
                            6.80
                                           0.200
                                                7.5
                                                                        RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 APARTMENTS
                    D
                                    0.20
 RESIDENTIAL
                                                                        CONFLUENCE FORMULA USED FOR 2 STREAMS.
 "11+ DWELLINGS/ACRE" C
                            0.70
                                    0.25
                                           0.200
                                                                        ** PEAK FLOW RATE TABLE **
 RESIDENTIAL
                                                                         STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
 "11+ DWELLINGS/ACRE"
                            2.60
                                    0.20
                                           0.200
                                                 7.5
                                                                         NUMBER
                                                                                (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"
                            2.20
                                    0.25
                                           0.600
                                                                          1
                                                                                 283.74 9.75 3.306 0.23(0.10) 0.45 98.4 410.00
                                                                                 276.29 11.21 3.054 0.23(0.10) 0.45 104.0
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE" D
                           9.90
                                    0.20 0.600
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
                                                                        COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.387
                                                                        PEAK FLOW RATE (CFS) = 283.74 Tc (MIN.) =
                                                                                                              9.75
 SUBAREA AREA(ACRES) = 25.90
                           SUBAREA RUNOFF (CFS) = 69.29
                                                                        EFFECTIVE AREA(ACRES) = 98.38 AREA-AVERAGED Fm(INCH/HR) = 0.10
 EFFECTIVE AREA(ACRES) = 41.70 AREA-AVERAGED Fm(INCH/HR) = 0.12
                                                                        AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.45
                                                                        TOTAL AREA (ACRES) = 104.0
 AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.50
 TOTAL AREA (ACRES) =
                  41.7 PEAK FLOW RATE (CFS) = 110.23
                                                                        LONGEST FLOWPATH FROM NODE 420.00 TO NODE 416.00 = 3559.00 FEET.
******************
                                                                       *****************
                                                                        FLOW PROCESS FROM NODE 416.00 TO NODE 417.00 IS CODE = 31
 FLOW PROCESS FROM NODE 416.00 TO NODE 416.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
                                                                        >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
_____
                                                                        >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <>>>
                                                                       ______
 MAINLINE Tc(MIN.) = 11.21
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.054
                                                                        ELEVATION DATA: UPSTREAM(FEET) = 415.00 DOWNSTREAM(FEET) = 395.00
                                                                        FLOW LENGTH (FEET) = 1084.00 MANNING'S N = 0.013
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                                        DEPTH OF FLOW IN 57.0 INCH PIPE IS 45.2 INCHES
                                 Fp
     LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                        PIPE-FLOW VELOCITY (FEET/SEC.) = 18.82
 RESIDENTIAL
                                                                        ESTIMATED PIPE DIAMETER (INCH) = 57.00 NUMBER OF PIPES = 1
 "5-7 DWELLINGS/ACRE" D
                                    0.20 0.500 75
                           1.30
                                                                        PIPE-FLOW(CFS) = 283.74
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
                                                                        PIPE TRAVEL TIME (MIN.) = 0.96 Tc (MIN.) = 10.71
                                                                        LONGEST FLOWPATH FROM NODE 420.00 TO NODE 417.00 = 4643.00 FEET.
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.500
 SUBAREA AREA (ACRES) = 1.30 SUBAREA RUNOFF (CFS) = 3.46
                                                                       *******************
 EFFECTIVE AREA(ACRES) = 43.00 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.50
                                                                        FLOW PROCESS FROM NODE 417.00 TO NODE 417.00 IS CODE = 81
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420.00

420.00

MAINLINE Tc (MIN.) = 1					00.05
* 25 YEAR RAINFALL INT			3.135		C2-25
SUBAREA LOSS RATE DATA	(AMC II):				
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp	Ap	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
COMMERCIAL	С	1.70	0.25 0.20	0.100	69
COMMERCIAL	D	2.90	0.20	0.100	75
PUBLIC PARK	D	3.60	0.20	0.850	75
RESIDENTIAL	_				
"11+ DWELLINGS/ACRE"	C	4.50	0.25	0.200	69
RESIDENTIAL	_	4 50	0.00	0.000	5.5
"11+ DWELLINGS/ACRE"	D	4.50	0.20	0.200	75
RESIDENTIAL	_	0 10	0.00	0.000	5.5
'.4 DWELLING/ACRE"					/5
SUBAREA AVERAGE PERVIOU				.21	
SUBAREA AVERAGE PERVIOU					= 0
SUBAREA AREA (ACRES) =					
EFFECTIVE AREA(ACRES) =					= 0.10
AREA-AVERAGED Fp(INCH/H	ik) = 0.2	J AKEA-A	VERAGED Ap	= 0.43	216 25
TOTAL AREA (ACRES) =	121.3	PEAK	FLOW RATE (CFS) =	316.37
*******	. + + + + + + + + +	+++++++		++++++++	++++++++++
FLOW PROCESS FROM NODE				S CODE =	81
>>>>ADDITION OF SUBARE					
* 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA	(AMC II):				C2-25
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp	Ap	SCS
	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
RESIDENTIAL	_				
"8-10 DWELLINGS/ACRE"	С	0.80	0.25	0.400	69
RESIDENTIAL		0.00	0.00	0 400	5.5
			0.20	0 400	./ 5
					13
SUBAREA AVERAGE PERVIOL	JS LOSS RA	TE, Fp(IN	CH/HR) = 0		75
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU	JS LOSS RA' JS AREA FR	TE, Fp(ING ACTION, A	CH/HR) = 0 CH/HR) = 0	.24	
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) =	JS LOSS RA' JS AREA FRI 1.00	TE, Fp(ING ACTION, A _l SUBARE	CH/HR) = 0 p = 0.400 A RUNOFF(CF	.24 S) = 2.	73
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	JS LOSS RA' JS AREA FRI 1.00 = 116.6	TE, Fp(ING ACTION, A SUBARE 8 AREA-	CH/HR) = 0 c = 0.400 A RUNOFF(CF AVERAGED FM	.24 S) = 2. (INCH/HR)	73
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) = BFFECTIVE AREA(ACRES) = AREA-AVERAGED FP(INCH/F	JS LOSS RA' JS AREA FR 1.00 = 116.6 HR) = 0.2	TE, Fp(ING ACTION, Ap SUBARE 8 AREA-A 3 AREA-A	CH/HR) = 0 p = 0.400 A RUNOFF(CF AVERAGED Fm /ERAGED Ap	.24 S) = 2. (INCH/HR) = 0.43	73 = 0.10
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/F	JS LOSS RA' JS AREA FR 1.00 = 116.6 HR) = 0.2	TE, Fp(ING ACTION, Ap SUBARE 8 AREA-A 3 AREA-A	CH/HR) = 0 p = 0.400 A RUNOFF(CF AVERAGED Fm /ERAGED Ap	.24 S) = 2. (INCH/HR) = 0.43	73 = 0.10
SUBAREA AVERAGE PERVIOUSUBAREA AVERAGE PERVIOUSUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED FP(INCH/FIOTAL AREA(ACRES) =	JS LOSS RA JS AREA FR 1.00 = 116.66 HR) = 0.2 122.3	TE, Fp(ING ACTION, Ap SUBARE 8 AREA-A 3 AREA-A PEAK	CH/HR) = 0 D = 0.400 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(.24 S) = 2. (INCH/HR) = 0.43 CFS) =	73 = 0.10 319.10
SUBAREA AVERAGE PERVIOUSUBAREA AVERAGE PERVIOUSUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED FP(INCH/FIOTAL AREA(ACRES) =	JS LOSS RA JS AREA FR 1.00 = 116.66 HR) = 0.2 122.3	TE, Fp(ING ACTION, A) SUBARE 8 AREA-A 3 AREA-A PEAK	CH/HR) = 0 p = 0.400 A RUNOFF(CF AVERAGED FM VERAGED Ap FLOW RATE(.24 S) = 2. (INCH/HR) = 0.43 CFS) =	73 = 0.10 319.10 ******
SUBAREA AVERAGE PERVIOUS UBAREA AVERAGE PERVIOUS UBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/FOTAL AREA (ACRES) = FLOW PROCESS FROM NODE	JS LOSS RA JS AREA FR 1.00 = 116.66 HR) = 0.2 122.3	TE, Fp(INACTION, A) SUBAREA AREA-A AREA-A PEAK ********** TO NODE	CH/HR) = 0 D = 0.400 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(************************************	.24 S) = 2. (INCH/HR) = 0.43 CFS) = ************** S CODE =	73 = 0.10 319.10 ************************************
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED Fp (INCH/HTOTAL AREA (ACRES) = FLOW PROCESS FROM NODE	US LOSS RA' US AREA FR: 1.00 = 116.60 HR) = 0.2 122.3	TE, Fp(IN: ACTION, A; SUBARE; B AREA-; 3 AREA-A' PEAK ********* TO NODE	CH/HR) = 0 D = 0.400 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(************************************	.24 S) = 2. (INCH/HR) = 0.43 CFS) = ************ S CODE =	73 = 0.10 319.10 ************************************
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/FIOTAL AREA (ACRES) = FLOW PROCESS FROM NODE SYSSCOMPUTE PIPE-FLOW	US LOSS RA' US AREA FR: 1.00 = 116.6: IR) = 0.2: 122.3 ********* 417.00 TRAVEL TII	TE, Fp(INACTION, A) SUBAREJ 8 AREA-A 3 AREA-A PEAK ******** TO NODE ME THRU SI	CH/HR) = 0 p = 0.400 A RUNOFF(CF AVERAGED FM VERAGED Ap FLOW RATE(********* 430.00 I	.24 S) = 2. (INCH/HR) = 0.43 CFS) = ************ S CODE =	73 = 0.10 319.10 ************************************
SUBAREA AVERAGE PERVIOUS UBAREA AVERAGE PERVIOUS UBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/FOTAL AREA (ACRES) = FLOW PROCESS FROM NODE SYSSOMPUTER-EST	US LOSS RA' US AREA FR: 1.00 = 116.66 HR) = 0.2 122.3 ******** 417.00 TRAVEL TIL TIMATED PI	TE, Fp(INACTION, A) SUBAREJ 8 AREA-A 3 AREA-A PEAK ******* TO NODE ME THRU SI PESIZE (NO	CH/HR) = 0 p = 0.400 A RUNOFF(CF AVERAGED FM VERAGED Ap FLOW RATE(********* 430.00 I UBAREA<>>> CN-PRESSURE	.24 S) = 2. (INCH/HR) = 0.43 CFS) = ********* S CODE = 	73 = 0.10 319.10 ************************************
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/FIOTAL AREA (ACRES) = ***********************************	US LOSS RA' US AREA FR 1.00 = 116.6 IR) = 0.2 122.3 ******** 417.00 TRAVEL TIL	TE, Fp(IN: ACTION, AJ SUBARE; 8 AREA-; 3 AREA-A' PEAK ********* TO NODE ME THRU SI PESIZE (NO	CH/HR) = 0 D = 0.400 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(*********** 430.00 I UBAREA<	.24 S) = 2. (INCH/HR) = 0.43 CFS) = ******** S CODE = FLOW) <<<==================================	73 = 0.10 319.10 ************************************
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/FTOTAL AREA (ACRES) = ***********************************	US LOSS RA' US AREA FR. 1.00 = 116.6 IR) = 0.2 122.3 ******** 417.00 TRAVEL TII TIMATED PI	TE, Fp(IN: ACTION, A] SUBARE; 8 AREA-; 3 AREA-A' PEAK ******** TO NODE	CH/HR) = 0 D = 0.400 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(********* 430.00 I UBAREA< CN-PRESSURE DOWNSTREA	.24 S) = 2. (INCH/HR) = 0.43 CFS) = ******** S CODE = FLOW) <<<==================================	73 = 0.10 319.10 ************************************
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/FITOTAL AREA (ACRES) = ***********************************	US LOSS RA' US AREA FR: 1.00 = 116.6 HR) = 0.2 122.3 ********* 417.00 TRAVEL TII TIMATED PI:	TE, Fp(INA ACTION, A) SUBARE; 8 AREA-; 3 AREA-A' PEAK ******** TO NODE	CH/HR) = 0 0 = 0.400 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(********* 430.00 I JBAREA<<<< ON-PRESSURE DOWNSTREA N = 0.013	.24 S) = 2. (INCH/HR) = 0.43 CFS) = ******** S CODE = FLOW) <<<==================================	73 = 0.10 319.10 ************************************
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/FOTAL AREA (ACRES) = ***********************************	US LOSS RA' US AREA FR 1.00 = 116.6 IR) = 0.2 122.3 ******** TRAVEL TII TIMATED PI	TE, Fp(INA ACTION, A) SUBARE; 8 AREA-; 3 AREA-A' PEAK ******** ********* TO NODE ME THRU SI PESIZE (NO 395.00 ANNING'S I IS 48.4	CH/HR) = 0 0 = 0.400 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(********* 430.00 I JBAREA<<<< ON-PRESSURE DOWNSTREA N = 0.013	.24 S) = 2. (INCH/HR) = 0.43 CFS) = ******** S CODE = FLOW) <<<==================================	73 = 0.10 319.10 ************************************
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/FOTAL AREA (ACRES) = ***********************************	US LOSS RA' US AREA FR: 1.00 = 116.6 HR) = 0.2 122.3 ******** 417.00 TRAVEL TII TIMATED PI TIMATED	TE, Fp(INA ACTION, A) SUBARE, 8 AREA-A 3 AREA-A PEAK ******** ******** TO NODE ME THRU SI PESIZE (NO SUBARE, 395.00 ANNING'S NOTE IS 48.4 17.87	CH/HR) = 0 D = 0.400 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(********** 430.00 I JBAREA<<<< ON-PRESSURE DOWNSTREA N = 0.013 INCHES	.24 S) = 2. (INCH/HR) = 0.43 CFS) = ******** S CODE = FLOW) <<<< ======== M(FEET) =	73 = 0.10 319.10 ************************************
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/FOTAL AREA (ACRES) = ***********************************	US LOSS RA' US AREA FR: 1.00 = 116.6 HR) = 0.2 122.3 ******** ******** TRAVEL TII TIMATED PI:	TE, Fp(INA ACTION, A) SUBARE, 8 AREA-A 3 AREA-A PEAK ******** ******** TO NODE ME THRU SI PESIZE (NO SUBARE, 395.00 ANNING'S NOTE IS 48.4 17.87	CH/HR) = 0 D = 0.400 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(********** 430.00 I JBAREA<<<< ON-PRESSURE DOWNSTREA N = 0.013 INCHES	.24 S) = 2. (INCH/HR) = 0.43 CFS) = ******** S CODE = FLOW) <<<< ======== M(FEET) =	73 = 0.10 319.10 ************************************
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/FOTAL AREA (ACRES) = ***********************************	US LOSS RA' US AREA FR 1.00 = 116.6 IR) = 0.2 122.3 ******* 417.00 TRAVEL TII TRAVEL	TE, Fp(INACTION, A) SUBARE, 8 AREA-A 9 PEAK ******** TO NODE	CH/HR) = 0 D = 0.400 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(********** 430.00 I UBAREA<<<<< DN-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF	.24 S) = 2. (INCH/HR) = 0.43 CFS) = ******** S CODE = FLOW) <<<< ======= M(FEET) =	73 = 0.10 319.10 ************************************
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED FP (INCH/F FOTAL AREA (ACRES) = FLOW PROCESS FROM NODE	US LOSS RA' US AREA FR 1.00 = 116.6 IR) = 0.2 122.3 ******* 417.00 TRAVEL TII TRAVEL	TE, Fp(INACTION, A) SUBARE, 8 AREA-A 9 PEAK ******** TO NODE	CH/HR) = 0 D = 0.400 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(********** 430.00 I UBAREA<<<<< DN-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF	.24 S) = 2. (INCH/HR) = 0.43 CFS) = ******** S CODE = FLOW) <<<< ======= M(FEET) =	73 = 0.10 319.10 ************************************
>>>>COMPUTE PIPE-FLOW >>>> USING COMPUTER-EST	US LOSS RA' US AREA FR 1.00 = 116.6 IR) = 0.2 122.3 ******* 417.00 TRAVEL TII TRAVEL	TE, Fp(INACTION, A) SUBARE, 8 AREA-A 9 PEAK ******** TO NODE	CH/HR) = 0 D = 0.400 A RUNOFF(CF AVERAGED FM VERAGED AP FLOW RATE(********** 430.00 I UBAREA<<<<< DN-PRESSURE DOWNSTREA N = 0.013 INCHES NUMBER OF	.24 S) = 2. (INCH/HR) = 0.43 CFS) = ******** S CODE = FLOW) <<<< ======= M(FEET) =	73 = 0.10 319.10 ************************************

LONGEST FLOWPATH FROM NODE 420.00 TO NODE 430.00 = 6215.00 FEET. ****************** FLOW PROCESS FROM NODE 430.00 TO NODE 430.00 IS CODE = 81 ______ >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW< ______ MAINLINE Tc (MIN.) = 12.17C2-8 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.915 SUBAREA LOSS RATE DATA (AMC II): DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap GROUP (ACRES) (INCH/HR) (DECIMAL) CN LAND USE COMMERCIAL В 0.70 0.30 0.100 С 0.20 0.25 COMMERCIAL 0.100 69 COMMERCIAL D 0.40 0.20 0.100 7.5 PUBLIC PARK В 5.70 0.30 0.850 PUBLIC PARK С 4.50 0.25 0.850 69 PUBLIC PARK 9.40 0.20 0.850 75 D SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.803 SUBAREA AREA(ACRES) = 20.90 SUBAREA RUNOFF (CFS) = 51.20EFFECTIVE AREA(ACRES) = 137.58 AREA-AVERAGED Fm(INCH/HR) = 0.11 AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.48 TOTAL AREA (ACRES) = 143.2 PEAK FLOW RATE (CFS) = 347.24 ******************* FLOW PROCESS FROM NODE 430.00 TO NODE 430.00 IS CODE = 81 ______ >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>> _______ MAINLINE Tc (MIN.) = 12.17C2-26 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.915 SUBAREA LOSS RATE DATA (AMC II): DEVELOPMENT TYPE/ SCS SOIL AREA Fр SCS GROUP (ACRES) (INCH/HR) (DECIMAL) CN LAND USE PUBLIC PARK A 0.70 0.40 0.850 32 В 8.90 0.30 0.850 56 PUBLIC PARK PUBLIC PARK С 1.20 0.25 0.850 69 PUBLIC PARK D 3.70 0.20 0.850 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.28 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.850 SUBAREA AREA(ACRES) = 14.50 SUBAREA RUNOFF (CFS) = 34.99EFFECTIVE AREA(ACRES) = 152.08 AREA-AVERAGED Fm(INCH/HR) = 0.12 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.52 TOTAL AREA (ACRES) = 157.7 PEAK FLOW RATE(CFS) = 382.23 ****************** FLOW PROCESS FROM NODE 430.00 TO NODE 430.00 IS CODE = 11 >>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY _____ ** MAIN STREAM CONFLUENCE DATA ** Tc Intensity Fp(Fm) Ap Ae HEADWATER STREAM Q NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE 382.23 12.17 2.915 0.24(0.12) 0.52 152.1 410.00 2 370.52 13.64 2.733 0.24(0.12) 0.52 157.7 420.00 LONGEST FLOWPATH FROM NODE 420.00 TO NODE 430.00 = 6215.00 FEET.

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** MEMORY DAMY # 2 CONFIDENCE DAMA **	EFFECTIVE AREA (ACRES) = 459.68 AREA-AVERAGED Fm (INCH/HR) = 0.11
** MEMORY BANK # 2 CONFLUENCE DATA ** STREAM Q TC Intensity Fp(Fm) Ap Ae HEADWATER	AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.45 TOTAL AREA(ACRES) = 461.6 PEAK FLOW RATE(CFS) = 905.13
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE 1 530.64 17.96 2.339 0.24 (0.11) 0.45 260.7 400.00	** PEAK FLOW RATE TABLE **
2 494.25 20.44 2.174 0.24 (0.11) 0.45 262.6 430.00	STREAM Q To Intensity Fp(Fm) Ap Ae HEADWATER
LONGEST FLOWPATH FROM NODE 400.00 TO NODE 430.00 = 9709.00 FEET.	NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
EONGEST FEOWERIN FROM NODE 400.00 TO NODE 450.00 - 9709.00 FEET.	1 908.55 12.78 2.836 0.24(0.11) 0.45 370.0 410.00
** PEAK FLOW RATE TABLE **	2 914.19 14.25 2.666 0.24 (0.11) 0.45 397.0 420.00
STREAM Q To Intensity Fp(Fm) Ap Ae HEADWATER	3 905.13 18.57 2.295 0.24(0.11) 0.45 459.7 400.00
NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE	4 843.14 21.06 2.137 0.24(0.11) 0.45 461.6 430.00
1 834.64 12.17 2.915 0.24 (0.11) 0.48 328.7 410.00	NEW PEAK FLOW DATA ARE:
2 844.68 13.64 2.733 0.24(0.11) 0.48 355.7 420.00	PEAK FLOW RATE(CFS) = 914.19 Tc(MIN.) = 14.25
3 845.23 17.96 2.339 0.24(0.11) 0.48 418.4 400.00	AREA-AVERAGED Fm(INCH/HR) = 0.11 AREA-AVERAGED Fp(INCH/HR) = 0.24
4 785.44 20.44 2.174 0.24(0.11) 0.48 420.3 430.00	AREA-AVERAGED Ap = 0.45 EFFECTIVE AREA(ACRES) = 396.98
TOTAL AREA (ACRES) = 420.3	

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS: PEAK FLOW RATE(CFS) = 845.23 Tc(MIN.) = 17.962	FLOW PROCESS FROM NODE 431.00 TO NODE 431.00 IS CODE = 81
EFFECTIVE AREA(ACRES) = 418.38 AREA-AVERAGED Fm(INCH/HR) = 0.11	>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.48	
TOTAL AREA (ACRES) = 420.3	MAINLINE TC(MIN.) = 14.25 * 25 YEAR DAINFALL INTENSITY (INCH/HR) = 2.666 C2-27
LONGEST FLOWPATH FROM NODE 400.00 TO NODE 430.00 = 9709.00 FEET.	* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.666
	SUBAREA LOSS RATE DATA (AMC II):
******************	DEVELOPMENT TYPE/ SCS SOIL AREA FP AP SCS
FLOW PROCESS FROM NODE 430.00 TO NODE 431.00 IS CODE = 31	LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
	COMMERCIAL C 0.50 0.25 0.100 69 COMMERCIAL D 0.40 0.20 0.100 75
>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<>>> >>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) >>>>	SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
	SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.100
ELEVATION DATA: UPSTREAM(FEET) = 372.00 DOWNSTREAM(FEET) = 300.00	SUBAREA AREA (ACRES) = 0.90 SUBAREA RUNOFF (CFS) = 2.14
FLOW LENGTH (FEET) = 1358.00 MANNING'S N = 0.013	EFFECTIVE AREA(ACRES) = 397.88 AREA-AVERAGED Fm(INCH/HR) = 0.11
DEPTH OF FLOW IN 72.0 INCH PIPE IS 54.1 INCHES	AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.45
PIPE-FLOW VELOCITY(FEET/SEC.) = 37.09	TOTAL AREA (ACRES) = 462.5 PEAK FLOW RATE (CFS) = 916.34
ESTIMATED PIPE DIAMETER (INCH) = 72.00 NUMBER OF PIPES = 1	
PIPE-FLOW(CFS) = 845.23	******************
PIPE TRAVEL TIME (MIN.) = 0.61 Tc (MIN.) = 18.57	FLOW PROCESS FROM NODE 431.00 TO NODE 331.00 IS CODE = 11
LONGEST FLOWPATH FROM NODE 400.00 TO NODE 431.00 = 11067.00 FEET.	
****************	>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY
FI.OW PROCESS FROM NODE 431.00 TO NODE 431.00 IS CODE = 81	
110W 1NOCESS FROM NODE 431.00 10 NODE 431.00 13 CODE - 01	** MAIN STREAM CONFLUENCE DATA **
>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<	STREAM Q TC Intensity Fp(Fm) Ap Ae HEADWATER
	NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
MAINLINE TC(MIN.) = 18.57	1 910.83 12.78 2.836 0.24(0.11) 0.45 370.9 410.00
* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.295 C2-27	2 916.34 14.25 2.666 0.24(0.11) 0.45 397.9 420.00
SUBAREA LOSS RATE DATA (AMC II):	3 906.97 18.57 2.295 0.24(0.11) 0.45 460.6 400.00
DEVELOPMENT TYPE/ SCS SOIL AREA FP AP SCS	4 844.85 21.06 2.137 0.24(0.11) 0.45 462.5 430.00
LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN	LONGEST FLOWPATH FROM NODE 400.00 TO NODE 331.00 = 11067.00 FEET.
APARTMENTS A 7.40 0.40 0.200 32	AA MEMORY DAWY # 1 CONTENTION TO THE !!
APARTMENTS B 15.00 0.30 0.200 56	** MEMORY BANK # 1 CONFLUENCE DATA **
APARTMENTS C 5.80 0.25 0.200 69 APARTMENTS D 2.50 0.20 0.200 75	STREAM Q TC Intensity Fp(Fm) Ap Ae HEADWATER
	NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
	1 1/1// 03 19 15 2 226 0 227 0 000 0 70 7 210 00
COMMERCIAL A 9.10 0.40 0.100 32	1 1414.03 18.15 2.326 0.23(0.09) 0.40 703.7 310.00 2 1447.83 21.75 2.099 0.23(0.09) 0.40 802.3 300.00
COMMERCIAL A 9.10 0.40 0.100 32 COMMERCIAL B 1.50 0.30 0.100 56	2 1447.83 21.75 2.099 0.23(0.09) 0.40 802.3 300.00
COMMERCIAL A 9.10 0.40 0.100 32 COMMERCIAL B 1.50 0.30 0.100 56 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.32	2 1447.83 21.75 2.099 0.23(0.09) 0.40 802.3 300.00 3 1448.20 21.86 2.093 0.23(0.09) 0.40 805.0 320.00
COMMERCIAL A 9.10 0.40 0.100 32 COMMERCIAL B 1.50 0.30 0.100 56 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.32 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.174	2 1447.83 21.75 2.099 0.23(0.09) 0.40 802.3 300.00 3 1448.20 21.86 2.093 0.23(0.09) 0.40 805.0 320.00 4 1294.20 27.69 1.831 0.23(0.10) 0.42 829.8 390.00
COMMERCIAL A 9.10 0.40 0.100 32 COMMERCIAL B 1.50 0.30 0.100 56 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.32 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.174	2 1447.83 21.75 2.099 0.23(0.09) 0.40 802.3 300.00 3 1448.20 21.86 2.093 0.23(0.09) 0.40 805.0 320.00 4 1294.20 27.69 1.831 0.23(0.10) 0.42 829.8 390.00

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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
       2134.53 12.78 2.836 0.24(0.10) 0.42 866.7 410.00
  2 2196.43 14.25 2.666 0.24(0.10) 0.42
                                         950.6 420.00
  3 2321.93 18.15 2.326 0.24(0.10) 0.42
                                         1158.1
                                                 310.00
     2325.00 18.57 2.295 0.24(0.10) 0.42
                                         1176.0
                                                 400.00
     2286.24 21.06 2.137 0.24(0.10) 0.42
                                         1246.1
                                                 430.00
  6 2276.67 21.75 2.099 0.24(0.10) 0.42
                                         1264.8
                                                 300.00
       2274.47 21.86 2.093 0.24(0.10) 0.42
                                         1267.5
                                                 320.00
  8
       2011.41 27.69 1.831 0.24(0.10) 0.43
                                         1292.3
                                                 390.00
 TOTAL AREA(ACRES) = 1292.3
```

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:

PEAK FLOW RATE (CFS) = 2325.00 Tc (MIN.) = 18.572

EFFECTIVE AREA(ACRES) = 1175.98 AREA-AVERAGED Fm(INCH/HR) = 0.10

AREA-AVERAGED Fp (INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.42

TOTAL AREA(ACRES) = 1292.3

LONGEST FLOWPATH FROM NODE 390.00 TO NODE 331.00 = 13248.00 FEET.

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 1292.3 TC(MIN.) = 18.57

EFFECTIVE AREA(ACRES) = 1175.98 AREA-AVERAGED Fm(INCH/HR) = 0.10

AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.419

PEAK FLOW RATE(CFS) = 2325.00

** PEAK FLOW RATE TABLE **

	STREAM	Q	Tc	Intensity	Fp(Fm)	Аp	Ae	HEADWATER
	NUMBER	(CFS)	(MIN.)	(INCH/HR)	(INCH/HR)		(ACRES)	NODE
	1	2134.53	12.78	2.836	0.24(0.10)	0.42	866.7	410.00
	2	2196.43	14.25	2.666	0.24(0.10)	0.42	950.6	420.00
	3	2321.93	18.15	2.326	0.24(0.10)	0.42	1158.1	310.00
	4	2325.00	18.57	2.295	0.24(0.10)	0.42	1176.0	400.00
	5	2286.24	21.06	2.137	0.24(0.10)	0.42	1246.1	430.00
	6	2276.67	21.75	2.099	0.24(0.10)	0.42	1264.8	300.00
	7	2274.47	21.86	2.093	0.24(0.10)	0.42	1267.5	320.00
	8	2011.41	27.69	1.831	0.24(0.10)	0.43	1292.3	390.00
==	=======		======			=====	=======	========

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:

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* RMV PA-3 BODR 2022 - SUBWATERSHED O * RATIONAL METHOD HYDROLOGY MODEL LOCAL * 100-YR HC APRIL 2022 CPHAN FILE NAME: PA3000HC.DAT TIME/DATE OF STUDY: 17:02 04/29/2022 ______ USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION: _____ --*TIME-OF-CONCENTRATION MODEL*--USER SPECIFIED STORM EVENT (YEAR) = 100.00 SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00 SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.90 *DATA BANK RAINFALL USED* *ANTECEDENT MOISTURE CONDITION (AMC) III 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) 1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150 2 32.0 27.0 0.020/0.020/ ---0.67 2.00 0.0312 0.167 0.0150 3 13.0 8.0 0.020/0.020/ ---0.33 1.00 0.0312 0.125 0.0150 GLOBAL STREET FLOW-DEPTH CONSTRAINTS: 1. Relative Flow-Depth = 1.00 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 600.00 TO NODE 601.00 IS CODE = 21 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS< >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<< ______ INITIAL SUBAREA FLOW-LENGTH (FEET) = 322.00 ELEVATION DATA: UPSTREAM(FEET) = 695.00 DOWNSTREAM(FEET) = 635.00

```
Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
                                                      \Omega-1
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.951
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.171
 SUBAREA To AND LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                                    SCS Tc
     LAND USE
                     GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
 "OPEN BRUSH"
                              0.80 0.25 1.000
                                                        9.95
                      C
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 2.82
 TOTAL AREA (ACRES) = 0.80 PEAK FLOW RATE (CFS) =
*************************
 FLOW PROCESS FROM NODE 601.00 TO NODE 602.00 IS CODE = 51
______
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <
______
 ELEVATION DATA: UPSTREAM(FEET) = 635.00 DOWNSTREAM(FEET) = 585.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 352.00 CHANNEL SLOPE = 0.1420
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 30.00
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.963
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/
                  SCS SOIL AREA
                                     Fρ
     LAND USE
                     GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 NATURAL FAIR COVER
                            2.90
 "OPEN BRUSH"
                                   0.25
                                           1.000
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.32
 AVERAGE FLOW DEPTH (FEET) = 0.64 TRAVEL TIME (MIN.) = 0.93
 Tc(MIN.) = 10.88
 SUBAREA AREA(ACRES) = 2.90
                               SUBAREA RUNOFF (CFS) = 9.69
 EFFECTIVE AREA (ACRES) = 3.70 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 3.7 PEAK FLOW RATE (CFS) =
                                                      12.36
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 0.76 FLOW VELOCITY(FEET/SEC.) = 7.13
 LONGEST FLOWPATH FROM NODE 600.00 TO NODE 602.00 =
*****************
 FLOW PROCESS FROM NODE 602.00 TO NODE 603.00 IS CODE = 51
______
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <
______
 ELEVATION DATA: UPSTREAM(FEET) = 585.00 DOWNSTREAM(FEET) = 515.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 872.00 CHANNEL SLOPE = 0.0803
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 30.00
                                                   O-3
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.605
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                    SCS
```

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		(20000)	(======================================	(55651455)	~
LAND USE NATURAL FAIR COVER	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
"OPEN BRUSH"	С	14.80	0.25	1.000	92
RESIDENTIAL					
".4 DWELLING/ACRE"					86
SUBAREA AVERAGE PERVIOUS				.25	
SUBAREA AVERAGE PERVIOUS TRAVEL TIME COMPUTED US:				35 05	
TRAVEL TIME THRU SUBAREA					
AVERAGE FLOW DEPTH (FEET) Tc (MIN.) = 12.84) = 1.2	5 TRAVE	L TIME (MIN.) = 1.96	
SUBAREA AREA(ACRES) =	15.00	SUBA	REA RUNOFF(CFS) = 4	5.29
EFFECTIVE AREA (ACRES) =	18.7	0 ARE	A-AVERAGED	Fm (INCH/HR) = 0.25
AREA-AVERAGED Fp(INCH/HI TOTAL AREA(ACRES) =	R) = 0. 187	25 AREA-	AVERAGED AP AK FIOM DAT) = 1.00 F(CES) =	56 46
IOIAL AREA (ACRES) -	10.7	F E.	AN FLOW NAI	E(CF3) -	30.40
END OF SUBAREA CHANNEL I DEPTH(FEET) = 1.50 F) LONGEST FLOWPATH FROM NO ***********************************	LOW VELOC	ITY (FEET/	ODE 603.	00 = 15	*****
>>>>COMPUTE TRAPEZOIDA					
>>>>TRAVELTIME THRU SUI					
CHANNEL LENGTH THRU SUBA CHANNEL BASE (FEET) =	0.00 "	Z" FACTOR	= 3.000	IEL SLOPE -	0.0019
MANNING'S FACTOR = 0.040 * 100 YEAR RAINFALL INTI SUBAREA LOSS RATE DATA(i DEVELOPMENT TYPE/ LAND USE	ENSITY(IN AMC III): SCS SOII	ICH/HR) =	FEET) = 30 3.405 Fp	.00 Ap	SCS
* 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(A DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER	ENSITY(IN AMC III): SCS SOII GROUP	CH/HR) = AREA (ACRES)	FEET) = 30 3.405 Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
* 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(A DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	ENSITY(IN AMC III): SCS SOII GROUP C	CH/HR) = AREA (ACRES)	FEET) = 30 3.405 Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
* 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(A DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	ENSITY(IN AMC III): SCS SOII GROUP C	CH/HR) = AREA (ACRES) 0.10	FEET) = 30 3.405 Fp (INCH/HR) 0.25	Ap (DECIMAL)	SCS CN 91
* 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(A DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH"	ENSITY(IN AMC III): SCS SOII GROUP C	CH/HR) = AREA (ACRES) 0.10	FEET) = 30 3.405 Fp (INCH/HR) 0.25	Ap (DECIMAL)	SCS CN 91
* 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(A DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL	ENSITY(IN AMC III): SCS SOII GROUP C	CH/HR) = AREA (ACRES) 0.10 11.70	FEET) = 30 3.405 Fp (INCH/HR) 0.25 0.25	Ap (DECIMAL) 1.000	SCS CN 91 92
* 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA(A DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH"	ENSITY(IN AMC III): SCS SOII GROUP C C C	CCH/HR) = AREA (ACRES) 0.10 11.70 1.90	FEET) = 30 3.405 Fp (INCH/HR) 0.25 0.25	Ap (DECIMAL) 1.000 1.000 0.900	SCS CN 91 92
* 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA (A DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS	ENSITY(IN AMC III): SCS SOII GROUP C C C C S LOSS RA S AREA FF	CH/HR) = AREA (ACRES) 0.10 11.70 1.90 TE, Fp(IN: ACTION, A	FEET) = 30 3.405 Fp (INCH/HR) 0.25 0.25 CH/HR) = 0 0 = 0.986	Ap (DECIMAL) 1.000 1.000 0.900	SCS CN 91 92
* 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA (A DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS TRAVEL TIME COMPUTED US:	ENSITY(IN AMC III): SCS SOII GROUP C C C S LOSS RA S AREA FF ING ESTIM	CH/HR) = AREA (ACRES) 0.10 11.70 1.90 ATE, Fp(IN: ACTION, A: ATED FLOW	FEET) = 30 3.405 Fp (INCH/HR) 0.25 0.25 0.25 CH/HR) = 0 p = 0.986 (CFS) =	Ap (DECIMAL) 1.000 1.000 0.900 25 75.94	SCS CN 91 92
* 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA (A DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS TRAVEL TIME COMPUTED US:	ENSITY(IN AMC III): SCS SOII GROUP C C C S LOSS RA S AREA FF ING ESTIM A BASED C	CH/HR) = AREA (ACRES) 0.10 11.70 1.90 ATE, FP(IN: ACTION, A: ATED FLOW IN VELOCIT	FEET) = 30 3.405 Fp (INCH/HR) 0.25 0.25 CH/HR) = 0 9 = 0.986 (CFS) = Y (FEET/SEC.	Ap (DECIMAL) 1.000 1.000 0.900 1.25 75.94 9.10	SCS CN 91 92 86
* 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA (A DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ". 4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS TRAVEL TIME COMPUTED US: TRAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH (FEET)	ENSITY(IN AMC III): SCS SOII GROUP C C C S LOSS RA S AREA FF ING ESTIM A BASED C	CH/HR) = AREA (ACRES) 0.10 11.70 1.90 ATE, FP(IN: ACTION, A: ATED FLOW IN VELOCIT	FEET) = 30 3.405 Fp (INCH/HR) 0.25 0.25 CH/HR) = 0 9 = 0.986 (CFS) = Y (FEET/SEC.	Ap (DECIMAL) 1.000 1.000 0.900 1.25 75.94 9.10	SCS CN 91 92 86
* 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA (A DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS TRAVEL TIME COMPUTED UST TRAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH (FEET) TC (MIN.) = 14.18	ENSITY(IN AMC III): SCS SOII GROUP C C C S LOSS RA S AREA FA SING ESTIM A BASED C) = 1.6	CCH/HR) = AREA (ACRES) 0.10 11.70 1.90 TE, Fp(INICACTION, AGIATED FLOW N VELOCIT 7 TRAVE	FEET) = 30 3.405 Fp (INCH/HR) 0.25 0.25 CH/HR) = 0 0 = 0.986 (CFS) = Y (FEET/SEC. L TIME (MIN.	Ap (DECIMAL) 1.000 1.000 0.900 2.25 75.94) = 9.10) = 1.34	SCS CN 91 92 86
* 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA (A DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS TRAVEL TIME COMPUTED USS TRAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH (FEET) TC (MIN.) = 14.18 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) =	ENSITY(IN AMC III): SCS SOII GROUP C C C C S LOSS RA S AREA FF ING ESTIM A BASED C 13.70 32.4	CCH/HR) = AREA (ACRES) 0.10 11.70 1.90 TE, Fp(IN: ACTION, A: (ATED FLOW N VELOCIT' 7 TRAVE: SUBA: 0 ARE	FEET) = 30 3.405 Fp (INCH/HR) 0.25 0.25 CH/HR) = 0 0 = 0.986 (CFS) = Y (FEET/SEC. L TIME (MIN. REA RUNOFF (A-AVERAGED)	Ap (DECIMAL) 1.000 1.000 0.900 2.25 75.94) = 9.10) = 1.34 CFS) = 33 Fm(INCH/HR	SCS CN 91 92 86
* 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA (A DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS TRAVEL TIME COMPUTED USS TRAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH (FEET) TC (MIN.) = 14.18 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) =	ENSITY(IN AMC III): SCS SOII GROUP C C C C S LOSS RA S AREA FF ING ESTIM A BASED C 13.70 32.4	CCH/HR) = AREA (ACRES) 0.10 11.70 1.90 TE, Fp(IN: ACTION, A: (ATED FLOW N VELOCIT' 7 TRAVE: SUBA: 0 ARE	FEET) = 30 3.405 Fp (INCH/HR) 0.25 0.25 CH/HR) = 0 0 = 0.986 (CFS) = Y (FEET/SEC. L TIME (MIN. REA RUNOFF (A-AVERAGED)	Ap (DECIMAL) 1.000 1.000 0.900 2.25 75.94) = 9.10) = 1.34 CFS) = 33 Fm(INCH/HR	SCS CN 91 92 86
* 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA (A DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS TRAVEL TIME COMPUTED UST TRAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH (FEET) TC (MIN.) = 14.18	ENSITY(IN AMC III): SCS SOII GROUP C C C C S LOSS RA S AREA FF ING ESTIM A BASED C 13.70 32.4	CCH/HR) = AREA (ACRES) 0.10 11.70 1.90 TE, Fp(IN: ACTION, A: (ATED FLOW N VELOCIT' 7 TRAVE: SUBA: 0 ARE	FEET) = 30 3.405 Fp (INCH/HR) 0.25 0.25 CH/HR) = 0 0 = 0.986 (CFS) = Y (FEET/SEC. L TIME (MIN. REA RUNOFF (A-AVERAGED)	Ap (DECIMAL) 1.000 1.000 0.900 2.25 75.94) = 9.10) = 1.34 CFS) = 33 Fm(INCH/HR	SCS CN 91 92 86
* 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA (A DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS TRAVEL TIME COMPUTED USS TRAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH (FEET) TC (MIN.) = 14.18 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) =	ENSITY(IN AMC III): SCS SOII GROUP C C C S LOSS RA S AREA FF ING ESTIM A BASED C) = 1.6 13.70 32.4 R) = 0. 32.4 FLOW HYDE LOW VELOC	CH/HR) = AREA (ACRES) 0.10 11.70 1.90 TE, Fp(IN: ACTION, A: HATED FLOW IN VELOCIT TRAVE: SUBA: 0 ARE. 25 AREA PE. AULICS:	FEET) = 30 3.405 Fp (INCH/HR) 0.25 0.25 CH/HR) = 0 0 = 0.986 (CFS) = Y(FEET/SEC. L TIME (MIN. REA RUNOFF(A-AVERAGED APAK FLOW RAT	Ap (DECIMAL) 1.000 1.000 0.900 2.25 75.94) = 9.10) = 1.34 CFS) = 36 Fm(INCH/HR 0 = 0.99 FE(CFS) =	SCS CN 91 92 86 8.94 9 0.25
* 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA (A DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS TRAVEL TIME COMPUTED US: TRAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH (FEET) TC (MIN.) = 14.18 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/HI TOTAL AREA (ACRES) =	ENSITY(IN AMC III): SCS SOII GROUP C C C S LOSS RA S AREA FF ING ESTIM A BASED C) = 1.6 13.70 32.4 R) = 0. 32.4 FLOW HYDE LOW VELOC	CH/HR) = AREA (ACRES) 0.10 11.70 1.90 TE, FP(IN: ACTION, A: ATED FLOW N VELOCIT TRAVE SUBA: 0 ARE. 25 AREA PE. AULICS: LITY(FEET/: 0.00 TO N	FEET) = 30 3.405 Fp (INCH/HR) 0.25 0.25 0.25 CH/HR) = 0 0 = 0.986 (CFS) = Y(FEET/SEC. L TIME (MIN. REA RUNOFF(A-AVERAGED AP AVERAGED AP AK FLOW RAT SEC.) = 9 DDE 604.	Ap (DECIMAL) 1.000 1.000 0.900 2.25 75.94) = 9.10) = 1.34 CFS) = 33 Fm(INCH/HR 0 = 0.99 EC(FS) =	SCS CN 91 92 86 8.94 9 = 0.25 92.05
* 100 YEAR RAINFALL INTE SUBAREA LOSS RATE DATA (A DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS TRAVEL TIME COMPUTED US: TRAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH (FEET) TC (MIN.) = 14.18 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/HI TOTAL AREA (ACRES) =	ENSITY(IN AMC III): SCS SOII GROUP C C C S LOSS RA S AREA FF ING ESTIM A BASED C) = 1.6 13.70 32.4 R) = 0. 32.4 FLOW HYDF LOW VELOC DDE 60 ************************************	CH/HR) = AREA (ACRES) 0.10 11.70 1.90 TE, FP(IN. ACTION, A: ATED FLOW IN VELOCIT TRAVE 25 AREA PE AULICS: AUL	FEET) = 30 3.405 Fp (INCH/HR) 0.25 0.25 0.25 CH/HR) = 0 9 = 0.986 (CFS) = Y(FEET/SEC. L TIME (MIN. REA RUNOFF (A-AVERAGED AVERAGED AVERA	Ap (DECIMAL) 1.000 1.000 0.900 25 75.94) = 9.10) = 1.34 CFS) = 33 Fm(INCH/HR 0 = 0.99 E(CFS) = 0.51 00 = 22 *********************************	SCS CN 91 92 86 8.94 9 0.25 92.05

```
>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 455.00 DOWNSTREAM(FEET) = 325.00
 FLOW LENGTH (FEET) = 2571.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 33.0 INCH PIPE IS 22.7 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 21.18
 ESTIMATED PIPE DIAMETER (INCH) = 33.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 92.05
 PIPE TRAVEL TIME (MIN.) = 2.02 Tc (MIN.) = 16.20
 LONGEST FLOWPATH FROM NODE 600.00 TO NODE 605.00 = 4850.00 FEET.
******************
 FLOW PROCESS FROM NODE 605.00 TO NODE 605.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc (MIN.) = 16.20
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.154
 SUBAREA LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp
                                                 SCS
                                          Ap
    LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 NATURAL FAIR COVER
 "WOODLAND, GRASS"
                   A 0.10 0.40 1.000
 NATURAL FAIR COVER
 "OPEN BRUSH"
                   в 0.30
                                    0.30
                                          1.000
                                                  84
 RESIDENTIAL
 ".4 DWELLING/ACRE" B 2.30
                                    0.30
                                           0.900
                                                  76
 NATURAL FAIR COVER
                     B 0.60
 "WOODLAND, GRASS"
                                    0.30
                                          1.000
                                                  83
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF" C 1.00
                                    0.25 1.000
 NATURAL FAIR COVER
 "OPEN BRUSH"
                            8.20
                                    0.25 1.000 92
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.982
 SUBAREA AREA(ACRES) = 12.50
                           SUBAREA RUNOFF (CFS) = 32.58
 EFFECTIVE AREA(ACRES) = 44.90 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 44.9
                             PEAK FLOW RATE (CFS) = 117.32
***********************
 FLOW PROCESS FROM NODE 605.00 TO NODE 605.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
_____
 MAINLINE Tc(MIN.) = 16.20
                                                   O-5
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.154
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA Fp
    LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 RESIDENTIAL
 ".4 DWELLING/ACRE" C 6.20 0.25 0.900 86
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.900
 SUBAREA AREA (ACRES) = 6.20 SUBAREA RUNOFF (CFS) = 16.35
 EFFECTIVE AREA(ACRES) = 51.10 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.98
```

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TOTAL AREA (ACRES) = 51.1 PEAK FLOW RATE (CFS) = 133.66

END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 51.1 TC (MIN.) = 16.20

EFFECTIVE AREA(ACRES) = 51.10 AREA-AVERAGED Fm(INCH/HR) = 0.25

AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.979

PEAK FLOW RATE(CFS) = 133.66

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:

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
TIME-OF-CONCENTRATION MODEL
USER SPECIFIED STORM EVENT(YEAR) = 25.00 SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00 SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90 *DATA BANK RAINFALL USED* *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) (n)
1 30.0 20.0 0.018/0.018/0.020 0.67 2.00 0.0313 0.167 0.0150 2 32.0 27.0 0.020/0.020/ 0.67 2.00 0.0312 0.167 0.0150 3 13.0 8.0 0.020/0.020/ 0.33 1.00 0.0312 0.125 0.0150
GLOBAL STREET FLOW-DEPTH CONSTRAINTS: 1. Relative Flow-Depth = 1.00 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

>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<

```
Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
                                                     \Omega-1
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.951
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.267
 SUBAREA To AND LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                                 SCS Tc
     LAND USE
             GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
              C 0.80 0.25 1.000 77 9.95
 "OPEN BRUSH"
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF (CFS) = 2.17
 TOTAL AREA (ACRES) = 0.80 PEAK FLOW RATE (CFS) =
***********************
 FLOW PROCESS FROM NODE 601.00 TO NODE 602.00 IS CODE = 51
______
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <
______
 ELEVATION DATA: UPSTREAM(FEET) = 635.00 DOWNSTREAM(FEET) = 585.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 352.00 CHANNEL SLOPE = 0.1420
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 30.00
                                                    0-2
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.096
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                 Fρ
     LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 NATURAL FAIR COVER
                   C 2.90 0.25 1.000 77
 "OPEN BRUSH"
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.90
 AVERAGE FLOW DEPTH (FEET) = 0.58 TRAVEL TIME (MIN.) = 0.99
 Tc(MIN.) = 10.95
 SUBAREA AREA(ACRES) = 2.90
                             SUBAREA RUNOFF (CFS) = 7.43
 EFFECTIVE AREA (ACRES) = 3.70 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 3.7 PEAK FLOW RATE (CFS) =
                                                     9.48
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 0.69 FLOW VELOCITY(FEET/SEC.) = 6.64
 LONGEST FLOWPATH FROM NODE 600.00 TO NODE 602.00 =
******************
 FLOW PROCESS FROM NODE 602.00 TO NODE 603.00 IS CODE = 51
______
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <
______
 ELEVATION DATA: UPSTREAM(FEET) = 585.00 DOWNSTREAM(FEET) = 515.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 872.00 CHANNEL SLOPE = 0.0803
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 30.00
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.804
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                 Fp Ap
                                                  SCS
```

Date: 05/09/2023 File name: PA3O25HC.RES

Page 2

	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
NATURAL FAIR COVER	_				
"OPEN BRUSH"	С	14.80	0.25	1.000	77
RESIDENTIAL ".4 DWELLING/ACRE"	C	0.20	0.25	0 900	69
SUBAREA AVERAGE PERVIOU					0,5
SUBAREA AVERAGE PERVIOU				•20	
TRAVEL TIME COMPUTED US			-	26.75	
TRAVEL TIME THRU SUBARE	A BASED C	N VELOCIT	Y(FEET/SEC.) = 6.96	
AVERAGE FLOW DEPTH (FEET) = 1.1	.3 TRAVE	L TIME (MIN.) = 2.09	
Tc(MIN.) = 13.04					
SUBAREA AREA(ACRES) =	15.00	SUBA	REA RUNOFF((CFS) = 3	4.49
EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/H	18.7	O ARE.	A-AVERAGED	Fm(INCH/HR) = 0.25
TOTAL AREA (ACRES) =					
IOIAL AREA (ACRES) -	10.7	F E.	AN PLOW NAI	E(CF3) -	43.00
END OF SUBAREA CHANNEL	FLOW HYDE	RAULICS:			
DEPTH(FEET) = 1.35 F			SEC.) = 7	.83	
LONGEST FLOWPATH FROM N					46.00 FEET.

FLOW PROCESS FROM NODE					51
>>>>COMPUTE TRAPEZOIDA					
>>>>TRAVELTIME THRU SU					
======================================	,		,		========
ELEVATION DATA: UPSTREA	M(FEET) =	515.0	0 DOWNSTRE	AM(FEET) =	455.00
CHANNEL LENGTH THRU SUB	AREA (FEET	733	.00 CHANN	IEL SLOPE =	0.0819
CHANNEL BASE (FEET) =	0.00 "	Z" FACTOR	= 3.000		
MANNING'S FACTOR = 0.04	0 MAXIM	MIM DEPTH (EEEul) = 30		
				.00	\bigcirc 1
* 25 YEAR RAINFALL INT	ENSITY(IN	ICH/HR) =		.00	O-4
SUBAREA LOSS RATE DATA(ENSITY(IN AMC II):	ICH/HR) =	2.643		
SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/	ENSITY(IN AMC II): SCS SOII	ICH/HR) =	2.643 Fp	Ар	SCS
SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE	ENSITY(IN AMC II): SCS SOII	ICH/HR) =	2.643	Ар	SCS
SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER	ENSITY(IN AMC II): SCS SOII GROUP	ICH/HR) = AREA (ACRES)	2.643 Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	ENSITY(IN AMC II): SCS SOII GROUP	ICH/HR) = AREA (ACRES)	2.643 Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER	ENSITY(IN AMC II): SCS SOII GROUP C	AREA (ACRES)	2.643 Fp (INCH/HR)	Ap (DECIMAL)	scs CN 75
SUBAREA LOSS RATE DATA(DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL	ENSITY(IN AMC II): SCS SOII GROUP C	AREA (ACRES) 0.10 11.70	Fp (INCH/HR) 0.25 0.25	Ap (DECIMAL) 1.000 1.000	SCS CN 75
SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE"	ENSITY(IN AMC II): SCS SOII GROUP C C C	ICH/HR) = AREA (ACRES) 0.10 11.70 1.90	2.643 Fp (INCH/HR) 0.25 0.25 0.25	Ap (DECIMAL) 1.000 1.000 0.900	SCS CN 75
SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU	ENSITY(IN AMC II): SCS SOII GROUP C C C C S LOSS RA	CH/HR) = AREA (ACRES) 0.10 11.70 1.90 ATE, Fp(IN	2.643 Fp (INCH/HR) 0.25 0.25 0.25 CH/HR) = 0	Ap (DECIMAL) 1.000 1.000 0.900	SCS CN 75
SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU	ENSITY(IN AMC II): SCS SOII GROUP C C C C S LOSS RA S AREA FF	AREA (ACRES) 0.10 11.70 1.90 ATE, FP(IN RACTION, A	2.643 Fp (INCH/HR) 0.25 0.25 CH/HR) = 0 p = 0.986	Ap (DECIMAL) 1.000 1.000 0.900	SCS CN 75
SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US	ENSITY(IN AMC II): SCS SOII GROUP C C C S LOSS RA S AREA FF ING ESTIM	AREA (ACRES) 0.10 11.70 1.90 ATE, FP(IN RACTION, A MATED FLOW	2.643 Fp (INCH/HR) 0.25 0.25 CH/HR) = 0 p = 0.986 (CFS) =	Ap (DECIMAL) 1.000 1.000 0.900 0.25 57.77	SCS CN 75 77 69
SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBAREA	ENSITY(IN AMC II): SCS SOII GROUP C C C S LOSS RAEA FF ING ESTIM A BASED C	AREA (ACRES) 0.10 11.70 1.90 ATE, FP(IN ACCTION, A MATED FLOW ON VELOCIT	2.643 Fp (INCH/HR) 0.25 0.25 CH/HR) = 0 p = 0.986 (CFS) = Y (FEET/SEC.	Ap (DECIMAL) 1.000 1.000 0.900 2.25 57.77) = 8.49	SCS CN 75 77 69
SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET	ENSITY(IN AMC II): SCS SOII GROUP C C C S LOSS RAEA FF ING ESTIM A BASED C	AREA (ACRES) 0.10 11.70 1.90 ATE, FP(IN ACCTION, A MATED FLOW ON VELOCIT	2.643 Fp (INCH/HR) 0.25 0.25 CH/HR) = 0 p = 0.986 (CFS) = Y (FEET/SEC.	Ap (DECIMAL) 1.000 1.000 0.900 2.25 57.77) = 8.49	SCS CN 75 77 69
SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET TC (MIN.) = 14.47	ENSITY(IN AMC II): SCS SOII GROUP C C C S LOSS RA S AREA FF ING ESTIN A BASED () = 1.5	AREA (ACRES) 0.10 11.70 1.90 ATE, FP(IN RACTION, A HATED FLOW ON VELOCIT 51 TRAVE	2.643 Fp (INCH/HR) 0.25 0.25 CH/HR) = 0 p = 0.986 (CFS) = Y (FEET/SEC. L TIME (MIN.	Ap (DECIMAL) 1.000 1.000 0.900 0.25 57.77) = 8.49) = 1.44	SCS CN 75 77 69
SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET	ENSITY(IN AMC II): SCS SOII GROUP C C C S LOSS RA S AREA FA ING ESTIN A BASED () = 1.5 13.70	AREA (ACRES) 0.10 11.70 1.90 ATE, FP(IN RACTION, A HATED FLOW ON VELOCIT TRAVE SUBA	2.643 Fp (INCH/HR) 0.25 0.25 0.25 CH/HR) = 0 p = 0.986 (CFS) = Y (FEET/SEC. L TIME (MIN.	Ap (DECIMAL) 1.000 1.000 0.900 2.25 57.77) = 8.49) = 1.44 CFS) = 2	SCS CN 75 77 69
SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET TC (MIN.) = 14.47 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FD (INCH/H	ENSITY(IN AMC II): SCS SOII GROUP C C C S LOSS RA S AREA FF ING ESTIN A BASED (0) = 1.5 13.70 32.4 R) = 0	AREA (ACRES) 0.10 11.70 1.90 ATE, Fp(IN RACTION, A MATED FLOW NN VELOCIT 11 TRAVE SUBA 10 ARE 25 AREA-	2.643 Fp (INCH/HR) 0.25 0.25 0.25 CH/HR) = 0 p = 0.986 (CFS) = Y (FEET/SEC. L TIME (MIN. REA RUNOFF(A-AVERAGED ADVERAGED ADVERAGE	Ap (DECIMAL) 1.000 1.000 0.900 2.5 57.77) = 8.49) = 1.44 CFS) = 2 Fm(INCH/HR 0 = 0.99	SCS CN 75 77 69 9.55) = 0.25
SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET TC (MIN.) = 14.47 SUBAREA AREA (ACRES) =	ENSITY(IN AMC II): SCS SOII GROUP C C C S LOSS RA S AREA FF ING ESTIN A BASED (0) = 1.5 13.70 32.4 R) = 0	AREA (ACRES) 0.10 11.70 1.90 ATE, Fp(IN RACTION, A MATED FLOW NN VELOCIT 11 TRAVE SUBA 10 ARE 25 AREA-	2.643 Fp (INCH/HR) 0.25 0.25 0.25 CH/HR) = 0 p = 0.986 (CFS) = Y (FEET/SEC. L TIME (MIN. REA RUNOFF(A-AVERAGED ADVERAGED ADVERAGE	Ap (DECIMAL) 1.000 1.000 0.900 2.5 57.77) = 8.49) = 1.44 CFS) = 2 Fm(INCH/HR 0 = 0.99	SCS CN 75 77 69 9.55) = 0.25
SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET TC (MIN.) = 14.47 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) =	ENSITY(IN AMC II): SCS SOII GROUP C C C S LOSS RA S AREA FF ING ESTIN A BASED () = 1.5 13.70 32.4 R) = 0. 32.4	AREA (ACRES) 0.10 11.70 1.90 ATE, Fp(IN RACTION, A HATED FLOW IN VELOCIT IT TRAVE SUBA 10 ARE 25 AREA PE	2.643 Fp (INCH/HR) 0.25 0.25 0.25 CH/HR) = 0 p = 0.986 (CFS) = Y (FEET/SEC. L TIME (MIN. REA RUNOFF(A-AVERAGED ADVERAGED ADVERAGE	Ap (DECIMAL) 1.000 1.000 0.900 2.5 57.77) = 8.49) = 1.44 CFS) = 2 Fm(INCH/HR 0 = 0.99	SCS CN 75 77 69 9.55) = 0.25
SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET TC (MIN.) = 14.47 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) =	ENSITY(IN AMC II): SCS SOII GROUP C C C S LOSS RA S AREA FF ING ESTIM A BASED C) = 1.5 13.70 32.4 R) = 0. 32.4 FLOW HYDE	AREA (ACRES) 0.10 11.70 1.90 ARE, Fp(IN RACTION, A MATED FLOW NN VELOCIT 51 TRAVE SUBA 10 ARE 25 AREA- PE RAULICS:	2.643 Fp (INCH/HR) 0.25 0.25 0.25 CH/HR) = 0.986 (CFS) = Y(FEET/SEC. L TIME (MIN. REA RUNOFF(A-AVERAGED AVERAGED A	Ap (DECIMAL) 1.000 1.000 0.900 2.25 57.77) = 8.49) = 1.44 CFS) = 2 Fm(INCH/HR 0 = 0.99 ECFS) =	SCS CN 75 77 69 9.55) = 0.25
SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET TC (MIN.) = 14.47 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) = END OF SUBAREA CHANNEL DEPTH (FEET) = 1.61 F	ENSITY(IN AMC II): SCS SOII GROUP C C C S LOSS RA S AREA FF ING ESTIM A BASED (0) 13.70 32.4 R) = 0. 32.4 FLOW HYDE LOW VELOC	AREA (ACRES) 0.10 11.70 1.90 ATE, Fp(IN RACTION, A MATED FLOW ON VELOCIT 11 TRAVE SUBA 10 ARE 25 AREA- PE RAULICS: CITY(FEET/	2.643 Fp (INCH/HR) 0.25 0.25 0.25 CH/HR) = 0 p = 0.986 (CFS) = Y(FEET/SEC. L TIME (MIN. REA RUNOFF(A-AVERAGED AVERAGED AP AK FLOW RAT SEC.) = 8	Ap (DECIMAL) 1.000 1.000 0.900 2.5 57.77) = 8.49) = 1.44 CFS) = 2 Fm (INCH/HR 0 = 0.99 E (CFS) =	SCS CN 75 77 69 9.55) = 0.25 69.83
SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET TC (MIN.) = 14.47 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) =	ENSITY(IN AMC II): SCS SOII GROUP C C C S LOSS RA S AREA FF ING ESTIM A BASED (0) 13.70 32.4 R) = 0. 32.4 FLOW HYDE LOW VELOC	AREA (ACRES) 0.10 11.70 1.90 ATE, Fp(IN RACTION, A MATED FLOW ON VELOCIT 11 TRAVE SUBA 10 ARE 25 AREA- PE RAULICS: CITY(FEET/	2.643 Fp (INCH/HR) 0.25 0.25 0.25 CH/HR) = 0 p = 0.986 (CFS) = Y(FEET/SEC. L TIME (MIN. REA RUNOFF(A-AVERAGED AVERAGED AP AK FLOW RAT SEC.) = 8	Ap (DECIMAL) 1.000 1.000 0.900 2.5 57.77) = 8.49) = 1.44 CFS) = 2 Fm (INCH/HR 0 = 0.99 E (CFS) =	SCS CN 75 77 69 9.55) = 0.25 69.83
SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET TC (MIN.) = 14.47 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) = END OF SUBAREA CHANNEL DEPTH (FEET) = 1.61 F	ENSITY(IN AMC II): SCS SOII GROUP C C C S LOSS RA S AREA FF ING ESTIN A BASED C) = 1.5 13.70 32.4 R) = 0. 32.4 FLOW HYDE LOW VELOC ODE 60	AREA (ACRES) 0.10 11.70 1.90 ATE, FP(IN RACTION, A MATED FLOW DN VELOCIT 51 TRAVE SUBA 40 ARE 25 AREA- PE RAULICS: CITY(FEET/ 00.00 TO N	2.643 Fp (INCH/HR) 0.25 0.25 0.25 CH/HR) = 0 p = 0.986 (CFS) = Y(FEET/SEC. L TIME (MIN. REA RUNOFF (A-AVERAGED AP AVERAGED AP AK FLOW RAT SEC.) = 8 ODE 604.	Ap (DECIMAL) 1.000 1.000 0.900 1.25 57.77) = 8.49) = 1.44 (CFS) = 2 Fm(INCH/HR 0 = 0.99 EC(CFS) =	SCS CN 75 77 69 9.55) = 0.25 69.83
SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET TC (MIN.) = 14.47 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) = END OF SUBAREA CHANNEL DEPTH (FEET) = 1.61 F LONGEST FLOWPATH FROM N	ENSITY(IN AMC II): SCS SOII GROUP C C C S LOSS RA S AREA FF ING ESTIN A BASED C) = 1.5 13.70 32.4 R) = 0. 32.4 FLOW HYDE LOW VELOC ODE 60	AREA (ACRES) 0.10 11.70 1.90 ATE, FP(IN RACTION, A MATED FLOW DN VELOCIT 51 TRAVE SUBA 40 ARE 25 AREA- PE RAULICS: CITY(FEET/ 00.00 TO N	2.643 Fp (INCH/HR) 0.25 0.25 0.25 CH/HR) = 0 p = 0.986 (CFS) = Y(FEET/SEC. L TIME (MIN. REA RUNOFF (A-AVERAGED AP AVERAGED AP AK FLOW RAT SEC.) = 8 ODE 604.	Ap (DECIMAL) 1.000 1.000 0.900 25 57.77) = 8.49) = 1.44 CFS) = 2 Fm (INCH/HR 0 = 0.99 E (CFS) = 3.93 00 = 22 ************	SCS CN 75 77 69 9.55) = 0.25 69.83 79.00 FEET.
SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET TC (MIN.) = 14.47 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) = END OF SUBAREA CHANNEL DEPTH (FEET) = 1.61 F LONGEST FLOWPATH FROM N	ENSITY(IN AMC II): SCS SOII GROUP C C C S LOSS RAFA FFING ESTIM A BASED C) = 1.5 13.70 32.4 R) = 0. 32.4 FLOW HYDE LOW VELOCODE 60 ************************************	AREA (ACRES) 0.10 11.70 1.90 ATE, FP(IN RACTION, A MATED FLOW DN VELOCIT 51 TRAVE 25 AREA- PE RAULICS: LITY(FEET/ 0.00 TO N	2.643 Fp (INCH/HR) 0.25 0.25 0.25 CH/HR) = 0 p = 0.986 (CFS) = Y(FEET/SEC. L TIME (MIN. REA RUNOFF(A-AVERAGED AP AK FLOW RAT SEC.) = 8 DDE 604. ***********************************	Ap (DECIMAL) 1.000 1.000 0.900 .25 57.77) = 8.49) = 1.44 CFS) = 2 Fm(INCH/HR 0 = 0.99 EC(FS) = 3.93 00 = 22 *********************************	SCS CN 75 77 69 9.55) = 0.25 69.83 79.00 FEET.

```
>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 455.00 DOWNSTREAM(FEET) = 325.00
 FLOW LENGTH (FEET) = 2571.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 30.0 INCH PIPE IS 20.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 19.79
 ESTIMATED PIPE DIAMETER (INCH) = 30.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
                69.83
 PIPE TRAVEL TIME (MIN.) = 2.16 Tc (MIN.) = 16.64
 LONGEST FLOWPATH FROM NODE 600.00 TO NODE 605.00 = 4850.00 FEET.
******************
 FLOW PROCESS FROM NODE 605.00 TO NODE 605.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
______
 MAINLINE Tc (MIN.) = 16.64
                                                    O-5
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.443
 SUBAREA LOSS RATE DATA(AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA Fp
                                                 SCS
    LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 NATURAL FAIR COVER
 "WOODLAND, GRASS"
                   A 0.10 0.40 1.000
 NATURAL FAIR COVER
 "OPEN BRUSH"
                   в 0.30
                                    0.30
                                          1.000
                                                  66
 RESIDENTIAL
 ".4 DWELLING/ACRE" B 2.30
                                    0.30
                                           0.900
                                                  56
 NATURAL FAIR COVER
                     B 0.60
 "WOODLAND, GRASS"
                                    0.30
                                          1.000
                                                  65
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF" C 1.00
                                    0.25 1.000
 NATURAL FAIR COVER
 "OPEN BRUSH"
                            8.20
                                    0.25 1.000 77
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.982
 SUBAREA AREA(ACRES) = 12.50
                           SUBAREA RUNOFF (CFS) = 24.57
 EFFECTIVE AREA(ACRES) = 44.90 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.99
 TOTAL AREA(ACRES) = 44.9
                             PEAK FLOW RATE (CFS) =
                                                  88.55
**********************
 FLOW PROCESS FROM NODE 605.00 TO NODE 605.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
_____
 MAINLINE Tc(MIN.) = 16.64
                                                    O-5
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.443
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA Fp
    LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 RESIDENTIAL
 ".4 DWELLING/ACRE" C 6.20 0.25 0.900 69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.900
 SUBAREA AREA (ACRES) = 6.20 SUBAREA RUNOFF (CFS) = 12.37
 EFFECTIVE AREA(ACRES) = 51.10 AREA-AVERAGED Fm(INCH/HR) = 0.25
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.98
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Date: 05/09/2023 File name: PA3O25HC.RES

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TOTAL AREA (ACRES) = 51.1 PEAK FLOW RATE (CFS) = 100.93

END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 51.1 TC (MIN.) = 16.64

EFFECTIVE AREA(ACRES) = 51.10 AREA-AVERAGED Fm(INCH/HR) = 0.25

AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.979

PEAK FLOW RATE (CFS) = 100.93

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:

* RMV PA-4 SUBAREA E ROMP 2018 * RATIONAL METHOD HYDROLOGY MODEL LOCAL * 100-YR HC MAY 2018 JMITAL FILE NAME: PA4E00HC.DAT TIME/DATE OF STUDY: 16:03 05/31/2018 ______ USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION: _____ --*TIME-OF-CONCENTRATION MODEL*--USER SPECIFIED STORM EVENT (YEAR) = 100.00 SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00 SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.90 *DATA BANK RAINFALL USED* *ANTECEDENT MOISTURE CONDITION (AMC) III 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) 20.0 0.018/0.018/0.020 0.67 2.00 0.0312 0.167 0.0150 1 30.0 2 32.0 27.0 0.020/0.020/ --- 0.67 2.00 0.0312 0.167 0.0150 3 13.0 8.0 0.020/0.020/ --- 0.33 1.00 0.0312 0.125 0.0150 GLOBAL STREET FLOW-DEPTH CONSTRAINTS: 1. Relative Flow-Depth = 1.00 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 800.00 TO NODE 801.00 IS CODE = 21 _____ >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS< >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<< _____ INITIAL SUBAREA FLOW-LENGTH (FEET) = 330.00 ELEVATION DATA: UPSTREAM(FEET) = 485.00 DOWNSTREAM(FEET) = 455.00

```
Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
                                                 E-1
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 5.000
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 6.187
 SUBAREA To AND LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                                       SCS
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                     C 0.20
                                        0.25
                                                0.900
                                                        86
                                                             8.00
                             0.80
 COMMERCIAL
                                        0.20
                                                0.100
                                                             5.00
                      D
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                      D 0.50
                                        0.20 0.900
                                                             8.00
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.473
 SUBAREA RUNOFF(CFS) =
                      8.22
 TOTAL AREA (ACRES) = 1.50 PEAK FLOW RATE (CFS) =
*******************
 FLOW PROCESS FROM NODE 801.00 TO NODE 801.10 IS CODE = 62
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
______
 UPSTREAM ELEVATION(FEET) = 455.00 DOWNSTREAM ELEVATION(FEET) = 451.00
 STREET LENGTH (FEET) = 270.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL(DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
                                                   15 20
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH (FEET) = 0.44
   HALFSTREET FLOOD WIDTH (FEET) = 15.27
                                                  E-2
   AVERAGE FLOW VELOCITY (FEET/SEC.) = 3.34
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 1.45
 STREET FLOW TRAVEL TIME (MIN.) = 1.35 Tc (MIN.) =
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 5.396
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                     Fρ
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                      С
                             0.10 0.25 0.100
 COMMERCIAL
                             2.10
                                        0.20
                                                0.100
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                      D 0.70
                                        0.20
                                                0.900
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.293
 SUBAREA AREA (ACRES) = 2.90 SUBAREA RUNOFF (CFS) = 13.93
 EFFECTIVE AREA(ACRES) = 4.40 AREA-AVERAGED Fm(INCH/HR) = 0.07
 AREA-AVERAGED Fp(INCH/HR) = 0.21 AREA-AVERAGED Ap = 0.35
 TOTAL AREA (ACRES) = 4.4
                                PEAK FLOW RATE(CFS) =
                                                         21.08
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END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.48 HALFSTREET FLOOD WIDTH(FEET) = 17.54
 FLOW VELOCITY (FEET/SEC.) = 3.58 DEPTH*VELOCITY (FT*FT/SEC.) = 1.71
 LONGEST FLOWPATH FROM NODE 800.00 TO NODE 801.10 = 600.00 FEET.
FLOW PROCESS FROM NODE 801.10 TO NODE 802.00 IS CODE = 62
_____
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
_____
 UPSTREAM ELEVATION (FEET) = 451.00 DOWNSTREAM ELEVATION (FEET) = 445.00
 STREET LENGTH (FEET) = 391.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL(DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) = 0.54
   HALFSTREET FLOOD WIDTH (FEET) = 21.05
   AVERAGE FLOW VELOCITY (FEET/SEC.) = 4.09
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 2.20
 STREET FLOW TRAVEL TIME (MIN.) = 1.59 Tc (MIN.) =
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.747
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                      SCS
                                                Αp
     LAND USE
                      GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                      В
                               0.60
                                       0.30
                                               0.100 76
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                     В
                               0.20
                                       0.30
                                               0.900
                               3.00
                                       0.25
 COMMERCIAL
                                               0.100
                                                     86
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                               0.10
                                       0.25
                                               0.900
 COMMERCIAL
                       D
                               1.70
                                       0.20
                                               0.100
 RESIDENTIAL
                             0.50
                                               0.900
 ".4 DWELLING/ACRE"
                      D
                                       0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.205
 SUBAREA AREA (ACRES) = 6.10 SUBAREA RUNOFF (CFS) = 25.79
 EFFECTIVE AREA(ACRES) = 10.50 AREA-AVERAGED Fm(INCH/HR) = 0.06
 AREA-AVERAGED Fp (INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.27
 TOTAL AREA (ACRES) = 10.5 PEAK FLOW RATE (CFS) = 44.30
 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.58 HALFSTREET FLOOD WIDTH(FEET) = 23.40
 FLOW VELOCITY (FEET/SEC.) = 4.36 DEPTH*VELOCITY (FT*FT/SEC.) = 2.53
 LONGEST FLOWPATH FROM NODE 800.00 TO NODE 802.00 = 991.00 FEET.
******************
 FLOW PROCESS FROM NODE 802.00 TO NODE 808.00 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) = 445.00 DOWNSTREAM(FEET) = 398.00
 FLOW LENGTH (FEET) = 843.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 24.0 INCH PIPE IS 17.4 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 18.18
 ESTIMATED PIPE DIAMETER (INCH) = 24.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 44.30
 PIPE TRAVEL TIME (MIN.) = 0.77 Tc (MIN.) = 8.71
 LONGEST FLOWPATH FROM NODE 800.00 TO NODE 808.00 = 1834.00 FEET.
*******************
 FLOW PROCESS FROM NODE 808.00 TO NODE 808.00 IS CODE = 81
_______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc(MIN.) = 8.71
                                               E - 3
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.501
 SUBAREA LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                   Fр
   LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                            2.00
                                    0.25
                                           0.900
                                                  86
 RESIDENTIAL
                            2.20
 ".4 DWELLING/ACRE"
                                    0.20
                                           0.900
                                                  91
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                            4.20
                                    0.30
                                           0.900
                                                  76
                            5.30
                                           0.100
 COMMERCIAL
                                    0.30
                                                  76
                            7.10
                                    0.20
                                           0.100
                                                 9.1
 COMMERCIAL
 COMMERCIAL
                            8.60
                                    0.25
                                           0.100
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.329
 SUBAREA AREA(ACRES) = 29.40 SUBAREA RUNOFF(CFS) = 116.84
 EFFECTIVE AREA(ACRES) = 39.90 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.31
 TOTAL AREA (ACRES) =
                 39.9
                             PEAK FLOW RATE(CFS) =
                                               158.82
********************
 FLOW PROCESS FROM NODE 808.00 TO NODE 808.00 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
_______
 MAINLINE Tc(MIN.) = 8.71
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.501
 SUBAREA LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                 Fp
                                           Aр
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
   LAND USE
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                   A 0.60
                                    0.40
                                           0.900
                                                  52
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                    B 1.30
                                    0.30
                                           0.900
                                                  76
 COMMERCIAL
                            5.60
                                    0.40
                                           0.100
                                                  52
 COMMERCIAL
                            8.30
                                    0.30
                                           0.100
                                                  76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.196
 SUBAREA AREA(ACRES) = 15.80
                            SUBAREA RUNOFF (CFS) = 63.06
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EFFECTIVE AREA(ACRES) =
                     55.70 AREA-AVERAGED Fm(INCH/HR) = 0.07
 AREA-AVERAGED Fp (INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.28
 TOTAL AREA (ACRES) =
                 55.7
                            PEAK FLOW RATE(CFS) =
*******************
 FLOW PROCESS FROM NODE 808.00 TO NODE 808.00 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.) = 8.71
 RAINFALL INTENSITY (INCH/HR) = 4.50
 AREA-AVERAGED Fm(INCH/HR) = 0.07
 AREA-AVERAGED Fp(INCH/HR) = 0.27
 AREA-AVERAGED Ap = 0.28
 EFFECTIVE STREAM AREA(ACRES) = 55.70
                       55.70
 TOTAL STREAM AREA(ACRES) =
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 221.88
********************
 FLOW PROCESS FROM NODE 810.00 TO NODE 811.00 IS CODE = 21
______
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
______
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 307.00
 ELEVATION DATA: UPSTREAM(FEET) = 785.00 DOWNSTREAM(FEET) = 705.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.130
                                             OE-1
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.382
 SUBAREA To AND LOSS RATE DATA (AMC III):
                SCS SOIL AREA
  DEVELOPMENT TYPE/
                                    Fρ
                                            Αр
                                                  SCS Tc
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
     LAND USE
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF"
                   D 0.10
                                          1.000
                                                 95
                                                       9.13
                                    0.20
 NATURAL FAIR COVER
 "OPEN BRUSH"
                            0.10
                                    0.20
                                           1.000
                                                 96
                                                       9.13
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF"
                            0.20
                                    0.25
                                          1.000 91
                                                       9.13
 NATURAL FAIR COVER
 "OPEN BRUSH"
                     C
                            0.50
                                    0.25
                                           1.000
                                                 92
                                                       9.13
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) =
                   3.36
 TOTAL AREA (ACRES) =
                    0.90 PEAK FLOW RATE (CFS) =
******************
 FLOW PROCESS FROM NODE 811.00 TO NODE 812.00 IS CODE = 51
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 705.00 DOWNSTREAM(FEET) = 525.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 695.00 CHANNEL SLOPE = 0.2590
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 30.00
```

				OE		
SUBAREA LOSS RATE DATA (AMC III):					
DEVELOPMENT TYPE/ LAND USE	SCS SOII	AREA	Fp	Ap	SCS	
	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
NATURAL FAIR COVER						
"OPEN BRUSH"	D	2.10	0.20	1.000	96	
NATURAL FAIR COVER						
"CHAPARRAL, BROADLEAF"	С	3.10	0.25	1.000	91	
NATURAL FAIR COVER						
"OPEN BRUSH"	С	3.20	0.25	1.000	92	
SUBAREA AVERAGE PERVIOU	S LOSS RA	TE, Fp(INC	CH/HR) = 0	.24		
SUBAREA AVERAGE PERVIOU	S AREA FR	RACTION, Ap	p = 1.000			
TRAVEL TIME COMPUTED US	ING ESTIM	MATED FLOW	(CFS) =	17.92		
TRAVEL TIME THRU SUBARE	A BASED C	N VELOCITY	Y(FEET/SEC.) = 9.74		
AVERAGE FLOW DEPTH (FEET	0.7	'8 TRAVEI	L TIME (MIN.) = 1.19)	
Tc(MIN.) = 10.32						
SUBAREA AREA(ACRES) =	8.40	SUBA	REA RUNOFF(CFS) = 2	9.09	
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	9.3	0 ARE	A-AVERAGED	Fm(INCH/HF	() =	0.24
AREA-AVERAGED Fp (INCH/H	(R) = 0.	24 AREA-A	AVERAGED Ap	= 1.00	,	
TOTAL AREA (ACRES) =						.20
, , ,				(/		
END OF SUBAREA CHANNEL	FLOW HYDE	RAULICS:				
DEPTH(FEET) = 0.97 F			SEC.) = 11	.32		
LONGEST FLOWPATH FROM N					102.00	FEET.
********	*****	******	******	******	*****	****
FLOW PROCESS FROM NODE						
		/ IO NODE	013.00 1	D CODE -	JI	
>>>> COMPLIED EDADEROIDA	T OUR MAINTER	DI ONIZZZZ	_			
>>>>COMPUTE TRAPEZOIDA						
>>>>TRAVELTIME THRU SU	BAREA (EX	ISTING ELE	EMENT) <<<<			
>>>>TRAVELTIME THRU SU	BAREA (EX	ISTING ELE	EMENT) <<<<			
>>>>TRAVELTIME THRU SU ===================================	BAREA (EX ======= M(FEET) =	ISTING ELE ===================================	EMENT) <<<<< ======= 0 DOWNSTRE	======= AM(FEET) =	46	0.00
>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB	BAREA (EX ======= M(FEET) = AREA(FEET	(ISTING ELE ===================================	EMENT) <<<<< ======= 0 DOWNSTRE .00 CHANN	======= AM(FEET) =	46	0.00
>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) =	BAREA (EX ======== M(FEET) = AREA(FEET 0.00 "	(ISTING ELF ====================================	EMENT) <<<< ======= 0 DOWNSTRE .00 CHANN = 3.000	======= AM(FEET) = EL SLOPE =	46	0.00
>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04	BAREA (EX M(FEET) = AREA(FEET 0.00 "	ISTING ELE 525.00 1) = 1010. 2Z" FACTOR IUM DEPTH(I	EMENT) < < < < ========== 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30	AM(FEET) = EL SLOPE =	= 46 = 0.06	0.00 44
>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT	BAREA (EX ======= M(FEET) = AREA(FEET 0.00 " 0 MAXIM ENSITY(IN	ISTING ELE 525.00 C) = 1010. Z" FACTOR IUM DEPTH(I	EMENT) < < < < ========== 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30	AM(FEET) = EL SLOPE =	46	0.00 44
>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (BAREA (EX E======= M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY(IN AMC III):	EISTING ELE 525.00 1) = 1010. Z" FACTOR IUM DEPTH (I ICH/HR) =	EMENT) <<<< ========= 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 3.658	AM(FEET) = EL SLOPE =	= 46 = 0.06	0.00 44
>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/	BAREA (EX """ M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOII	ISTING ELE 525.0() = 1010. Z" FACTOR IUM DEPTH(ICH/HR) = AREA	EMENT) <<<< ========= 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 3.658	AM(FEET) = EL SLOPE =	= 46 = 0.06 E — 3	0.00 44
>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/	BAREA (EX """ M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOII	ISTING ELE 525.0() = 1010. Z" FACTOR IUM DEPTH(ICH/HR) = AREA	EMENT) <<<< ========= 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 3.658	AM(FEET) = EL SLOPE =	= 46 = 0.06 E — 3	0.00 44
>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER	BAREA (EX ======= M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOII GROUP	ISTING ELE 5 525.0(2) = 1010. 1Z" FACTOR IUM DEPTH(I ICH/HR) = AREA (ACRES)	EMENT) <<<< ========== 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 3.658 Fp (INCH/HR)	AM (FEET) = EL SLOPE = .00 Ap (DECIMAL)	= 46 = 0.06 E — 3 scs	0.00 44
>>>>TRAVELTIME THRU SUBSELEVATION DATA: UPSTREAU CHANNEL LENGTH THRU SUBCHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INTUBURATION SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	BAREA (EX ======= M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOII GROUP	ISTING ELE 5 525.0(2) = 1010. 1Z" FACTOR IUM DEPTH(I ICH/HR) = AREA (ACRES)	EMENT) <<<< ========== 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 3.658 Fp (INCH/HR)	AM (FEET) = EL SLOPE = .00 Ap (DECIMAL)	= 46 = 0.06 E — 3 scs	0.00 44
>>>>TRAVELTIME THRU SUBBLEAURING STATE AND STA	BAREA (EX ======= M(FEET) = AREA(FEET 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOII GROUP	EISTING ELE 525.00 1) = 1010 1Z" FACTOR HUM DEPTH (I HICH/HR) = AREA (ACRES) 0.10	EMENT) <<<< 	AM(FEET) = EL SLOPE = .00 O	= 46 = 0.06 E — 3 SCS CN	0.00 44
>>>>TRAVELTIME THRU SUBBLEAURING STATE AND STA	BAREA (EX ======= M(FEET) = AREA(FEET 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOII GROUP	EISTING ELE 525.00 1) = 1010 1Z" FACTOR HUM DEPTH (I HICH/HR) = AREA (ACRES) 0.10	EMENT) <<<< 	AM(FEET) = EL SLOPE = .00 O	= 46 = 0.06 E — 3 SCS CN	0.00 44
>>>>TRAVELTIME THRU SUBBLEVATION DATA: UPSTREAUTH CHANNEL LENGTH THRU SUBCHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INTUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	BAREA (EX ======= M(FEET) = AREA(FEET 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOII GROUP	EISTING ELE 525.00 1) = 1010 1Z" FACTOR HUM DEPTH (I HICH/HR) = AREA (ACRES) 0.10	EMENT) <<<< ========== 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 3.658 Fp (INCH/HR)	AM(FEET) = EL SLOPE = .00 O	= 46 = 0.06 E — 3 SCS CN	0.00 44
>>>>TRAVELTIME THRU SUBBLEVATION DATA: UPSTREAUTH CHANNEL LENGTH THRU SUBBLEVATION DATA: UPSTREAUTH CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INTO SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER	BAREA (EX """ M(FEET) = "AREA (FEET 0.00 "" 0 MAXIM ENSITY (IN AMC III): SCS SOII GROUP B	EISTING ELE 525.00 1) = 1010. 2" FACTOR HUM DEPTH (I HICH/HR) = AREA (ACRES) 0.10 0.30	EMENT) <<<< ========== 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 3.658 Fp (INCH/HR) 0.30 0.30	AM(FEET) = EL SLOPE = .00 O] Ap (DECIMAL) 1.000	= 46 = 0.06 E - 3 SCS CN 81	0.00 44
>>>>TRAVELTIME THRU SUBBLEVATION DATA: UPSTREAUTH CHANNEL LENGTH THRU SUBBLEVATION DATA: UPSTREAUTH CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INTUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "WOODLAND, GRASS"	BAREA (EX """ M(FEET) = "AREA (FEET 0.00 "" 0 MAXIM ENSITY (IN AMC III): SCS SOII GROUP B	EISTING ELE 525.00 1) = 1010. 2" FACTOR HUM DEPTH (I HICH/HR) = AREA (ACRES) 0.10 0.30	EMENT) <<<< 	AM(FEET) = EL SLOPE = .00 O] Ap (DECIMAL) 1.000	= 46 = 0.06 E - 3 SCS CN 81	0.00 44
>>>>TRAVELTIME THRU SUBBLEAURION DATA: UPSTREAURION	BAREA (EX ======= M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY (IN AMC III): SCS SOII GROUP B B	EISTING ELE 525.00 1) = 1010 1Z" FACTOR HUM DEPTH (I HICH/HR) = AREA (ACRES) 0.10 0.30 0.70	EMENT) <<<< 	AM(FEET) = EL SLOPE = .00 O] Ap (DECIMAL) 1.000 1.000	= 46 = 0.06 E — 3 SCS CN 81 84	0.00 44
>>>>TRAVELTIME THRU SUBBLEAURION DATA: UPSTREAURION	BAREA (EX ======= M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY (IN AMC III): SCS SOII GROUP B B	EISTING ELE 525.00 1) = 1010 1Z" FACTOR HUM DEPTH (I HICH/HR) = AREA (ACRES) 0.10 0.30 0.70	EMENT) <<<< ========== 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 3.658 Fp (INCH/HR) 0.30 0.30	AM(FEET) = EL SLOPE = .00 O] Ap (DECIMAL) 1.000 1.000	= 46 = 0.06 E — 3 SCS CN 81 84	0.00 44
>>>>TRAVELTIME THRU SUBBLEAURION DATA: UPSTREAURION DATA: UPSTREAURION DATA: UPSTREAURION DE CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INTOUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "WOODLAND, GRASS" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER	BAREA (EX ======== M(FEET) = 'AREA (FEET 0.00 " 0 MAXIM ENSITY (IN AMC III): SCS SOII GROUP B B B	EISTING ELE 525.00 1) = 1010. 2" FACTOR HUM DEPTH (I HICH/HR) = AREA (ACRES) 0.10 0.30 0.70 1.20	EMENT) <<<< ========== 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 3.658 Fp (INCH/HR) 0.30 0.30 0.30 0.20	AM(FEET) = EL SLOPE = .00 O] Ap (DECIMAL) 1.000 1.000 1.000	= 46 = 0.06 E — 5 SCS CN 81 84 83	0.00 44
>>>>TRAVELTIME THRU SUBBLEAURING BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INTO SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "WOODLAND, GRASS" NATURAL FAIR COVER "WOODLAND, GRASS" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "WOODLAND, GRASS" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH"	BAREA (EX ======= M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY (IN AMC III): SCS SOII GROUP B B	EISTING ELE 525.00 1) = 1010. 2" FACTOR HUM DEPTH (I HICH/HR) = AREA (ACRES) 0.10 0.30 0.70 1.20	EMENT) <<<< 	AM(FEET) = EL SLOPE = .00 O] Ap (DECIMAL) 1.000 1.000 1.000	= 46 = 0.06 E — 5 SCS CN 81 84 83	0.00 44
>>>>TRAVELTIME THRU SUB ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER	BAREA (EX ======== M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY (IN AMC III): SCS SOII GROUP B B B C	EISTING ELE 525.00 1) = 1010 12" FACTOR HUM DEPTH (I HICH/HR) = AREA (ACRES) 0.10 0.30 0.70 1.20 5.80	EMENT) <<<<<	AM(FEET) = EL SLOPE = .00 O] Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000	= 46 = 0.06 E - 3 SCS CN 81 84 83 95 92	0.00 44
>>>>TRAVELTIME THRU SUB ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH"	BAREA (EX ======== M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY (IN AMC III): SCS SOII GROUP B B B C	EISTING ELE 525.00 1) = 1010. 12" FACTOR HUM DEPTH (I HICH/HR) = AREA (ACRES) 0.10 0.30 0.70 1.20 5.80 6.30	EMENT) <<<<< ================================	AM(FEET) = EL SLOPE = .00 O] Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000	= 46 = 0.06 E - 3 SCS CN 81 84 83 95 92	0.00 44
>>>>TRAVELTIME THRU SUB ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "WOODLAND, GRASS" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" SUBAREA AVERAGE PERVIOU	BAREA (EX ======= M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY (IN AMC III): SCS SOIL GROUP B B B C D C D	EISTING ELE 525.00 1) = 1010. 12" FACTOR IUM DEPTH(I ICH/HR) = AREA (ACRES) 0.10 0.30 0.70 1.20 5.80 6.30 ATE, Fp(INC	EMENT) <<<<<	AM(FEET) = EL SLOPE = .00 O] Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000	= 46 = 0.06 E - 3 SCS CN 81 84 83 95 92	0.00 44
>>>>TRAVELTIME THRU SUB ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "WOODLAND, GRASS" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "OPEN BRUSH" SUBAREA AVERAGE PERVIOUSUBAREA AVERAGE PERVIOUS	BAREA (EX ======= M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY (IN AMC III): SCS SOII GROUP B B C D C D S LOSS RA	EISTING ELE 525.00 1) = 1010. Z" FACTOR HUM DEPTH (I HICH/HR) = AREA (ACRES) 0.10 0.30 0.70 1.20 5.80 6.30 ATE, FP(INC ACTION, AN	EMENT) <<<< =================================	AM(FEET) = EL SLOPE = .00 Older	SCS CN 81 84 83 95 92	0.00 44
>>>>TRAVELTIME THRU SUB ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "WOODLAND, GRASS" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS TRAVEL TIME COMPUTED US	BAREA (EX ======= M(FEET) = 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOII GROUP B B C D C D S LOSS RA S AREA FF ING ESTIM	EISTING ELE 525.00 1) = 1010. Z" FACTOR HUM DEPTH (I HICH/HR) = AREA (ACRES) 0.10 0.30 0.70 1.20 5.80 6.30 ATE, FP(INC ACTION, AN HATED FLOW	EMENT) <<<<< ================================	AM(FEET) = EL SLOPE = .00 Older	SCS CN 81 84 83 95 92 96	0.00 44
>>>>TRAVELTIME THRU SUB- ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB- CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "WOODLAND, GRASS" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "OPEN BRUSH" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU STRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE	BAREA (EX ======= M(FEET) = 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOII GROUP B B C D C D S LOSS RA S AREA FF ING ESTIM A BASED C	EISTING ELE 525.00 1 = 1010. 2" FACTOR HUM DEPTH (I HICH/HR) = AREA (ACRES) 0.10 0.30 0.70 1.20 5.80 6.30 ATE, FP(ING ACTION, AF HATED FLOW ON VELOCITY	EMENT) <<<< ====================================	Ap (DECIMAL) Ap (DECIMAL) 1.000 1.000 1.000 1.000 23 54.45) = 7.67	SCS CN 81 84 83 95 92 96	0.00 44
>>>>TRAVELTIME THRU SUB- ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB- CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "WOODLAND, GRASS" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "OPEN BRUSH" SUBAREA AVERAGE PERVIOUSUBAREA AVERAGE PERVIOUSTRAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH (FEET	BAREA (EX ======= M(FEET) = 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOII GROUP B B C D C D S LOSS RA S AREA FF ING ESTIM A BASED C	EISTING ELE 525.00 1 = 1010. 2" FACTOR HUM DEPTH (I HICH/HR) = AREA (ACRES) 0.10 0.30 0.70 1.20 5.80 6.30 ATE, FP(ING ACTION, AF HATED FLOW ON VELOCITY	EMENT) <<<< ====================================	Ap (DECIMAL) Ap (DECIMAL) 1.000 1.000 1.000 1.000 23 54.45) = 7.67	SCS CN 81 84 83 95 92 96	0.00 44
>>>>TRAVELTIME THRU SUB- ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB- CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "WOODLAND, GRASS" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "OPEN BRUSH" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU STRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE	BAREA (EX ======= M(FEET) = 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOII GROUP B B C D C D S LOSS RA S AREA FF ING ESTIM A BASED C	EISTING ELE 525.00 1 = 1010. 2" FACTOR HUM DEPTH (I HICH/HR) = AREA (ACRES) 0.10 0.30 0.70 1.20 5.80 6.30 ATE, FP(ING ACTION, AF HATED FLOW ON VELOCITY	EMENT) <<<< ====================================	Ap (DECIMAL) Ap (DECIMAL) 1.000 1.000 1.000 1.000 23 54.45) = 7.67	SCS CN 81 84 83 95 92 96	0.00 44

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* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.085

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EFFECTIVE AREA(ACRES) = 23.70
                           AREA-AVERAGED Fm(INCH/HR) = 0.23
 AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 1.00
                                                                     ** CONFLUENCE DATA **
                                                                     STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
 TOTAL AREA (ACRES) = 23.7 PEAK FLOW RATE (CFS) = 73.08
                                                                     NUMBER
                                                                              (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
                                                                      1
                                                                             221.88 8.71 4.501 0.27(0.07) 0.28 55.7 800.00
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
                                                                       2 104.98 13.27 3.537 0.24(0.24) 1.00 34.1 810.00
 DEPTH(FEET) = 1.72 FLOW VELOCITY(FEET/SEC.) = 8.24
 LONGEST FLOWPATH FROM NODE 810.00 TO NODE 813.00 = 2012.00 FEET.
                                                                     RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
******************
                                                                     CONFLUENCE FORMULA USED FOR 2 STREAMS.
 FLOW PROCESS FROM NODE 813.00 TO NODE 813.00 IS CODE = 81
                                                                     ** PEAK FLOW RATE TABLE **
_____
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
                                                                     STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
_____
                                                                            (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
 MAINLINE Tc(MIN.) = 12.51
                                                                      1
                                                                             310.96 8.71 4.501 0.25(0.12) 0.49 78.1 800.00
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.658
                                                                             278.56 13.27 3.537 0.25(0.14) 0.55 89.8 810.00
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap
                                                                     COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
                                               SCS
    LAND USE
                 GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                     PEAK FLOW RATE (CFS) = 310.96 Tc (MIN.) = 8.71
 NATURAL FAIR COVER
                                                                     EFFECTIVE AREA(ACRES) = 78.10 AREA-AVERAGED Fm(INCH/HR) = 0.12
 "CHAPARRAL, BROADLEAF" C 10.40 0.25 1.000 91
                                                                     AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.49
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
                                                                     TOTAL AREA (ACRES) = 89.8
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
                                                                     LONGEST FLOWPATH FROM NODE 810.00 TO NODE 808.00 = 3058.00 FEET.
 SUBAREA AREA(ACRES) = 10.40 SUBAREA RUNOFF(CFS) = 31.90
                                                                   *******************
 EFFECTIVE AREA(ACRES) = 34.10 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 1.00
                                                                     FLOW PROCESS FROM NODE 808.00 TO NODE 809.00 IS CODE = 31
 TOTAL AREA(ACRES) = 34.1 PEAK FLOW RATE(CFS) = 104.98
                                                                     >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
******************
                                                                    >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
                                                                    _____
 FLOW PROCESS FROM NODE 813.00 TO NODE 808.00 IS CODE = 31
_____
                                                                     ELEVATION DATA: UPSTREAM(FEET) = 398.00 DOWNSTREAM(FEET) = 341.00
                                                                     FLOW LENGTH (FEET) = 756.00 MANNING'S N = 0.013
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
                                                                     DEPTH OF FLOW IN 45.0 INCH PIPE IS 36.4 INCHES
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <>>>
_____
                                                                     PIPE-FLOW VELOCITY(FEET/SEC.) = 32.51
 ELEVATION DATA: UPSTREAM(FEET) = 460.00 DOWNSTREAM(FEET) = 398.00
                                                                     ESTIMATED PIPE DIAMETER (INCH) = 45.00 NUMBER OF PIPES = 1
 FLOW LENGTH (FEET) = 1046.00 MANNING'S N = 0.013
                                                                     PIPE-FLOW(CFS) = 310.96
 DEPTH OF FLOW IN 33.0 INCH PIPE IS 23.6 INCHES
                                                                     PIPE TRAVEL TIME (MIN.) = 0.39 Tc (MIN.) = 9.10
 PIPE-FLOW VELOCITY (FEET/SEC.) = 23.12
                                                                     LONGEST FLOWPATH FROM NODE 810.00 TO NODE 809.00 = 3814.00 FEET.
 ESTIMATED PIPE DIAMETER (INCH) = 33.00 NUMBER OF PIPES = 1
                                                                    ******************
 PIPE-FLOW(CFS) = 104.98
 PIPE TRAVEL TIME (MIN.) = 0.75 Tc (MIN.) = 13.27
                                                                     FLOW PROCESS FROM NODE 809.00 TO NODE 809.00 IS CODE = 81
 LONGEST FLOWPATH FROM NODE 810.00 TO NODE 808.00 = 3058.00 FEET.
                                                                     >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
******************
                                                                    _____
 FLOW PROCESS FROM NODE 808.00 TO NODE 808.00 IS CODE = 1
                                                                     MAINLINE Tc (MIN.) = 9.10
                                                                     * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.390 E-5
______
 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE <<<<
                                                                     SUBAREA LOSS RATE DATA(AMC III):
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<
                                                                     DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap
______
                                                                                     GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                      LAND USE
                                                                                      A
                                                                                             5.60 0.40
 TOTAL NUMBER OF STREAMS = 2
                                                                     APARTMENTS
                                                                                                            0.200
                                                                                       B 12.30 0.30
                                                                                                             0.200
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
                                                                     APARTMENTS
                                                                    COMMERCIAL
COMMERCIAL
 TIME OF CONCENTRATION (MIN.) = 13.27
                                                                                      A 0.50
                                                                                                      0.40
                                                                                                             0.100
                                                                                       B 5.40
 RAINFALL INTENSITY (INCH/HR) = 3.54
                                                                                                      0.30
                                                                                                             0.100
 AREA-AVERAGED Fm(INCH/HR) = 0.24
                                                                     RESIDENTIAL
                                                                     ".4 DWELLING/ACRE"
                                                                                      A 4.70
 AREA-AVERAGED Fp (INCH/HR) = 0.24
                                                                                                      0.40
                                                                                                             0.900
 AREA-AVERAGED Ap = 1.00
                                                                     RESIDENTIAL
 EFFECTIVE STREAM AREA(ACRES) = 34.10
                                                                     ".4 DWELLING/ACRE"
                                                                                      B 4.20
                                                                                                    0.30 0.900
 TOTAL STREAM AREA(ACRES) = 34.10
                                                                     SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 104.98
                                                                     SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.372
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SUBAREA AREA(ACRES) = 32.70
                           SUBAREA RUNOFF (CFS) = 125.42
 EFFECTIVE AREA(ACRES) = 110.80 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp (INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.45
 TOTAL AREA(ACRES) = 122.5 PEAK FLOW RATE(CFS) =
                                                425.44
FLOW PROCESS FROM NODE 809.00 TO NODE 809.00 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>
_____
 MAINLINE Tc(MIN.) = 9.10
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.390
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                Fp
     LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                   A 9.90 0.40 0.100 52
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.40
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.100
 SUBAREA AREA(ACRES) = 9.90 SUBAREA RUNOFF(CFS) = 38.76
 EFFECTIVE AREA(ACRES) = 120.70 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp (INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.42
 TOTAL AREA (ACRES) = 132.4 PEAK FLOW RATE (CFS) = 464.20
******************
 FLOW PROCESS FROM NODE 809.00 TO NODE 809.00 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.) = 9.10
 RAINFALL INTENSITY (INCH/HR) = 4.39
 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.27
 AREA-AVERAGED Ap = 0.42
 EFFECTIVE STREAM AREA(ACRES) = 120.70
 TOTAL STREAM AREA(ACRES) = 132.40
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 464.20
********************
 FLOW PROCESS FROM NODE 818.00 TO NODE 819.00 IS CODE = 21
______
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
______
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 323.00
 ELEVATION DATA: UPSTREAM(FEET) = 625.00 DOWNSTREAM(FEET) = 517.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.864
                                              OE-4
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.457
 SUBAREA TC AND LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                  Fρ
                                          Αp
    LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF" D
                           0.10
                                         1.000
                                   0.20
                                                95
                                                     8.86
 NATURAL FAIR COVER
 "OPEN BRUSH"
                            0.30
                                   0.25
                                          1.000 92
                                                     8.86
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```
NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF" C 0.60 0.25 1.000 91 8.86
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF (CFS) = 3.79
 TOTAL AREA (ACRES) = 1.00 PEAK FLOW RATE (CFS) =
******************
 FLOW PROCESS FROM NODE 819.00 TO NODE 820.00 IS CODE = 51
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <
_____
 ELEVATION DATA: UPSTREAM(FEET) = 517.00 DOWNSTREAM(FEET) = 395.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1167.00 CHANNEL SLOPE = 0.1045
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 20.00
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.810
                                               OE-5
 SUBAREA LOSS RATE DATA(AMC III):
 DEVELOPMENT TYPE/
                   SCS SOIL AREA
                                                    SCS
     LAND USE
                     GROUP (ACRES) (INCH/HR) (DECIMAL)
 COMMERCIAL
                    С
                            0.10 0.25
                                             0.100
                                                     86
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                             0.90
                                      0.30
                                             0.900
                                                     76
 COMMERCIAL
                       В 1.30
                                      0.30
                                             0.100
                                                     76
 NATURAL FAIR COVER
 "OPEN BRUSH"
                              0.80
                                      0.20
                                             1.000
 NATURAL FAIR COVER
 "OPEN BRUSH"
                              2.40
                                      0.25
                                            1.000
                                                    92
 NATURAL FAIR COVER
                            3.20
 "CHAPARRAL, BROADLEAF" D
                                      0.20
                                           1.000
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.845
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.97
 AVERAGE FLOW DEPTH (FEET) = 0.93 TRAVEL TIME (MIN.) = 2.79
 Tc(MIN.) = 11.66
 SUBAREA AREA (ACRES) = 8.70 SUBAREA RUNOFF (CFS) = 28.31
 EFFECTIVE AREA(ACRES) = 9.70 AREA-AVERAGED Fm(INCH/HR) = 0.20
 AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.86
 TOTAL AREA (ACRES) = 9.7 PEAK FLOW RATE (CFS) =
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.15 FLOW VELOCITY (FEET/SEC.) = 7.98
 LONGEST FLOWPATH FROM NODE 818.00 TO NODE 820.00 = 1490.00 FEET.
*****************
 FLOW PROCESS FROM NODE 820.00 TO NODE 820.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
MAINLINE Tc(MIN.) = 11.66
                                               OE-5
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.810
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                   Fp
                                              Αp
                                                    SCS
                     GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF"
                              4.00
                                      0.30
                                             1.000
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NATURAL FAIR COVER
                                                                          TOTAL AREA (ACRES) = 38.6 PEAK FLOW RATE (CFS) = 124.22
 "CHAPARRAL, BROADLEAF" C 7.10 0.25 1.000 91
                                                                        *******************
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.27
                                                                          FLOW PROCESS FROM NODE 820.00 TO NODE 817.00 IS CODE = 31
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA AREA (ACRES) = 11.10 SUBAREA RUNOFF (CFS) = 35.38
                                                                        ______
 EFFECTIVE AREA(ACRES) = 20.80 AREA-AVERAGED Fm(INCH/HR) = 0.24
                                                                         >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.94
                                                                         >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
 TOTAL AREA(ACRES) = 20.8
                            PEAK FLOW RATE(CFS) =
                                                                        _____
                                                                          ELEVATION DATA: UPSTREAM(FEET) = 395.00 DOWNSTREAM(FEET) = 340.00
*****************
                                                                          FLOW LENGTH (FEET) = 1232.00 MANNING'S N = 0.013
 FLOW PROCESS FROM NODE 820.00 TO NODE 820.00 IS CODE = 81
                                                                          DEPTH OF FLOW IN 36.0 INCH PIPE IS 27.4 INCHES
                                                                          PIPE-FLOW VELOCITY(FEET/SEC.) = 21.48
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
                                                                          ESTIMATED PIPE DIAMETER (INCH) = 36.00 NUMBER OF PIPES = 1
_____
                                                                          PIPE-FLOW(CFS) = 124.22
 MAINLINE Tc(MIN.) = 11.66
                                                                          PIPE TRAVEL TIME (MIN.) = 0.96 Tc (MIN.) = 12.61
                                                                          LONGEST FLOWPATH FROM NODE 818.00 TO NODE 817.00 = 2722.00 FEET.
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.810
 SUBAREA LOSS RATE DATA (AMC III):
                                                                        ******************
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                  Fp
                                                  SCS
                                            Αр
     LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                          FLOW PROCESS FROM NODE 817.00 TO NODE 817.00 IS CODE = 1
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF" B
                             3.40
                                     0.30
                                            1.000
                                                   81
                                                                          >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE
 NATURAL FAIR COVER
                                                                         >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES
 "CHAPARRAL, BROADLEAF"
                            1.80
                                     0.25
                                            1.000
                   С
                                                  91
                                                                        ______
 NATURAL FAIR COVER
                                                                          TOTAL NUMBER OF STREAMS = 2
 "CHAPARRAL, BROADLEAF"
                             3.60
                                     0.20
                                            1.000
                                                  9.5
                                                                          CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
                                     0.30
                                            0.100
                                                   76
 COMMERCIAL
                             1.00
                                                                          TIME OF CONCENTRATION (MIN.) = 12.61
 NATURAL FAIR COVER
                                                                          RAINFALL INTENSITY (INCH/HR) = 3.64
 "GRASS"
                             0.10
                                     0.30
                                            1.000
                                                                          AREA-AVERAGED Fm(INCH/HR) = 0.23
 NATURAL FAIR COVER
                                                                          AREA-AVERAGED Fp (INCH/HR) = 0.25
                                          1.000 84
 "OPEN BRUSH"
                      В
                            0.50
                                    0.30
                                                                          AREA-AVERAGED Ap = 0.94
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
                                                                          EFFECTIVE STREAM AREA(ACRES) = 38.60
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.913
                                                                          TOTAL STREAM AREA(ACRES) = 38.60
 SUBAREA AREA (ACRES) = 10.40 SUBAREA RUNOFF (CFS) = 33.50
                                                                          PEAK FLOW RATE (CFS) AT CONFLUENCE = 124.22
 EFFECTIVE AREA(ACRES) = 31.20 AREA-AVERAGED Fm(INCH/HR) = 0.23
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.93
                                                                          ** CONFLUENCE DATA **
 TOTAL AREA (ACRES) = 31.2 PEAK FLOW RATE (CFS) = 100.40
                                                                          STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
                                                                          NUMBER
                                                                                   (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
*****************
                                                                           1
                                                                                  464.20 9.10 4.390 0.27(0.12) 0.42 120.7
                                                                                  399.38 13.66 3.479 0.27(0.13) 0.47
 FLOW PROCESS FROM NODE 820.00 TO NODE 820.00 IS CODE = 81
                                                                            1
______
                                                                                  124.22 12.61 3.641 0.25(0.23) 0.94
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>>
_____
                                                                          RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
                                                                          CONFIJIENCE FORMULA USED FOR 2 STREAMS.
 MAINLINE Tc (MIN.) = 11.66
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.810
                                                                          ** PEAK FLOW RATE TABLE **
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                    Fρ
                                                                          STREAM
                                                                                  0
                                                                                        Tc Intensity Fp(Fm)
                                            Αр
                                                                          NUMBER
     LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                                   (CFS) (MIN.) (INCH/HR) (INCH/HR)
                                                                           1
                                                                                  573.54 9.10 4.390 0.27(0.14) 0.52 148.6
 NATURAL FAIR COVER
                                            1.000
                                                                            2
                                                                                  538.50 12.61 3.641 0.26(0.15) 0.57
 "OPEN BRUSH"
                            4.60
                                     0.25
                                                                                  517.67 13.66 3.479 0.26(0.15) 0.58
 NATURAL FAIR COVER
 "OPEN BRUSH"
                             2.60
                                     0.20
                                            1.000
                                                   96
 RESIDENTIAL
                                                                          COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 ".4 DWELLING/ACRE" B
                             0.20
                                     0.30
                                            0.900 76
                                                                          PEAK FLOW RATE (CFS) = 573.54 Tc (MIN.) =
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
                                                                          EFFECTIVE AREA(ACRES) = 148.55 AREA-AVERAGED Fm(INCH/HR) = 0.14
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.997
                                                                         AREA-AVERAGED Fp(INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.52
 SUBAREA AREA(ACRES) = 7.40
                           SUBAREA RUNOFF(CFS) = 23.82
                                                                          TOTAL AREA(ACRES) = 171.0
 EFFECTIVE AREA(ACRES) = 38.60 AREA-AVERAGED Fm(INCH/HR) = 0.23
                                                                         LONGEST FLOWPATH FROM NODE 810.00 TO NODE 817.00 = 3814.00 FEET.
 AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.94
```

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800.00

810.00

818.00

HEADWATER

800.00

818.00

810.00

132.4

38.6

Ae

9.10

(ACRES) NODE

168.3

171.0

END OF STUDY SUMMARY:

TOTAL AREA (ACRES) = 171.0 TC (MIN.) = 9.10 EFFECTIVE AREA (ACRES) = 148.55 AREA-AVERAGED FM (INCH/HR) = 0.14

AREA-AVERAGED Fp(INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.521

PEAK FLOW RATE (CFS) = 573.54

** PEAK FLOW RATE TABLE **

STREAM	Q	Tc	Intensity	Fp(Fm)	Аp	Аe	HEADWATER
NUMBER	(CFS)	(MIN.)	(INCH/HR)	(INCH/HR)		(ACRES)	NODE
1	573.54	9.10	4.390	0.27(0.14)	0.52	148.6	800.00
2	538.50	12.61	3.641	0.26(0.15)	0.57	168.3	818.00
3	517.67	13.66	3.479	0.26(0.15)	0.58	171.0	810.00
=========						=======	

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:

* RMV PA-4 SUBAREA E ROMP 2018 * RATIONAL METHOD HYDROLOGY MODEL LOCAL * 25-YR HC MAY 2018 JMITAL FILE NAME: PA4E25HC.DAT TIME/DATE OF STUDY: 09:56 06/03/2018 ______ USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION: _____ --*TIME-OF-CONCENTRATION MODEL*--USER SPECIFIED STORM EVENT (YEAR) = 25.00 SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00 SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.90 *DATA BANK RAINFALL USED* *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) 20.0 0.018/0.018/0.020 0.67 2.00 0.0313 0.167 0.0150 1 30.0 2 32.0 27.0 0.020/0.020/ --- 0.67 2.00 0.0312 0.167 0.0150 3 13.0 8.0 0.020/0.020/ --- 0.33 1.00 0.0312 0.125 0.0150 GLOBAL STREET FLOW-DEPTH CONSTRAINTS: 1. Relative Flow-Depth = 1.00 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 800.00 TO NODE 801.00 IS CODE = 21 _____ >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<< _____ INITIAL SUBAREA FLOW-LENGTH (FEET) = 330.00 ELEVATION DATA: UPSTREAM(FEET) = 485.00 DOWNSTREAM(FEET) = 455.00

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Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 5.000
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 4.824
 SUBAREA To AND LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                                       SCS Tc
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                     C 0.20
                                        0.25
                                                0.900
                                                        69
                                                             8.00
                             0.80
 COMMERCIAL
                                        0.20
                                                0.100
                                                             5.00
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                      D 0.50
                                        0.20 0.900
                                                             8.00
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.473
 SUBAREA RUNOFF(CFS) =
                      6.38
 TOTAL AREA (ACRES) = 1.50 PEAK FLOW RATE (CFS) =
*******************
 FLOW PROCESS FROM NODE 801.00 TO NODE 801.10 IS CODE = 62
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
______
 UPSTREAM ELEVATION(FEET) = 455.00 DOWNSTREAM ELEVATION(FEET) = 451.00
 STREET LENGTH (FEET) = 270.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL(DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
                                                  11 77
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH (FEET) = 0.41
   HALFSTREET FLOOD WIDTH (FEET) = 13.71
   AVERAGE FLOW VELOCITY (FEET/SEC.) = 3.14
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 1.28
 STREET FLOW TRAVEL TIME (MIN.) = 1.43 Tc (MIN.) = 6.43
                                                        E-2
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 4.183
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                     Fρ
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                      С
                             0.10 0.25 0.100
 COMMERCIAL
                             2.10
                                        0.20
                                                0.100
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                      D 0.70
                                        0.20
                                                0.900
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.293
 SUBAREA AREA (ACRES) = 2.90 SUBAREA RUNOFF (CFS) = 10.76
 EFFECTIVE AREA(ACRES) = 4.40 AREA-AVERAGED Fm(INCH/HR) = 0.07
 AREA-AVERAGED Fp(INCH/HR) = 0.21 AREA-AVERAGED Ap = 0.35
 TOTAL AREA (ACRES) = 4.4
                                PEAK FLOW RATE(CFS) =
                                                         16.27
```

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END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.44 HALFSTREET FLOOD WIDTH(FEET) = 15.74
 FLOW VELOCITY (FEET/SEC.) = 3.38 DEPTH*VELOCITY (FT*FT/SEC.) = 1.50
 LONGEST FLOWPATH FROM NODE 800.00 TO NODE 801.10 = 600.00 FEET.
FLOW PROCESS FROM NODE 801.10 TO NODE 802.00 IS CODE = 62
_____
 >>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA
 >>>> (STREET TABLE SECTION # 1 USED) <<<<
_____
 UPSTREAM ELEVATION(FEET) = 451.00 DOWNSTREAM ELEVATION(FEET) = 445.00
 STREET LENGTH (FEET) = 391.00 CURB HEIGHT (INCHES) = 8.0
 STREET HALFWIDTH (FEET) = 30.00
 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK (FEET) = 20.00
 INSIDE STREET CROSSFALL(DECIMAL) = 0.018
 OUTSIDE STREET CROSSFALL(DECIMAL) = 0.018
 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF = 2
 STREET PARKWAY CROSSFALL (DECIMAL) = 0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) = 0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section = 0.0200
   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) = 0.50
   HALFSTREET FLOOD WIDTH (FEET) = 19.02
   AVERAGE FLOW VELOCITY (FEET/SEC.) = 3.83
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) = 1.92
 STREET FLOW TRAVEL TIME (MIN.) = 1.70 Tc (MIN.) = 8.14
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.662
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                      SCS
                                                Αp
     LAND USE
                     GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                      В
                              0.60
                                       0.30
                                               0.100 56
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                     В
                              0.20
                                       0.30
                                               0.900
                               3.00
                                       0.25
 COMMERCIAL
                                               0.100
                                                     69
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                              0.10
                                       0.25
                                               0.900
                                                     7.5
 COMMERCIAL
                       D
                               1.70
                                       0.20
                                               0.100
 RESIDENTIAL
                             0.50
                                               0.900
 ".4 DWELLING/ACRE"
                      D
                                       0.20
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.205
 SUBAREA AREA(ACRES) = 6.10 SUBAREA RUNOFF(CFS) = 19.84
 EFFECTIVE AREA(ACRES) = 10.50 AREA-AVERAGED Fm(INCH/HR) = 0.06
 AREA-AVERAGED Fp (INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.27
 TOTAL AREA (ACRES) = 10.5 PEAK FLOW RATE (CFS) = 34.05
 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.54 HALFSTREET FLOOD WIDTH(FEET) = 21.05
 FLOW VELOCITY (FEET/SEC.) = 4.10 DEPTH*VELOCITY (FT*FT/SEC.) = 2.21
 LONGEST FLOWPATH FROM NODE 800.00 TO NODE 802.00 = 991.00 FEET.
******************
 FLOW PROCESS FROM NODE 802.00 TO NODE 808.00 IS CODE = 31
```

```
>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <>>>
 ELEVATION DATA: UPSTREAM(FEET) = 445.00 DOWNSTREAM(FEET) = 398.00
 FLOW LENGTH (FEET) = 843.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 21.0 INCH PIPE IS 16.5 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 16.80
 ESTIMATED PIPE DIAMETER (INCH) = 21.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 34.05
 PIPE TRAVEL TIME (MIN.) = 0.84 Tc (MIN.) = 8.97
 LONGEST FLOWPATH FROM NODE 800.00 TO NODE 808.00 = 1834.00 FEET.
*******************
 FLOW PROCESS FROM NODE 808.00 TO NODE 808.00 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
______
 MAINLINE Tc(MIN.) = 8.97
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.465
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                 Fp
   LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                            2.00
                                    0.25
                                           0.900
                                                  69
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                            2.20
                                    0.20
                                           0.900
                                                  7.5
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                            4.20
                                    0.30
                                           0.900
                                                  56
                            5.30
 COMMERCIAL
                                    0.30
                                           0.100
                                                  56
                            7.10
                                    0.20 0.100
                                                  75
 COMMERCIAL
 COMMERCIAL
                            8.60
                                    0.25
                                           0.100 69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.329
 SUBAREA AREA(ACRES) = 29.40 SUBAREA RUNOFF(CFS) = 89.43
 EFFECTIVE AREA(ACRES) = 39.90 AREA-AVERAGED Fm(INCH/HR) = 0.08
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.31
 TOTAL AREA (ACRES) =
                 39.9
                             PEAK FLOW RATE(CFS) =
********************
 FLOW PROCESS FROM NODE 808.00 TO NODE 808.00 IS CODE = 81
_____
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
_______
 MAINLINE Tc(MIN.) = 8.97
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.465
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                 Fp
                                          Ар
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN
    LAND USE
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                   A 0.60
                                    0.40
                                           0.900
                                                  32
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                    B 1.30
                                    0.30
                                           0.900
                                                  56
 COMMERCIAL
                            5.60
                                    0.40
                                           0.100
 COMMERCIAL
                            8.30
                                    0.30
                                           0.100
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.196
 SUBAREA AREA(ACRES) = 15.80
                           SUBAREA RUNOFF (CFS) = 48.33
```

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```
EFFECTIVE AREA(ACRES) =
                     55.70 AREA-AVERAGED Fm(INCH/HR) = 0.07
 AREA-AVERAGED Fp (INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.28
 TOTAL AREA (ACRES) =
                  55.7
                            PEAK FLOW RATE(CFS) =
*******************
 FLOW PROCESS FROM NODE 808.00 TO NODE 808.00 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.) = 8.97
 RAINFALL INTENSITY (INCH/HR) = 3.46
 AREA-AVERAGED Fm(INCH/HR) = 0.07
 AREA-AVERAGED Fp(INCH/HR) = 0.27
 AREA-AVERAGED Ap = 0.28
 EFFECTIVE STREAM AREA(ACRES) = 55.70
 TOTAL STREAM AREA(ACRES) =
                       55.70
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 169.95
*************************
 FLOW PROCESS FROM NODE 810.00 TO NODE 811.00 IS CODE = 21
______
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
______
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 307.00
 ELEVATION DATA: UPSTREAM(FEET) = 785.00 DOWNSTREAM(FEET) = 705.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.130
                                                    OE-1
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.431
 SUBAREA To AND LOSS RATE DATA (AMC II):
                 SCS SOIL AREA
  DEVELOPMENT TYPE/
                                    Fρ
                                            Αр
                                                  SCS Tc
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF"
                    D 0.10
                                          1.000
                                                  81
                                                       9.13
                                    0.20
 NATURAL FAIR COVER
 "OPEN BRUSH"
                             0.10
                                     0.20
                                            1.000
                                                 83
                                                       9.13
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF"
                             0.20
                                     0.25
                                          1.000
                                                 75
                                                       9.13
 NATURAL FAIR COVER
 "OPEN BRUSH"
                      C
                            0.50
                                     0.25
                                            1.000
                                                       9.13
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF (CFS) =
                    2.59
 TOTAL AREA (ACRES) =
                    0.90 PEAK FLOW RATE (CFS) =
******************
 FLOW PROCESS FROM NODE 811.00 TO NODE 812.00 IS CODE = 51
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 705.00 DOWNSTREAM(FEET) = 525.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 695.00 CHANNEL SLOPE = 0.2590
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 30.00
```

SUBAREA LOSS RATE DATA (
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fρ	Aρ	SCS	
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
NATURAL FAIR COVER						
"OPEN BRUSH"	D	2.10	0.20	1.000	83	
NATURAL FAIR COVER						
"CHAPARRAL, BROADLEAF"	С	3.10	0.25	1.000	75	
NATURAL FAIR COVER						
			0.25		77	
SUBAREA AVERAGE PERVIOU				.24		
SUBAREA AVERAGE PERVIOU						
TRAVEL TIME COMPUTED US						
TRAVEL TIME THRU SUBARE						
AVERAGE FLOW DEPTH (FEET	(1) = 0./1	TRAVE	L TIME (MIN.) = 1.26)	
Tc(MIN.) = 10.39 SUBAREA AREA(ACRES) =	0.40	CIIDAI	DEA DIMORE/	CEC) - 3	00 01	
EFFECTIVE AREA(ACRES) =	0.40	SUBAL	REA KUNUFF (CFS) = 2	.2.31	24
AREA-AVERAGED Fp(INCH/H	= 9.30 - 0.3	AKEA	A-AVERAGED	- 1 00	() = (J. Z4
TOTAL AREA (ACRES) =	0.2	4 AREA-A	averaged ab	- 1.00 F/CEC\ -	2.4	70
TOTAL AREA (ACRES) -	J.J	1 117	AN PHOW NAI	E(CF5) -	27.	. / 0
END OF SUBAREA CHANNEL						
DEPTH(FEET) = 0.88 F	FLOW VELOCI	TY (FEET/S	SEC.) = 10	.58		
LONGEST FLOWPATH FROM N	NODE 810	.00 TO NO	ODE 812.	00 = 10	02.00 I	FEET.
********						****
FLOW PROCESS FROM NODE	812.00	TO NODE	813.00 I	S CODE =	51	
>>>>TRAVELTIME THRU SU	JBAREA (EXI	STING ELE	EMENT) <<<<			
>>>>TRAVELTIME THRU SU	JBAREA (EXI	STING ELF	EMENT) <<<<<			
>>>>TRAVELTIME THRU SU ===================================	JBAREA (EXI ======= AM(FEET) =	STING ELE ======== 525.00	EMENT) <<<< ======= 0 DOWNSTRE	======= AM(FEET) =	460	0.00
>>>>TRAVELTIME THRU SU ===================================	JBAREA (EXI ======= AM(FEET) = BAREA(FEET)	STING ELH ====================================	EMENT) <<<< ======= 0 DOWNSTRE .00 CHANN	======= AM(FEET) =	460	0.00
>>>>TRAVELTIME THRU SU ===================================	JBAREA (EXI ======== AM(FEET) = BAREA(FEET) 0.00 "Z	STING ELE ===================================	EMENT) <><< ======== 0 DOWNSTRE .00 CHANN = 3.000	======= AM(FEET) = EL SLOPE =	460	0.00
>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUE CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04	JBAREA (EXI ====================================	STING ELF 525.00 = 1010.00 " FACTOR M DEPTH (F	EMENT) < < < < ========== 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30	======= AM(FEET) = EL SLOPE =	= 460 = 0.064	0.00 14
>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU ===================================	JBAREA (EXI 	STING ELF 525.00 = 1010.00 " FACTOR M DEPTH (F	EMENT) < < < < ========== 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30	======= AM(FEET) = EL SLOPE =	460	0.00 14
>>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUE CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INI SUBAREA LOSS RATE DATA (JBAREA (EXI 	STING ELE 525.00 = 1010. " FACTOR M DEPTH(I H/HR) =	EMENT) <<<< ========= 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 2.840	======= AM(FEET) = EL SLOPE = .00	= 460 = 0.064	0.00 14
>>>>TRAVELTIME THRU SU ====================================	JBAREA (EXI AM (FEET) = BAREA (FEET) 0.00 "Z 0 MAXIMU PENSITY (INC (AMC II): SCS SOIL	STING ELH ====================================	EMENT) <<<< ========= 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 2.840	======= AM(FEET) = EL SLOPE = .00	= 460 = 0.064 OE SCS	0.00 14
>>>>TRAVELTIME THRU SU ===================================	JBAREA (EXI AM (FEET) = BAREA (FEET) 0.00 "Z 0 MAXIMU PENSITY (INC (AMC II): SCS SOIL	STING ELH ====================================	EMENT) <<<< ========= 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 2.840	======= AM(FEET) = EL SLOPE = .00	= 460 = 0.064 OE SCS	0.00 14
>>>>TRAVELTIME THRU SU ====================================	JBAREA (EXI ======== AM (FEET) = BAREA (FEET) 0.00 "Z 0 MAXIMU FENSITY (INC (AMC II): SCS SOIL GROUP	STING ELF ====================================	EMENT) <<<< ========= 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 2.840 Fp (INCH/HR)	AM (FEET) = EL SLOPE = .00	= 460 = 0.064 OE SCS CN	0.00 14
>>>>TRAVELTIME THRU SU ===================================	JBAREA (EXI ======== AM (FEET) = BAREA (FEET) 0.00 "Z 0 MAXIMU FENSITY (INC (AMC II): SCS SOIL GROUP	STING ELF ====================================	EMENT) <<<< ========= 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 2.840 Fp (INCH/HR)	AM (FEET) = EL SLOPE = .00	= 460 = 0.064 OE SCS CN	0.00 14
>>>>TRAVELTIME THRU SUE ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUE CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER	JBAREA (EXI ======== AM (FEET) = BAREA (FEET) 0.00 "Z HO MAXIMU FENSITY (INC (AMC II): SCS SOIL GROUP B	STING ELE ===================================	EMENT) <<<< ========= 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 2.840 Fp (INCH/HR) 0.30	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000	= 460 = 0.064 OE SCS CN	0.00 14
>>>>TRAVELTIME THRU SUE ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUE CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH"	JBAREA (EXI ======== AM (FEET) = BAREA (FEET) 0.00 "Z HO MAXIMU FENSITY (INC (AMC II): SCS SOIL GROUP B	STING ELE ===================================	EMENT) <<<< ========= 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 2.840 Fp (INCH/HR)	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000	= 460 = 0.064 OE SCS CN	0.00 14
>>>>TRAVELTIME THRU SUE ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUE CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER	JBAREA (EXI ======== AM (FEET) = BAREA (FEET) 0.00 "Z HO MAXIMU FENSITY (INC (AMC II): SCS SOIL GROUP B B	STING ELH ====================================	EMENT) <<<< ========= 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 2.840 Fp (INCH/HR) 0.30 0.30	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000	SCS CN 63	0.00 14
>>>>TRAVELTIME THRU SUE ====================================	JBAREA (EXI ======== AM (FEET) = BAREA (FEET) 0.00 "Z HO MAXIMU FENSITY (INC (AMC II): SCS SOIL GROUP B B	STING ELH ====================================	EMENT) <<<< ========= 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 2.840 Fp (INCH/HR) 0.30	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000	SCS CN 63	0.00 14
>>>>TRAVELTIME THRU SUE ====================================	JBAREA (EXI ======== AM (FEET) = BAREA (FEET) 0.00 "Z BO MAXIMU TENSITY (INC (AMC II): SCS SOIL GROUP B B B	STING ELH ====================================	EMENT) <<<< ========= 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 2.840 Fp (INCH/HR) 0.30 0.30 0.30	AM (FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000	SCS CN 63 66	0.00 14
>>>>TRAVELTIME THRU SUE ====================================	JBAREA (EXI ======== AM (FEET) = BAREA (FEET) 0.00 "Z BO MAXIMU TENSITY (INC (AMC II): SCS SOIL GROUP B B B	STING ELH ====================================	EMENT) <<<< ========= 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 2.840 Fp (INCH/HR) 0.30 0.30 0.30	AM (FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000	SCS CN 63 66	0.00 14
>>>>TRAVELTIME THRU SUE ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUE CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "WOODLAND, GRASS" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER	JBAREA (EXI M (FEET) = BAREA (FEET) 0.00 "Z 0 MAXIMU TENSITY (INC (AMC II): SCS SOIL GROUP B B B B	STING ELH ====================================	EMENT) <<<< ========== 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 2.840 Fp (INCH/HR) 0.30 0.30 0.30 0.20	AM (FEET) = EL SLOPE = .00 Ap (DECIMAL)	SCS CN 63 66 65 81	0.00 14
>>>>TRAVELTIME THRU SUE ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUE CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "WOODLAND, GRASS" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH"	JBAREA (EXI M (FEET) = BAREA (FEET) 0.00 "Z 0 MAXIMU TENSITY (INC (AMC II): SCS SOIL GROUP B B B B	STING ELH ====================================	EMENT) <<<< ========= 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 2.840 Fp (INCH/HR) 0.30 0.30 0.30	AM (FEET) = EL SLOPE = .00 Ap (DECIMAL)	SCS CN 63 66 65 81	0.00 14
>>>>TRAVELTIME THRU SUE ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUE CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "WOODLAND, GRASS" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH"	UBAREA (EXI	STING ELH ====================================	EMENT) <<<< ========== 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 2.840 Fp (INCH/HR) 0.30 0.30 0.30 0.20	AM (FEET) = EL SLOPE = .00 Ap (DECIMAL)	SCS CN 63 66 65 81 77	0.00 14
>>>>TRAVELTIME THRU SU ===================================	JBAREA (EXI	STING ELH ====================================	EMENT) <<<< =================================	AM (FEET) = EL SLOPE = .00 Ap (DECIMAL)	SCS CN 63 66 65 81 77	0.00 14
>>>>TRAVELTIME THRU SU ===================================	JBAREA (EXI	STING ELH ====================================	EMENT) <<<<< ================================	AM (FEET) = EL SLOPE = .00 Ap (DECIMAL)	SCS CN 63 66 65 81 77	0.00 14
>>>>TRAVELTIME THRU SUE ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUE CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "WOODLAND, GRASS" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "OPEN BRUSH" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS	JBAREA (EXI	STING ELH ====================================	EMENT) <<<<< ================================	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 1.000 23	SCS CN 63 66 65 81 77	0.00 14
>>>>TRAVELTIME THRU SUBSELEVATION DATA: UPSTREAUTH CHANNEL LENGTH THRU SUBCHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INTO SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "WODEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "OPEN BRUSH" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS TRAVEL TIME COMPUTED US	JBAREA (EXI	STING ELH ====================================	EMENT) <<<<< ========== 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30 2.840 Fp (INCH/HR) 0.30 0.30 0.30 0.20 0.25 0.20 CH/HR) = 0 0 = 1.000 (CFS) =	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 23 41.64	SCS CN 63 66 65 81 77 83	0.00 14
>>>>TRAVELTIME THRU SU ===================================	JBAREA (EXI	STING ELE ==================================	EMENT) <<<<< ================================	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 23 41.64) = 7.15	SCS CN 63 66 65 81 77 83	0.00 14
>>>>TRAVELTIME THRU SUBELEVATION DATA: UPSTREAN CHANNEL LENGTH THRU SUBELEVATION DATA: UPSTREAN CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INTICATION OF THE SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "OPEN BRUSH" SUBAREA AVERAGE PERVIOUSUBAREA AVERAGE PERVIOUSUBAREA AVERAGE PERVIOUSUBAREA AVERAGE PERVIOUSUBAREA AVERAGE PERVIOUSUBAREA TIME COMPUTED US	JBAREA (EXI	STING ELE ==================================	EMENT) <<<<< ================================	AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000 23 41.64) = 7.15	SCS CN 63 66 65 81 77 83	0.00 14

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* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.188

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EFFECTIVE AREA(ACRES) = 23.70
                           AREA-AVERAGED Fm(INCH/HR) = 0.23
 AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 1.00
                                                                      ** CONFLUENCE DATA **
 TOTAL AREA (ACRES) = 23.7 PEAK FLOW RATE (CFS) =
                                                                      STREAM
                                                                             Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
                                                                      NUMBER
                                                                               (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
                                                                       1
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
                                                                              169.95 8.97 3.465 0.27(0.07) 0.28 55.7 800.00
                                                                        2 79.88 13.55 2.743 0.24(0.24) 1.00 34.1 810.00
 DEPTH(FEET) = 1.55 FLOW VELOCITY(FEET/SEC.) = 7.68
 LONGEST FLOWPATH FROM NODE 810.00 TO NODE 813.00 = 2012.00 FEET.
                                                                      RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
******************
                                                                      CONFLUENCE FORMULA USED FOR 2 STREAMS.
 FLOW PROCESS FROM NODE 813.00 TO NODE 813.00 IS CODE = 81
                                                                      ** PEAK FLOW RATE TABLE **
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
                                                                             Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
_____
                                                                               (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
 MAINLINE Tc(MIN.) = 12.75
                                                                       1
                                                                              238.06 8.97 3.465 0.25(0.12) 0.49 78.3 800.00
                                                 OE - 3
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.840
                                                                              213.67 13.55 2.743 0.25(0.14) 0.55 89.8 810.00
 SUBAREA LOSS RATE DATA(AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA Fp Ap
                                                                      COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
    LAND USE
                 GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                      PEAK FLOW RATE (CFS) = 238.06 Tc (MIN.) = 8.97
 NATURAL FAIR COVER
                                                                      EFFECTIVE AREA(ACRES) = 78.27 AREA-AVERAGED Fm(INCH/HR) = 0.12
 "CHAPARRAL, BROADLEAF" C 10.40 0.25 1.000 75
                                                                      AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.49
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
                                                                      TOTAL AREA (ACRES) = 89.8
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
                                                                      LONGEST FLOWPATH FROM NODE 810.00 TO NODE 808.00 = 3058.00 FEET.
 SUBAREA AREA (ACRES) = 10.40 SUBAREA RUNOFF (CFS) = 24.24
                                                                    *******************
 EFFECTIVE AREA(ACRES) = 34.10 AREA-AVERAGED Fm(INCH/HR) = 0.24
 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 1.00
                                                                      FLOW PROCESS FROM NODE 808.00 TO NODE 809.00 IS CODE = 31
 TOTAL AREA (ACRES) = 34.1 PEAK FLOW RATE (CFS) = 79.88
                                                                      >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
******************
                                                                      >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<
                                                                    _____
 FLOW PROCESS FROM NODE 813.00 TO NODE 808.00 IS CODE = 31
______
                                                                      ELEVATION DATA: UPSTREAM(FEET) = 398.00 DOWNSTREAM(FEET) = 341.00
                                                                      FLOW LENGTH (FEET) = 756.00 MANNING'S N = 0.013
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
                                                                      DEPTH OF FLOW IN 42.0 INCH PIPE IS 31.4 INCHES
_____
                                                                      PIPE-FLOW VELOCITY(FEET/SEC.) = 30.86
 ELEVATION DATA: UPSTREAM(FEET) = 460.00 DOWNSTREAM(FEET) = 398.00
                                                                      ESTIMATED PIPE DIAMETER (INCH) = 42.00 NUMBER OF PIPES = 1
 FLOW LENGTH (FEET) = 1046.00 MANNING'S N = 0.013
                                                                      PIPE-FLOW(CFS) = 238.06
 DEPTH OF FLOW IN 30.0 INCH PIPE IS 21.1 INCHES
                                                                      PIPE TRAVEL TIME (MIN.) = 0.41 Tc (MIN.) = 9.38
 PIPE-FLOW VELOCITY (FEET/SEC.) = 21.64
                                                                      LONGEST FLOWPATH FROM NODE 810.00 TO NODE 809.00 = 3814.00 FEET.
 ESTIMATED PIPE DIAMETER (INCH) = 30.00 NUMBER OF PIPES = 1
                                                                    ******************
 PIPE-FLOW(CFS) = 79.88
 PIPE TRAVEL TIME (MIN.) = 0.81 Tc (MIN.) = 13.55
                                                                      FLOW PROCESS FROM NODE 809.00 TO NODE 809.00 IS CODE = 81
 LONGEST FLOWPATH FROM NODE 810.00 TO NODE 808.00 = 3058.00 FEET.
                                                                      >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
*****************
                                                                    _____
 FLOW PROCESS FROM NODE 808.00 TO NODE 808.00 IS CODE = 1
                                                                      MAINLINE Tc(MIN.) = 9.38
                                                                      * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.379
-----
 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE <<<<
                                                                      SUBAREA LOSS RATE DATA(AMC II):
 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<
                                                                      DEVELOPMENT TYPE/ SCS SOIL AREA FP Ap
______
                                                                                      GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                       LAND USE
                                                                                       A
                                                                                               5.60 0.40
 TOTAL NUMBER OF STREAMS = 2
                                                                      APARTMENTS
                                                                                                              0.200
                                                                                        B 12.30
                                                                                                     0.30
                                                                                                               0.200
                                                                                                                     56
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
                                                                      APARTMENTS
                                                                      COMMERCIAL
 TIME OF CONCENTRATION(MIN.) = 13.55
                                                                                        A 0.50
                                                                                                        0.40
                                                                                                               0.100
                                                                                                                     32
                                                                      COMMERCIAL
                                                                                        B 5.40
 RAINFALL INTENSITY (INCH/HR) = 2.74
                                                                                                        0.30
                                                                                                               0.100
                                                                                                                     56
 AREA-AVERAGED Fm(INCH/HR) = 0.24
                                                                      RESIDENTIAL
                                                                                        A 4.70
 AREA-AVERAGED Fp(INCH/HR) = 0.24
                                                                      ".4 DWELLING/ACRE"
                                                                                                        0.40
                                                                                                               0.900
                                                                                                                     32
 AREA-AVERAGED Ap = 1.00
                                                                      RESIDENTIAL
                                                                      ".4 DWELLING/ACRE"
                                                                                        B 4.20
                                                                                                        0.30 0.900
 EFFECTIVE STREAM AREA(ACRES) = 34.10
 TOTAL STREAM AREA(ACRES) = 34.10
                                                                      SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.34
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 79.88
                                                                      SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.372
```

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```
SUBAREA AREA(ACRES) = 32.70
                           SUBAREA RUNOFF (CFS) = 95.66
 EFFECTIVE AREA(ACRES) = 110.97 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp (INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.45
 TOTAL AREA(ACRES) = 122.5 PEAK FLOW RATE(CFS) =
                                               325.11
FLOW PROCESS FROM NODE 809.00 TO NODE 809.00 IS CODE = 81
______
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>
______
 MAINLINE Tc(MIN.) = 9.38
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.379
 SUBAREA LOSS RATE DATA(AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                Fp Ap
     LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 COMMERCIAL
                  A 9.90 0.40 0.100 32
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.40
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.100
 SUBAREA AREA(ACRES) = 9.90 SUBAREA RUNOFF(CFS) = 29.75
 EFFECTIVE AREA(ACRES) = 120.87 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp (INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.42
 TOTAL AREA (ACRES) = 132.4 PEAK FLOW RATE (CFS) = 354.85
******************
 FLOW PROCESS FROM NODE 809.00 TO NODE 809.00 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.) = 9.38
 RAINFALL INTENSITY (INCH/HR) = 3.38
 AREA-AVERAGED Fm(INCH/HR) = 0.12
 AREA-AVERAGED Fp(INCH/HR) = 0.27
 AREA-AVERAGED Ap = 0.42
 EFFECTIVE STREAM AREA(ACRES) = 120.87
 TOTAL STREAM AREA(ACRES) = 132.40
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 354.85
********************
 FLOW PROCESS FROM NODE 818.00 TO NODE 819.00 IS CODE = 21
______
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
______
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 323.00
 ELEVATION DATA: UPSTREAM(FEET) = 625.00 DOWNSTREAM(FEET) = 517.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
                                              OE-4
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 8.864
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.488
 SUBAREA TC AND LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                  Fρ
                                          Αp
    LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF" D
                           0.10
                                        1.000
                                   0.20
                                                81
                                                    8.86
 NATURAL FAIR COVER
 "OPEN BRUSH"
                           0.30
                                   0.25
                                         1.000
                                              77 8.86
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```
NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF" C 0.60 0.25 1.000 75 8.86
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF (CFS) = 2.92
 TOTAL AREA (ACRES) = 1.00 PEAK FLOW RATE (CFS) =
                                                2.92
******************
 FLOW PROCESS FROM NODE 819.00 TO NODE 820.00 IS CODE = 51
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <
_____
 ELEVATION DATA: UPSTREAM(FEET) = 517.00 DOWNSTREAM(FEET) = 395.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1167.00 CHANNEL SLOPE = 0.1045
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 20.00
                                                    OE-5
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.958
 SUBAREA LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/
                   SCS SOIL AREA
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL)
 COMMERCIAL
                    С
                            0.10 0.25
                                             0.100
 RESIDENTIAL
 ".4 DWELLING/ACRE"
                             0.90
                                      0.30
                                             0.900
                       B 1.30
 COMMERCIAL
                                      0.30
                                             0.100
                                                    56
 NATURAL FAIR COVER
 "OPEN BRUSH"
                              0.80
                                      0.20
                                             1.000
                                                    83
 NATURAL FAIR COVER
                              2.40
 "OPEN BRUSH"
                                      0.25
                                            1.000
                                                    77
 NATURAL FAIR COVER
                            3.20
 "CHAPARRAL, BROADLEAF" D
                                      0.20
                                           1.000
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.845
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 6.49
 AVERAGE FLOW DEPTH (FEET) = 0.84 TRAVEL TIME (MIN.) = 3.00
 Tc(MIN.) = 11.86
 SUBAREA AREA (ACRES) = 8.70 SUBAREA RUNOFF (CFS) = 21.65
 EFFECTIVE AREA(ACRES) = 9.70 AREA-AVERAGED Fm(INCH/HR) = 0.20
 AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.86
 TOTAL AREA (ACRES) = 9.7 PEAK FLOW RATE (CFS) =
                                                      24.09
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.03 FLOW VELOCITY (FEET/SEC.) = 7.50
 LONGEST FLOWPATH FROM NODE 818.00 TO NODE 820.00 = 1490.00 FEET.
*****************
 FLOW PROCESS FROM NODE 820.00 TO NODE 820.00 IS CODE = 81
 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
MAINLINE Tc(MIN.) = 11.86
                                                  OE-5
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.958
 SUBAREA LOSS RATE DATA(AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                  Fp
                                              Αp
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF"
                             4.00
                                      0.30
                                            1.000
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```

SUBAREA AVERAGE PERVIO			CH/HR) = 0 p = 1.000	.27		
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =				S) = 26.	87	
EFFECTIVE AREA(ACRES) =	= 20.80	AREA-	AVERAGED Fm	(INCH/HR)	= 0.24	
AREA-AVERAGED Fp(INCH/F TOTAL AREA(ACRES) =	1R) = 0.25	AREA-A	VERAGED AP	= U.94	50 96	
IOIAL ANEA (ACNES) -	20.0	FEAN	LTOM VVIE	CFS) -	30.90	
*******						***
FLOW PROCESS FROM NODE	820.00	TO NODE	820.00 I	S CODE =	81 	
>>>>ADDITION OF SUBAR						
MAINLINE Tc(MIN.) =	11.86					
* 25 YEAR RAINFALL IN			2.958		OE-	- 6
SUBAREA LOSS RATE DATA	(AMC II):	7 0 5 7	En	λn	909	
DEVELOPMENT TYPE/ LAND USE	SCS SOIT	(ACDES)	rp (TMCH/HD)	(DECIMAL)	CM	
סשנות בא דם רתונים וג מוויי גוו						
"CHAPARRAL, BROADLEAF" NATURAL FAIR COVER	В	3.40	0.30	1.000	63	
NATURAL FAIR COVER						
"CHAPARRAL, BROADLEAF"	С	1.80	0.25	1.000	75	
NATURAL FAIR COVER						
"CHAPARRAL, BROADLEAF"						
COMMERCIAL NATURAL FAIR COVER	В	1.00	0.30	0.100	56	
"GRASS"	R	0 10	0.30	1 000	69	
NATURAL FAIR COVER	Ъ	0.10	0.30	1.000	0,5	
"OPEN BRUSH"	В	0.50	0.30	1.000	66	
SUBAREA AVERAGE PERVIO						
SUBAREA AVERAGE PERVIOU	JS AREA FRA	CTION, A	p = 0.913			
SUBAREA AREA(ACRES) =	10.40	SUBARE	A RUNOFF (CF	(S) = 25.	53	
EFFECTIVE AREA (ACRES) =	= 31.20	AREA-	AVERAGED Fm	(INCH/HR)	= 0.23	
AREA-AVERAGED Fp(INCH/	IR) = 0.25	AREA-A	VERAGED Ap	= 0.93	76 40	
TOTAL AREA (ACRES) =	31.2	PEAK	FLOW RATE (CFS) =	76.49	
*******						****
FLOW PROCESS FROM NODE				S CODE =	81	
>>>>ADDITION OF SUBAR						
MAINLINE To (MIN.) =	11.86					
* 25 YEAR RAINFALL IN	ENSITY (INC	H/HR) =	2.958		OE-	0
	(AMC II):				000	
SUBAREA LOSS RATE DATA	CCC COTT	מים מי	Ti-o	7\		
SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/						
SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE						
SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "OPEN BRUSH"	GROUP	(ACRES)		(DECIMAL)	CN	
SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "OPEN BRUSH"	GROUP	(ACRES) 4.60	(INCH/HR)	(DECIMAL)	CN 77	
SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL	GROUP C D	(ACRES) 4.60 2.60	(INCH/HR) 0.25 0.20	1.000 1.000	CN 77 83	
SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE"	GROUP C D B	(ACRES) 4.60 2.60 0.20	(INCH/HR) 0.25 0.20 0.30	1.000 1.000 0.900	CN 77 83	
SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIOU	GROUP C D B JS LOSS RAT	(ACRES) 4.60 2.60 0.20 TE, Fp(IN	(INCH/HR) 0.25 0.20 0.30 CH/HR) = 0	1.000 1.000 0.900	CN 77 83	
SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "OPEN BRUSH" RESIDENTIAL ".4 DWELLING/ACRE"	GROUP C D B JS LOSS RAT JS AREA FRA	(ACRES) 4.60 2.60 0.20 EE, FP(IN	(INCH/HR) 0.25 0.20 0.30 CH/HR) = 0 p = 0.997	(DECIMAL) 1.000 1.000 0.900	CN 77 83 56	

```
TOTAL AREA (ACRES) = 38.6
                              PEAK FLOW RATE(CFS) =
                                                   94.64
******************
 FLOW PROCESS FROM NODE 820.00 TO NODE 817.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
______
 ELEVATION DATA: UPSTREAM(FEET) = 395.00 DOWNSTREAM(FEET) = 340.00
 FLOW LENGTH (FEET) = 1232.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 33.0 INCH PIPE IS 24.3 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 20.18
 ESTIMATED PIPE DIAMETER (INCH) = 33.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 94.64
 PIPE TRAVEL TIME (MIN.) = 1.02 Tc (MIN.) = 12.88
 LONGEST FLOWPATH FROM NODE 818.00 TO NODE 817.00 = 2722.00 FEET.
******************
 FLOW PROCESS FROM NODE 817.00 TO NODE 817.00 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.) = 12.88
 RAINFALL INTENSITY (INCH/HR) = 2.82
 AREA-AVERAGED Fm(INCH/HR) = 0.23
 AREA-AVERAGED Fp (INCH/HR) = 0.25
 AREA-AVERAGED Ap = 0.94
 EFFECTIVE STREAM AREA(ACRES) = 38.60
 TOTAL STREAM AREA(ACRES) = 38.60
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 94.64
 ** CONFLUENCE DATA **
  STREAM Q Tc Intensity Fp(Fm) Ap Ae HEADWATER
  NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE
   1
          354.85 9.38 3.379 0.27(0.12) 0.42 120.9 800.00
          306.06 13.98 2.696 0.27(0.13) 0.47 132.4 810.00
   1
         94.64 12.88 2.823 0.25(0.23) 0.94 38.6 818.00
 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
          438.55 9.38 3.379 0.27(0.14) 0.52 149.0 800.00
    2 412.36 12.88 2.823 0.26(0.15) 0.57 168.2 818.00
          396.03 13.98 2.696 0.26(0.15) 0.58 171.0 810.00
 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE (CFS) = 438.55 Tc (MIN.) = 9.38
 EFFECTIVE AREA(ACRES) = 148.98 AREA-AVERAGED Fm(INCH/HR) = 0.14
 AREA-AVERAGED Fp(INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.52
 TOTAL AREA (ACRES) = 171.0
 LONGEST FLOWPATH FROM NODE 810.00 TO NODE 817.00 = 3814.00 FEET.
```

END OF STUDY SUMMARY:

TOTAL AREA(ACRES) = 171.0 TC(MIN.) = 9.38 EFFECTIVE AREA(ACRES) = 148.98 AREA-AVERAGED Fm(INCH/HR) = 0.14

AREA-AVERAGED Fp(INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.522

PEAK FLOW RATE (CFS) = 438.55

** PEAK FLOW RATE TABLE **

STREAM	Q	Tc	Intensity	Fp(Fm)	Аp	Аe	HEADWATER
NUMBER	(CFS)	(MIN.)	(INCH/HR)	(INCH/HR)		(ACRES)	NODE
1	438.55	9.38	3.379	0.27(0.14)	0.52	149.0	800.00
2	412.36	12.88	2.823	0.26(0.15)	0.57	168.2	818.00
3	396.03	13.98	2.696	0.26(0.15)	0.58	171.0	810.00

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:

Michael Baker International 5 Hutton Centre Drive, Suite 500 Santa Ana, CA 92707

******************** DESCRIPTION OF STUDY ******************* * RMV PA-4 SUBAREA F ROMP 2018 * RATIONAL METHOD HYDROLOGY MODEL LOCAL * 100-YR HC AUG 2018 CCHTU FILE NAME: PA4F00HC.DAT TIME/DATE OF STUDY: 14:48 08/06/2018 ______ USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION: _____ --*TIME-OF-CONCENTRATION MODEL*--USER SPECIFIED STORM EVENT (YEAR) = 100.00 SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00 SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.90 *DATA BANK RAINFALL USED* *ANTECEDENT MOISTURE CONDITION (AMC) III 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) 20.0 0.018/0.018/0.020 0.67 2.00 0.0313 0.167 0.0150 1 30.0 2 32.0 27.0 0.020/0.020/ --- 0.67 2.00 0.0312 0.167 0.0150 3 13.0 8.0 0.020/0.020/ ---0.33 1.00 0.0312 0.125 0.0150 GLOBAL STREET FLOW-DEPTH CONSTRAINTS: 1. Relative Flow-Depth = 1.00 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 900.00 TO NODE 901.00 IS CODE = 21 _____ >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<< ______ INITIAL SUBAREA FLOW-LENGTH (FEET) = 314.00 ELEVATION DATA: UPSTREAM(FEET) = 496.00 DOWNSTREAM(FEET) = 485.00

```
Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 13.762
                                                   F-1
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.464
 SUBAREA To AND LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                                  SCS Tc
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
                    D 0.70
                                     0.20
                                            1.000
                                                   95 13.76
 "CHAPARRAL, BROADLEAF"
 NATURAL FAIR COVER
                           0.50 0.20 1.000
 "OPEN BRUSH"
                                                   96 13.76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 3.52
 TOTAL AREA (ACRES) = 1.20 PEAK FLOW RATE (CFS) =
*******************
 FLOW PROCESS FROM NODE 901.00 TO NODE 902.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 485.00 DOWNSTREAM(FEET) = 459.00
 FLOW LENGTH (FEET) = 1090.00 MANNING'S N = 0.013
 ESTIMATED PIPE DIAMETER (INCH) INCREASED TO 18.000
 DEPTH OF FLOW IN 18.0 INCH PIPE IS 5.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 7.07
 ESTIMATED PIPE DIAMETER (INCH) = 18.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
                  3.52
 PIPE TRAVEL TIME (MIN.) = 2.57 Tc (MIN.) = 16.33
 LONGEST FLOWPATH FROM NODE 900.00 TO NODE 902.00 = 1404.00 FEET.
******************
 FLOW PROCESS FROM NODE 902.00 TO NODE 902.00 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.) = 16.33
 RAINFALL INTENSITY (INCH/HR) = 3.14
 AREA-AVERAGED Fm(INCH/HR) = 0.20
 AREA-AVERAGED Fp (INCH/HR) = 0.20
 AREA-AVERAGED Ap = 1.00
 EFFECTIVE STREAM AREA(ACRES) = 1.20
 TOTAL STREAM AREA(ACRES) = 1.20
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 3.52
FLOW PROCESS FROM NODE 910.00 TO NODE 911.00 IS CODE = 21
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
_____
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 328.00
 ELEVATION DATA: UPSTREAM(FEET) = 785.00 DOWNSTREAM(FEET) = 612.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
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DETTEL ODMENIE EVDE /		MC III):	En	7. 10	000	m.a
DEVELOPMENT TYPE/ LAND USE	CBUILD	(ACDES)	rp (TNCH/HD)	(DECIMAL)	CM	(MTN)
IATURAL FAIR COVER	GROOF	(ACRES)	(INCH/HK)	(DECIMAL)	CIV	(MIIN.)
CHAPARRAL, BROADLEAF"	C.	0.10	0.25	1.000	91	8.14
MATURAL FAIR COVER	Ü	0.10	0.20	1.000	-	0.11
'CHAPARRAL, BROADLEAF"	D	0.50	0.20	1.000	95	8.14
NATURAL FAIR COVER						
OPEN BRUSH"			0.20		96	8.14
SUBAREA AVERAGE PERVIOUS				.20		
SUBAREA AVERAGE PERVIOUS		RACTION, A	p = 1.000			
SUBAREA RUNOFF(CFS) =					_	
COTAL AREA (ACRES) =	1.60	PEAK FLOW	RATE (CFS)	= 6.4	5	
*******	*****	*****	*****	******	****	*****
LOW PROCESS FROM NODE					51	
>>>>COMPUTE TRAPEZOIDAI						
>>>>TRAVELTIME THRU SUE						
ELEVATION DATA: UPSTREAN						
CHANNEL LENGTH THRU SUBA						
CHANNEL BASE (FEET) =	,	,				
MANNING'S FACTOR = 0.040				.00	\bigcirc	F-2
100 YEAR RAINFALL INTE	ENSITY(IN	ICH/HR) =	4.404		U	r [—] 스
SUBAREA LOSS RATE DATA(A						
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap	SCS	
	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
NATURAL FAIR COVER						
'CHAPARRAL, BROADLEAF"	С	1.00	0.25	1.000	91	
NATURAL FAIR COVER	0	0 00		1 000	0.0	
NATURAL FAIR COVER OPEN BRUSH"	С	0.60	0.25	1.000	92	
NATURAL FAIR COVER OPEN BRUSH" NATURAL FAIR COVER						
NATURAL FAIR COVER OPEN BRUSH" NATURAL FAIR COVER	D	2 30	0.20	1 000	95	
NATURAL FAIR COVER OPEN BRUSH" NATURAL FAIR COVER	D	2 30	0.20	1 000	95	
NATURAL FAIR COVER OPEN BRUSH" NATURAL FAIR COVER CHAPARRAL, BROADLEAF" NATURAL FAIR COVER OPEN BRUSH"	D D	2.30	0.20	1.000	95	
NATURAL FAIR COVER OPEN BRUSH" NATURAL FAIR COVER	D D S LOSS RA	2.30 1.00 ATE, Fp(IN	0.20 0.20 CH/HR) = 0	1.000	95	
NATURAL FAIR COVER 'OPEN BRUSH" NATURAL FAIR COVER 'CHAPARRAL, BROADLEAF" NATURAL FAIR COVER 'OPEN BRUSH" NUBAREA AVERAGE PERVIOUS NUBAREA AVERAGE PERVIOUS NEAREA AVERAGE PERVIOUS NEAREA TIME COMPUTED USI	D S LOSS RA S AREA FR ING ESTIM	2.30 1.00 TE, Fp(IN ACTION, A)	0.20 0.20 CH/HR) = 0 p = 1.000 (CFS) =	1.000 1.000 .22 15.69	95 96	
NATURAL FAIR COVER 'OPEN BRUSH" IATURAL FAIR COVER 'CHAPARRAL, BROADLEAF" NATURAL FAIR COVER 'OPEN BRUSH" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS STRAVEL TIME COMPUTED USI STRAVEL TIME THRU SUBAREA	D D LOSS RA AREA FR ING ESTIM	2.30 1.00 ATE, Fp(INGACTION, A) MATED FLOW NN VELOCIT	0.20 0.20 CH/HR) = 0 0 = 1.000 (CFS) = Y (FEET/SEC.	1.000 1.000 .22 15.69) = 8.41	95 96	
NATURAL FAIR COVER 'OPEN BRUSH" IATURAL FAIR COVER 'CHAPARRAL, BROADLEAF" NATURAL FAIR COVER 'OPEN BRUSH" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS CRAVEL TIME COMPUTED USI CRAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH (FEET)	D D LOSS RA AREA FR ING ESTIM	2.30 1.00 ATE, Fp(INGACTION, A) MATED FLOW NN VELOCIT	0.20 0.20 CH/HR) = 0 0 = 1.000 (CFS) = Y (FEET/SEC.	1.000 1.000 .22 15.69) = 8.41	95 96	
NATURAL FAIR COVER 'OPEN BRUSH" NATURAL FAIR COVER CCHAPARRAL, BROADLEAF" NATURAL FAIR COVER 'OPEN BRUSH" SUBAREA AVERAGE PERVIOUS CRAVEL TIME COMPUTED USI CRAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH (FEET) CC (MIN.) = 9.05	D D S LOSS RA S AREA FR ING ESTIM A BASED O = 0.7	2.30 1.00 TE, Fp(INGACTION, A) MATED FLOW ON VELOCIT TRAVE	0.20 0.20 CH/HR) = 0 0 = 1.000 (CFS) = Y (FEET/SEC. L TIME (MIN.	1.000 1.000 .22 15.69) = 8.41) = 0.91	95 96	
NATURAL FAIR COVER 'OPEN BRUSH" NATURAL FAIR COVER CCHAPARRAL, BROADLEAF" NATURAL FAIR COVER 'OPEN BRUSH" SUBAREA AVERAGE PERVIOUS STRAVEL TIME COMPUTED USI CRAVEL TIME THRU SUBAREA NAVERAGE FLOW DEPTH (FEET) CC (MIN.) = 9.05 SUBAREA AREA (ACRES) =	D D S LOSS RA S AREA FR ING ESTIM A BASED O = 0.7	2.30 1.00 TE, Fp(ING ACTION, A) HATED FLOW NN VELOCIT 9 TRAVE:	0.20 0.20 CH/HR) = 0 0 = 1.000 (CFS) = Y (FEET/SEC. L TIME (MIN.	1.000 1.000 .22 15.69) = 8.41) = 0.91 CFS) = 19	95 96 8.47	0.01
NATURAL FAIR COVER 'OPEN BRUSH" IATURAL FAIR COVER 'CHAPARRAL, BROADLEAF" IATURAL FAIR COVER 'OPEN BRUSH" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SRAVEL TIME COMPUTED USI TRAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH (FEET) CC (MIN.) = 9.05 SUBAREA AREA (ACRES) = SFFECTIVE AREA (ACRES) =	D D S LOSS RA S AREA FR ING ESTIM A BASED O = 0.7 4.90 6.5	2.30 1.00 ATE, FP(INGACTION, A) MATE FLOW IN VELOCIT 9 TRAVE: SUBAL	0.20 0.20 CH/HR) = 0 p = 1.000 (CFS) = Y (FEET/SEC. L TIME (MIN. REA RUNOFF (A-AVERAGED)	1.000 1.000 .22 15.69) = 8.41) = 0.91 CFS) = 1: Fm(INCH/HR	95 96 8.47	0.21
NATURAL FAIR COVER 'OPEN BRUSH" NATURAL FAIR COVER CCHAPARRAL, BROADLEAF" NATURAL FAIR COVER 'OPEN BRUSH" SUBAREA AVERAGE PERVIOUS STRAVEL TIME COMPUTED USI CRAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH (FEET) CC (MIN.) = 9.05 SUBAREA AREA (ACRES) = STFECTIVE AREA (ACRES) = STFECTIVE AREA (ACRES) = STREA-AVERAGED FP (INCH/HF	D S LOSS RA S AREA FR ING ESTIM A BASED O 0.7 4.90 6.5 8) = 0.	2.30 1.00 TE, Fp(INGACTION, A) MACTION, A) MATED FLOW NO VELOCIT '9 TRAVE: SUBAL 00 ARE 21 AREA-2	0.20 0.20 CH/HR) = 0 D = 1.000 (CFS) = Y (FEET/SEC. L TIME (MIN. REA RUNOFF (A-AVERAGED AVERAGED AP	1.000 1.000 .22 15.69) = 8.41) = 0.91 CFS) = 1: Fm(INCH/HR = 1.00	95 96 8.47	
NATURAL FAIR COVER 'OPEN BRUSH" IATURAL FAIR COVER 'CHAPARRAL, BROADLEAF" IATURAL FAIR COVER 'OPEN BRUSH" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SRAVEL TIME COMPUTED USI TRAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH (FEET) CC (MIN.) = 9.05 SUBAREA AREA (ACRES) = SFFECTIVE AREA (ACRES) =	D S LOSS RA S AREA FR ING ESTIM A BASED O 0.7 4.90 6.5 8) = 0.	2.30 1.00 TE, Fp(INGACTION, A) MACTION, A) MATED FLOW NO VELOCIT '9 TRAVE: SUBAL 00 ARE 21 AREA-2	0.20 0.20 CH/HR) = 0 D = 1.000 (CFS) = Y (FEET/SEC. L TIME (MIN. REA RUNOFF (A-AVERAGED AVERAGED AP	1.000 1.000 .22 15.69) = 8.41) = 0.91 CFS) = 1: Fm(INCH/HR = 1.00	95 96 8.47	
NATURAL FAIR COVER 'OPEN BRUSH" NATURAL FAIR COVER CCHAPARRAL, BROADLEAF" NATURAL FAIR COVER 'OPEN BRUSH" SUBAREA AVERAGE PERVIOUS STRAVEL TIME COMPUTED USI CRAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH (FEET) CC (MIN.) = 9.05 SUBAREA AREA (ACRES) = STFECTIVE AREA (ACRES) = STFECTIVE AREA (ACRES) = STREA-AVERAGED FP (INCH/HF	D D S LOSS RA S AREA FR ING ESTIM A BASED O = 0.7 4.90 6.5 R) = 0. 6.5	2.30 1.00 TE, FP(INGACTION, A) HATED FLOW ON VELOCIT 9 TRAVE: SUBAI 60 ARE 21 AREA- PE	0.20 0.20 CH/HR) = 0 D = 1.000 (CFS) = Y (FEET/SEC. L TIME (MIN. REA RUNOFF (A-AVERAGED AVERAGED AP	1.000 1.000 .22 15.69) = 8.41) = 0.91 CFS) = 1: Fm(INCH/HR = 1.00	95 96 8.47	
NATURAL FAIR COVER 'OPEN BRUSH" IATURAL FAIR COVER 'CHAPARRAL, BROADLEAF" IATURAL FAIR COVER 'OPEN BRUSH" SUBAREA AVERAGE PERVIOUS STRAVEL TIME COMPUTED USI TRAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH (FEET) CC (MIN.) = 9.05 SUBAREA AREA (ACRES) = STFECTIVE AREA (ACRES) = STFECTIVE AREA (ACRES) = COTAL AREA (ACRES) = COTAL AREA (ACRES) =	D S LOSS RA S AREA FR ING ESTIM A BASED O = 0.7 4.90 6.5 R) = 0. 6.5	2.30 1.00 ATE, FP(INGACTION, A) HATED FLOW ON VELOCIT 19 TRAVE: SUBAN 60 ARE 21 AREA-: PE	0.20 0.20 CH/HR) = 0 p = 1.000 (CFS) = Y (FEET/SEC. L TIME (MIN. REA RUNOFF (A-AVERAGED AVERAGED AP AK FLOW RAT	1.000 1.000 .22 15.69) = 8.41) = 0.91 CFS) = 1: Fm(INCH/HR = 1.00 E(CFS) =	95 96 8.47	
NATURAL FAIR COVER 'OPEN BRUSH" NATURAL FAIR COVER 'CHAPARRAL, BROADLEAF" NATURAL FAIR COVER 'OPEN BRUSH" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SRAVEL TIME COMPUTED USI TRAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH (FEET) CC (MIN.) = 9.05 SUBAREA AREA (ACRES) = STFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/HF COTAL AREA (ACRES) =	D D S LOSS RA S AREA FR ENG ESTIM A BASED O = 0.7 4.90 6.5 R) = 0. 6.5 CLOW HYDR LOW VELOC	2.30 1.00 ATE, FP(ING ACTION, A) LATED FLOW ON VELOCIT 9 TRAVE: SUBAL 10 AREA 21	0.20 0.20 CH/HR) = 0 p = 1.000 (CFS) = Y (FEET/SEC. L TIME (MIN. REA RUNOFF (A-AVERAGED AVERAGED AVERAGED AP AK FLOW RAT BEC.) = 9	1.000 1.000 .22 15.69) = 8.41) = 0.91 CFS) = 1: Fm (INCH/HR = 1.00 E(CFS) =	95 96 8.47) =	4.52
NATURAL FAIR COVER 'OPEN BRUSH" LATURAL FAIR COVER 'CHAPARRAL, BROADLEAF" NATURAL FAIR COVER 'OPEN BRUSH" LOPEN BRUSH" LOPEN BRUSH" LOPEN BRUSH LOPEN	D D S LOSS RA S AREA FR ENG ESTIM A BASED O = 0.7 4.90 6.5 R) = 0. 6.5 CLOW HYDR LOW VELOCO DE 91	2.30 1.00 ATE, FP(ING ACTION, A) HATED FLOW IN VELOCIT SUBAL AREA AREA AREA EXAULICS: CITY(FEET/S 0.00 TO NO	0.20 0.20 0.20 CH/HR) = 0 p = 1.000 (CFS) = Y (FEET/SEC. L TIME (MIN. REA RUNOFF (A-AVERAGED AVERAGED AP AK FLOW RAT SEC.) = 9 DDE 912.	1.000 1.000 .22 15.69) = 8.41) = 0.91 CFS) = 1: Fm(INCH/HR = 1.00 E(CFS) =	95 96 8.47) = 2	4.52 FEET.
NATURAL FAIR COVER 'OPEN BRUSH" NATURAL FAIR COVER 'CHAPARRAL, BROADLEAF" NATURAL FAIR COVER 'OPEN BRUSH" SUBAREA AVERAGE PERVIOUS RAVEL TIME COMPUTED USI RAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH(FEET) CC (MIN.) = 9.05 SUBAREA AREA (ACRES) = SEFECTIVE AREA (ACRES) = SEFECTIVE AREA (ACRES) = SUBAREA AVERAGED FD (INCH/HF TOTAL AREA (ACRES) = SUBO OF SUBAREA CHANNEL FOETH(FEET) = 0.93 FI	D D S LOSS RA S AREA FR ING ESTIM A BASED O = 0.7 4.90 6.5 R) = 0. 6.5 FLOW HYDR LOW VELOCO DE 91 ********* 912.00	2.30 1.00 1.00 ATE, Fp(ING ACTION, A) IATED FLOW IN VELOCIT 9 TRAVE: SUBAL 10 AREA- 10 AREA- 21 AREA- 21 AREA- 10 PE AULICS: CITY(FEET/ 0.00 TO NO **********************************	0.20 0.20 0.20 CH/HR) = 0 0 = 1.000 (CFS) = Y (FEET/SEC. L TIME (MIN. REA RUNOFF (A-AVERAGED AVERAGED AP AVERAGED AP DESC.) = 9 DDE 912. ************ 913.00 I	1.000 1.000 .22 15.69) = 8.41) = 0.91 CFS) = 1: Fm(INCH/HR = 1.00 E(CFS) = .38 00 = 7: ************* S CODE = 1:	95 96 8.47) = 2 86.00 ****	4.52 FEET. *****

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ELEVATION DATA: UPSTREAM(FEET) = 525.00 DOWNSTREAM(FEET) = 470.00

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CHANNEL LENGTH THRU SUBAREA (FEET) = 618.00 CHANNEL SLOPE = 0.0890 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000 OF-3MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 30.00 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.103 SUBAREA LOSS RATE DATA (AMC III): DEVELOPMENT TYPE/ SCS SOIL AREA Fр Αp LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN NATURAL FAIR COVER "OPEN BRUSH" В 0.10 0.30 1.000 84 NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" 4.60 0.25 1.000 91 NATURAL FAIR COVER "OPEN BRUSH" C 4.00 0.25 1.000 92 NATURAL FAIR COVER "WOODLAND, GRASS" 0.60 0.25 1.000 92 NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" 2.70 0.20 1.000 95 NATURAL FAIR COVER "OPEN BRUSH" 5.10 0.20 1.000 D SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 54.35 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.66 AVERAGE FLOW DEPTH (FEET) = 1.45 TRAVEL TIME (MIN.) = 1.19 Tc(MIN.) = 10.24SUBAREA AREA(ACRES) = 17.10 SUBAREA RUNOFF (CFS) = 59.65EFFECTIVE AREA(ACRES) = 23.60 AREA-AVERAGED Fm(INCH/HR) = 0.22 AREA-AVERAGED Fp (INCH/HR) = 0.22 AREA-AVERAGED Ap = 1.00TOTAL AREA (ACRES) = 23.6 PEAK FLOW RATE(CFS) = 82.40 END OF SUBAREA CHANNEL FLOW HYDRAULICS: DEPTH(FEET) = 1.69 FLOW VELOCITY(FEET/SEC.) = 9.61 LONGEST FLOWPATH FROM NODE 910.00 TO NODE 913.00 = 1404.00 FEET. ********************** FLOW PROCESS FROM NODE 913.00 TO NODE 902.00 IS CODE = 31 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA< >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<< ______ ELEVATION DATA: UPSTREAM(FEET) = 470.00 DOWNSTREAM(FEET) = 459.00 FLOW LENGTH (FEET) = 890.00 MANNING'S N = 0.013DEPTH OF FLOW IN 39.0 INCH PIPE IS 30.2 INCHES PIPE-FLOW VELOCITY (FEET/SEC.) = 11.94 ESTIMATED PIPE DIAMETER(INCH) = 39.00 NUMBER OF PIPES = 1 PIPE-FLOW(CFS) = 82.40PIPE TRAVEL TIME (MIN.) = 1.24 Tc (MIN.) = 11.48 LONGEST FLOWPATH FROM NODE 910.00 TO NODE 902.00 = 2294.00 FEET. ******************* FLOW PROCESS FROM NODE 902.00 TO NODE 902.00 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.) = 11.48 ****************** RAINFALL INTENSITY (INCH/HR) = 3.84FLOW PROCESS FROM NODE 902.00 TO NODE 902.00 IS CODE = 81 AREA-AVERAGED Fm(INCH/HR) = 0.22AREA-AVERAGED Fp (INCH/HR) = 0.22 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>> _____ AREA-AVERAGED Ap = 1.00EFFECTIVE STREAM AREA(ACRES) = 23.60 MAINLINE Tc (MIN.) = 11.48TOTAL STREAM AREA(ACRES) = 23.60 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.843 PEAK FLOW RATE (CFS) AT CONFLUENCE = 82.40 SUBAREA LOSS RATE DATA (AMC III): DEVELOPMENT TYPE/ SCS SOIL AREA Fр Aр ** CONFLUENCE DATA ** LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) Tc Intensity Fp(Fm) Ap Ae HEADWATER STREAM NATURAL FAIR COVER NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE "OPEN BRUSH" 0.20 0.25 1.000 1 3.52 16.33 3.140 0.20(0.20) 1.00 1.2 900.00 RESIDENTIAL 2 82.40 11.48 3.843 0.22(0.22) 1.00 23.6 910.00 ".4 DWELLING/ACRE" C 0.10 0.25 0.900 NATURAL FAIR COVER RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO "CHAPARRAL, BROADLEAF" D 3.20 0.20 1.000 CONFLUENCE FORMULA USED FOR 2 STREAMS. COMMERCIAL D 3.40 0.20 0.100 NATURAL FAIR COVER ** PEAK FLOW RATE TABLE ** "OPEN BRUSH" 3.30 0.20 1.000 D STREAM 0 Tc Intensity Fp(Fm) Ap Ae HEADWATER RESIDENTIAL NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE ".4 DWELLING/ACRE" D 0.70 0.20 0.900 1 85.47 11.48 3.843 0.22(0.22) 1.00 24.4 910.00 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20 69.93 16.33 3.140 0.22(0.22) 1.00 24.8 900.00 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.712 SUBAREA RUNOFF(CFS) = 36.29 SUBAREA AREA(ACRES) = 10.90 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS: EFFECTIVE AREA(ACRES) = 42.44 AREA-AVERAGED Fm(INCH/HR) = 0.17 PEAK FLOW RATE (CFS) = 85.47 Tc (MIN.) = 11.48AREA-AVERAGED Fp (INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.79 TOTAL AREA (ACRES) = 42.8 PEAK FLOW RATE (CFS) = EFFECTIVE AREA(ACRES) = 24.44 AREA-AVERAGED Fm(INCH/HR) = 0.22 AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 1.00 ***************** TOTAL AREA (ACRES) = 24.8 LONGEST FLOWPATH FROM NODE 910.00 TO NODE 902.00 = 2294.00 FEET. FLOW PROCESS FROM NODE 902.00 TO NODE 903.00 IS CODE = 31 ***************** >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA< FLOW PROCESS FROM NODE 902.00 TO NODE 902.00 IS CODE = 81 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<< ______ >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>> ELEVATION DATA: UPSTREAM(FEET) = 459.00 DOWNSTREAM(FEET) = 426.00 _____ FLOW LENGTH (FEET) = 654.00 MANNING'S N = 0.013MAINLINE Tc(MIN.) = 11.48DEPTH OF FLOW IN 36.0 INCH PIPE IS 29.1 INCHES * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.843 PIPE-FLOW VELOCITY(FEET/SEC.) = 22.92ESTIMATED PIPE DIAMETER (INCH) = 36.00 NUMBER OF PIPES = 1 SUBAREA LOSS RATE DATA (AMC III): DEVELOPMENT TYPE/ SCS SOIL AREA Fρ Ap PIPE-FLOW(CFS) = 140.15PIPE TRAVEL TIME (MIN.) = 0.48 Tc (MIN.) = 11.96 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN LONGEST FLOWPATH FROM NODE 910.00 TO NODE 903.00 = 2948.00 FEET. NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" В 0.20 0.30 1.000 ****************** 5.50 0.100 76 COMMERCIAL В 0.30 NATURAL FAIR COVER FLOW PROCESS FROM NODE 903.00 TO NODE 903.00 IS CODE = 1 1.000 ______ "OPEN BRUSH" 0.20 0.30 RESIDENTIAL >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE <<-<-".4 DWELLING/ACRE" _____ В 0.10 0.30 0.900 76 NATURAL FAIR COVER TOTAL NUMBER OF STREAMS = 3 "CHAPARRAL, BROADLEAF" С 0.10 0.25 1.000 91 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE: С 1.00 0.100 COMMERCIAL 0.25 TIME OF CONCENTRATION (MIN.) = 11.96 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.29 RAINFALL INTENSITY (INCH/HR) = 3.75SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.175 AREA-AVERAGED Fm(INCH/HR) = 0.17SUBAREA AREA(ACRES) = 7.10 SUBAREA RUNOFF (CFS) = 24.23AREA-AVERAGED Fp (INCH/HR) = 0.22 EFFECTIVE AREA(ACRES) = 31.54 AREA-AVERAGED Fm(INCH/HR) = 0.18 AREA-AVERAGED Ap = 0.79AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.81EFFECTIVE STREAM AREA(ACRES) = 42.44 TOTAL AREA (ACRES) = 31.9 PEAK FLOW RATE (CFS) = 103.86TOTAL STREAM AREA(ACRES) = 42.80

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140.15

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PEAK FLOW RATE(CFS) AT	CONFLUENCE	= 140	0.15			
**************************************						*****
>>>>RATIONAL METHOD IN >>USE TIME-OF-CONCENTRA				BAREA<<		
		206			=====	
INITIAL SUBAREA FLOW-LE ELEVATION DATA: UPSTREA				AM(FEET) =	. 7	12.00
Tc = K*[(LENGTH** 3.00) SUBAREA ANALYSIS USED M * 100 YEAR RAINFALL INT	MINIMUM Tc(MIN.) =	7.737		Ol	7-4
SUBAREA TO AND LOSS RAT	,		4.010			
			Fр	Аp	SCS	Tc
DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER						
"OPEN BRUSH" NATURAL FAIR COVER			0.25			
"OPEN BRUSH" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU	JS LOSS RAT	E, Fp(INC			96	7.74
SUBAREA RUNOFF(CFS) = TOTAL AREA(ACRES) =	3.73	_		= 3.7	3	
, , ,			(/			
*******		*****	*****	*****		
FLOW PROCESS FROM NODE	921.00 AL CHANNEL	TO NODE	922.00 I	S CODE =		
FLOW PROCESS FROM NODE	921.00 AL CHANNEL JBAREA (EXI	TO NODE FLOW<<<< STING ELEN	922.00 I	S CODE =		
FLOW PROCESS FROM NODE	921.00 AL CHANNEL JBAREA (EXI AM (FEET) = BAREA (FEET)	TO NODE 	922.00 I MENT) <<<< DOWNSTRE 00 CHANN	S CODE = =============================	51	 00.00
FLOW PROCESS FROM NODE	921.00 AL CHANNEL UBAREA (EXI AM (FEET) = BAREA (FEET) 0.00 "Z 40 MAXIMU TENSITY (INC	TO NODE FLOW<<<<< STING ELEI 712.00 = 594.0 " FACTOR: M DEPTH(FI H/HR) = 600	922.00 I MENT) <<<< DOWNSTRE 00 CHANN 3.000 EET) = 30	S CODE = = AM(FEET) = EL SLOPE =	51	 00.00
FLOW PROCESS FROM NODE	921.00 AL CHANNEL JBAREA (EXI AM (FEET) = BAREA (FEET) 0.00 "Z 40 MAXIMU FENSITY (INC (AMC III):	TO NODE FLOW<<<< STING ELEM 712.00 = 594. " FACTOR = M DEPTH(F) H/HR) = 4	922.00 I MENT) <<<< DOWNSTRE 00 CHANN = 3.000 EET) = 30 4.493	S CODE = AM(FEET) = EL SLOPE = .00	51 6 6 0.1	====== 00.00 886
FLOW PROCESS FROM NODE	921.00 AL CHANNEL JBAREA (EXI AM (FEET) = BAREA (FEET) 0.00 "Z 40 MAXIMU FENSITY (INC (AMC III):	TO NODE FLOW<<<< STING ELEM 712.00 = 594. " FACTOR = M DEPTH(F) H/HR) = 4	922.00 I MENT) <<<< DOWNSTRE 00 CHANN 3.000 EET) = 30 4.493	S CODE = AM(FEET) = EL SLOPE = .00	51 6 0.1 OF	====== 00.00 886
FLOW PROCESS FROM NODE	921.00 AL CHANNEL JBAREA (EXI	TO NODE FLOW< STING ELEM 712.00 = 594. " FACTOR: M DEPTH(FI H/HR) = AREA (ACRES)	922.00 I MENT) <<<< DOWNSTRE 00 CHANN 3.000 EET) = 30 4.493	S CODE = AM(FEET) = EL SLOPE = .00 Ap (DECIMAL)	51 6 6 0.1 OF SCS CN	====== 00.00 886
FLOW PROCESS FROM NODE	921.00 AL CHANNEL UBAREA (EXI AM (FEET) = BAREA (FEET) 0.00 "Z 40 MAXIMU FENSITY (INC (AMC III): SCS SOIL GROUP D	TO NODE FLOW<<<<< STING ELEN 712.00 = 594.0 " FACTOR: M DEPTH(FI H/HR) = AREA (ACRES) 0.20	922.00 I MENT) <<<< DOWNSTRE 00 CHANN = 3.000 EET) = 30 Fp (INCH/HR) 0.20	S CODE =	51 6 0.1 OF SCS CN 95	====== 00.00 886
FLOW PROCESS FROM NODE	921.00 AL CHANNEL UBAREA (EXI AM (FEET) = BAREA (FEET) 0.00 "Z 40 MAXIMU FENSITY (INC (AMC III): SCS SOIL GROUP D	TO NODE FLOW<<<<< STING ELEN 712.00 = 594.0 " FACTOR: M DEPTH(FI H/HR) = AREA (ACRES) 0.20	922.00 I MENT) <<<< DOWNSTRE 00 CHANN = 3.000 EET) = 30 Fp (INCH/HR) 0.20	S CODE =	51 6 0.1 OF SCS CN 95	====== 00.00 886
FLOW PROCESS FROM NODE	921.00	TO NODE FLOW<<<<< STING ELEN 712.00 = 594.0 " FACTOR: M DEPTH(FN H/HR) = 4 AREA (ACRES) 0.20 1.00 1.40	922.00 I 922.00 I MENT) <<<< DOWNSTRE 00 CHANN 3.000 EET) = 30 4.493 Fp (INCH/HR) 0.20 0.25 0.25	S CODE =	51 	====== 00.00 886
FLOW PROCESS FROM NODE	921.00 AL CHANNEL JBAREA (EXI	TO NODE FLOW<<<<< STING ELEN 712.00 = 594.0 " FACTOR: M DEPTH (FI H/HR) = AREA (ACRES) 0.20 1.00 1.40 4.40	922.00 I 922	S CODE =	51 	 00.00 886
FLOW PROCESS FROM NODE	921.00 AL CHANNEL JBAREA (EXI	TO NODE FLOW<<<<< STING ELEN 712.00 = 594.0 " FACTOR: M DEPTH (FI H/HR) = 4 AREA (ACRES) 0.20 1.00 1.40 4.40 6.70 E, FP (INC)	922.00 I 922.00 I 922.00 I MENT) <<<< DOWNSTRE 00 CHANN = 3.000 EET) = 30 4.493 Fp (INCH/HR) 0.20 0.25 0.25 0.20 0.20 H/HR) = 0	S CODE =	51 	====== 00.00 886
FLOW PROCESS FROM NODE	921.00	TO NODE FLOW<<<<< STING ELEM 712.00 = 594.1 " FACTOR = M DEPTH(F) H/HR) = 4 AREA (ACRES) 0.20 1.00 1.40 4.40 6.70 E, Fp(INCI CTION, Ap TED FLOW(C	922.00 I MENT) <<<< DOWNSTRE 00 CHANN = 3.000 EET) = 30 4.493 Fp (INCH/HR) 0.20 0.25 0.25 0.20 0.20 H/HR) = 0 = 1.000 CFS) =	S CODE =	51 6 0.1 OF SCS CN 95 91 92 95 96	====== 00.00 886
FLOW PROCESS FROM NODE	921.00	TO NODE FLOW<<<<< STING ELEM 712.00 = 594.0 " FACTOR: M DEPTH(F) H/HR) = 4 (ACRES) 0.20 1.00 1.40 4.40 6.70 E, Fp(INCI CTION, Ap TED FLOW(C) VELOCITY	922.00 I MENT) <<<<< DOWNSTRE 00 CHANN = 3.000 EET) = 30 4.493 Fp (INCH/HR) 0.20 0.25 0.25 0.20 H/HR) = 0 = 1.000 CFS) = (FEET/SEC.	S CODE =	51 6 0.1 OF SCS CN 95 91 92 95 96	====== 00.00 886
FLOW PROCESS FROM NODE	921.00 AL CHANNEL JBAREA (EXI AM (FEET) = BAREA (FEET) 0.00 "Z 0 MAXIMU FENSITY (INC (AMC III): SCS SOIL GROUP D C C D JS LOSS RAT JS AREA FRA SING ESTIMA EA BASED ON T) = 1.01	TO NODE FLOW<<<<< STING ELEN 712.00 594.0 " FACTOR: M DEPTH (FI H/HR) AREA (ACRES) 0.20 1.00 1.40 4.40 6.70 E, Fp(INCI CTION, Ap TED FLOW(0 VELOCITY TRAVEL	922.00 I	S CODE =	51 6 0.1 OF SCS CN 95 91 92 95 96	====== 00.00 886

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AREA-AVERAGED Fp(INCH/HR) = 0.21 AREA-AVERAGED Ap = 1.00
                  14.6 PEAK FLOW RATE(CFS) =
                                                     56.29
 TOTAL AREA (ACRES) =
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 1.28 FLOW VELOCITY(FEET/SEC.) = 11.51
 LONGEST FLOWPATH FROM NODE 920.00 TO NODE 922.00 =
                                                880.00 FEET.
******************
 FLOW PROCESS FROM NODE 922.00 TO NODE 923.00 IS CODE = 51
______
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <
______
 ELEVATION DATA: UPSTREAM(FEET) = 600.00 DOWNSTREAM(FEET) = 550.00
 CHANNEL LENGTH THRU SUBAREA(FEET) = 604.00 CHANNEL SLOPE = 0.0828
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 30.00
                                                  OF-6
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.191
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/
                   SCS SOIL AREA
                                  Fρ
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF" D 0.70 0.20 1.000
                                                  95
 NATURAL FAIR COVER
 "WOODLAND, GRASS"
                      D 1.40 0.20 1.000
                                                  95
 NATURAL FAIR COVER
 "OPEN BRUSH"
                             5.40
                                    0.20 1.000
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.94
 AVERAGE FLOW DEPTH (FEET) = 1.61 TRAVEL TIME (MIN.) = 1.13
 Tc(MIN.) = 9.87
 SUBAREA AREA(ACRES) = 7.50
                              SUBAREA RUNOFF (CFS) = 26.94
 EFFECTIVE AREA(ACRES) = 22.10 AREA-AVERAGED Fm(INCH/HR) = 0.21
 AREA-AVERAGED Fp (INCH/HR) = 0.21 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 22.1
                              PEAK FLOW RATE(CFS) =
                                                    79.27
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH (FEET) = 1.69 FLOW VELOCITY (FEET/SEC.) = 9.24
 LONGEST FLOWPATH FROM NODE 920.00 TO NODE 923.00 = 1484.00 FEET.
******************
 FLOW PROCESS FROM NODE 923.00 TO NODE 924.00 IS CODE = 51
______
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <
_____
 ELEVATION DATA: UPSTREAM(FEET) = 550.00 DOWNSTREAM(FEET) = 495.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 849.00 CHANNEL SLOPE = 0.0648
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 30.00
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.851
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                  Fр
                                            Αp
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
     LAND USE
 NATURAL FAIR COVER
 "WOODLAND, GRASS"
                    В
                            0.60
                                    0.30 1.000
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NATURAL FAIR COVER						* 100 YE	EAR RAINFALL IN	TENSITY (IN	CH/HR) =	3.696		OF-8
"WOODLAND, GRASS"	С	0.80	0.25	1.000	92		LOSS RATE DATA	,	,			OT. — Q
NATURAL FAIR COVER							PMENT TYPE/	SCS SOIL	AREA	Fp	Дp	SCS
"OPEN BRUSH"	В	0.80	0.30	1.000	84		,			(INCH/HR)	(DECIMAL)	
NATURAL FAIR COVER							FAIR COVER		(,	(==:, ===:,	(,	
CHAPARRAL, BROADLEAF"	В	1.10	0.30	1.000	81		RAL, BROADLEAF"	В	0.10	0.30	1.000	81
TURAL FAIR COVER	D	1.10	0.50	1.000	01		FAIR COVER	2	0.10	0.30	1.000	01
OODLAND, GRASS"	D	5.20	0.20	1.000	9.5		ND, GRASS"	В	0.30	0.30	1.000	83
•	D	3.20	0.20	1.000	55		•	Ь	0.50	0.50	1.000	0.5
'URAL FAIR COVER	C	6 20	0.05	1 000	0.1		FAIR COVER	C	0 00	0.05	1 000	0.2
APARRAL, BROADLEAF"		6.30	0.25	1.000	91	"GRASS"	ENTR COURT	С	0.60	0.25	1.000	93
AREA AVERAGE PERVIOUS		-		24			FAIR COVER	_	0.70	0 20	1 000	0.4
AREA AVERAGE PERVIOUS		_		100 00		"OPEN BF		В	0.70	0.30	1.000	84
EL TIME COMPUTED USIN							FAIR COVER					
L TIME THRU SUBAREA							ND, GRASS"	D	0.90	0.20	1.000	95
AGE FLOW DEPTH(FEET)	= 1.96	TRAVEL T	MIME (MIN.)	= 1.57			FAIR COVER					
IN.) = 11.44						"GRASS"		В	0.90	0.30	1.000	86
BAREA AREA(ACRES) =			RUNOFF(C				AVERAGE PERVIO		-		.27	
FECTIVE AREA(ACRES) =) = 0.22	SUBAREA	AVERAGE PERVIO	JS AREA FRA	ACTION, A	p = 1.000		
EA-AVERAGED Fp(INCH/HR)) = 0.22	AREA-AVE	RAGED Ap	= 1.00		TRAVEL I	TIME COMPUTED U	SING ESTIMA	ATED FLOW	(CFS) =	333.54	
TAL AREA(ACRES) =	36.9	PEAK	FLOW RATE	(CFS) =	120.58	TRAVEL T	TIME THRU SUBARI	EA BASED O	VELOCIT	Y(FEET/SEC.) = 11.90	
						AVERAGE	FLOW DEPTH (FEE	Γ) = 3.0	5 TRAVE	L TIME (MIN.) = 0.85	
O OF SUBAREA CHANNEL FI	LOW HYDRAUI	JICS:				Tc(MIN.)	= 12.29					
TH(FEET) = 2.07 FLO	OW VELOCITY	(FEET/SEC	C.) = 9.	36		SUBAREA	AREA (ACRES) =	3.50	SUBA	REA RUNOFF(CFS) = 1	0.81
GEST FLOWPATH FROM NOI					33.00 FEET.	EFFECTIV	/E AREA(ACRES) =	= 103.70) ARE	A-AVERAGED	Fm(INCH/HR	0.21
						AREA-AVE	ERAGED Fp(INCH/	IR) = 0.3	21 AREA-	AVERAGED Ap	= 1.00	
	******	*****	*****	*****	*****	TOTAL AF	REA (ACRES) =	103.7	PE	AK FLOW RAT	E(CFS) =	328.14
********											(/	
LOW PROCESS FROM NODE						NOTE: PE	EAK FLOW RATE DI	EFAULTED TO) UPSTREAL	M VALUE		
**************************************	TO MAINLIN	IE PEAK FL	JOW<<<<			END OF S DEPTH (FE	SUBAREA CHANNEL EET) = 3.04	FLOW HYDRA	AULICS: ITY(FEET/	SEC.) = 11		40.00 FEET.
W PROCESS FROM NODE >>>ADDITION OF SUBAREA INLINE TC (MIN.) = 11. 00 YEAR RAINFALL INTEN BAREA LOSS RATE DATA (AN EVELOPMENT TYPE/	TO MAINLIN .44 NSITY(INCH) MC III): SCS SOIL	JE PEAK FL 		 Ap	OF - 7	END OF S DEPTH(FE LONGEST ******** FLOW PRO	SUBAREA CHANNEL EET) = 3.04 1 FLOWPATH FROM 1 ************************************	FLOW HYDRA FLOW VELOC: NODE 920	AULICS: ITY(FEET/: 0.00 TO NO *********	SEC.) = 11 DDE 925. **************	00 = 29 ******* S CODE =	81
W PROCESS FROM NODE >>>ADDITION OF SUBAREA INLINE TC (MIN.) = 11. 00 YEAR RAINFALL INTEN PAREA LOSS RATE DATA (AN EVELOPMENT TYPE/ LAND USE	TO MAINLIN ======== .44 NSITY(INCH/	JE PEAK FL 		 Ap	OF - 7	END OF S DEPTH(FE LONGEST ******** FLOW PRO	SUBAREA CHANNEL EET) = 3.04 1 FLOWPATH FROM 1 ***************** DCESS FROM NODE	FLOW HYDRA FLOW VELOC: NODE 920	AULICS: ITY(FEET/: 0.00 TO NO ********* TO NODE	BEC.) = 11 DDE 925. ************** 925.00 I	00 = 29 ******* S CODE =	********* 81
OW PROCESS FROM NODE >>>ADDITION OF SUBAREA INLINE TC (MIN.) = 11. OO YEAR RAINFALL INTENBAREA LOSS RATE DATA (AND EVELOPMENT TYPE/ LAND USE TURAL FAIR COVER	TO MAINLIN .44 NSITY(INCH/ MC III): SCS SOIL GROUP (2	ME PEAK FL 'HR) = 3. AREA ACRES) (I	851 Fp CNCH/HR)	Ap (DECIMAL)	OF - 7 scs CN	END OF S DEPTH(FE LONGEST ******** FLOW PRO >>>>>ADE	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 *************** DCESS FROM NODE DITION OF SUBARI	FLOW HYDRA FLOW VELOC: NODE 920 ************************************	AULICS: ITY (FEET/: 0.00 TO NO ******** TO NODE LINE PEAK	BEC.) = 11 DDE 925. *********** 925.00 I	00 = 29 ******* S CODE =	******** 81
W PROCESS FROM NODE >>ADDITION OF SUBAREA NLINE TC (MIN.) = 11. 00 YEAR RAINFALL INTEN AREA LOSS RATE DATA (AN VELOPMENT TYPE/ LAND USE URAL FAIR COVER EN BRUSH"	TO MAINLIN .44 NSITY(INCH) MC III): SCS SOIL	JE PEAK FL 		 Ap	OF - 7	END OF S DEPTH(FE LONGEST ******** FLOW PRO >>>>>ADD	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM I	FLOW HYDRA FLOW VELOC: NODE 920 ************* 925.00 EA TO MAINI	AULICS: ITY (FEET/: 0.00 TO NO ******** TO NODE LINE PEAK	BEC.) = 11 DDE 925. *********** 925.00 I	00 = 29 ******* S CODE =	******** 81
PROCESS FROM NODE >>ADDITION OF SUBAREA	TO MAINLIN .44 NSITY(INCH) MC III): SCS SOIL GROUP (A	ME PEAK FL 'HR) = 3. AREA ACRES) (I		Ap (DECIMAL)	OF - 7 scs cn 92	END OF S DEPTH(FE LONGEST ******** FLOW PRO >>>>>ADI ========= MAINLINE	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 *************** DCESS FROM NODE DITION OF SUBARI	FLOW HYDRA FLOW VELOC: NODE 920 ************ 925.00 EA TO MAIN:	AULICS: ITY(FEET/:).00 TO NO ******** TO NODE	BEC.) = 11 DDE 925. *********** 925.00 I FLOW<<<<	00 = 29 ******* S CODE =	******* 81
PROCESS FROM NODE ADDITION OF SUBAREA INE TC (MIN.) = 11. YEAR RAINFALL INTEN EA LOSS RATE DATA (AN LOPMENT TYPE/ SLAND USE AL FAIR COVER BRUSH" AL FAIR COVER ARRAL, BROADLEAF"	TO MAINLIN .44 NSITY(INCH) MC III): SCS SOIL GROUP (A	ME PEAK FL 'HR) = 3. AREA ACRES) (I	851 Fp CNCH/HR)	Ap (DECIMAL)	OF - 7 scs CN	END OF S DEPTH(FE LONGEST ******** FLOW PRO >>>>ADI ======== MAINLINE * 100 YE	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 ************** DCESS FROM NODE DITION OF SUBARI E TC (MIN.) = 1 EAR RAINFALL IN	FLOW HYDRA FLOW VELOC: NODE 920 ************ 925.00 EA TO MAIN: 12.29 FENSITY(ING	AULICS: ITY(FEET/:).00 TO NO ******** TO NODE	BEC.) = 11 DDE 925. *********** 925.00 I FLOW<<<<	00 = 29 ******* S CODE =	******** 81
PROCESS FROM NODE >>ADDITION OF SUBAREA NLINE Tc (MIN.) = 11. O YEAR RAINFALL INTEN AREA LOSS RATE DATA (AN YELOPMENT TYPE/ LAND USE URAL FAIR COVER EN BRUSH" URAL FAIR COVER APARRAL, BROADLEAF" URAL FAIR COVER	TO MAINLIN .44 NSITY(INCH/ MC III): SCS SOIL GROUP (2	HE PEAK FL HR) = 3. AREA ACRES) (I 9.70 17.00		Ap (DECIMAL) 1.000 1.000	OF-7 scs CN 92 95	END OF S DEPTH (FE LONGEST ******** FLOW PRO >>>>ADD ======== MAINLINE * 100 YE SUBAREA	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 ************** DITION OF SUBARI E TC(MIN.) = EAR RAINFALL INT LOSS RATE DATA	FLOW HYDRA FLOW VELOC: NODE 925.00 925.00 EA TO MAIN: 12.29 FENSITY(ING	AULICS: ITY(FEET/: 0.00 TO NO *********** TO NODE LINE PEAK 	BEC.) = 11 DDE 925. ******** 925.00 I FLOW<<<< =================================	00 = 29 ******* S CODE =	**************************************
PROCESS FROM NODE ADDITION OF SUBAREA INE Tc(MIN.) = 11. YEAR RAINFALL INTEN REA LOSS RATE DATA (AN LOPMENT TYPE/ SAL FAIR COVER I BRUSH" RAL FAIR COVER PARRAL, BROADLEAF" RAL FAIR COVER I BRUSH" RAL FAIR COVER	TO MAINLIN .44 NSITY(INCH, MC III): SCS SOIL GROUP (F	HE PEAK FL HR) = 3. AREA ACRES) (I 9.70 17.00 36.60		Ap (DECIMAL) 1.000 1.000	OF - 7 scs cn 92	END OF S DEPTH (FE LONGEST ******** FLOW PRC >>>>ADD ======== MAINLINE * 100 YE SUBAREA DEVELOE	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 **************** DITION OF SUBARI EETC(MIN.) = EAR RAINFALL IN' LOSS RATE DATA PMENT TYPE/	FLOW HYDRA FLOW VELOC: NODE 920 ************ 925.00 EA TO MAIN: ====================================	AULICS: ITY (FEET/: 0.00 TO NO ******* TO NODE LINE PEAK	SEC.) = 11 DDE 925. ******** 925.00 I FLOW<<<< =================================	00 = 29 ******* S CODE =	**************************************
PROCESS FROM NODE ADDITION OF SUBAREA INE TC (MIN.) = 11. YEAR RAINFALL INTEN EA LOSS RATE DATA (AN LOPMENT TYPE/ LAND USE AL FAIR COVER BRUSH" AL FAIR COVER ARRAL, BROADLEAF" AL FAIR COVER BRUSH" EA AVERAGE PERVIOUS	TO MAINLIN .44 NSITY(INCH, MC III): SCS SOIL GROUP (F	HE PEAK FL HR) = 3. AREA CRES) (I 9.70 17.00 36.60 Fp(INCH/		Ap (DECIMAL) 1.000 1.000	OF-7 scs CN 92 95	END OF S DEPTH (FE LONGEST ******** FLOW PRO >>>>ADD MAINLINE * 100 YE SUBAREA DEVELOE LAN	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 **************** DITION OF SUBARI ETC(MIN.) = ETC(MIN.) = ETC(MIN.) = ETC(MIN.) LOSS RATE DATA PMENT TYPE/ ND USE	FLOW HYDRA FLOW VELOC: NODE 920 ************ 925.00 EA TO MAIN: ====================================	AULICS: ITY (FEET/: 0.00 TO NO ******* TO NODE LINE PEAK	BEC.) = 11 DDE 925. ******** 925.00 I FLOW<<<< =================================	00 = 29 ******* S CODE =	**************************************
ROCESS FROM NODE DDITION OF SUBAREA NE TC (MIN.) = 11. YEAR RAINFALL INTEN A LOSS RATE DATA (AN OPMENT TYPE/ SAND USE L FAIR COVER BRUSH" L FAIR COVER RRAL, BROADLEAF" L FAIR COVER BRUSH" A AVERAGE PERVIOUS A AVERAGE PERVIOUS	TO MAINLIN .44 NSITY(INCH, MC III): SCS SOIL GROUP (F C D D LOSS RATE, AREA FRACT	HE PEAK FL HR) = 3. AREA ACRES) (I 9.70 17.00 36.60 Fp(INCH/ CION, Ap =		Ap (DECIMAL) 1.000 1.000 1.000 21	OF-7 scs cn 92 95 96	END OF S DEPTH (FE LONGEST ******** FLOW PRO >>>>ADD MAINLINE * 100 YE SUBAREA DEVELOE LAN	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 **************** DITION OF SUBARI EETC(MIN.) = EAR RAINFALL IN' LOSS RATE DATA PMENT TYPE/	FLOW HYDRA FLOW VELOC: NODE 920 ************ 925.00 EA TO MAIN: ====================================	AULICS: ITY (FEET/: 0.00 TO NO ******* TO NODE	SEC.) = 11 DDE 925. ******* 925.00 I FLOW<<<< 3.696 Fp (INCH/HR)	00 = 29 ******* S CODE =	**************************************
ROCESS FROM NODE DDITION OF SUBAREA NE TC (MIN.) = 11. YEAR RAINFALL INTEN A LOSS RATE DATA (AN OPMENT TYPE/ SAND USE L FAIR COVER BRUSH" L FAIR COVER RRAL, BROADLEAF" L FAIR COVER BRUSH" L FAIR COVER BRUSH" LA AVERAGE PERVIOUS A AVERAGE PERVIOUS	TO MAINLIN .44 NSITY(INCH, MC III): SCS SOIL GROUP (F C D D LOSS RATE, AREA FRACT	HE PEAK FL HR) = 3. AREA ACRES) (I 9.70 17.00 36.60 Fp(INCH/ CION, Ap =		Ap (DECIMAL) 1.000 1.000 1.000 21	OF-7 scs cn 92 95 96	END OF S DEPTH (FE LONGEST ******** FLOW PRO >>>>ADD MAINLINE * 100 YE SUBAREA DEVELOE LAN	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 **************** DITION OF SUBARI EETC(MIN.) = ETC(MIN.) = ETC(MIN.) = ETC(MIN.) LOSS RATE DATA PMENT TYPE/ ND USE FAIR COVER	FLOW HYDRA FLOW VELOC: NODE 920 ************ 925.00 EA TO MAIN: ====================================	AULICS: ITY (FEET/: 0.00 TO NO ******* TO NODE LINE PEAK	SEC.) = 11 DDE 925. ******** 925.00 I FLOW<<<< =================================	00 = 29 ******* S CODE =	**************************************
PROCESS FROM NODE ADDITION OF SUBAREA FROM NODE ADDITION OF SUBAREA FROM NODE INE TC (MIN.) = 11. YEAR RAINFALL INTEN EA LOSS RATE DATA (AN LOPMENT TYPE/ SAL FAIR COVER BRUSH" AL FAIR COVER BRUSH" AL FAIR COVER BRUSH" AL FAIR COVER BRUSH" BRUSH" EA AVERAGE PERVIOUS EA AVERAGE PERVIOUS EA AVERAGE PERVIOUS EA AREA (ACRES) = 66	TO MAINLIN .44 NSITY(INCH, MC III): SCS SOIL GROUP (F C D LOSS RATE, AREA FRACT	HE PEAK FL HR) = 3. AREA ACRES) (I 9.70 17.00 36.60 Fp(INCH/ CION, Ap = SUBAREA R		Ap (DECIMAL) 1.000 1.000 1.000 21) = 207.	OF-7 scs cn 92 95 96	END OF S DEPTH (FE LONGEST ******** FLOW PRO >>>>ADI ======== MAINLINE * 100 YE SUBAREA DEVELOE LAN NATURAL "OPEN BF	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 **************** DITION OF SUBARI EETC(MIN.) = ETC(MIN.) = ETC(MIN.) = ETC(MIN.) LOSS RATE DATA PMENT TYPE/ ND USE FAIR COVER	FLOW HYDRA FLOW VELOC: NODE 920 ************ 925.00 	AULICS: ITY (FEET/: 0.00 TO NO ******* TO NODE	SEC.) = 11 DDE 925. ******* 925.00 I FLOW<<<< 3.696 Fp (INCH/HR)	00 = 29 ******* S CODE = Ap (DECIMAL)	**************************************
ROCESS FROM NODE DDITION OF SUBAREA RETC(MIN.) = 11. YEAR RAINFALL INTEN A LOSS RATE DATA (AN DPMENT TYPE/ AND USE L FAIR COVER BRUSH" L FAIR COVER RRAL, BROADLEAF" L FAIR COVER BRUSH" A AVERAGE PERVIOUS A AVERAGE PERVIOUS A AREA (ACRES) = 60 IVE AREA (ACRES) = 60	TO MAINLIN .44 NSITY(INCH, MC III): SCS SOIL GROUP (A D LOSS RATE, AREA FRACT 63.30 100.20	HE PEAK FL HEN = 3. AREA ACRES) (I 9.70 17.00 36.60 Fp(INCH/ PION, Ap = SUBAREA R AREA-AVE		Ap (DECIMAL) 1.000 1.000 1.000 21) = 207. INCH/HR)	OF-7 scs cn 92 95 96	END OF S DEPTH (FE LONGEST ******** FLOW PRO >>>>ADI ======= MAINLINE * 100 YE SUBAREA DEVELOE LAN NATURAL "OPEN BE NATURAL	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 **************** CCESS FROM NODE DITION OF SUBARI E TC(MIN.) = EAR RAINFALL IN' LOSS RATE DATA PMENT TYPE/ ND USE FAIR COVER RUSH"	FLOW HYDRA FLOW VELOC: NODE 920 ************ 925.00 	AULICS: ITY (FEET/: 0.00 TO NO ******* TO NODE	SEC.) = 11 DDE 925. ******* 925.00 I FLOW<<<< 3.696 Fp (INCH/HR)	00 = 29 ******* S CODE = Ap (DECIMAL)	**************************************
CESS FROM NODE	TO MAINLIN .44 NSITY(INCH, MC III): SCS SOIL GROUP (A D LOSS RATE, AREA FRACT 63.30 100.20) = 0.21	JE PEAK FL HR) = 3. AREA ACRES) (I 9.70 17.00 36.60 Fp(INCH/PION, Ap = SUBAREA R AREA-AVER AREA-AVER		Ap (DECIMAL) 1.000 1.000 1.000 21) = 207. INCH/HR) 1.00	OF-7 scs cn 92 95 96	END OF S DEPTH (FE LONGEST ******** FLOW PRC >>>>ADI ======= MAINLINE * 100 YE SUBAREA DEVELOE LAN NATURAL "OPEN BE NATURAL "CHAPARE	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 ************* CCESS FROM NODE DITION OF SUBARI E TC (MIN.) = 2 EAR RAINFALL IN LOSS RATE DATA EMENT TYPE/ ND USE FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF"	FLOW HYDRA FLOW VELOC: NODE 920 ************ 925.00 EA TO MAIN: ====================================	AULICS: ITY (FEET/: 0.00 TO NO ******** TO NODE	SEC.) = 11 DDE 925. ******** 925.00 I FLOW<<<< 3.696 Fp (INCH/HR) 0.20	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000	**************************************
ROCESS FROM NODE	TO MAINLIN .44 NSITY(INCH, MC III): SCS SOIL GROUP (A D LOSS RATE, AREA FRACT 63.30 100.20	JE PEAK FL HR) = 3. AREA ACRES) (I 9.70 17.00 36.60 Fp(INCH/PION, Ap = SUBAREA R AREA-AVER AREA-AVER	%AGED Ap =	Ap (DECIMAL) 1.000 1.000 1.000 21) = 207. INCH/HR) 1.00	OF-7 SCS CN 92 95 96 56 = 0.21	END OF S DEPTH (FE LONGEST ******** FLOW PRO >>>>ADI ======== MAINLINE * 100 YE SUBAREA DEVELOE LAN NATURAL "OPEN BE NATURAL "CHAPARE NATURAL	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 **************** OCESS FROM NODE DITION OF SUBARI ETC (MIN.) = ETC (MIN.) = ETC (MIN.) = ETC (MIN.) LOSS RATE DATA PMENT TYPE/ ND USE FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" FAIR COVER	FLOW HYDRA FLOW VELOC: NODE 920 ************************************	AULICS: ITY (FEET/: 0.00 TO NO ******** TO NODE	SEC.) = 11 DDE 925. ********* 925.00 I FLOW<<<<< 3.696 Fp (INCH/HR) 0.20 0.20	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000 1.000	**************************************
DCESS FROM NODE DITION OF SUBAREA E TC (MIN.) = 11. EAR RAINFALL INTEN LOSS RATE DATA (AN PMENT TYPE/ S ND USE FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" FAIR COVER RUSH" AVERAGE PERVIOUS AREA (ACRES) = 6 ERAGED FP (INCH/HR) REA (ACRES) =	TO MAINLIN .44 NSITY(INCH, MC III): SCS SOIL GROUP (I C D LOSS RATE, AREA FRACT 63.30 100.20) = 0.21 100.2	HE PEAK FL HR) = 3. AREA AREA 17.00 17.00 36.60 Fp(INCH/ TION, Ap = SUBAREA R AREA-AVER PEAK FL		Ap (DECIMAL) 1.000 1.000 1.000 21) = 207. INCH/HR) 1.00 FS) =	OF-7 SCS CN 92 95 96 56 = 0.21 328.14	END OF S DEPTH (FE LONGEST ******** FLOW PRO >>>>ADI ======= MAINLINE * 100 YE SUBAREA DEVELOE LAN NATURAL "OPEN BE NATURAL "CHAPARE NATURAL "CHAPARE NATURAL "WOODLAN	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 **************** CESS FROM NODE DITION OF SUBARI EETC (MIN.) = ETC (MIN.) = ETC (MIN.) = ETC (MIN.) LOSS RATE DATA EMENT TYPE/ ND USE FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" FAIR COVER ND, GRASS"	FLOW HYDRA FLOW VELOC: NODE 920 ************ 925.00 EA TO MAIN: ====================================	AULICS: ITY (FEET/: 0.00 TO NO ******** TO NODE	SEC.) = 11 DDE 925. ******** 925.00 I FLOW<<<< 3.696 Fp (INCH/HR) 0.20	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000	**************************************
PROCESS FROM NODE ADDITION OF SUBAREA FROM NODE TO (MIN.) = 11. YEAR RAINFALL INTEN EA LOSS RATE DATA (AN LOPMENT TYPE/ SALAND USE AL FAIR COVER BRUSH" AVERAGE PERVIOUS EA AVERAGE PERVIOUS	TO MAINLIN .44 NSITY(INCH, MC III): SCS SOIL GROUP (I C D LOSS RATE, AREA FRACT 63.30 100.20) = 0.21 100.2	HE PEAK FL HR) = 3. AREA ACRES) (I 9.70 17.00 36.60 Fp(INCH/ TION, Ap = SUBAREA R AREA-AVER AREA-AVER PEAK FL	### APPLICATION OF THE PROOF OF	Ap (DECIMAL) 1.000 1.000 1.000 21) = 207. INCH/HR) 1.00 FS) = *********	OF - 7 SCS CN 92 95 96 56 = 0.21 328.14	END OF S DEPTH (FE LONGEST ******** FLOW PRO >>>>ADI ======== MAINLINE * 100 YE SUBAREA DEVELOE LAN NATURAL "OPEN BF NATURAL "CHAPARF NATURAL "WOODLAN NATURAL	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 ************* CCESS FROM NODE DITION OF SUBARI ETC (MIN.) = 1 ETC (MIN.) = 1 LOSS RATE DATA PMENT TYPE/ ND USE FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" FAIR COVER ND, GRASS" FAIR COVER	FLOW HYDRA FLOW VELOC: NODE 920 925.00 EA TO MAIN: PENSITY (INC (AMC III): SCS SOIL GROUP D	AULICS: ITY (FEET/: 0.00 TO NO ******** TO NODE	BEC.) = 11 DDE 925. ********* 925.00 I FLOW<<<<< 3.696 Fp (INCH/HR) 0.20 0.20 0.25	00 = 29 ****** S CODE =	**************************************
PROCESS FROM NODE ADDITION OF SUBAREA TO MIN.) = 11. YEAR RAINFALL INTEN EA LOSS RATE DATA (AN LOPMENT TYPE/ SALAND USE AL FAIR COVER BRUSH" AL FAIR COVER ARRAL, BROADLEAF" AL FAIR COVER BRUSH" EA AVERAGE PERVIOUS EA AVERAG	TO MAINLIN	HE PEAK FL (HR) = 3. AREA ACRES) (I 9.70 17.00 36.60 Fp(INCH/ PION, Ap = SUBAREA R AREA-AVER PEAK FL ******************) NODE	% AGED Ap = .	Ap (DECIMAL) 1.000 1.000 1.000 21) = 207. INCH/HR) 1.00 FS) = ***********************************	OF-7 SCS CN 92 95 96 56 = 0.21 328.14 ***********************************	END OF S DEPTH (FE LONGEST ********* FLOW PRO >>>>>ADD ========= MAINLINE * 100 YE SUBAREA DEVELOE LAN NATURAL "OPEN BE NATURAL "CHAPARE NATURAL "WOODLAN NATURAL "WOODLAN NATURAL "OPEN BE	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 *************** DITION OF SUBARI ETC (MIN.) = EAR RAINFALL INT LOSS RATE DATA PMENT TYPE/ ND USE FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" FAIR COVER ND, GRASS" FAIR COVER RUSH"	FLOW HYDRA FLOW VELOC: NODE 920 ************************************	AULICS: ITY (FEET/: 0.00 TO NO ******** TO NODE	SEC.) = 11 DDE 925. ********* 925.00 I FLOW<<<<< 3.696 Fp (INCH/HR) 0.20 0.20	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000 1.000	**************************************
ROCESS FROM NODE DDITION OF SUBAREA RESERVE AND USE L FAIR COVER BRUSH" A AVERAGE PERVIOUS A AVERAGE PERVIOUS A AVERAGE PERVIOUS A AVERAGE PERVIOUS A AREA (ACRES) = 6 EVERACED FP (INCH/HR) AREA (ACRES) = ***********************************	TO MAINLIN	HE PEAK FL (HR) = 3. AREA ACRES) (I 9.70 17.00 36.60 Fp(INCH/ FION, Ap = SUBAREA R AREA-AVER PEAK FL	% AGED Ap = .	Ap (DECIMAL) 1.000 1.000 1.000 21) = 207. INCH/HR) 1.00 FS) = ***********************************	OF-7 SCS CN 92 95 96 56 = 0.21 328.14 ***********************************	END OF S DEPTH (FE LONGEST ********* FLOW PRC >>>>ADD ======== MAINLINE * 100 YE SUBAREA DEVELOE LAN NATURAL "OPEN BE NATURAL "CHAPARE NATURAL "WOODLAN NATURAL "OPEN BE NATURAL "OPEN BE NATURAL "OPEN BE NATURAL	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 *************** DITION OF SUBARI E TC (MIN.) = EAR RAINFALL IN LOSS RATE DATA PMENT TYPE/ ND USE FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" FAIR COVER ND, GRASS" FAIR COVER RUSH" FAIR COVER	FLOW HYDRA FLOW VELOC: NODE 920 ************************************	AULICS: ITY (FEET/: 0.00 TO NO *********** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80 4.20 5.10 7.00	SEC.) = 11 DDE 925. ********** 925.00 I FLOW<<<< 3.696 Fp (INCH/HR) 0.20 0.25 0.25	00 = 29 ****** S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000	**************************************
PROCESS FROM NODE ADDITION OF SUBAREA LINE TC (MIN.) = 11. YEAR RAINFALL INTEN EA LOSS RATE DATA (AN LOPMENT TYPE/ SAL FAIR COVER BRUSH" AL FAIR COVER BRUSH" EA AVERAGE PERVIOUS EAVERAGE PERVIOUS EAVERAGE FO (INCH/HR) AREA (ACRES) = ***********************************	TO MAINLIN .44 NSITY(INCH, MC III): SCS SOIL GROUP (A D LOSS RATE, AREA FRACT 63.30 100.20) = 0.21 100.2 ************ 924.00 TC	HE PEAK FL HE PEA	% STAGED Fm (CAGED FM (CAG	Ap (DECIMAL) 1.000 1.000 1.000 21) = 207. INCH/HR) 1.00 FS) = ***********************************	OF-7 SCS CN 92 95 96 56 = 0.21 328.14 ***********************************	END OF S DEPTH (FE LONGEST ******** FLOW PRO >>>>ADD ======== MAINLINE * 100 YE SUBAREA DEVELOE LAN NATURAL "OPEN BE NATURAL "CHAPARE NATURAL "WOODLAN NATURAL "OPEN BE NATURAL "OPEN BE NATURAL "CHAPARE	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 **************** DITION OF SUBARI ETC (MIN.) = :: EAR RAINFALL IN' LOSS RATE DATA PMENT TYPE/ ND USE FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" FAIR COVER RUSH"	FLOW HYDRA FLOW VELOC: NODE 920 ************ 925.00	AULICS: ITY (FEET/: 0.00 TO NO ************************************	SEC.) = 11 DDE 925. ********* 925.00 I FLOW<<<< 3.696 Fp (INCH/HR) 0.20 0.25 0.25 0.25	00 = 29 ****** S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000	**************************************
PROCESS FROM NODE ADDITION OF SUBAREA TO (MIN.) = 11. YEAR RAINFALL INTEN EA LOSS RATE DATA (AN LOPMENT TYPE/ LAND USE AL FAIR COVER BRUSH" AL FAIR COVER BRUSH" EA AVERAGE PERVIOUS EAVERAGED FP (INCH/HR) AREA (ACRES) = ***********************************	TO MAINLIN	HE PEAK FL HE PEAK FL HE PEAK FL AREA ACRES) (I 9.70 17.00 36.60 Fp(INCH/ PION, Ap = SUBAREA R AREA-AVER PEAK FL ************ NODE LOW<<<<<	% STAGED Fm (CAGED FM (CAG	Ap (DECIMAL) 1.000 1.000 1.000 21) = 207. INCH/HR) 1.00 FS) = *********** CODE =	OF - 7 SCS CN 92 95 96 56 = 0.21 328.14 ***********************************	END OF S DEPTH (FE LONGEST ******** FLOW PRO >>>>ADD ======== MAINLINE * 100 YE SUBAREA DEVELOE LAN NATURAL "OPEN BE NATURAL "CHAPARE NATURAL "WOODLAN NATURAL "OPEN BE NATURAL "HOODLAN NATURAL "OPEN BE NATURAL "CHAPARE NATURAL "CHAPARE SUBAREA	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 **************** DITION OF SUBARI E TC(MIN.) = : EAR RAINFALL IN' LOSS RATE DATA PMENT TYPE/ ND USE FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" AVERAGE PERVIOU	FLOW HYDRA FLOW VELOC: NODE 920 *********** 925.00 EA TO MAIN: 12.29 PENSITY(ING (AMC III): SCS SOIL GROUP D C C C C US LOSS RA	AULICS: ITY (FEET/: 0.00 TO NO ********* TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80 4.20 5.10 7.00 12.00 TE, FP(ING	SEC.) = 11 DDE 925. ********** 925.00 I FLOW<<<< 3.696 Fp (INCH/HR) 0.20 0.25 0.25 0.25 CH/HR) = 0	00 = 29 ****** S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000	**************************************
DITION OF SUBAREA E TC (MIN.) = 11. EAR RAINFALL INTEN LOSS RATE DATA (AN PMENT TYPE/ ND USE FAIR COVER RUSH" FAIR COVER RUSH" AVERAGE PERVIOUS AVERAGE PERVIOUS AVERAGE PERVIOUS AVERAGE PERVIOUS AVERAGE PERVIOUS AREA (ACRES) = 6 ERAGED FP (INCH/HR) REA (ACRES) = ERAGED FR (INCH/HR) REA (ACRES) = ***********************************	TO MAINLIN	HE PEAK FL HE PEAK FL HE PEAK FL AREA ACRES) (I 9.70 17.00 36.60 Fp(INCH/ PION, Ap = SUBAREA R AREA-AVER PEAK FL ************ NODE LOW<<<<<	% STAGED Fm (CAGED FM (CAG	Ap (DECIMAL) 1.000 1.000 1.000 21) = 207. INCH/HR) 1.00 FS) = *********** CODE =	OF - 7 SCS CN 92 95 96 56 = 0.21 328.14 ***********************************	END OF S DEPTH (FE LONGEST ******** FLOW PRO >>>>ADD ======== MAINLINE * 100 YE SUBAREA DEVELOE LAN NATURAL "OPEN BE NATURAL "CHAPARE NATURAL "WOODLAN NATURAL "OPEN BE NATURAL "HOODLAN NATURAL "OPEN BE NATURAL "CHAPARE NATURAL "CHAPARE SUBAREA	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 **************** DITION OF SUBARI ETC (MIN.) = :: EAR RAINFALL IN' LOSS RATE DATA PMENT TYPE/ ND USE FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" FAIR COVER RUSH"	FLOW HYDRA FLOW VELOC: NODE 920 *********** 925.00 EA TO MAIN: 12.29 PENSITY(ING (AMC III): SCS SOIL GROUP D C C C C US LOSS RA	AULICS: ITY (FEET/: 0.00 TO NO ********* TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80 4.20 5.10 7.00 12.00 TE, FP(ING	SEC.) = 11 DDE 925. ********** 925.00 I FLOW<<<< 3.696 Fp (INCH/HR) 0.20 0.25 0.25 0.25 CH/HR) = 0	00 = 29 ****** S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000	**************************************
ROCESS FROM NODE ADDITION OF SUBAREA RESERVATION OF	TO MAINLIN	HE PEAK FL HE PEA	% STATE OF THE PROOF OF THE PRO	Ap (DECIMAL) 1.000 1.000 1.000 21) = 207. INCH/HR) 1.00 FS) = ***********************************	OF - 7 SCS CN 92 95 96 56 = 0.21 328.14 ***********************************	END OF S DEPTH (FE LONGEST ******** FLOW PRO >>>>ADD ======== MAINLINE * 100 YE SUBAREA DEVELOE LAN NATURAL "OPEN BE NATURAL "CHAPARE NATURAL "WOODLAN NATURAL "OPEN BE NATURAL "OPEN BE NATURAL "CHAPARE NATURAL "CHAPARE NATURAL "CHAPARE SUBAREA SUBAREA	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 **************** DITION OF SUBARI E TC(MIN.) = : EAR RAINFALL IN' LOSS RATE DATA PMENT TYPE/ ND USE FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" AVERAGE PERVIOU	FLOW HYDRA FLOW VELOC: NODE 920 ********* 925.00 EA TO MAIN: EA TO MAIN: EXERCISE (INC.) CARC III): SCS SOIL GROUP D C C C C C JS LOSS RA: JS AREA FRI	AULICS: ITY (FEET/: 0.00 TO NO ********* TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80 4.20 5.10 7.00 12.00 TE, FP(ING ACTION, A)	SEC.) = 11 DDE 925. ********** 925.00 I FLOW<<<< 3.696 Fp (INCH/HR) 0.20 0.25 0.25 0.25 CH/HR) = 0	Ap (DECIMAL) 1.000 1.000 1.000 1.000 24	**************************************
PROCESS FROM NODE ADDITION OF SUBAREA	TO MAINLIN	HE PEAK FL HEN = 3. AREA ACRES) (I 9.70 17.00 36.60 Fp(INCH/PION, Ap = SUBAREA R AREA-AVER PEAK FL ********** NODE LOW<<<< CING ELEME 495.00	00000000000000000000000000000000000000	Ap (DECIMAL) 1.000 1.000 1.000 21) = 207. INCH/HR) 1.00 FS) = ********** CODE = M(FEET) =	OF - 7 SCS CN 92 95 96 56 = 0.21 328.14 ***********************************	END OF S DEPTH (FE LONGEST ******** FLOW PRO >>>>>ADD ======== MAINLINE * 100 YE SUBAREA DEVELOE LAN NATURAL "OPEN BE NATURAL "CHAPARE NATURAL "WOODLAN NATURAL "OPEN BE NATURAL "CHAPARE NATURAL "CHAPARE NATURAL "CHAPARE SUBAREA SUBAREA SUBAREA	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 **************** CCESS FROM NODE DITION OF SUBARI EETC (MIN.) = EAR RAINFALL IN' LOSS RATE DATA PMENT TYPE/ ND USE FAIR COVER RAL, BROADLEAF" FAIR COVER RAL, BROADLEAF" FAIR COVER RAL, BROADLEAF" AVERAGE PERVIOU AVERAGE PERVIOU AVERAGE PERVIOU	FLOW HYDRA FLOW VELOC: NODE 925.00 EA TO MAIN: EELOS SOIL GROUP D C C C C JS LOSS RA: JS AREA FR: 32.10	AULICS: ITY (FEET/: 0.00 TO NO ******** TO NODE	SEC.) = 11 DDE 925. ********* 925.00 I FLOW<<<< =================================	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000 24 S) = 99.	**************************************
PROCESS FROM NODE ADDITION OF SUBAREA FROM NODE TO (MIN.) = 11. YEAR RAINFALL INTEN EA LOSS RATE DATA (AN LOPMENT TYPE/ SAL FAIR COVER BRUSH" AL FAIR COVER BRUSH" AL FAIR COVER BRUSH" EA AVERAGE PERVIOUS EA ACRES) = 6 TIVE AREA (ACRES) = 6 AVERAGED FP (INCH/HR) AREA (ACRES) = ***********************************	TO MAINLIN	HE PEAK FL HEN = 3. AREA ACRES) (I 9.70 17.00 36.60 Fp(INCH/ CION, Ap = SUBAREA R AREA-AVER PEAK FL ********* NODE JOW<<<< CING ELEME 495.00 607.00		Ap (DECIMAL) 1.000 1.000 1.000 21) = 207. INCH/HR) 1.00 FS) = ********** CODE = M(FEET) =	OF - 7 SCS CN 92 95 96 56 = 0.21 328.14 ***********************************	END OF S DEPTH (FE LONGEST ******** FLOW PRO >>>>ADD ======= MAINLINE * 100 YE SUBAREA DEVELOE LAN NATURAL "OPEN BE NATURAL "CHAPARE NATURAL "WOODLAN NATURAL "OPEN BE NATURAL "OPEN BE NATURAL "CHAPARE NATURAL "CHAPARE SUBAREA SUBAREA SUBAREA SUBAREA SUBAREA SUBAREA	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 **************** CCESS FROM NODE DITION OF SUBARI EETC (MIN.) = EAR RAINFALL IN' LOSS RATE DATA PMENT TYPE/ ND USE FAIR COVER RAL, BROADLEAF" FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" AVERAGE PERVIOU AVERAGE PERVIOU AVERAGE PERVIOU AREA (ACRES) =	FLOW HYDRA FLOW VELOC: NODE 925.00 EA TO MAIN: FLOW LID: FLOW VELOC: FLOW VEL	AULICS: ITY (FEET/: 0.00 TO NO ******** TO NODE	SEC.) = 11 DDE 925. ********* 925.00 I FLOW<<<< 3.696 Fp (INCH/HR) 0.20 0.25 0.25 0.25 CH/HR) = 0 0.21 A RUNOFF(CF AVERAGED FM	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000 24 S) = 99. (INCH/HR)	**************************************
ROCESS FROM NODE DITION OF SUBAREA RETC(MIN.) = 11. REAR RAINFALL INTEN A LOSS RATE DATA (AN DEMENT TYPE/ SUMD USE FAIR COVER RRUSH" FAIR COVER RRAL, BROADLEAF" A AVERAGE PERVIOUS A AVERAGE PERVIOUS A AVERAGE PERVIOUS A AVERAGE PERVIOUS A AREA (ACRES) = 6 IVE AREA (ACRES) = 6 IVE AREA (ACRES) = 7 ROCESS FROM NODE DOMPUTE TRAPEZOIDAL RAVELTIME THRU SUBAR LENGTH THRU SUBAR LENGTH THRU SUBAR LENGTH THRU SUBAR LENGTH THRU SUBAR LENGTH THRU SUBAR LENGTH THRU SUBAR LENGTH THRU SUBAR LENGTH THRU SUBAR LENGTH THRU SUBAR LENGTH THRU SUBAR LENGTH	TO MAINLIN	HE PEAK FL HEN = 3. AREA ACRES) (I 9.70 17.00 36.60 Fp(INCH/ CION, Ap = SUBAREA R AREA-AVER PEAK FL ********* NODE ********* 100 17.00 36.60 Fp(INCH/ CION, Ap = SUBAREA R AREA-AVER PEAK FL ********* NODE 100 495.00 FACTOR =		Ap (DECIMAL) 1.000 1.000 1.000 21) = 207. INCH/HR) 1.00 FS) = ******** CODE =	OF - 7 SCS CN 92 95 96 56 = 0.21 328.14 ***********************************	END OF S DEPTH (FE LONGEST ******** FLOW PRO >>>>ADD ======= MAINLINE * 100 YE SUBAREA DEVELOE LAN NATURAL "OPEN BE NATURAL "CHAPARE NATURAL "WOODLAN NATURAL "OPEN BE NATURAL "OPEN BE NATURAL "CHAPARE SUBAREA SUBAREA SUBAREA SUBAREA SUBAREA SUBAREA EFFECTIV AREA-AVE	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 *************** ************* ******	FLOW HYDRA FLOW VELOC: NODE 925.00 EA TO MAIN: FLOW LID: FLOW VELOC: FLOW VEL	AULICS: ITY (FEET/: 0.00 TO NO ******** TO NODE	SEC.) = 11 DDE 925. ********* 925.00 I FLOW<<<< 3.696 Fp (INCH/HR) 0.20 0.25 0.25 0.25 CH/HR) = 0 0.21 A RUNOFF(CF AVERAGED FM	Ap (DECIMAL) 1.000 1.000 1.000 1.000 24 S) = 99. (INCH/HR) = 1.00	**************************************
PROCESS FROM NODE ADDITION OF SUBAREA LINE TC (MIN.) = 11. YEAR RAINFALL INTEN REA LOSS RATE DATA (AN ELOPMENT TYPE/ LAND USE RAL FAIR COVER N BRUSH" RAL FAIR COVER PARRAL, BROADLEAF" RAL FAIR COVER N BRUSH" REA AVERAGE PERVIOUS REA AVERAGE PERVIOUS REA AVERAGE PERVIOUS REA AREA (ACRES) = 6 CTIVE AREA (ACRES) = - AVERAGED FP (INCH/HR)	TO MAINLIN	HE PEAK FL HEN = 3. AREA ACRES) (I 9.70 17.00 36.60 Fp(INCH/ CION, Ap = SUBAREA R AREA-AVER PEAK FL ********* NODE ********* 100 17.00 36.60 Fp(INCH/ CION, Ap = SUBAREA R AREA-AVER PEAK FL ********* NODE 100 495.00 FACTOR =		Ap (DECIMAL) 1.000 1.000 1.000 21) = 207. INCH/HR) 1.00 FS) = ******** CODE =	OF - 7 SCS CN 92 95 96 56 = 0.21 328.14 ***********************************	END OF S DEPTH (FE LONGEST ******** FLOW PRO >>>>ADD ======= MAINLINE * 100 YE SUBAREA DEVELOE LAN NATURAL "OPEN BE NATURAL "CHAPARE NATURAL "WOODLAN NATURAL "OPEN BE NATURAL "OPEN BE NATURAL "CHAPARE SUBAREA SUBAREA SUBAREA SUBAREA SUBAREA SUBAREA EFFECTIV AREA-AVE	SUBAREA CHANNEL EET) = 3.04 FLOWPATH FROM 1 **************** CCESS FROM NODE DITION OF SUBARI EETC (MIN.) = EAR RAINFALL IN' LOSS RATE DATA EMENT TYPE/ ND USE FAIR COVER RUSH" FAIR COVER RAL, BROADLEAF" FAIR COVER RD, GRASS" FAIR COVER RD, GRASS" FAIR COVER RAL, BROADLEAF" AVERAGE PERVIOU AVERAGE PERVIOU AVERAGE PERVIOU AVERAGE PERVIOU AREA (ACRES) = //E AREA (ACRES) =	FLOW HYDRA FLOW VELOC: NODE 925.00 EA TO MAIN: FLOW LID: FLOW VELOC: FLOW VEL	AULICS: ITY (FEET/: 0.00 TO NO ******** TO NODE	SEC.) = 11 DDE 925. ********* 925.00 I FLOW<<<< 3.696 Fp (INCH/HR) 0.20 0.25 0.25 0.25 CH/HR) = 0 P = 1.000 A RUNOFF(CF AVERAGED FM VERAGED AP	Ap (DECIMAL) 1.000 1.000 1.000 1.000 24 S) = 99. (INCH/HR) = 1.00	**************************************

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3.80 0.20 1.000 96 4.20 0.20 1.000 95 5.10 0.25 1.000 92 7.00 0.25 1.000 92 12.00 0.25 1.000 $^{\text{CE}}$, Fp(INCH/HR) = 0.24 ACTION, Ap = 1.000SUBAREA RUNOFF (CFS) = 99.91 AREA-AVERAGED Fm(INCH/HR) = 0.22AREA-AVERAGED Ap = 1.00 PEAK FLOW RATE (CFS) = 424.88 Date: 08/14/2018 File name: PA4F00HC.RES Page 10

>>>> COMPLIED TO A DEFOID A	T CHANNET	ET OM////			
>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU					
ELEVATION DATA: UPSTREA					
CHANNEL LENGTH THRU SUB					
CHANNEL BASE (FEET) =					
MANNING'S FACTOR = 0.04				.00	
* 100 YEAR RAINFALL INT	ENSITY(IN	CH/HR) =	3.418	(OF-9
SUBAREA LOSS RATE DATA(
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap	SCS
	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
NATURAL FAIR COVER "GRASS"	D	0 50	0.20	1 000	0.6
"GRASS" NATURAL FAIR COVER	D	0.50	0.20	1.000	96
"CHAPARRAL, BROADLEAF"	B	0.70	0.30	1 000	81
NATURAL FAIR COVER	Б	0.70	0.50	1.000	01
"WOODLAND, GRASS"	С	2.30	0.25	1.000	92
NATURAL FAIR COVER					
"OPEN BRUSH"	В	2.40	0.30	1.000	84
NATURAL FAIR COVER					
"GRASS"	В	2.50	0.30	1.000	86
NATURAL FAIR COVER					
"GRASS"			0.25		93
SUBAREA AVERAGE PERVIOU				.27	
SUBAREA AVERAGE PERVIOU		_		441 01	
TRAVEL TIME COMPUTED US					
TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET					
Tc(MIN.) = 14.09	, - 4.2	4 INAVED	TIME (MIN.	, – 1.00	
SUBAREA AREA (ACRES) =	11.60	SUBAR	EA RUNOFF (CFS) = 32	2.84
EFFECTIVE AREA (ACRES) =	147.4	0 AREA	-AVERAGED	Fm(INCH/HR)	= 0.22
AREA-AVERAGED Fp (INCH/H					
TOTAL AREA (ACRES) =	147.4	PEA	K FLOW RAT	E(CFS) =	424.88
NOTE: PEAK FLOW RATE DE	FAULTED T	O UPSTREAM	VALUE		
DEPTH(FEET) = 4.18 F	LOW VELOC	ITY(FEET/S			
DEPTH(FEET) = 4.18 F	LOW VELOC	ITY(FEET/S			24.00 FEET.
DEPTH(FEET) = 4.18 F LONGEST FLOWPATH FROM N	LOW VELOC ODE 92	ITY(FEET/S 0.00 TO NO	DE 926.	00 = 382	
DEPTH(FEET) = 4.18 F LONGEST FLOWPATH FROM N	LOW VELOC ODE 92	ITY(FEET/S 0.00 TO NO ******	DE 926.	00 = 382 ******	******
DEPTH(FEET) = 4.18 F LONGEST FLOWPATH FROM N	LOW VELOC ODE 92	ITY(FEET/S 0.00 TO NO ******	DE 926.	00 = 382 ******	******
DEPTH (FEET) = 4.18 F LONGEST FLOWPATH FROM N *********** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE	LOW VELOC ODE 92 ******** 926.00 A TO MAIN	ITY(FEET/S 0.00 TO NO ******* TO NODE LINE PEAK	DE 926. ****** 926.00 I:	00 = 382 ************** S CODE = 8	******** 31
LONGEST FLOWPATH FROM N ************ FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE	LOW VELOC ODE 92 ******* 926.00 A TO MAIN	ITY(FEET/S 0.00 TO NO ******* TO NODE LINE PEAK	DE 926. ****** 926.00 I:	00 = 382 ************** S CODE = 8	*********
DEPTH (FEET) = 4.18 F LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE	LOW VELOC ODE 92 ********* 926.00 A TO MAIN 	ITY(FEET/S 0.00 TO NO ******** TO NODE LINE PEAK	DE 926.	00 = 382 ************** S CODE = 8	******* 31
DEPTH (FEET) = 4.18 F LONGEST FLOWPATH FROM N ***************** FLOW PROCESS FROM NODE	LOW VELOC ODE 92 ******** 926.00A TO MAIN	ITY(FEET/S 0.00 TO NO ******** TO NODE LINE PEAK	DE 926.	00 = 382 ************** S CODE = 8	********* 31
DEPTH (FEET) = 4.18 F LONGEST FLOWPATH FROM N ***************** FLOW PROCESS FROM NODE	LOW VELOC ODE 92 ******** 926.00A TO MAIN	ITY(FEET/S 0.00 TO NO ******** TO NODE LINE PEAK	DE 926.0 ********** 926.00 I: 	00 = 382 ************************************	********* 31
DEPTH (FEET) = 4.18 F LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL INT	LOW VELOC ODE 92 ******** 926.00 A TO MAIN 4.09 ENSITY(IN AMC III): SCS SOIL	ITY(FEET/S 0.00 TO NO ******** TO NODE LINE PEAK CH/HR) = AREA	DE 926.0 ********* 926.00 I: 	00 = 382 ******** S CODE = 8	**************************************
DEPTH (FEET) = 4.18 F LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE	LOW VELOC ODE 92 ******** 926.00 A TO MAIN 4.09 ENSITY(IN AMC III): SCS SOIL	ITY(FEET/S 0.00 TO NO ******** TO NODE LINE PEAK CH/HR) = AREA	DE 926.0 ********** 926.00 I: 	00 = 382 ******** S CODE = 8	**************************************
DEPTH (FEET) = 4.18 F LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/	LOW VELOC ODE 92 ******** 926.00 A TO MAIN 4.09 ENSITY(IN AMC III): SCS SOIL	ITY(FEET/S 0.00 TO NO ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES)	DE 926.0 ********* 926.00 I: 	Ap (DECIMAL)	**************************************
DEPTH (FEET) = 4.18 F LONGEST FLOWPATH FROM N *********** FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER	LOW VELOC ODE 92 ******** 926.00 A TO MAIN 4.09 ENSITY(IN AMC III): SCS SOIL GROUP	ITY(FEET/S 0.00 TO NO ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES)	DE 926.0 ******* 926.00 I: FLOW<<<< =================================	Ap (DECIMAL)	**************************************

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"OPEN BRUSH"	D	28.20	0.20	1.000	96
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	D	31.40	0.20	1.000	95
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"					91
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA(ACRES) = 1 EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/HR TOTAL AREA(ACRES) =	AREA FRA 21.80 269.20	CTION, Ap SUBAREA AREA-AV	= 1.000 RUNOFF(CF: ERAGED Fm	S) = 350. (INCH/HR)	= 0.22
**************************************	926.00	TO NODE	903.00 I	S CODE =	
>>>>COMPUTE PIPE-FLOW T	RAVEL TIM	E THRU SUE ESIZE (NON	BAREA<<<< I-PRESSURE	FLOW) <<<<	
ELEVATION DATA: UPSTREAM FLOW LENGTH (FEET) = 134 DEPTH OF FLOW IN 93.0 I PIPE-FLOW VELOCITY (FEET/ ESTIMATED PIPE DIAMETER (PIPE-FLOW (CFS) = 773 PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO ************************************	1.00 MAINCH PIPE SEC.) = INCH) = .99	NNING'S N IS 72.6 I 19.60 93.00 N Tc(MIN.) .00 TO NOD	= 0.013 NCHES IUMBER OF 1 = 15.23 DE 903.0	PIPES = 3 00 = 51	1 65.00 FEET. ******
>>>>DESIGNATE INDEPENDE					
TOTAL NUMBER OF STREAMS CONFLUENCE VALUES USED F TIME OF CONCENTRATION (MI RAINFALL INTENSITY (INCH/ AREA-AVERAGED Fm (INCH/HR AREA-AVERAGED Fp (INCH/HR AREA-AVERAGED Ap = 1.00 EFFECTIVE STREAM AREA (ACRES) PEAK FLOW RATE (CFS) AT C	= 3 FOR INDEPE (N.) = 1. HR) = 3 (1) = 0.22 (2) = 0.22 (RES) = 26	NDENT STRE 5.23 .27 269.20	ZAM 2 ARE		

>>>>RATIONAL METHOD INI >>USE TIME-OF-CONCENTRAT				BAREA<<	
INITIAL SUBAREA FLOW-LEN			0		517.00
Tc = K*[(LENGTH** 3.00)/ SUBAREA ANALYSIS USED MI * 100 YEAR RAINFALL INTE	NIMUM Tc(MIN.) =	7.954	C)F-10
SUBAREA To AND LOSS RATE DEVELOPMENT TYPE/	DATA(AMC	III): AREA	Fp	Ар	_

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```
**********************
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF" C 0.60
                                     0.25 1.000 91 7.95
                                                                          FLOW PROCESS FROM NODE 903.00 TO NODE 903.00 IS CODE = 1
                                                                         ______
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
                                                                          >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<
 SUBAREA RUNOFF (CFS) = 2.43
                                                                          >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<
 TOTAL AREA (ACRES) =
                    0.60 PEAK FLOW RATE (CFS) = 2.43
                                                                         _____
                                                                          TOTAL NUMBER OF STREAMS = 3
******************
                                                                          CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 3 ARE:
 FLOW PROCESS FROM NODE 931.00 TO NODE 932.00 IS CODE = 51
                                                                          TIME OF CONCENTRATION (MIN.) = 9.33
                                                                          RAINFALL INTENSITY (INCH/HR) = 4.33
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
                                                                          AREA-AVERAGED Fm(INCH/HR) = 0.23
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <>>>
                                                                          AREA-AVERAGED Fp(INCH/HR) = 0.25
_____
                                                                          AREA-AVERAGED Ap = 0.94
 ELEVATION DATA: UPSTREAM(FEET) = 517.00 DOWNSTREAM(FEET) = 430.00
                                                                          EFFECTIVE STREAM AREA(ACRES) = 5.70
 CHANNEL LENGTH THRU SUBAREA (FEET) = 443.00 CHANNEL SLOPE = 0.1964
                                                                          TOTAL STREAM AREA(ACRES) = 5.70
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
                                                                          PEAK FLOW RATE (CFS) AT CONFLUENCE = 21.64
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 30.00
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.452
                                                                          ** CONFLUENCE DATA **
 SUBAREA LOSS RATE DATA (AMC III):
                                                                           STREAM Q Tc Intensity Fp(Fm)
  DEVELOPMENT TYPE/
                    SCS SOIL AREA
                                    Fρ
                                                   SCS
                                                                           NUMBER
                                                                                    (CFS) (MIN.) (INCH/HR) (INCH/HR)
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                           1
                                                                                   140.15 11.96 3.754 0.22(0.17) 0.79
 RESIDENTIAL
                                                                            1
                                                                                   114.25 16.82
                                                                                                3.088 0.22(0.17) 0.79
 ".4 DWELLING/ACRE"
                    C
                             0.10
                                     0.25
                                            0.900
                                                  86
                                                                                   773.99 15.23
                                                                                                3.269 0.22(0.22) 1.00
 COMMERCIAL
                             0.40
                                     0.25
                                            0.100
                                                   86
                                                                                   21.64
                                                                                         9.33
                                                                                                4.329 0.25 ( 0.23) 0.94
 NATURAL FAIR COVER
                                                                          RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 "WOODLAND, GRASS"
                      C
                             0.30
                                     0.25
                                            1.000
                                                   92
                                                                          CONFLUENCE FORMULA USED FOR 3 STREAMS.
 NATURAL FAIR COVER
                             4.30
                                     0.25
                                           1.000
 "CHAPARRAL, BROADLEAF"
                    С
                                                                          ** PEAK FLOW RATE TABLE **
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
                                                                                          Tc Intensity Fp(Fm) Ap Ae HEADWATER
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.927
                                                                                    0
                                                                           NUMBER
                                                                                    (CFS) (MIN.) (INCH/HR) (INCH/HR)
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 12.11
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.96
                                                                            1
                                                                                   787.54 9.33 4.329 0.22(0.22) 0.96 203.7
 AVERAGE FLOW DEPTH (FEET) = 0.71 TRAVEL TIME (MIN.) = 0.93
                                                                                   863.45 11.96 3.754 0.22(0.22) 0.96
 Tc(MIN.) = 8.88
                                                                                   912.76 15.23
                                                                                               3.269 0.22(0.22)0.97
 SUBAREA AREA(ACRES) = 5.10 SUBAREA RUNOFF(CFS) = 19.37
                                                                                   857.28 16.82
                                                                                               3.088 0.22(0.22) 0.97
 EFFECTIVE AREA(ACRES) = 5.70 AREA-AVERAGED Fm(INCH/HR) = 0.23
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.94
                                                                          COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 TOTAL AREA(ACRES) = 5.7 PEAK FLOW RATE(CFS) =
                                                                          PEAK FLOW RATE (CFS) = 912.76 Tc (MIN.) = 15.23
                                                                          EFFECTIVE AREA(ACRES) = 317.58 AREA-AVERAGED Fm(INCH/HR) = 0.22
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
                                                                          AREA-AVERAGED Fp (INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.97
 DEPTH(FEET) = 0.88 FLOW VELOCITY(FEET/SEC.) = 9.27
                                                                          TOTAL AREA (ACRES) = 317.7
 LONGEST FLOWPATH FROM NODE 930.00 TO NODE 932.00 = 773.00 FEET.
                                                                          LONGEST FLOWPATH FROM NODE 920.00 TO NODE 903.00 = 5165.00 FEET.
*******************
                                                                         ******************
 FLOW PROCESS FROM NODE 932.00 TO NODE 903.00 IS CODE = 31
                                                                          FLOW PROCESS FROM NODE 903.00 TO NODE 903.00 IS CODE = 81
                                                                         ______
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
                                                                          >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
                                                                         _____
_____
                                                                          MAINLINE Tc(MIN.) = 15.23
 ELEVATION DATA: UPSTREAM(FEET) = 430.00 DOWNSTREAM(FEET) = 426.00
                                                                          * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.269
 FLOW LENGTH (FEET) = 254.00 MANNING'S N = 0.013
                                                                          SUBAREA LOSS RATE DATA (AMC III):
 DEPTH OF FLOW IN 24.0 INCH PIPE IS 16.3 INCHES
                                                                           DEVELOPMENT TYPE/ SCS SOIL AREA
                                                                                                           Fρ
 PIPE-FLOW VELOCITY (FEET/SEC.) = 9.53
                                                                              LAND USE
                                                                                            GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 ESTIMATED PIPE DIAMETER (INCH) = 24.00 NUMBER OF PIPES = 1
                                                                          RESIDENTIAL
 PIPE-FLOW(CFS) = 21.64
                                                                          ".4 DWELLING/ACRE"
                                                                                             C 0.50
                                                                                                              0.25
 PIPE TRAVEL TIME (MIN.) = 0.44 Tc (MIN.) = 9.33
                                                                          RESIDENTIAL
 LONGEST FLOWPATH FROM NODE 930.00 TO NODE 903.00 = 1027.00 FEET.
                                                                          ".4 DWELLING/ACRE"
                                                                                                      2.10
                                                                                                              0.30
                                                                          RESIDENTIAL
```

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HEADWATER

910.00

900.00

920.00

930.00

930.00

910.00

920.00

900.00

(ACRES) NODE

(ACRES) NODE

259.5

317.6

317.7

αA

0.900

0.900

SCS

86

76

42.4

42.8

269.2

5.7

Ae

SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI	B IOUS LOSS RA IOUS AREA FR	5.90 7.70 13.60 TE, Fp(INC ACTION, Ap	0.30 H/HR) = 0 = 0.237	0.100 0.100 .25	86 76
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) AREA-AVERAGED Fp(INCH	= 350.3	8 AREA-A	VERAGED Fm	(INCH/HR)	
TOTAL AREA (ACRES) =	350.5	PEAK	FLOW RATE (CFS) =	967.07

>>>>COMPUTE PIPE-FLC >>>>USING COMPUTER-E	ESTIMATED PI	PESIZE (NO	N-PRESSURE	FLOW) <<<	
ELEVATION DATA: UPSTF	REAM(FEET) =	426.00	DOWNSTREA		
FLOW LENGTH (FEET) = DEPTH OF FLOW IN 72.					
PIPE-FLOW VELOCITY (FE			INCHES		
ESTIMATED PIPE DIAMET	TER(INCH) =	72.00	NUMBER OF	PIPES =	1
PIPE-FLOW(CFS) =		- 414-11	15.0	0	
PIPE TRAVEL TIME (MIN.					0.61 00 0000
LONGEST FLOWPATH FROM	I NODE 92	0.00 TO NO	DE 904.	00 = 60	JOI.UU FEET.
*******	******	******	*****	*****	******
FLOW PROCESS FROM NOI					81
>>>>ADDITION OF SUBA	AREA TO MAIN				
		LINE PEAK	FLOW<		
MAINLINE Tc(MIN.) =	15.60	LINE PEAK	FLOW<<<<	=======	
MAINLINE Tc(MIN.) = * 100 YEAR RAINFALL I	15.60 INTENSITY(IN	LINE PEAK ======== CH/HR) =	FLOW<<<<	=======	F-4
MAINLINE Tc(MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/	15.60 INTENSITY(IN TA(AMC III): SCS SOIL	LINE PEAK ====================================	FLOW<<<< ======== 3.224 Fp	======== Ap	F-4
MAINLINE Tc(MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE	15.60 INTENSITY(IN TA(AMC III): SCS SOIL GROUP	LINE PEAK ====================================	FLOW<>>> ==================================	Ap (DECIMAL)	F-4
MAINLINE Tc(MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE	15.60 INTENSITY(IN TA(AMC III): SCS SOIL GROUP	LINE PEAK ====================================	FLOW<>>> ==================================	Ap (DECIMAL)	F-4
MAINLINE TC(MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL	15.60 INTENSITY(IN TA(AMC III): SCS SOIL GROUP	LINE PEAK ====================================	FLOW<>>> ========= 3.224 Fp (INCH/HR)	Ap (DECIMAL)	F-4
MAINLINE TC(MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER	15.60 INTENSITY(IN PA(AMC III): SCS SOIL GROUP B C	LINE PEAK ====================================	FLOW<<<< =================================	Ap (DECIMAL, 0.100 0.100	F-4 scs cn 76 86
MAINLINE TC(MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS"	15.60 INTENSITY(IN PA(AMC III): SCS SOIL GROUP B C	LINE PEAK ====================================	FLOW<<<< =================================	Ap (DECIMAL, 0.100 0.100	F-4 scs cn 76 86
MAINLINE Tc(MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL	15.60 ENTENSITY(IN PA (AMC III): SCS SOIL GROUP B C	LINE PEAK ====================================	FLOW<<<< =================================	Ap (DECIMAL, 0.100 0.100	F-4 SCS CN 76 86 86
MAINLINE TC(MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE"	15.60 ENTENSITY(IN PA (AMC III): SCS SOIL GROUP B C	LINE PEAK ====================================	FLOW<<<< =================================	Ap (DECIMAL, 0.100 0.100	F-4 SCS CN 76 86 86
MAINLINE TC(MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL	15.60 ENTENSITY(IN TA (AMC III): SCS SOIL GROUP B C B B B	LINE PEAK ====================================	FLOW<<<< =================================	Ap (DECIMAL) 0.100 0.100 1.000 0.900	F-4 SCS CN 76 86 86 76
MAINLINE TC(MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE"	15.60 ENTENSITY(IN TA (AMC III): SCS SOIL GROUP B C B B B	LINE PEAK ====================================	FLOW<<<< =================================	Ap (DECIMAL) 0.100 0.100 1.000 0.900	F-4 SCS CN 76 86 86 76
MAINLINE TC(MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE"	15.60 ENTENSITY(IN FA (AMC III): SCS SOIL GROUP B C B C	LINE PEAK ====================================	FLOW<<<< =================================	Ap (DECIMAL) 0.100 0.100 1.000 0.900	F-4 SCS CN 76 86 86 86
MAINLINE TC (MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE"	15.60 ENTENSITY(IN FA (AMC III): SCS SOIL GROUP B C B C D	LINE PEAK ====================================	FLOW<<<< =================================	Ap (DECIMAL) 0.100 0.100 1.000 0.900 0.900	F-4 SCS CN 76 86 86 86
MAINLINE TC (MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVI	15.60 ENTENSITY(IN FA (AMC III): SCS SOIL GROUP B C B C D COUS LOSS RA	LINE PEAK ====================================	FLOW<<<< =================================	Ap (DECIMAL) 0.100 0.100 1.000 0.900 0.900	F-4 SCS CN 76 86 86 86
MAINLINE TC (MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI	15.60 ENTENSITY(IN FA (AMC III): SCS SOIL GROUP B C B C D COUS LOSS RA COUS AREA FR	LINE PEAK ====================================	FLOW<<<< =================================	Ap (DECIMAL) 0.100 0.100 1.000 0.900 0.900 0.900	F-4 SCS CN 76 86 86 86 86 91
MAINLINE TC (MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) =	15.60 ENTENSITY(IN CA (AMC III): SCS SOIL GROUP B C B C D COUS LOSS RA COUS AREA FR	LINE PEAK ====================================	FLOW<<<< =================================	Ap (DECIMAL) 0.100 0.100 1.000 0.900 0.900 0.900 .27 S) = 26	F-4 SCS CN 76 86 86 86 91
MAINLINE TC (MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) EFFECTIVE AREA (ACRES)	15.60 ENTENSITY(IN CA (AMC III): SCS SOIL GROUP B C B C D COUS LOSS RA COUS AREA FR 9.40 = 359.7	LINE PEAK ====================================	FLOW<<<< =================================	Ap (DECIMAL) 0.100 0.100 1.000 0.900 0.900 0.900 27 S) = 26 (INCH/HR)	F-4 SCS CN 76 86 86 86 91
MAINLINE TC (MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVI SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCE	15.60 ENTENSITY(IN CA (AMC III): SCS SOIL GROUP B C B C D COUS LOSS RA COUS AREA FR = 9.40 = 359.7 H/HR) = 0.2	LINE PEAK ====================================	FLOW<<<< =================================	Ap (DECIMAL) 0.100 0.100 1.000 0.900 0.900 0.900 27 S) = 26 (INCH/HR) = 0.89	F-4 SCS CN 76 86 86 86 91
MAINLINE TC (MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCE TOTAL AREA (ACRES) =	15.60 INTENSITY(IN TA (AMC III): SCS SOIL GROUP B C B B C D COUS LOSS RA COUS AREA FR 9.40 = 359.7 1/HR) = 0.2 359.9	LINE PEAK ====================================	FLOW<<<< =================================	Ap (DECIMAL) 0.100 0.100 1.000 0.900 0.900 0.900 .27 S) = 26 (INCH/HR) = 0.89 CFS) =	F-4 SCS CN 76 86 86 86 91 .06 = 0.20 979.08
MAINLINE TC (MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVI TOTAL AREA (ACRES) AREA-AVERAGED FP (INCH TOTAL AREA (ACRES) =	15.60 INTENSITY(IN PA (AMC III): SCS SOIL GROUP B C B B C D COUS LOSS RA COUS AREA FR 9.40 = 359.7 H/HR) = 0.2 359.9	LINE PEAK ====================================	FLOW<<<< =================================	Ap (DECIMAL) 0.100 0.100 1.000 0.900 0.900 0.900 .27 S) = 26 (INCH/HR) = 0.89 CFS) = ********* S CODE =	F-4 SCS CN 76 86 86 86 91 .06 = 0.20 979.08
MAINLINE TC (MIN.) = * 100 YEAR RAINFALL I SUBAREA LOSS RATE DAT DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVI SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCE TOTAL AREA (ACRES) =	15.60 INTENSITY(IN PA (AMC III): SCS SOIL GROUP B C B C D COUS LOSS RA COUS AREA FR 9.40 359.7 1/H/R) = 0.2 359.9	LINE PEAK ====================================	FLOW<<<< =================================	Ap (DECIMAL) 0.100 0.100 1.000 0.900 0.900 0.900 .27 S) = 26 (INCH/HR) = 0.89 CFS) = ********** S CODE =	F-4 SCS CN 76 86 86 86 91 .06 = 0.20 979.08

```
ELEVATION DATA: UPSTREAM(FEET) = 370.00 DOWNSTREAM(FEET) = 330.00
 FLOW LENGTH (FEET) = 872.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 78.0 INCH PIPE IS 58.9 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 36.42
 ESTIMATED PIPE DIAMETER (INCH) = 78.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 979.08
 PIPE TRAVEL TIME (MIN.) = 0.40 Tc (MIN.) = 16.00
 LONGEST FLOWPATH FROM NODE 920.00 TO NODE 905.00 = 6933.00 FEET.
*****************
 FLOW PROCESS FROM NODE 905.00 TO NODE 905.00 IS CODE = 1
 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<
______
 TOTAL NUMBER OF STREAMS = 3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION (MIN.) = 16.00
 RAINFALL INTENSITY (INCH/HR) = 3.18
 AREA-AVERAGED Fm (INCH/HR) = 0.20
 AREA-AVERAGED Fp (INCH/HR) = 0.22
 AREA-AVERAGED Ap = 0.89
 EFFECTIVE STREAM AREA(ACRES) = 359.78
 TOTAL STREAM AREA(ACRES) = 359.90
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 979.08
******************
 FLOW PROCESS FROM NODE 940.00 TO NODE 941.00 IS CODE = 21
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 304.00
 ELEVATION DATA: UPSTREAM(FEET) = 858.00 DOWNSTREAM(FEET) = 675.00
 Tc = K^*[(LENGTH^{**} 3.00)/(ELEVATION CHANGE)]^{**}0.20
                                                  OF-13
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 7.692
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 4.834
 SUBAREA To AND LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                  Fρ
                                           Aр
                                                   SCS Tc
    LAND USE
                   GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF" C 0.10 0.25 1.000 91 7.69
 NATURAL FAIR COVER
                      C 1.10 0.25 1.000 92 7.69
 "OPEN BRUSH"
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF (CFS) = 4.95
 TOTAL AREA (ACRES) = 1.20 PEAK FLOW RATE (CFS) =
************************
 FLOW PROCESS FROM NODE 941.00 TO NODE 942.00 IS CODE = 51
______
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <
______
 ELEVATION DATA: UPSTREAM(FEET) = 675.00 DOWNSTREAM(FEET) = 405.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1008.00 CHANNEL SLOPE = 0.2679
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CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT	10 MAXIM	JM DEPTH(FEET) = 30		F-14
SUBAREA LOSS RATE DATA	(AMC III):				
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Аp	SCS
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
NATURAL FAIR COVER					
"GRASS"	В	0.10	0.30	1.000	86
NATURAL FAIR COVER					
"WOODLAND, GRASS"	B	0.80	0.30	1 000	83
NATURAL FAIR COVER	Б	0.00	0.50	1.000	05
"OPEN BRUSH"	D	1 10	0.30	1 000	0.4
	ь	1.10	0.50	1.000	04
NATURAL FAIR COVER "WOODLAND, GRASS"	~	1 50	0.05	1 000	0.0
	C	1.50	0.25	1.000	92
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	_				
NATURAL FAIR COVER "OPEN BRUSH"					
					92
SUBAREA AVERAGE PERVIOU	JS LOSS RAT	TE, Fp(IN	CH/HR) = 0	.26	
SUBAREA AVERAGE PERVIOU					
TRAVEL TIME COMPUTED US	SING ESTIMA	ATED FLOW	(CFS) =	37.18	
TRAVEL TIME THRU SUBARE	EA BASED ON	VELOCIT	Y(FEET/SEC.) = 11.92	
AVERAGE FLOW DEPTH (FEET	Γ) = 1.02	2 TRAVE	L TIME (MIN.) = 1.41	
Tc(MIN.) = 9.10	,		,	,	
SUBAREA AREA(ACRES) =	17 30	SIIRA	REA RINOFF (CFS) = 6	4 37
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	= 18 50) ARE	A-AVERAGED	Fm (TNCH/HR) = 0 26
AREA-AVERAGED Fp(INCH/H					
TOTAL AREA (ACRES) =	1K) - U.2	O AKLA-	AVERAGED AP	- 1.00	60.04
TOTAL AREA (ACRES) =	10.5	PE.	AN FLOW RAT	E(CFS) =	00.04
LONGEST FLOWPATH FROM N ************** FLOW PROCESS FROM NODE	942.00	******** TO NODE	******** 905.00 I	*****	*****
>>>>COMPUTE PIPE-FLOW	TRAVEL TIM	ME THRU S	UBAREA<<<<		
>>>>USING COMPUTER-EST	TIMATED PI	PESIZE (N	ON-PRESSURE	FLOW) <<<<	<
ELEVATION DATA: UPSTREA FLOW LENGTH(FEET) = 10 DEPTH OF FLOW IN 27.0 PIPE-FLOW VELOCITY(FEET ESTIMATED PIPE DIAMETER PIPE-FLOW(CFS) = 6 PIPE TRAVEL TIME(MIN.) LONGEST FLOWPATH FROM N	041.00 M2 INCH PIPE T/SEC.) = R(INCH) = 68.84 = 0.78	ANNING'S IS 19.5 22.35 27.00 Tc (MIN	N = 0.013 INCHES NUMBER OF .) = 9.8	PIPES =	
******	******	******	*****	******	*****
FLOW PROCESS FROM NODE	905.00	TO NODE	905.00 I	S CODE =	1
>>>>DESIGNATE INDEPEND					=======
TOTAL NUMBER OF STREAMS CONFLUENCE VALUES USED TIME OF CONCENTRATION(M RAINFALL INTENSITY(INCH AREA-AVERAGED Fm(INCH/H	FOR INDEPI	9.88 4.19	REAM 2 ARE	:	

```
AREA-AVERAGED Fp (INCH/HR) = 0.26
 AREA-AVERAGED Ap = 1.00
 EFFECTIVE STREAM AREA(ACRES) =
                          18.50
 TOTAL STREAM AREA(ACRES) = 18.50
 PEAK FLOW RATE (CFS) AT CONFLUENCE =
**********************
 FLOW PROCESS FROM NODE 950.00 TO NODE 951.00 IS CODE = 21
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
______
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 328.00
 ELEVATION DATA: UPSTREAM(FEET) = 1053.00 DOWNSTREAM(FEET) = 990.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.965
                                                 OF-15
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 4.168
 SUBAREA To AND LOSS RATE DATA (AMC III):
 DEVELOPMENT TYPE/
                  SCS SOIL AREA
                                  Fp
                                                SCS Tc
                                           Ар
     LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
                    C 0.40 0.25 1.000 92 9.96
 "OPEN BRUSH"
 NATURAL FAIR COVER
 "OPEN BRUSH"
                      D 1.00 0.20 1.000 96 9.96
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF (CFS) = 4.98
 TOTAL AREA(ACRES) = 1.40 PEAK FLOW RATE(CFS) =
******************
 FLOW PROCESS FROM NODE 951.00 TO NODE 952.00 IS CODE = 51
______
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <>>>
______
 ELEVATION DATA: UPSTREAM(FEET) = 990.00 DOWNSTREAM(FEET) = 950.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 439.00 CHANNEL SLOPE = 0.0911
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 30.00
                                                OF-16
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.875
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                  Fр
                                            Αр
                                                  SCS
     LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 NATURAL FAIR COVER
                    D 0.10
 "OPEN BRUSH"
                                     0.20 1.000 96
 NATURAL FAIR COVER
 "OPEN BRUSH"
                    C 0.40
                                     0.25 1.000 92
 NATURAL FAIR COVER
                             0.60
                                     0.25
 "GRASS"
                                          1.000
                                                   93
 NATURAL FAIR COVER
 "GRASS"
                      D
                             0.70
                                     0.20
                                          1.000
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.41
 AVERAGE FLOW DEPTH (FEET) = 0.70 TRAVEL TIME (MIN.) = 1.35
 Tc(MIN.) = 11.32
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SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/HR) TOTAL AREA(ACRES) =	3.20	AREA- 2 AREA-AV	-AVERAGED F JERAGED Ap	fm(INCH/HR) = 1.00) = 0.22
END OF SUBAREA CHANNEL FI DEPTH(FEET) = 0.78 FL LONGEST FLOWPATH FROM NOI	OW VELOCI	TY(FEET/SI	DE 952.0	00 = 76	
FLOW PROCESS FROM NODE	952.00	TO NODE	953.00 IS	CODE = !	51
>>>>COMPUTE TRAPEZOIDAL >>>>TRAVELTIME THRU SUBA	CHANNEL :	FLOW<<<< STING ELEN	MENT) <<<<		
ELEVATION DATA: UPSTREAM CHANNEL LENGTH THRU SUBAH CHANNEL BASE(FEET) = (MANNING'S FACTOR = 0.040 * 100 YEAR RAINFALL INTEN SUBAREA LOSS RATE DATA(AN DEVELOPMENT TYPE/	REA(FEET) 0.00 "Z MAXIMU NSITY(INC! MC III): SCS SOIL	= 810.0 "FACTOR = M DEPTH(FI H/HR) = 3 AREA	00 CHANNE = 3.000 EET) = 30. 3.678	EL SLOPE =	0.3395 F-17 scs
LAND USE NATURAL FAIR COVER	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
"CHAPARRAL, BROADLEAF"	D	0.60	0.20	1.000	95
	D	1.50	0.20	1.000	96
NATURAL FAIR COVER "GRASS"	С	1.70	0.25	1.000	93
NATURAL FAIR COVER "OPEN BRUSH"	С	3.40	0.25	1.000	92
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	С	7.20	0.25	1.000	91
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS TRAVEL TIME COMPUTED USIN TRAVEL TIME THRU SUBAREA AVERAGE FLOW DEPTH (FEET) TC (MIN.) = 12.39 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/HR)	LOSS RATI AREA FRAI NG ESTIMA BASED ON = 0.93 14.40 17.60 = 0.2	E, Fp(INC) CTION, Ap TED FLOW(VELOCITY TRAVEL SUBARI AREA- 4 AREA-AV	H/HR) = 0. = 1.000 CFS) = (FEET/SEC.) TIME (MIN.) EA RUNOFF (C -AVERAGED F	32.79 = 12.54 = 1.08 CFS) = 44 Tm(INCH/HR) = 1.00	4.52) = 0.24
TOTAL AREA (ACRES) = END OF SUBAREA CHANNEL FI DEPTH(FEET) = 1.13 FLC LONGEST FLOWPATH FROM NOI	LOW HYDRA	ULICS: TY(FEET/SI	EC.) = 14.	.32	54.48 77.00 FEET.
**************************************	953.00	******** TO NODE	******** 954.00 IS	**************************************	****** 51
>>>>TRAVELTIME THRU SUB					
ELEVATION DATA: UPSTREAM CHANNEL LENGTH THRU SUBAR CHANNEL BASE(FEET) = (MANNING'S FACTOR = 0.040	(FEET) = REA(FEET) 0.00 "Z	675.00 = 955.0	DOWNSTREADO CHANNE 3.000	AM(FEET) = EL SLOPE =	475.00

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* 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA(3.493	0	F-18
DEVELOPMENT TATE /	amc III);	7057	En	λn	909
DEVELOPMENT TYPE/ LAND USE	CBUILD	(ACDES)	(TMCH/HD)	(DECIMAL)	CM
NATURAL FAIR COVER	GROUF	(ACKES)	(INCH/HK)	(DECIMAL)	CIV
"GRASS"	D	0 10	0.20	1 000	0.6
NATURAL FAIR COVER	_	0.10	0.20	1 000	0.6
	D	0.10	0.20	1.000	96
NATURAL FAIR COVER					
"OPEN BRUSH"	В	0.60	0.30	1.000	84
NATURAL FAIR COVER					
"GRASS"	С	2.10	0.25	1.000	93
NATURAL FAIR COVER					
"CHAPARRAL, BROADLEAF"	С	8.90	0.25	1.000	91
NATURAL FAIR COVER					
"OPEN BRUSH"	С	14.80	0.25	1.000	92
SUBAREA AVERAGE PERVIOU					72
				• 2 3	
SUBAREA AVERAGE PERVIOU				00 01	
TRAVEL TIME COMPUTED US					
TRAVEL TIME THRU SUBARE					
AVERAGE FLOW DEPTH(FEET	') = 1.5	1 TRAVE	L TIME (MIN.) = 1.17	
Tc(MIN.) = 13.56					
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	26.60	SUBA	REA RUNOFF(CFS) = 7	7.61
EFFECTIVE AREA(ACRES) =	44.2	0 ARE	A-AVERAGED	Fm (INCH/HR)	0.2
AREA-AVERAGED Fp(INCH/H FOTAL AREA(ACRES) =	(R) = 0.	25 AREA-	AVERAGED Ap	= 1.00	
TOTAL AREA (ACRES) =	44.2	PE.	AK FLOW RAT	E(CFS) =	129.14
DEPTH(FEET) = 1.71 F LONGEST FLOWPATH FROM N ***********************************	ODE 95	0.00 TO N	ODE 954.	00 = 253	******
LONGEST FLOWPATH FROM N ********************* FLOW PROCESS FROM NODE	********* 954.00	0.00 TO NO ******** TO NODE	954. ******** 955.00 I	00 = 253 ********* S CODE = 5	******
LONGEST FLOWPATH FROM N **************** FLOW PROCESS FROM NODE	******** 954.00 L CHANNEL BAREA (EX	0.00 TO NO ****** TO NODE FLOW<<< </td <td>954. ****** 955.00 I EMENT) <<<<</td> <td>00 = 253 ************* S CODE = 5</td> <td>****** 51 </td>	954. ****** 955.00 I EMENT) <<<<	00 = 253 ************* S CODE = 5	****** 51
LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE >>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU	********* 954.00 L CHANNEL BAREA (EX	0.00 TO NO ******* TO NODE FLOW<<<<: ISTING EL 475.0	954. ******* 955.00 I EMENT) <<<< DOWNSTRE	00 = 253 *********** S CODE = 5 	******* 51 410.0
LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE >>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB	******** 954.00 L CHANNEL BAREA (EX M (FEET) = AREA (FEET	0.00 TO NO ******* TO NODE FLOW<<<< ISTING EL 475.0) = 814	954. ******* 955.00 I EMENT) <<<< 0 DOWNSTRE .00 CHANN	00 = 253 *********** S CODE = 5 	******* 51 410.0
LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE >>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) =	0DE 95 ******* 954.00 L CHANNEL BAREA (EX M(FEET) = AREA (FEET 0.00 "	0.00 TO NO ******* TO NODE FLOW<<<< ISTING EL 475.0) = 814 Z" FACTOR	0DE 954. ******** 955.00 I EMENT) <<<< D DOWNSTRE .00 CHANN = 3.000	00 = 253 ******* S CODE = 5 AM(FEET) = EL SLOPE =	******* 51 410.0 0.0799
LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE >>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04	******** 954.00 L CHANNEL BAREA (EX M(FEET) = AREA (FEET 0.00 " 0 MAXIM	0.00 TO NO ******* TO NODE FLOW<<<< ISTING EL 475.0) = 814 Z" FACTOR UM DEPTH(0DE 954. ******** 955.00 I EMENT) <<<< DOWNSTRE .00 CHANN = 3.000 FEET) = 30	00 = 253 ******* S CODE = 5 AM(FEET) = EL SLOPE =	******* 51 410.0 0.0799
LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE	0DE 95 ******* 954.00 L CHANNEL BAREA (EX	0.00 TO N ******* TO NODE FLOW<<<< ISTING EL 475.0) = 814 Z" FACTOR UM DEPTH (CH/HR) =	0DE 954. ******** 955.00 I EMENT) <<<< DOWNSTRE .00 CHANN = 3.000 FEET) = 30	00 = 253 ******* S CODE = 5 AM(FEET) = EL SLOPE =	******* 51 410.0
LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE >>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (00E 95 ******* 954.00 L CHANNEL BAREA (EX M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY(IN) AMC III):	0.00 TO NO ******* TO NODE	0DE 954. ******** 955.00 I CHANN 0 DOWNSTRE .00 CHANN 1 3.000 3.319	00 = 253 ******** S CODE = 5	******* 51 410.0 0.0799)F – 1
LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE	0DE 95 ******* 954.00 L CHANNEL BAREA (EX M(FEET) = 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOIL	0.00 TO NO ******* TO NODE FLOW<<<< ISTING EL 475.0) = 814 Z" FACTOR UM DEPTH (CH/HR) = AREA	DDE 954. ******** 955.00 I	00 = 253 ******* S CODE = 5 AM(FEET) = EL SLOPE = .00	**************************************
CONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE *>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB CHANNEL BASE (FEET) = 4ANNING'S FACTOR = 0.04 100 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (0DE 95 ******* 954.00 L CHANNEL BAREA (EX M(FEET) = 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOIL	0.00 TO NO ******* TO NODE FLOW<<<< ISTING EL 475.0) = 814 Z" FACTOR UM DEPTH (CH/HR) = AREA	0DE 954. ******** 955.00 I CHANN 0 DOWNSTRE .00 CHANN 1 3.000 3.319	00 = 253 ******* S CODE = 5 AM(FEET) = EL SLOPE = .00	**************************************
LONGEST FLOWPATH FROM N ***************** FLOW PROCESS FROM NODE	0DE 95 ******* 954.00 L CHANNEL BAREA (EX M(FEET) = 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOIL	0.00 TO NO ******* TO NODE FLOW<<<< ISTING EL 475.0) = 814 Z" FACTOR UM DEPTH (CH/HR) = AREA	DDE 954. ******** 955.00 I	00 = 253 ******* S CODE = 5 AM(FEET) = EL SLOPE = .00	**************************************
CONGEST FLOWPATH FROM N ******************** FLOW PROCESS FROM NODE ***************** FLOW PROCESS FROM NODE **************** **************** ****	0DE 95 ******* 954.00 L CHANNEL BAREA (EX M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOIL GROUP	0.00 TO NO ******* TO NODE	0DE 954. ********* 955.00 I EMENT) <<<< EMENT) <<<< O DOWNSTRE .00 CHANN = 3.000 FEET) = 30 3.319 Fp (INCH/HR)	00 = 253 ******* S CODE = 5 AM(FEET) = EL SLOPE = .00 Ap (DECIMAL)	**************************************
CONGEST FLOWPATH FROM N ***************** FLOW PROCESS FROM NODE >>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU ==================================	0DE 95 ******* 954.00 L CHANNEL BAREA (EX M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOIL GROUP	0.00 TO NO ******* TO NODE	DDE 954. ******** 955.00 I	00 = 253 ******* S CODE = 5 AM(FEET) = EL SLOPE = .00 Ap (DECIMAL)	**************************************
LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE	0DE 95 ******* 954.00 L CHANNEL BAREA (EX M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOIL GROUP B	0.00 TO NO ******* TO NODE	DDE 954. ********* 955.00 I	00 = 253 ******* S CODE = 5 AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000	**************************************
CONGEST FLOWPATH FROM N ******************** FLOW PROCESS FROM NODE *>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU **********************************	0DE 95 ******* 954.00 L CHANNEL BAREA (EX M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOIL GROUP	0.00 TO NO ******* TO NODE	0DE 954. ********* 955.00 I EMENT) <<<< EMENT) <<<< O DOWNSTRE .00 CHANN = 3.000 FEET) = 30 3.319 Fp (INCH/HR)	00 = 253 ******* S CODE = 5 AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000	**************************************
CONGEST FLOWPATH FROM N ******************** FLOW PROCESS FROM NODE *>>>>COMPUTE TRAPEZOIDA >>>>>TRAVELTIME THRU SU **************** ****************	0DE 95 ******* 954.00 L CHANNEL BAREA (EX M(FEET) = AREA (FEET 0.00 0 MAXIM ENSITY(IN AMC III): SCS SOIL GROUP B D	0.00 TO NO ******* TO NODE FLOW<<< ISTING EL 475.0) = 814 Z" FACTOR UM DEPTH(CH/HR) = AREA (ACRES) 0.10 0.40</td <td>DDE 954. ********* 955.00 I </td> <td>00 = 253 ******** S CODE = 5 AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000</td> <td>**************************************</td>	DDE 954. ********* 955.00 I	00 = 253 ******** S CODE = 5 AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000	**************************************
CONGEST FLOWPATH FROM N ******************** FLOW PROCESS FROM NODE *>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU **************** ****************	0DE 95 ******* 954.00 L CHANNEL BAREA (EX M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOIL GROUP B	0.00 TO NO ******* TO NODE FLOW<<< ISTING EL 475.0) = 814 Z" FACTOR UM DEPTH(CH/HR) = AREA (ACRES) 0.10 0.40</td <td>DDE 954. ********* 955.00 I </td> <td>00 = 253 ******** S CODE = 5 AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000</td> <td>**************************************</td>	DDE 954. ********* 955.00 I	00 = 253 ******** S CODE = 5 AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000	**************************************
CONGEST FLOWPATH FROM N ********************* FLOW PROCESS FROM NODE *>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU **************** ****************	0DE 95 ******* 954.00 L CHANNEL BAREA (EX M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOIL GROUP B D	0.00 TO NO ******** TO NODE FLOW<<<< ISTING EL: 475.0) = 814 Z" FACTOR UM DEPTH(CH/HR) = AREA (ACRES) 0.10 0.40 0.40	DDE 954. ********* 955.00 I	00 = 253 ******** S CODE = 5 AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000	**************************************
LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE	0DE 95 ******* 954.00 L CHANNEL BAREA (EX M(FEET) = AREA (FEET 0.00 0 MAXIM ENSITY(IN AMC III): SCS SOIL GROUP B D	0.00 TO NO ******** TO NODE FLOW<<<< ISTING EL: 475.0) = 814 Z" FACTOR UM DEPTH(CH/HR) = AREA (ACRES) 0.10 0.40 0.40	DDE 954. ********* 955.00 I	00 = 253 ******** S CODE = 5 AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000	**************************************
LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE	0DE 95 ******* 954.00 L CHANNEL BAREA (EX M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOIL GROUP B D	0.00 TO NO ******** TO NODE FLOW<<<< ISTING EL: 475.0) = 814 Z" FACTOR UM DEPTH(CH/HR) = AREA (ACRES) 0.10 0.40 0.40	DDE 954. ********* 955.00 I	00 = 253 ******** S CODE = 5 AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000	**************************************
LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE	0DE 95 ******* 954.00 L CHANNEL BAREA (EX M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOIL GROUP B D	0.00 TO No ******** TO NODE	DDE 954. ********* 955.00 I	00 = 253 ******** S CODE = 5	**************************************
LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE	0DE 95 ******* 954.00 L CHANNEL BAREA (EX 0 MAXIM ENSITY(IN AMC III): SCS SOIL GROUP B D D B	0.00 TO No ******** TO NODE	DDE 954. ********* 955.00 I	00 = 253 ******** S CODE = 5	**************************************
LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE	ODE 95 ******* 954.00 L CHANNEL BAREA (EX M(FEET) = AREA (FEET 0.00 " 0 MAXIM ENSITY(IN AMC III): SCS SOIL GROUP B D D B	0.00 TO NO ******** TO NODE	DDE 954. ********* 955.00 I	00 = 253 ******** S CODE = 5	**************************************

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SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 154.65
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 10.78
 AVERAGE FLOW DEPTH (FEET) = 2.19 TRAVEL TIME (MIN.) = 1.26
 Tc(MIN.) = 14.82
 SUBAREA AREA(ACRES) = 18.50
                                SUBAREA RUNOFF (CFS) = 51.01
 EFFECTIVE AREA (ACRES) = 62.70 AREA-AVERAGED Fm (INCH/HR) = 0.25
 AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 1.00
                       62.7
 TOTAL AREA (ACRES) =
                                  PEAK FLOW RATE (CFS) = 173.26
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 2.28 FLOW VELOCITY(FEET/SEC.) = 11.07
 LONGEST FLOWPATH FROM NODE 950.00 TO NODE 955.00 = 3346.00 FEET.
************************
 FLOW PROCESS FROM NODE 955.00 TO NODE 956.00 IS CODE = 51
...........
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <>>>
______
 ELEVATION DATA: UPSTREAM(FEET) = 410.00 DOWNSTREAM(FEET) = 375.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 643.00 CHANNEL SLOPE = 0.0544
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 30.00
                                                    OF-20
 * 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.187
 SUBAREA LOSS RATE DATA (AMC III):
  DEVELOPMENT TYPE/
                  SCS SOIL AREA
                                       Fρ
                                                αA
     LAND USE
                      GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF"
                               0.20
                                        0.30
                                                1.000
 NATURAL FAIR COVER
 "WOODLAND, GRASS"
                               0.50
                                        0.30
                                                1.000
                                                       83
 NATURAL FAIR COVER
 "GRASS"
                               1.20
                                        0.25
                                                1.000
                                                       93
 NATURAL FAIR COVER
 "WOODLAND, GRASS"
                               3.60
                                        0.25
                                                1.000
                                                       92
 NATURAL FAIR COVER
 "GRASS"
                               3.80
                                        0.30
                                                1.000
 NATURAL FAIR COVER
 "OPEN BRUSH"
                               6.10
                                        0.30
                                               1.000
                        В
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.28
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 193.39
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 9.85
 AVERAGE FLOW DEPTH (FEET) = 2.56 TRAVEL TIME (MIN.) = 1.09
 Tc(MIN.) = 15.91
 SUBAREA AREA(ACRES) = 15.40
                                SUBAREA RUNOFF (CFS) = 40.23
 EFFECTIVE AREA(ACRES) = 78.10 AREA-AVERAGED Fm(INCH/HR) = 0.26
 AREA-AVERAGED Fp(INCH/HR) = 0.26 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 78.1 PEAK FLOW RATE (CFS) =
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 2.62 FLOW VELOCITY(FEET/SEC.) = 10.01
 LONGEST FLOWPATH FROM NODE 950.00 TO NODE 956.00 = 3989.00 FEET.
******************
 FLOW PROCESS FROM NODE 956.00 TO NODE 956.00 IS CODE = 81
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>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW< MAINLINE Tc(MIN.) = 15.91OF-20* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.187 SUBAREA LOSS RATE DATA (AMC III): SCS SOIL AREA DEVELOPMENT TYPE/ SCS LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN NATURAL FAIR COVER 14.30 0.25 1.000 91 "CHAPARRAL, BROADLEAF" C NATURAL FAIR COVER 21.60 0.25 1.000 92 "OPEN BRUSH" SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000 SUBAREA RUNOFF(CFS) = 94.90 SUBAREA AREA(ACRES) = 35.90 EFFECTIVE AREA(ACRES) = 114.00 AREA-AVERAGED Fm(INCH/HR) = 0.25 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 1.00 TOTAL AREA (ACRES) = 114.0 PEAK FLOW RATE (CFS) = 300.95 ******************* FLOW PROCESS FROM NODE 956.00 TO NODE 956.00 IS CODE = 81 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>> ______ MAINLINE Tc(MIN.) = 15.91OF-21* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.187 SUBAREA LOSS RATE DATA (AMC III): DEVELOPMENT TYPE/ SCS SOIL AREA Fρ Aρ LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN NATURAL FAIR COVER 0.30 "OPEN BRUSH" 0.20 1.000 96 NATURAL FAIR COVER 0.30 1.000 "OPEN BRUSH" 0.25 92 NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" 0.60 0.20 1.000 95 NATURAL FAIR COVER "WOODLAND, GRASS" 2.30 0.25 1.000 92 NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" 3.20 0.25 1.000 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000 SUBAREA RUNOFF (CFS) = 17.75SUBAREA AREA (ACRES) = 6.70 EFFECTIVE AREA(ACRES) = 120.70 AREA-AVERAGED Fm(INCH/HR) = 0.25 AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 1.00 TOTAL AREA (ACRES) = 120.7 PEAK FLOW RATE(CFS) = ****************** FLOW PROCESS FROM NODE 956.00 TO NODE 905.00 IS CODE = 31 ______ >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA< >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<< ELEVATION DATA: UPSTREAM(FEET) = 375.00 DOWNSTREAM(FEET) = 330.00 FLOW LENGTH (FEET) = 1304.00 MANNING'S N = 0.013DEPTH OF FLOW IN 54.0 INCH PIPE IS 40.8 INCHES PIPE-FLOW VELOCITY(FEET/SEC.) = 24.72ESTIMATED PIPE DIAMETER (INCH) = 54.00 NUMBER OF PIPES = 1 PIPE-FLOW(CFS) = 318.70PIPE TRAVEL TIME (MIN.) = 0.88 Tc (MIN.) = 16.79

(ACRES) (INCH/HR) (DECIMAL) CN F-5LONGEST FLOWPATH FROM NODE 950.00 TO NODE 905.00 = 5293.00 FEET. LAND USE GROUP COMMERCIAL Α 12.30 0.40 ******************* 26.80 COMMERCIAL В 0.30 2.00 FLOW PROCESS FROM NODE 905.00 TO NODE 905.00 IS CODE = 1 COMMERCIAL 0.25 ______ RESIDENTIAL >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE <<< ".4 DWELLING/ACRE" 2.70 0.40 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES< RESIDENTIAL ".4 DWELLING/ACRE" 0.80 0.30 ______ TOTAL NUMBER OF STREAMS = 3 RESIDENTIAL C 2.10 0.25 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 3 ARE: ".4 DWELLING/ACRE" TIME OF CONCENTRATION (MIN.) = 16.79 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.33 RAINFALL INTENSITY (INCH/HR) = 3.09SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.196 AREA-AVERAGED Fm(INCH/HR) = 0.25SUBAREA AREA (ACRES) = 46.70 SUBAREA RUNOFF (CFS) = 130.86EFFECTIVE AREA(ACRES) = 539.96 AREA-AVERAGED Fm(INCH/HR) = 0.20 AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 1.00AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.86 EFFECTIVE STREAM AREA(ACRES) = 120.70 TOTAL AREA (ACRES) = 545.8 PEAK FLOW RATE (CFS) = 1446.20TOTAL STREAM AREA(ACRES) = 120.70 ******************* PEAK FLOW RATE (CFS) AT CONFLUENCE = 318.70 FLOW PROCESS FROM NODE 905.00 TO NODE 905.00 IS CODE = 81 ** CONFLUENCE DATA ** STREAM 0 HEADWATER >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW< Tc Intensity Fp(Fm) Ae NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE _____ 1 893.84 10.11 4.132 0.23 (0.19) 0.85 930.00 245.9 MAINLINE Tc(MIN.) = 16.001 948.62 12.74 3.621 0.23(0.20) 0.87 301.7 910.00 * 100 YEAR RAINFALL INTENSITY(INCH/HR) = 3.178 979.08 16.00 3.178 0.22(0.20) 0.89 359.8 920.00 SUBAREA LOSS RATE DATA (AMC III): 922.72 17.60 3.008 0.22(0.20) 0.89 359.9 900.00 DEVELOPMENT TYPE/ SCS SOIL AREA Fр 68.84 9.88 4.189 0.26(0.26) 1.00 18.5 940.00 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN 0.40 318.70 16.79 3.091 0.25(0.25) 1.00 120.7 950.00 COMMERCIAL 8.00 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.40 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.100 CONFLUENCE FORMULA USED FOR 3 STREAMS. SUBAREA AREA (ACRES) = 8.00 SUBAREA RUNOFF (CFS) = 22.59 EFFECTIVE AREA(ACRES) = 547.96 AREA-AVERAGED Fm(INCH/HR) = 0.20 ** PEAK FLOW RATE TABLE ** AREA-AVERAGED Fp (INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.85STREAM 0 Tc Intensity Fp(Fm) Аe HEADWATER TOTAL AREA (ACRES) = 553.8 PEAK FLOW RATE (CFS) = 1468.79 NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE ______ 1 1214.28 9.88 4.189 0.23(0.21) 0.89 329.6 940.00 END OF STUDY SUMMARY: 930.00 2 1224.15 10.11 4.132 0.23 (0.21) 0.89 337.1 TOTAL AREA (ACRES) = 553.8 TC (MIN.) = 16.00 1294.44 12.74 3.621 0.23(0.21)0.91 411.8 910.00 EFFECTIVE AREA(ACRES) = 547.96 AREA-AVERAGED Fm(INCH/HR) = 0.20 1343.15 16.00 3.178 0.23 (0.21) 0.92 493.3 920.00 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.847 5 1319.50 16.79 3.091 0.23(0.22) 0.92 499.0 950.00 PEAK FLOW RATE (CFS) = 1468.791280.37 17.60 3.008 0.23(0.22) 0.92 499.1 900.00 ** PEAK FLOW RATE TABLE ** COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS: STREAM 0 Tc Intensity Fp(Fm) Ap PEAK FLOW RATE (CFS) = 1343.15 Tc (MIN.) = 16.00NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) EFFECTIVE AREA(ACRES) = 493.26 AREA-AVERAGED Fm(INCH/HR) = 0.21 1 1383.90 9.88 4.189 0.24(0.19) 0.79 AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.921390.74 10.11 4.132 0.24(0.19) 0.79 TOTAL AREA(ACRES) = 499.1 1438.89 12.74 3.621 0.24(0.19) 0.82 LONGEST FLOWPATH FROM NODE 920.00 TO NODE 905.00 = 6933.00 FEET. 1468.79 16.00 3.178 0.24(0.20) 0.85 5 1440.56 16.79 3.091 0.24(0.20) 0.85 ****************** 1399.75 17.60 3.008 0.24(0.20) 0.85 FLOW PROCESS FROM NODE 905.00 TO NODE 905.00 IS CODE = 81 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>> END OF RATIONAL METHOD ANALYSIS _____ MAINLINE Tc(MIN.) = 16.00* 100 YEAR RAINFALL INTENSITY (INCH/HR) = 3.178 SUBAREA LOSS RATE DATA (AMC III): DEVELOPMENT TYPE/ SCS SOIL AREA SCS

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0.100

0.100

0.100

0.900

0.900

0.900

0.100

AΘ

(ACRES) NODE

384.3

391.8

466.5

548.0

553.7

553.8

HEADWATER

940.00

930.00

910.00

920.00

950.00

900.00

52

76

86

52

76

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

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Analysis prepared by:

Michael Baker International 5 Hutton Centre Drive, Suite 500 Santa Ana, CA 92707

******************** DESCRIPTION OF STUDY ******************* * RMV PA-4 SUBAREA F ROMP 2018 * RATIONAL METHOD HYDROLOGY MODEL LOCAL * 100-YR HC AUG 2018 CCHTU FILE NAME: PA4F25HC.DAT TIME/DATE OF STUDY: 15:03 08/06/2018 ______ USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION: _____ --*TIME-OF-CONCENTRATION MODEL*--USER SPECIFIED STORM EVENT (YEAR) = 25.00 SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00 SPECIFIED PERCENT OF GRADIENTS (DECIMAL) TO USE FOR FRICTION SLOPE = 0.90 *DATA BANK RAINFALL USED* *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) 20.0 0.018/0.018/0.020 0.67 2.00 0.0313 0.167 0.0150 1 30.0 2 32.0 27.0 0.020/0.020/ --- 0.67 2.00 0.0312 0.167 0.0150 3 13.0 8.0 0.020/0.020/ ---0.33 1.00 0.0312 0.125 0.0150 GLOBAL STREET FLOW-DEPTH CONSTRAINTS: 1. Relative Flow-Depth = 1.00 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 900.00 TO NODE 901.00 IS CODE = 21 _____ >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<< ______ INITIAL SUBAREA FLOW-LENGTH (FEET) = 314.00

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Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 13.762
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.720
 SUBAREA To AND LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                                  SCS
                                                      Tc
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
                    D 0.70
                                     0.20
                                            1.000
                                                   81 13.76
 "CHAPARRAL, BROADLEAF"
 NATURAL FAIR COVER
                           0.50 0.20 1.000
 "OPEN BRUSH"
                                                   83 13.76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF (CFS) = 2.72
 TOTAL AREA (ACRES) = 1.20 PEAK FLOW RATE (CFS) =
*******************
 FLOW PROCESS FROM NODE 901.00 TO NODE 902.00 IS CODE = 31
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
_____
 ELEVATION DATA: UPSTREAM(FEET) = 485.00 DOWNSTREAM(FEET) = 459.00
 FLOW LENGTH (FEET) = 1090.00 MANNING'S N = 0.013
 ESTIMATED PIPE DIAMETER (INCH) INCREASED TO 18.000
 DEPTH OF FLOW IN 18.0 INCH PIPE IS 5.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) = 6.57
 ESTIMATED PIPE DIAMETER (INCH) = 18.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) =
                  2.72
 PIPE TRAVEL TIME (MIN.) = 2.77 Tc (MIN.) = 16.53
 LONGEST FLOWPATH FROM NODE 900.00 TO NODE 902.00 = 1404.00 FEET.
******************
 FLOW PROCESS FROM NODE 902.00 TO NODE 902.00 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.) = 16.53
 RAINFALL INTENSITY (INCH/HR) = 2.45
 AREA-AVERAGED Fm(INCH/HR) = 0.20
 AREA-AVERAGED Fp (INCH/HR) = 0.20
 AREA-AVERAGED Ap = 1.00
 EFFECTIVE STREAM AREA(ACRES) = 1.20
 TOTAL STREAM AREA(ACRES) = 1.20
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 2.72
FLOW PROCESS FROM NODE 910.00 TO NODE 911.00 IS CODE = 21
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
_____
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 328.00
 ELEVATION DATA: UPSTREAM(FEET) = 785.00 DOWNSTREAM(FEET) = 612.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
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ELEVATION DATA: UPSTREAM(FEET) = 496.00 DOWNSTREAM(FEET) = 485.00

Date: 08/14/2018

DEVELOPMENT TYPE/	E DATA (AMC					
TAND HOD	SCS SOIL	AREA	Fp	Ap	SCS	TC
LAND USE NATURAL FAIR COVER	GROUP	(ACKES)	(INCH/HR)	(DECIMAL)	CN	(MIN.)
"CHAPARRAL, BROADLEAF"	C	0 10	0.25	1 000	75	8 14
NATURAL FAIR COVER	Ŭ	0.10	0.20	1.000	, 0	0.11
"CHAPARRAL, BROADLEAF"	D	0.50	0.20	1.000	81	8.14
NATURAL FAIR COVER						
"OPEN BRUSH"					83	8.14
SUBAREA AVERAGE PERVIOU				.20		
SUBAREA AVERAGE PERVIOU						
SUBAREA RUNOFF(CFS) = TOTAL AREA(ACRES) =	4.98 1.60 p	EVK EIUM	DATE (CES)	= 1 99	2	
TOTAL ANDA (ACNES) -	1.00 1	DAN FLOW	NAIL (CLD)	- 4.50	,	
*******	*****	*****	*****	*******	****	*****
FLOW PROCESS FROM NODE	911.00	TO NODE	912.00 I	S CODE = 5	51	
>>>>COMPUTE TRAPEZOIDA						
>>>>TRAVELTIME THRU SU			,			
ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB	M(FEET) =	612.00	DOWNSTRE	AM(FEET) =) 0 1	25.00
CHANNEL LENGIH THRU SUB CHANNEL BASE(FEET) =				EL SLOPE =	0.1	900
MANNING'S FACTOR = 0.04				0.0		
MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INT					ОТ.	1 0
~ 25 IEAR RAINFALL INI SUBAREA LOSS RATE DATA(,	. ,	3.433		UF	'-2
DEVELOPMENT TYPE/			En	7.5	ccc	
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	C	1 00	0.25	1 000	75	
NATURAL FAIR COVER		1.00	0.23	1.000	13	
"OPEN BRUSH"		0.60	0.25	1 000	77	
NATURAL FAIR COVER	C	0.00	0.25	1.000	/ /	
"CHAPARRAL, BROADLEAF"	D	2 30	0.20	1 000	81	
NATURAL FAIR COVER	Б	2.50	0.20	1.000	01	
"OPEN BRUSH"	D	1 00	0.20	1 000	83	
					0.5	
	0 1000 1411			• 2 2		
SUBAREA AVERAGE PERVIOU	S AREA FRA					
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU			(CFS) =	12.08		
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US	ING ESTIMA	TED FLOW				
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU	ING ESTIMA A BASED ON	TED FLOW	(FEET/SEC.) = 7.89		
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH(FEET	ING ESTIMA A BASED ON	TED FLOW	(FEET/SEC.) = 7.89		
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH(FEET TC(MIN.) = 9.11	ING ESTIMA A BASED ON () = 0.71	TED FLOW VELOCITY TRAVE	(FEET/SEC. TIME (MIN.) = 7.89) = 0.97	1.19	
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET TC (MIN.) = 9.11 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) =	ING ESTIMA A BASED ON () = 0.71 4.90 6.50	TED FLOW VELOCITY TRAVE SUBAR	(FEET/SEC. TIME (MIN. REA RUNOFF (A-AVERAGED) = 7.89) = 0.97 CFS) = 14 Fm(INCH/HR)	1.19	0.21
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET TC (MIN.) = 9.11 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H	ING ESTIMA A BASED ON () = 0.71 4.90 6.50 (R) = 0.2	TED FLOW VELOCITY TRAVEL SUBAR AREA 1 AREA-A	(FEET/SEC. TIME (MIN. REA RUNOFF (A-AVERAGED AVERAGED AP) = 7.89) = 0.97 CFS) = 14 Fm(INCH/HR) = 1.00		
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH(FEET TC(MIN.) = 9.11	ING ESTIMA A BASED ON () = 0.71 4.90 6.50 (R) = 0.2	TED FLOW VELOCITY TRAVEL SUBAR AREA 1 AREA-A	(FEET/SEC. TIME (MIN. REA RUNOFF (A-AVERAGED AVERAGED AP) = 7.89) = 0.97 CFS) = 14 Fm(INCH/HR) = 1.00		
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET TC (MIN.) = 9.11 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H	ING ESTIMA A BASED ON () = 0.71 4.90 6.50 (R) = 0.2	TED FLOW VELOCITY TRAVEL SUBAR AREA 1 AREA-A	(FEET/SEC. TIME (MIN. REA RUNOFF (A-AVERAGED AVERAGED AP) = 7.89) = 0.97 CFS) = 14 Fm(INCH/HR) = 1.00		
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET TC (MIN.) = 9.11 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H	A BASED ON (1) = 0.71 4.90 (2) = 6.50 (3) = 0.2 6.5	TED FLOW VELOCITY TRAVEI SUBAN AREA 1 AREA-1	(FEET/SEC. TIME (MIN. REA RUNOFF (A-AVERAGED AVERAGED AP) = 7.89) = 0.97 CFS) = 14 Fm(INCH/HR) = 1.00		
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH(FEET TC(MIN.) = 9.11 SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) = AREA-AVERAGED FP(INCH/H TOTAL AREA(ACRES) =	A BASED ON (1) = 0.71 4.90 (E) = 6.50 (ER) = 0.2 (E.5)	TED FLOW VELOCITY TRAVEI SUBAR AREA 1 AREA-A PEA	C(FEET/SEC. TIME(MIN. REA RUNOFF(A-AVERAGED AVERAGED AP AK FLOW RAT) = 7.89) = 0.97 CFS) = 14 Fm(INCH/HR) = 1.00 E(CFS) =		
SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET TC (MIN.) = 9.11 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) = END OF SUBAREA CHANNEL	ING ESTIMA A BASED ON () = 0.71 4.90 6.50 (R) = 0.2 6.5 FLOW HYDRA TLOW VELOCI	TED FLOW VELOCITY TRAVE SUBAN AREA 1 AREA-1 PEN ULICS: TY (FEET/S	C(FEET/SEC. TIME (MIN. REA RUNOFF (A-AVERAGED AVERAGED AP AK FLOW RAT) = 7.89) = 0.97 CFS) = 14 Fm(INCH/HR) = 1.00 E(CFS) =	1	8.85
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET TC (MIN.) = 9.11 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/HTOTAL AREA (ACRES) = END OF SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER AVERAGE POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER AVERAGE POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH (FEET) = 0.84 FLONGEST FLOWPATH FROM NETER POR SUBAREA CHANNEL DEPTH POR SUB	ING ESTIMA A BASED ON () = 0.71 4.90 6.50 (R) = 0.2 6.5 FLOW HYDRA LOW VELOCI ODE 910	TED FLOW VELOCITY TRAVEI SUBAR AREA 1 AREA-A PEA ULICS: TY (FEET/S .00 TO NO	(FEET/SEC. TIME (MIN. REA RUNOFF (A-AVERAGED AVERAGED AP AK FLOW RAT SEC.) = 8 DDE 912.) = 7.89) = 0.97 CFS) = 14 Fm(INCH/HR) = 1.00 E(CFS) =	1	8.85 FEET.
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH (FEET TC (MIN.) = 9.11 SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) = AREA-AVERAGED FP (INCH/H TOTAL AREA (ACRES) = END OF SUBAREA CHANNEL DEPTH (FEET) = 0.84 F	ING ESTIMA A BASED ON () = 0.71 4.90 6.50 (R) = 0.2 6.5 FLOW HYDRA LOW VELOCI ODE 910	TED FLOW VELOCITY TRAVEI SUBAR AREA 1 AREA-A PEA ULICS: TY (FEET/S .00 TO NO	C(FEET/SEC. TIME (MIN. REA RUNOFF (A-AVERAGED AVERAGED AP AK FLOW RAT SEC.) = 8 DDE 912.) = 7.89) = 0.97 CFS) = 14 Fm(INCH/HR) = 1.00 E(CFS) =	1 36.00	8.85 FEET.

______ ELEVATION DATA: UPSTREAM(FEET) = 525.00 DOWNSTREAM(FEET) = 470.00 CHANNEL LENGTH THRU SUBAREA (FEET) = 618.00 CHANNEL SLOPE = 0.0890

B 0.10

4.60

4.00

0.60

2.70

5.10

Fр

0.30

0.25

0.25

0.25

0.20

0.20

GROUP (ACRES) (INCH/HR) (DECIMAL) CN

OF-3

SCS

66

75

77

81

Aр

1.000

1.000

1.000

1.000

1.000

1.000 77

CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 30.00

SCS SOIL AREA

C

D SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23

* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.190

SUBAREA LOSS RATE DATA (AMC II):

"CHAPARRAL, BROADLEAF" C

DEVELOPMENT TYPE/

LAND USE

NATURAL FAIR COVER "OPEN BRUSH"

NATURAL FAIR COVER

NATURAL FAIR COVER "OPEN BRUSH"

NATURAL FAIR COVER "WOODLAND, GRASS"

NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"

NATURAL FAIR COVER "OPEN BRUSH"

SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 41.67 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.10 AVERAGE FLOW DEPTH (FEET) = 1.31 TRAVEL TIME (MIN.) = 1.27 Tc(MIN.) = 10.38SUBAREA AREA(ACRES) = 17.10 SUBAREA RUNOFF (CFS) = 45.60EFFECTIVE AREA(ACRES) = 23.60 AREA-AVERAGED Fm(INCH/HR) = 0.22 AREA-AVERAGED Fp (INCH/HR) = 0.22 AREA-AVERAGED Ap = 1.00TOTAL AREA(ACRES) = 23.6 PEAK FLOW RATE(CFS) = 63.01 END OF SUBAREA CHANNEL FLOW HYDRAULICS: DEPTH(FEET) = 1.53 FLOW VELOCITY(FEET/SEC.) = 8.97 LONGEST FLOWPATH FROM NODE 910.00 TO NODE 913.00 = 1404.00 FEET. ******************** FLOW PROCESS FROM NODE 913.00 TO NODE 902.00 IS CODE = 31 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA< >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<< ______ ELEVATION DATA: UPSTREAM(FEET) = 470.00 DOWNSTREAM(FEET) = 459.00 FLOW LENGTH (FEET) = 890.00 MANNING'S N = 0.013DEPTH OF FLOW IN 36.0 INCH PIPE IS 26.6 INCHES PIPE-FLOW VELOCITY (FEET/SEC.) = 11.26 ESTIMATED PIPE DIAMETER (INCH) = 36.00 NUMBER OF PIPES = 1 PIPE-FLOW(CFS) = 63.01PIPE TRAVEL TIME (MIN.) = 1.32 Tc (MIN.) = 11.70 LONGEST FLOWPATH FROM NODE 910.00 TO NODE 902.00 = 2294.00 FEET. ******************* FLOW PROCESS FROM NODE 902.00 TO NODE 902.00 IS CODE = 1 ______ >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE <<<< >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES< ______ TOTAL NUMBER OF STREAMS = 2 Date: 08/14/2018 File name: PA4F25HC.RES Page 4

CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE: TIME OF CONCENTRATION (MIN.) = 11.70 ****************** RAINFALL INTENSITY (INCH/HR) = 2.98FLOW PROCESS FROM NODE 902.00 TO NODE 902.00 IS CODE = 81 AREA-AVERAGED Fm(INCH/HR) = 0.22AREA-AVERAGED Fp (INCH/HR) = 0.22 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>> _____ AREA-AVERAGED Ap = 1.00EFFECTIVE STREAM AREA(ACRES) = 23.60 MAINLINE Tc (MIN.) = 11.70TOTAL STREAM AREA(ACRES) = 23.60 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.982 PEAK FLOW RATE (CFS) AT CONFLUENCE = 63.01 SUBAREA LOSS RATE DATA (AMC II): DEVELOPMENT TYPE/ SCS SOIL AREA Fр Aр ** CONFLUENCE DATA ** LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) Tc Intensity Fp(Fm) Ap Ae HEADWATER STREAM NATURAL FAIR COVER NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE "OPEN BRUSH" 0.20 0.25 1.000 1 2.72 16.53 2.452 0.20(0.20) 1.00 1.2 900.00 RESIDENTIAL 2 63.01 11.70 2.982 0.22(0.22) 1.00 23.6 910.00 ".4 DWELLING/ACRE" C 0.10 0.25 0.900 NATURAL FAIR COVER RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO "CHAPARRAL, BROADLEAF" D 3.20 0.20 1.000 CONFLUENCE FORMULA USED FOR 2 STREAMS. COMMERCIAL D 3.40 0.20 0.100 NATURAL FAIR COVER ** PEAK FLOW RATE TABLE ** "OPEN BRUSH" 3.30 0.20 1.000 D STREAM 0 Tc Intensity Fp(Fm) Ap Ae HEADWATER RESIDENTIAL NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE ".4 DWELLING/ACRE" D 0.70 0.20 0.900 1 65.39 11.70 2.982 0.22(0.22) 1.00 24.4 910.00 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20 53.63 16.53 2.452 0.22(0.22) 1.00 24.8 900.00 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.712 SUBAREA RUNOFF(CFS) = 27.84 SUBAREA AREA(ACRES) = 10.90 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS: EFFECTIVE AREA(ACRES) = 42.45 AREA-AVERAGED Fm(INCH/HR) = 0.17 PEAK FLOW RATE (CFS) = 65.39 Tc (MIN.) = 11.70AREA-AVERAGED Fp (INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.79 TOTAL AREA (ACRES) = 42.8 PEAK FLOW RATE (CFS) = EFFECTIVE AREA(ACRES) = 24.45 AREA-AVERAGED Fm(INCH/HR) = 0.22 AREA-AVERAGED Fp(INCH/HR) = 0.22 AREA-AVERAGED Ap = 1.00 ***************** TOTAL AREA (ACRES) = 24.8 LONGEST FLOWPATH FROM NODE 910.00 TO NODE 902.00 = 2294.00 FEET. FLOW PROCESS FROM NODE 902.00 TO NODE 903.00 IS CODE = 31 ***************** >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA< FLOW PROCESS FROM NODE 902.00 TO NODE 902.00 IS CODE = 81 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<< ______ >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>> ELEVATION DATA: UPSTREAM(FEET) = 459.00 DOWNSTREAM(FEET) = 426.00 _____ FLOW LENGTH (FEET) = 654.00 MANNING'S N = 0.013MAINLINE Tc(MIN.) = 11.70DEPTH OF FLOW IN 33.0 INCH PIPE IS 25.7 INCHES * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.982 PIPE-FLOW VELOCITY(FEET/SEC.) = 21.60ESTIMATED PIPE DIAMETER (INCH) = 33.00 NUMBER OF PIPES = 1 SUBAREA LOSS RATE DATA (AMC II): DEVELOPMENT TYPE/ SCS SOIL AREA Fρ Ap PIPE-FLOW(CFS) = 107.27PIPE TRAVEL TIME (MIN.) = 0.50 Tc (MIN.) = 12.20LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN LONGEST FLOWPATH FROM NODE 910.00 TO NODE 903.00 = 2948.00 FEET. NATURAL FAIR COVER 6.3 "CHAPARRAL, BROADLEAF" В 0.20 0.30 1.000 ****************** 5.50 0.100 56 COMMERCIAL В 0.30 FLOW PROCESS FROM NODE 903.00 TO NODE 903.00 IS CODE = 1 NATURAL FAIR COVER 1.000 ______ "OPEN BRUSH" 0.20 0.30 66 RESIDENTIAL >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE <<<< ".4 DWELLING/ACRE" 0.900 _____ В 0.10 0.30 56 NATURAL FAIR COVER TOTAL NUMBER OF STREAMS = 3 "CHAPARRAL, BROADLEAF" С 0.10 0.25 1.000 7.5 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE: С 1.00 0.100 COMMERCIAL 0.25 TIME OF CONCENTRATION (MIN.) = 12.20 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.29 RAINFALL INTENSITY (INCH/HR) = 2.91SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.175 AREA-AVERAGED Fm(INCH/HR) = 0.17SUBAREA AREA(ACRES) = 7.10 SUBAREA RUNOFF (CFS) = 18.73AREA-AVERAGED Fp (INCH/HR) = 0.22 EFFECTIVE AREA(ACRES) = 31.55 AREA-AVERAGED Fm(INCH/HR) = 0.18 AREA-AVERAGED Ap = 0.79AREA-AVERAGED Fp(INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.81EFFECTIVE STREAM AREA(ACRES) = 42.45 TOTAL AREA (ACRES) = 31.9 PEAK FLOW RATE (CFS) = 79.43TOTAL STREAM AREA(ACRES) = 42.80 Page 5

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77

69

81

75

8.3

75

107.27

PEAK FLOW RATE(CFS) AT	CONFLUENCE	= 107	.27			
*******						*****
FLOW PROCESS FROM NODE						
>>>>RATIONAL METHOD IN >>USE TIME-OF-CONCENTRA	ITIAL SUBA	REA ANALYS	IS<<<<			
=======================================		=======	=======		=====	======
INITIAL SUBAREA FLOW-LE ELEVATION DATA: UPSTREA				AM(FEET) =	7	12.00
TC = K*[(LENGTH** 3.00) SUBAREA ANALYSIS USED M * 25 YEAR RAINFALL INT SUBAREA TC AND LOSS RAT	INIMUM Tc(ENSITY(INC E DATA(AMC	MIN.) = 3 H/HR) = 3	7.737 .768		OF-	_
		(ACRES) (
NATURAL FAIR COVER "OPEN BRUSH"	С	0.20	0.25	1.000	77	7.74
NATURAL FAIR COVER "OPEN BRUSH" SUBAREA AVERAGE PERVIOU SUBAREA AVERAGE PERVIOU	S LOSS RAT		/HR) = 0		83	7.74
SUBAREA RUNOFF (CFS) =		CIION, Ap	- 1.000			
TOTAL AREA (ACRES) =		EAK FLOW R	ATE (CFS)	= 2.8	8	
**************************************						*****
>>>>COMPUTE TRAPEZOIDA >>>>TRAVELTIME THRU SU	BAREA (EXI	STING ELEM	,			
ELEVATION DATA: UPSTREA CHANNEL LENGTH THRU SUB	M(FFFI) =	= 594 0	DOWNSTRE.	AM(FEET) =	n 1:	30.00
CHANNEL BASE (FEET) =				ED SHOLE -	0.1	300
MANNING'S FACTOR = 0.04				.00		_
* 25 YEAR RAINFALL INT	ENSITY (INC	H/HR) = 3	.502)F-	-5
SUBAREA LOSS RATE DATA(
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap	SCS	
	GROUP	(ACRES) (INCH/HR)	(DECIMAL)	CN	
NATURAL FAIR COVER	_	0.00	0.00	1 000	0.0	
"WOODLAND, GRASS"	D	0.20	0.20	1.000	82	
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	C	1 00	0.25	1 000	75	
NATURAL FAIR COVER	C	1.00	0.23	1.000	13	
"OPEN BRUSH"	С	1.40	0.25	1.000	77	
NATURAL FAIR COVER						
"CHAPARRAL, BROADLEAF"	D	4.40	0.20	1.000	81	
NATURAL FAIR COVER						
"OPEN BRUSH"		6.70			83	
SUBAREA AVERAGE PERVIOU		_		.21		
SUBAREA AVERAGE PERVIOU				02 01		
TRAVEL TIME COMPUTED US	ING ESTIMA	TED FLOW(C	FS) =	23.21		
TRAVEL TIME THRU SUBARE AVERAGE FLOW DEPTH(FEET						
	_ n n n n n n n n n n n n n n n n n n n	דייונז ג סייף	יידאר (זאדאי	\ _ 1 ^7		
	') = 0.91	TRAVEL	TIME (MIN.) = 1.07		
TC (MIN.) = 8.80 SUBAREA AREA (ACRES) =						

AREA-AVERAGED Fp(INCH/HR) = 0.21 AREA-AVERAGED Ap = 1.00 14.6 PEAK FLOW RATE(CFS) = 43.27 TOTAL AREA (ACRES) = END OF SUBAREA CHANNEL FLOW HYDRAULICS: DEPTH(FEET) = 1.15 FLOW VELOCITY(FEET/SEC.) = 10.81 LONGEST FLOWPATH FROM NODE 920.00 TO NODE 922.00 = 880.00 FEET. ****************** FLOW PROCESS FROM NODE 922.00 TO NODE 923.00 IS CODE = 51 ______ >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW< >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) < _____ ELEVATION DATA: UPSTREAM(FEET) = 600.00 DOWNSTREAM(FEET) = 550.00 CHANNEL LENGTH THRU SUBAREA (FEET) = 604.00 CHANNEL SLOPE = 0.0828 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 30.00 OF-6* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.258 SUBAREA LOSS RATE DATA (AMC II): DEVELOPMENT TYPE/ SCS SOIL AREA Fρ GROUP (ACRES) (INCH/HR) (DECIMAL) CN LAND USE NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" D 0.70 0.20 1.000 81 NATURAL FAIR COVER "WOODLAND, GRASS" D 1.40 0.20 1.000 82 NATURAL FAIR COVER "OPEN BRUSH" 5.40 0.20 1.000 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.20 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 8.38 AVERAGE FLOW DEPTH (FEET) = 1.46 TRAVEL TIME (MIN.) = 1.20 Tc(MIN.) = 10.00SUBAREA AREA(ACRES) = 7.50 SUBAREA RUNOFF (CFS) = 20.64EFFECTIVE AREA(ACRES) = 22.10 AREA-AVERAGED Fm(INCH/HR) = 0.21 AREA-AVERAGED Fp (INCH/HR) = 0.21 AREA-AVERAGED Ap = 1.00TOTAL AREA(ACRES) = 22.1 PEAK FLOW RATE(CFS) = 60.70 END OF SUBAREA CHANNEL FLOW HYDRAULICS: DEPTH(FEET) = 1.53 FLOW VELOCITY(FEET/SEC.) = 8.64 LONGEST FLOWPATH FROM NODE 920.00 TO NODE 923.00 = 1484.00 FEET. ****************** FLOW PROCESS FROM NODE 923.00 TO NODE 924.00 IS CODE = 51 ______ >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW< >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) < _____ ELEVATION DATA: UPSTREAM(FEET) = 550.00 DOWNSTREAM(FEET) = 495.00 CHANNEL LENGTH THRU SUBAREA (FEET) = 849.00 CHANNEL SLOPE = 0.0648 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 30.00 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.984 SUBAREA LOSS RATE DATA (AMC II): DEVELOPMENT TYPE/ SCS SOIL AREA Fρ Αp GROUP (ACRES) (INCH/HR) (DECIMAL) CN LAND USE NATURAL FAIR COVER "WOODLAND, GRASS" В 0.60 0.30 1.000 65 Date: 08/14/2018 File name: PA4F25HC.RES Page 8

AREA-AVERAGED Fm(INCH/HR) = 0.21

EFFECTIVE AREA(ACRES) = 14.60

IATURAL FAIR COVER "WOODLAND, GRASS" IATURAL FAIR COVER "OPEN BRUSH" IATURAL FAIR COVER "CHAPARRAL, BROADLEAF" IATURAL FAIR COVER "WOODLAND, GRASS" IATURAL FAIR COVER		0.80			
WOODLAND, GRASS" NATURAL FAIR COVER OPEN BRUSH" NATURAL FAIR COVER CHAPARRAL, BROADLEAF" NATURAL FAIR COVER WOODLAND, GRASS"		0.80			
NATURAL FAIR COVER OPEN BRUSH" NATURAL FAIR COVER CHAPARRAL, BROADLEAF" NATURAL FAIR COVER WOODLAND, GRASS"			0 25	1 000	77
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "WOODLAND, GRASS"	В		0.25	1.000	, ,
CHAPARRAL,BROADLEAF" NATURAL FAIR COVER WOODLAND,GRASS"		0.80	0.30	1.000	66
MATURAL FAIR COVER 'WOODLAND,GRASS"					
'WOODLAND, GRASS"	В	1.10	0.30	1.000	63
		F 00	0.00	1 000	0.0
	D	5.20	0.20	1.000	82
CHAPARRAL, BROADLEAF"	C	6 30	0.25	1 000	75
SUBAREA AVERAGE PERVIOUS					75
SUBAREA AVERAGE PERVIOUS					
RAVEL TIME COMPUTED USI				78.97	
RAVEL TIME THRU SUBAREA	BASED ON	VELOCITY(FEET/SEC.)	= 8.43	
AVERAGE FLOW DEPTH(FEET)	= 1.77	TRAVEL	TIME (MIN.)	= 1.68	
Cc(MIN.) = 11.68	14.00				
SUBAREA AREA (ACRES) =	14.80	SUBARE	A RUNOFF (CFS) = 30	0.54
FFECTIVE AREA(ACRES) = AREA-AVERAGED Fp(INCH/HR)	30.90	AKEA-	AVEKAGED I	- 1 00) = 0.22
COTAL AREA (ACRES) =					
		1 1111		_ , 0 _ 0 /	52.75
ND OF SUBAREA CHANNEL F	LOW HYDRAU	LICS:			
DEPTH(FEET) = 1.87 FLO					
ONGEST FLOWPATH FROM NO					33.00 FEET.

LOW PROCESS FROM NODE					
>>>>ADDITION OF SUBAREA					
DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER OPEN BRUSH" NATURAL FAIR COVER CHAPARRAL, BROADLEAF" NATURAL FAIR COVER	GROUP (. C D	9.70 17.00 36.60	0.25 0.20 0.20	1.000 1.000 1.000	CN 77 81
OPEN BRUSH" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA(ACRES) = SFFECTIVE AREA(ACRES) = AREA-AVERAGED FP(INCH/HR) SOTAL AREA(ACRES) =	AREA FRAC 63.30 100.20) = 0.21 100.2	TION, Ap SUBAREA AREA-AV AREA-AVE PEAK F	= 1.000 RUNOFF(CFSERAGED FM RAGED Ap = LOW RATE(C	S) = 158.7 (INCH/HR) = = 1.00 CFS) =	249.94
OPEN BRUSH" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA(ACRES) = SEFECTIVE AREA(ACRES) = AREA-AVERAGED FP(INCH/HR) SOTAL AREA(ACRES) =	AREA FRAC 63.30 100.20) = 0.21 100.2	TION, Ap SUBAREA AREA-AV AREA-AVE PEAK F	= 1.000 RUNOFF(CFS ERAGED FM RAGED AP = LOW RATE(C	S) = 158.: (INCH/HR) = 1.00 CFS) =	= 0.21 249.94 *******
OPEN BRUSH" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA(ACRES) = SEFECTIVE AREA(ACRES) = AREA-AVERAGED FP(INCH/HR) SOTAL AREA(ACRES) = SERVINIA AREA(ACRES) = SERVINIA AREA (ACRES) TOMBORE	AREA FRAC 63.30 100.20 0 = 0.21 100.2 ***********************************	TION, Ap SUBAREA AREA-AV AREA-AVE PEAK F	= 1.000 RUNOFF(CFS ERAGED FM RAGED AP = LOW RATE(C	S) = 158.: (INCH/HR) = 1.00 CFS) =	= 0.21 249.94 *******
OPEN BRUSH" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA(ACRES) = SEFECTIVE AREA(ACRES) = SUREA-AVERAGED FP(INCH/HR) SOTAL AREA(ACRES) = SUBAREA AVERAGED FP(INCH/HR) SUBAREA AVERAGED FP(INCH/HR) SUBAREA AVERAGED FP(INCH/HR) SUBAREA AVERAGED FP(INCH/HR) SUBAREA AREA (ACRES) = SUBAREA AVERAGED FP(INCH/HR) SUBAREA AREA (ACRES) = SUBAREA AVERAGED FP(INCH/HR) SUBAREA AVERAGED FP(INCH/HR) SUBAREA AVERAGED FP(INCH/HR) SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = SUBAREA AVERAGED FP (INCH/HR) SUBAREA AREA (ACRES) = SUBAREA AREA (ACRES) = SUBAREA AVERAGED FP (INCH/HR) SUBAREA AREA (ACRES) = SUBAREA AVERAGED FP (INCH/HR) SUBAREA AREA (ACRES) = SUBAREA AVERAGED FP (INCH/HR) SUBAREA AREA (ACRES) = SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = SUBAREA AREA (ACRES) = SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = SUBAREA AREA (ACR	AREA FRAC 63.30 100.20) = 0.21 100.2 ***********************************	TION, Ap SUBAREA AREA-AV AREA-AVE PEAK F *********	= 1.000 RUNOFF(CFS ERAGED FM RAGED AP = LOW RATE(C	S) = 158.: (INCH/HR) = 1.00 CFS) =	= 0.21 249.94 *******
OPEN BRUSH" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = SEFECTIVE AREA (ACRES) = SUBAREA AVERAGED FP (INCH/HR) SOTAL AREA (ACRES) = SUBAREA AVERAGED FP (INCH/HR) SOTAL AREA (ACRES) = SUBAREA AVERAGED FP (INCH/HR) SUBAREA AVERAGED FP (INCH/HR) SUBAREA (ACRES) = SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = SUBAR	AREA FRAC 63.30 100.20) = 0.21 100.2 *********** 924.00 T	TION, Ap SUBAREA AREA-AV AREA-AVE PEAK F ******** O NODELOW<	= 1.000 RUNOFF(CFS ERAGED FM RAGED Ap = LOW RATE(C	S) = 158.: (INCH/HR) = 1.00 CFS) =	= 0.21 249.94 *******
OPEN BRUSH" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA(ACRES) = SEFECTIVE AREA(ACRES) = SUREA-AVERAGED FP(INCH/HR) SOTAL AREA(ACRES) = SUBAREA AVERAGED FP(INCH/HR) SUBAREA AVERAGED FP(INCH/HR) SUBAREA AVERAGED FP(INCH/HR) SUBAREA AVERAGED FP(INCH/HR) SUBAREA AREA (ACRES) = SUBAREA AVERAGED FP(INCH/HR) SUBAREA AREA (ACRES) = SUBAREA AVERAGED FP(INCH/HR) SUBAREA AVERAGED FP(INCH/HR) SUBAREA AVERAGED FP(INCH/HR) SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = SUBAREA AVERAGED FP (INCH/HR) SUBAREA AREA (ACRES) = SUBAREA AREA (ACRES) = SUBAREA AVERAGED FP (INCH/HR) SUBAREA AREA (ACRES) = SUBAREA AVERAGED FP (INCH/HR) SUBAREA AREA (ACRES) = SUBAREA AVERAGED FP (INCH/HR) SUBAREA AREA (ACRES) = SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = SUBAREA AREA (ACRES) = SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = SUBAREA AREA (ACR	AREA FRAC 63.30 100.20) = 0.21 100.2 ********** 924.00 T 	TION, Ap SUBAREA AREA-AV AREA-AVE PEAK F ******** O NODE LOW<<<<< TING ELEM	= 1.000 RUNOFF(CFS ERAGED FM RAGED Ap = LOW RATE(COMMA	S) = 158.7 (INCH/HR) = 1.00 CFS) = ***********************************	= 0.21 249.94 *********
OPEN BRUSH" SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS SUBAREA AREA (ACRES) = SUFFECTIVE AREA (ACRES) = AREA-AVERAGED Fp (INCH/HR) SOTAL AREA (ACRES) = ***********************************	AREA FRAC 63.30 100.20) = 0.21 100.2 ********* 924.00 T	TION, Ap SUBAREA AREA-AV AREA-AVE PEAK F ******** O NODE	= 1.000 RUNOFF(CFS ERAGED FM RAGED Ap = LOW RATE(COMMANT) 4*********** 925.00 IS	S) = 158.3 (INCH/HR) = 1.00 CFS) = ***********************************	= 0.21 249.94 ********* 51 457.00

* 25 YEAR RAINFALL IN						
SUBAREA LOSS RATE DATA			_	_	~~~	
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	Fp	Ар	SCS	
LAND USE	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN	
NATURAL FAIR COVER						
"CHAPARRAL, BROADLEAF"	В	0.10	0.30	1.000	63	
NATURAL FAIR COVER "WOODLAND,GRASS"	D	0.20	0.20	1 000	C.E.	
		0.30	0.30	1.000	65	
NATURAL FAIR COVER						
"GRASS"	С	0.60	0.25	1.000	79	
NATURAL FAIR COVER						
'OPEN BRUSH"	B	0.70	0.30	1 000	66	
	ь	0.70	0.50	1.000	00	
NATURAL FAIR COVER						
'WOODLAND, GRASS"	D	0.90	0.20	1.000	82	
NATURAL FAIR COVER						
'GRASS"	В	0.90	0.30	1.000	69	
SUBAREA AVERAGE PERVIC						
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) AREA-AVERAGED Fp(INCH/ FOTAL AREA(ACRES) =	= 103.70 HR) = 0.2 103.7) ARE 21 AREA- PE	A-AVERAGED AVERAGED Ap AK FLOW RAT	Fm(INCH/HR = 1.00) = (
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM	FLOW HYDRA FLOW VELOCI NODE 920	AULICS: ITY(FEET/).00 TO N	SEC.) = 11 ODE 925.	00 = 29		
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM ************************************	FLOW HYDRA FLOW VELOCI NODE 920 ************************************	AULICS: ITY(FEET/).00 TO N ******** TO NODE	SEC.) = 11 ODE 925. ************	00 = 29 ******* S CODE =	****** 81	****
>>>>ADDITION OF SUBAR	FLOW HYDRA FLOW VELOCI NODE 920 ************ 925.00 EA TO MAINI	AULICS: ITY(FEET/).00 TO N ******** TO NODE	SEC.) = 11 ODE 925. *********** 925.00 I	00 = 29 ******* S CODE =	****** 81 	****
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM ************************************	FLOW HYDRA FLOW VELOCI NODE 920 ************ 925.00 EA TO MAINI	AULICS: ITY(FEET/).00 TO N ******** TO NODE	SEC.) = 11 ODE 925. *********** 925.00 I	00 = 29 ******* S CODE =	****** 81	****
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM ***********************************	FLOW HYDRA FLOW VELOCI NODE 920 ************ 925.00 EA TO MAINI	AULICS: ITY(FEET/).00 TO N ******** TO NODE	SEC.) = 11 ODE 925. *********** 925.00 I	00 = 29 ******* S CODE =	****** 81 	****
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM ***********************************	FLOW HYDRA FLOW VELOCI NODE 920 ************ 925.00 	AULICS: TTY(FEET/ 0.00 TO N ******* TO NODE	SEC.) = 11 ODE 925. ******** 925.00 I FLOW<<<< =================================	00 = 29 ******** S CODE =	****** 81 OF -	****
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM EXAMPLE OF THE SUBAREA CLOW PROCESS FROM NODE EXAMPLE OF THE SUBAREA ALINLINE TC (MIN.) = 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA	FLOW HYDRA FLOW VELOCI NODE 920 ************ 925.00 	AULICS: TTY(FEET/ 0.00 TO N ******* TO NODE	SEC.) = 11 ODE 925. ******** 925.00 I FLOW<<<< =================================	00 = 29 ******** S CODE =	****** 81 OF -	****
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 ONGEST FLOWPATH FROM ***********************************	FLOW HYDRA FLOW VELOCI NODE 920 ************ 925.00 	AULICS: TTY(FEET/ 0.00 TO N ******* TO NODE	SEC.) = 11 ODE 925. ******** 925.00 I FLOW<<<< =================================	00 = 29 ******** S CODE =	****** 81 OF -	****
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 ONGEST FLOWPATH FROM ***********************************	FLOW HYDRA FLOW VELOCI NODE 920 ************ 925.00 	AULICS: TTY(FEET/ 0.00 TO N ******* TO NODE	SEC.) = 11 ODE 925. ******** 925.00 I FLOW<<<< =================================	00 = 29 ******** S CODE =	****** 81 OF -	****
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM EXAMPLE OF THE SUBAREA CLOW PROCESS FROM NODE EXAMPLE OF THE SUBAREA MAINLINE TC (MIN.) = EXECUTE 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE MATURAL FAIR COVER	FLOW HYDRA FLOW VELOCI NODE 920 *********** 925.00	AULICS: ITY(FEET/).00 TO N ******* TO NODE LINE PEAK CH/HR) = AREA (ACRES)	SEC.) = 11 ODE 925. ******** 925.00 I FLOW<<<<< ================================	00 = 29 ******* S CODE = Ap (DECIMAL)	******* 81 OF -	****
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM EXAMPLE OF SUBAREA COW PROCESS FROM NODE EXAMPLE OF SUBAREA AINLINE TC (MIN.) = 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE LATURAL FAIR COVER OPEN BRUSH"	FLOW HYDRA FLOW VELOCI NODE 920 *********** 925.00 EA TO MAINI ===================================	AULICS: ITY(FEET/).00 TO N ******* TO NODE LINE PEAK CH/HR) = AREA (ACRES)	SEC.) = 11 ODE 925. ******** 925.00 I FLOW<<<< =================================	00 = 29 ******* S CODE = Ap (DECIMAL)	******* 81 OF -	****
CND OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM CONTROL FROM NODE CONTROL FOR NODE CONTROL FAIR COVER COPEN BRUSH" IATURAL FAIR COVER	FLOW HYDRA FLOW VELOCI NODE 920 *********** 925.00	AULICS: ITY(FEET/).00 TO N ******* TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80	SEC.) = 11 ODE 925. ********* 925.00 I FLOW<<<<< 2.860 Fp (INCH/HR) 0.20	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000	******* 81 OF - SCS CN 83	****
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM ***********************************	FLOW HYDRA FLOW VELOCI NODE 920 *********** 925.00	AULICS: ITY(FEET/).00 TO N ******* TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80	SEC.) = 11 ODE 925. ********* 925.00 I FLOW<<<<< 2.860 Fp (INCH/HR) 0.20	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000	******* 81 OF - SCS CN 83	****
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 ONGEST FLOWPATH FROM ***********************************	FLOW HYDRA FLOW VELOCI NODE 920 *********** 925.00	AULICS: ITY(FEET/).00 TO N ******* TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80	SEC.) = 11 ODE 925. ********* 925.00 I FLOW<<<<< 2.860 Fp (INCH/HR) 0.20	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000	******* 81 OF - SCS CN 83	****
CND OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM CONTROL FROM NODE CONTROL FOR NODE CONTROL FOR NODE CONTROL FAIR COVER COPEN BRUSH LAURAL FAIR COVER CHAPARRAL, BROADLEAF LATURAL FAIR COVER CHAPARRAL, BROADLEAF LATURAL FAIR COVER CHAPARRAL, BROADLEAF LATURAL FAIR COVER CHAPARRAL, BROADLEAF	FLOW HYDRA FLOW VELOCI NODE 920 *********** 925.00	AULICS: ITY(FEET/).00 TO N ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80 4.20	SEC.) = 11 ODE 925. ********* 925.00 I FLOW<<<<< 2.860 Fp (INCH/HR) 0.20 0.20	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000 1.000	******** ******* ******* ******* ******	****
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 ONGEST FLOWPATH FROM ***********************************	FLOW HYDRA FLOW VELOCI NODE 920 *********** 925.00	AULICS: ITY(FEET/).00 TO N ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80 4.20	SEC.) = 11 ODE 925. ********* 925.00 I FLOW<<<<< 2.860 Fp (INCH/HR) 0.20	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000 1.000	******** ******* ******* ******* ******	****
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 ONGEST FLOWPATH FROM ***********************************	FLOW HYDRA FLOW VELOCI NODE 920 *********** 925.00	AULICS: ITY(FEET/).00 TO N ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80 4.20 5.10	SEC.) = 11 ODE 925. ********* 925.00 I	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000 1.000 1.000	**************************************	****
CND OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM CONTROL FROM NODE CONTROL FOR NODE CONTROL FOR NODE CONTROL FAIR COVER COPEN BRUSH LAURAL FAIR COVER COPEN BRUSH CHAPARRAL, BROADLEAF WOODLAND, GRASS WOODLAND, GRASS WATURAL FAIR COVER COPEN BRUSH COPEN	FLOW HYDRA FLOW VELOCI NODE 920 *********** 925.00	AULICS: ITY(FEET/).00 TO N ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80 4.20 5.10	SEC.) = 11 ODE 925. ********* 925.00 I FLOW<<<<< 2.860 Fp (INCH/HR) 0.20 0.20	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000 1.000 1.000	**************************************	****
CND OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM CONTROL FROM NODE CONTROL FOR NODE CONTROL FOR NODE CONTROL FAIR COVER COMMON BRUSH C	FLOW HYDRA FLOW VELOCI NODE 920 *********** 925.00 EA TO MAINI ===================================	AULICS: ITY(FEET/).00 TO N ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80 4.20 5.10	SEC.) = 11 ODE 925. ********* 925.00 I	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000 1.000 1.000	**************************************	****
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM EXAMPLE AND PROCESS FROM NODE EXAMPLE AND USE LAND USE	FLOW HYDRA FLOW VELOCI NODE 920 *********** 925.00 EA TO MAINI ===================================	AULICS: ITY (FEET/ 0.00 TO N ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80 4.20 5.10 7.00	SEC.) = 11 ODE 925. ******** 925.00 I FLOW<<<< 2.860 Fp (INCH/HR) 0.20 0.25 0.25	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000	********* 81 OF - SCS CN 83 81 77 77	****
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM ***********************************	FLOW HYDRA FLOW VELOCI NODE 920 ********** 925.00 EA TO MAINI 12.59 TENSITY(INC (AMC II): SCS SOIL GROUP D C C	AULICS: ITY (FEET/ 0.00 TO N ************************************	SEC.) = 11 ODE 925. ******** 925.00 I	Ap (DECIMAL) 1.000 1.000 1.000 1.000	********* 81 OF - SCS CN 83 81 77 77	****
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM ***********************************	FLOW HYDRA FLOW VELOCI NODE 920 ********** 925.00 EA TO MAINI 12.59 TENSITY(INC. (AMC II): SCS SOIL GROUP D C C C US LOSS RAT	AULICS: ITY (FEET/ 0.00 TO N ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80 4.20 5.10 7.00 12.00 FE, FP(IN	SEC.) = 11 ODE 925. ********* 925.00 I FLOW<<<<< ========= 2.860	Ap (DECIMAL) 1.000 1.000 1.000 1.000	********* 81 OF - SCS CN 83 81 77 77	****
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM ***********************************	FLOW HYDRA FLOW VELOCI NODE 920 ********** 925.00 EA TO MAINI 12.59 TENSITY(INC. (AMC II): SCS SOIL GROUP D C C C US LOSS RAT	AULICS: ITY (FEET/ 0.00 TO N ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80 4.20 5.10 7.00 12.00 FE, FP(IN	SEC.) = 11 ODE 925. ********* 925.00 I FLOW<<<<< ========= 2.860	Ap (DECIMAL) 1.000 1.000 1.000 1.000	********* 81 OF - SCS CN 83 81 77 77	****
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM ************************* **********	FLOW HYDRA FLOW VELOCI NODE 920 ********** 925.00	AULICS: ITY (FEET/ 0.00 TO N ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80 4.20 5.10 7.00 12.00 TE, FP(IN ACTION, A	SEC.) = 11 ODE 925. ********* 925.00 I	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000	******* 81 OF - SCS CN 83 81 77 77 75	****
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM EXAMPLE OF SUBAREA CLOW PROCESS FROM NODE EXAMPLE OF SUBAREA LONGEST FLOWPATH FROM EXAMPLE OF SUBAREA LONGEST FROM NODE LANDLINE TC (MIN.) = EXAMPLE OF SUBAREA LONGEST FROM NODE LANDLINE TC (MIN.) = EXAMPLE OF SUBAREA LONGEST FROM NODE LANDLINE TC (MIN.) = EXAMPLE OF SUBAREA LONGEST FROM NODE LANDLINE TO SUBAREA LONGEST FROM NODE LANDLINE TO SUBAREA LONGEST FROM NODE LONGEST FRO	FLOW HYDRA FLOW VELOCI NODE 920 *********** 925.00	AULICS: ITY (FEET/ 0.00 TO N TO NODE TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80 4.20 5.10 7.00 12.00 TE, FP (IN ACTION, A SUBARE	SEC.) = 11 ODE 925. ********* 925.00 I FLOW<<<<< ========== 2.860 Fp (INCH/HR) 0.20 0.25 0.25 0.25 CH/HR) = 0 p = 1.000 A RUNOFF(CF	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000 24 S) = 75.	******** ******** ******** ******** ******	
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM ***********************************	FLOW HYDRA FLOW VELOCI NODE 920 *********** 925.00	AULICS: ITY (FEET/ 0.00 TO N ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80 4.20 5.10 7.00 12.00 TE, FP (IN ACTION, A SUBARE O AREA-	SEC.) = 11 ODE 925. ********* 925.00 I FLOW<<<<< 2.860 Fp (INCH/HR) 0.20 0.25 0.25 0.25 CH/HR) = 0 p = 1.000 A RUNOFF(CF AVERAGED FM	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000 24 S) = 75. (INCH/HR)	******** ******** ******** ******** ******	
CND OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM CONTROL OF SUBAREA	FLOW HYDRA FLOW VELOCI NODE 920 *********** 925.00	AULICS: ITY (FEET/ 0.00 TO N ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80 4.20 5.10 7.00 12.00 7.00 12.00 TE, Fp(IN ACTION, A SUBARE O AREA-A 2 AREA-A	SEC.) = 11 ODE 925. ********* 925.00 I FLOW<<<<< ========= 2.860 Fp (INCH/HR) 0.20 0.25 0.25 0.25 CH/HR) = 0 p = 1.000 A RUNOFF(CF AVERAGED FM VERAGED AP	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000 24 S) = 75. (INCH/HR) = 1.00	**************************************	***** — 8
END OF SUBAREA CHANNEL DEPTH(FEET) = 2.74 LONGEST FLOWPATH FROM ************************* FLOW PROCESS FROM NODE	FLOW HYDRA FLOW VELOCI NODE 920 *********** 925.00	AULICS: ITY (FEET/ 0.00 TO N ******** TO NODE LINE PEAK CH/HR) = AREA (ACRES) 3.80 4.20 5.10 7.00 12.00 7.00 12.00 TE, Fp(IN ACTION, A SUBARE O AREA-A 2 AREA-A	SEC.) = 11 ODE 925. ********* 925.00 I FLOW<<<<< ========= 2.860 Fp (INCH/HR) 0.20 0.25 0.25 0.25 CH/HR) = 0 p = 1.000 A RUNOFF(CF AVERAGED FM VERAGED AP	00 = 29 ******* S CODE = Ap (DECIMAL) 1.000 1.000 1.000 1.000 24 S) = 75. (INCH/HR) = 1.00	**************************************	*****

	925.00	IO NODE	926.00 I	S CODE = !	51
>>>>COMPUTE TRAPEZOIDA	L CHANNEL	FLOW<			
>>>>TRAVELTIME THRU SU	,		,		
ELEVATION DATA: UPSTREA					
CHANNEL LENGTH THRU SUE	BAREA (FEET)	= 884.	00 CHANNI		
CHANNEL BASE (FEET) =					
MANNING'S FACTOR = 0.04) TT ()
* 25 YEAR RAINFALL INT			2.639	•	OF-9
SUBAREA LOSS RATE DATA (П	7	000
DEVELOPMENT TYPE/ LAND USE	SCS SOIL	AREA	FP	Ap	SCS
NATURAL FAIR COVER	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CIV
"GRASS"	D	0.50	0.20	1 000	8.4
NATURAL FAIR COVER	D	0.50	0.20	1.000	04
"CHAPARRAL, BROADLEAF"	R	0.70	0.30	1 000	63
NATURAL FAIR COVER	D	0.70	0.50	1.000	00
"WOODLAND, GRASS"	С	2.30	0.25	1.000	77
NATURAL FAIR COVER	-				
"OPEN BRUSH"	В	2.40	0.30	1.000	66
NATURAL FAIR COVER					
"GRASS"	В	2.50	0.30	1.000	69
NATURAL FAIR COVER					
"GRASS"	С	3.20	0.25	1.000	79
SUBAREA AVERAGE PERVIOU	S LOSS RAT	TE, Fp(INC	H/HR) = 0	.27	
SUBAREA AVERAGE PERVIOU	S AREA FRA	ACTION, Ap	= 1.000		
TRAVEL TIME COMPUTED US				335.05	
TRAVEL TIME THRU SUBARE		•	,		
AVERAGE FLOW DEPTH (FEET					
Tc(MIN.) = 14.52					
SUBAREA AREA(ACRES) =	11.60	SUBAR	EA RUNOFF(CFS) = 24	1.71
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	147.40) AREA	-AVERAGED 1	Fm (INCH/HR)	= 0.22
AREA-AVERAGED Fp(INCH/H					
TOTAL AREA (ACRES) =	147.4	PEA	K FLOW RATI	E(CFS) =	322.70
NOTE: PEAK FLOW RATE DE	FAULTED TO) UPSTREAM	VALUE		
END OF CUDADES CUSSISES	FLOW HYDRA	AULICS:			
FIND OF SORVER CHANNET		TY (FEET/S			
DEPTH(FEET) = 3.77 F					
DEPTH(FEET) = 3.77 F	ODE 920		DE 926.0	00 = 382	24.00 FEET.
DEPTH(FEET) = 3.77 F	ODE 920		DE 926.0	00 = 382	24.00 FEET.
DEPTH(FEET) = 3.77 F LONGEST FLOWPATH FROM N		0.00 TO NO			
DEPTH(FEET) = 3.77 F LONGEST FLOWPATH FROM N ************************************	*****	0.00 TO NO	******	*****	******
DEPTH(FEET) = 3.77 F LONGEST FLOWPATH FROM N ************************************	*****	0.00 TO NO	******	*****	******
DEPTH(FEET) = 3.77 F LONGEST FLOWPATH FROM N ************************************	926.00	0.00 TO NO:	********* 926.00 I	*****	******
DEPTH(FEET) = 3.77 F LONGEST FLOWPATH FROM N ******************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE	********* 926.00 A TO MAINI	0.00 TO NO:	********* 926.00 I	*****	******
DEPTH (FEET) = 3.77 F LONGEST FLOWPATH FROM N ******************** FLOW PROCESS FROM NODE	926.00 	TO NODE	********* 926.00 I: 	*****	******* 31
DEPTH (FEET) = 3.77 F LONGEST FLOWPATH FROM N ***************** FLOW PROCESS FROM NODE	926.00 TA TO MAINI 4.52 TENSITY (INC	TO NODE	********* 926.00 I: 	*****	******* 31
DEPTH (FEET) = 3.77 F LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE	926.00 	0.00 TO NO. ******* TO NODE	*********** 926.00 I: FLOW<<<<	**************************************	********* OF – 9
DEPTH (FEET) = 3.77 F LONGEST FLOWPATH FROM N ******************** FLOW PROCESS FROM NODE	226.00 2A TO MAINI 24.52 2ENSITY(INC AMC II): SCS SOIL	0.00 TO NO. ******* TO NODE LINE PEAK CH/HR) = :	*********** 926.00 I:	**************************************	**************************************
DEPTH (FEET) = 3.77 F LONGEST FLOWPATH FROM N ****************** FLOW PROCESS FROM NODE >>>>>ADDITION OF SUBARE MAINLINE Tc (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE	226.00 2A TO MAINI 24.52 2ENSITY(INC AMC II): SCS SOIL	0.00 TO NO. ******* TO NODE LINE PEAK CH/HR) = :	*********** 926.00 I: FLOW<<<<	**************************************	**************************************
DEPTH (FEET) = 3.77 F LONGEST FLOWPATH FROM N ******************* FLOW PROCESS FROM NODE >>>>ADDITION OF SUBARE MAINLINE TC (MIN.) = 1 * 25 YEAR RAINFALL INT SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER	226.00 23 TO MAINI 24.52 25 SOIL 36 GROUP	O.00 TO NO. ******** TO NODE LINE PEAK: CH/HR) = : AREA (ACRES)	********** 926.00 IS FLOW<<<<	Ap (DECIMAL)	**************************************
DEPTH (FEET) = 3.77 F LONGEST FLOWPATH FROM N ******************** FLOW PROCESS FROM NODE	226.00 2A TO MAINI 24.52 2ENSITY(INC AMC II): SCS SOIL	O.00 TO NO. ******** TO NODE LINE PEAK: CH/HR) = : AREA (ACRES)	*********** 926.00 I:	Ap (DECIMAL)	**************************************
SUBAREA LOSS RATE DATA (DEVELOPMENT TYPE/ LAND USE NATURAL FAIR COVER "WOODLAND, GRASS" NATURAL FAIR COVER	926.00 A TO MAINI ENERGY (INC AMC II): SCS SOIL GROUP D	0.00 TO NO. ******** TO NODE LINE PEAK: CH/HR) = :: AREA (ACRES) 7.40	********** 926.00 IS FLOW<<<<	Ap (DECIMAL) 1.000	**************************************
DEPTH (FEET) = 3.77 F LONGEST FLOWPATH FROM N ******************** FLOW PROCESS FROM NODE	226.00 23 TO MAINI 24.52 25 SOIL 36 GROUP	O.00 TO NO. ******** TO NODE LINE PEAK: CH/HR) = : AREA (ACRES)	********** 926.00 IS FLOW<<<< =================================	Ap (DECIMAL) 1.000	**************************************

File name: PA4F25HC.RES

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Date: 08/14/2018

"OPEN BRUSH"	D	28.20	0.20	1.000	83
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	D	31.40	0.20	1.000	81
NATURAL FAIR COVER "CHAPARRAL,BROADLEAF"	С	42.40	0.25	1.000	75
SUBAREA AVERAGE PERVIOUS SUBAREA AVERAGE PERVIOUS				.22	
SUBAREA AREA(ACRES) = 1 EFFECTIVE AREA(ACRES) =	21.80 269.20	SUBAREA AREA-AV	RUNOFF(CF ERAGED Fm	(INCH/HR)	86 = 0.22
AREA-AVERAGED Fp(INCH/HR TOTAL AREA(ACRES) =	269.2	AREA-AVE PEAK F	RAGED Ap : LOW RATE(= 1.00 CFS) =	585.23
******	*****	******	******	******	*****
FLOW PROCESS FROM NODE					31
>>>>COMPUTE PIPE-FLOW T	RAVEL TIM	E THRU SUB ESIZE (NON	AREA<<<< -PRESSURE	FLOW) <<<	
ELEVATION DATA: UPSTREAM FLOW LENGTH(FEET) = 134 DEPTH OF FLOW IN 84.0 I PIPE-FLOW VELOCITY(FEET/ ESTIMATED PIPE DIAMETER(PIPE-FLOW(CFS) = 585	I(FEET) = 1.00 MAI NCH PIPE SEC.) = INCH) =	440.00 NNING'S N IS 65.0 I 18.30	DOWNSTREAM = 0.013 NCHES	M(FEET) =	426.00
PIPE TRAVEL TIME (MIN.) = LONGEST FLOWPATH FROM NO	1.22				65.00 FEET.

>>>>DESIGNATE INDEPENDE					
=======================================	=======	=======	=======	` ======	
TOTAL NUMBER OF STREAMS CONFLUENCE VALUES USED F TIME OF CONCENTRATION(MI RAINFALL INTENSITY(INCH/ AREA-AVERAGED FM(INCH/HR AREA-AVERAGED FP(INCH/HR AREA-AVERAGED AP = 1.00 EFFECTIVE STREAM AREA(ACT TOTAL STREAM AREA(ACRES) PEAK FLOW RATE(CFS) AT C	OR INDEPE N.) = 1 HR) = 2 c) = 0.22 c) = 0.22 RRES) = 26	5.74 .52 269.20 9.20		:	

>>>>RATIONAL METHOD INI >>USE TIME-OF-CONCENTRAT				BAREA<<	
INITIAL SUBAREA FLOW-LEN		= 330.0	0		517.00
Tc = K*[(LENGTH** 3.00)/ SUBAREA ANALYSIS USED MI * 25 YEAR RAINFALL INTE SUBAREA Tc AND LOSS RATE DEVELOPMENT TYPE/ LAND USE	NIMUM Tc() NSITY(INC) DATA(AMC SCS SOIL	MIN.) = H/HR) = 3 II): AREA	7.954 .709	Ар)F-10 SCS TC (MIN.)

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*******************
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF" C 0.60
                                    0.25 1.000 75 7.95
                                                                         FLOW PROCESS FROM NODE 903.00 TO NODE 903.00 IS CODE = 1
                                                                        ______
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
                                                                         >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<
 SUBAREA RUNOFF (CFS) = 1.87
                                                                         >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<
 TOTAL AREA (ACRES) =
                    0.60 PEAK FLOW RATE (CFS) = 1.87
                                                                        _____
                                                                         TOTAL NUMBER OF STREAMS = 3
******************
                                                                         CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 3 ARE:
 FLOW PROCESS FROM NODE 931.00 TO NODE 932.00 IS CODE = 51
                                                                         TIME OF CONCENTRATION (MIN.) = 9.42
                                                                         RAINFALL INTENSITY (INCH/HR) = 3.37
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
                                                                         AREA-AVERAGED Fm(INCH/HR) = 0.23
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <>>>
                                                                         AREA-AVERAGED Fp(INCH/HR) = 0.25
_____
                                                                         AREA-AVERAGED Ap = 0.94
 ELEVATION DATA: UPSTREAM(FEET) = 517.00 DOWNSTREAM(FEET) = 430.00
                                                                         EFFECTIVE STREAM AREA(ACRES) = 5.70
 CHANNEL LENGTH THRU SUBAREA (FEET) = 443.00 CHANNEL SLOPE = 0.1964
                                                                         TOTAL STREAM AREA(ACRES) = 5.70
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
                                                                         PEAK FLOW RATE (CFS) AT CONFLUENCE = 16.61
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 30.00
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.472
                                                                         ** CONFLUENCE DATA **
                                                OF - 11
 SUBAREA LOSS RATE DATA (AMC II):
                                                                          STREAM Q Tc Intensity Fp(Fm)
                                                                                                                  Ae
                                                                                                                   (ACRES) NODE
  DEVELOPMENT TYPE/
                 SCS SOIL AREA
                                                  SCS
                                                                          NUMBER
                                                                                   (CFS) (MIN.) (INCH/HR) (INCH/HR)
                                    Fρ
     LAND USE
                    GROUP (ACRES) (INCH/HR) (DECIMAL) CN
                                                                          1
                                                                                  107.27 12.20 2.911 0.22(0.17) 0.79
                                                                                                                    42.4
 RESIDENTIAL
                                                                           1
                                                                                  87.74 17.05
                                                                                               2.409 0.22(0.17) 0.79
 ".4 DWELLING/ACRE"
                    C
                           0.10
                                    0.25
                                            0.900
                                                 69
                                                                            2
                                                                                  585.23 15.74
                                                                                              2.521 0.22(0.22) 1.00
                                                                                                                   269.2
 COMMERCIAL
                    С
                            0.40
                                     0.25
                                            0.100
                                                  69
                                                                                  16.61
                                                                                        9.42
                                                                                               3.371 0.25 ( 0.23) 0.94
 NATURAL FAIR COVER
                                                                         RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 "WOODLAND, GRASS"
                    C
                            0.30
                                     0.25
                                            1.000
                                                  77
                                                                         CONFLUENCE FORMULA USED FOR 3 STREAMS.
 NATURAL FAIR COVER
                            4.30
                                    0.25
                                          1.000
 "CHAPARRAL, BROADLEAF" C
                                                                         ** PEAK FLOW RATE TABLE **
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
                                                                                         Tc Intensity Fp(Fm) Ap Ae HEADWATER
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.927
                                                                                   0
                                                                                  (CFS) (MIN.) (INCH/HR) (INCH/HR)
                                                                          NUMBER
                                                                                                                   (ACRES) NODE
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 9.31
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 7.49
                                                                           1
                                                                                  593.11 9.42 3.371 0.22(0.22) 0.96 199.6
 AVERAGE FLOW DEPTH (FEET) = 0.64 TRAVEL TIME (MIN.) = 0.99
                                                                                  652.34 12.20 2.911 0.22(0.22) 0.96
 Tc(MIN.) = 8.94
                                                                                  690.37 15.74 2.521 0.22(0.22) 0.97
 SUBAREA AREA (ACRES) = 5.10 SUBAREA RUNOFF (CFS) = 14.87
                                                                                  656.06 17.05
                                                                                              2.409 0.22(0.22)0.97
 EFFECTIVE AREA(ACRES) = 5.70 AREA-AVERAGED Fm(INCH/HR) = 0.23
 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 0.94
                                                                         COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 TOTAL AREA (ACRES) = 5.7 PEAK FLOW RATE (CFS) =
                                                                         PEAK FLOW RATE (CFS) = 690.37 Tc (MIN.) = 15.74
                                                                         EFFECTIVE AREA(ACRES) = 317.61 AREA-AVERAGED Fm(INCH/HR) = 0.22
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
                                                                         AREA-AVERAGED Fp (INCH/HR) = 0.22 AREA-AVERAGED Ap = 0.97
 DEPTH(FEET) = 0.80 FLOW VELOCITY(FEET/SEC.) = 8.69
                                                                         TOTAL AREA (ACRES) = 317.7
 LONGEST FLOWPATH FROM NODE 930.00 TO NODE 932.00 = 773.00 FEET.
                                                                         LONGEST FLOWPATH FROM NODE 920.00 TO NODE 903.00 = 5165.00 FEET.
*******************
                                                                        ******************
 FLOW PROCESS FROM NODE 932.00 TO NODE 903.00 IS CODE = 31
                                                                         FLOW PROCESS FROM NODE 903.00 TO NODE 903.00 IS CODE = 81
                                                                        ______
 >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<
                                                                         >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<
 >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<<
                                                                        _____
_____
                                                                         MAINLINE Tc(MIN.) = 15.74
                                                                         * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.521
 ELEVATION DATA: UPSTREAM(FEET) = 430.00 DOWNSTREAM(FEET) = 426.00
 FLOW LENGTH (FEET) = 254.00 MANNING'S N = 0.013
                                                                         SUBAREA LOSS RATE DATA (AMC II):
 DEPTH OF FLOW IN 21.0 INCH PIPE IS 15.3 INCHES
                                                                          DEVELOPMENT TYPE/ SCS SOIL AREA
                                                                                                          Fρ
 PIPE-FLOW VELOCITY (FEET/SEC.) = 8.85
                                                                             LAND USE
                                                                                           GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 ESTIMATED PIPE DIAMETER (INCH) = 21.00 NUMBER OF PIPES = 1
                                                                         RESIDENTIAL
 PIPE-FLOW(CFS) = 16.61
                                                                         ".4 DWELLING/ACRE"
                                                                                            C 0.50
                                                                                                             0.25
                                                                                                                    0.900
 PIPE TRAVEL TIME (MIN.) = 0.48 Tc (MIN.) = 9.42
                                                                         RESIDENTIAL
 LONGEST FLOWPATH FROM NODE 930.00 TO NODE 903.00 = 1027.00 FEET.
                                                                         ".4 DWELLING/ACRE"
                                                                                                     2.10
                                                                                                             0.30
                                                                                                                    0.900
                                                                         RESIDENTIAL
```

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Date: 08/14/2018

File name: PA4F25HC.RFS

HEADWATER

42.8

256.9

317.6

317.7

αA

File name: PA4F25HC.RES

Date: 08/14/2018

SCS

69

56

Page 14

5.7

910.00

900.00

920.00

930.00

930.00

910.00

920.00

900.00

0010 CED 0 E D E	D D	5.90	0.20	0.100	75
COMMERCIAL	C	7.70	0.25	0.100	69
COMMERCIAL		13.60			56
SUBAREA AVERAGE PERVIO					
SUBAREA AVERAGE PERVIO					
SUBAREA AREA (ACRES) =					
EFFECTIVE AREA(ACRES)	= 350.43	l AREA-AV	VERAGED Fm	(INCH/HR)	= 0.20
AREA-AVERAGED Fp(INCH/					
TOTAL AREA (ACRES) =	350.5	PEAK I	FLOW RATE (CFS) =	731.27

FLOW PROCESS FROM NODE		TO NODE	904.00 1		21
>>>>COMPUTE PIPE-FLOW					//
>>>>USING COMPUTER-ES					
ELEVATION DATA: UPSTRE				M(FEET) =	370.00
FLOW LENGTH (FEET) =					
DEPTH OF FLOW IN 66.0			INCHES		
PIPE-FLOW VELOCITY (FEE					4
ESTIMATED PIPE DIAMETE		66.UU 1	NUMBER OF	FIPES =	Τ
PIPE-FLOW(CFS) = 7		- /		ā	
PIPE TRAVEL TIME (MIN.)					
LONGEST FLOWPATH FROM	NODE 920	0.00 TO NOI	DE 904.	00 = 60	061.00 FEET

FLOW PROCESS FROM NODE					
>>>>ADDITION OF SUBAR	REA TO MAINI				
		LINE PEAK H	FLOW<<<<		
				======	=======
MAINLINE Tc(MIN.) =	16.13				
MAINLINE Tc(MIN.) =	16.13				F-4
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA	16.13 NTENSITY(ING	CH/HR) = 2	2.486		F-4
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA	16.13 NTENSITY(ING	CH/HR) = 2	2.486		F-4
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA	16.13 NTENSITY(ING	CH/HR) = 2	2.486		F-4
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE	16.13 WTENSITY(ING A(AMC II): SCS SOIL GROUP	CH/HR) = 2 AREA (ACRES)	======================================	Ap (DECIMAL)	F-4
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE	16.13 WTENSITY(ING A(AMC II): SCS SOIL GROUP	CH/HR) = 2 AREA (ACRES)	======================================	Ap (DECIMAL)	F-4
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL	16.13 WTENSITY(ING A(AMC II): SCS SOIL GROUP	CH/HR) = 2	======================================	Ap (DECIMAL)	F-4
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER	16.13 NTENSITY(ING A(AMC II): SCS SOIL GROUP B C	CH/HR) = 2 AREA (ACRES) 3.80 0.60	Fp (INCH/HR) 0.30 0.25	Ap (DECIMAL, 0.100 0.100	F-4 scs cn 56 69
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS"	16.13 NTENSITY(ING A(AMC II): SCS SOIL GROUP B C	CH/HR) = 2 AREA (ACRES)	Fp (INCH/HR) 0.30 0.25	Ap (DECIMAL, 0.100 0.100	F-4 scs cn 56 69
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL	16.13 WIENSITY(ING A(AMC II): SCS SOIL GROUP B C	AREA (ACRES) 3.80 0.60 0.10	Fp (INCH/HR) 0.30 0.25 0.30	Ap (DECIMAL 0.100 0.100	F-4 scs CN 56 69
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE"	16.13 WIENSITY(ING A(AMC II): SCS SOIL GROUP B C	AREA (ACRES) 3.80 0.60 0.10	Fp (INCH/HR) 0.30 0.25 0.30	Ap (DECIMAL 0.100 0.100	F-4 scs CN 56 69
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL	16.13 WIENSITY(ING A(AMC II): SCS SOIL GROUP B C B B	AREA (ACRES) 3.80 0.60 0.10 2.40	Fp (INCH/HR) 0.30 0.25 0.30 0.30	Ap (DECIMAL 0.100 0.100 1.000	F-4 scs cn 56 69 69 56
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE"	16.13 WIENSITY(ING A(AMC II): SCS SOIL GROUP B C B B	AREA (ACRES) 3.80 0.60 0.10 2.40	Fp (INCH/HR) 0.30 0.25 0.30 0.30	Ap (DECIMAL 0.100 0.100 1.000	F-4 scs cn 56 69 69 56
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL	16.13 WIENSITY(ING A(AMC II): SCS SOIL GROUP B C B B	AREA (ACRES) 3.80 0.60 0.10 2.40 2.20	2.486 Fp (INCH/HR) 0.30 0.25 0.30 0.30	Ap (DECIMAL 0.100 0.100 1.000 0.900	F-4 scs cn 56 69 69 56
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE"	16.13 WIENSITY(ING A(AMC II): SCS SOIL GROUP B C B C D	AREA (ACRES) 3.80 0.60 0.10 2.40 2.20 0.30	2.486 Fp (INCH/HR) 0.30 0.25 0.30 0.30 0.25	Ap (DECIMAL 0.100 0.100 1.000 0.900 0.900	F-4 SCS CN 56 69 69 56 69 75
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVICE	16.13 WIENSITY(ING A(AMC II): SCS SOIL GROUP B C B C D D DUS LOSS RAS	AREA (ACRES) 3.80 0.60 0.10 2.40 2.20 0.30 FE, FP(INCE	2.486 Fp (INCH/HR) 0.30 0.25 0.30 0.30 0.25	Ap (DECIMAL 0.100 0.100 1.000 0.900 0.900	F-4 SCS CN 56 69 69 56 69 75
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIC	16.13 NTENSITY(ING A(AMC II): SCS SOIL GROUP B C B C D D DUS LOSS RAM DUS AREA FRA	CH/HR) = 2 AREA (ACRES) 3.80 0.60 0.10 2.40 2.20 0.30 TE, Fp(INCI	2.486 Fp (INCH/HR) 0.30 0.25 0.30 0.30 0.25 0.20 H/HR) = 0 = 0.527	Ap (DECIMAL) 0.100 0.100 1.000 0.900 0.900 0.900	F-4 SCS CN 56 69 69 56 69 75
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA(ACRES) =	16.13 NTENSITY(ING A(AMC II): SCS SOIL GROUP B C B C D OUS LOSS RAM 9.40	CH/HR) = 2 AREA (ACRES) 3.80 0.60 0.10 2.40 2.20 0.30 FE, FP(INCI ACTION, AP SUBAREA	2.486 Fp (INCH/HR) 0.30 0.25 0.30 0.30 0.25 0.20 H/HR) = 0 = 0.527 RUNOFF (CF	Ap (DECIMAL) 0.100 0.100 1.000 0.900 0.900 0.900 .27	F-4 scs CN 56 69 69 56 69 75
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA(ACRES) = EFFECTIVE AREA (ACRES)	16.13 NTENSITY(ING A(AMC II): SCS SOIL GROUP B C B C D OUS LOSS RAM OUS AREA FRA 9.40 = 359.83	CH/HR) = 2 AREA (ACRES) 3.80 0.60 0.10 2.40 2.20 0.30 FE, FP(INCHACTION, AP) SUBAREA 1 AREA-AV	2.486 Fp (INCH/HR) 0.30 0.25 0.30 0.30 0.25 0.20 H/HR) = 0 = 0.527 RUNOFF (CF VERAGED FM	Ap (DECIMAL) 0.100 0.100 1.000 0.900 0.900 0.900 .27 (S) = 19	F-4 scs CN 56 69 69 56 69 75
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA(ACRES) = EFFECTIVE AREA (ACRES)	16.13 NTENSITY(ING A(AMC II): SCS SOIL GROUP B C B C D OUS LOSS RAM OUS AREA FRA 9.40 = 359.83	CH/HR) = 2 AREA (ACRES) 3.80 0.60 0.10 2.40 2.20 0.30 FE, FP(INCHACTION, AP) SUBAREA 1 AREA-AV	2.486 Fp (INCH/HR) 0.30 0.25 0.30 0.30 0.25 0.20 H/HR) = 0 = 0.527 RUNOFF (CF VERAGED FM	Ap (DECIMAL) 0.100 0.100 1.000 0.900 0.900 0.900 .27 (S) = 19	F-4 SCS CN 56 69 69 56 69 75
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA(ACRES) = EFFECTIVE AREA (ACRES)	16.13 NTENSITY(ING A(AMC II): SCS SOIL GROUP B C B C D OUS LOSS RAM OUS AREA FRA 9.40 = 359.83	CH/HR) = 2 AREA (ACRES) 3.80 0.60 0.10 2.40 2.20 0.30 FE, FP(INCHACTION, AP) SUBAREA 1 AREA-AV	2.486 Fp (INCH/HR) 0.30 0.25 0.30 0.30 0.25 0.20 H/HR) = 0 = 0.527 RUNOFF (CF VERAGED FM	Ap (DECIMAL) 0.100 0.100 1.000 0.900 0.900 0.900 .27 (S) = 19	F-4 SCS CN 56 69 69 56 69 75
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH/ TOTAL AREA (ACRES) =	16.13 WIENSITY(ING A(AMC II): SCS SOIL GROUP B C B B C D OUS LOSS RA: 9.40 = 359.8: 'HR) = 0.22 359.9	AREA (ACRES) 3.80 0.60 0.10 2.40 2.20 0.30 TE, FP(INCHACTION, APA SUBAREA L AREA-AVI PEAK I	Fp (INCH/HR) 0.30 0.25 0.30 0.25 0.20 H/HR) = 0 0.527 RUNOFF (CF WERAGED FM ERAGED Ap FLOW RATE (Ap (DECIMAL, 0.100 0.100 1.000 0.900 0.900 .27 S) = 19 (INCH/HR) = 0.89 CFS) =	F-4 scs CN 56 69 69 56 69 75 .81 = 0.20 740.06
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH/ TOTAL AREA (ACRES) = ***********************************	16.13 WIENSITY(ING A(AMC II): SCS SOIL GROUP B C B B C D OUS LOSS RA! 9.40 = 359.81 'HR) = 0.22 359.9	AREA (ACRES) 3.80 0.60 0.10 2.40 2.20 0.30 TE, Fp(INCHACTION, Ap SUBAREA L AREA-AV PEAK I	2.486 Fp (INCH/HR) 0.30 0.25 0.30 0.25 0.20 H/HR) = 0 = 0.527 RUNOFF(CF VERAGED FM ERAGED Ap FLOW RATE(************************************	Ap (DECIMAL, 0.100 0.100 1.000 0.900 0.900 .27 S) = 19 (INCH/HR) = 0.89 CFS) =	F-4 scs CN 56 69 69 56 69 75 .81 = 0.20 740.06
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH/ TOTAL AREA (ACRES) = ***********************************	16.13 WIENSITY(ING A(AMC II): SCS SOIL GROUP B C B B C D OUS LOSS RA: OUS AREA FR 9.40 = 359.8: 'HR) = 0.22 359.9	AREA (ACRES) 3.80 0.60 0.10 2.40 2.20 0.30 TE, Fp(INCHACTION, Ap SUBAREA L AREA-AV PEAK I	2.486 Fp (INCH/HR) 0.30 0.25 0.30 0.25 0.20 H/HR) = 0 = 0.527 RUNOFF(CF VERAGED FM ERAGED Ap FLOW RATE(************************************	Ap (DECIMAL, 0.100 0.100 1.000 0.900 0.900 0.900 0.900 0.27 S) = 19 0.89 CFS) = ***********************************	F-4 scs CN 56 69 69 56 69 75 .81 = 0.20 740.06
MAINLINE TC(MIN.) = * 25 YEAR RAINFALL IN SUBAREA LOSS RATE DATA DEVELOPMENT TYPE/ LAND USE COMMERCIAL COMMERCIAL NATURAL FAIR COVER "GRASS" RESIDENTIAL ".4 DWELLING/ACRE" RESIDENTIAL ".4 DWELLING/ACRE" SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AVERAGE PERVIC SUBAREA AREA (ACRES) = EFFECTIVE AREA (ACRES) AREA-AVERAGED FP (INCH/ TOTAL AREA (ACRES) = ***********************************	16.13 VIENSITY(ING A(AMC II): SCS SOIL GROUP B C B B C D OUS LOSS RA: OUS AREA FRA 9.40 = 359.81 'HR) = 0.22 359.9	AREA (ACRES) 3.80 0.60 0.10 2.40 2.20 0.30 TE, FP(INCH ACTION, AP SUBAREA 1 AREA-AVI PEAK I TO NODE ME THRU SUH	2.486 Fp (INCH/HR) 0.30 0.25 0.30 0.30 0.25 0.20 H/HR) = 0 = 0.527 RUNOFF(CF VERAGED FM ERAGED AP FLOW RATE(************* 905.00 I	Ap (DECIMAL) 0.100 0.100 1.000 0.900 0.900 0.900 .27 (S) = 19 (INCH/HR) = 0.89 CFS) = ***********************************	F-4 SCS) CN 56 69 69 56 69 75 .81 = 0.20 740.06

```
ELEVATION DATA: UPSTREAM(FEET) = 370.00 DOWNSTREAM(FEET) = 330.00
 FLOW LENGTH (FEET) = 872.00 MANNING'S N = 0.013
 DEPTH OF FLOW IN 69.0 INCH PIPE IS 54.4 INCHES
 PIPE-FLOW VELOCITY (FEET/SEC.) = 33.69
 ESTIMATED PIPE DIAMETER (INCH) = 69.00 NUMBER OF PIPES = 1
 PIPE-FLOW(CFS) = 740.06
 PIPE TRAVEL TIME (MIN.) = 0.43 Tc (MIN.) = 16.56
 LONGEST FLOWPATH FROM NODE 920.00 TO NODE 905.00 = 6933.00 FEET.
*****************
 FLOW PROCESS FROM NODE 905.00 TO NODE 905.00 IS CODE = 1
 >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<
______
 TOTAL NUMBER OF STREAMS = 3
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
 TIME OF CONCENTRATION (MIN.) = 16.56
 RAINFALL INTENSITY (INCH/HR) = 2.45
 AREA-AVERAGED Fm (INCH/HR) = 0.20
 AREA-AVERAGED Fp (INCH/HR) = 0.22
 AREA-AVERAGED Ap = 0.89
 EFFECTIVE STREAM AREA(ACRES) = 359.81
 TOTAL STREAM AREA(ACRES) = 359.90
 PEAK FLOW RATE (CFS) AT CONFLUENCE = 740.06
******************
 FLOW PROCESS FROM NODE 940.00 TO NODE 941.00 IS CODE = 21
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 304.00
 ELEVATION DATA: UPSTREAM(FEET) = 858.00 DOWNSTREAM(FEET) = 675.00
 Tc = K^*[(LENGTH^{**} 3.00)/(ELEVATION CHANGE)]^{**}0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 7.692
                                                OF-13
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.780
 SUBAREA To AND LOSS RATE DATA (AMC II):
 DEVELOPMENT TYPE/ SCS SOIL AREA
                                  Fρ
                                            Aр
                                                  SCS Tc
    LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF" C 0.10 0.25 1.000 75 7.69
 NATURAL FAIR COVER
                      C 1.10 0.25 1.000 77 7.69
 "OPEN BRUSH"
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF(CFS) = 3.81
 TOTAL AREA (ACRES) = 1.20 PEAK FLOW RATE (CFS) =
*******************
 FLOW PROCESS FROM NODE 941.00 TO NODE 942.00 IS CODE = 51
_____
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <
______
 ELEVATION DATA: UPSTREAM(FEET) = 675.00 DOWNSTREAM(FEET) = 405.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 1008.00 CHANNEL SLOPE = 0.2679
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CHANNEL BASE (FEET) =					
MANNING'S FACTOR = 0.04				·00	7 1 /
* 25 YEAR RAINFALL INT			3.414	Of	7-14
SUBAREA LOSS RATE DATA(. DEVELOPMENT TYPE/	AMC II):	3003	П.,	7	000
DEVELOPMENT TIPE/	202 2011	AKEA	(TNOU /UD)	Ap	SCS
LAND USE	GROUP	(ACKES)	(INCH/HK)	(DECIMAL)	CN
NATURAL FAIR COVER "GRASS"	D	0 10	0.30	1 000	60
NATURAL FAIR COVER	D	0.10	0.30	1.000	09
"WOODLAND, GRASS"	D	0.80	0.30	1 000	65
NATURAL FAIR COVER	ъ	0.00	0.50	1.000	05
"OPEN BRUSH"	B	1 10	0.30	1 000	66
NATURAL FAIR COVER	D	1.10	0.30	1.000	00
"WOODLAND, GRASS"	С	1.50	0.25	1.000	77
NATURAL FAIR COVER	Ŭ	1.00	0.20	1.000	
"CHAPARRAL, BROADLEAF"	С	3.60	0.25	1.000	75
NATURAL FAIR COVER					
"OPEN BRUSH"	С	10.20	0.25	1.000	77
SUBAREA AVERAGE PERVIOU					
SUBAREA AVERAGE PERVIOU					
TRAVEL TIME COMPUTED US	ING ESTIM	MATED FLOW	(CFS) =	28.46	
TRAVEL TIME THRU SUBARE.	A BASED C	N VELOCIT	Y(FEET/SEC.) = 11.06	
AVERAGE FLOW DEPTH (FEET) = 0.9	3 TRAVE	L TIME (MIN.) = 1.52	
Tc(MIN.) = 9.21					
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	17.30	SUBA	REA RUNOFF(CFS) = 4	9.17
EFFECTIVE AREA(ACRES) =	18.5	0 ARE	A-AVERAGED	Fm(INCH/HR) = 0.26
AREA-AVERAGED Fp(INCH/H	R) = 0.	26 AREA-	AVERAGED Ap	= 1.00	
TOTAL AREA (ACRES) =	18.5	PE.	AK FLOW RAT	E(CFS) =	52.58
END OF SUBAREA CHANNEL DEPTH(FEET) = 1.16 F LONGEST FLOWPATH FROM No.	LOW VELOC	CITY(FEET/	ODE 942.	00 = 13	
FLOW PROCESS FROM NODE					
>>>>COMPUTE PIPE-FLOW ' >>>>USING COMPUTER-EST					<
=======================================					
ELEVATION DATA: UPSTREAL FLOW LENGTH (FEET) = 10 DEPTH OF FLOW IN 24.0 PIPE-FLOW VELOCITY (FEET ESTIMATED PIPE DIAMETER PIPE-FLOW (CFS) = 5. PIPE TRAVEL TIME (MIN.) LONGEST FLOWPATH FROM N	41.00 M INCH PIPE /SEC.) = (INCH) = 2.58 = 0.83	MANNING'S 1 2 IS 18.0 20.79 24.00 Tc(MIN	N = 0.013 INCHES NUMBER OF .) = 10.0	PIPES = :	1
**************************************	905.00	TO NODE	905.00 I	S CODE =	1
>>>>DESIGNATE INDEPEND					=======
TOTAL NUMBER OF STREAMS CONFLUENCE VALUES USED TIME OF CONCENTRATION (M RAINFALL INTENSITY (INCH AREA-AVERAGED Fm (INCH/H	FOR INDEF IN.) = /HR) =	10.05 3.25	REAM 2 ARE	:	
Dato: 09/14/2019					

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AREA-AVERAGED Fp (INCH/HR) = 0.26
 AREA-AVERAGED Ap = 1.00
 EFFECTIVE STREAM AREA(ACRES) = 18.50
 TOTAL STREAM AREA(ACRES) = 18.50
 PEAK FLOW RATE (CFS) AT CONFLUENCE =
**********************
 FLOW PROCESS FROM NODE 950.00 TO NODE 951.00 IS CODE = 21
 >>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
______
 INITIAL SUBAREA FLOW-LENGTH (FEET) = 328.00
 ELEVATION DATA: UPSTREAM(FEET) = 1053.00 DOWNSTREAM(FEET) = 990.00
 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
                                                 OF-15
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 9.965
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 3.265
 SUBAREA To AND LOSS RATE DATA(AMC II):
                                 Fp
 DEVELOPMENT TYPE/
                  SCS SOIL AREA
                                                  SCS Tc
                                          Ар
     LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN (MIN.)
 NATURAL FAIR COVER
 "OPEN BRUSH"
                    C 0.40 0.25 1.000 77 9.96
 NATURAL FAIR COVER
 "OPEN BRUSH"
                    D 1.00 0.20 1.000 83 9.96
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 SUBAREA RUNOFF (CFS) = 3.84
 TOTAL AREA(ACRES) = 1.40 PEAK FLOW RATE(CFS) =
******************
 FLOW PROCESS FROM NODE 951.00 TO NODE 952.00 IS CODE = 51
______
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <>>>
______
 ELEVATION DATA: UPSTREAM(FEET) = 990.00 DOWNSTREAM(FEET) = 950.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 439.00 CHANNEL SLOPE = 0.0911
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 30.00
                                                 OF-16
 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 3.023
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/ SCS SOIL AREA
                                                  SCS
                                  Fр
                                            Αp
     LAND USE
                  GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 NATURAL FAIR COVER
                    D 0.10
 "OPEN BRUSH"
                                     0.20 1.000 83
 NATURAL FAIR COVER
 "OPEN BRUSH"
                    C 0.40 0.25 1.000 77
 NATURAL FAIR COVER
                            0.60
                                     0.25
 "GRASS"
                                          1.000
                                                   79
 NATURAL FAIR COVER
 "GRASS"
                      D
                             0.70
                                     0.20
                                          1.000
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =
                                            6.11
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 5.03
 AVERAGE FLOW DEPTH (FEET) = 0.64 TRAVEL TIME (MIN.) = 1.45
 Tc(MIN.) = 11.42
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END OF SUBAREA CHANNEL : DEPTH(FEET) = 0.70 F. LONGEST FLOWPATH FROM NO	LOW VELOCI DDE 950	TY (FEET/SI	DE 952.	00 = 7	
FLOW PROCESS FROM NODE					
>>>>COMPUTE TRAPEZOIDA	L CHANNEL BAREA (EXI	FLOW<<<< STING ELEN	MENT) <<<<		
ELEVATION DATA: UPSTREAI CHANNEL LENGTH THRU SUB. CHANNEL BASE (FEET) = MANNING'S FACTOR = 0.04 * 25 YEAR RAINFALL INTI SUBAREA LOSS RATE DATA (AREA(FEET) 0.00 "Z 0 MAXIMU ENSITY(INC	= 810.0 " FACTOR = M DEPTH(FI	00 CHANN = 3.000 EET) = 30	EL SLOPE =	
DEVELOPMENT TYPE/	SCS SOIL	AREA	Fp	Ap	SCS
LAND USE NATURAL FAIR COVER	GROUP	(ACRES)	(INCH/HR)	(DECIMAL)	CN
"CHAPARRAL, BROADLEAF"	D	0.60	0.20	1.000	81
NATURAL FAIR COVER "GRASS"				1.000	
NATURAL FAIR COVER	D	1.50	0.20	1.000	84
"GRASS"	С	1.70	0.25	1.000	79
NATURAL FAIR COVER					
"OPEN BRUSH"	С	3.40	0.25	1.000	77
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF"	C	7 20	0.25	1 000	75
SUBAREA AVERAGE PERVIOU: SUBAREA AVERAGE PERVIOU: TRAVEL TIME COMPUTED US TRAVEL TIME THRU SUBARE. AVERAGE FLOW DEPTH (FEET TC (MIN.) = 12.57	S LOSS RAT S AREA FRA ING ESTIMA A BASED ON	E, Fp(INC) CTION, Ap TED FLOW(VELOCITY	H/HR) = 0 = 1.000 CFS) = (FEET/SEC.	.24 25.06) = 11.73	
SUBAREA AREA (ACRES) =	14.40	SUBARI	EA RUNOFF(CFS) = 3	3.96
SUBAREA AREA(ACRES) = EFFECTIVE AREA(ACRES) =	17.60	AREA-	-AVERAGED	Fm(INCH/HR) = 0.24
AREA-AVERAGED Fp (INCH/H)	R) = 0.2	4 AREA-AV	VERAGED Ap	= 1.00	
TOTAL AREA (ACRES) =	17.6	PEAI	K FLOW RAT	E(CFS) =	41.56
END OF SUBAREA CHANNEL : DEPTH(FEET) = 1.02 F. LONGEST FLOWPATH FROM NO	LOW VELOCI ODE 950	TY (FEET/SI	DE 953.	00 = 15	77.00 FEET.
************************** FLOW PROCESS FROM NODE	953.00	TO NODE	954.00 I	S CODE =	51
	L CHANNEL		MENT) <<<<		

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SUBAREA LOSS RATE DATA			_	_	
DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN
NATURAL FAIR COVER		, ,	,		
"GRASS"	D	0.10	0.20	1.000	84
NATURAL FAIR COVER					
"OPEN BRUSH"	D	0.10	0.20	1.000	83
NATURAL FAIR COVER	_				
"OPEN BRUSH"	В	0.60	0.30	1.000	66
NATURAL FAIR COVER "GRASS"	C	2 10	0.25	1.000	70
NATURAL FAIR COVER	C	2.10	0.23	1.000	19
"CHAPARRAL, BROADLEAF"	C	8 90	0.25	1.000	75
NATURAL FAIR COVER	C	0.30	0.25	1.000	75
"OPEN BRUSH"	С	14.80	0.25	1.000	77
SUBAREA AVERAGE PERVIO	US LOSS RA	TE, Fp(IN	CH/HR) = 0	.25	
SUBAREA AVERAGE PERVIO	US AREA FR	ACTION, A	p = 1.000		
TRAVEL TIME COMPUTED U	SING ESTIM	ATED FLOW	(CFS) =	71.05	
TRAVEL TIME THRU SUBAR					
AVERAGE FLOW DEPTH(FEE	T) = 1.3	6 TRAVE	L TIME (MIN.) = 1.25	
Tc(MIN.) = 13.82					
SUBAREA AREA (ACRES) =	26.60	SUBA	REA RUNOFF(CFS) = 5	8.96
EFFECTIVE AREA(ACRES)	= 44.2	U ARE.	A-AVERAGED	Fm(INCH/HR) = 0.2
AREA-AVERAGED Fp(INCH/ TOTAL AREA(ACRES) =	HR) = 0.3	25 AREA	AVERAGED AP	= 1.00	00 15
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM	FLOW VELOC: NODE 95	ITY(FEET/ 0.00 TO N	ODE 954.	00 = 25 ******	*****
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM ************************************	FLOW VELOC NODE 95 *********** 954.00	ITY(FEET/ 0.00 TO N ******* TO NODE	ODE 954. ******** 955.00 I	00 = 25 ******* S CODE =	*****
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM ****************** FLOW PROCESS FROM NODE	FLOW VELOC NODE 95 ********** 954.00 	ITY(FEET/ 0.00 TO N ******* TO NODE FLOW<<<< ISTING EL	ODE 954. ******* 955.00 I < EMENT) <<<<<	00 = 25 ******** S CODE =	****** 51
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM ****************** FLOW PROCESS FROM NODE	FLOW VELOC. NODE 95 ******* 954.00	ITY(FEET/ 0.00 TO N ******* TO NODE FLOW<<<< ISTING EL 475.0) = 814	0DE 954. ******** 955.00 I EMENT) <<<<======0 0 DOWNSTRE .00 CHANN	00 = 25 ******* S CODE = AM(FEET) =	******* 51 410.0
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM ******************* FLOW PROCESS FROM NODE	FLOW VELOC. NODE 95 ******** 954.00 AL CHANNEL UBAREA (EX	TTY(FEET/ 0.00 TO N ******* TO NODE FLOW<<<< ISTING EL 475.0) = 814 Z" FACTOR	0DE 954. ******** 955.00 I EMENT) <<<<======0 0 DOWNSTRE .00 CHANN = 3.000	00 = 25 ******* S CODE = AM(FEET) = EL SLOPE =	******* 51 410.0 0.0799
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM ********************* FLOW PROCESS FROM NODE	FLOW VELOC NODE 95 ************ 954.00 	TTY(FEET/ 0.00 TO N ******** TO NODE FLOW<<<< ISTING EL 475.0) = 814 Z" FACTOR UM DEPTH(0DE 954. ********* 955.00 I < EMENT) <<<<> ======== 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30	00 = 25 ******* S CODE = AM(FEET) = EL SLOPE =	******* 51 410.0
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM ******************** FLOW PROCESS FROM NODE	FLOW VELOC NODE 95 ******** 954.00	TTY(FEET/ 0.00 TO N ******* TO NODE FLOW<<<< ISTING EL 475.0) = 814 Z" FACTOR UM DEPTH(CH/HR) =	0DE 954. ********* 955.00 I < EMENT) <<<<> ======== 0 DOWNSTRE .00 CHANN = 3.000 FEET) = 30	00 = 25 ******* S CODE = AM(FEET) = EL SLOPE =	******* 51 410.0 0.0799
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM ****************** FLOW PROCESS FROM NODE	FLOW VELOC NODE 95 *********** 954.00 	TTY(FEET/ 0.00 TO N ******* TO NODE FLOW<<<< ISTING EL 475.0) = 814 Z" FACTOR UM DEPTH(CH/HR) =	0DE 954. ******** 955.00 I	00 = 25 ******* S CODE = AM(FEET) = EL SLOPE = .00	******** 51 410.0 0.0799)F – 1
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM ****************** FLOW PROCESS FROM NODE	FLOW VELOC NODE 95 *********** 954.00 	TTY(FEET/ 0.00 TO N ******* TO NODE FLOW<<<< ISTING EL 475.0) = 814 Z" FACTOR UM DEPTH(CH/HR) =	0DE 954. ******** 955.00 I	00 = 25 ******* S CODE = AM(FEET) = EL SLOPE = .00	******** 51 410.0 0.0799)F – 1
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM ****************** FLOW PROCESS FROM NODE	FLOW VELOC NODE 95 *********** 954.00 	TTY(FEET/ 0.00 TO N ******* TO NODE FLOW<<<< ISTING EL 475.0) = 814 Z" FACTOR UM DEPTH(CH/HR) =	0DE 954. ******** 955.00 I	00 = 25 ******* S CODE = AM(FEET) = EL SLOPE = .00	******** 51 410.0 0.0799)F – 1
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM ****************** FLOW PROCESS FROM NODE	FLOW VELOC NODE 95 ******** 954.00	TTY(FEET/ 0.00 TO N ******* TO NODE FLOW< ISTING EL 475.0) = 814 Z" FACTOR UM DEPTH(CH/HR) = AREA (ACRES)	0DE 954. ******** 955.00 I	00 = 25 ******* S CODE = AM(FEET) = EL SLOPE = .00 Ap (DECIMAL)	******** 51 410.0 0.0799)F-1 scs cN
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM ****************** FLOW PROCESS FROM NODE	FLOW VELOC NODE 95 ******** 954.00	TTY(FEET/ 0.00 TO N ******* TO NODE FLOW< ISTING EL 475.0) = 814 Z" FACTOR UM DEPTH(CH/HR) = AREA (ACRES)	0DE 954. ********* 955.00 I	00 = 25 ******* S CODE = AM(FEET) = EL SLOPE = .00 Ap (DECIMAL)	******** 51 410.0 0.0799)F-1 scs cN
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM ****************** FLOW PROCESS FROM NODE	FLOW VELOC NODE 95 ******** 954.00	TTY(FEET/ 0.00 TO N ******* TO NODE FLOW<<<< ISTING EL 475.0) = 814 Z" FACTOR UM DEPTH(CH/HR) = AREA (ACRES) 0.10	0DE 954. ********* 955.00 I	00 = 25 ******* S CODE = AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000	******** 51 410.0 0.0799)F-1 scs cN
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM ****************** FLOW PROCESS FROM NODE	FLOW VELOC NODE 95 ******** 954.00	TTY(FEET/ 0.00 TO N ******* TO NODE FLOW<<<< isting EL 475.0) = 814 Z" FACTOR UM DEPTH(CH/HR) = AREA (ACRES) 0.10 0.40	ODE 954. ********* 955.00 I	00 = 25 ******* S CODE = AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000	******** 51 410.0 0.0799)F - 1 SCS CN 69 81
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM ****************** FLOW PROCESS FROM NODE	FLOW VELOC NODE 95 ******** 954.00	TTY(FEET/ 0.00 TO N ******* TO NODE FLOW<<<< isting EL 475.0) = 814 Z" FACTOR UM DEPTH(CH/HR) = AREA (ACRES) 0.10 0.40	0DE 954. ********* 955.00 I	00 = 25 ******* S CODE = AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000	******** 51 410.0 0.0799)F - 1 scs cn 69
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM ************************ FLOW PROCESS FROM NODE	FLOW VELOC NODE 95 ******** 954.00	TTY(FEET/ 0.00 TO N ******** TO NODE FLOW<<<< ISTING EL 475.0) = 814 Z" FACTOR UM DEPTH(CH/HR) = AREA (ACRES) 0.10 0.40 0.40	ODE 954. ********* 955.00 I EMENT) <<<< EMENT) <<<< TO DOWNSTRE .00 CHANN = 3.000 FEET) = 30 2.574 Fp (INCH/HR) 0.30 0.20 0.20	00 = 25 ******* S CODE = AM (FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000	******** 51 410.0 0.0799)F - 1 SCS CN 69 81 83
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM ************************ FLOW PROCESS FROM NODE	FLOW VELOC NODE 95 ******** 954.00	TTY(FEET/ 0.00 TO N ******** TO NODE FLOW<<<< ISTING EL 475.0) = 814 Z" FACTOR UM DEPTH(CH/HR) = AREA (ACRES) 0.10 0.40 0.40	ODE 954. ********* 955.00 I	00 = 25 ******* S CODE = AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000	******** 51 410.0 0.0799)F - 1 SCS CN 69 81
NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER "OPEN BRUSH" NATURAL FAIR COVER	FLOW VELOC NODE 95 ******** 954.00	TTY(FEET/ 0.00 TO N ******** TO NODE FLOW<<<< ISTING EL 475.0 0) = 814 Z" FACTOR UM DEPTH(CH/HR) = AREA (ACRES) 0.10 0.40 0.40 2.90	ODE 954. ********* 955.00 I	00 = 25 ******* S CODE = AM (FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000 1.000	**************************************
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM ************************ FLOW PROCESS FROM NODE	FLOW VELOC NODE 95 ******** 954.00	TTY(FEET/ 0.00 TO N ******** TO NODE FLOW<<<< ISTING EL 475.0 0) = 814 Z" FACTOR UM DEPTH(CH/HR) = AREA (ACRES) 0.10 0.40 0.40 2.90	ODE 954. ********* 955.00 I EMENT) <<<< EMENT) <<<< TO DOWNSTRE .00 CHANN = 3.000 FEET) = 30 2.574 Fp (INCH/HR) 0.30 0.20 0.20	00 = 25 ******* S CODE = AM (FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000 1.000	******** 51 410.0 0.0799)F - 1 SCS CN 69 81 83
DEPTH(FEET) = 1.54 LONGEST FLOWPATH FROM ************************ FLOW PROCESS FROM NODE	FLOW VELOC NODE 95 ******** 954.00	TTY(FEET/ 0.00 TO N ******** TO NODE FLOW<<<< ISTING EL 475.0) = 814 Z" FACTOR UM DEPTH(CH/HR) = AREA (ACRES) 0.10 0.40 0.40 2.90 5.20	ODE 954. ********* 955.00 I	00 = 25 ******* S CODE = AM(FEET) = EL SLOPE = .00 Ap (DECIMAL) 1.000 1.000 1.000 1.000 1.000	**************************************

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SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 117.45
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 10.06
 AVERAGE FLOW DEPTH (FEET) = 1.97 TRAVEL TIME (MIN.) = 1.35
 Tc(MIN.) = 15.17
 SUBAREA AREA(ACRES) = 18.50
                                SUBAREA RUNOFF (CFS) = 38.60
 EFFECTIVE AREA (ACRES) = 62.70 AREA-AVERAGED Fm (INCH/HR) = 0.25
 AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) =
                    62.7
                                 PEAK FLOW RATE (CFS) = 131.20
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 2.06 FLOW VELOCITY(FEET/SEC.) = 10.34
 LONGEST FLOWPATH FROM NODE 950.00 TO NODE 955.00 = 3346.00 FEET.
*****************
 FLOW PROCESS FROM NODE 955.00 TO NODE 956.00 IS CODE = 51
...........
 >>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<
 >>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT) <>>>
______
 ELEVATION DATA: UPSTREAM(FEET) = 410.00 DOWNSTREAM(FEET) = 375.00
 CHANNEL LENGTH THRU SUBAREA (FEET) = 643.00 CHANNEL SLOPE = 0.0544
 CHANNEL BASE (FEET) = 0.00 "Z" FACTOR = 3.000
 MANNING'S FACTOR = 0.040 MAXIMUM DEPTH (FEET) = 30.00
 * 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.469
 SUBAREA LOSS RATE DATA (AMC II):
  DEVELOPMENT TYPE/
                  SCS SOIL AREA
                                       Fρ
                                                αA
     LAND USE
                      GROUP (ACRES) (INCH/HR) (DECIMAL) CN
 NATURAL FAIR COVER
 "CHAPARRAL, BROADLEAF"
                               0.20
                                        0.30
                                               1.000
                                                       63
 NATURAL FAIR COVER
 "WOODLAND, GRASS"
                               0.50
                                        0.30
                                               1.000
                                                       65
 NATURAL FAIR COVER
 "GRASS"
                               1.20
                                        0.25
                                               1.000
                                                       79
 NATURAL FAIR COVER
 "WOODLAND, GRASS"
                               3.60
                                        0.25
                                               1.000
                                                      77
 NATURAL FAIR COVER
 "GRASS"
                               3.80
                                        0.30
                                               1.000
 NATURAL FAIR COVER
 "OPEN BRUSH"
                               6.10
                                        0.30
                                              1.000
                        В
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.28
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 146.34
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY (FEET/SEC.) = 9.21
 AVERAGE FLOW DEPTH (FEET) = 2.30 TRAVEL TIME (MIN.) = 1.16
 Tc(MIN.) = 16.33
 SUBAREA AREA(ACRES) = 15.40 SUBAREA RUNOFF(CFS) = 30.27
 EFFECTIVE AREA(ACRES) = 78.10 AREA-AVERAGED Fm(INCH/HR) = 0.26
 AREA-AVERAGED Fp (INCH/HR) = 0.26 AREA-AVERAGED Ap = 1.00
 TOTAL AREA (ACRES) = 78.1 PEAK FLOW RATE (CFS) = 155.52
 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) = 2.35 FLOW VELOCITY(FEET/SEC.) = 9.35
 LONGEST FLOWPATH FROM NODE 950.00 TO NODE 956.00 = 3989.00 FEET.
*******************
 FLOW PROCESS FROM NODE 956.00 TO NODE 956.00 IS CODE = 81
```

>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW< ______ MAINLINE Tc(MIN.) = 16.33OF-20* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.469 SUBAREA LOSS RATE DATA (AMC II): SCS SOIL AREA DEVELOPMENT TYPE/ SCS LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN NATURAL FAIR COVER 14.30 0.25 1.000 7.5 "CHAPARRAL, BROADLEAF" C NATURAL FAIR COVER 21.60 0.25 1.000 77 "OPEN BRUSH" SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.25 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000 SUBAREA RUNOFF(CFS) = 71.68 SUBAREA AREA(ACRES) = 35.90 EFFECTIVE AREA(ACRES) = 114.00 AREA-AVERAGED Fm(INCH/HR) = 0.25 AREA-AVERAGED Fp (INCH/HR) = 0.25 AREA-AVERAGED Ap = 1.00 TOTAL AREA (ACRES) = 114.0 PEAK FLOW RATE (CFS) = 227.20 ******************* FLOW PROCESS FROM NODE 956.00 TO NODE 956.00 IS CODE = 81 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>> ______ MAINLINE Tc(MIN.) = 16.33OF-21* 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.469 SUBAREA LOSS RATE DATA (AMC II): DEVELOPMENT TYPE/ SCS SOIL AREA Fρ LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN NATURAL FAIR COVER 0.30 83 "OPEN BRUSH" 0.20 1.000 NATURAL FAIR COVER 0.30 1.000 77 "OPEN BRUSH" 0.25 NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" 0.60 0.20 1.000 81 NATURAL FAIR COVER "WOODLAND, GRASS" 2.30 0.25 1.000 77 NATURAL FAIR COVER "CHAPARRAL, BROADLEAF" 3.20 0.25 1.000 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.24 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 1.000 SUBAREA RUNOFF(CFS) = 13.42 SUBAREA AREA (ACRES) = 6.70 EFFECTIVE AREA(ACRES) = 120.70 AREA-AVERAGED Fm(INCH/HR) = 0.25 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 1.00 TOTAL AREA(ACRES) = 120.7 PEAK FLOW RATE(CFS) = ****************** FLOW PROCESS FROM NODE 956.00 TO NODE 905.00 IS CODE = 31 ______ >>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA< >>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW) <<<< _____ ELEVATION DATA: UPSTREAM(FEET) = 375.00 DOWNSTREAM(FEET) = 330.00 FLOW LENGTH (FEET) = 1304.00 MANNING'S N = 0.013DEPTH OF FLOW IN 48.0 INCH PIPE IS 37.4 INCHES PIPE-FLOW VELOCITY (FEET/SEC.) = 22.92 ESTIMATED PIPE DIAMETER (INCH) = 48.00 NUMBER OF PIPES = 1 PIPE-FLOW(CFS) = 240.62PIPE TRAVEL TIME (MIN.) = 0.95 Tc (MIN.) = 17.28

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LONGEST FLOWPATH FROM NODE 950.00 TO NODE 905.00 = 5293.00 FEET. LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) COMMERCIAL Α 12.30 0.40 ******************* 26.80 COMMERCIAL В 0.30 2.00 FLOW PROCESS FROM NODE 905.00 TO NODE 905.00 IS CODE = 1 COMMERCIAL 0.25 ______ RESIDENTIAL >>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE <<< ".4 DWELLING/ACRE" 2.70 0.40 >>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES< RESIDENTIAL ".4 DWELLING/ACRE" 0.80 0.30 ______ TOTAL NUMBER OF STREAMS = 3 RESIDENTIAL С 2.10 0.25 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 3 ARE: ".4 DWELLING/ACRE" TIME OF CONCENTRATION (MIN.) = 17.28 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.33 RAINFALL INTENSITY (INCH/HR) = 2.39SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.196 AREA-AVERAGED Fm(INCH/HR) = 0.25SUBAREA AREA (ACRES) = 46.70 SUBAREA RUNOFF (CFS) = 100.22EFFECTIVE AREA(ACRES) = 540.70 AREA-AVERAGED Fm(INCH/HR) = 0.20 AREA-AVERAGED Fp(INCH/HR) = 0.25 AREA-AVERAGED Ap = 1.00AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.86 EFFECTIVE STREAM AREA(ACRES) = 120.70 TOTAL AREA (ACRES) = 545.8 PEAK FLOW RATE(CFS) = 1093.48TOTAL STREAM AREA(ACRES) = 120.70 ******************* PEAK FLOW RATE (CFS) AT CONFLUENCE = 240.62 FLOW PROCESS FROM NODE 905.00 TO NODE 905.00 IS CODE = 81 ** CONFLUENCE DATA ** STREAM 0 Ae HEADWATER >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW< Tc Intensity Fp(Fm) NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE _____ 1 674.58 10.27 3.210 0.23(0.19) 0.85 241.8 930.00 MAINLINE Tc(MIN.) = 16.561 716.91 13.03 2.805 0.23(0.20) 0.87 299.1 910.00 * 25 YEAR RAINFALL INTENSITY(INCH/HR) = 2.449 1 740.06 16.56 2.449 0.22(0.20) 0.89 359.8 920.00 SUBAREA LOSS RATE DATA (AMC II): 705.16 17.89 2.345 0.22(0.20) 0.89 359.9 900.00 DEVELOPMENT TYPE/ SCS SOIL AREA Fр 52.58 10.05 3.250 0.26(0.26) 1.00 18.5 940.00 LAND USE GROUP (ACRES) (INCH/HR) (DECIMAL) CN 240.62 17.28 0.40 2.391 0.25(0.25) 1.00 120.7 950.00 COMMERCIAL 8.00 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.40 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.100 CONFLUENCE FORMULA USED FOR 3 STREAMS. SUBAREA AREA (ACRES) = 8.00 SUBAREA RUNOFF (CFS) = 17.34 EFFECTIVE AREA(ACRES) = 548.70 AREA-AVERAGED Fm(INCH/HR) = 0.20 ** PEAK FLOW RATE TABLE ** AREA-AVERAGED Fp (INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.85STREAM 0 Tc Intensity Fp(Fm) Ap Ae HEADWATER TOTAL AREA (ACRES) = 553.8 PEAK FLOW RATE (CFS) = 1110.83 NUMBER (CFS) (MIN.) (INCH/HR) (INCH/HR) (ACRES) NODE ______ 1 917.45 10.05 3.250 0.23(0.21) 0.89 325.2 940.00 END OF STUDY SUMMARY: 930.00 2 924.24 10.27 3.210 0.23(0.21)0.89 332.0 TOTAL AREA (ACRES) = 553.8 TC (MIN.) = 16.56 3 978.29 13.03 2.805 0.23(0.21)0.90 408.6 910.00 EFFECTIVE AREA(ACRES) = 548.70 AREA-AVERAGED Fm(INCH/HR) = 0.20 1015.48 16.56 2.449 0.23(0.21)0.92 494.0 920.00 AREA-AVERAGED Fp(INCH/HR) = 0.24 AREA-AVERAGED Ap = 0.848 999.31 17.28 2.391 0.23(0.22) 0.92 499.1 950.00 PEAK FLOW RATE(CFS) = 1110.83 977.27 17.89 2.345 0.23(0.22)0.92 499.1 900.00 ** PEAK FLOW RATE TABLE ** COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS: STREAM 0 Tc Intensity Fp(Fm) Ap PEAK FLOW RATE (CFS) = 1015.48 Tc (MIN.) = 16.56(CFS) (MIN.) (INCH/HR) (INCH/HR) EFFECTIVE AREA(ACRES) = 494.00 AREA-AVERAGED Fm(INCH/HR) = 0.21 1 1047.32 10.05 3.250 0.24(0.19) 0.79 AREA-AVERAGED Fp (INCH/HR) = 0.23 AREA-AVERAGED Ap = 0.921051.97 10.27 3.210 0.24(0.19) 0.79 TOTAL AREA(ACRES) = 499.1 1088.92 13.03 2.805 0.24(0.19) 0.82 LONGEST FLOWPATH FROM NODE 920.00 TO NODE 905.00 = 6933.00 FEET. 1110.83 16.56 2.449 0.24(0.20) 0.85 5 1091.90 17.28 2.391 0.24(0.20) 0.85 ***************** 1068.95 17.89 2.345 0.24(0.20) 0.85 FLOW PROCESS FROM NODE 905.00 TO NODE 905.00 IS CODE = 81 >>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<>>> END OF RATIONAL METHOD ANALYSIS _____ MAINLINE Tc (MIN.) = 16.56* 25 YEAR RAINFALL INTENSITY (INCH/HR) = 2.449 SUBAREA LOSS RATE DATA (AMC II): DEVELOPMENT TYPE/ SCS SOIL AREA SCS

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CN

56

69

32

56

0.100

0.100

0.100

0.900

0.900

0.900

0.100

AΘ

379.9

386.7

463.3

553.8

553.8

548.7

(ACRES) NODE

 $_{32}^{CN} F - 5$

F-5

HEADWATER

940.00

930.00

910.00

920.00

950.00

900.00