PRELIMINARY DRAFT – FOR INTERNAL USE ONLY

HYDROLOGIC REPORT

TO

THE BASELINE HYDROLOGIC CONDITIONS

CAÑADA CHIQUITA

PREPARED FOR

RANCHO MISSION VIEJO

APRIL 2, 2004

VOLUME V

HUITT-ZOLLARS

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INTRODUCTION

A Hydrology Report for Canada Chiquita of the San Juan Creek system has been completed to the confluence with San Juan Creek. The watershed encompasses approximately 6.35 square miles. The watershed elevations range from approximately 180 feet above sea level at the downstream confluence with San Juan Creek to approximately 1,200 feet above sea level at the headwaters.

A 100-Year High Confidence analysis was prepared. The hydrologic analysis was completed in accordance with the 1986 Orange County Hydrology Manual and 1995 Orange County Hydrology Manual Addendum No. 1. The application of the procedures outlined in these two documents and the assumptions used to develop hydrologic parameters are described in this report.

MODEL OVERVIEW

Rational method models were completed for both the existing and proposed condition models. Additionally, a single area hydrograph was prepared for each drainage condition at the confluence with San Juan Creek.

To model the 100-Year High Confidence analysis, the Advanced Engineering Software RATSCx program was utilized. The RATSCx program was used to develop both the rational method analysis and the hydrograph analysis. The hydrograph was based on data calculated from the rational method analysis. The time of concentration (Tc) from the rational method was used to calculate the basin lag at the hydrograph location.

ASSUMPTIONS

Base Maps and Topographic Data

The base map for the existing condition model was created using aerial topography with 2-, 5-, and 10-foot contours. The base map for the proposed condition utilized mass grade topographic information that was spliced into existing aerial topography for each of the proposed development bubbles.

Rainfall

100-Year High Confidence rainfall intensities and depths were derived from the Orange County Hydrology Manual. The Non-Mountainous rainfall zone, for areas below the 2,000' elevation, was utilized.

Land Use

As part of the Philip Williams & Associates (PWA) report titled, "Baseline Hydrologic Conditions – San Juan & Upper San Mateo Watersheds," dated May 30, 2001, PWA developed "Land Use Sub-Categories" for the HEC-1 model. Based on descriptions of these sub-categories, the land uses were mapped to hydrologic land uses for input into the models according to Table 1. PWA prepared land use mapping for both the existing and several proposed development conditions. For the proposed condition hydrologic analysis, only one, the Ranch Plan Alternative (B4G), land use plan was evaluated.

Hydrologic Soils

Hydrologic soils were assigned based on the Orange County Hydrology Manual.

Antecedent Moisture Condition

As outlined in the Orange County Hydrology Manual Addendum No. 1, Antecedent Moisture Condition (AMC) II was used for all analyses.

Depth Area Adjustments

As outlined in the Orange County Hydrology Manual, Sierra Madre depth area adjustments were chosen for all calculations.

LAND USE MAPPING

Land Use Sub-Category	Hydrologic Land Use
General Transportation	Commercial
General Urban Commercial	Commercial
General Developed Areas	5-7 Dwellings/Acre
Fluctuating Shoreline	Public Park
Lakes/Open Water	Public Park
General Disturbed Areas	Barren (Poor)
Broadleaf Chaparral	Chaparral, Broadleaf (Fair)
Broadleaf Chaparral and Sage	Chaparral, Broadleaf (Fair)
Chaparral – Sage Scrub	Chaparral, Broadleaf (Fair)
General Chaparral	Chaparral, Broadleaf (Fair)
Rural Residential	Chaparral, Broadleaf (Fair)
Narrowleaf Chaparral	Chaparral, Narrowleaf (Fair)
General Grassland	Grass (Fair)
Live Oak Savanna	Grass (Fair)
Sumac Savanna	Grass (Fair)
Disturbed Wetlands	Meadows or Cienegas (Fair)
Meadow and Marsh	Meadows or Cienegas (Good)
General Sage Scrub	Open Brush (Fair)
Rock with Plants	Open Brush (Fair)
Sage Scrub- Grassland	Open Brush (Fair)
Streams and Creeks	Open Brush (Fair)
Forest	Woodland (Fair)
Woodland and Riparian	Woodland (Fair)
General Agriculture	Fallow (Poor)
General Nurseries	Orchards, Evergreen (Fair)
General Orchards	Orchards, Evergreen (Fair)
Irrigated Row Crops	Pasture, Dryland (Fair)
Row Crops	Pasture, Dryland (Fair)
General Parks	Turf (Fair)

Table 1 – Land Use Mapping

S-Graphs

S-Graph proportions were assigned based on a review of topographic and land use data, as well as aerial photography. Generally, the rugged terrain in the upper portions of the watershed was assigned to a "Mountain" S-Graph, while the lower portions were assigned "Foothill" and "Valley" S-Graphs. For the proposed condition analysis, development bubble areas were assumed to change from "Valley – Undeveloped" to "Valley – Developed".

Channel Geometry

Channel geometry was determined based on estimated cross-sections taken from the topographic data at several locations. Channel sizes were incrementally increased as the model moved downstream. Channels were sized to convey the 100-Year High Confidence peak flow rates without overtopping. Additionally, travel times for individual reaches meet the County criteria outlined in the Hydrology Manual on Pages D-12 and D-15.

Sub-Areas

In general, sub-areas were developed so that the sub-area sizes gradually increased as the study progressed downstream. Concentration nodes were located at major confluences or other points of significance. Generally, these concentration nodes defined the sub-areas rather than the sub-area size defining a concentration node.

CONCLUSIONS

Hydrologic Results

The results of the hydrologic analyses Canada Chiquita at San Juan Creek are presented in Table 2.

Impact of Proposed Development

The proposed development appears to have little impact on the drainage characteristics of Canada Chiquita at the San Juan Creek confluence. Percentage wise, the increase in peak flow rate due to development was only estimated to be 0.4% and the total storm runoff volume decreased slightly.

HYDROLOGIC SUMMARY

Existing Condition

Node	Location	Total Area (acres)	Total Area (sq. mi.)	Lag (hr)	Peak Flow Rate (cfs)	Runoff Volume (ac-ft)
826	San Juan Creek	4,066	6.35	0.85	3,357	1,219

Proposed Condition

Node	Location	Total Area (acres)	Total Area (sq. mi.)	Lag (hr)	Peak Flow Rate (cfs)	Runoff Volume (ac-ft)
826	San Juan Creek	4,063	6.35	0.84	3,369	1,189

Table 2 – Hydrologic Summary – 100-Year – High Confidence

PRELIMINARY DRAFT – FOR INTERNAL USE ONLY

TECHNICAL APPENDIX V-A
HYDROLOGIC ANALYSIS
EXISTING CONDITION
100-YEAR HIGH CONFIDENCE

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 ************************************************************************
             RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
         (c) Copyright 1983-2003 Advanced Engineering Software (aes)
             Ver. 8.0  Release Date: 01/01/2003  License ID 1202

                          Analysis prepared by:

                          Huitt - Zollars, Inc.
                         430 Exchange, Suite 200
                          Irvine, CA. 92602-1309
                             714 - 734 - 5100

 ------------------------------------------------------------------------
  FILE NAME: CE31100H.DAT
  TIME/DATE OF STUDY: 14:21 03/31/2004
 ========================================================================
  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) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  =====  ====  =====  =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

  UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
    WATERSHED LAG = 0.80 * Tc
          S-GRAPH TYPE                  PERCENTAGE(DECIMAL)
        VALLEY(DEVELOPED)                    0.020
        FOOTHILL                             0.140
        MOUNTAIN                             0.620
        VALLEY(UNDEVELOPED)/DESERT           0.220
        DESERT(UNDEVELOPED)                  0.000
    SIERRA MADRE DEPTH-AREA FACTORS USED.
                      AREA-AVERAGED
        DURATION    RAINFALL(INCH)
        5-MINUTES         0.52
       30-MINUTES         1.09
        1-HOUR            1.45
        3-HOUR            2.43
        6-HOUR            3.36
       24-HOUR            5.63
 *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD*


 ************************************************************************
  FLOW PROCESS FROM NODE   3100.00 TO NODE   3101.00 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) =   1195.00  DOWNSTREAM(FEET) =   1090.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.013
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.414
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL FAIR COVER
  "OPEN BRUSH"                C        1.20      0.25       1.00    77    9.01
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA RUNOFF(CFS) =      4.50
  TOTAL AREA(ACRES) =      1.20   PEAK FLOW RATE(CFS) =      4.50

 ************************************************************************
  FLOW PROCESS FROM NODE   3101.00 TO NODE   3102.00 IS CODE =  51
 ------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
 ========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1090.00  DOWNSTREAM(FEET) =   1060.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   246.00   CHANNEL SLOPE =  0.1220
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      4.50
  FLOW VELOCITY(FEET/SEC.) =   5.99   FLOW DEPTH(FEET) =   0.50
  TRAVEL TIME(MIN.) =   0.68   Tc(MIN.) =   9.70
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3102.00 =   575.00 FEET.

 ************************************************************************
  FLOW PROCESS FROM NODE   3101.00 TO NODE   3102.00 IS CODE =  81
 ------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 ========================================================================
  MAINLINE Tc(MIN) =   9.70
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.249
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B        0.20      0.30       1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"                C        0.70      0.25       1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        0.10      0.25       1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.26
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    1.00      SUBAREA RUNOFF(CFS) =    3.59
  EFFECTIVE AREA(ACRES) =      2.20   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =      2.20       PEAK FLOW RATE(CFS) =       7.91

 ************************************************************************
  FLOW PROCESS FROM NODE   3102.00 TO NODE   3103.00 IS CODE =  51
 ------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
 ========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1060.00  DOWNSTREAM(FEET) =   1050.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   131.00   CHANNEL SLOPE =  0.0763
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      7.91
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 FLOW VELOCITY(FEET/SEC.) =   5.83   FLOW DEPTH(FEET) =   0.77
 TRAVEL TIME(MIN.) =   0.37   Tc(MIN.) =  10.07
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3103.00 =   706.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3102.00 TO NODE   3103.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.07
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.145
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        0.80      0.30       1.00    66
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        2.60      0.25       1.00    77
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           C        0.10      0.25       1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    3.50      SUBAREA RUNOFF(CFS) =   12.23
 EFFECTIVE AREA(ACRES) =      5.70   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      5.70       PEAK FLOW RATE(CFS) =      19.94

****************************************************************************
 FLOW PROCESS FROM NODE   3103.00 TO NODE   3104.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   1050.00  DOWNSTREAM(FEET) =   1040.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   141.00   CHANNEL SLOPE =  0.0709
 CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     19.94
 FLOW VELOCITY(FEET/SEC.) =   7.05   FLOW DEPTH(FEET) =   0.96
 TRAVEL TIME(MIN.) =   0.33   Tc(MIN.) =  10.41
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3104.00 =   847.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3103.00 TO NODE   3104.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.41
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.079
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        0.80      0.30       1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B        0.60      0.30       1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        2.70      0.25       1.00    77
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    4.10      SUBAREA RUNOFF(CFS) =   14.07
 EFFECTIVE AREA(ACRES) =      9.80   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      9.80       PEAK FLOW RATE(CFS) =      33.66

****************************************************************************
 FLOW PROCESS FROM NODE   3104.00 TO NODE   3105.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   1040.00  DOWNSTREAM(FEET) =   1030.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   156.00   CHANNEL SLOPE =  0.0641
 CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     33.66
 FLOW VELOCITY(FEET/SEC.) =   7.83   FLOW DEPTH(FEET) =   1.30
 TRAVEL TIME(MIN.) =   0.33   Tc(MIN.) =  10.74
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3105.00 =  1003.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3104.00 TO NODE   3105.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.74
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.012
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        1.50      0.30       1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B        0.90      0.30       1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        3.50      0.25       1.00    77
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    5.90      SUBAREA RUNOFF(CFS) =   19.87
 EFFECTIVE AREA(ACRES) =     15.70   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     15.70       PEAK FLOW RATE(CFS) =      52.95

****************************************************************************
 FLOW PROCESS FROM NODE   3105.00 TO NODE   3106.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   1030.00  DOWNSTREAM(FEET) =   1010.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   462.00   CHANNEL SLOPE =  0.0433
 CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     52.95
 FLOW VELOCITY(FEET/SEC.) =   7.61   FLOW DEPTH(FEET) =   1.82
 TRAVEL TIME(MIN.) =   1.01   Tc(MIN.) =  11.75
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3106.00 =  1465.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3105.00 TO NODE   3106.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.75
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.810
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        0.90      0.30       1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B        3.10      0.30       1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        6.20      0.25       1.00    77
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  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          C        0.10      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   10.30      SUBAREA RUNOFF(CFS) =   32.82
  EFFECTIVE AREA(ACRES) =     26.00   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     26.00       PEAK FLOW RATE(CFS) =      82.91

****************************************************************************
  FLOW PROCESS FROM NODE   3106.00 TO NODE   3107.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1010.00  DOWNSTREAM(FEET) =    980.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   589.00   CHANNEL SLOPE =  0.0509
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     82.91
  FLOW VELOCITY(FEET/SEC.) =   8.98   FLOW DEPTH(FEET) =   1.89
  TRAVEL TIME(MIN.) =   1.09   Tc(MIN.) =  12.84
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3107.00 =  2054.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3106.00 TO NODE   3107.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  12.84
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.611
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        1.30      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B        2.70      0.30      1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"                C        4.30      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        1.50      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    9.80      SUBAREA RUNOFF(CFS) =   29.46
  EFFECTIVE AREA(ACRES) =     35.80   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     35.80       PEAK FLOW RATE(CFS) =     107.70

****************************************************************************
  FLOW PROCESS FROM NODE   3107.00 TO NODE   3108.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    980.00  DOWNSTREAM(FEET) =    970.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   322.00   CHANNEL SLOPE =  0.0311
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    107.70
  FLOW VELOCITY(FEET/SEC.) =   8.01   FLOW DEPTH(FEET) =   2.46
  TRAVEL TIME(MIN.) =   0.67   Tc(MIN.) =  13.51
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3108.00 =  2376.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3107.00 TO NODE   3108.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  13.51
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.514
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        1.20      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B        3.90      0.30      1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"                C        8.60      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        2.40      0.25      1.00    79
  NATURAL FAIR COVER
  "WOODLAND"                  C        2.20      0.25      1.00    73
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.26
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   18.30      SUBAREA RUNOFF(CFS) =   53.53
  EFFECTIVE AREA(ACRES) =     54.10   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     54.10       PEAK FLOW RATE(CFS) =     158.12

****************************************************************************
  FLOW PROCESS FROM NODE   3108.00 TO NODE   3109.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    970.00  DOWNSTREAM(FEET) =    950.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   654.00   CHANNEL SLOPE =  0.0306
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   4.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    158.12
  FLOW VELOCITY(FEET/SEC.) =   8.72   FLOW DEPTH(FEET) =   2.70
  TRAVEL TIME(MIN.) =   1.25   Tc(MIN.) =  14.76
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3109.00 =  3030.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3108.00 TO NODE   3109.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  14.76
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.334
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        1.30      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B        6.30      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                  B        0.20      0.30      1.00    60
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C        0.90      0.25      1.00    75
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       10.40      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        6.00      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   25.10      SUBAREA RUNOFF(CFS) =   69.32
  EFFECTIVE AREA(ACRES) =     79.20   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     79.20       PEAK FLOW RATE(CFS) =     218.68
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   3108.00 TO NODE   3109.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  14.76
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.334
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                  C        0.30      0.25      1.00    73
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    0.30      SUBAREA RUNOFF(CFS) =    0.83
  EFFECTIVE AREA(ACRES) =     79.50   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     79.50       PEAK FLOW RATE(CFS) =     219.52

****************************************************************************
  FLOW PROCESS FROM NODE   3109.00 TO NODE   3110.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    950.00  DOWNSTREAM(FEET) =    890.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1548.00   CHANNEL SLOPE =  0.0388
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   4.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    219.52
  FLOW VELOCITY(FEET/SEC.) =  10.37   FLOW DEPTH(FEET) =   3.02
  TRAVEL TIME(MIN.) =   2.49   Tc(MIN.) =  17.25
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3110.00 =  4578.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3109.00 TO NODE   3110.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  17.25
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.048
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        5.50      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B       10.40      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                  B        2.20      0.30      1.00    60
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C        3.80      0.25      1.00    75
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       22.10      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        1.80      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   45.80      SUBAREA RUNOFF(CFS) =  114.52
  EFFECTIVE AREA(ACRES) =    125.30   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    125.30       PEAK FLOW RATE(CFS) =     313.56

****************************************************************************
  FLOW PROCESS FROM NODE   3110.00 TO NODE   3111.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    890.00  DOWNSTREAM(FEET) =    850.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1572.00   CHANNEL SLOPE =  0.0254
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    313.56
  FLOW VELOCITY(FEET/SEC.) =   9.67   FLOW DEPTH(FEET) =   3.72
  TRAVEL TIME(MIN.) =   2.71   Tc(MIN.) =  19.96
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3111.00 =  6150.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3110.00 TO NODE   3111.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  19.96
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.804
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       B        0.40      0.30      1.00    63
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        0.80      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B        9.40      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                  B        1.60      0.30      1.00    60
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C        3.50      0.25      1.00    75
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       23.40      0.25      1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   39.10      SUBAREA RUNOFF(CFS) =   89.31
  EFFECTIVE AREA(ACRES) =    164.40   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    164.40       PEAK FLOW RATE(CFS) =     375.31

****************************************************************************
  FLOW PROCESS FROM NODE   3110.00 TO NODE   3111.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  19.96
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.804
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        4.70      0.25      1.00    79
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           D        0.80      0.20      1.00    84
  NATURAL FAIR COVER
  "WOODLAND"                  D        1.10      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.24
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    6.60      SUBAREA RUNOFF(CFS) =   15.25
  EFFECTIVE AREA(ACRES) =    171.00   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    171.00       PEAK FLOW RATE(CFS) =     390.57

****************************************************************************
  FLOW PROCESS FROM NODE   3111.00 TO NODE   3112.00 IS CODE =  51
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    850.00  DOWNSTREAM(FEET) =    810.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1623.00   CHANNEL SLOPE =  0.0246
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    390.57
  FLOW VELOCITY(FEET/SEC.) =  10.13   FLOW DEPTH(FEET) =   4.19
  TRAVEL TIME(MIN.) =   2.67   Tc(MIN.) =  22.63
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3112.00 =  7773.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3111.00 TO NODE   3112.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN) =  22.63
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.602
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        B        1.50      0.30       0.50    56
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        3.10      0.30       1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B       10.70      0.30       1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                  B        0.40      0.30       1.00    60
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C        0.50      0.25       1.00    75
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       16.70      0.25       1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.98
  SUBAREA AREA(ACRES) =   32.90      SUBAREA RUNOFF(CFS) =   69.15
  EFFECTIVE AREA(ACRES) =    203.90   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    203.90       PEAK FLOW RATE(CFS) =     428.73

****************************************************************************
  FLOW PROCESS FROM NODE   3111.00 TO NODE   3112.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN) =  22.63
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.602
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        2.30      0.25       1.00    79
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D        5.10      0.20       0.50    75
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           D        0.90      0.20       1.00    84
  NATURAL FAIR COVER
  "WOODLAND"                  D        0.40      0.20       1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.71
  SUBAREA AREA(ACRES) =    8.70      SUBAREA RUNOFF(CFS) =   19.17
  EFFECTIVE AREA(ACRES) =    212.60   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =    212.60       PEAK FLOW RATE(CFS) =     447.89

****************************************************************************
  FLOW PROCESS FROM NODE   3112.00 TO NODE   3113.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    810.00  DOWNSTREAM(FEET) =    770.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1754.00   CHANNEL SLOPE =  0.0228
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    447.89
  FLOW VELOCITY(FEET/SEC.) =  10.18   FLOW DEPTH(FEET) =   4.59
  TRAVEL TIME(MIN.) =   2.87   Tc(MIN.) =  25.50
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3113.00 =  9527.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3112.00 TO NODE   3113.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN) =  25.50
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.434
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        B       11.20      0.30       0.50    56
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        2.90      0.30       1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B       10.30      0.30       1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                  B        0.40      0.30       1.00    60
  NATURAL FAIR COVER
  "GRASS"                     C        1.10      0.25       1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       19.10      0.25       1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.88
  SUBAREA AREA(ACRES) =   45.00      SUBAREA RUNOFF(CFS) =   88.85
  EFFECTIVE AREA(ACRES) =    257.60   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =    257.60       PEAK FLOW RATE(CFS) =     504.54

****************************************************************************
  FLOW PROCESS FROM NODE   3112.00 TO NODE   3113.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN) =  25.50
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.434
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        4.00      0.25       1.00    79
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D       16.30      0.20       0.50    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.60
  SUBAREA AREA(ACRES) =   20.30      SUBAREA RUNOFF(CFS) =   42.10
  EFFECTIVE AREA(ACRES) =    277.90   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.94
  TOTAL AREA(ACRES) =    277.90       PEAK FLOW RATE(CFS) =     546.64

****************************************************************************
  FLOW PROCESS FROM NODE   3113.00 TO NODE   3114.00 IS CODE =  51
----------------------------------------------------------------------------
```

```
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    770.00  DOWNSTREAM(FEET) =    740.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1443.00   CHANNEL SLOPE =  0.0208
 CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   6.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    546.64
 FLOW VELOCITY(FEET/SEC.) =  10.33   FLOW DEPTH(FEET) =   4.87
 TRAVEL TIME(MIN.) =   2.33   Tc(MIN.) =  27.83
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3114.00 = 10970.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3113.00 TO NODE   3114.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  27.83
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.316
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B        8.10      0.30       0.50    56
 NATURAL FAIR COVER
 "OPEN BRUSH"               B        1.20      0.30       1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          B       17.80      0.30       1.00    69
 NATURAL FAIR COVER
 "WOODLAND"                 B        2.00      0.30       1.00    60
 NATURAL FAIR COVER
 "GRASS"                    C        0.20      0.25       1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"               C        7.00      0.25       1.00    77
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.29
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.89
 SUBAREA AREA(ACRES) =   36.30      SUBAREA RUNOFF(CFS) =   67.26
 EFFECTIVE AREA(ACRES) =    314.20   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.93
 TOTAL AREA(ACRES) =    314.20       PEAK FLOW RATE(CFS) =     584.27

****************************************************************************
 FLOW PROCESS FROM NODE   3113.00 TO NODE   3114.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  27.83
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.316
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          C        8.60      0.25       1.00    79
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       D       10.50      0.20       0.50    75
 NATURAL FAIR COVER
 "OPEN BRUSH"               D        0.60      0.20       1.00    83
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.73
 SUBAREA AREA(ACRES) =   19.70      SUBAREA RUNOFF(CFS) =   38.07
 EFFECTIVE AREA(ACRES) =    333.90   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.92
 TOTAL AREA(ACRES) =    333.90       PEAK FLOW RATE(CFS) =     622.34

****************************************************************************
 FLOW PROCESS FROM NODE   3114.00 TO NODE   3135.00 IS CODE =  51
----------------------------------------------------------------------------
```

```
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    740.00  DOWNSTREAM(FEET) =    710.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1534.00   CHANNEL SLOPE =  0.0196
 CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   6.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    622.34
 FLOW VELOCITY(FEET/SEC.) =  10.44   FLOW DEPTH(FEET) =   5.28
 TRAVEL TIME(MIN.) =   2.45   Tc(MIN.) =  30.28
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3135.00 = 12504.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3114.00 TO NODE   3135.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  30.28
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.209
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B        4.30      0.30       0.50    56
 NATURAL FAIR COVER
 "OPEN BRUSH"               B        2.20      0.30       1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          B       16.30      0.30       1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"               C        2.30      0.25       1.00    77
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          C        0.40      0.25       1.00    79
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       D        5.00      0.20       0.50    75
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.29
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.85
 SUBAREA AREA(ACRES) =   30.50      SUBAREA RUNOFF(CFS) =   54.01
 EFFECTIVE AREA(ACRES) =    364.40   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.91
 TOTAL AREA(ACRES) =    364.40       PEAK FLOW RATE(CFS) =     644.47

****************************************************************************
 FLOW PROCESS FROM NODE   3114.00 TO NODE   3135.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  30.28
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.209
 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"               D        9.70      0.20       1.00    83
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          D        1.80      0.20       1.00    84
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   11.50      SUBAREA RUNOFF(CFS) =   20.80
 EFFECTIVE AREA(ACRES) =    375.90   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.92
 TOTAL AREA(ACRES) =    375.90       PEAK FLOW RATE(CFS) =     665.26

****************************************************************************
 FLOW PROCESS FROM NODE   3135.00 TO NODE   3135.00 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.) =  30.28
 RAINFALL INTENSITY(INCH/HR) =   2.21
 AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.26
 AREA-AVERAGED Ap =  0.92
 EFFECTIVE STREAM AREA(ACRES) =   375.90
 TOTAL STREAM AREA(ACRES) =   375.90
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    665.26

****************************************************************************
 FLOW PROCESS FROM NODE   3120.00 TO NODE   3121.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   313.00
 ELEVATION DATA: UPSTREAM(FEET) =   1215.00  DOWNSTREAM(FEET) =   1100.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.590
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.577
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        0.70      0.25      1.00    77    8.59
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA RUNOFF(CFS) =      2.73
 TOTAL AREA(ACRES) =      0.70   PEAK FLOW RATE(CFS) =      2.73

****************************************************************************
 FLOW PROCESS FROM NODE   3121.00 TO NODE   3122.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   1100.00  DOWNSTREAM(FEET) =   1060.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   261.00   CHANNEL SLOPE =  0.1533
 CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
 CHANNEL FLOW THRU SUBAREA(CFS) =      2.73
 FLOW VELOCITY(FEET/SEC.) =   5.65   FLOW DEPTH(FEET) =   0.36
 TRAVEL TIME(MIN.) =   0.77   Tc(MIN.) =   9.36
 LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3122.00 =   574.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3121.00 TO NODE   3122.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   9.36
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.350
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     B        0.10      0.30      1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        0.70      0.30      1.00    66
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        0.60      0.25      1.00    77
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    1.40      SUBAREA RUNOFF(CFS) =    5.13
 EFFECTIVE AREA(ACRES) =      2.10   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      2.10       PEAK FLOW RATE(CFS) =       7.71

****************************************************************************
 FLOW PROCESS FROM NODE   3122.00 TO NODE   3123.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   1060.00  DOWNSTREAM(FEET) =   1040.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   137.00   CHANNEL SLOPE =  0.1460
 CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
 CHANNEL FLOW THRU SUBAREA(CFS) =      7.71
 FLOW VELOCITY(FEET/SEC.) =   7.38   FLOW DEPTH(FEET) =   0.64
 TRAVEL TIME(MIN.) =   0.31   Tc(MIN.) =   9.67
 LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3123.00 =   711.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3122.00 TO NODE   3123.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   9.67
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.258
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     B        0.20      0.30      1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        0.50      0.30      1.00    66
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        1.20      0.25      1.00    77
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    1.90      SUBAREA RUNOFF(CFS) =    6.82
 EFFECTIVE AREA(ACRES) =      4.00   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      4.00       PEAK FLOW RATE(CFS) =      14.36

****************************************************************************
 FLOW PROCESS FROM NODE   3123.00 TO NODE   3124.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   1040.00  DOWNSTREAM(FEET) =    990.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   450.00   CHANNEL SLOPE =  0.1111
 CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     14.36
 FLOW VELOCITY(FEET/SEC.) =   7.84   FLOW DEPTH(FEET) =   0.94
 TRAVEL TIME(MIN.) =   0.96   Tc(MIN.) =  10.63
 LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3124.00 =  1161.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3123.00 TO NODE   3124.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.63
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.035
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
```

```
  NATURAL FAIR COVER
  "GRASS"                    B        0.90      0.30      1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        1.50      0.30      1.00    66
  NATURAL FAIR COVER
  "WOODLAND"                 B        0.20      0.30      1.00    60
  NATURAL FAIR COVER
  "GRASS"                    C        0.40      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        1.90      0.25      1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    4.90      SUBAREA RUNOFF(CFS) =   16.57
  EFFECTIVE AREA(ACRES) =      8.90   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =      8.90       PEAK FLOW RATE(CFS) =      30.13

****************************************************************************
  FLOW PROCESS FROM NODE   3124.00 TO NODE   3125.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    990.00  DOWNSTREAM(FEET) =    975.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   258.00   CHANNEL SLOPE =  0.0581
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     30.13
  FLOW VELOCITY(FEET/SEC.) =   7.32   FLOW DEPTH(FEET) =   1.26
  TRAVEL TIME(MIN.) =   0.59   Tc(MIN.) =  11.21
  LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3125.00 =  1419.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3124.00 TO NODE   3125.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  11.21
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.917
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    B        0.90      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                 B        0.20      0.30      1.00    60
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      C        0.80      0.25      1.00    75
  NATURAL FAIR COVER
  "GRASS"                    C        0.10      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        1.80      0.25      1.00    77
  NATURAL FAIR COVER
  "WOODLAND"                 C        0.10      0.25      1.00    73
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.26
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    3.90      SUBAREA RUNOFF(CFS) =   12.82
  EFFECTIVE AREA(ACRES) =     12.80   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     12.80       PEAK FLOW RATE(CFS) =      42.01

****************************************************************************
  FLOW PROCESS FROM NODE   3125.00 TO NODE   3126.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    975.00  DOWNSTREAM(FEET) =    970.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   109.00   CHANNEL SLOPE =  0.0459
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     42.01
  FLOW VELOCITY(FEET/SEC.) =   7.31   FLOW DEPTH(FEET) =   1.60
  TRAVEL TIME(MIN.) =   0.25   Tc(MIN.) =  11.46
  LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3126.00 =  1528.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3125.00 TO NODE   3126.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  11.46
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.868
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      B        0.10      0.30      1.00    63
  NATURAL FAIR COVER
  "GRASS"                    B        1.30      0.30      1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        0.90      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          B        0.10      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                 B        1.10      0.30      1.00    60
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      C        0.60      0.25      1.00    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.29
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    4.10      SUBAREA RUNOFF(CFS) =   13.19
  EFFECTIVE AREA(ACRES) =     16.90   AREA-AVERAGED Fm(INCH/HR) =  0.28
  AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     16.90       PEAK FLOW RATE(CFS) =      54.63

****************************************************************************
  FLOW PROCESS FROM NODE   3125.00 TO NODE   3126.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  11.46
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.868
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    C        0.40      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        4.00      0.25      1.00    77
  NATURAL FAIR COVER
  "WOODLAND"                 C        0.30      0.25      1.00    73
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    4.70      SUBAREA RUNOFF(CFS) =   15.30
  EFFECTIVE AREA(ACRES) =     21.60   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     21.60       PEAK FLOW RATE(CFS) =      69.94

****************************************************************************
  FLOW PROCESS FROM NODE   3126.00 TO NODE   3127.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =    970.00  DOWNSTREAM(FEET) =    940.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   696.00   CHANNEL SLOPE =  0.0431
 CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     69.94
 FLOW VELOCITY(FEET/SEC.) =   8.06   FLOW DEPTH(FEET) =   1.81
 TRAVEL TIME(MIN.) =   1.44   Tc(MIN.) =  12.90
 LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3127.00 =  2224.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3126.00 TO NODE   3127.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.90
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.602
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       B         2.70      0.30      1.00    63
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B         1.50      0.30      1.00    69
 NATURAL FAIR COVER
 "WOODLAND"                  B         0.50      0.30      1.00    60
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       C         2.60      0.25      1.00    75
 NATURAL FAIR COVER
 "OPEN BRUSH"                C         1.80      0.25      1.00    77
 NATURAL FAIR COVER
 "WOODLAND"                  C         0.20      0.25      1.00    73
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =     9.30      SUBAREA RUNOFF(CFS) =   27.85
 EFFECTIVE AREA(ACRES) =     30.90   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.90       PEAK FLOW RATE(CFS) =      92.62

****************************************************************************
 FLOW PROCESS FROM NODE   3127.00 TO NODE   3128.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    940.00  DOWNSTREAM(FEET) =    920.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   511.00   CHANNEL SLOPE =  0.0391
 CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     92.62
 FLOW VELOCITY(FEET/SEC.) =   8.38   FLOW DEPTH(FEET) =   2.15
 TRAVEL TIME(MIN.) =   1.02   Tc(MIN.) =  13.92
 LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3128.00 =  2735.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3127.00 TO NODE   3128.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.92
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.456
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       B         3.00      0.30      1.00    63
 NATURAL FAIR COVER
 "OPEN BRUSH"                B         1.40      0.30      1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B         8.40      0.30      1.00    69
 NATURAL FAIR COVER
 "WOODLAND"                  B         0.20      0.30      1.00    60
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       C         8.00      0.25      1.00    75
 NATURAL FAIR COVER
 "OPEN BRUSH"                C         5.20      0.25      1.00    77
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   26.20      SUBAREA RUNOFF(CFS) =   75.01
 EFFECTIVE AREA(ACRES) =     57.10   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     57.10       PEAK FLOW RATE(CFS) =     163.57

****************************************************************************
 FLOW PROCESS FROM NODE   3127.00 TO NODE   3128.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.92
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.456
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           C         1.00      0.25      1.00    79
 NATURAL FAIR COVER
 "WOODLAND"                  C         0.50      0.25      1.00    73
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    1.50      SUBAREA RUNOFF(CFS) =    4.33
 EFFECTIVE AREA(ACRES) =     58.60   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     58.60       PEAK FLOW RATE(CFS) =     167.90

****************************************************************************
 FLOW PROCESS FROM NODE   3128.00 TO NODE   3129.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    920.00  DOWNSTREAM(FEET) =    870.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   980.00   CHANNEL SLOPE =  0.0510
 CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    167.90
 FLOW VELOCITY(FEET/SEC.) =  10.79   FLOW DEPTH(FEET) =   2.72
 TRAVEL TIME(MIN.) =   1.51   Tc(MIN.) =  15.43
 LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3129.00 =  3715.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3128.00 TO NODE   3129.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.43
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.252
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       B         0.90      0.30      1.00    63
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B        11.50      0.30      1.00    69
 NATURAL FAIR COVER
 "WOODLAND"                  B         0.90      0.30      1.00    60
```

```
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      C        2.10      0.25      1.00    75
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        7.30      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          C        6.10      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   28.80      SUBAREA RUNOFF(CFS) =   77.21
  EFFECTIVE AREA(ACRES) =     87.40   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     87.40       PEAK FLOW RATE(CFS) =     234.33

****************************************************************************
  FLOW PROCESS FROM NODE   3128.00 TO NODE   3129.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  15.43
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.252
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                 C        3.30      0.25      1.00    73
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    3.30      SUBAREA RUNOFF(CFS) =    8.92
  EFFECTIVE AREA(ACRES) =     90.70   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     90.70       PEAK FLOW RATE(CFS) =     243.25

****************************************************************************
  FLOW PROCESS FROM NODE   3129.00 TO NODE   3130.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    870.00  DOWNSTREAM(FEET) =    840.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   918.00   CHANNEL SLOPE =  0.0327
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   4.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    243.25
  FLOW VELOCITY(FEET/SEC.) =   9.99   FLOW DEPTH(FEET) =   3.32
  TRAVEL TIME(MIN.) =   1.53   Tc(MIN.) =  16.96
  LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3130.00 =  4633.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3129.00 TO NODE   3130.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  16.96
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.080
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      B        0.90      0.30      1.00    63
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        1.80      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          B       26.80      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                 B        1.40      0.30      1.00    60
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      C        9.90      0.25      1.00    75
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       14.60      0.25      1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   55.40      SUBAREA RUNOFF(CFS) =  139.73
  EFFECTIVE AREA(ACRES) =    146.10   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    146.10       PEAK FLOW RATE(CFS) =     368.98

****************************************************************************
  FLOW PROCESS FROM NODE   3129.00 TO NODE   3130.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  16.96
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.080
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          C        7.00      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    7.00      SUBAREA RUNOFF(CFS) =   17.83
  EFFECTIVE AREA(ACRES) =    153.10   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    153.10       PEAK FLOW RATE(CFS) =     386.81

****************************************************************************
  FLOW PROCESS FROM NODE   3130.00 TO NODE   3131.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    840.00  DOWNSTREAM(FEET) =    820.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   882.00   CHANNEL SLOPE =  0.0227
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    386.81
  FLOW VELOCITY(FEET/SEC.) =   9.80   FLOW DEPTH(FEET) =   4.26
  TRAVEL TIME(MIN.) =   1.50   Tc(MIN.) =  18.46
  LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3131.00 =  5515.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3130.00 TO NODE   3131.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  18.46
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.935
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        2.80      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          B       22.40      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                 B        2.00      0.30      1.00    60
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      C        4.90      0.25      1.00    75
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       20.20      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          C        9.80      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
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 SUBAREA AREA(ACRES) =   62.10      SUBAREA RUNOFF(CFS) =  148.86
 EFFECTIVE AREA(ACRES) =    215.20   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    215.20       PEAK FLOW RATE(CFS) =     515.70

****************************************************************************
 FLOW PROCESS FROM NODE   3130.00 TO NODE   3131.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.46
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.935
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "WOODLAND"                  C        1.80      0.25      1.00    73
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    1.80      SUBAREA RUNOFF(CFS) =    4.35
 EFFECTIVE AREA(ACRES) =    217.00   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    217.00       PEAK FLOW RATE(CFS) =     520.05

****************************************************************************
 FLOW PROCESS FROM NODE   3131.00 TO NODE   3132.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    820.00  DOWNSTREAM(FEET) =    800.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   901.00   CHANNEL SLOPE =  0.0222
 CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    520.05
 FLOW VELOCITY(FEET/SEC.) =  10.47   FLOW DEPTH(FEET) =   4.98
 TRAVEL TIME(MIN.) =   1.43   Tc(MIN.) =  19.90
 LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3132.00 =  6416.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3131.00 TO NODE   3132.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  19.90
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.809
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       B        0.90      0.30      1.00    63
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        4.00      0.30      1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B       25.00      0.30      1.00    69
 NATURAL FAIR COVER
 "WOODLAND"                  B        1.80      0.30      1.00    60
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       C        3.90      0.25      1.00    75
 NATURAL FAIR COVER
 "OPEN BRUSH"                C       24.80      0.25      1.00    77
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   60.40      SUBAREA RUNOFF(CFS) =  137.69
 EFFECTIVE AREA(ACRES) =    277.40   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    277.40       PEAK FLOW RATE(CFS) =     633.09

****************************************************************************
 FLOW PROCESS FROM NODE   3131.00 TO NODE   3132.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  19.90
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.809
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           C       11.10      0.25      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   11.10      SUBAREA RUNOFF(CFS) =   25.57
 EFFECTIVE AREA(ACRES) =    288.50   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    288.50       PEAK FLOW RATE(CFS) =     658.66

****************************************************************************
 FLOW PROCESS FROM NODE   3132.00 TO NODE   3133.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    800.00  DOWNSTREAM(FEET) =    780.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   940.00   CHANNEL SLOPE =  0.0213
 CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   6.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    658.66
 FLOW VELOCITY(FEET/SEC.) =  10.93   FLOW DEPTH(FEET) =   5.32
 TRAVEL TIME(MIN.) =   1.43   Tc(MIN.) =  21.33
 LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3133.00 =  7356.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3132.00 TO NODE   3133.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  21.33
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.699
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        2.50      0.30      1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B       22.20      0.30      1.00    69
 NATURAL FAIR COVER
 "GRASS"                     C        0.40      0.25      1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"                C       20.10      0.25      1.00    77
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           C        6.60      0.25      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   51.80      SUBAREA RUNOFF(CFS) =  113.06
 EFFECTIVE AREA(ACRES) =    340.30   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    340.30       PEAK FLOW RATE(CFS) =     743.11

****************************************************************************
 FLOW PROCESS FROM NODE   3133.00 TO NODE   3134.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
```

```
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    780.00  DOWNSTREAM(FEET) =    765.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   596.00   CHANNEL SLOPE =  0.0252
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   6.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    743.11
  FLOW VELOCITY(FEET/SEC.) =  12.00   FLOW DEPTH(FEET) =   5.42
  TRAVEL TIME(MIN.) =   0.83   Tc(MIN.) =  22.16
  LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3134.00 =  7952.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3133.00 TO NODE   3134.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  22.16
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.636
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "OPEN BRUSH"                B       15.60      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B       55.20      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                  B        3.60      0.30      1.00    60
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C        0.10      0.25      1.00    75
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       75.10      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C       28.10      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =  177.70      SUBAREA RUNOFF(CFS) =  378.26
  EFFECTIVE AREA(ACRES) =    518.00   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    518.00       PEAK FLOW RATE(CFS) =    1102.10

****************************************************************************
  FLOW PROCESS FROM NODE   3133.00 TO NODE   3134.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  22.16
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.636
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                  C        1.50      0.25      1.00    73
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    1.50      SUBAREA RUNOFF(CFS) =    3.22
  EFFECTIVE AREA(ACRES) =    519.50   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    519.50       PEAK FLOW RATE(CFS) =    1105.32

****************************************************************************
  FLOW PROCESS FROM NODE   3134.00 TO NODE   3135.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    765.00  DOWNSTREAM(FEET) =    710.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2076.00   CHANNEL SLOPE =  0.0265
  CHANNEL BASE(FEET) =    7.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   7.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   1105.32
  FLOW VELOCITY(FEET/SEC.) =  13.51   FLOW DEPTH(FEET) =   6.20
  TRAVEL TIME(MIN.) =   2.56   Tc(MIN.) =  24.72
  LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3135.00 = 10028.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3134.00 TO NODE   3135.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  24.72
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.477
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        4.10      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B       39.20      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                  B        0.40      0.30      1.00    60
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       26.40      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        7.10      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   77.20      SUBAREA RUNOFF(CFS) =  152.76
  EFFECTIVE AREA(ACRES) =    596.70   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    596.70       PEAK FLOW RATE(CFS) =    1183.64

****************************************************************************
  FLOW PROCESS FROM NODE   3135.00 TO NODE   3135.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  24.72
  RAINFALL INTENSITY(INCH/HR) =   2.48
  AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =   596.70
  TOTAL STREAM AREA(ACRES) =   596.70
  PEAK FLOW RATE(CFS) AT CONFLUENCE =   1183.64

  ** CONFLUENCE DATA **
   STREAM     Q      Tc   Intensity   Fp(Fm)     Ap   Ae     HEADWATER
   NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)       (ACRES)    NODE
      1    665.26  30.28    2.209  0.26( 0.24) 0.92   375.9    3100.00
      2   1183.64  24.72    2.477  0.27( 0.27) 1.00   596.7    3120.00

  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   1800.61  24.72    2.477  0.27( 0.26) 0.97   903.6    3120.00
      2   1705.26  30.28    2.209  0.27( 0.26) 0.97   972.6    3100.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =   1800.61    Tc(MIN.) =    24.72
```

```
 EFFECTIVE AREA(ACRES) =   903.57   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =    972.60
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3135.00 = 12504.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3135.00 TO NODE   3136.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    710.00  DOWNSTREAM(FEET) =    690.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1157.00   CHANNEL SLOPE =  0.0173
 CHANNEL BASE(FEET) =    9.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   9.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   1800.61
 FLOW VELOCITY(FEET/SEC.) =  13.00   FLOW DEPTH(FEET) =   8.10
 TRAVEL TIME(MIN.) =   1.48   Tc(MIN.) =  26.20
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3136.00 = 13661.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3135.00 TO NODE   3136.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  26.20
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.397
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B        6.80      0.30       0.50    56
 NATURAL FAIR COVER
 "OPEN BRUSH"               B        3.20      0.30       1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          B       28.90      0.30       1.00    69
 NATURAL FAIR COVER
 "WOODLAND"                 B        0.40      0.30       1.00    60
 NATURAL FAIR COVER
 "OPEN BRUSH"               C        4.50      0.25       1.00    77
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       D        2.90      0.20       0.50    75
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.29
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.90
 SUBAREA AREA(ACRES) =   46.70      SUBAREA RUNOFF(CFS) =   89.80
 EFFECTIVE AREA(ACRES) =    950.27   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =   1019.30       PEAK FLOW RATE(CFS) =    1825.86

****************************************************************************
 FLOW PROCESS FROM NODE   3135.00 TO NODE   3136.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  26.20
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.397
 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"               D       11.70      0.20       1.00    83
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          D        9.10      0.20       1.00    84
 NATURAL FAIR COVER
 "WOODLAND"                 D        0.20      0.20       1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   21.00      SUBAREA RUNOFF(CFS) =   41.53
 EFFECTIVE AREA(ACRES) =    971.27   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =   1040.30       PEAK FLOW RATE(CFS) =    1867.40

****************************************************************************
 FLOW PROCESS FROM NODE   3136.00 TO NODE   3137.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    690.00  DOWNSTREAM(FEET) =    685.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   609.00   CHANNEL SLOPE =  0.0082
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   1867.40
 FLOW VELOCITY(FEET/SEC.) =   9.92   FLOW DEPTH(FEET) =   9.60
 TRAVEL TIME(MIN.) =   1.02   Tc(MIN.) =  27.22
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3137.00 = 14270.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3136.00 TO NODE   3137.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  27.22
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.344
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B        5.80      0.30       0.50    56
 NATURAL FAIR COVER
 "GRASS"                    B        0.40      0.30       1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"               B        3.80      0.30       1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          B       32.50      0.30       1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"               C       29.80      0.25       1.00    77
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          C        3.60      0.25       1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.96
 SUBAREA AREA(ACRES) =   75.90      SUBAREA RUNOFF(CFS) =  141.93
 EFFECTIVE AREA(ACRES) =   1047.17   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =   1116.20       PEAK FLOW RATE(CFS) =    1962.84

****************************************************************************
 FLOW PROCESS FROM NODE   3136.00 TO NODE   3137.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  27.22
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.344
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       D        0.40      0.20       0.50    75
 NATURAL FAIR COVER
 "GRASS"                    D        0.40      0.20       1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"               D       10.30      0.20       1.00    83
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          D       11.00      0.20       1.00    84
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 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.99
 SUBAREA AREA(ACRES) =   22.10      SUBAREA RUNOFF(CFS) =   42.69
 EFFECTIVE AREA(ACRES) =   1069.27   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =   1138.30       PEAK FLOW RATE(CFS) =    2005.52

****************************************************************************
 FLOW PROCESS FROM NODE   3137.00 TO NODE   3138.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    685.00  DOWNSTREAM(FEET) =    675.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   740.00   CHANNEL SLOPE =  0.0135
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   2005.52
 FLOW VELOCITY(FEET/SEC.) =  12.17   FLOW DEPTH(FEET) =   8.78
 TRAVEL TIME(MIN.) =   1.01   Tc(MIN.) =  28.24
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3138.00 = 15010.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3137.00 TO NODE   3138.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  28.24
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.298
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B       20.70      0.30      0.50    56
 NATURAL FAIR COVER
 "OPEN BRUSH"               B        1.50      0.30      1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          B        6.20      0.30      1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"               C        0.40      0.25      1.00    77
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       D       11.70      0.20      0.50    75
 NATURAL FAIR COVER
 "GRASS"                    D        2.10      0.20      1.00    84
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.62
 SUBAREA AREA(ACRES) =   42.60      SUBAREA RUNOFF(CFS) =   81.69
 EFFECTIVE AREA(ACRES) =   1111.87   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   1180.90       PEAK FLOW RATE(CFS) =    2042.18

****************************************************************************
 FLOW PROCESS FROM NODE   3137.00 TO NODE   3138.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  28.24
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.298
 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"               D       12.40      0.20      1.00    83
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          D        3.30      0.20      1.00    84
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   15.70      SUBAREA RUNOFF(CFS) =   29.64
 EFFECTIVE AREA(ACRES) =   1127.57   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   1196.60       PEAK FLOW RATE(CFS) =    2071.82

****************************************************************************
 FLOW PROCESS FROM NODE   3138.00 TO NODE   3139.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    675.00  DOWNSTREAM(FEET) =    655.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   977.00   CHANNEL SLOPE =  0.0205
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   2071.82
 FLOW VELOCITY(FEET/SEC.) =  14.33   FLOW DEPTH(FEET) =   8.02
 TRAVEL TIME(MIN.) =   1.14   Tc(MIN.) =  29.37
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3139.00 = 15987.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3138.00 TO NODE   3139.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  29.37
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.248
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      B        0.40      0.30      1.00    63
 AGRICULTURAL POOR COVER
 "FALLOW"                   B        8.60      0.30      1.00    86
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B        1.00      0.30      0.50    56
 NATURAL FAIR COVER
 "OPEN BRUSH"               B        9.70      0.30      1.00    66
 COMMERCIAL                 B        5.60      0.30      0.10    56
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          B       12.10      0.30      1.00    69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.85
 SUBAREA AREA(ACRES) =   37.40      SUBAREA RUNOFF(CFS) =   67.05
 EFFECTIVE AREA(ACRES) =   1164.97   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.95
 TOTAL AREA(ACRES) =   1234.00       PEAK FLOW RATE(CFS) =    2088.12

****************************************************************************
 FLOW PROCESS FROM NODE   3138.00 TO NODE   3139.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  29.37
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.248
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "WOODLAND"                 B        0.20      0.30      1.00    60
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      C        5.40      0.25      1.00    75
 AGRICULTURAL POOR COVER
 "FALLOW"                   C        1.30      0.25      1.00    91
 NATURAL POOR COVER
 "BARREN"                   C        4.00      0.25      1.00    91
 NATURAL FAIR COVER
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"OPEN BRUSH"                C       20.10      0.25      1.00    77
COMMERCIAL                  C        2.70      0.25      0.10    69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.93
SUBAREA AREA(ACRES) =   33.70      SUBAREA RUNOFF(CFS) =   61.12
EFFECTIVE AREA(ACRES) =   1198.67   AREA-AVERAGED Fm(INCH/HR) =  0.26
AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.95
TOTAL AREA(ACRES) =   1267.70       PEAK FLOW RATE(CFS) =    2149.24

****************************************************************************
FLOW PROCESS FROM NODE   3138.00 TO NODE   3139.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  29.37
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.248
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"           C        1.10      0.25      1.00    79
NATURAL FAIR COVER
"WOODLAND"                  C        2.80      0.25      1.00    73
AGRICULTURAL POOR COVER
"FALLOW"                    D        2.20      0.20      1.00    94
NATURAL FAIR COVER
"GRASS"                     D        1.90      0.20      1.00    84
NATURAL FAIR COVER
"OPEN BRUSH"                D       17.50      0.20      1.00    83
COMMERCIAL                  D        2.00      0.20      0.10    75
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.93
SUBAREA AREA(ACRES) =   27.50      SUBAREA RUNOFF(CFS) =   50.82
EFFECTIVE AREA(ACRES) =   1226.17   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.95
TOTAL AREA(ACRES) =   1295.20       PEAK FLOW RATE(CFS) =    2200.07

****************************************************************************
FLOW PROCESS FROM NODE   3138.00 TO NODE   3139.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  29.37
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.248
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"           D        1.40      0.20      1.00    84
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =    1.40      SUBAREA RUNOFF(CFS) =    2.58
EFFECTIVE AREA(ACRES) =   1227.57   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.95
TOTAL AREA(ACRES) =   1296.60       PEAK FLOW RATE(CFS) =    2202.65

****************************************************************************
FLOW PROCESS FROM NODE   3139.00 TO NODE   3140.00 IS CODE =  51
----------------------------------------------------------------------------
>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =    655.00  DOWNSTREAM(FEET) =    640.00
CHANNEL LENGTH THRU SUBAREA(FEET) =   701.00   CHANNEL SLOPE =  0.0214
CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   1.000
MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
CHANNEL FLOW THRU SUBAREA(CFS) =   2202.65
FLOW VELOCITY(FEET/SEC.) =  14.79   FLOW DEPTH(FEET) =   8.19
TRAVEL TIME(MIN.) =   0.79   Tc(MIN.) =  30.16
LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3140.00 = 16688.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE   3139.00 TO NODE   3140.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  30.16
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.214
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
AGRICULTURAL POOR COVER
"FALLOW"                    B       26.00      0.30      1.00    86
NATURAL FAIR COVER
"OPEN BRUSH"                B        5.80      0.30      1.00    66
NATURAL GOOD COVER
"MEADOWS"                   B        0.90      0.30      1.00    58
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"           B        1.00      0.30      1.00    69
NATURAL FAIR COVER
"WOODLAND"                  B        2.80      0.30      1.00    60
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"       C        1.80      0.25      1.00    75
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =   38.30      SUBAREA RUNOFF(CFS) =   66.05
EFFECTIVE AREA(ACRES) =   1265.87   AREA-AVERAGED Fm(INCH/HR) =  0.26
AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.95
TOTAL AREA(ACRES) =   1334.90       PEAK FLOW RATE(CFS) =    2231.38

****************************************************************************
FLOW PROCESS FROM NODE   3139.00 TO NODE   3140.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  30.16
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.214
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
AGRICULTURAL POOR COVER
"FALLOW"                    C        5.60      0.25      1.00    91
NATURAL FAIR COVER
"OPEN BRUSH"                C       28.50      0.25      1.00    77
NATURAL GOOD COVER
"MEADOWS"                   C        0.20      0.25      1.00    71
NATURAL FAIR COVER
"WOODLAND"                  C        1.80      0.25      1.00    73
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"       D        0.10      0.20      1.00    81
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"           D        0.20      0.20      1.00    84
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =   36.40      SUBAREA RUNOFF(CFS) =   64.35
EFFECTIVE AREA(ACRES) =   1302.27   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.95
TOTAL AREA(ACRES) =   1371.30       PEAK FLOW RATE(CFS) =    2295.73

****************************************************************************
FLOW PROCESS FROM NODE   3140.00 TO NODE   3141.00 IS CODE =  51
----------------------------------------------------------------------------
>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
```

```
 ELEVATION DATA: UPSTREAM(FEET) =    640.00  DOWNSTREAM(FEET) =    620.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   903.00   CHANNEL SLOPE =  0.0221
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   2295.73
 FLOW VELOCITY(FEET/SEC.) =  15.15   FLOW DEPTH(FEET) =   8.29
 TRAVEL TIME(MIN.) =   0.99   Tc(MIN.) =  31.16
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3141.00 = 17591.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3140.00 TO NODE   3141.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  31.16
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.176
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL POOR COVER
 "FALLOW"                    B       38.40      0.30       1.00    86
 NATURAL FAIR COVER
 "GRASS"                     B        0.20      0.30       1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        3.70      0.30       1.00    66
 COMMERCIAL                  B        0.60      0.30       0.10    56
 NATURAL FAIR COVER
 "WOODLAND"                  B        0.90      0.30       1.00    60
 AGRICULTURAL POOR COVER
 "FALLOW"                    C        0.80      0.25       1.00    91
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.99
 SUBAREA AREA(ACRES) =   44.60      SUBAREA RUNOFF(CFS) =   75.48
 EFFECTIVE AREA(ACRES) =   1346.87   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   1415.90       PEAK FLOW RATE(CFS) =    2326.95

****************************************************************************
 FLOW PROCESS FROM NODE   3140.00 TO NODE   3141.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  31.16
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.176
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       D        2.60      0.20       1.00    81
 AGRICULTURAL POOR COVER
 "FALLOW"                    D        8.90      0.20       1.00    94
 NATURAL POOR COVER
 "BARREN"                    D        0.60      0.20       1.00    93
 NATURAL FAIR COVER
 "GRASS"                     D        1.40      0.20       1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"                D       16.70      0.20       1.00    83
 COMMERCIAL                  D        0.70      0.20       0.10    75
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.98
 SUBAREA AREA(ACRES) =   30.90      SUBAREA RUNOFF(CFS) =   55.07
 EFFECTIVE AREA(ACRES) =   1377.77   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   1446.80       PEAK FLOW RATE(CFS) =    2382.02

****************************************************************************
```

```
 FLOW PROCESS FROM NODE   3141.00 TO NODE   3142.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    620.00  DOWNSTREAM(FEET) =    590.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1040.00   CHANNEL SLOPE =  0.0288
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   2382.02
 FLOW VELOCITY(FEET/SEC.) =  16.86   FLOW DEPTH(FEET) =   7.89
 TRAVEL TIME(MIN.) =   1.03   Tc(MIN.) =  32.19
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3142.00 = 18631.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3141.00 TO NODE   3142.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  32.19
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.137
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL POOR COVER
 "FALLOW"                    B       28.30      0.30       1.00    86
 NATURAL FAIR COVER
 "GRASS"                     B        0.70      0.30       1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        4.60      0.30       1.00    66
 NATURAL FAIR COVER
 "WOODLAND"                  B        2.80      0.30       1.00    60
 AGRICULTURAL POOR COVER
 "FALLOW"                    C       24.70      0.25       1.00    91
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       C        2.00      0.25       1.00    75
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   63.10      SUBAREA RUNOFF(CFS) =  105.52
 EFFECTIVE AREA(ACRES) =   1440.87   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   1509.90       PEAK FLOW RATE(CFS) =    2439.11

****************************************************************************
 FLOW PROCESS FROM NODE   3141.00 TO NODE   3142.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  32.19
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.137
 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       20.50      0.25       1.00    77
 NATURAL FAIR COVER
 "WOODLAND"                  C        2.60      0.25       1.00    73
 AGRICULTURAL POOR COVER
 "FALLOW"                    D        1.80      0.20       1.00    94
 NATURAL FAIR COVER
 "OPEN BRUSH"                D        1.00      0.20       1.00    83
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   25.90      SUBAREA RUNOFF(CFS) =   44.11
 EFFECTIVE AREA(ACRES) =   1466.77   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   1535.80       PEAK FLOW RATE(CFS) =    2483.22
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   3142.00 TO NODE   3143.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    590.00  DOWNSTREAM(FEET) =    560.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1232.00   CHANNEL SLOPE =  0.0244
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   2483.22
  FLOW VELOCITY(FEET/SEC.) =  16.01   FLOW DEPTH(FEET) =   8.42
  TRAVEL TIME(MIN.) =   1.28   Tc(MIN.) =  33.47
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3143.00 = 19863.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3142.00 TO NODE   3143.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  33.47
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.088
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   B       27.30      0.30       1.00    86
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        4.90      0.30       1.00    66
  NATURAL FAIR COVER
  "WOODLAND"                 B        2.60      0.30       1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                   C        5.80      0.25       1.00    91
  NATURAL FAIR COVER
  "GRASS"                    C        2.60      0.25       1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       11.40      0.25       1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   54.60      SUBAREA RUNOFF(CFS) =   88.76
  EFFECTIVE AREA(ACRES) =   1521.37   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1590.40       PEAK FLOW RATE(CFS) =    2507.65

****************************************************************************
  FLOW PROCESS FROM NODE   3142.00 TO NODE   3143.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  33.47
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.088
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                 C        0.50      0.25       1.00    73
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      D        1.10      0.20       1.00    81
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        3.20      0.20       1.00    94
  NATURAL FAIR COVER
  "OPEN BRUSH"               D       32.70      0.20       1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   37.50      SUBAREA RUNOFF(CFS) =   63.70
  EFFECTIVE AREA(ACRES) =   1558.87   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1627.90       PEAK FLOW RATE(CFS) =    2571.35

****************************************************************************
  FLOW PROCESS FROM NODE   3143.00 TO NODE   3144.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    560.00  DOWNSTREAM(FEET) =    555.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   394.00   CHANNEL SLOPE =  0.0127
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   2571.35
  FLOW VELOCITY(FEET/SEC.) =  12.55   FLOW DEPTH(FEET) =   8.66
  TRAVEL TIME(MIN.) =   0.52   Tc(MIN.) =  33.99
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3144.00 = 20257.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3143.00 TO NODE   3144.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  33.99
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.068
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   B       28.70      0.30       1.00    86
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        2.40      0.30       1.00    66
  NATURAL GOOD COVER
  "MEADOWS"                  B        0.30      0.30       1.00    58
  NATURAL FAIR COVER
  "WOODLAND"                 B        0.60      0.30       1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                   C        1.20      0.25       1.00    91
  NATURAL FAIR COVER
  "GRASS"                    C        0.80      0.25       1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   34.00      SUBAREA RUNOFF(CFS) =   54.20
  EFFECTIVE AREA(ACRES) =   1592.87   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1661.90       PEAK FLOW RATE(CFS) =    2597.64

****************************************************************************
  FLOW PROCESS FROM NODE   3143.00 TO NODE   3144.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  33.99
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.068
  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        6.00      0.25       1.00    77
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        2.90      0.20       1.00    94
  NATURAL FAIR COVER
  "OPEN BRUSH"               D        6.20      0.20       1.00    83
  NATURAL GOOD COVER
  "MEADOWS"                  D        0.20      0.20       1.00    78
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
```

```
  SUBAREA AREA(ACRES) =   15.30      SUBAREA RUNOFF(CFS) =   25.46
  EFFECTIVE AREA(ACRES) =   1608.17   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1677.20       PEAK FLOW RATE(CFS) =    2623.10

****************************************************************************
  FLOW PROCESS FROM NODE   3144.00 TO NODE   3145.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    555.00  DOWNSTREAM(FEET) =    540.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   504.00   CHANNEL SLOPE =  0.0298
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   2623.10
  FLOW VELOCITY(FEET/SEC.) =  17.21   FLOW DEPTH(FEET) =   6.95
  TRAVEL TIME(MIN.) =   0.49   Tc(MIN.) =  34.48
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3145.00 = 20761.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3144.00 TO NODE   3145.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  34.48
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.050
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      B         0.40      0.30      1.00    63
  AGRICULTURAL POOR COVER
  "FALLOW"                   B        17.20      0.30      1.00    86
  NATURAL FAIR COVER
  "OPEN BRUSH"               B         5.10      0.30      1.00    66
  NATURAL GOOD COVER
  "MEADOWS"                  B         0.30      0.30      1.00    58
  NATURAL FAIR COVER
  "WOODLAND"                 B         2.00      0.30      1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                   C         1.30      0.25      1.00    91
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   26.30      SUBAREA RUNOFF(CFS) =   41.47
  EFFECTIVE AREA(ACRES) =   1634.47   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1703.50       PEAK FLOW RATE(CFS) =    2637.73

****************************************************************************
  FLOW PROCESS FROM NODE   3144.00 TO NODE   3145.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  34.48
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.050
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    C         0.40      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C         7.40      0.25      1.00    77
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      D        47.10      0.20      1.00    81
  AGRICULTURAL POOR COVER
  "FALLOW"                   D         5.40      0.20      1.00    94
  NATURAL FAIR COVER
  "GRASS"                    D         0.30      0.20      1.00    84
  NATURAL FAIR COVER
  "WOODLAND"                 D         0.90      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   61.50      SUBAREA RUNOFF(CFS) =  102.03
  EFFECTIVE AREA(ACRES) =   1695.97   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1765.00       PEAK FLOW RATE(CFS) =    2739.76

****************************************************************************
  FLOW PROCESS FROM NODE   3145.00 TO NODE   3146.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    540.00  DOWNSTREAM(FEET) =    500.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1156.00   CHANNEL SLOPE =  0.0346
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   2739.76
  FLOW VELOCITY(FEET/SEC.) =  18.39   FLOW DEPTH(FEET) =   6.83
  TRAVEL TIME(MIN.) =   1.05   Tc(MIN.) =  35.53
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3146.00 = 21917.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3145.00 TO NODE   3146.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  35.53
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.014
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   B        25.90      0.30      1.00    86
  NATURAL FAIR COVER
  "OPEN BRUSH"               B         1.70      0.30      1.00    66
  NATURAL FAIR COVER
  "WOODLAND"                 B         0.50      0.30      1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                   C        10.80      0.25      1.00    91
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      C         3.50      0.25      1.00    75
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        17.40      0.25      1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   59.80      SUBAREA RUNOFF(CFS) =   93.68
  EFFECTIVE AREA(ACRES) =   1755.77   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   1824.80       PEAK FLOW RATE(CFS) =    2779.13

****************************************************************************
  FLOW PROCESS FROM NODE   3145.00 TO NODE   3146.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  35.53
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.014
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        17.60      0.20      1.00    94
```

```
  NATURAL FAIR COVER
  "OPEN BRUSH"                D        7.00      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                  D        1.10      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   25.70      SUBAREA RUNOFF(CFS) =   41.96
  EFFECTIVE AREA(ACRES) =   1781.47   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   1850.50       PEAK FLOW RATE(CFS) =    2821.09

****************************************************************************
  FLOW PROCESS FROM NODE   3146.00 TO NODE   3147.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    500.00  DOWNSTREAM(FEET) =    484.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   399.00   CHANNEL SLOPE =  0.0401
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   2821.09
  FLOW VELOCITY(FEET/SEC.) =  19.57   FLOW DEPTH(FEET) =   6.66
  TRAVEL TIME(MIN.) =   0.34   Tc(MIN.) =  35.87
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3147.00 = 22316.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3146.00 TO NODE   3147.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  35.87
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.004
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        9.50      0.30      1.00    86
  NATURAL FAIR COVER
  "OPEN BRUSH"                B       10.90      0.30      1.00    66
  NATURAL FAIR COVER
  "WOODLAND"                  B        1.20      0.30      1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                    C        5.00      0.25      1.00    91
  NATURAL FAIR COVER
  "OPEN BRUSH"                C        5.40      0.25      1.00    77
  NATURAL FAIR COVER
  "WOODLAND"                  C        0.40      0.25      1.00    73
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   32.40      SUBAREA RUNOFF(CFS) =   50.17
  EFFECTIVE AREA(ACRES) =   1813.87   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   1882.90       PEAK FLOW RATE(CFS) =    2854.92

****************************************************************************
  FLOW PROCESS FROM NODE   3146.00 TO NODE   3147.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  35.87
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.004
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       D       10.50      0.20      1.00    81
```

```
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        8.30      0.20      1.00    94
  NATURAL FAIR COVER
  "OPEN BRUSH"                D       43.50      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                  D        5.00      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   67.30      SUBAREA RUNOFF(CFS) =  109.27
  EFFECTIVE AREA(ACRES) =   1881.17   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   1950.20       PEAK FLOW RATE(CFS) =    2964.18

****************************************************************************
  FLOW PROCESS FROM NODE   3147.00 TO NODE   3148.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    484.00  DOWNSTREAM(FEET) =    460.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1058.00   CHANNEL SLOPE =  0.0227
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   2964.18
  FLOW VELOCITY(FEET/SEC.) =  16.11   FLOW DEPTH(FEET) =   8.00
  TRAVEL TIME(MIN.) =   1.09   Tc(MIN.) =  36.96
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3148.00 = 23374.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3147.00 TO NODE   3148.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  36.96
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.971
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        3.50      0.30      1.00    86
  NATURAL FAIR COVER
  "WOODLAND"                  B        1.60      0.30      1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                    C        0.80      0.25      1.00    91
  NATURAL FAIR COVER
  "OPEN BRUSH"                C        3.90      0.25      1.00    77
  NATURAL FAIR COVER
  "WOODLAND"                  C        1.80      0.25      1.00    73
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        0.10      0.20      1.00    94
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   11.70      SUBAREA RUNOFF(CFS) =   17.90
  EFFECTIVE AREA(ACRES) =   1892.87   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   1961.90       PEAK FLOW RATE(CFS) =    2964.18
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   3147.00 TO NODE   3148.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  36.96
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.971
  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"                D        0.60      0.20       1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                  D        3.50      0.20       1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    4.10      SUBAREA RUNOFF(CFS) =    6.54
  EFFECTIVE AREA(ACRES) =   1896.97   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   1966.00       PEAK FLOW RATE(CFS) =    2964.18
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   3148.00 TO NODE   3149.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    460.00  DOWNSTREAM(FEET) =    440.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1137.00   CHANNEL SLOPE =  0.0176
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   2964.18
  FLOW VELOCITY(FEET/SEC.) =  14.69   FLOW DEPTH(FEET) =   8.56
  TRAVEL TIME(MIN.) =   1.29   Tc(MIN.) =  38.25
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3149.00 = 24511.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3148.00 TO NODE   3149.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  38.25
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.932
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)   (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B       31.10      0.30       1.00    86
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        7.00      0.30       1.00    66
  NATURAL FAIR COVER
  "CHAPARRAL,NARROWLEAF"      B        1.60      0.30       1.00    72
  NATURAL FAIR COVER
  "WOODLAND"                  B        2.50      0.30       1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                    C        6.10      0.25       1.00    91
  NATURAL FAIR COVER
  "OPEN BRUSH"                C        4.60      0.25       1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.29
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   52.90      SUBAREA RUNOFF(CFS) =   78.20
  EFFECTIVE AREA(ACRES) =   1949.87   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2018.90       PEAK FLOW RATE(CFS) =    2964.18
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   3148.00 TO NODE   3149.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  38.25
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.932
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
```

```
       LAND USE             GROUP   (ACRES)   (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    D       15.20      0.20       1.00    94
  NATURAL FAIR COVER
  "GRASS"                     D       21.30      0.20       1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"                D       41.50      0.20       1.00    83
  NATURAL GOOD COVER
  "MEADOWS"                   D        0.40      0.20       1.00    78
  NATURAL FAIR COVER
  "CHAPARRAL,NARROWLEAF"      D        9.10      0.20       1.00    86
  NATURAL FAIR COVER
  "WOODLAND"                  D        2.00      0.20       1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   89.50      SUBAREA RUNOFF(CFS) =  139.55
  EFFECTIVE AREA(ACRES) =   2039.37   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2108.40       PEAK FLOW RATE(CFS) =    3084.70

****************************************************************************
  FLOW PROCESS FROM NODE   3149.00 TO NODE   3150.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    440.00  DOWNSTREAM(FEET) =    420.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   579.00   CHANNEL SLOPE =  0.0345
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   3084.70
  FLOW VELOCITY(FEET/SEC.) =  18.99   FLOW DEPTH(FEET) =   7.29
  TRAVEL TIME(MIN.) =   0.51   Tc(MIN.) =  38.76
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3150.00 = 25090.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3149.00 TO NODE   3150.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  38.76
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.917
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)   (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B       20.70      0.30       1.00    86
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       B        0.40      0.30       1.00    63
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        2.70      0.30       1.00    66
  NATURAL FAIR COVER
  "WOODLAND"                  B        2.50      0.30       1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                    C       17.20      0.25       1.00    91
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C       13.40      0.25       1.00    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   56.90      SUBAREA RUNOFF(CFS) =   84.19
  EFFECTIVE AREA(ACRES) =   2096.27   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2165.30       PEAK FLOW RATE(CFS) =    3140.90

****************************************************************************
  FLOW PROCESS FROM NODE   3149.00 TO NODE   3150.00 IS CODE =  81
----------------------------------------------------------------------------
```

```
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN) =  38.76
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.917
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                     C        5.30      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       96.30      0.25      1.00    77
  NATURAL FAIR COVER
  "WOODLAND"                  C        5.30      0.25      1.00    73
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        0.70      0.20      1.00    94
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       D        1.30      0.20      1.00    81
  NATURAL FAIR COVER
  "GRASS"                     D        8.50      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =  117.40      SUBAREA RUNOFF(CFS) =  176.63
  EFFECTIVE AREA(ACRES) =   2213.67   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2282.70       PEAK FLOW RATE(CFS) =    3317.53

********************************************************************************
  FLOW PROCESS FROM NODE   3149.00 TO NODE   3150.00 IS CODE =  81
--------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN) =  38.76
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.917
  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"                D        6.70      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                  D        0.30      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    7.00      SUBAREA RUNOFF(CFS) =   10.82
  EFFECTIVE AREA(ACRES) =   2220.67   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2289.70       PEAK FLOW RATE(CFS) =    3328.35

********************************************************************************
  FLOW PROCESS FROM NODE   3150.00 TO NODE   3151.00 IS CODE =  51
--------------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    420.00  DOWNSTREAM(FEET) =    400.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1410.00   CHANNEL SLOPE =  0.0142
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   3328.35
  FLOW VELOCITY(FEET/SEC.) =  14.00   FLOW DEPTH(FEET) =   9.65
  TRAVEL TIME(MIN.) =   1.68   Tc(MIN.) =  40.44
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3151.00 = 26500.00 FEET.

********************************************************************************
  FLOW PROCESS FROM NODE   3150.00 TO NODE   3151.00 IS CODE =  81
--------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN) =  40.44
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.870
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B       19.60      0.30      1.00    86
  NATURAL GOOD COVER
  "MEADOWS"                   B        0.20      0.30      1.00    58
  NATURAL FAIR COVER
  "WOODLAND"                  B        3.30      0.30      1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                    C       18.00      0.25      1.00    91
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C        2.60      0.25      1.00    75
  NATURAL FAIR COVER
  "GRASS"                     C        2.10      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   45.80      SUBAREA RUNOFF(CFS) =   65.73
  EFFECTIVE AREA(ACRES) =   2266.47   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2335.50       PEAK FLOW RATE(CFS) =    3328.35
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

********************************************************************************
  FLOW PROCESS FROM NODE   3150.00 TO NODE   3151.00 IS CODE =  81
--------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN) =  40.44
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.870
  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       40.10      0.25      1.00    77
  NATURAL FAIR COVER
  "WOODLAND"                  C        6.10      0.25      1.00    73
  NATURAL FAIR COVER
  "GRASS"                     D        1.20      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"                D        3.30      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                  D        0.10      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   50.80      SUBAREA RUNOFF(CFS) =   74.27
  EFFECTIVE AREA(ACRES) =   2317.27   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2386.30       PEAK FLOW RATE(CFS) =    3373.83

********************************************************************************
  FLOW PROCESS FROM NODE   3151.00 TO NODE   3152.00 IS CODE =  51
--------------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    400.00  DOWNSTREAM(FEET) =    398.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   191.00   CHANNEL SLOPE =  0.0105
  CHANNEL BASE(FEET) =   20.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   3373.83
  FLOW VELOCITY(FEET/SEC.) =  12.39   FLOW DEPTH(FEET) =   9.30
  TRAVEL TIME(MIN.) =   0.26   Tc(MIN.) =  40.70
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3152.00 = 26691.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   3151.00 TO NODE   3152.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  40.70
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.864
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   B       17.20      0.30      1.00    86
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        1.60      0.30      1.00    66
  NATURAL FAIR COVER
  "WOODLAND"                 B        1.80      0.30      1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                   C       16.70      0.25      1.00    91
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      C        6.70      0.25      1.00    75
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       32.50      0.25      1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.26
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   76.50      SUBAREA RUNOFF(CFS) =  110.20
  EFFECTIVE AREA(ACRES) =   2393.77   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2462.80       PEAK FLOW RATE(CFS) =    3471.70

****************************************************************************
  FLOW PROCESS FROM NODE   3152.00 TO NODE   3153.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    398.00  DOWNSTREAM(FEET) =    396.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   231.00   CHANNEL SLOPE =  0.0087
  CHANNEL BASE(FEET) =   20.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   3471.70
  FLOW VELOCITY(FEET/SEC.) =  11.66   FLOW DEPTH(FEET) =   9.95
  TRAVEL TIME(MIN.) =   0.33   Tc(MIN.) =  41.03
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3153.00 = 26922.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3152.00 TO NODE   3153.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  41.03
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.856
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   B        3.60      0.30      1.00    86
  NATURAL FAIR COVER
  "WOODLAND"                 B        0.40      0.30      1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                   C       49.10      0.25      1.00    91
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      C        3.30      0.25      1.00    75
  NATURAL FAIR COVER
  "GRASS"                    C        3.50      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       11.70      0.25      1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   71.60      SUBAREA RUNOFF(CFS) =  103.33
  EFFECTIVE AREA(ACRES) =   2465.37   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =   2534.40       PEAK FLOW RATE(CFS) =    3558.66

****************************************************************************
  FLOW PROCESS FROM NODE   3152.00 TO NODE   3153.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  41.03
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.856
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                 C        0.40      0.25      1.00    73
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        8.00      0.20      1.00    94
  NATURAL FAIR COVER
  "OPEN BRUSH"               D        1.70      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                 D        0.40      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   10.50      SUBAREA RUNOFF(CFS) =   15.63
  EFFECTIVE AREA(ACRES) =   2475.87   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =   2544.90       PEAK FLOW RATE(CFS) =    3574.30

****************************************************************************
  FLOW PROCESS FROM NODE   3153.00 TO NODE   3154.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    396.00  DOWNSTREAM(FEET) =    385.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   894.00   CHANNEL SLOPE =  0.0123
  CHANNEL BASE(FEET) =   20.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   3574.30
  FLOW VELOCITY(FEET/SEC.) =  13.34   FLOW DEPTH(FEET) =   9.18
  TRAVEL TIME(MIN.) =   1.12   Tc(MIN.) =  42.14
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3154.00 = 27816.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3153.00 TO NODE   3154.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  42.14
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.831
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   B       17.20      0.30      1.00    86
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        0.40      0.30      1.00    66
  NATURAL FAIR COVER
  "WOODLAND"                 B        1.40      0.30      1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                   C        2.40      0.25      1.00    91
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        2.00      0.25      1.00    77
  AGRICULTURAL POOR COVER
```

```
"FALLOW"                  D        9.00      0.20      1.00    94
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =   32.40      SUBAREA RUNOFF(CFS) =   45.64
EFFECTIVE AREA(ACRES) =   2508.27   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
TOTAL AREA(ACRES) =   2577.30       PEAK FLOW RATE(CFS) =    3574.30
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
FLOW PROCESS FROM NODE   3153.00 TO NODE   3154.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  42.14
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.831
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"WOODLAND"                D        0.10      0.20      1.00    79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =    0.10      SUBAREA RUNOFF(CFS) =    0.15
EFFECTIVE AREA(ACRES) =   2508.37   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
TOTAL AREA(ACRES) =   2577.40       PEAK FLOW RATE(CFS) =    3574.30
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
FLOW PROCESS FROM NODE   3154.00 TO NODE   3155.00 IS CODE =  51
----------------------------------------------------------------------------
>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =    385.00  DOWNSTREAM(FEET) =    380.00
CHANNEL LENGTH THRU SUBAREA(FEET) =   712.00   CHANNEL SLOPE =  0.0070
CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
CHANNEL FLOW THRU SUBAREA(CFS) =   3574.30
FLOW VELOCITY(FEET/SEC.) =  10.72   FLOW DEPTH(FEET) =   9.63
TRAVEL TIME(MIN.) =   1.11   Tc(MIN.) =  43.25
LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3155.00 = 28528.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE   3154.00 TO NODE   3155.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  43.25
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.805
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
AGRICULTURAL POOR COVER
"FALLOW"                  B       30.70      0.30      1.00    86
NATURAL FAIR COVER
"GRASS"                   B        0.40      0.30      1.00    69
NATURAL FAIR COVER
"OPEN BRUSH"              B        4.90      0.30      1.00    66
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"         B       14.20      0.30      1.00    69
NATURAL FAIR COVER
"WOODLAND"                B        2.20      0.30      1.00    60
AGRICULTURAL POOR COVER
"FALLOW"                  C       24.50      0.25      1.00    91
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =   76.90      SUBAREA RUNOFF(CFS) =  105.28
EFFECTIVE AREA(ACRES) =   2585.27   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
TOTAL AREA(ACRES) =   2654.30       PEAK FLOW RATE(CFS) =    3610.63

****************************************************************************
FLOW PROCESS FROM NODE   3154.00 TO NODE   3155.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  43.25
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.805
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"     C        4.70      0.25      1.00    75
NATURAL POOR COVER
"BARREN"                  C        4.60      0.25      1.00    91
NATURAL FAIR COVER
"GRASS"                   C       18.80      0.25      1.00    79
NATURAL FAIR COVER
"OPEN BRUSH"              C       77.90      0.25      1.00    77
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"         C       17.20      0.25      1.00    79
NATURAL FAIR COVER
"WOODLAND"                C        1.30      0.25      1.00    73
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =  124.50      SUBAREA RUNOFF(CFS) =  174.26
EFFECTIVE AREA(ACRES) =   2709.77   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
TOTAL AREA(ACRES) =   2778.80       PEAK FLOW RATE(CFS) =    3784.90

****************************************************************************
FLOW PROCESS FROM NODE   3154.00 TO NODE   3155.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  43.25
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.805
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
AGRICULTURAL POOR COVER
"FALLOW"                  D        8.20      0.20      1.00    94
NATURAL FAIR COVER
"OPEN BRUSH"              D        1.50      0.20      1.00    83
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"         D       15.70      0.20      1.00    84
NATURAL FAIR COVER
"WOODLAND"                D        0.60      0.20      1.00    79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =   26.00      SUBAREA RUNOFF(CFS) =   37.56
EFFECTIVE AREA(ACRES) =   2735.77   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
TOTAL AREA(ACRES) =   2804.80       PEAK FLOW RATE(CFS) =    3822.46

****************************************************************************
FLOW PROCESS FROM NODE   3155.00 TO NODE   3156.00 IS CODE =  51
----------------------------------------------------------------------------
>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =    380.00  DOWNSTREAM(FEET) =    360.00
```

```
  CHANNEL LENGTH THRU SUBAREA(FEET) =   424.00   CHANNEL SLOPE =  0.0472
  CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   3822.46
  FLOW VELOCITY(FEET/SEC.) =  21.39   FLOW DEPTH(FEET) =   5.80
  TRAVEL TIME(MIN.) =   0.33   Tc(MIN.) =  43.58
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3156.00 = 28952.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3155.00 TO NODE   3156.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  43.58
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.798
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   B       15.40      0.30       1.00    86
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        2.20      0.30       1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          B       11.60      0.30       1.00    69
  AGRICULTURAL POOR COVER
  "FALLOW"                   C        3.60      0.25       1.00    91
  NATURAL FAIR COVER
  "GRASS"                    C        0.70      0.25       1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        1.90      0.25       1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.29
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   35.40      SUBAREA RUNOFF(CFS) =   47.99
  EFFECTIVE AREA(ACRES) =   2771.17   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =   2840.20       PEAK FLOW RATE(CFS) =    3851.74

****************************************************************************
  FLOW PROCESS FROM NODE   3155.00 TO NODE   3156.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  43.58
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.798
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          C        0.90      0.25       1.00    79
  AGRICULTURAL POOR COVER
  "FALLOW"                   D       12.50      0.20       1.00    94
  NATURAL FAIR COVER
  "OPEN BRUSH"               D        1.60      0.20       1.00    83
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          D       10.90      0.20       1.00    84
  NATURAL FAIR COVER
  "WOODLAND"                 D        0.60      0.20       1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   26.50      SUBAREA RUNOFF(CFS) =   38.06
  EFFECTIVE AREA(ACRES) =   2797.67   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =   2866.70       PEAK FLOW RATE(CFS) =    3889.81

****************************************************************************
  FLOW PROCESS FROM NODE   3156.00 TO NODE   3157.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    360.00  DOWNSTREAM(FEET) =    352.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   647.00   CHANNEL SLOPE =  0.0124
  CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   3889.81
  FLOW VELOCITY(FEET/SEC.) =  13.44   FLOW DEPTH(FEET) =   8.61
  TRAVEL TIME(MIN.) =   0.80   Tc(MIN.) =  44.38
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3157.00 = 29599.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3156.00 TO NODE   3157.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  44.38
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.779
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   B        7.70      0.30       1.00    86
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        1.10      0.30       1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          B       11.30      0.30       1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                 B        0.70      0.30       1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                   C        0.20      0.25       1.00    91
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        0.20      0.25       1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   21.20      SUBAREA RUNOFF(CFS) =   28.24
  EFFECTIVE AREA(ACRES) =   2818.87   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =   2887.90       PEAK FLOW RATE(CFS) =    3889.81
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   3156.00 TO NODE   3157.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  44.38
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.779
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        4.10      0.20       1.00    94
  NATURAL FAIR COVER
  "OPEN BRUSH"               D       10.60      0.20       1.00    83
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          D       28.50      0.20       1.00    84
  NATURAL FAIR COVER
  "WOODLAND"                 D        0.60      0.20       1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   43.80      SUBAREA RUNOFF(CFS) =   62.25
  EFFECTIVE AREA(ACRES) =   2862.67   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =   2931.70       PEAK FLOW RATE(CFS) =    3933.83
============================================================================
```

```
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =   2931.70  TC(MIN.) =     44.38
  EFFECTIVE AREA(ACRES) =   2862.67  AREA-AVERAGED Fm(INCH/HR)=  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
  PEAK FLOW RATE(CFS)   =   3933.83

  ** PEAK FLOW RATE TABLE **
   STREAM     Q      Tc   Intensity   Fp(Fm)      Ap   Ae      HEADWATER
   NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
      1   3933.83  44.38    1.779  0.26( 0.25) 0.98  2862.7    3120.00
      2   3677.66  50.26    1.646  0.26( 0.25) 0.98  2931.7    3100.00
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
 ************************************************************************
             RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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              Ver. 8.0  Release Date: 01/01/2003  License ID 1202

                           Analysis prepared by:

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                           Irvine, CA. 92602-1309
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  ************************** DESCRIPTION OF STUDY **************************
 * AREA 08 (EXISTING CONDITION)                                           *
 * 100-YEAR HIGH CONFIDENCE STORM EVENT                                   *
 * CHIQUITA                                                               *
  ************************************************************************

   FILE NAME: CE08100H.DAT
   TIME/DATE OF STUDY: 14:37 03/31/2004
 ========================================================================
   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) II ASSUMED FOR RATIONAL METHOD*

   *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
      HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
      WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
 NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
 ===  =====  =========  =================  ======  ===== ====== ===== =======
   1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

   GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
     1. Relative Flow-Depth =  0.00 FEET
        as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
     2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
   *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
    OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
   *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

   UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
     WATERSHED LAG = 0.80 * Tc
           S-GRAPH TYPE                  PERCENTAGE(DECIMAL)
         VALLEY(DEVELOPED)                    0.020
         FOOTHILL                             0.140
         MOUNTAIN                             0.620
         VALLEY(UNDEVELOPED)/DESERT           0.220
         DESERT(UNDEVELOPED)                  0.000
     SIERRA MADRE DEPTH-AREA FACTORS USED.
                     AREA-AVERAGED
         DURATION    RAINFALL(INCH)
         5-MINUTES         0.52
        30-MINUTES         1.09
         1-HOUR            1.45
         3-HOUR            2.43
         6-HOUR            3.36
        24-HOUR            5.63
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD*

 ************************************************************************
   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) =   326.00
   ELEVATION DATA: UPSTREAM(FEET) =    513.00  DOWNSTREAM(FEET) =    445.00

   Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
   SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.778
   * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.213
   SUBAREA Tc AND LOSS RATE DATA(AMC  II):
    DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
        LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
   AGRICULTURAL FAIR COVER
   "PASTURE,DRYLAND"          C        0.10      0.25       1.00    79    9.78
   AGRICULTURAL FAIR COVER
   "PASTURE,DRYLAND"          D        0.20      0.20       1.00    84    9.78
   SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
   SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
   SUBAREA RUNOFF(CFS) =      1.08
   TOTAL AREA(ACRES) =      0.30   PEAK FLOW RATE(CFS) =      1.08

 ************************************************************************
   FLOW PROCESS FROM NODE    801.00 TO NODE    802.00 IS CODE =  51
 ------------------------------------------------------------------------
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
 ========================================================================
   ELEVATION DATA: UPSTREAM(FEET) =    445.00  DOWNSTREAM(FEET) =    400.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   194.00   CHANNEL SLOPE =  0.2320
   CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
   MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
   CHANNEL FLOW THRU SUBAREA(CFS) =      1.08
   FLOW VELOCITY(FEET/SEC.) =   4.89   FLOW DEPTH(FEET) =   0.19
   TRAVEL TIME(MIN.) =   0.66   Tc(MIN.) =  10.44
   LONGEST FLOWPATH FROM NODE    800.00 TO NODE    802.00 =   520.00 FEET.

 ************************************************************************
   FLOW PROCESS FROM NODE    801.00 TO NODE    802.00 IS CODE =  81
 ------------------------------------------------------------------------
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 ========================================================================
   MAINLINE Tc(MIN) =  10.44
   * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.072
   SUBAREA LOSS RATE DATA(AMC  II):
    DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
        LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
   AGRICULTURAL FAIR COVER
   "PASTURE,DRYLAND"          C        0.10      0.25       1.00    79
   AGRICULTURAL FAIR COVER
   "PASTURE,DRYLAND"          D        0.10      0.20       1.00    84
   SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.23
   SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
   SUBAREA AREA(ACRES) =    0.20      SUBAREA RUNOFF(CFS) =    0.69
   EFFECTIVE AREA(ACRES) =      0.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
   AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
   TOTAL AREA(ACRES) =      0.50       PEAK FLOW RATE(CFS) =       1.73

 ************************************************************************
   FLOW PROCESS FROM NODE    802.00 TO NODE    803.00 IS CODE =  51
 ------------------------------------------------------------------------
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
 ========================================================================
```

```
  ELEVATION DATA: UPSTREAM(FEET) =    400.00  DOWNSTREAM(FEET) =    395.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    10.00   CHANNEL SLOPE =  0.5000
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      1.73
  FLOW VELOCITY(FEET/SEC.) =   7.42   FLOW DEPTH(FEET) =   0.20
  TRAVEL TIME(MIN.) =   0.02   Tc(MIN.) =  10.46
  LONGEST FLOWPATH FROM NODE    800.00 TO NODE    803.00 =   530.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    802.00 TO NODE    803.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  10.46
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.068
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          C        0.50      0.25      1.00    79
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          D        0.60      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    1.10      SUBAREA RUNOFF(CFS) =    3.81
  EFFECTIVE AREA(ACRES) =      1.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =      1.60       PEAK FLOW RATE(CFS) =       5.54

****************************************************************************
  FLOW PROCESS FROM NODE    803.00 TO NODE    804.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    395.00  DOWNSTREAM(FEET) =    390.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    94.00   CHANNEL SLOPE =  0.0532
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      5.54
  FLOW VELOCITY(FEET/SEC.) =   4.66   FLOW DEPTH(FEET) =   0.70
  TRAVEL TIME(MIN.) =   0.34   Tc(MIN.) =  10.80
  LONGEST FLOWPATH FROM NODE    800.00 TO NODE    804.00 =   624.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    803.00 TO NODE    804.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  10.80
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.001
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          C        0.20      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    0.20      SUBAREA RUNOFF(CFS) =    0.68
  EFFECTIVE AREA(ACRES) =      1.80   AREA-AVERAGED Fm(INCH/HR) =  0.23
  AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =      1.80       PEAK FLOW RATE(CFS) =       6.12

****************************************************************************
  FLOW PROCESS FROM NODE    804.00 TO NODE    805.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    390.00  DOWNSTREAM(FEET) =    385.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    30.00   CHANNEL SLOPE =  0.1667
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      6.12
  FLOW VELOCITY(FEET/SEC.) =   7.27   FLOW DEPTH(FEET) =   0.54
  TRAVEL TIME(MIN.) =   0.07   Tc(MIN.) =  10.87
  LONGEST FLOWPATH FROM NODE    800.00 TO NODE    805.00 =   654.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    804.00 TO NODE    805.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  10.87
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.987
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          C        0.90      0.25      1.00    79
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          D        1.10      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    2.00      SUBAREA RUNOFF(CFS) =    6.78
  EFFECTIVE AREA(ACRES) =      3.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =      3.80       PEAK FLOW RATE(CFS) =      12.87

****************************************************************************
  FLOW PROCESS FROM NODE    805.00 TO NODE    806.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    385.00  DOWNSTREAM(FEET) =    350.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   388.00   CHANNEL SLOPE =  0.0902
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     12.87
  FLOW VELOCITY(FEET/SEC.) =   7.02   FLOW DEPTH(FEET) =   0.94
  TRAVEL TIME(MIN.) =   0.92   Tc(MIN.) =  11.79
  LONGEST FLOWPATH FROM NODE    800.00 TO NODE    806.00 =  1042.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    805.00 TO NODE    806.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  11.79
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.803
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          C        2.40      0.25      1.00    79
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          D        1.40      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.23
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    3.80      SUBAREA RUNOFF(CFS) =   12.21
  EFFECTIVE AREA(ACRES) =      7.60   AREA-AVERAGED Fm(INCH/HR) =  0.23
  AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  1.00
```

```
  TOTAL AREA(ACRES) =      7.60       PEAK FLOW RATE(CFS) =      24.45

****************************************************************************
  FLOW PROCESS FROM NODE    806.00 TO NODE    807.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    350.00  DOWNSTREAM(FEET) =    280.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   815.00   CHANNEL SLOPE =  0.0859
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     24.45
  FLOW VELOCITY(FEET/SEC.) =   7.96   FLOW DEPTH(FEET) =   1.02
  TRAVEL TIME(MIN.) =   1.71   Tc(MIN.) =  13.49
  LONGEST FLOWPATH FROM NODE    800.00 TO NODE    807.00 =  1857.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    806.00 TO NODE    807.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  13.49
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.517
  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        1.10      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        0.30      0.25      1.00    79
  NATURAL FAIR COVER
  "WOODLAND"                  C        0.40      0.25      1.00    73
  NATURAL FAIR COVER
  "OPEN BRUSH"                D        0.40      0.20      1.00    83
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           D        4.80      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    7.00      SUBAREA RUNOFF(CFS) =   20.82
  EFFECTIVE AREA(ACRES) =     14.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     14.60       PEAK FLOW RATE(CFS) =      43.32

****************************************************************************
  FLOW PROCESS FROM NODE    807.00 TO NODE    808.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    280.00  DOWNSTREAM(FEET) =    250.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   387.00   CHANNEL SLOPE =  0.0775
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     43.32
  FLOW VELOCITY(FEET/SEC.) =   8.95   FLOW DEPTH(FEET) =   1.42
  TRAVEL TIME(MIN.) =   0.72   Tc(MIN.) =  14.21
  LONGEST FLOWPATH FROM NODE    800.00 TO NODE    808.00 =  2244.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    807.00 TO NODE    808.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  14.21
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.413
  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        0.70      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        2.60      0.25      1.00    79
  NATURAL FAIR COVER
  "WOODLAND"                  C        0.60      0.25      1.00    73
  NATURAL FAIR COVER
  "GRASS"                     D        0.10      0.20      1.00    84
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           D       11.00      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   15.00      SUBAREA RUNOFF(CFS) =   43.21
  EFFECTIVE AREA(ACRES) =     29.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     29.60       PEAK FLOW RATE(CFS) =      85.16

****************************************************************************
  FLOW PROCESS FROM NODE    808.00 TO NODE    809.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    250.00  DOWNSTREAM(FEET) =    195.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   615.00   CHANNEL SLOPE =  0.0894
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     85.16
  FLOW VELOCITY(FEET/SEC.) =  11.25   FLOW DEPTH(FEET) =   1.93
  TRAVEL TIME(MIN.) =   0.91   Tc(MIN.) =  15.12
  LONGEST FLOWPATH FROM NODE    800.00 TO NODE    809.00 =  2859.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    808.00 TO NODE    809.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  15.12
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.286
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                     A        0.40      0.40      1.00    50
  NATURAL FAIR COVER
  "OPEN BRUSH"                A        6.90      0.40      1.00    46
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           A        4.40      0.40      1.00    49
  NATURAL FAIR COVER
  "WOODLAND"                  A       12.00      0.40      1.00    36
  NATURAL FAIR COVER
  "GRASS"                     B        4.00      0.30      1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        1.40      0.30      1.00    66
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   29.10      SUBAREA RUNOFF(CFS) =   76.07
  EFFECTIVE AREA(ACRES) =     58.70   AREA-AVERAGED Fm(INCH/HR) =  0.30
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     58.70       PEAK FLOW RATE(CFS) =     157.84

****************************************************************************
  FLOW PROCESS FROM NODE    808.00 TO NODE    809.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
```

```
==========================================================================
  MAINLINE Tc(MIN) =  15.12
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.286
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          B       16.90      0.30       1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                 B        6.20      0.30       1.00    60
  NATURAL POOR COVER
  "BARREN"                   C        0.10      0.25       1.00    91
  NATURAL FAIR COVER
  "GRASS"                    C       82.60      0.25       1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       12.50      0.25       1.00    77
  COMMERCIAL                 C        5.20      0.25       0.10    69
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.26
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.96
  SUBAREA AREA(ACRES) =  123.50      SUBAREA RUNOFF(CFS) =  337.48
  EFFECTIVE AREA(ACRES) =    182.20   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =    182.20       PEAK FLOW RATE(CFS) =     495.32

****************************************************************************
  FLOW PROCESS FROM NODE    808.00 TO NODE    809.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  15.12
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.286
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          C        1.60      0.25       1.00    79
  NATURAL FAIR COVER
  "WOODLAND"                 C       49.50      0.25       1.00    73
  NATURAL FAIR COVER
  "GRASS"                    D        7.50      0.20       1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D       12.90      0.20       1.00    83
  PUBLIC PARK                D        0.10      0.20       0.85    75
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          D       18.90      0.20       1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.23
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   90.50      SUBAREA RUNOFF(CFS) =  249.07
  EFFECTIVE AREA(ACRES) =    272.70   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =    272.70       PEAK FLOW RATE(CFS) =     744.39

****************************************************************************
  FLOW PROCESS FROM NODE    808.00 TO NODE    809.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  15.12
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.286
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                 D       12.30      0.20       1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   12.30      SUBAREA RUNOFF(CFS) =   34.16
  EFFECTIVE AREA(ACRES) =    285.00   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =    285.00       PEAK FLOW RATE(CFS) =     778.56

****************************************************************************
  FLOW PROCESS FROM NODE    809.00 TO NODE    826.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    195.00  DOWNSTREAM(FEET) =    176.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  6031.00   CHANNEL SLOPE =  0.0032
  CHANNEL BASE(FEET) =   85.00   "Z" FACTOR =   2.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  15.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    778.56
  FLOW VELOCITY(FEET/SEC.) =   4.30   FLOW DEPTH(FEET) =   2.03
  TRAVEL TIME(MIN.) =  23.37   Tc(MIN.) =  38.49
  LONGEST FLOWPATH FROM NODE    800.00 TO NODE    826.00 =  8890.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    809.00 TO NODE    826.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  38.49
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.925
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "OPEN BRUSH"               A        0.90      0.40       1.00    46
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          A        0.10      0.40       1.00    49
  NATURAL FAIR COVER
  "WOODLAND"                 A        5.20      0.40       1.00    36
  NATURAL FAIR COVER
  "GRASS"                    B        5.70      0.30       1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        1.70      0.30       1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          B        1.40      0.30       1.00    69
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.34
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   15.00      SUBAREA RUNOFF(CFS) =   21.38
  EFFECTIVE AREA(ACRES) =    300.00   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =    300.00       PEAK FLOW RATE(CFS) =     778.56
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    809.00 TO NODE    826.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  38.49
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.925
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                 B       10.30      0.30       1.00    60
  NATURAL FAIR COVER
  "GRASS"                    C      143.70      0.25       1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       11.50      0.25       1.00    77
  COMMERCIAL                 C        2.90      0.25       0.10    69
  AGRICULTURAL FAIR COVER
```

```
"PASTURE,DRYLAND"          C        0.30      0.25      1.00    79
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"      C        0.90      0.25      1.00    75
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.98
SUBAREA AREA(ACRES) =  169.60      SUBAREA RUNOFF(CFS) =  255.83
EFFECTIVE AREA(ACRES) =    469.60   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
TOTAL AREA(ACRES) =    469.60       PEAK FLOW RATE(CFS) =     778.56
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
FLOW PROCESS FROM NODE    809.00 TO NODE    826.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  38.49
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.925
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"WOODLAND"                 C        8.30      0.25      1.00    73
NATURAL FAIR COVER
"GRASS"                    D       14.50      0.20      1.00    84
NATURAL FAIR COVER
"OPEN BRUSH"               D       22.20      0.20      1.00    83
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"          D        6.80      0.20      1.00    84
NATURAL FAIR COVER
"WOODLAND"                 D       19.00      0.20      1.00    79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =   70.80      SUBAREA RUNOFF(CFS) =  109.56
EFFECTIVE AREA(ACRES) =    540.40   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.99
TOTAL AREA(ACRES) =    540.40       PEAK FLOW RATE(CFS) =     816.25

****************************************************************************
FLOW PROCESS FROM NODE    826.00 TO NODE    826.00 IS CODE =  10
----------------------------------------------------------------------------
>>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
FLOW PROCESS FROM NODE   3157.00 TO NODE   3157.00 IS CODE = 15.1
----------------------------------------------------------------------------
>>>>>DEFINE MEMORY BANK # 2 <<<<<
============================================================================
PEAK FLOWRATE TABLE FILE NAME: CE31100H.DNA
MEMORY BANK #  2 DEFINED AS FOLLOWS:
 STREAM     Q      Tc      Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER   (CFS) (MIN.)   (INCH/HR)        (ACRES)     NODE
    1   3933.83  44.38  0.26( 0.25) 0.98  2862.7    3120.00
    2   3677.66  50.26  0.26( 0.25) 0.98  2931.7    3100.00
  TOTAL AREA(ACRES) =  2931.70
LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3157.00 = 29599.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE   3157.00 TO NODE   3157.00 IS CODE = 14.0
----------------------------------------------------------------------------
>>>>>MEMORY BANK #  2 COPIED ONTO MAIN-STREAM MEMORY<<<<<
============================================================================

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
 STREAM     Q      Tc      Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER   (CFS) (MIN.)   (INCH/HR)        (ACRES)     NODE
    1   3933.83  44.38  0.26( 0.25) 0.98  2862.7    3120.00
    2   3677.66  50.26  0.26( 0.25) 0.98  2931.7    3100.00
  TOTAL AREA(ACRES) =  2931.70
LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3157.00 = 29599.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE   3157.00 TO NODE   3157.00 IS CODE =  12
----------------------------------------------------------------------------
>>>>>CLEAR MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
FLOW PROCESS FROM NODE   3157.00 TO NODE    820.00 IS CODE =  51
----------------------------------------------------------------------------
>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =    352.00  DOWNSTREAM(FEET) =    310.00
CHANNEL LENGTH THRU SUBAREA(FEET) =  2262.00   CHANNEL SLOPE =  0.0186
CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
CHANNEL FLOW THRU SUBAREA(CFS) =   3933.83
FLOW VELOCITY(FEET/SEC.) =  15.56   FLOW DEPTH(FEET) =   7.72
TRAVEL TIME(MIN.) =   2.42   Tc(MIN.) =  46.81
LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    820.00 = 31861.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE   3157.00 TO NODE    820.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  46.81
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.723
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
AGRICULTURAL POOR COVER
"FALLOW"                   B       31.50      0.30      1.00    86
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"      B        0.90      0.30      1.00    63
NATURAL FAIR COVER
"GRASS"                    B        0.20      0.30      1.00    69
AGRICULTURAL FAIR COVER
"ORCHARDS"                 B        0.10      0.30      1.00    65
NATURAL FAIR COVER
"OPEN BRUSH"               B        0.40      0.30      1.00    66
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"          B        5.40      0.30      1.00    69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =   38.50      SUBAREA RUNOFF(CFS) =   49.32
EFFECTIVE AREA(ACRES) =   2901.17   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
TOTAL AREA(ACRES) =   2970.20       PEAK FLOW RATE(CFS) =    3933.83
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
FLOW PROCESS FROM NODE   3157.00 TO NODE    820.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  46.81
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.723
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
```

```
"WOODLAND"                B        0.20      0.30      1.00    60
AGRICULTURAL POOR COVER
"FALLOW"                  C        8.40      0.25      1.00    91
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"     C       19.40      0.25      1.00    75
NATURAL FAIR COVER
"GRASS"                   C        7.40      0.25      1.00    79
NATURAL FAIR COVER
"OPEN BRUSH"              C       39.90      0.25      1.00    77
AGRICULTURAL POOR COVER
"FALLOW"                  D        5.80      0.20      1.00    94
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =   81.10      SUBAREA RUNOFF(CFS) =  107.80
EFFECTIVE AREA(ACRES) =   2982.27   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
TOTAL AREA(ACRES) =   3051.30       PEAK FLOW RATE(CFS) =    3947.42

****************************************************************************
FLOW PROCESS FROM NODE   3157.00 TO NODE    820.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  46.81
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.723
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"GRASS"                   D        2.60      0.20      1.00    84
AGRICULTURAL FAIR COVER
"ORCHARDS"                D        0.80      0.20      1.00    82
NATURAL FAIR COVER
"OPEN BRUSH"              D        3.20      0.20      1.00    83
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"         D       21.70      0.20      1.00    84
NATURAL FAIR COVER
"WOODLAND"                D        4.60      0.20      1.00    79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =   32.90      SUBAREA RUNOFF(CFS) =   45.11
EFFECTIVE AREA(ACRES) =   3015.17   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
TOTAL AREA(ACRES) =   3084.20       PEAK FLOW RATE(CFS) =    3992.53

****************************************************************************
FLOW PROCESS FROM NODE    820.00 TO NODE    821.00 IS CODE =  51
----------------------------------------------------------------------------
>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =    310.00  DOWNSTREAM(FEET) =    300.00
CHANNEL LENGTH THRU SUBAREA(FEET) =   754.00   CHANNEL SLOPE =  0.0133
CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
CHANNEL FLOW THRU SUBAREA(CFS) =   3992.53
FLOW VELOCITY(FEET/SEC.) =  13.88   FLOW DEPTH(FEET) =   8.57
TRAVEL TIME(MIN.) =   0.91   Tc(MIN.) =  47.71
LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    821.00 = 32615.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    820.00 TO NODE    821.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  47.71
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.703
```

```
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
AGRICULTURAL POOR COVER
"FALLOW"                  B        1.90      0.30      1.00    86
NATURAL FAIR COVER
"GRASS"                   B        2.30      0.30      1.00    69
AGRICULTURAL FAIR COVER
"ORCHARDS"                B       16.80      0.30      1.00    65
NATURAL FAIR COVER
"OPEN BRUSH"              B        2.20      0.30      1.00    66
PUBLIC PARK               B        0.20      0.30      0.85    56
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"         B       23.70      0.30      1.00    69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =   47.10      SUBAREA RUNOFF(CFS) =   59.47
EFFECTIVE AREA(ACRES) =   3062.27   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
TOTAL AREA(ACRES) =   3131.30       PEAK FLOW RATE(CFS) =    3995.47

****************************************************************************
FLOW PROCESS FROM NODE    820.00 TO NODE    821.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  47.71
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.703
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
AGRICULTURAL POOR COVER
"FALLOW"                  C        0.40      0.25      1.00    91
AGRICULTURAL POOR COVER
"FALLOW"                  D        0.70      0.20      1.00    94
NATURAL FAIR COVER
"GRASS"                   D        2.90      0.20      1.00    84
AGRICULTURAL FAIR COVER
"ORCHARDS"                D        4.30      0.20      1.00    82
NATURAL FAIR COVER
"OPEN BRUSH"              D       38.30      0.20      1.00    83
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"         D       95.20      0.20      1.00    84
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =  141.80      SUBAREA RUNOFF(CFS) =  191.75
EFFECTIVE AREA(ACRES) =   3204.07   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
TOTAL AREA(ACRES) =   3273.10       PEAK FLOW RATE(CFS) =    4187.22

****************************************************************************
FLOW PROCESS FROM NODE    820.00 TO NODE    821.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  47.71
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.703
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"WOODLAND"                D        1.00      0.20      1.00    79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =    1.00      SUBAREA RUNOFF(CFS) =    1.35
EFFECTIVE AREA(ACRES) =   3205.07   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
```

```
 TOTAL AREA(ACRES) =   3274.10       PEAK FLOW RATE(CFS) =    4188.57

****************************************************************************
 FLOW PROCESS FROM NODE    821.00 TO NODE    822.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    300.00  DOWNSTREAM(FEET) =    270.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1631.00   CHANNEL SLOPE =  0.0184
 CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   4188.57
 FLOW VELOCITY(FEET/SEC.) =  15.81   FLOW DEPTH(FEET) =   8.02
 TRAVEL TIME(MIN.) =   1.72   Tc(MIN.) =  49.43
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    822.00 = 34246.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    821.00 TO NODE    822.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  49.43
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.663
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL POOR COVER
 "FALLOW"                   B       11.10      0.30      1.00    86
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      B        0.40      0.30      1.00    63
 NATURAL FAIR COVER
 "GRASS"                    B        4.20      0.30      1.00    69
 AGRICULTURAL FAIR COVER
 "ORCHARDS"                 B        5.60      0.30      1.00    65
 URBAN FAIR COVER
 "TURF"                     B        0.30      0.30      1.00    65
 NATURAL FAIR COVER
 "OPEN BRUSH"               B        1.10      0.30      1.00    66
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   22.70      SUBAREA RUNOFF(CFS) =   27.85
 EFFECTIVE AREA(ACRES) =   3227.77   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
 TOTAL AREA(ACRES) =   3296.80       PEAK FLOW RATE(CFS) =    4188.57
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    821.00 TO NODE    822.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  49.43
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.663
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL POOR COVER
 "FALLOW"                   C        5.30      0.25      1.00    91
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      C       20.20      0.25      1.00    75
 NATURAL FAIR COVER
 "GRASS"                    C       17.70      0.25      1.00    79
 AGRICULTURAL FAIR COVER
 "ORCHARDS"                 C        0.70      0.25      1.00    77
 NATURAL FAIR COVER
 "OPEN BRUSH"               C       41.60      0.25      1.00    77
 AGRICULTURAL POOR COVER
 "FALLOW"                   D        2.30      0.20      1.00    94
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   87.80      SUBAREA RUNOFF(CFS) =  111.77
 EFFECTIVE AREA(ACRES) =   3315.57   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
 TOTAL AREA(ACRES) =   3384.60       PEAK FLOW RATE(CFS) =    4214.10

****************************************************************************
 FLOW PROCESS FROM NODE    821.00 TO NODE    822.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  49.43
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.663
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      D        1.30      0.20      1.00    81
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       D        0.30      0.20      0.50    75
 NATURAL FAIR COVER
 "GRASS"                    D        5.40      0.20      1.00    84
 AGRICULTURAL FAIR COVER
 "ORCHARDS"                 D        0.20      0.20      1.00    82
 NATURAL FAIR COVER
 "OPEN BRUSH"               D        6.40      0.20      1.00    83
 NATURAL FAIR COVER
 "WOODLAND"                 D        4.00      0.20      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.99
 SUBAREA AREA(ACRES) =   17.60      SUBAREA RUNOFF(CFS) =   23.20
 EFFECTIVE AREA(ACRES) =   3333.17   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
 TOTAL AREA(ACRES) =   3402.20       PEAK FLOW RATE(CFS) =    4237.31

****************************************************************************
 FLOW PROCESS FROM NODE    822.00 TO NODE    823.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    270.00  DOWNSTREAM(FEET) =    255.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1203.00   CHANNEL SLOPE =  0.0125
 CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   4237.31
 FLOW VELOCITY(FEET/SEC.) =  13.81   FLOW DEPTH(FEET) =   9.02
 TRAVEL TIME(MIN.) =   1.45   Tc(MIN.) =  50.88
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    823.00 = 35449.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    822.00 TO NODE    823.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  50.88
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.636
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL POOR COVER
 "FALLOW"                   B        1.50      0.30      1.00    86
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B       17.80      0.30      0.50    56
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  NATURAL FAIR COVER
  "GRASS"                  B        9.60      0.30      1.00    69
  URBAN FAIR COVER
  "TURF"                   B        5.00      0.30      1.00    65
  NATURAL FAIR COVER
  "OPEN BRUSH"             B        3.80      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"        B       11.90      0.30      1.00    69
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.82
  SUBAREA AREA(ACRES) =   49.60      SUBAREA RUNOFF(CFS) =   62.04
  EFFECTIVE AREA(ACRES) =   3382.77   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =   3451.80       PEAK FLOW RATE(CFS) =    4237.31
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    822.00 TO NODE    823.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  50.88
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.636
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C        4.10      0.25      1.00    75
  NATURAL FAIR COVER
  "GRASS"                     C        8.90      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       18.20      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        5.70      0.25      1.00    79
  NATURAL FAIR COVER
  "WOODLAND"                  C        2.70      0.25      1.00    73
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        1.40      0.20      1.00    94
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   41.00      SUBAREA RUNOFF(CFS) =   51.20
  EFFECTIVE AREA(ACRES) =   3423.77   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =   3492.80       PEAK FLOW RATE(CFS) =    4268.90

****************************************************************************
  FLOW PROCESS FROM NODE    822.00 TO NODE    823.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  50.88
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.636
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       D        3.30      0.20      1.00    81
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D        6.80      0.20      0.50    75
  NATURAL FAIR COVER
  "GRASS"                     D       49.20      0.20      1.00    84
  URBAN FAIR COVER
  "TURF"                      D        4.00      0.20      1.00    82
  NATURAL FAIR COVER
  "OPEN BRUSH"                D       33.40      0.20      1.00    83
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           D       46.90      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.98
  SUBAREA AREA(ACRES) =  143.60      SUBAREA RUNOFF(CFS) =  186.18
  EFFECTIVE AREA(ACRES) =   3567.37   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =   3636.40       PEAK FLOW RATE(CFS) =    4455.08

****************************************************************************
  FLOW PROCESS FROM NODE    822.00 TO NODE    823.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  50.88
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.636
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                  D        2.00      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    2.00      SUBAREA RUNOFF(CFS) =    2.58
  EFFECTIVE AREA(ACRES) =   3569.37   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =   3638.40       PEAK FLOW RATE(CFS) =    4457.67

****************************************************************************
  FLOW PROCESS FROM NODE    823.00 TO NODE    824.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    255.00  DOWNSTREAM(FEET) =    235.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1331.00   CHANNEL SLOPE =  0.0150
  CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   4457.67
  FLOW VELOCITY(FEET/SEC.) =  14.98   FLOW DEPTH(FEET) =   8.80
  TRAVEL TIME(MIN.) =   1.48   Tc(MIN.) =  52.36
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    824.00 = 36780.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    823.00 TO NODE    824.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  52.36
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.612
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        2.50      0.30      1.00    86
  NATURAL FAIR COVER
  "GRASS"                     B        2.20      0.30      1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        4.60      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B       23.20      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                  B        0.60      0.30      1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                    C        0.20      0.25      1.00    91
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   33.30      SUBAREA RUNOFF(CFS) =   39.33
  EFFECTIVE AREA(ACRES) =   3602.67   AREA-AVERAGED Fm(INCH/HR) =  0.25
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 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.98
 TOTAL AREA(ACRES) =   3671.70       PEAK FLOW RATE(CFS) =    4457.67
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    823.00 TO NODE    824.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  52.36
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.612
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      C        1.30      0.25      1.00    75
 NATURAL FAIR COVER
 "GRASS"                    C        9.50      0.25      1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"               C       49.80      0.25      1.00    77
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          C       32.30      0.25      1.00    79
 NATURAL FAIR COVER
 "WOODLAND"                 C        7.20      0.25      1.00    73
 AGRICULTURAL POOR COVER
 "FALLOW"                   D        1.00      0.20      1.00    94
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =  101.10      SUBAREA RUNOFF(CFS) =  123.99
 EFFECTIVE AREA(ACRES) =   3703.77   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.98
 TOTAL AREA(ACRES) =   3772.80       PEAK FLOW RATE(CFS) =    4544.90

****************************************************************************
 FLOW PROCESS FROM NODE    823.00 TO NODE    824.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  52.36
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.612
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      D        6.40      0.20      1.00    81
 NATURAL FAIR COVER
 "GRASS"                    D        1.10      0.20      1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"               D       16.40      0.20      1.00    83
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          D       41.20      0.20      1.00    84
 NATURAL FAIR COVER
 "WOODLAND"                 D        2.30      0.20      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   67.40      SUBAREA RUNOFF(CFS) =   85.66
 EFFECTIVE AREA(ACRES) =   3771.17   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.98
 TOTAL AREA(ACRES) =   3840.20       PEAK FLOW RATE(CFS) =    4630.56

****************************************************************************
 FLOW PROCESS FROM NODE    824.00 TO NODE    825.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    235.00  DOWNSTREAM(FEET) =    210.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1566.00   CHANNEL SLOPE =  0.0160
 CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   4630.56
 FLOW VELOCITY(FEET/SEC.) =  15.47   FLOW DEPTH(FEET) =   8.85
 TRAVEL TIME(MIN.) =   1.69   Tc(MIN.) =  54.05
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    825.00 = 38346.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    824.00 TO NODE    825.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  54.05
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.585
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          A        0.40      0.40      1.00    49
 AGRICULTURAL POOR COVER
 "FALLOW"                   B        6.30      0.30      1.00    86
 NATURAL FAIR COVER
 "GRASS"                    B        0.40      0.30      1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"               B        2.90      0.30      1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          B       23.30      0.30      1.00    69
 NATURAL FAIR COVER
 "WOODLAND"                 B        2.30      0.30      1.00    60
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   35.60      SUBAREA RUNOFF(CFS) =   41.14
 EFFECTIVE AREA(ACRES) =   3806.77   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.98
 TOTAL AREA(ACRES) =   3875.80       PEAK FLOW RATE(CFS) =    4630.56
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    824.00 TO NODE    825.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  54.05
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.585
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL POOR COVER
 "FALLOW"                   C        2.00      0.25      1.00    91
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      C        0.70      0.25      1.00    75
 NATURAL FAIR COVER
 "GRASS"                    C        2.50      0.25      1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"               C       22.30      0.25      1.00    77
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          C       27.10      0.25      1.00    79
 NATURAL FAIR COVER
 "WOODLAND"                 C       13.80      0.25      1.00    73
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   68.40      SUBAREA RUNOFF(CFS) =   82.19
 EFFECTIVE AREA(ACRES) =   3875.17   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.98
 TOTAL AREA(ACRES) =   3944.20       PEAK FLOW RATE(CFS) =    4662.26
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    824.00 TO NODE    825.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  54.05
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.585
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        0.70      0.20      1.00    94
  NATURAL FAIR COVER
  "OPEN BRUSH"               D        8.90      0.20      1.00    83
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          D       34.60      0.20      1.00    84
  NATURAL FAIR COVER
  "WOODLAND"                 D        5.10      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   49.30      SUBAREA RUNOFF(CFS) =   61.46
  EFFECTIVE AREA(ACRES) =   3924.47   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =   3993.50       PEAK FLOW RATE(CFS) =    4723.72

****************************************************************************
  FLOW PROCESS FROM NODE    825.00 TO NODE    826.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    210.00  DOWNSTREAM(FEET) =    176.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2723.00   CHANNEL SLOPE =  0.0125
  CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   4723.72
  FLOW VELOCITY(FEET/SEC.) =  14.25   FLOW DEPTH(FEET) =   9.59
  TRAVEL TIME(MIN.) =   3.19   Tc(MIN.) =  57.24
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    826.00 = 41069.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    825.00 TO NODE    826.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  57.24
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.534
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   A        0.20      0.40      1.00    77
  NATURAL FAIR COVER
  "GRASS"                    A        0.40      0.40      1.00    50
  NATURAL FAIR COVER
  "OPEN BRUSH"               A        0.90      0.40      1.00    46
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          A        0.60      0.40      1.00    49
  NATURAL FAIR COVER
  "WOODLAND"                 A        0.60      0.40      1.00    36
  AGRICULTURAL POOR COVER
  "FALLOW"                   B        3.60      0.30      1.00    86
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.34
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    6.30      SUBAREA RUNOFF(CFS) =    6.76
  EFFECTIVE AREA(ACRES) =   3930.77   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =   3999.80       PEAK FLOW RATE(CFS) =    4723.72
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    825.00 TO NODE    826.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  57.24
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.534
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          B        1.10      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                 B        0.40      0.30      1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                   C       11.60      0.25      1.00    91
  NATURAL FAIR COVER
  "GRASS"                    C       19.20      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       16.70      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          C        0.20      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   49.20      SUBAREA RUNOFF(CFS) =   56.80
  EFFECTIVE AREA(ACRES) =   3979.97   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =   4049.00       PEAK FLOW RATE(CFS) =    4723.72
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    825.00 TO NODE    826.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  57.24
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.534
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                 C        1.00      0.25      1.00    73
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        2.50      0.20      1.00    94
  NATURAL FAIR COVER
  "GRASS"                    D        4.50      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D        6.40      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                 D        2.90      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   17.30      SUBAREA RUNOFF(CFS) =   20.73
  EFFECTIVE AREA(ACRES) =   3997.27   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =   4066.30       PEAK FLOW RATE(CFS) =    4723.72
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    826.00 TO NODE    826.00 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>PEAK FLOW RATE ESTIMATOR CHANGED TO UNIT-HYDROGRAPH METHOD<<<<<
  >>>>>USING TIME-OF-CONCENTRATION OF LONGEST FLOWPATH<<<<<
============================================================================
```

```
  UNIT-HYDROGRAPH DATA:
  RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
  S-GRAPH: VALLEY(DEV.)=  2.0%;VALLEY(UNDEV.)/DESERT= 22.0%
           MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
  Tc(HR) = 1.06; LAG(HR) = 0.84; Fm(INCH/HR) = 0.25; Ybar = 0.40
  USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
  DEPTH-AREA FACTORS: 5M = 0.82; 30M = 0.82; 1HR = 0.82;
  3HR = 0.97; 6HR = 0.99; 24HR= 0.99
  UNIT-INTERVAL(MIN) =  5.00   TOTAL AREA(ACRES) =   4066.30
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    826.00 = 41069.00 FEET.
   EQUIVALENT BASIN FACTOR APPROXIMATIONS:
   Lca/L=0.3,n=.0295; Lca/L=0.4,n=.0265; Lca/L=0.5,n=.0243;Lca/L=0.6,n=.0227
  TIME OF PEAK FLOW(HR) = 16.58  RUNOFF VOLUME(AF) =    1218.83
  UNIT-HYDROGRAPH METHOD PEAK FLOW RATE(CFS) =   3358.55
  TOTAL PEAK FLOW RATE(CFS) =   3358.55 (SOURCE FLOW INCLUDED)
  RATIONAL METHOD PEAK FLOW RATE(CFS) =   4723.72
   (UPSTREAM NODE PEAK FLOW RATE(CFS) =   4723.72)
  PEAK FLOW RATE(CFS) USED =   4723.72

****************************************************************************
  FLOW PROCESS FROM NODE    826.00 TO NODE    826.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  PEAK FLOW RATE(CFS) =     4723.72    Tc(MIN.) =  63.32
  AREA-AVERAGED Fm(INCH/HR) =  0.25    Ybar = 0.40
  TOTAL AREA(ACRES) =    4066.30
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    826.00 = 41069.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
   STREAM      Q      Tc    Intensity   Fp(Fm)      Ap    Ae      HEADWATER
   NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
      1    816.25  38.49    1.925  0.25( 0.25) 0.99   540.4      800.00
  LONGEST FLOWPATH FROM NODE    800.00 TO NODE    826.00 =  8890.00 FEET.

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  UNIT-HYDROGRAPH DATA:
  RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
  S-GRAPH: VALLEY(DEV.)=  2.0%;VALLEY(UNDEV.)/DESERT= 22.0%
           MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
  Tc(HR) = 1.06; LAG(HR) = 0.84; Fm(INCH/HR) = 0.25; Ybar = 0.41
  USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
  DEPTH-AREA FACTORS: 5M = 0.80; 30M = 0.80; 1HR = 0.80;
  3HR = 0.97; 6HR = 0.98; 24HR= 0.99
  UNIT-INTERVAL(MIN) =  5.00   TOTAL AREA(ACRES) =   4606.70
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    826.00 = 41069.00 FEET.
   EQUIVALENT BASIN FACTOR APPROXIMATIONS:
   Lca/L=0.3,n=.0295; Lca/L=0.4,n=.0265; Lca/L=0.5,n=.0243;Lca/L=0.6,n=.0227
  TIME OF PEAK FLOW(HR) = 16.58  RUNOFF VOLUME(AF) =    1367.27
  PEAK FLOW RATE(CFS) =    3710.57
    (UPSTREAM NODE PEAK FLOW RATE(CFS) =   4723.72)
  PEAK FLOW RATE(CFS) USED =   4723.72

****************************************************************************
  FLOW PROCESS FROM NODE    826.00 TO NODE    826.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    826.00 TO NODE    847.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    176.00  DOWNSTREAM(FEET) =    175.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   170.00   CHANNEL SLOPE =  0.0059
  CHANNEL BASE(FEET) =   85.00   "Z" FACTOR =   2.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  15.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   4723.72
  FLOW VELOCITY(FEET/SEC.) =  10.13   FLOW DEPTH(FEET) =   4.92
  TRAVEL TIME(MIN.) =   0.28   Tc(MIN.) =  63.60
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    847.00 = 41239.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    826.00 TO NODE    847.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  63.60
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.443
  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"                A        0.20      0.40       1.00    46
  NATURAL FAIR COVER
  "WOODLAND"                  A        0.10      0.40       1.00    36
  NATURAL FAIR COVER
  "OPEN BRUSH"                D        0.30      0.20       1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    0.60
  UNIT-HYDROGRAPH DATA:
  RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
  S-GRAPH: VALLEY(DEV.)=  2.0%;VALLEY(UNDEV.)/DESERT= 22.0%
           MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
  Tc(HR) = 1.06; LAG(HR) = 0.85; Fm(INCH/HR) = 0.25; Ybar = 0.41
  USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
  DEPTH-AREA FACTORS: 5M = 0.80; 30M = 0.80; 1HR = 0.80;
  3HR = 0.97; 6HR = 0.98; 24HR= 0.99
  UNIT-INTERVAL(MIN) =  5.00   TOTAL AREA(ACRES) =   4607.30
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    847.00 = 41239.00 FEET.
   EQUIVALENT BASIN FACTOR APPROXIMATIONS:
   Lca/L=0.3,n=.0295; Lca/L=0.4,n=.0265; Lca/L=0.5,n=.0243;Lca/L=0.6,n=.0227
  TIME OF PEAK FLOW(HR) = 16.58  RUNOFF VOLUME(AF) =    1367.40
  UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3703.43
  TOTAL AREA(ACRES) =   4607.30       PEAK FLOW RATE(CFS) =    4723.72
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    847.00 TO NODE    847.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  PEAK FLOW RATE(CFS) =    4723.72    Tc(MIN.) =  63.60
  AREA-AVERAGED Fm(INCH/HR) =  0.25   Ybar = 0.41
  TOTAL AREA(ACRES) =    4607.30

****************************************************************************
  FLOW PROCESS FROM NODE    830.00 TO NODE    831.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   327.00
  ELEVATION DATA: UPSTREAM(FEET) =    895.00  DOWNSTREAM(FEET) =    820.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.606
```

```
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.277
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL FAIR COVER
 "GRASS"                     C        0.10      0.25      1.00    79    9.61
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        0.30      0.25      1.00    77    9.61
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA RUNOFF(CFS) =      1.45
 TOTAL AREA(ACRES) =      0.40   PEAK FLOW RATE(CFS) =      1.45

****************************************************************************
 FLOW PROCESS FROM NODE    831.00 TO NODE    832.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    820.00  DOWNSTREAM(FEET) =    790.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   150.00   CHANNEL SLOPE =  0.2000
 CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
 CHANNEL FLOW THRU SUBAREA(CFS) =      1.45
 FLOW VELOCITY(FEET/SEC.) =   5.08   FLOW DEPTH(FEET) =   0.23
 TRAVEL TIME(MIN.) =   0.49   Tc(MIN.) =  10.10
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    832.00 =   477.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    831.00 TO NODE    832.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.10
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.140
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     C        0.50      0.25      1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        0.30      0.25      1.00    77
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    0.80      SUBAREA RUNOFF(CFS) =    2.80
 EFFECTIVE AREA(ACRES) =      1.20   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      1.20       PEAK FLOW RATE(CFS) =       4.20

****************************************************************************
 FLOW PROCESS FROM NODE    832.00 TO NODE    833.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    790.00  DOWNSTREAM(FEET) =    762.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   200.00   CHANNEL SLOPE =  0.1400
 CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
 CHANNEL FLOW THRU SUBAREA(CFS) =      4.20
 FLOW VELOCITY(FEET/SEC.) =   6.11   FLOW DEPTH(FEET) =   0.47
 TRAVEL TIME(MIN.) =   0.55   Tc(MIN.) =  10.64
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    833.00 =   677.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    832.00 TO NODE    833.00 IS CODE =  81
----------------------------------------------------------------------------
```

```
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.64
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.031
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     C        0.40      0.25      1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        0.80      0.25      1.00    77
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    1.20      SUBAREA RUNOFF(CFS) =    4.08
 EFFECTIVE AREA(ACRES) =      2.40   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      2.40       PEAK FLOW RATE(CFS) =       8.17

****************************************************************************
 FLOW PROCESS FROM NODE    833.00 TO NODE    834.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    762.00  DOWNSTREAM(FEET) =    754.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   124.00   CHANNEL SLOPE =  0.0645
 CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
 CHANNEL FLOW THRU SUBAREA(CFS) =      8.17
 FLOW VELOCITY(FEET/SEC.) =   5.54   FLOW DEPTH(FEET) =   0.81
 TRAVEL TIME(MIN.) =   0.37   Tc(MIN.) =  11.02
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    834.00 =   801.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    833.00 TO NODE    834.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.02
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.957
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     C        0.70      0.25      1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        1.10      0.25      1.00    77
 NATURAL FAIR COVER
 "GRASS"                     D        0.10      0.20      1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"                D        0.40      0.20      1.00    83
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    2.30      SUBAREA RUNOFF(CFS) =    7.70
 EFFECTIVE AREA(ACRES) =      4.70   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.24  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      4.70       PEAK FLOW RATE(CFS) =      15.70

****************************************************************************
 FLOW PROCESS FROM NODE    834.00 TO NODE    835.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    754.00  DOWNSTREAM(FEET) =    740.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   550.00   CHANNEL SLOPE =  0.0255
 CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
```

```
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     15.70
 FLOW VELOCITY(FEET/SEC.) =   4.54   FLOW DEPTH(FEET) =   1.11
 TRAVEL TIME(MIN.) =   2.02   Tc(MIN.) =  13.03
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    835.00 =  1351.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    834.00 TO NODE    835.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.03
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.583
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     C        3.30      0.25      1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        0.60      0.25      1.00    77
 NATURAL FAIR COVER
 "GRASS"                     D        6.00      0.20      1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"                D        0.60      0.20      1.00    83
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   10.50      SUBAREA RUNOFF(CFS) =   31.79
 EFFECTIVE AREA(ACRES) =     15.20   AREA-AVERAGED Fm(INCH/HR) =  0.23
 AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     15.20       PEAK FLOW RATE(CFS) =      45.92

****************************************************************************
 FLOW PROCESS FROM NODE    835.00 TO NODE    836.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    740.00  DOWNSTREAM(FEET) =    624.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   929.00   CHANNEL SLOPE =  0.1249
 CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     45.92
 FLOW VELOCITY(FEET/SEC.) =  10.86   FLOW DEPTH(FEET) =   1.29
 TRAVEL TIME(MIN.) =   1.43   Tc(MIN.) =  14.46
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    836.00 =  2280.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    835.00 TO NODE    836.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.46
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.378
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     C        0.10      0.25      1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        0.10      0.25      1.00    77
 AGRICULTURAL POOR COVER
 "FALLOW"                    D        4.50      0.20      1.00    94
 NATURAL FAIR COVER
 "GRASS"                     D       10.40      0.20      1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"                D        0.40      0.20      1.00    83
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   15.50      SUBAREA RUNOFF(CFS) =   44.32
 EFFECTIVE AREA(ACRES) =     30.70   AREA-AVERAGED Fm(INCH/HR) =  0.21
 AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.70       PEAK FLOW RATE(CFS) =      87.43

****************************************************************************
 FLOW PROCESS FROM NODE    836.00 TO NODE    837.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    624.00  DOWNSTREAM(FEET) =    592.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   417.00   CHANNEL SLOPE =  0.0767
 CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     87.43
 FLOW VELOCITY(FEET/SEC.) =  10.58   FLOW DEPTH(FEET) =   1.74
 TRAVEL TIME(MIN.) =   0.66   Tc(MIN.) =  15.12
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    837.00 =  2697.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    836.00 TO NODE    837.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.12
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.287
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     C        0.20      0.25      1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        0.60      0.25      1.00    77
 AGRICULTURAL POOR COVER
 "FALLOW"                    D        2.30      0.20      1.00    94
 NATURAL FAIR COVER
 "GRASS"                     D        5.10      0.20      1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"                D        1.10      0.20      1.00    83
 NATURAL FAIR COVER
 "WOODLAND"                  D        0.20      0.20      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    9.50      SUBAREA RUNOFF(CFS) =   26.36
 EFFECTIVE AREA(ACRES) =     40.20   AREA-AVERAGED Fm(INCH/HR) =  0.21
 AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     40.20       PEAK FLOW RATE(CFS) =     111.27

****************************************************************************
 FLOW PROCESS FROM NODE    837.00 TO NODE    838.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    592.00  DOWNSTREAM(FEET) =    591.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =    60.00   CHANNEL SLOPE =  0.0167
 CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    111.27
 FLOW VELOCITY(FEET/SEC.) =   6.40   FLOW DEPTH(FEET) =   2.93
 TRAVEL TIME(MIN.) =   0.16   Tc(MIN.) =  15.27
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    838.00 =  2757.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    837.00 TO NODE    838.00 IS CODE =  81
```

```
------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
========================================================================
  MAINLINE Tc(MIN) =  15.27
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.269
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C        0.30      0.25      1.00    75
  NATURAL FAIR COVER
  "GRASS"                     C        1.10      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"                C        7.00      0.25      1.00    77
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       D        0.40      0.20      1.00    81
  NATURAL FAIR COVER
  "GRASS"                     D        7.50      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"                D        1.80      0.20      1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   18.10      SUBAREA RUNOFF(CFS) =   49.62
  EFFECTIVE AREA(ACRES) =     58.30   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     58.30       PEAK FLOW RATE(CFS) =     160.26

************************************************************************
  FLOW PROCESS FROM NODE    837.00 TO NODE    838.00 IS CODE =  81
------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
========================================================================
  MAINLINE Tc(MIN) =  15.27
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.269
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                  D        0.20      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    0.20      SUBAREA RUNOFF(CFS) =    0.55
  EFFECTIVE AREA(ACRES) =     58.50   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     58.50       PEAK FLOW RATE(CFS) =     160.82

************************************************************************
  FLOW PROCESS FROM NODE    838.00 TO NODE    839.00 IS CODE =  51
------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    591.00  DOWNSTREAM(FEET) =    526.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   973.00   CHANNEL SLOPE =  0.0668
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    160.82
  FLOW VELOCITY(FEET/SEC.) =  11.80   FLOW DEPTH(FEET) =   2.48
  TRAVEL TIME(MIN.) =   1.37   Tc(MIN.) =  16.65
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    839.00 =  3730.00 FEET.

************************************************************************
  FLOW PROCESS FROM NODE    838.00 TO NODE    839.00 IS CODE =  81
------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
========================================================================
  MAINLINE Tc(MIN) =  16.65
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.116
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        3.00      0.20      1.00    94
  NATURAL FAIR COVER
  "GRASS"                     D       16.40      0.20      1.00    84
  NATURAL FAIR COVER
  "WOODLAND"                  D        0.60      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   52.48
  EFFECTIVE AREA(ACRES) =     78.50   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     78.50       PEAK FLOW RATE(CFS) =     205.19

************************************************************************
  FLOW PROCESS FROM NODE    839.00 TO NODE    840.00 IS CODE =  51
------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    526.00  DOWNSTREAM(FEET) =    455.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1045.00   CHANNEL SLOPE =  0.0679
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    205.19
  FLOW VELOCITY(FEET/SEC.) =  12.62   FLOW DEPTH(FEET) =   2.80
  TRAVEL TIME(MIN.) =   1.38   Tc(MIN.) =  18.03
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    840.00 =  4775.00 FEET.

************************************************************************
  FLOW PROCESS FROM NODE    839.00 TO NODE    840.00 IS CODE =  81
------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
========================================================================
  MAINLINE Tc(MIN) =  18.03
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.974
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                     C        1.00      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"                C        0.50      0.25      1.00    77
  NATURAL FAIR COVER
  "GRASS"                     D       31.60      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"                D        1.60      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                  D        0.40      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   35.10      SUBAREA RUNOFF(CFS) =   87.55
  EFFECTIVE AREA(ACRES) =    113.60   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    113.60       PEAK FLOW RATE(CFS) =     282.71

************************************************************************
  FLOW PROCESS FROM NODE    840.00 TO NODE    841.00 IS CODE =  51
------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    455.00  DOWNSTREAM(FEET) =    409.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   675.00   CHANNEL SLOPE =  0.0681
```

```
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   4.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    282.71
  FLOW VELOCITY(FEET/SEC.) =  13.65   FLOW DEPTH(FEET) =   2.97
  TRAVEL TIME(MIN.) =   0.82   Tc(MIN.) =  18.85
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    841.00 =  5450.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    840.00 TO NODE    841.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  18.85
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.901
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                  B        6.00      0.30      1.00    86
  NATURAL FAIR COVER
  "GRASS"                   B        7.40      0.30      1.00    69
  AGRICULTURAL POOR COVER
  "FALLOW"                  D        4.10      0.20      1.00    94
  NATURAL FAIR COVER
  "GRASS"                   D       24.80      0.20      1.00    84
  NATURAL FAIR COVER
  "WOODLAND"                D        0.90      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.23
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   43.20      SUBAREA RUNOFF(CFS) =  103.81
  EFFECTIVE AREA(ACRES) =    156.80   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    156.80       PEAK FLOW RATE(CFS) =     379.11

****************************************************************************
  FLOW PROCESS FROM NODE    841.00 TO NODE    842.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    409.00  DOWNSTREAM(FEET) =    405.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   142.00   CHANNEL SLOPE =  0.0282
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    379.11
  FLOW VELOCITY(FEET/SEC.) =  10.56   FLOW DEPTH(FEET) =   3.99
  TRAVEL TIME(MIN.) =   0.22   Tc(MIN.) =  19.08
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    842.00 =  5592.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    841.00 TO NODE    842.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  19.08
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.881
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"     C        0.10      0.25      1.00    75
  NATURAL FAIR COVER
  "GRASS"                   C        7.90      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"              C       26.10      0.25      1.00    77
  NATURAL FAIR COVER
  "GRASS"                   D       19.30      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"              D        2.10      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                D        0.90      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.23
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   56.40      SUBAREA RUNOFF(CFS) =  134.57
  EFFECTIVE AREA(ACRES) =    213.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    213.20       PEAK FLOW RATE(CFS) =     510.89

****************************************************************************
  FLOW PROCESS FROM NODE    842.00 TO NODE    843.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    405.00  DOWNSTREAM(FEET) =    348.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2041.00   CHANNEL SLOPE =  0.0279
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    510.89
  FLOW VELOCITY(FEET/SEC.) =  11.36   FLOW DEPTH(FEET) =   4.66
  TRAVEL TIME(MIN.) =   2.99   Tc(MIN.) =  22.07
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    843.00 =  7633.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    842.00 TO NODE    843.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  22.07
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.643
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                  B        0.60      0.30      1.00    86
  NATURAL FAIR COVER
  "GRASS"                   B        2.80      0.30      1.00    69
  NATURAL FAIR COVER
  "GRASS"                   C       10.20      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"              C       17.70      0.25      1.00    77
  NATURAL FAIR COVER
  "OPEN BRUSH"              D        0.30      0.20      1.00    83
  AGRICULTURAL POOR COVER
  "FALLOW"                  D        0.80      0.20      1.00    94
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   32.40      SUBAREA RUNOFF(CFS) =   69.67
  EFFECTIVE AREA(ACRES) =    245.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    245.60       PEAK FLOW RATE(CFS) =     534.77

****************************************************************************
  FLOW PROCESS FROM NODE    842.00 TO NODE    843.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  22.07
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.643
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                   D       78.70      0.20      1.00    84
```

```
  NATURAL FAIR COVER
  "OPEN BRUSH"                D        0.70      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                  D        2.00      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   81.40      SUBAREA RUNOFF(CFS) =  178.95
  EFFECTIVE AREA(ACRES) =    327.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    327.00       PEAK FLOW RATE(CFS) =     713.72

****************************************************************************
  FLOW PROCESS FROM NODE    843.00 TO NODE    844.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    348.00  DOWNSTREAM(FEET) =    302.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1986.00   CHANNEL SLOPE =  0.0232
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   6.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    713.72
  FLOW VELOCITY(FEET/SEC.) =  11.51   FLOW DEPTH(FEET) =   5.43
  TRAVEL TIME(MIN.) =   2.88   Tc(MIN.) =  24.95
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    844.00 =  9619.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    843.00 TO NODE    844.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  24.95
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.463
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C        0.40      0.25      1.00    75
  NATURAL FAIR COVER
  "GRASS"                     C       10.70      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       23.90      0.25      1.00    77
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       D        0.30      0.20      1.00    81
  NATURAL FAIR COVER
  "GRASS"                     D       55.10      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"                D        9.40      0.20      1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   99.80      SUBAREA RUNOFF(CFS) =  201.71
  EFFECTIVE AREA(ACRES) =    426.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    426.80       PEAK FLOW RATE(CFS) =     862.61

****************************************************************************
  FLOW PROCESS FROM NODE    843.00 TO NODE    844.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  24.95
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.463
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                  D        1.70      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    1.70      SUBAREA RUNOFF(CFS) =    3.46
  EFFECTIVE AREA(ACRES) =    428.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    428.50       PEAK FLOW RATE(CFS) =     866.07

****************************************************************************
  FLOW PROCESS FROM NODE    844.00 TO NODE    845.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    302.00  DOWNSTREAM(FEET) =    273.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1696.00   CHANNEL SLOPE =  0.0171
  CHANNEL BASE(FEET) =    7.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   7.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    866.07
  FLOW VELOCITY(FEET/SEC.) =  10.78   FLOW DEPTH(FEET) =   6.12
  TRAVEL TIME(MIN.) =   2.62   Tc(MIN.) =  27.57
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    845.00 = 11315.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    844.00 TO NODE    845.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  27.57
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.327
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C        0.40      0.25      1.00    75
  NATURAL FAIR COVER
  "GRASS"                     C        4.90      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"                C        4.10      0.25      1.00    77
  AGRICULTURAL POOR COVER
  "FALLOW"                    D       10.10      0.20      1.00    94
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       D        0.40      0.20      1.00    81
  NATURAL FAIR COVER
  "GRASS"                     D       35.60      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   55.50      SUBAREA RUNOFF(CFS) =  105.82
  EFFECTIVE AREA(ACRES) =    484.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    484.00       PEAK FLOW RATE(CFS) =     919.34

****************************************************************************
  FLOW PROCESS FROM NODE    844.00 TO NODE    845.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  27.57
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.327
  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"                D        3.80      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                  D        2.00      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
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  SUBAREA AREA(ACRES) =    5.80      SUBAREA RUNOFF(CFS) =   11.10
  EFFECTIVE AREA(ACRES) =    489.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    489.80       PEAK FLOW RATE(CFS) =     930.45

****************************************************************************
  FLOW PROCESS FROM NODE    845.00 TO NODE    846.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    273.00  DOWNSTREAM(FEET) =    240.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1458.00   CHANNEL SLOPE =  0.0226
  CHANNEL BASE(FEET) =    7.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   7.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    930.45
  FLOW VELOCITY(FEET/SEC.) =  12.18   FLOW DEPTH(FEET) =   5.92
  TRAVEL TIME(MIN.) =   2.00   Tc(MIN.) =  29.56
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    846.00 = 12773.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    845.00 TO NODE    846.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  29.56
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.239
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   B        2.20      0.30      1.00    86
  NATURAL FAIR COVER
  "GRASS"                    B        1.00      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                 B        1.10      0.30      1.00    60
  NATURAL FAIR COVER
  "GRASS"                    C        8.00      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        1.10      0.25      1.00    77
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        7.60      0.20      1.00    94
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.24
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   21.00      SUBAREA RUNOFF(CFS) =   37.74
  EFFECTIVE AREA(ACRES) =    510.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    510.80       PEAK FLOW RATE(CFS) =     930.45
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    845.00 TO NODE    846.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  29.56
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.239
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    D       15.90      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D        6.10      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                 D        0.20      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
```

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  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   22.20      SUBAREA RUNOFF(CFS) =   40.74
  EFFECTIVE AREA(ACRES) =    533.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    533.00       PEAK FLOW RATE(CFS) =     970.23

****************************************************************************
  FLOW PROCESS FROM NODE    846.00 TO NODE    847.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    240.00  DOWNSTREAM(FEET) =    175.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1949.00   CHANNEL SLOPE =  0.0334
  CHANNEL BASE(FEET) =    7.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   7.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    970.23
  FLOW VELOCITY(FEET/SEC.) =  14.23   FLOW DEPTH(FEET) =   5.47
  TRAVEL TIME(MIN.) =   2.28   Tc(MIN.) =  31.85
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    847.00 = 14722.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    846.00 TO NODE    847.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  31.85
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.150
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   B        6.50      0.30      1.00    86
  NATURAL FAIR COVER
  "GRASS"                    B        2.30      0.30      1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        2.00      0.30      1.00    66
  NATURAL FAIR COVER
  "WOODLAND"                 B        0.60      0.30      1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                   C        3.50      0.25      1.00    91
  NATURAL FAIR COVER
  "GRASS"                    C        2.00      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   16.90      SUBAREA RUNOFF(CFS) =   28.38
  EFFECTIVE AREA(ACRES) =    549.90   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    549.90       PEAK FLOW RATE(CFS) =     970.23
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    846.00 TO NODE    847.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  31.85
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.150
  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        5.50      0.25      1.00    77
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        3.60      0.20      1.00    94
  NATURAL FAIR COVER
  "GRASS"                    D       13.20      0.20      1.00    84
```

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  NATURAL FAIR COVER
  "OPEN BRUSH"                D        3.40      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                  D        0.20      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   25.90      SUBAREA RUNOFF(CFS) =   45.20
  EFFECTIVE AREA(ACRES) =    575.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    575.80       PEAK FLOW RATE(CFS) =    1000.96

****************************************************************************
  FLOW PROCESS FROM NODE    847.00 TO NODE    847.00 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.) =  31.85
  RAINFALL INTENSITY(INCH/HR) =   2.15
  AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =   575.80
  TOTAL STREAM AREA(ACRES) =   575.80
  PEAK FLOW RATE(CFS) AT CONFLUENCE =   1000.96
  ** CONFLUENCE DATA **
  STREAM      Q        Tc       AREA      HEADWATER
  NUMBER    (CFS)    (MIN.)   (ACRES)      NODE
     1      4723.72   63.60     4607.30     3100.00
     2      1000.96   31.85      575.80      830.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  UNIT-HYDROGRAPH DATA:
  RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
  S-GRAPH: VALLEY(DEV.)=  2.0%;VALLEY(UNDEV.)/DESERT= 22.0%
           MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
  Tc(HR) = 1.06; LAG(HR) = 0.85; Fm(INCH/HR) = 0.24; Ybar = 0.40
  USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
  DEPTH-AREA FACTORS: 5M = 0.78; 30M = 0.78; 1HR = 0.78;
  3HR = 0.97; 6HR = 0.98; 24HR= 0.99
  UNIT-INTERVAL(MIN) =  5.00   TOTAL AREA(ACRES) =   5183.10
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    847.00 = 41239.00 FEET.
   EQUIVALENT BASIN FACTOR APPROXIMATIONS:
   Lca/L=0.3,n=.0295; Lca/L=0.4,n=.0265; Lca/L=0.5,n=.0243;Lca/L=0.6,n=.0227
  TIME OF PEAK FLOW(HR) = 16.58  RUNOFF VOLUME(AF) =    1548.02
  PEAK FLOW RATE(CFS) =   4111.76
    (UPSTREAM NODE PEAK FLOW RATE(CFS) =   4723.72)
  PEAK FLOW RATE(CFS) USED =   4723.72

****************************************************************************
  FLOW PROCESS FROM NODE    847.00 TO NODE    865.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    175.00  DOWNSTREAM(FEET) =    154.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  6117.00   CHANNEL SLOPE =  0.0034
  CHANNEL BASE(FEET) =   85.00   "Z" FACTOR =   2.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  15.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   4723.72
  FLOW VELOCITY(FEET/SEC.) =   8.50   FLOW DEPTH(FEET) =   5.76
  TRAVEL TIME(MIN.) =  11.99   Tc(MIN.) =  75.59
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    865.00 = 47356.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    847.00 TO NODE    865.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  75.59
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.304
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                     A        1.70      0.40      1.00    50
  AGRICULTURAL FAIR COVER
  "ORCHARDS"                  A       15.60      0.40      1.00    44
  NATURAL FAIR COVER
  "OPEN BRUSH"                A        3.10      0.40      1.00    46
  COMMERCIAL                  A        0.60      0.40      0.10    32
  NATURAL FAIR COVER
  "WOODLAND"                  A       14.10      0.40      1.00    36
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        2.90      0.30      1.00    86
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.39
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.99
  SUBAREA AREA(ACRES) =   38.00
  UNIT-HYDROGRAPH DATA:
  RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
  S-GRAPH: VALLEY(DEV.)=  2.0%;VALLEY(UNDEV.)/DESERT= 22.0%
           MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
  Tc(HR) = 1.26; LAG(HR) = 1.01; Fm(INCH/HR) = 0.25; Ybar = 0.40
  USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
  DEPTH-AREA FACTORS: 5M = 0.78; 30M = 0.78; 1HR = 0.78;
  3HR = 0.97; 6HR = 0.98; 24HR= 0.99
  UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5221.10
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    865.00 = 47356.00 FEET.
   EQUIVALENT BASIN FACTOR APPROXIMATIONS:
   Lca/L=0.3,n=.0309; Lca/L=0.4,n=.0277; Lca/L=0.5,n=.0255;Lca/L=0.6,n=.0238
  TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1551.54
  UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3582.49
  TOTAL AREA(ACRES) =   5221.10       PEAK FLOW RATE(CFS) =    4723.72
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    847.00 TO NODE    865.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  75.59
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.304
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        B       16.50      0.30      0.50    56
  NATURAL FAIR COVER
  "GRASS"                     B        1.80      0.30      1.00    69
  AGRICULTURAL FAIR COVER
  "ORCHARDS"                  B       22.10      0.30      1.00    65
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        1.10      0.30      1.00    66
  COMMERCIAL                  B        0.80      0.30      0.10    56
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B       12.30      0.30      1.00    69
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.84
  SUBAREA AREA(ACRES) =   54.60
  UNIT-HYDROGRAPH DATA:
  RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
  S-GRAPH: VALLEY(DEV.)=  2.0%;VALLEY(UNDEV.)/DESERT= 22.0%
```

```
          MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
 Tc(HR) = 1.26; LAG(HR) = 1.01; Fm(INCH/HR) = 0.25; Ybar = 0.40
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.78; 30M = 0.78; 1HR = 0.78;
 3HR = 0.97; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5275.70
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    865.00 = 47356.00 FEET.
  EQUIVALENT BASIN FACTOR APPROXIMATIONS:
  Lca/L=0.3,n=.0309; Lca/L=0.4,n=.0277; Lca/L=0.5,n=.0255;Lca/L=0.6,n=.0238
 TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1564.73
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3613.03
 TOTAL AREA(ACRES) =   5275.70       PEAK FLOW RATE(CFS) =    4723.72
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    847.00 TO NODE    865.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  75.59
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.304
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 PUBLIC PARK                 B        0.40      0.30       0.85    56
 NATURAL FAIR COVER
 "WOODLAND"                  B        4.50      0.30       1.00    60
 NATURAL FAIR COVER
 "GRASS"                     C       91.40      0.25       1.00    79
 AGRICULTURAL FAIR COVER
 "ORCHARDS"                  C        4.20      0.25       1.00    77
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        5.70      0.25       1.00    77
 COMMERCIAL                  C        2.00      0.25       0.10    69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.98
 SUBAREA AREA(ACRES) =  108.20
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
 S-GRAPH: VALLEY(DEV.)=  2.0%;VALLEY(UNDEV.)/DESERT= 22.0%
          MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
 Tc(HR) = 1.26; LAG(HR) = 1.01; Fm(INCH/HR) = 0.25; Ybar = 0.40
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.78; 30M = 0.78; 1HR = 0.78;
 3HR = 0.97; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5383.90
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    865.00 = 47356.00 FEET.
  EQUIVALENT BASIN FACTOR APPROXIMATIONS:
  Lca/L=0.3,n=.0309; Lca/L=0.4,n=.0277; Lca/L=0.5,n=.0255;Lca/L=0.6,n=.0238
 TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1595.40
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3676.35
 TOTAL AREA(ACRES) =   5383.90       PEAK FLOW RATE(CFS) =    4723.72
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    847.00 TO NODE    865.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  75.59
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.304
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 PUBLIC PARK                 C        0.70      0.25       0.85    69
 NATURAL FAIR COVER
 "WOODLAND"                  C       10.50      0.25       1.00    73
 AGRICULTURAL POOR COVER
 "FALLOW"                    D       21.70      0.20       1.00    94
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"        D       32.20      0.20       0.50    75
 NATURAL FAIR COVER
 "GRASS"                     D       23.40      0.20       1.00    84
 AGRICULTURAL FAIR COVER
 "ORCHARDS"                  D        2.50      0.20       1.00    82
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.82
 SUBAREA AREA(ACRES) =   91.00
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
 S-GRAPH: VALLEY(DEV.)=  2.0%;VALLEY(UNDEV.)/DESERT= 22.0%
          MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
 Tc(HR) = 1.26; LAG(HR) = 1.01; Fm(INCH/HR) = 0.24; Ybar = 0.40
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.77; 30M = 0.77; 1HR = 0.77;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5474.90
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    865.00 = 47356.00 FEET.
  EQUIVALENT BASIN FACTOR APPROXIMATIONS:
  Lca/L=0.3,n=.0309; Lca/L=0.4,n=.0277; Lca/L=0.5,n=.0255;Lca/L=0.6,n=.0238
 TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1626.46
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3735.80
 TOTAL AREA(ACRES) =   5474.90       PEAK FLOW RATE(CFS) =    4723.72
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    847.00 TO NODE    865.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  75.59
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.304
 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"                D       13.30      0.20       1.00    83
 COMMERCIAL                  D        1.40      0.20       0.10    75
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           D        3.30      0.20       1.00    84
 NATURAL FAIR COVER
 "WOODLAND"                  D       23.10      0.20       1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.97
 SUBAREA AREA(ACRES) =   41.10
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
 S-GRAPH: VALLEY(DEV.)=  2.0%;VALLEY(UNDEV.)/DESERT= 22.0%
          MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
 Tc(HR) = 1.26; LAG(HR) = 1.01; Fm(INCH/HR) = 0.24; Ybar = 0.40
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.77; 30M = 0.77; 1HR = 0.77;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5516.00
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    865.00 = 47356.00 FEET.
  EQUIVALENT BASIN FACTOR APPROXIMATIONS:
  Lca/L=0.3,n=.0309; Lca/L=0.4,n=.0277; Lca/L=0.5,n=.0255;Lca/L=0.6,n=.0238
 TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1639.11
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3761.27
 TOTAL AREA(ACRES) =   5516.00       PEAK FLOW RATE(CFS) =    4723.72
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    865.00 TO NODE    865.00 IS CODE =   1
```

```
------------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
==============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  PEAK FLOW RATE(CFS) =    4723.72    Tc(MIN.) =  75.59
  AREA-AVERAGED Fm(INCH/HR) =  0.24   Ybar = 0.40
  TOTAL AREA(ACRES) =    5516.00

******************************************************************************
  FLOW PROCESS FROM NODE    850.00 TO NODE    851.00 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) =    718.00  DOWNSTREAM(FEET) =    600.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.000
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  6.190
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D        0.80      0.20       0.50    75    5.00
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.50
  SUBAREA RUNOFF(CFS) =      4.38
  TOTAL AREA(ACRES) =      0.80   PEAK FLOW RATE(CFS) =      4.38

******************************************************************************
  FLOW PROCESS FROM NODE    851.00 TO NODE    852.00 IS CODE =  51
------------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    600.00  DOWNSTREAM(FEET) =    560.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   144.00   CHANNEL SLOPE =  0.2778
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      4.38
  FLOW VELOCITY(FEET/SEC.) =   7.99   FLOW DEPTH(FEET) =   0.39
  TRAVEL TIME(MIN.) =   0.30   Tc(MIN.) =   5.30
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    852.00 =   472.00 FEET.

******************************************************************************
  FLOW PROCESS FROM NODE    851.00 TO NODE    852.00 IS CODE =  81
------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
  MAINLINE Tc(MIN) =   5.30
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  6.035
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D        1.10      0.20       0.50    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.50
  SUBAREA AREA(ACRES) =    1.10      SUBAREA RUNOFF(CFS) =    5.88
  EFFECTIVE AREA(ACRES) =      1.90   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.50
  TOTAL AREA(ACRES) =      1.90       PEAK FLOW RATE(CFS) =      10.15

******************************************************************************
  FLOW PROCESS FROM NODE    852.00 TO NODE    853.00 IS CODE =  51
------------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    560.00  DOWNSTREAM(FEET) =    540.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   100.00   CHANNEL SLOPE =  0.2000
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     10.15
  FLOW VELOCITY(FEET/SEC.) =   8.85   FLOW DEPTH(FEET) =   0.68
  TRAVEL TIME(MIN.) =   0.19   Tc(MIN.) =   5.49
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    853.00 =   572.00 FEET.

******************************************************************************
  FLOW PROCESS FROM NODE    852.00 TO NODE    853.00 IS CODE =  81
------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
  MAINLINE Tc(MIN) =   5.49
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.938
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D        1.30      0.20       0.50    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.50
  SUBAREA AREA(ACRES) =    1.30      SUBAREA RUNOFF(CFS) =    6.83
  EFFECTIVE AREA(ACRES) =      3.20   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.50
  TOTAL AREA(ACRES) =      3.20       PEAK FLOW RATE(CFS) =      16.81

******************************************************************************
  FLOW PROCESS FROM NODE    853.00 TO NODE    854.00 IS CODE =  51
------------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    540.00  DOWNSTREAM(FEET) =    510.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   115.00   CHANNEL SLOPE =  0.2609
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     16.81
  FLOW VELOCITY(FEET/SEC.) =  11.13   FLOW DEPTH(FEET) =   0.83
  TRAVEL TIME(MIN.) =   0.17   Tc(MIN.) =   5.66
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    854.00 =   687.00 FEET.

******************************************************************************
  FLOW PROCESS FROM NODE    853.00 TO NODE    854.00 IS CODE =  81
------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
  MAINLINE Tc(MIN) =   5.66
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.849
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D        2.40      0.20       0.50    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.50
  SUBAREA AREA(ACRES) =    2.40      SUBAREA RUNOFF(CFS) =   12.42
  EFFECTIVE AREA(ACRES) =      5.60   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.50
  TOTAL AREA(ACRES) =      5.60       PEAK FLOW RATE(CFS) =      28.97

******************************************************************************
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 FLOW PROCESS FROM NODE    854.00 TO NODE    855.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    510.00  DOWNSTREAM(FEET) =    468.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   167.00   CHANNEL SLOPE =  0.2515
 CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     28.97
 FLOW VELOCITY(FEET/SEC.) =  12.36   FLOW DEPTH(FEET) =   0.83
 TRAVEL TIME(MIN.) =   0.23   Tc(MIN.) =   5.89
 LONGEST FLOWPATH FROM NODE    850.00 TO NODE    855.00 =   854.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    854.00 TO NODE    855.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   5.89
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.733
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"        D        2.80      0.20       0.50    75
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.50
 SUBAREA AREA(ACRES) =    2.80      SUBAREA RUNOFF(CFS) =   14.19
 EFFECTIVE AREA(ACRES) =      8.40   AREA-AVERAGED Fm(INCH/HR) =  0.10
 AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.50
 TOTAL AREA(ACRES) =      8.40       PEAK FLOW RATE(CFS) =      42.58

****************************************************************************
 FLOW PROCESS FROM NODE    855.00 TO NODE    856.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    468.00  DOWNSTREAM(FEET) =    445.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   115.00   CHANNEL SLOPE =  0.2000
 CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     42.58
 FLOW VELOCITY(FEET/SEC.) =  12.67   FLOW DEPTH(FEET) =   1.09
 TRAVEL TIME(MIN.) =   0.15   Tc(MIN.) =   6.04
 LONGEST FLOWPATH FROM NODE    850.00 TO NODE    856.00 =   969.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    855.00 TO NODE    856.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   6.04
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.655
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL POOR COVER
 "FALLOW"                    D        0.40      0.20       1.00    94
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"        D        3.10      0.20       0.50    75
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.56
 SUBAREA AREA(ACRES) =    3.50      SUBAREA RUNOFF(CFS) =   17.46
 EFFECTIVE AREA(ACRES) =     11.90   AREA-AVERAGED Fm(INCH/HR) =  0.10
 AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.52
 TOTAL AREA(ACRES) =     11.90       PEAK FLOW RATE(CFS) =      59.45

****************************************************************************
 FLOW PROCESS FROM NODE    856.00 TO NODE    857.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    445.00  DOWNSTREAM(FEET) =    366.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   423.00   CHANNEL SLOPE =  0.1868
 CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     59.45
 FLOW VELOCITY(FEET/SEC.) =  13.42   FLOW DEPTH(FEET) =   1.33
 TRAVEL TIME(MIN.) =   0.53   Tc(MIN.) =   6.56
 LONGEST FLOWPATH FROM NODE    850.00 TO NODE    857.00 =  1392.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    856.00 TO NODE    857.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   6.56
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.384
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL POOR COVER
 "FALLOW"                    D        2.30      0.20       1.00    94
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"        D        1.00      0.20       0.50    75
 NATURAL FAIR COVER
 "GRASS"                     D        1.30      0.20       1.00    84
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.89
 SUBAREA AREA(ACRES) =    4.60      SUBAREA RUNOFF(CFS) =   21.55
 EFFECTIVE AREA(ACRES) =     16.50   AREA-AVERAGED Fm(INCH/HR) =  0.12
 AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.62
 TOTAL AREA(ACRES) =     16.50       PEAK FLOW RATE(CFS) =      78.10

****************************************************************************
 FLOW PROCESS FROM NODE    857.00 TO NODE    858.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    366.00  DOWNSTREAM(FEET) =    300.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   574.00   CHANNEL SLOPE =  0.1150
 CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     78.10
 FLOW VELOCITY(FEET/SEC.) =  12.05   FLOW DEPTH(FEET) =   1.73
 TRAVEL TIME(MIN.) =   0.79   Tc(MIN.) =   7.36
 LONGEST FLOWPATH FROM NODE    850.00 TO NODE    858.00 =  1966.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    857.00 TO NODE    858.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   7.36
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.974
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     B        0.20      0.30       1.00    69
```

```
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        0.50      0.20      1.00    94
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D        0.10      0.20      0.50    75
  NATURAL FAIR COVER
  "GRASS"                     D        2.80      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.99
  SUBAREA AREA(ACRES) =    3.60      SUBAREA RUNOFF(CFS) =   15.46
  EFFECTIVE AREA(ACRES) =     20.10   AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.69
  TOTAL AREA(ACRES) =     20.10       PEAK FLOW RATE(CFS) =      87.48

****************************************************************************
  FLOW PROCESS FROM NODE    858.00 TO NODE    859.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    300.00  DOWNSTREAM(FEET) =    276.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   341.00   CHANNEL SLOPE =  0.0704
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     87.48
  FLOW VELOCITY(FEET/SEC.) =  10.26   FLOW DEPTH(FEET) =   1.78
  TRAVEL TIME(MIN.) =   0.55   Tc(MIN.) =   7.91
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    859.00 =  2307.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    858.00 TO NODE    859.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =   7.91
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.779
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                     B        1.10      0.30      1.00    69
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        1.10      0.20      1.00    94
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D        9.10      0.20      0.50    75
  NATURAL FAIR COVER
  "GRASS"                     D        4.00      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.70
  SUBAREA AREA(ACRES) =   15.30      SUBAREA RUNOFF(CFS) =   63.77
  EFFECTIVE AREA(ACRES) =     35.40   AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  0.69
  TOTAL AREA(ACRES) =     35.40       PEAK FLOW RATE(CFS) =     147.71

****************************************************************************
  FLOW PROCESS FROM NODE    859.00 TO NODE    860.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    276.00  DOWNSTREAM(FEET) =    240.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   795.00   CHANNEL SLOPE =  0.0453
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    147.71
  FLOW VELOCITY(FEET/SEC.) =   9.98   FLOW DEPTH(FEET) =   2.63
  TRAVEL TIME(MIN.) =   1.33   Tc(MIN.) =   9.24
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    860.00 =  3102.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    859.00 TO NODE    860.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =   9.24
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.386
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        3.00      0.30      1.00    86
  NATURAL FAIR COVER
  "GRASS"                     B        3.20      0.30      1.00    69
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        3.60      0.20      1.00    94
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D        3.40      0.20      0.50    75
  NATURAL FAIR COVER
  "GRASS"                     D       12.60      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.23
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.93
  SUBAREA AREA(ACRES) =   25.80      SUBAREA RUNOFF(CFS) =   96.94
  EFFECTIVE AREA(ACRES) =     61.20   AREA-AVERAGED Fm(INCH/HR) =  0.17
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.79
  TOTAL AREA(ACRES) =     61.20       PEAK FLOW RATE(CFS) =     232.13

****************************************************************************
  FLOW PROCESS FROM NODE    860.00 TO NODE    861.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    240.00  DOWNSTREAM(FEET) =    206.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   777.00   CHANNEL SLOPE =  0.0438
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   4.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    232.13
  FLOW VELOCITY(FEET/SEC.) =  11.01   FLOW DEPTH(FEET) =   3.01
  TRAVEL TIME(MIN.) =   1.18   Tc(MIN.) =  10.41
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    861.00 =  3879.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    860.00 TO NODE    861.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  10.41
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.077
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        3.50      0.30      1.00    86
  NATURAL FAIR COVER
  "GRASS"                     B        0.50      0.30      1.00    69
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        1.40      0.20      1.00    94
  NATURAL FAIR COVER
  "GRASS"                     D        0.70      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    6.10      SUBAREA RUNOFF(CFS) =   20.93
  EFFECTIVE AREA(ACRES) =     67.30   AREA-AVERAGED Fm(INCH/HR) =  0.18
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.81
  TOTAL AREA(ACRES) =     67.30       PEAK FLOW RATE(CFS) =     236.06
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    861.00 TO NODE    862.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    206.00  DOWNSTREAM(FEET) =    193.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   579.00   CHANNEL SLOPE =  0.0225
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   4.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    236.06
  FLOW VELOCITY(FEET/SEC.) =   8.63   FLOW DEPTH(FEET) =   3.60
  TRAVEL TIME(MIN.) =   1.12   Tc(MIN.) =  11.53
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    862.00 =  4458.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    861.00 TO NODE    862.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  11.53
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.854
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        4.70      0.30       1.00    86
  NATURAL FAIR COVER
  "GRASS"                     B        1.20      0.30       1.00    69
  AGRICULTURAL POOR COVER
  "FALLOW"                    D       57.90      0.20       1.00    94
  NATURAL FAIR COVER
  "GRASS"                     D        0.10      0.20       1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   63.90      SUBAREA RUNOFF(CFS) =  209.59
  EFFECTIVE AREA(ACRES) =    131.20   AREA-AVERAGED Fm(INCH/HR) =  0.19
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  0.90
  TOTAL AREA(ACRES) =    131.20       PEAK FLOW RATE(CFS) =     432.11

****************************************************************************
  FLOW PROCESS FROM NODE    862.00 TO NODE    863.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    193.00  DOWNSTREAM(FEET) =    174.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1469.00   CHANNEL SLOPE =  0.0129
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   6.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    432.11
  FLOW VELOCITY(FEET/SEC.) =   8.16   FLOW DEPTH(FEET) =   4.87
  TRAVEL TIME(MIN.) =   3.00   Tc(MIN.) =  14.53
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    863.00 =  5927.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    862.00 TO NODE    863.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  14.53
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.367
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           A        1.00      0.40       1.00    49
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        6.60      0.30       1.00    86
  NATURAL FAIR COVER
  "GRASS"                     B        1.70      0.30       1.00    69
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B       37.80      0.30       1.00    69
  AGRICULTURAL POOR COVER
  "FALLOW"                    D       14.20      0.20       1.00    94
  NATURAL FAIR COVER
  "GRASS"                     D        5.60      0.20       1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   66.90      SUBAREA RUNOFF(CFS) =  186.37
  EFFECTIVE AREA(ACRES) =    198.10   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.24  AREA-AVERAGED Ap =  0.94
  TOTAL AREA(ACRES) =    198.10       PEAK FLOW RATE(CFS) =     561.04

****************************************************************************
  FLOW PROCESS FROM NODE    862.00 TO NODE    863.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  14.53
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.367
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  URBAN FAIR COVER
  "TURF"                      D        0.30      0.20       1.00    82
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           D        4.80      0.20       1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    5.10      SUBAREA RUNOFF(CFS) =   14.54
  EFFECTIVE AREA(ACRES) =    203.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  0.94
  TOTAL AREA(ACRES) =    203.20       PEAK FLOW RATE(CFS) =     575.58

****************************************************************************
  FLOW PROCESS FROM NODE    863.00 TO NODE    864.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    174.00  DOWNSTREAM(FEET) =    165.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   774.00   CHANNEL SLOPE =  0.0116
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   6.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    575.58
  FLOW VELOCITY(FEET/SEC.) =   8.42   FLOW DEPTH(FEET) =   5.79
  TRAVEL TIME(MIN.) =   1.53   Tc(MIN.) =  16.06
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    864.00 =  6701.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    863.00 TO NODE    864.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  16.06
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.181
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        A        0.20      0.40       0.50    32
  NATURAL FAIR COVER
```

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"GRASS"                    A        2.00      0.40      1.00    50
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"          A        2.60      0.40      1.00    49
RESIDENTIAL
"5-7 DWELLINGS/ACRE"       B        2.40      0.30      0.50    56
NATURAL FAIR COVER
"GRASS"                    B        6.50      0.30      1.00    69
URBAN FAIR COVER
"TURF"                     B        0.60      0.30      1.00    65
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.34
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.91
SUBAREA AREA(ACRES) =   14.30      SUBAREA RUNOFF(CFS) =   37.00
EFFECTIVE AREA(ACRES) =    217.50   AREA-AVERAGED Fm(INCH/HR) =  0.23
AREA-AVERAGED Fp(INCH/HR) =  0.24  AREA-AVERAGED Ap =  0.94
TOTAL AREA(ACRES) =    217.50       PEAK FLOW RATE(CFS) =     578.48

****************************************************************************
 FLOW PROCESS FROM NODE    863.00 TO NODE    864.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.06
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.181
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          B        4.10      0.30      1.00    69
 NATURAL FAIR COVER
 "WOODLAND"                 B        1.00      0.30      1.00    60
 AGRICULTURAL POOR COVER
 "FALLOW"                   D        1.20      0.20      1.00    94
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       D       85.70      0.20      0.50    75
 NATURAL FAIR COVER
 "GRASS"                    D       50.20      0.20      1.00    84
 AGRICULTURAL FAIR COVER
 "ORCHARDS"                 D        1.60      0.20      1.00    82
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.70
 SUBAREA AREA(ACRES) =  143.80      SUBAREA RUNOFF(CFS) =  393.02
 EFFECTIVE AREA(ACRES) =    361.30   AREA-AVERAGED Fm(INCH/HR) =  0.19
 AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  0.84
 TOTAL AREA(ACRES) =    361.30       PEAK FLOW RATE(CFS) =     971.50

****************************************************************************
 FLOW PROCESS FROM NODE    863.00 TO NODE    864.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.06
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.181
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 URBAN FAIR COVER
 "TURF"                     D        0.20      0.20      1.00    82
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          D        1.20      0.20      1.00    84
 NATURAL FAIR COVER
 "WOODLAND"                 D        1.80      0.20      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    3.20      SUBAREA RUNOFF(CFS) =    8.58
 EFFECTIVE AREA(ACRES) =    364.50   AREA-AVERAGED Fm(INCH/HR) =  0.19
 AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  0.84
 TOTAL AREA(ACRES) =    364.50       PEAK FLOW RATE(CFS) =     980.09
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    864.00 TO NODE    865.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    165.00  DOWNSTREAM(FEET) =    154.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1172.00   CHANNEL SLOPE =  0.0094
 CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   8.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    980.09
 FLOW VELOCITY(FEET/SEC.) =   8.88   FLOW DEPTH(FEET) =   7.24
 TRAVEL TIME(MIN.) =   2.20   Tc(MIN.) =  18.27
 LONGEST FLOWPATH FROM NODE    850.00 TO NODE    865.00 =  7873.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    864.00 TO NODE    865.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.27
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.953
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 COMMERCIAL                 B        0.40      0.30      0.10    56
 NATURAL FAIR COVER
 "WOODLAND"                 B        0.30      0.30      1.00    60
 NATURAL FAIR COVER
 "GRASS"                    D        0.10      0.20      1.00    84
 AGRICULTURAL FAIR COVER
 "ORCHARDS"                 D        0.20      0.20      1.00    82
 URBAN FAIR COVER
 "TURF"                     D        5.80      0.20      1.00    82
 NATURAL FAIR COVER
 "OPEN BRUSH"               D        0.20      0.20      1.00    83
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.95
 SUBAREA AREA(ACRES) =    7.00      SUBAREA RUNOFF(CFS) =   17.38
 EFFECTIVE AREA(ACRES) =    371.50   AREA-AVERAGED Fm(INCH/HR) =  0.19
 AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  0.85
 TOTAL AREA(ACRES) =    371.50       PEAK FLOW RATE(CFS) =     980.09
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    864.00 TO NODE    865.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.27
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.953
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 COMMERCIAL                 D        0.10      0.20      0.10    75
 NATURAL FAIR COVER
 "WOODLAND"                 D        5.90      0.20      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.99
 SUBAREA AREA(ACRES) =    6.00      SUBAREA RUNOFF(CFS) =   14.88
 EFFECTIVE AREA(ACRES) =    377.50   AREA-AVERAGED Fm(INCH/HR) =  0.19
 AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  0.85
 TOTAL AREA(ACRES) =    377.50       PEAK FLOW RATE(CFS) =     980.09
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
```

```
 FLOW PROCESS FROM NODE    865.00 TO NODE    865.00 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.) =  18.27
 RAINFALL INTENSITY(INCH/HR) =   2.95
 AREA-AVERAGED Fm(INCH/HR) =  0.19
 AREA-AVERAGED Fp(INCH/HR) =  0.23
 AREA-AVERAGED Ap =  0.85
 EFFECTIVE STREAM AREA(ACRES) =   377.50
 TOTAL STREAM AREA(ACRES) =   377.50
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    980.09
 ** CONFLUENCE DATA **
 STREAM      Q        Tc      AREA      HEADWATER
 NUMBER    (CFS)    (MIN.)   (ACRES)      NODE
    1      4723.72   75.59     5516.00     3100.00
    2       980.09   18.27      377.50      850.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
 S-GRAPH: VALLEY(DEV.)=  2.0%;VALLEY(UNDEV.)/DESERT= 22.0%
          MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
 Tc(HR) = 1.26; LAG(HR) = 1.01; Fm(INCH/HR) = 0.24; Ybar = 0.40
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.76; 30M = 0.76; 1HR = 0.76;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5893.50
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    865.00 = 47356.00 FEET.
  EQUIVALENT BASIN FACTOR APPROXIMATIONS:
  Lca/L=0.3,n=.0309; Lca/L=0.4,n=.0277; Lca/L=0.5,n=.0255;Lca/L=0.6,n=.0238
 TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1762.64
 PEAK FLOW RATE(CFS) =   3997.19
   (UPSTREAM NODE PEAK FLOW RATE(CFS) =   4723.72)
 PEAK FLOW RATE(CFS) USED =   4723.72

****************************************************************************
 FLOW PROCESS FROM NODE    865.00 TO NODE    884.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    154.00  DOWNSTREAM(FEET) =    135.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  6117.00   CHANNEL SLOPE =  0.0031
 CHANNEL BASE(FEET) =   85.00   "Z" FACTOR =   2.000
 MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  15.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   4723.72
 FLOW VELOCITY(FEET/SEC.) =   8.23   FLOW DEPTH(FEET) =   5.93
 TRAVEL TIME(MIN.) =  12.39   Tc(MIN.) =  87.98
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    884.00 = 53473.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    865.00 TO NODE    884.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  87.98
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.196
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      A        2.20      0.40      1.00    40
 AGRICULTURAL POOR COVER
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 "FALLOW"                   A        4.80      0.40      1.00    77
 NATURAL FAIR COVER
 "GRASS"                    A        0.80      0.40      1.00    50
 AGRICULTURAL FAIR COVER
 "ORCHARDS"                 A        0.10      0.40      1.00    44
 COMMERCIAL                 A        0.50      0.40      0.10    32
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          A        1.20      0.40      1.00    49
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.95
 SUBAREA AREA(ACRES) =    9.60
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
 S-GRAPH: VALLEY(DEV.)=  2.0%;VALLEY(UNDEV.)/DESERT= 22.0%
          MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
 Tc(HR) = 1.47; LAG(HR) = 1.17; Fm(INCH/HR) = 0.24; Ybar = 0.40
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.76; 30M = 0.76; 1HR = 0.76;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5903.10
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    884.00 = 53473.00 FEET.
  EQUIVALENT BASIN FACTOR APPROXIMATIONS:
  Lca/L=0.3,n=.0322; Lca/L=0.4,n=.0288; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
 TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1764.52
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3758.65
 TOTAL AREA(ACRES) =   5903.10       PEAK FLOW RATE(CFS) =    4723.72
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    865.00 TO NODE    884.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  87.98
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.196
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "WOODLAND"                 A        3.00      0.40      1.00    36
 AGRICULTURAL POOR COVER
 "FALLOW"                   B        1.70      0.30      1.00    86
 NATURAL FAIR COVER
 "GRASS"                    B        2.40      0.30      1.00    69
 AGRICULTURAL FAIR COVER
 "ORCHARDS"                 B        6.40      0.30      1.00    65
 COMMERCIAL                 B        1.10      0.30      0.10    56
 AGRICULTURAL POOR COVER
 "FALLOW"                   D        0.10      0.20      1.00    94
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.32
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.93
 SUBAREA AREA(ACRES) =   14.70
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
 S-GRAPH: VALLEY(DEV.)=  2.0%;VALLEY(UNDEV.)/DESERT= 22.0%
          MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
 Tc(HR) = 1.47; LAG(HR) = 1.17; Fm(INCH/HR) = 0.24; Ybar = 0.40
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.76; 30M = 0.76; 1HR = 0.76;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5917.80
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    884.00 = 53473.00 FEET.
  EQUIVALENT BASIN FACTOR APPROXIMATIONS:
  Lca/L=0.3,n=.0322; Lca/L=0.4,n=.0288; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
 TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1767.63
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3765.51
 TOTAL AREA(ACRES) =   5917.80       PEAK FLOW RATE(CFS) =    4723.72
```

```
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    865.00 TO NODE    884.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  87.98
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.196
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                     D        1.10      0.20      1.00    84
  AGRICULTURAL FAIR COVER
  "ORCHARDS"                  D        0.40      0.20      1.00    82
  COMMERCIAL                  D        0.40      0.20      0.10    75
  NATURAL FAIR COVER
  "WOODLAND"                  D        3.90      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.94
  SUBAREA AREA(ACRES) =    5.80
  UNIT-HYDROGRAPH DATA:
  RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
  S-GRAPH: VALLEY(DEV.)=  2.0%;VALLEY(UNDEV.)/DESERT= 22.0%
           MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
  Tc(HR) = 1.47; LAG(HR) = 1.17; Fm(INCH/HR) = 0.24; Ybar = 0.40
  USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
  DEPTH-AREA FACTORS: 5M = 0.76; 30M = 0.76; 1HR = 0.76;
  3HR = 0.96; 6HR = 0.98; 24HR= 0.99
  UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5923.60
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    884.00 = 53473.00 FEET.
   EQUIVALENT BASIN FACTOR APPROXIMATIONS:
   Lca/L=0.3,n=.0322; Lca/L=0.4,n=.0288; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
  TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1769.42
  UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3768.84
  TOTAL AREA(ACRES) =   5923.60       PEAK FLOW RATE(CFS) =    4723.72
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    884.00 TO NODE    884.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  PEAK FLOW RATE(CFS) =    4723.72    Tc(MIN.) =  87.98
  AREA-AVERAGED Fm(INCH/HR) =  0.24   Ybar = 0.40
  TOTAL AREA(ACRES) =    5923.60

****************************************************************************
  FLOW PROCESS FROM NODE    870.00 TO NODE    871.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   326.00
  ELEVATION DATA: UPSTREAM(FEET) =   1123.00  DOWNSTREAM(FEET) =   1050.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.640
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.267
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL FAIR COVER
  "GRASS"                     C        0.20      0.25      1.00    79    9.64
  NATURAL FAIR COVER
  "GRASS"                     D        0.30      0.20      1.00    84    9.64
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA RUNOFF(CFS) =      1.82
  TOTAL AREA(ACRES) =      0.50   PEAK FLOW RATE(CFS) =      1.82

****************************************************************************
  FLOW PROCESS FROM NODE    871.00 TO NODE    872.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1050.00  DOWNSTREAM(FEET) =   1010.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   238.00   CHANNEL SLOPE =  0.1681
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      1.82
  FLOW VELOCITY(FEET/SEC.) =   5.14   FLOW DEPTH(FEET) =   0.28
  TRAVEL TIME(MIN.) =   0.77   Tc(MIN.) =  10.41
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    872.00 =   564.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    871.00 TO NODE    872.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  10.41
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.078
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                     C        0.10      0.25      1.00    79
  NATURAL FAIR COVER
  "GRASS"                     D        0.80      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    0.90      SUBAREA RUNOFF(CFS) =    3.14
  EFFECTIVE AREA(ACRES) =      1.40   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =      1.40       PEAK FLOW RATE(CFS) =       4.87

****************************************************************************
  FLOW PROCESS FROM NODE    872.00 TO NODE    873.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1010.00  DOWNSTREAM(FEET) =    975.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   408.00   CHANNEL SLOPE =  0.0858
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      4.87
  FLOW VELOCITY(FEET/SEC.) =   5.35   FLOW DEPTH(FEET) =   0.58
  TRAVEL TIME(MIN.) =   1.27   Tc(MIN.) =  11.68
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    873.00 =   972.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    872.00 TO NODE    873.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  11.68
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.824
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
```

```
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                   C        0.60      0.25       1.00    79
  NATURAL FAIR COVER
  "GRASS"                   D        1.80      0.20       1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    2.40      SUBAREA RUNOFF(CFS) =    7.80
  EFFECTIVE AREA(ACRES) =      3.80   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =      3.80       PEAK FLOW RATE(CFS) =      12.35

****************************************************************************
  FLOW PROCESS FROM NODE    873.00 TO NODE    874.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    975.00  DOWNSTREAM(FEET) =    941.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   369.00   CHANNEL SLOPE =  0.0921
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     12.35
  FLOW VELOCITY(FEET/SEC.) =   7.01   FLOW DEPTH(FEET) =   0.92
  TRAVEL TIME(MIN.) =   0.88   Tc(MIN.) =  12.56
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    874.00 =  1341.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    873.00 TO NODE    874.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  12.56
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.651
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                   C        0.50      0.25       1.00    79
  NATURAL FAIR COVER
  "GRASS"                   D        2.70      0.20       1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    3.20      SUBAREA RUNOFF(CFS) =    9.92
  EFFECTIVE AREA(ACRES) =      7.00   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =      7.00       PEAK FLOW RATE(CFS) =      21.68

****************************************************************************
  FLOW PROCESS FROM NODE    874.00 TO NODE    875.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    941.00  DOWNSTREAM(FEET) =    932.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    82.00   CHANNEL SLOPE =  0.1098
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     21.68
  FLOW VELOCITY(FEET/SEC.) =   8.46   FLOW DEPTH(FEET) =   0.89
  TRAVEL TIME(MIN.) =   0.16   Tc(MIN.) =  12.72
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    875.00 =  1423.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    874.00 TO NODE    875.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  12.72
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.628
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                   C        0.40      0.25       1.00    79
  NATURAL FAIR COVER
  "GRASS"                   D        4.30      0.20       1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    4.70      SUBAREA RUNOFF(CFS) =   14.48
  EFFECTIVE AREA(ACRES) =     11.70   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     11.70       PEAK FLOW RATE(CFS) =      36.02

****************************************************************************
  FLOW PROCESS FROM NODE    875.00 TO NODE    876.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    941.00  DOWNSTREAM(FEET) =    932.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    82.00   CHANNEL SLOPE =  0.1098
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     36.02
  FLOW VELOCITY(FEET/SEC.) =   9.69   FLOW DEPTH(FEET) =   1.17
  TRAVEL TIME(MIN.) =   0.14   Tc(MIN.) =  12.86
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    876.00 =  1505.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    875.00 TO NODE    876.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  12.86
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.608
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                   D        3.20      0.20       1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    3.20      SUBAREA RUNOFF(CFS) =    9.81
  EFFECTIVE AREA(ACRES) =     14.90   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     14.90       PEAK FLOW RATE(CFS) =      45.62

****************************************************************************
  FLOW PROCESS FROM NODE    876.00 TO NODE    877.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    932.00  DOWNSTREAM(FEET) =    905.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   340.00   CHANNEL SLOPE =  0.0794
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     45.62
  FLOW VELOCITY(FEET/SEC.) =   9.17   FLOW DEPTH(FEET) =   1.44
  TRAVEL TIME(MIN.) =   0.62   Tc(MIN.) =  13.48
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    877.00 =  1845.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE    876.00 TO NODE    877.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.48
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.519
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     D        7.70      0.20      1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"                D        3.70      0.20      1.00    83
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   11.40      SUBAREA RUNOFF(CFS) =   34.05
 EFFECTIVE AREA(ACRES) =     26.30   AREA-AVERAGED Fm(INCH/HR) =  0.20
 AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     26.30       PEAK FLOW RATE(CFS) =      78.48

****************************************************************************
 FLOW PROCESS FROM NODE    877.00 TO NODE    878.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    905.00  DOWNSTREAM(FEET) =    860.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   803.00   CHANNEL SLOPE =  0.0560
 CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     78.48
 FLOW VELOCITY(FEET/SEC.) =   9.17   FLOW DEPTH(FEET) =   1.79
 TRAVEL TIME(MIN.) =   1.46   Tc(MIN.) =  14.94
 LONGEST FLOWPATH FROM NODE    870.00 TO NODE    878.00 =  2648.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    877.00 TO NODE    878.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  14.94
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.309
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     D        8.90      0.20      1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"                D        8.00      0.20      1.00    83
 NATURAL FAIR COVER
 "WOODLAND"                  D        0.40      0.20      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   17.30      SUBAREA RUNOFF(CFS) =   48.40
 EFFECTIVE AREA(ACRES) =     43.60   AREA-AVERAGED Fm(INCH/HR) =  0.20
 AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     43.60       PEAK FLOW RATE(CFS) =     121.90

****************************************************************************
 FLOW PROCESS FROM NODE    878.00 TO NODE    879.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    860.00  DOWNSTREAM(FEET) =    755.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1104.00   CHANNEL SLOPE =  0.0951
 CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    121.90
 FLOW VELOCITY(FEET/SEC.) =  12.51   FLOW DEPTH(FEET) =   1.96
 TRAVEL TIME(MIN.) =   1.47   Tc(MIN.) =  16.41
 LONGEST FLOWPATH FROM NODE    870.00 TO NODE    879.00 =  3752.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    878.00 TO NODE    879.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.41
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.142
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     D       17.30      0.20      1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"                D       24.40      0.20      1.00    83
 NATURAL FAIR COVER
 "WOODLAND"                  D        3.60      0.20      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   45.30      SUBAREA RUNOFF(CFS) =  119.94
 EFFECTIVE AREA(ACRES) =     88.90   AREA-AVERAGED Fm(INCH/HR) =  0.20
 AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     88.90       PEAK FLOW RATE(CFS) =     235.30

****************************************************************************
 FLOW PROCESS FROM NODE    879.00 TO NODE    880.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    755.00  DOWNSTREAM(FEET) =    533.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1578.00   CHANNEL SLOPE =  0.1407
 CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    235.30
 FLOW VELOCITY(FEET/SEC.) =  17.14   FLOW DEPTH(FEET) =   2.50
 TRAVEL TIME(MIN.) =   1.53   Tc(MIN.) =  17.95
 LONGEST FLOWPATH FROM NODE    870.00 TO NODE    880.00 =  5330.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    879.00 TO NODE    880.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  17.95
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.981
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     C        9.80      0.25      1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"                C       11.40      0.25      1.00    77
 NATURAL FAIR COVER
 "WOODLAND"                  C        1.10      0.25      1.00    73
 NATURAL FAIR COVER
 "GRASS"                     D        8.30      0.20      1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"                D       38.20      0.20      1.00    83
 NATURAL FAIR COVER
 "WOODLAND"                  D        8.70      0.20      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
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  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   77.50      SUBAREA RUNOFF(CFS) =  192.95
  EFFECTIVE AREA(ACRES) =    166.40   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    166.40       PEAK FLOW RATE(CFS) =     415.36

****************************************************************************
  FLOW PROCESS FROM NODE    880.00 TO NODE    881.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    533.00  DOWNSTREAM(FEET) =    415.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1236.00   CHANNEL SLOPE =  0.0955
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   4.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    415.36
  FLOW VELOCITY(FEET/SEC.) =  17.08   FLOW DEPTH(FEET) =   3.32
  TRAVEL TIME(MIN.) =   1.21   Tc(MIN.) =  19.15
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    881.00 =  6566.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    880.00 TO NODE    881.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  19.15
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.875
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    C       30.10      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       15.30      0.25      1.00    77
  NATURAL FAIR COVER
  "WOODLAND"                 C        2.00      0.25      1.00    73
  NATURAL FAIR COVER
  "GRASS"                    D       11.30      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D        5.10      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                 D        1.10      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.24
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   64.90      SUBAREA RUNOFF(CFS) =  154.09
  EFFECTIVE AREA(ACRES) =    231.30   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    231.30       PEAK FLOW RATE(CFS) =     553.55

****************************************************************************
  FLOW PROCESS FROM NODE    881.00 TO NODE    882.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    415.00  DOWNSTREAM(FEET) =    190.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2805.00   CHANNEL SLOPE =  0.0802
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    553.55
  FLOW VELOCITY(FEET/SEC.) =  17.16   FLOW DEPTH(FEET) =   3.71
  TRAVEL TIME(MIN.) =   2.72   Tc(MIN.) =  21.88
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    882.00 =  9371.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    881.00 TO NODE    882.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  21.88
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.657
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    B        0.50      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                 B        0.20      0.30      1.00    60
  NATURAL FAIR COVER
  "GRASS"                    C       18.20      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       10.80      0.25      1.00    77
  NATURAL FAIR COVER
  "WOODLAND"                 C        1.20      0.25      1.00    73
  NATURAL FAIR COVER
  "GRASS"                    D       36.30      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   67.20      SUBAREA RUNOFF(CFS) =  147.20
  EFFECTIVE AREA(ACRES) =    298.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    298.50       PEAK FLOW RATE(CFS) =     655.54

****************************************************************************
  FLOW PROCESS FROM NODE    881.00 TO NODE    882.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  21.88
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.657
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                 D        7.10      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    7.10      SUBAREA RUNOFF(CFS) =   15.70
  EFFECTIVE AREA(ACRES) =    305.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    305.60       PEAK FLOW RATE(CFS) =     671.24

****************************************************************************
  FLOW PROCESS FROM NODE    882.00 TO NODE    883.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    190.00  DOWNSTREAM(FEET) =    184.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    86.00   CHANNEL SLOPE =  0.0698
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    671.24
  FLOW VELOCITY(FEET/SEC.) =  17.14   FLOW DEPTH(FEET) =   4.24
  TRAVEL TIME(MIN.) =   0.08   Tc(MIN.) =  21.96
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    883.00 =  9457.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    882.00 TO NODE    883.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  21.96
```

```
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.651
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     B        1.70      0.30       1.00    69
 COMMERCIAL                  B        0.30      0.30       0.10    56
 NATURAL FAIR COVER
 "GRASS"                     C       46.00      0.25       1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"                C       20.20      0.25       1.00    77
 NATURAL FAIR COVER
 "WOODLAND"                  C        4.40      0.25       1.00    73
 NATURAL POOR COVER
 "BARREN"                    D        0.40      0.20       1.00    93
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   73.00      SUBAREA RUNOFF(CFS) =  157.75
 EFFECTIVE AREA(ACRES) =    378.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    378.60       PEAK FLOW RATE(CFS) =     827.25

****************************************************************************
 FLOW PROCESS FROM NODE    882.00 TO NODE    883.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  21.96
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.651
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     D      187.70      0.20       1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"                D       94.40      0.20       1.00    83
 COMMERCIAL                  D        7.70      0.20       0.10    75
 NATURAL FAIR COVER
 "WOODLAND"                  D        7.90      0.20       1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.98
 SUBAREA AREA(ACRES) =  297.70      SUBAREA RUNOFF(CFS) =  657.96
 EFFECTIVE AREA(ACRES) =    676.30   AREA-AVERAGED Fm(INCH/HR) =  0.21
 AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  0.99
 TOTAL AREA(ACRES) =    676.30       PEAK FLOW RATE(CFS) =    1485.20

****************************************************************************
 FLOW PROCESS FROM NODE    883.00 TO NODE    884.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    184.00  DOWNSTREAM(FEET) =    135.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2701.00   CHANNEL SLOPE =  0.0181
 CHANNEL BASE(FEET) =    7.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   7.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   1485.20
 FLOW VELOCITY(FEET/SEC.) =  15.66   FLOW DEPTH(FEET) =   6.85
 TRAVEL TIME(MIN.) =   2.87   Tc(MIN.) =  24.83
 LONGEST FLOWPATH FROM NODE    870.00 TO NODE    884.00 = 12158.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    883.00 TO NODE    884.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  24.83
```

```
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.470
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     A        1.60      0.40       1.00    50
 AGRICULTURAL FAIR COVER
 "ORCHARDS"                  A        0.20      0.40       1.00    44
 COMMERCIAL                  A        3.90      0.40       0.10    32
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           A       26.80      0.40       1.00    49
 NATURAL FAIR COVER
 "WOODLAND"                  A        2.60      0.40       1.00    36
 NATURAL POOR COVER
 "BARREN"                    B        2.00      0.30       1.00    86
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.39
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.91
 SUBAREA AREA(ACRES) =   37.10      SUBAREA RUNOFF(CFS) =   70.56
 EFFECTIVE AREA(ACRES) =    713.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.98
 TOTAL AREA(ACRES) =    713.40       PEAK FLOW RATE(CFS) =    1485.20
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    883.00 TO NODE    884.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  24.83
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.470
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL FAIR COVER
 "ORCHARDS"                  B        2.40      0.30       1.00    65
 COMMERCIAL                  B        5.30      0.30       0.10    56
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B       11.60      0.30       1.00    69
 NATURAL FAIR COVER
 "WOODLAND"                  B        5.80      0.30       1.00    60
 NATURAL FAIR COVER
 "GRASS"                     C       24.90      0.25       1.00    79
 AGRICULTURAL FAIR COVER
 "ORCHARDS"                  C        0.90      0.25       1.00    77
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.91
 SUBAREA AREA(ACRES) =   50.90      SUBAREA RUNOFF(CFS) =  101.85
 EFFECTIVE AREA(ACRES) =    764.30   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.98
 TOTAL AREA(ACRES) =    764.30       PEAK FLOW RATE(CFS) =    1547.38

****************************************************************************
 FLOW PROCESS FROM NODE    883.00 TO NODE    884.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  24.83
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.470
 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        8.00      0.25       1.00    77
 COMMERCIAL                  C        0.90      0.25       0.10    69
 NATURAL FAIR COVER
 "WOODLAND"                  C        3.20      0.25       1.00    73
 NATURAL POOR COVER
```

```
  "BARREN"                  D        0.20      0.20      1.00    93
  NATURAL FAIR COVER
  "GRASS"                   D       29.30      0.20      1.00    84
  AGRICULTURAL FAIR COVER
  "ORCHARDS"                D       13.50      0.20      1.00    82
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.99
  SUBAREA AREA(ACRES) =   55.10      SUBAREA RUNOFF(CFS) =  112.20
  EFFECTIVE AREA(ACRES) =    819.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =    819.40       PEAK FLOW RATE(CFS) =    1659.58

****************************************************************************
  FLOW PROCESS FROM NODE    883.00 TO NODE    884.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  24.83
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.470
  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"              D        1.60      0.20      1.00    83
  COMMERCIAL                D       28.20      0.20      0.10    75
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"         D        0.40      0.20      1.00    84
  NATURAL FAIR COVER
  "WOODLAND"                D        2.10      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.21
  SUBAREA AREA(ACRES) =   32.30      SUBAREA RUNOFF(CFS) =   70.56
  EFFECTIVE AREA(ACRES) =    851.70   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.95
  TOTAL AREA(ACRES) =    851.70       PEAK FLOW RATE(CFS) =    1730.13

****************************************************************************
  FLOW PROCESS FROM NODE    884.00 TO NODE    884.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  24.83
  RAINFALL INTENSITY(INCH/HR) =   2.47
  AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.22
  AREA-AVERAGED Ap =  0.95
  EFFECTIVE STREAM AREA(ACRES) =   851.70
  TOTAL STREAM AREA(ACRES) =   851.70
  PEAK FLOW RATE(CFS) AT CONFLUENCE =   1730.13
  ** CONFLUENCE DATA **
  STREAM      Q        Tc      AREA      HEADWATER
  NUMBER    (CFS)    (MIN.)   (ACRES)      NODE
     1      4723.72   87.98     5923.60     3100.00
     2      1730.13   24.83      851.70      870.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  UNIT-HYDROGRAPH DATA:
  RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
  S-GRAPH: VALLEY(DEV.)=  2.0%;VALLEY(UNDEV.)/DESERT= 22.0%
           MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
  Tc(HR) = 1.47; LAG(HR) = 1.17; Fm(INCH/HR) = 0.24; Ybar = 0.39
  USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
  DEPTH-AREA FACTORS: 5M = 0.74; 30M = 0.74; 1HR = 0.74;
  3HR = 0.96; 6HR = 0.98; 24HR= 0.99
  UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   6775.30
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    884.00 = 53473.00 FEET.
   EQUIVALENT BASIN FACTOR APPROXIMATIONS:
   Lca/L=0.3,n=.0322; Lca/L=0.4,n=.0288; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
  TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    2027.33
  PEAK FLOW RATE(CFS) =   4234.63
    (UPSTREAM NODE PEAK FLOW RATE(CFS) =   4723.72)
  PEAK FLOW RATE(CFS) USED =   4723.72

****************************************************************************
  FLOW PROCESS FROM NODE    884.00 TO NODE    885.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    135.00  DOWNSTREAM(FEET) =    132.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   207.00   CHANNEL SLOPE =  0.0145
  CHANNEL BASE(FEET) =   85.00   "Z" FACTOR =   2.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  15.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   4723.72
  FLOW VELOCITY(FEET/SEC.) =  13.56   FLOW DEPTH(FEET) =   3.77
  TRAVEL TIME(MIN.) =   0.25   Tc(MIN.) =  88.23
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    885.00 = 53680.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    884.00 TO NODE    885.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  88.23
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.194
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       A        0.10      0.40      1.00    40
  AGRICULTURAL POOR COVER
  "FALLOW"                    A        0.40      0.40      1.00    77
  NATURAL FAIR COVER
  "WOODLAND"                  A        1.30      0.40      1.00    36
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    1.80
  UNIT-HYDROGRAPH DATA:
  RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
  S-GRAPH: VALLEY(DEV.)=  2.0%;VALLEY(UNDEV.)/DESERT= 22.0%
           MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
  Tc(HR) = 1.47; LAG(HR) = 1.18; Fm(INCH/HR) = 0.24; Ybar = 0.39
  USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
  DEPTH-AREA FACTORS: 5M = 0.74; 30M = 0.74; 1HR = 0.74;
  3HR = 0.96; 6HR = 0.98; 24HR= 0.99
  UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   6777.10
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    885.00 = 53680.00 FEET.
   EQUIVALENT BASIN FACTOR APPROXIMATIONS:
   Lca/L=0.3,n=.0322; Lca/L=0.4,n=.0288; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
  TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    2027.55
  UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   4227.80
  TOTAL AREA(ACRES) =   6777.10       PEAK FLOW RATE(CFS) =    4723.72
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =   6777.10  TC(MIN.) =     88.23
  AREA-AVERAGED Fm(INCH/HR)=  0.24   Ybar =  0.39
  PEAK FLOW RATE(CFS)   =   4723.72
============================================================================
============================================================================
  END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANAL
```

PRELIMINARY DRAFT – FOR INTERNAL USE ONLY

TECHNICAL APPENDIX V-B
HYDROLOGIC ANALYSIS
PROPOSED CONDITION
100-YEAR HIGH CONFIDENCE

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

                           Huitt - Zollars, Inc.
                          430 Exchange, Suite 200
                           Irvine, CA. 92602-1309
                              714 - 734 - 5100

 ------------------------------------------------------------------------
   FILE NAME: CP31100H.DAT
   TIME/DATE OF STUDY: 07:31 04/01/2004
 ========================================================================
   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) II ASSUMED FOR RATIONAL METHOD*

   *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
      HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
      WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
 NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
 ===  =====  =========  ================  ======  =====  ====  =====  =======
   1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

   GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
     1. Relative Flow-Depth =  0.00 FEET
        as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
     2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
   *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
    OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
   *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

   UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
     WATERSHED LAG = 0.80 * Tc
           S-GRAPH TYPE                  PERCENTAGE(DECIMAL)
         VALLEY(DEVELOPED)                    0.160
         FOOTHILL                             0.140
         MOUNTAIN                             0.620
         VALLEY(UNDEVELOPED)/DESERT           0.080
         DESERT(UNDEVELOPED)                  0.000
     SIERRA MADRE DEPTH-AREA FACTORS USED.
                       AREA-AVERAGED
         DURATION    RAINFALL(INCH)
         5-MINUTES         0.52
        30-MINUTES         1.09
         1-HOUR            1.45
         3-HOUR            2.43
         6-HOUR            3.36
        24-HOUR            5.63
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD*


 ************************************************************************
   FLOW PROCESS FROM NODE   3100.00 TO NODE   3101.00 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) =   1195.00  DOWNSTREAM(FEET) =   1090.00

   Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
   SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.013
   * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.414
   SUBAREA Tc AND LOSS RATE DATA(AMC  II):
    DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
        LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
   NATURAL FAIR COVER
   "OPEN BRUSH"                C        1.20      0.25      1.00    77    9.01
   SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
   SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
   SUBAREA RUNOFF(CFS) =      4.50
   TOTAL AREA(ACRES) =      1.20   PEAK FLOW RATE(CFS) =      4.50

 ************************************************************************
   FLOW PROCESS FROM NODE   3101.00 TO NODE   3102.00 IS CODE =  51
 ------------------------------------------------------------------------
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
 ========================================================================
   ELEVATION DATA: UPSTREAM(FEET) =   1090.00  DOWNSTREAM(FEET) =   1060.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   246.00   CHANNEL SLOPE =  0.1220
   CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
   MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
   CHANNEL FLOW THRU SUBAREA(CFS) =      4.50
   FLOW VELOCITY(FEET/SEC.) =   5.99   FLOW DEPTH(FEET) =   0.50
   TRAVEL TIME(MIN.) =   0.68   Tc(MIN.) =   9.70
   LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3102.00 =   575.00 FEET.

 ************************************************************************
   FLOW PROCESS FROM NODE   3101.00 TO NODE   3102.00 IS CODE =  81
 ------------------------------------------------------------------------
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 ========================================================================
   MAINLINE Tc(MIN) =   9.70
   * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.249
   SUBAREA LOSS RATE DATA(AMC  II):
    DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
        LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
   AGRICULTURAL FAIR COVER
   "PASTURE,DRYLAND"           B        0.20      0.30      1.00    69
   NATURAL FAIR COVER
   "OPEN BRUSH"                C        0.70      0.25      1.00    77
   AGRICULTURAL FAIR COVER
   "PASTURE,DRYLAND"           C        0.10      0.25      1.00    79
   SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.26
   SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
   SUBAREA AREA(ACRES) =    1.00      SUBAREA RUNOFF(CFS) =    3.59
   EFFECTIVE AREA(ACRES) =      2.20   AREA-AVERAGED Fm(INCH/HR) =  0.25
   AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
   TOTAL AREA(ACRES) =      2.20       PEAK FLOW RATE(CFS) =       7.91

 ************************************************************************
   FLOW PROCESS FROM NODE   3102.00 TO NODE   3103.00 IS CODE =  51
 ------------------------------------------------------------------------
   >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
   >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
 ========================================================================
   ELEVATION DATA: UPSTREAM(FEET) =   1060.00  DOWNSTREAM(FEET) =   1050.00
   CHANNEL LENGTH THRU SUBAREA(FEET) =   131.00   CHANNEL SLOPE =  0.0763
   CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
   MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
   CHANNEL FLOW THRU SUBAREA(CFS) =      7.91
```

```
 FLOW VELOCITY(FEET/SEC.) =   5.83   FLOW DEPTH(FEET) =   0.77
 TRAVEL TIME(MIN.) =   0.37   Tc(MIN.) =  10.07
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3103.00 =   706.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3102.00 TO NODE   3103.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.07
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.145
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        0.80      0.30       1.00    66
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        2.60      0.25       1.00    77
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           C        0.10      0.25       1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    3.50      SUBAREA RUNOFF(CFS) =   12.23
 EFFECTIVE AREA(ACRES) =      5.70   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      5.70       PEAK FLOW RATE(CFS) =      19.94

****************************************************************************
 FLOW PROCESS FROM NODE   3103.00 TO NODE   3104.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   1050.00  DOWNSTREAM(FEET) =   1040.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   141.00   CHANNEL SLOPE =  0.0709
 CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     19.94
 FLOW VELOCITY(FEET/SEC.) =   7.05   FLOW DEPTH(FEET) =   0.96
 TRAVEL TIME(MIN.) =   0.33   Tc(MIN.) =  10.41
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3104.00 =   847.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3103.00 TO NODE   3104.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.41
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.079
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        0.80      0.30       1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B        0.60      0.30       1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        2.70      0.25       1.00    77
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    4.10      SUBAREA RUNOFF(CFS) =   14.07
 EFFECTIVE AREA(ACRES) =      9.80   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      9.80       PEAK FLOW RATE(CFS) =      33.66

****************************************************************************
 FLOW PROCESS FROM NODE   3104.00 TO NODE   3105.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   1040.00  DOWNSTREAM(FEET) =   1030.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   156.00   CHANNEL SLOPE =  0.0641
 CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     33.66
 FLOW VELOCITY(FEET/SEC.) =   7.83   FLOW DEPTH(FEET) =   1.30
 TRAVEL TIME(MIN.) =   0.33   Tc(MIN.) =  10.74
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3105.00 =  1003.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3104.00 TO NODE   3105.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.74
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.012
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        1.50      0.30       1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B        0.90      0.30       1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        3.50      0.25       1.00    77
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    5.90      SUBAREA RUNOFF(CFS) =   19.87
 EFFECTIVE AREA(ACRES) =     15.70   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     15.70       PEAK FLOW RATE(CFS) =      52.95

****************************************************************************
 FLOW PROCESS FROM NODE   3105.00 TO NODE   3106.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   1030.00  DOWNSTREAM(FEET) =   1010.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   462.00   CHANNEL SLOPE =  0.0433
 CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     52.95
 FLOW VELOCITY(FEET/SEC.) =   7.61   FLOW DEPTH(FEET) =   1.82
 TRAVEL TIME(MIN.) =   1.01   Tc(MIN.) =  11.75
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3106.00 =  1465.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3105.00 TO NODE   3106.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  11.75
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.810
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        0.90      0.30       1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B        3.10      0.30       1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        6.20      0.25       1.00    77
```

```
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          C        0.10      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   10.30      SUBAREA RUNOFF(CFS) =   32.82
  EFFECTIVE AREA(ACRES) =     26.00   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     26.00       PEAK FLOW RATE(CFS) =      82.91

****************************************************************************
  FLOW PROCESS FROM NODE   3106.00 TO NODE   3107.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1010.00  DOWNSTREAM(FEET) =    980.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   589.00   CHANNEL SLOPE =  0.0509
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     82.91
  FLOW VELOCITY(FEET/SEC.) =   8.98   FLOW DEPTH(FEET) =   1.89
  TRAVEL TIME(MIN.) =   1.09   Tc(MIN.) =  12.84
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3107.00 =  2054.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3106.00 TO NODE   3107.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  12.84
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.611
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        1.30      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B        2.70      0.30      1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"                C        4.30      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        1.50      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    9.80      SUBAREA RUNOFF(CFS) =   29.46
  EFFECTIVE AREA(ACRES) =     35.80   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     35.80       PEAK FLOW RATE(CFS) =     107.70

****************************************************************************
  FLOW PROCESS FROM NODE   3107.00 TO NODE   3108.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    980.00  DOWNSTREAM(FEET) =    970.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   322.00   CHANNEL SLOPE =  0.0311
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    107.70
  FLOW VELOCITY(FEET/SEC.) =   8.01   FLOW DEPTH(FEET) =   2.46
  TRAVEL TIME(MIN.) =   0.67   Tc(MIN.) =  13.51
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3108.00 =  2376.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3107.00 TO NODE   3108.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  13.51
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.514
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        1.20      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B        3.90      0.30      1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"                C        8.60      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        2.40      0.25      1.00    79
  NATURAL FAIR COVER
  "WOODLAND"                  C        2.20      0.25      1.00    73
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.26
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   18.30      SUBAREA RUNOFF(CFS) =   53.53
  EFFECTIVE AREA(ACRES) =     54.10   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     54.10       PEAK FLOW RATE(CFS) =     158.12

****************************************************************************
  FLOW PROCESS FROM NODE   3108.00 TO NODE   3109.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    970.00  DOWNSTREAM(FEET) =    950.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   654.00   CHANNEL SLOPE =  0.0306
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   4.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    158.12
  FLOW VELOCITY(FEET/SEC.) =   8.72   FLOW DEPTH(FEET) =   2.70
  TRAVEL TIME(MIN.) =   1.25   Tc(MIN.) =  14.76
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3109.00 =  3030.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3108.00 TO NODE   3109.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  14.76
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.334
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        1.30      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B        6.30      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                  B        0.20      0.30      1.00    60
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C        0.90      0.25      1.00    75
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       10.40      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        6.00      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   25.10      SUBAREA RUNOFF(CFS) =   69.32
  EFFECTIVE AREA(ACRES) =     79.20   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     79.20       PEAK FLOW RATE(CFS) =     218.68
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   3108.00 TO NODE   3109.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  14.76
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.334
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                  C        0.30      0.25      1.00    73
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    0.30      SUBAREA RUNOFF(CFS) =    0.83
  EFFECTIVE AREA(ACRES) =     79.50   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     79.50       PEAK FLOW RATE(CFS) =     219.52

****************************************************************************
  FLOW PROCESS FROM NODE   3109.00 TO NODE   3110.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    950.00  DOWNSTREAM(FEET) =    890.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1548.00   CHANNEL SLOPE =  0.0388
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   4.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    219.52
  FLOW VELOCITY(FEET/SEC.) =  10.37   FLOW DEPTH(FEET) =   3.02
  TRAVEL TIME(MIN.) =   2.49   Tc(MIN.) =  17.25
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3110.00 =  4578.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3109.00 TO NODE   3110.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  17.25
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.048
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        5.50      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B       10.40      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                  B        2.20      0.30      1.00    60
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C        3.80      0.25      1.00    75
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       22.10      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        1.80      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   45.80      SUBAREA RUNOFF(CFS) =  114.52
  EFFECTIVE AREA(ACRES) =    125.30   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    125.30       PEAK FLOW RATE(CFS) =     313.56

****************************************************************************
  FLOW PROCESS FROM NODE   3110.00 TO NODE   3111.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    890.00  DOWNSTREAM(FEET) =    850.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1572.00   CHANNEL SLOPE =  0.0254
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    313.56
  FLOW VELOCITY(FEET/SEC.) =   9.67   FLOW DEPTH(FEET) =   3.72
  TRAVEL TIME(MIN.) =   2.71   Tc(MIN.) =  19.96
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3111.00 =  6150.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3110.00 TO NODE   3111.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  19.96
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.804
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       B        0.40      0.30      1.00    63
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        0.80      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B        9.40      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                  B        1.60      0.30      1.00    60
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C        3.50      0.25      1.00    75
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       23.40      0.25      1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   39.10      SUBAREA RUNOFF(CFS) =   89.31
  EFFECTIVE AREA(ACRES) =    164.40   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    164.40       PEAK FLOW RATE(CFS) =     375.31

****************************************************************************
  FLOW PROCESS FROM NODE   3110.00 TO NODE   3111.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  19.96
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.804
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        4.70      0.25      1.00    79
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           D        0.80      0.20      1.00    84
  NATURAL FAIR COVER
  "WOODLAND"                  D        1.10      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.24
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    6.60      SUBAREA RUNOFF(CFS) =   15.25
  EFFECTIVE AREA(ACRES) =    171.00   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    171.00       PEAK FLOW RATE(CFS) =     390.57

****************************************************************************
  FLOW PROCESS FROM NODE   3111.00 TO NODE   3112.00 IS CODE =  51
----------------------------------------------------------------------------
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```
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    850.00  DOWNSTREAM(FEET) =    810.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1623.00   CHANNEL SLOPE =  0.0246
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    390.57
  FLOW VELOCITY(FEET/SEC.) =  10.13   FLOW DEPTH(FEET) =   4.19
  TRAVEL TIME(MIN.) =   2.67   Tc(MIN.) =  22.63
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3112.00 =  7773.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3111.00 TO NODE   3112.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN) =  22.63
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.602
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        B        1.50      0.30       0.50    56
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        3.10      0.30       1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B       10.70      0.30       1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                  B        0.40      0.30       1.00    60
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C        0.50      0.25       1.00    75
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       16.70      0.25       1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.98
  SUBAREA AREA(ACRES) =   32.90      SUBAREA RUNOFF(CFS) =   69.15
  EFFECTIVE AREA(ACRES) =    203.90   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    203.90       PEAK FLOW RATE(CFS) =     428.73

****************************************************************************
  FLOW PROCESS FROM NODE   3111.00 TO NODE   3112.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN) =  22.63
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.602
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        2.30      0.25       1.00    79
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D        5.10      0.20       0.50    75
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           D        0.90      0.20       1.00    84
  NATURAL FAIR COVER
  "WOODLAND"                  D        0.40      0.20       1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.71
  SUBAREA AREA(ACRES) =    8.70      SUBAREA RUNOFF(CFS) =   19.17
  EFFECTIVE AREA(ACRES) =    212.60   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =    212.60       PEAK FLOW RATE(CFS) =     447.89

****************************************************************************
  FLOW PROCESS FROM NODE   3112.00 TO NODE   3113.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    810.00  DOWNSTREAM(FEET) =    770.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1754.00   CHANNEL SLOPE =  0.0228
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    447.89
  FLOW VELOCITY(FEET/SEC.) =  10.18   FLOW DEPTH(FEET) =   4.59
  TRAVEL TIME(MIN.) =   2.87   Tc(MIN.) =  25.50
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3113.00 =  9527.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3112.00 TO NODE   3113.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN) =  25.50
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.434
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        B       11.20      0.30       0.50    56
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        2.90      0.30       1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B       10.30      0.30       1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                  B        0.40      0.30       1.00    60
  NATURAL FAIR COVER
  "GRASS"                     C        1.10      0.25       1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       19.10      0.25       1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.88
  SUBAREA AREA(ACRES) =   45.00      SUBAREA RUNOFF(CFS) =   88.85
  EFFECTIVE AREA(ACRES) =    257.60   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =    257.60       PEAK FLOW RATE(CFS) =     504.54

****************************************************************************
  FLOW PROCESS FROM NODE   3112.00 TO NODE   3113.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
  MAINLINE Tc(MIN) =  25.50
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.434
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        4.00      0.25       1.00    79
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D       16.30      0.20       0.50    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.60
  SUBAREA AREA(ACRES) =   20.30      SUBAREA RUNOFF(CFS) =   42.10
  EFFECTIVE AREA(ACRES) =    277.90   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.94
  TOTAL AREA(ACRES) =    277.90       PEAK FLOW RATE(CFS) =     546.64

****************************************************************************
  FLOW PROCESS FROM NODE   3113.00 TO NODE   3114.00 IS CODE =  51
----------------------------------------------------------------------------
```

```
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    770.00  DOWNSTREAM(FEET) =    740.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1443.00   CHANNEL SLOPE =  0.0208
 CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   6.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    546.64
 FLOW VELOCITY(FEET/SEC.) =  10.33   FLOW DEPTH(FEET) =   4.87
 TRAVEL TIME(MIN.) =   2.33   Tc(MIN.) =  27.83
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3114.00 = 10970.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3113.00 TO NODE   3114.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  27.83
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.316
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B        8.10      0.30       0.50    56
 NATURAL FAIR COVER
 "OPEN BRUSH"               B        1.20      0.30       1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          B       17.80      0.30       1.00    69
 NATURAL FAIR COVER
 "WOODLAND"                 B        2.00      0.30       1.00    60
 NATURAL FAIR COVER
 "GRASS"                    C        0.20      0.25       1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"               C        7.00      0.25       1.00    77
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.29
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.89
 SUBAREA AREA(ACRES) =   36.30      SUBAREA RUNOFF(CFS) =   67.26
 EFFECTIVE AREA(ACRES) =    314.20   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.93
 TOTAL AREA(ACRES) =    314.20       PEAK FLOW RATE(CFS) =     584.27

****************************************************************************
 FLOW PROCESS FROM NODE   3113.00 TO NODE   3114.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  27.83
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.316
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          C        8.60      0.25       1.00    79
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       D       10.50      0.20       0.50    75
 NATURAL FAIR COVER
 "OPEN BRUSH"               D        0.60      0.20       1.00    83
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.73
 SUBAREA AREA(ACRES) =   19.70      SUBAREA RUNOFF(CFS) =   38.07
 EFFECTIVE AREA(ACRES) =    333.90   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.92
 TOTAL AREA(ACRES) =    333.90       PEAK FLOW RATE(CFS) =     622.34

****************************************************************************
 FLOW PROCESS FROM NODE   3114.00 TO NODE   3135.00 IS CODE =  51
----------------------------------------------------------------------------
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```
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    740.00  DOWNSTREAM(FEET) =    710.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1534.00   CHANNEL SLOPE =  0.0196
 CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   6.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    622.34
 FLOW VELOCITY(FEET/SEC.) =  10.44   FLOW DEPTH(FEET) =   5.28
 TRAVEL TIME(MIN.) =   2.45   Tc(MIN.) =  30.28
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3135.00 = 12504.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3114.00 TO NODE   3135.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  30.28
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.209
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B        4.30      0.30       0.50    56
 NATURAL FAIR COVER
 "OPEN BRUSH"               B        2.20      0.30       1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          B       16.30      0.30       1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"               C        2.30      0.25       1.00    77
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          C        0.40      0.25       1.00    79
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       D        5.00      0.20       0.50    75
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.29
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.85
 SUBAREA AREA(ACRES) =   30.50      SUBAREA RUNOFF(CFS) =   54.01
 EFFECTIVE AREA(ACRES) =    364.40   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.91
 TOTAL AREA(ACRES) =    364.40       PEAK FLOW RATE(CFS) =     644.47

****************************************************************************
 FLOW PROCESS FROM NODE   3114.00 TO NODE   3135.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  30.28
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.209
 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"               D        9.70      0.20       1.00    83
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          D        1.80      0.20       1.00    84
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   11.50      SUBAREA RUNOFF(CFS) =   20.80
 EFFECTIVE AREA(ACRES) =    375.90   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.92
 TOTAL AREA(ACRES) =    375.90       PEAK FLOW RATE(CFS) =     665.26

****************************************************************************
 FLOW PROCESS FROM NODE   3135.00 TO NODE   3135.00 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.) =  30.28
 RAINFALL INTENSITY(INCH/HR) =   2.21
 AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.26
 AREA-AVERAGED Ap =  0.92
 EFFECTIVE STREAM AREA(ACRES) =   375.90
 TOTAL STREAM AREA(ACRES) =   375.90
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    665.26

****************************************************************************
 FLOW PROCESS FROM NODE   3120.00 TO NODE   3121.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   313.00
 ELEVATION DATA: UPSTREAM(FEET) =   1215.00  DOWNSTREAM(FEET) =   1100.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.590
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.577
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS   Tc
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        0.70      0.25      1.00    77    8.59
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA RUNOFF(CFS) =      2.73
 TOTAL AREA(ACRES) =      0.70   PEAK FLOW RATE(CFS) =      2.73

****************************************************************************
 FLOW PROCESS FROM NODE   3121.00 TO NODE   3122.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   1100.00  DOWNSTREAM(FEET) =   1060.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   261.00   CHANNEL SLOPE =  0.1533
 CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
 CHANNEL FLOW THRU SUBAREA(CFS) =      2.73
 FLOW VELOCITY(FEET/SEC.) =   5.65   FLOW DEPTH(FEET) =   0.36
 TRAVEL TIME(MIN.) =   0.77   Tc(MIN.) =   9.36
 LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3122.00 =   574.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3121.00 TO NODE   3122.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   9.36
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.350
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     B        0.10      0.30      1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        0.70      0.30      1.00    66
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        0.60      0.25      1.00    77
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    1.40      SUBAREA RUNOFF(CFS) =    5.13
 EFFECTIVE AREA(ACRES) =      2.10   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      2.10       PEAK FLOW RATE(CFS) =       7.71

****************************************************************************
 FLOW PROCESS FROM NODE   3122.00 TO NODE   3123.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   1060.00  DOWNSTREAM(FEET) =   1040.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   137.00   CHANNEL SLOPE =  0.1460
 CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
 CHANNEL FLOW THRU SUBAREA(CFS) =      7.71
 FLOW VELOCITY(FEET/SEC.) =   7.38   FLOW DEPTH(FEET) =   0.64
 TRAVEL TIME(MIN.) =   0.31   Tc(MIN.) =   9.67
 LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3123.00 =   711.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3122.00 TO NODE   3123.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   9.67
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.258
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     B        0.20      0.30      1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        0.50      0.30      1.00    66
 NATURAL FAIR COVER
 "OPEN BRUSH"                C        1.20      0.25      1.00    77
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    1.90      SUBAREA RUNOFF(CFS) =    6.82
 EFFECTIVE AREA(ACRES) =      4.00   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =      4.00       PEAK FLOW RATE(CFS) =      14.36

****************************************************************************
 FLOW PROCESS FROM NODE   3123.00 TO NODE   3124.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   1040.00  DOWNSTREAM(FEET) =    990.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   450.00   CHANNEL SLOPE =  0.1111
 CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     14.36
 FLOW VELOCITY(FEET/SEC.) =   7.84   FLOW DEPTH(FEET) =   0.94
 TRAVEL TIME(MIN.) =   0.96   Tc(MIN.) =  10.63
 LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3124.00 =  1161.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3123.00 TO NODE   3124.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.63
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.035
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
```

```
  NATURAL FAIR COVER
  "GRASS"                    B        0.90      0.30      1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        1.50      0.30      1.00    66
  NATURAL FAIR COVER
  "WOODLAND"                 B        0.20      0.30      1.00    60
  NATURAL FAIR COVER
  "GRASS"                    C        0.40      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        1.90      0.25      1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    4.90      SUBAREA RUNOFF(CFS) =   16.57
  EFFECTIVE AREA(ACRES) =      8.90   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =      8.90       PEAK FLOW RATE(CFS) =      30.13

****************************************************************************
  FLOW PROCESS FROM NODE   3124.00 TO NODE   3125.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    990.00  DOWNSTREAM(FEET) =    975.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   258.00   CHANNEL SLOPE =  0.0581
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     30.13
  FLOW VELOCITY(FEET/SEC.) =   7.32   FLOW DEPTH(FEET) =   1.26
  TRAVEL TIME(MIN.) =   0.59   Tc(MIN.) =  11.21
  LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3125.00 =  1419.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3124.00 TO NODE   3125.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  11.21
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.917
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    B        0.90      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                 B        0.20      0.30      1.00    60
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      C        0.80      0.25      1.00    75
  NATURAL FAIR COVER
  "GRASS"                    C        0.10      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        1.80      0.25      1.00    77
  NATURAL FAIR COVER
  "WOODLAND"                 C        0.10      0.25      1.00    73
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.26
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    3.90      SUBAREA RUNOFF(CFS) =   12.82
  EFFECTIVE AREA(ACRES) =     12.80   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     12.80       PEAK FLOW RATE(CFS) =      42.01

****************************************************************************
  FLOW PROCESS FROM NODE   3125.00 TO NODE   3126.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    975.00  DOWNSTREAM(FEET) =    970.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   109.00   CHANNEL SLOPE =  0.0459
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     42.01
  FLOW VELOCITY(FEET/SEC.) =   7.31   FLOW DEPTH(FEET) =   1.60
  TRAVEL TIME(MIN.) =   0.25   Tc(MIN.) =  11.46
  LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3126.00 =  1528.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3125.00 TO NODE   3126.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  11.46
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.868
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      B        0.10      0.30      1.00    63
  NATURAL FAIR COVER
  "GRASS"                    B        1.30      0.30      1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        0.90      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          B        0.10      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                 B        1.10      0.30      1.00    60
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      C        0.60      0.25      1.00    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.29
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    4.10      SUBAREA RUNOFF(CFS) =   13.19
  EFFECTIVE AREA(ACRES) =     16.90   AREA-AVERAGED Fm(INCH/HR) =  0.28
  AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     16.90       PEAK FLOW RATE(CFS) =      54.63

****************************************************************************
  FLOW PROCESS FROM NODE   3125.00 TO NODE   3126.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  11.46
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.868
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    C        0.40      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        4.00      0.25      1.00    77
  NATURAL FAIR COVER
  "WOODLAND"                 C        0.30      0.25      1.00    73
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    4.70      SUBAREA RUNOFF(CFS) =   15.30
  EFFECTIVE AREA(ACRES) =     21.60   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     21.60       PEAK FLOW RATE(CFS) =      69.94

****************************************************************************
  FLOW PROCESS FROM NODE   3126.00 TO NODE   3127.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =    970.00  DOWNSTREAM(FEET) =    940.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   696.00   CHANNEL SLOPE =  0.0431
 CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     69.94
 FLOW VELOCITY(FEET/SEC.) =   8.06   FLOW DEPTH(FEET) =   1.81
 TRAVEL TIME(MIN.) =   1.44   Tc(MIN.) =  12.90
 LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3127.00 =  2224.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3126.00 TO NODE   3127.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  12.90
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.602
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       B         2.70      0.30      1.00    63
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B         1.50      0.30      1.00    69
 NATURAL FAIR COVER
 "WOODLAND"                  B         0.50      0.30      1.00    60
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       C         2.60      0.25      1.00    75
 NATURAL FAIR COVER
 "OPEN BRUSH"                C         1.80      0.25      1.00    77
 NATURAL FAIR COVER
 "WOODLAND"                  C         0.20      0.25      1.00    73
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =     9.30      SUBAREA RUNOFF(CFS) =   27.85
 EFFECTIVE AREA(ACRES) =     30.90   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     30.90       PEAK FLOW RATE(CFS) =      92.62

****************************************************************************
 FLOW PROCESS FROM NODE   3127.00 TO NODE   3128.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    940.00  DOWNSTREAM(FEET) =    920.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   511.00   CHANNEL SLOPE =  0.0391
 CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     92.62
 FLOW VELOCITY(FEET/SEC.) =   8.38   FLOW DEPTH(FEET) =   2.15
 TRAVEL TIME(MIN.) =   1.02   Tc(MIN.) =  13.92
 LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3128.00 =  2735.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3127.00 TO NODE   3128.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.92
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.456
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       B         3.00      0.30      1.00    63
 NATURAL FAIR COVER
 "OPEN BRUSH"                B         1.40      0.30      1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B         8.40      0.30      1.00    69
 NATURAL FAIR COVER
 "WOODLAND"                  B         0.20      0.30      1.00    60
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       C         8.00      0.25      1.00    75
 NATURAL FAIR COVER
 "OPEN BRUSH"                C         5.20      0.25      1.00    77
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   26.20      SUBAREA RUNOFF(CFS) =   75.01
 EFFECTIVE AREA(ACRES) =     57.10   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     57.10       PEAK FLOW RATE(CFS) =     163.57

****************************************************************************
 FLOW PROCESS FROM NODE   3127.00 TO NODE   3128.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  13.92
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.456
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           C         1.00      0.25      1.00    79
 NATURAL FAIR COVER
 "WOODLAND"                  C         0.50      0.25      1.00    73
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    1.50      SUBAREA RUNOFF(CFS) =    4.33
 EFFECTIVE AREA(ACRES) =     58.60   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     58.60       PEAK FLOW RATE(CFS) =     167.90

****************************************************************************
 FLOW PROCESS FROM NODE   3128.00 TO NODE   3129.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    920.00  DOWNSTREAM(FEET) =    870.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   980.00   CHANNEL SLOPE =  0.0510
 CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    167.90
 FLOW VELOCITY(FEET/SEC.) =  10.79   FLOW DEPTH(FEET) =   2.72
 TRAVEL TIME(MIN.) =   1.51   Tc(MIN.) =  15.43
 LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3129.00 =  3715.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3128.00 TO NODE   3129.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.43
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.252
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       B         0.90      0.30      1.00    63
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B        11.50      0.30      1.00    69
 NATURAL FAIR COVER
 "WOODLAND"                  B         0.90      0.30      1.00    60
```

```
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      C        2.10      0.25      1.00    75
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        7.30      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          C        6.10      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   28.80      SUBAREA RUNOFF(CFS) =   77.21
  EFFECTIVE AREA(ACRES) =     87.40   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     87.40       PEAK FLOW RATE(CFS) =     234.33

****************************************************************************
  FLOW PROCESS FROM NODE   3128.00 TO NODE   3129.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  15.43
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.252
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                 C        3.30      0.25      1.00    73
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    3.30      SUBAREA RUNOFF(CFS) =    8.92
  EFFECTIVE AREA(ACRES) =     90.70   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     90.70       PEAK FLOW RATE(CFS) =     243.25

****************************************************************************
  FLOW PROCESS FROM NODE   3129.00 TO NODE   3130.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    870.00  DOWNSTREAM(FEET) =    840.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   918.00   CHANNEL SLOPE =  0.0327
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   4.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    243.25
  FLOW VELOCITY(FEET/SEC.) =   9.99   FLOW DEPTH(FEET) =   3.32
  TRAVEL TIME(MIN.) =   1.53   Tc(MIN.) =  16.96
  LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3130.00 =  4633.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3129.00 TO NODE   3130.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  16.96
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.080
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      B        0.90      0.30      1.00    63
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        1.80      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          B       26.80      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                 B        1.40      0.30      1.00    60
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      C        9.90      0.25      1.00    75
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       14.60      0.25      1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   55.40      SUBAREA RUNOFF(CFS) =  139.73
  EFFECTIVE AREA(ACRES) =    146.10   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    146.10       PEAK FLOW RATE(CFS) =     368.98

****************************************************************************
  FLOW PROCESS FROM NODE   3129.00 TO NODE   3130.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  16.96
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.080
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          C        7.00      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    7.00      SUBAREA RUNOFF(CFS) =   17.83
  EFFECTIVE AREA(ACRES) =    153.10   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    153.10       PEAK FLOW RATE(CFS) =     386.81

****************************************************************************
  FLOW PROCESS FROM NODE   3130.00 TO NODE   3131.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    840.00  DOWNSTREAM(FEET) =    820.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   882.00   CHANNEL SLOPE =  0.0227
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    386.81
  FLOW VELOCITY(FEET/SEC.) =   9.80   FLOW DEPTH(FEET) =   4.26
  TRAVEL TIME(MIN.) =   1.50   Tc(MIN.) =  18.46
  LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3131.00 =  5515.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3130.00 TO NODE   3131.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  18.46
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.935
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        2.80      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          B       22.40      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                 B        2.00      0.30      1.00    60
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      C        4.90      0.25      1.00    75
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       20.20      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          C        9.80      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
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 SUBAREA AREA(ACRES) =   62.10      SUBAREA RUNOFF(CFS) =  148.86
 EFFECTIVE AREA(ACRES) =    215.20   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    215.20       PEAK FLOW RATE(CFS) =     515.70

****************************************************************************
 FLOW PROCESS FROM NODE   3130.00 TO NODE   3131.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  18.46
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.935
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "WOODLAND"                  C        1.80      0.25      1.00    73
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    1.80      SUBAREA RUNOFF(CFS) =    4.35
 EFFECTIVE AREA(ACRES) =    217.00   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    217.00       PEAK FLOW RATE(CFS) =     520.05

****************************************************************************
 FLOW PROCESS FROM NODE   3131.00 TO NODE   3132.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    820.00  DOWNSTREAM(FEET) =    800.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   901.00   CHANNEL SLOPE =  0.0222
 CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    520.05
 FLOW VELOCITY(FEET/SEC.) =  10.47   FLOW DEPTH(FEET) =   4.98
 TRAVEL TIME(MIN.) =   1.43   Tc(MIN.) =  19.90
 LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3132.00 =  6416.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3131.00 TO NODE   3132.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  19.90
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.809
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       B        0.90      0.30      1.00    63
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        4.00      0.30      1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B       25.00      0.30      1.00    69
 NATURAL FAIR COVER
 "WOODLAND"                  B        1.80      0.30      1.00    60
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       C        3.90      0.25      1.00    75
 NATURAL FAIR COVER
 "OPEN BRUSH"                C       24.80      0.25      1.00    77
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   60.40      SUBAREA RUNOFF(CFS) =  137.69
 EFFECTIVE AREA(ACRES) =    277.40   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    277.40       PEAK FLOW RATE(CFS) =     633.09

****************************************************************************
 FLOW PROCESS FROM NODE   3131.00 TO NODE   3132.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  19.90
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.809
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           C       11.10      0.25      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   11.10      SUBAREA RUNOFF(CFS) =   25.57
 EFFECTIVE AREA(ACRES) =    288.50   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    288.50       PEAK FLOW RATE(CFS) =     658.66

****************************************************************************
 FLOW PROCESS FROM NODE   3132.00 TO NODE   3133.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    800.00  DOWNSTREAM(FEET) =    780.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   940.00   CHANNEL SLOPE =  0.0213
 CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   6.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    658.66
 FLOW VELOCITY(FEET/SEC.) =  10.93   FLOW DEPTH(FEET) =   5.32
 TRAVEL TIME(MIN.) =   1.43   Tc(MIN.) =  21.33
 LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3133.00 =  7356.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3132.00 TO NODE   3133.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  21.33
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.699
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        2.50      0.30      1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B       22.20      0.30      1.00    69
 NATURAL FAIR COVER
 "GRASS"                     C        0.40      0.25      1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"                C       20.10      0.25      1.00    77
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           C        6.60      0.25      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   51.80      SUBAREA RUNOFF(CFS) =  113.06
 EFFECTIVE AREA(ACRES) =    340.30   AREA-AVERAGED Fm(INCH/HR) =  0.27
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    340.30       PEAK FLOW RATE(CFS) =     743.11

****************************************************************************
 FLOW PROCESS FROM NODE   3133.00 TO NODE   3134.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
```

```
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    780.00  DOWNSTREAM(FEET) =    765.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   596.00   CHANNEL SLOPE =  0.0252
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   6.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    743.11
  FLOW VELOCITY(FEET/SEC.) =  12.00   FLOW DEPTH(FEET) =   5.42
  TRAVEL TIME(MIN.) =   0.83   Tc(MIN.) =  22.16
  LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3134.00 =  7952.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3133.00 TO NODE   3134.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  22.16
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.636
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "OPEN BRUSH"                B       15.60      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B       55.20      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                  B        3.60      0.30      1.00    60
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C        0.10      0.25      1.00    75
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       75.10      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C       28.10      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =  177.70      SUBAREA RUNOFF(CFS) =  378.26
  EFFECTIVE AREA(ACRES) =    518.00   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    518.00       PEAK FLOW RATE(CFS) =    1102.10

****************************************************************************
  FLOW PROCESS FROM NODE   3133.00 TO NODE   3134.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  22.16
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.636
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                  C        1.50      0.25      1.00    73
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    1.50      SUBAREA RUNOFF(CFS) =    3.22
  EFFECTIVE AREA(ACRES) =    519.50   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    519.50       PEAK FLOW RATE(CFS) =    1105.32

****************************************************************************
  FLOW PROCESS FROM NODE   3134.00 TO NODE   3135.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    765.00  DOWNSTREAM(FEET) =    710.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2076.00   CHANNEL SLOPE =  0.0265
  CHANNEL BASE(FEET) =    7.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   7.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   1105.32
  FLOW VELOCITY(FEET/SEC.) =  13.51   FLOW DEPTH(FEET) =   6.20
  TRAVEL TIME(MIN.) =   2.56   Tc(MIN.) =  24.72
  LONGEST FLOWPATH FROM NODE   3120.00 TO NODE   3135.00 = 10028.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3134.00 TO NODE   3135.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  24.72
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.477
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        4.10      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B       39.20      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                  B        0.40      0.30      1.00    60
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       26.40      0.25      1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C        7.10      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   77.20      SUBAREA RUNOFF(CFS) =  152.76
  EFFECTIVE AREA(ACRES) =    596.70   AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    596.70       PEAK FLOW RATE(CFS) =    1183.64

****************************************************************************
  FLOW PROCESS FROM NODE   3135.00 TO NODE   3135.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  24.72
  RAINFALL INTENSITY(INCH/HR) =   2.48
  AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  0.27
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =   596.70
  TOTAL STREAM AREA(ACRES) =   596.70
  PEAK FLOW RATE(CFS) AT CONFLUENCE =   1183.64

  ** CONFLUENCE DATA **
   STREAM     Q      Tc   Intensity   Fp(Fm)     Ap   Ae     HEADWATER
   NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)       (ACRES)    NODE
      1    665.26  30.28    2.209  0.26( 0.24) 0.92   375.9    3100.00
      2   1183.64  24.72    2.477  0.27( 0.27) 1.00   596.7    3120.00

  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   1800.61  24.72    2.477  0.27( 0.26) 0.97   903.6    3120.00
      2   1705.26  30.28    2.209  0.27( 0.26) 0.97   972.6    3100.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =   1800.61    Tc(MIN.) =    24.72
```

```
 EFFECTIVE AREA(ACRES) =   903.57   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =    972.60
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3135.00 = 12504.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3135.00 TO NODE   3136.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    710.00  DOWNSTREAM(FEET) =    690.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1157.00   CHANNEL SLOPE =  0.0173
 CHANNEL BASE(FEET) =    9.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   9.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   1800.61
 FLOW VELOCITY(FEET/SEC.) =  13.00   FLOW DEPTH(FEET) =   8.10
 TRAVEL TIME(MIN.) =   1.48   Tc(MIN.) =  26.20
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3136.00 = 13661.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3135.00 TO NODE   3136.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  26.20
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.397
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B        6.80      0.30       0.50    56
 NATURAL FAIR COVER
 "OPEN BRUSH"               B        3.20      0.30       1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          B       28.90      0.30       1.00    69
 NATURAL FAIR COVER
 "WOODLAND"                 B        0.40      0.30       1.00    60
 NATURAL FAIR COVER
 "OPEN BRUSH"               C        4.50      0.25       1.00    77
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       D        2.90      0.20       0.50    75
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.29
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.90
 SUBAREA AREA(ACRES) =   46.70      SUBAREA RUNOFF(CFS) =   89.80
 EFFECTIVE AREA(ACRES) =    950.27   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =   1019.30       PEAK FLOW RATE(CFS) =    1825.86

****************************************************************************
 FLOW PROCESS FROM NODE   3135.00 TO NODE   3136.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  26.20
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.397
 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"               D       11.70      0.20       1.00    83
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          D        9.10      0.20       1.00    84
 NATURAL FAIR COVER
 "WOODLAND"                 D        0.20      0.20       1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   21.00      SUBAREA RUNOFF(CFS) =   41.53
 EFFECTIVE AREA(ACRES) =    971.27   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =   1040.30       PEAK FLOW RATE(CFS) =    1867.40

****************************************************************************
 FLOW PROCESS FROM NODE   3136.00 TO NODE   3137.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    690.00  DOWNSTREAM(FEET) =    685.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   609.00   CHANNEL SLOPE =  0.0082
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   1867.40
 FLOW VELOCITY(FEET/SEC.) =   9.92   FLOW DEPTH(FEET) =   9.60
 TRAVEL TIME(MIN.) =   1.02   Tc(MIN.) =  27.22
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3137.00 = 14270.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3136.00 TO NODE   3137.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  27.22
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.344
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B        5.80      0.30       0.50    56
 NATURAL FAIR COVER
 "GRASS"                    B        0.40      0.30       1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"               B        3.80      0.30       1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          B       32.50      0.30       1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"               C       29.80      0.25       1.00    77
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          C        3.60      0.25       1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.96
 SUBAREA AREA(ACRES) =   75.90      SUBAREA RUNOFF(CFS) =  141.93
 EFFECTIVE AREA(ACRES) =   1047.17   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =   1116.20       PEAK FLOW RATE(CFS) =    1962.84

****************************************************************************
 FLOW PROCESS FROM NODE   3136.00 TO NODE   3137.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  27.22
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.344
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       D        0.40      0.20       0.50    75
 NATURAL FAIR COVER
 "GRASS"                    D        0.40      0.20       1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"               D       10.30      0.20       1.00    83
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          D       11.00      0.20       1.00    84
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 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.99
 SUBAREA AREA(ACRES) =   22.10      SUBAREA RUNOFF(CFS) =   42.69
 EFFECTIVE AREA(ACRES) =   1069.27   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =   1138.30       PEAK FLOW RATE(CFS) =    2005.52

****************************************************************************
 FLOW PROCESS FROM NODE   3137.00 TO NODE   3138.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    685.00  DOWNSTREAM(FEET) =    675.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   740.00   CHANNEL SLOPE =  0.0135
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   2005.52
 FLOW VELOCITY(FEET/SEC.) =  12.17   FLOW DEPTH(FEET) =   8.78
 TRAVEL TIME(MIN.) =   1.01   Tc(MIN.) =  28.24
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3138.00 = 15010.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3137.00 TO NODE   3138.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  28.24
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.298
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B       20.70      0.30      0.50    56
 NATURAL FAIR COVER
 "OPEN BRUSH"               B        1.50      0.30      1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          B        6.20      0.30      1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"               C        0.40      0.25      1.00    77
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       D       11.70      0.20      0.50    75
 NATURAL FAIR COVER
 "GRASS"                    D        2.10      0.20      1.00    84
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.62
 SUBAREA AREA(ACRES) =   42.60      SUBAREA RUNOFF(CFS) =   81.69
 EFFECTIVE AREA(ACRES) =   1111.87   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   1180.90       PEAK FLOW RATE(CFS) =    2042.18

****************************************************************************
 FLOW PROCESS FROM NODE   3137.00 TO NODE   3138.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  28.24
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.298
 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"               D       12.40      0.20      1.00    83
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          D        3.30      0.20      1.00    84
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   15.70      SUBAREA RUNOFF(CFS) =   29.64
 EFFECTIVE AREA(ACRES) =   1127.57   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   1196.60       PEAK FLOW RATE(CFS) =    2071.82

****************************************************************************
 FLOW PROCESS FROM NODE   3138.00 TO NODE   3139.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    675.00  DOWNSTREAM(FEET) =    655.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   977.00   CHANNEL SLOPE =  0.0205
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   2071.82
 FLOW VELOCITY(FEET/SEC.) =  14.33   FLOW DEPTH(FEET) =   8.02
 TRAVEL TIME(MIN.) =   1.14   Tc(MIN.) =  29.37
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3139.00 = 15987.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3138.00 TO NODE   3139.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  29.37
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.248
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      B        0.40      0.30      1.00    63
 AGRICULTURAL POOR COVER
 "FALLOW"                   B        8.60      0.30      1.00    86
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       B        1.00      0.30      0.50    56
 NATURAL FAIR COVER
 "OPEN BRUSH"               B        9.70      0.30      1.00    66
 COMMERCIAL                 B        5.60      0.30      0.10    56
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          B       12.10      0.30      1.00    69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.85
 SUBAREA AREA(ACRES) =   37.40      SUBAREA RUNOFF(CFS) =   67.05
 EFFECTIVE AREA(ACRES) =   1164.97   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.95
 TOTAL AREA(ACRES) =   1234.00       PEAK FLOW RATE(CFS) =    2088.12

****************************************************************************
 FLOW PROCESS FROM NODE   3138.00 TO NODE   3139.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  29.37
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.248
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "WOODLAND"                 B        0.20      0.30      1.00    60
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      C        5.40      0.25      1.00    75
 AGRICULTURAL POOR COVER
 "FALLOW"                   C        1.30      0.25      1.00    91
 NATURAL POOR COVER
 "BARREN"                   C        4.00      0.25      1.00    91
 NATURAL FAIR COVER
```

```
"OPEN BRUSH"                C       20.10      0.25      1.00    77
COMMERCIAL                  C        2.70      0.25      0.10    69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.93
SUBAREA AREA(ACRES) =   33.70      SUBAREA RUNOFF(CFS) =   61.12
EFFECTIVE AREA(ACRES) =   1198.67   AREA-AVERAGED Fm(INCH/HR) =  0.26
AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.95
TOTAL AREA(ACRES) =   1267.70       PEAK FLOW RATE(CFS) =    2149.24

****************************************************************************
FLOW PROCESS FROM NODE   3138.00 TO NODE   3139.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  29.37
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.248
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"           C        1.10      0.25      1.00    79
NATURAL FAIR COVER
"WOODLAND"                  C        2.80      0.25      1.00    73
AGRICULTURAL POOR COVER
"FALLOW"                    D        2.20      0.20      1.00    94
NATURAL FAIR COVER
"GRASS"                     D        1.90      0.20      1.00    84
NATURAL FAIR COVER
"OPEN BRUSH"                D       17.50      0.20      1.00    83
COMMERCIAL                  D        2.00      0.20      0.10    75
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.93
SUBAREA AREA(ACRES) =   27.50      SUBAREA RUNOFF(CFS) =   50.82
EFFECTIVE AREA(ACRES) =   1226.17   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.95
TOTAL AREA(ACRES) =   1295.20       PEAK FLOW RATE(CFS) =    2200.07

****************************************************************************
FLOW PROCESS FROM NODE   3138.00 TO NODE   3139.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  29.37
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.248
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"           D        1.40      0.20      1.00    84
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =    1.40      SUBAREA RUNOFF(CFS) =    2.58
EFFECTIVE AREA(ACRES) =   1227.57   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.95
TOTAL AREA(ACRES) =   1296.60       PEAK FLOW RATE(CFS) =    2202.65

****************************************************************************
FLOW PROCESS FROM NODE   3139.00 TO NODE   3140.00 IS CODE =  51
----------------------------------------------------------------------------
>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =    655.00  DOWNSTREAM(FEET) =    640.00
CHANNEL LENGTH THRU SUBAREA(FEET) =   701.00   CHANNEL SLOPE =  0.0214
CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   1.000
MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
CHANNEL FLOW THRU SUBAREA(CFS) =   2202.65
FLOW VELOCITY(FEET/SEC.) =  14.79   FLOW DEPTH(FEET) =   8.19
TRAVEL TIME(MIN.) =   0.79   Tc(MIN.) =  30.16
LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3140.00 = 16688.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE   3139.00 TO NODE   3140.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  30.16
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.214
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
AGRICULTURAL POOR COVER
"FALLOW"                    B       26.00      0.30      1.00    86
NATURAL FAIR COVER
"OPEN BRUSH"                B        5.80      0.30      1.00    66
NATURAL GOOD COVER
"MEADOWS"                   B        0.90      0.30      1.00    58
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"           B        1.00      0.30      1.00    69
NATURAL FAIR COVER
"WOODLAND"                  B        2.80      0.30      1.00    60
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"       C        1.80      0.25      1.00    75
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =   38.30      SUBAREA RUNOFF(CFS) =   66.05
EFFECTIVE AREA(ACRES) =   1265.87   AREA-AVERAGED Fm(INCH/HR) =  0.26
AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.95
TOTAL AREA(ACRES) =   1334.90       PEAK FLOW RATE(CFS) =    2231.38

****************************************************************************
FLOW PROCESS FROM NODE   3139.00 TO NODE   3140.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  30.16
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.214
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
AGRICULTURAL POOR COVER
"FALLOW"                    C        5.60      0.25      1.00    91
NATURAL FAIR COVER
"OPEN BRUSH"                C       28.50      0.25      1.00    77
NATURAL GOOD COVER
"MEADOWS"                   C        0.20      0.25      1.00    71
NATURAL FAIR COVER
"WOODLAND"                  C        1.80      0.25      1.00    73
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"       D        0.10      0.20      1.00    81
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"           D        0.20      0.20      1.00    84
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =   36.40      SUBAREA RUNOFF(CFS) =   64.35
EFFECTIVE AREA(ACRES) =   1302.27   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.95
TOTAL AREA(ACRES) =   1371.30       PEAK FLOW RATE(CFS) =    2295.73

****************************************************************************
FLOW PROCESS FROM NODE   3140.00 TO NODE   3141.00 IS CODE =  51
----------------------------------------------------------------------------
>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
```

```
 ELEVATION DATA: UPSTREAM(FEET) =    640.00  DOWNSTREAM(FEET) =    620.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   903.00   CHANNEL SLOPE =  0.0221
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   2295.73
 FLOW VELOCITY(FEET/SEC.) =  15.15   FLOW DEPTH(FEET) =   8.29
 TRAVEL TIME(MIN.) =   0.99   Tc(MIN.) =  31.16
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3141.00 = 17591.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3140.00 TO NODE   3141.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  31.16
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.176
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL POOR COVER
 "FALLOW"                    B       38.40      0.30       1.00    86
 NATURAL FAIR COVER
 "GRASS"                     B        0.20      0.30       1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        3.70      0.30       1.00    66
 COMMERCIAL                  B        0.60      0.30       0.10    56
 NATURAL FAIR COVER
 "WOODLAND"                  B        0.90      0.30       1.00    60
 AGRICULTURAL POOR COVER
 "FALLOW"                    C        0.80      0.25       1.00    91
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.99
 SUBAREA AREA(ACRES) =   44.60      SUBAREA RUNOFF(CFS) =   75.48
 EFFECTIVE AREA(ACRES) =   1346.87   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   1415.90       PEAK FLOW RATE(CFS) =    2326.95

****************************************************************************
 FLOW PROCESS FROM NODE   3140.00 TO NODE   3141.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  31.16
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.176
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       D        2.60      0.20       1.00    81
 AGRICULTURAL POOR COVER
 "FALLOW"                    D        8.90      0.20       1.00    94
 NATURAL POOR COVER
 "BARREN"                    D        0.60      0.20       1.00    93
 NATURAL FAIR COVER
 "GRASS"                     D        1.40      0.20       1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"                D       16.70      0.20       1.00    83
 COMMERCIAL                  D        0.70      0.20       0.10    75
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.98
 SUBAREA AREA(ACRES) =   30.90      SUBAREA RUNOFF(CFS) =   55.07
 EFFECTIVE AREA(ACRES) =   1377.77   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   1446.80       PEAK FLOW RATE(CFS) =    2382.02

****************************************************************************
```

```
 FLOW PROCESS FROM NODE   3141.00 TO NODE   3142.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    620.00  DOWNSTREAM(FEET) =    590.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1040.00   CHANNEL SLOPE =  0.0288
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   2382.02
 FLOW VELOCITY(FEET/SEC.) =  16.86   FLOW DEPTH(FEET) =   7.89
 TRAVEL TIME(MIN.) =   1.03   Tc(MIN.) =  32.19
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3142.00 = 18631.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3141.00 TO NODE   3142.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  32.19
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.137
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL POOR COVER
 "FALLOW"                    B       28.30      0.30       1.00    86
 NATURAL FAIR COVER
 "GRASS"                     B        0.70      0.30       1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        4.60      0.30       1.00    66
 NATURAL FAIR COVER
 "WOODLAND"                  B        2.80      0.30       1.00    60
 AGRICULTURAL POOR COVER
 "FALLOW"                    C       24.70      0.25       1.00    91
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       C        2.00      0.25       1.00    75
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   63.10      SUBAREA RUNOFF(CFS) =  105.52
 EFFECTIVE AREA(ACRES) =   1440.87   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   1509.90       PEAK FLOW RATE(CFS) =    2439.11

****************************************************************************
 FLOW PROCESS FROM NODE   3141.00 TO NODE   3142.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  32.19
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.137
 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       20.50      0.25       1.00    77
 NATURAL FAIR COVER
 "WOODLAND"                  C        2.60      0.25       1.00    73
 AGRICULTURAL POOR COVER
 "FALLOW"                    D        1.80      0.20       1.00    94
 NATURAL FAIR COVER
 "OPEN BRUSH"                D        1.00      0.20       1.00    83
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   25.90      SUBAREA RUNOFF(CFS) =   44.11
 EFFECTIVE AREA(ACRES) =   1466.77   AREA-AVERAGED Fm(INCH/HR) =  0.26
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   1535.80       PEAK FLOW RATE(CFS) =    2483.22
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   3142.00 TO NODE   3143.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    590.00  DOWNSTREAM(FEET) =    560.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1232.00   CHANNEL SLOPE =  0.0244
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   2483.22
  FLOW VELOCITY(FEET/SEC.) =  16.01   FLOW DEPTH(FEET) =   8.42
  TRAVEL TIME(MIN.) =   1.28   Tc(MIN.) =  33.47
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3143.00 = 19863.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3142.00 TO NODE   3143.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  33.47
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.088
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   B       20.00      0.30       1.00    86
  NATURAL FAIR COVER
  "GRASS"                    B        3.10      0.30       1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        4.90      0.30       1.00    66
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       B        4.50      0.30       0.60    56
  NATURAL FAIR COVER
  "WOODLAND"                 B        2.40      0.30       1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                   C        5.80      0.25       1.00    91
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.29
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.96
  SUBAREA AREA(ACRES) =   40.70      SUBAREA RUNOFF(CFS) =   66.25
  EFFECTIVE AREA(ACRES) =   1507.47   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1576.50       PEAK FLOW RATE(CFS) =    2485.13

****************************************************************************
  FLOW PROCESS FROM NODE   3142.00 TO NODE   3143.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  33.47
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.088
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    C        2.60      0.25       1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       11.40      0.25       1.00    77
  NATURAL FAIR COVER
  "WOODLAND"                 C        0.50      0.25       1.00    73
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      D        1.10      0.20       1.00    81
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        3.20      0.20       1.00    94
  NATURAL FAIR COVER
  "OPEN BRUSH"               D       32.70      0.20       1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   51.50      SUBAREA RUNOFF(CFS) =   86.86
  EFFECTIVE AREA(ACRES) =   1558.97   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1628.00       PEAK FLOW RATE(CFS) =    2572.00

****************************************************************************
  FLOW PROCESS FROM NODE   3143.00 TO NODE   3144.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    560.00  DOWNSTREAM(FEET) =    555.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   394.00   CHANNEL SLOPE =  0.0127
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   2572.00
  FLOW VELOCITY(FEET/SEC.) =  12.54   FLOW DEPTH(FEET) =   8.66
  TRAVEL TIME(MIN.) =   0.52   Tc(MIN.) =  33.99
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3144.00 = 20257.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3143.00 TO NODE   3144.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  33.99
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.068
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   B        9.70      0.30       1.00    86
  NATURAL FAIR COVER
  "GRASS"                    B       11.30      0.30       1.00    69
  URBAN FAIR COVER
  "TURF"                     B        0.40      0.30       1.00    65
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        2.20      0.30       1.00    66
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       B        8.40      0.30       0.60    56
  AGRICULTURAL POOR COVER
  "FALLOW"                   C        1.20      0.25       1.00    91
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.90
  SUBAREA AREA(ACRES) =   33.20      SUBAREA RUNOFF(CFS) =   53.80
  EFFECTIVE AREA(ACRES) =   1592.17   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1661.20       PEAK FLOW RATE(CFS) =    2597.89

****************************************************************************
  FLOW PROCESS FROM NODE   3143.00 TO NODE   3144.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  33.99
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.068
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    C        0.80      0.25       1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        6.00      0.25       1.00    77
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        2.00      0.20       1.00    94
```

```
  NATURAL FAIR COVER
  "GRASS"                  D        1.30      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"             D        6.00      0.20      1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   16.10      SUBAREA RUNOFF(CFS) =   26.77
  EFFECTIVE AREA(ACRES) =   1608.27   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1677.30       PEAK FLOW RATE(CFS) =    2624.65

****************************************************************************
  FLOW PROCESS FROM NODE   3144.00 TO NODE   3145.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    555.00  DOWNSTREAM(FEET) =    540.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   504.00   CHANNEL SLOPE =  0.0298
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   2624.65
  FLOW VELOCITY(FEET/SEC.) =  17.21   FLOW DEPTH(FEET) =   6.95
  TRAVEL TIME(MIN.) =   0.49   Tc(MIN.) =  34.48
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3145.00 = 20761.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3144.00 TO NODE   3145.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  34.48
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.050
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       B        0.40      0.30      1.00    63
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        5.80      0.30      1.00    86
  NATURAL FAIR COVER
  "GRASS"                     B        3.50      0.30      1.00    69
  URBAN FAIR COVER
  "TURF"                      B        3.30      0.30      1.00    65
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        4.90      0.30      1.00    66
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"        B        5.40      0.30      0.60    56
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.91
  SUBAREA AREA(ACRES) =   23.30      SUBAREA RUNOFF(CFS) =   37.28
  EFFECTIVE AREA(ACRES) =   1631.57   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1700.60       PEAK FLOW RATE(CFS) =    2635.08

****************************************************************************
  FLOW PROCESS FROM NODE   3144.00 TO NODE   3145.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  34.48
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.050
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                  B        1.80      0.30      1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                    C        1.30      0.25      1.00    91
  NATURAL FAIR COVER
  "GRASS"                     C        0.40      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"                C        7.40      0.25      1.00    77
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       D        2.70      0.20      1.00    81
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        2.90      0.20      1.00    94
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.24
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   16.50      SUBAREA RUNOFF(CFS) =   26.90
  EFFECTIVE AREA(ACRES) =   1648.07   AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1717.10       PEAK FLOW RATE(CFS) =    2661.98

****************************************************************************
  FLOW PROCESS FROM NODE   3144.00 TO NODE   3145.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  34.48
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.050
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                     D        2.40      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"                D       44.40      0.20      1.00    83
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"        D        0.60      0.20      0.60    75
  NATURAL FAIR COVER
  "WOODLAND"                  D        0.70      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   48.10      SUBAREA RUNOFF(CFS) =   80.12
  EFFECTIVE AREA(ACRES) =   1696.17   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1765.20       PEAK FLOW RATE(CFS) =    2742.10

****************************************************************************
  FLOW PROCESS FROM NODE   3145.00 TO NODE   3146.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    540.00  DOWNSTREAM(FEET) =    500.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1156.00   CHANNEL SLOPE =  0.0346
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   2742.10
  FLOW VELOCITY(FEET/SEC.) =  18.41   FLOW DEPTH(FEET) =   6.83
  TRAVEL TIME(MIN.) =   1.05   Tc(MIN.) =  35.53
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3146.00 = 21917.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3145.00 TO NODE   3146.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  35.53
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.014
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
```

```
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        2.20      0.30      1.00    86
  NATURAL FAIR COVER
  "GRASS"                     B        6.90      0.30      1.00    69
  URBAN FAIR COVER
  "TURF"                      B        6.60      0.30      1.00    65
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        0.70      0.30      1.00    66
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"        B       11.70      0.30      0.60    56
  AGRICULTURAL POOR COVER
  "FALLOW"                    C        4.70      0.25      1.00    91
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.29
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.86
  SUBAREA AREA(ACRES) =   32.80      SUBAREA RUNOFF(CFS) =   52.08
  EFFECTIVE AREA(ACRES) =   1728.97   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1798.00       PEAK FLOW RATE(CFS) =    2742.10
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   3145.00 TO NODE   3146.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  35.53
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.014
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C        3.50      0.25      1.00    75
  NATURAL FAIR COVER
  "GRASS"                     C        2.30      0.25      1.00    79
  URBAN FAIR COVER
  "TURF"                      C        0.20      0.25      1.00    77
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       12.90      0.25      1.00    77
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"        C        8.00      0.25      0.60    69
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        4.40      0.20      1.00    94
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.24
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.90
  SUBAREA AREA(ACRES) =   31.30      SUBAREA RUNOFF(CFS) =   50.62
  EFFECTIVE AREA(ACRES) =   1760.27   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1829.30       PEAK FLOW RATE(CFS) =    2790.51

****************************************************************************
  FLOW PROCESS FROM NODE   3145.00 TO NODE   3146.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  35.53
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.014
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                     D        8.80      0.20      1.00    84
  URBAN FAIR COVER
  "TURF"                      D        2.10      0.20      1.00    82
  NATURAL FAIR COVER
  "OPEN BRUSH"                D        4.30      0.20      1.00    83
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"        D        6.00      0.20      0.60    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.89
  SUBAREA AREA(ACRES) =   21.20      SUBAREA RUNOFF(CFS) =   35.05
  EFFECTIVE AREA(ACRES) =   1781.47   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1850.50       PEAK FLOW RATE(CFS) =    2825.56

****************************************************************************
  FLOW PROCESS FROM NODE   3146.00 TO NODE   3147.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    500.00  DOWNSTREAM(FEET) =    484.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   399.00   CHANNEL SLOPE =  0.0401
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   2825.56
  FLOW VELOCITY(FEET/SEC.) =  19.57   FLOW DEPTH(FEET) =   6.67
  TRAVEL TIME(MIN.) =   0.34   Tc(MIN.) =  35.87
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3147.00 = 22316.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3146.00 TO NODE   3147.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  35.87
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.004
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        0.90      0.30      1.00    86
  NATURAL FAIR COVER
  "GRASS"                     B       11.10      0.30      1.00    69
  URBAN FAIR COVER
  "TURF"                      B        2.00      0.30      1.00    65
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        3.10      0.30      1.00    66
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"        B        3.80      0.30      0.60    56
  NATURAL FAIR COVER
  "WOODLAND"                  B        0.70      0.30      1.00    60
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.93
  SUBAREA AREA(ACRES) =   21.60      SUBAREA RUNOFF(CFS) =   33.54
  EFFECTIVE AREA(ACRES) =   1803.07   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1872.10       PEAK FLOW RATE(CFS) =    2842.75

****************************************************************************
  FLOW PROCESS FROM NODE   3146.00 TO NODE   3147.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  35.87
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.004
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    C        0.70      0.25      1.00    91
  NATURAL FAIR COVER
  "GRASS"                     C        5.80      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"                C        0.40      0.25      1.00    77
```

```
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       C        3.90      0.25      0.60    69
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      D       10.50      0.20      1.00    81
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        3.30      0.20      1.00    94
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.94
  SUBAREA AREA(ACRES) =   24.60      SUBAREA RUNOFF(CFS) =   39.81
  EFFECTIVE AREA(ACRES) =   1827.67   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1896.70       PEAK FLOW RATE(CFS) =    2882.55

****************************************************************************
  FLOW PROCESS FROM NODE   3146.00 TO NODE   3147.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  35.87
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.004
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    D        6.60      0.20      1.00    84
  URBAN FAIR COVER
  "TURF"                     D        0.30      0.20      1.00    82
  NATURAL FAIR COVER
  "OPEN BRUSH"               D       42.40      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                 D        4.20      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   53.50      SUBAREA RUNOFF(CFS) =   86.86
  EFFECTIVE AREA(ACRES) =   1881.17   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1950.20       PEAK FLOW RATE(CFS) =    2969.42

****************************************************************************
  FLOW PROCESS FROM NODE   3147.00 TO NODE   3148.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    484.00  DOWNSTREAM(FEET) =    460.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1058.00   CHANNEL SLOPE =  0.0227
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   2969.42
  FLOW VELOCITY(FEET/SEC.) =  16.12   FLOW DEPTH(FEET) =   8.01
  TRAVEL TIME(MIN.) =   1.09   Tc(MIN.) =  36.96
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3148.00 = 23374.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3147.00 TO NODE   3148.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  36.96
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.971
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    B        3.40      0.30      1.00    69
  URBAN FAIR COVER
  "TURF"                     B        1.70      0.30      1.00    65
  NATURAL FAIR COVER
  "GRASS"                    C        3.30      0.25      1.00    79
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       C        3.10      0.25      0.60    69
  NATURAL FAIR COVER
  "GRASS"                    D        4.20      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.92
  SUBAREA AREA(ACRES) =   15.70      SUBAREA RUNOFF(CFS) =   24.56
  EFFECTIVE AREA(ACRES) =   1896.87   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   1965.90       PEAK FLOW RATE(CFS) =    2969.42
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   3148.00 TO NODE   3149.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    460.00  DOWNSTREAM(FEET) =    440.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1137.00   CHANNEL SLOPE =  0.0176
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   2969.42
  FLOW VELOCITY(FEET/SEC.) =  14.69   FLOW DEPTH(FEET) =   8.57
  TRAVEL TIME(MIN.) =   1.29   Tc(MIN.) =  38.25
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3149.00 = 24511.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3148.00 TO NODE   3149.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  38.25
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.932
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   B        0.20      0.30      1.00    86
  NATURAL FAIR COVER
  "GRASS"                    B       34.10      0.30      1.00    69
  URBAN FAIR COVER
  "TURF"                     B        6.20      0.30      1.00    65
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        1.10      0.30      1.00    66
  NATURAL FAIR COVER
  "CHAPARRAL,NARROWLEAF"     B        0.40      0.30      1.00    72
  NATURAL FAIR COVER
  "GRASS"                    C        9.60      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.29
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   51.60      SUBAREA RUNOFF(CFS) =   76.24
  EFFECTIVE AREA(ACRES) =   1948.47   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   2017.50       PEAK FLOW RATE(CFS) =    2969.42
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   3148.00 TO NODE   3149.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  38.25
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.932
  SUBAREA LOSS RATE DATA(AMC  II):
```

```
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  URBAN FAIR COVER
  "TURF"                      C        1.10      0.25       1.00    77
  NATURAL FAIR COVER
  "OPEN BRUSH"                C        0.10      0.25       1.00    77
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        1.80      0.20       1.00    94
  NATURAL FAIR COVER
  "GRASS"                     D       45.10      0.20       1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"                D       33.70      0.20       1.00    83
  NATURAL FAIR COVER
  "CHAPARRAL,NARROWLEAF"      D        7.80      0.20       1.00    86
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   89.60      SUBAREA RUNOFF(CFS) =  139.65
  EFFECTIVE AREA(ACRES) =   2038.07   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   2107.10       PEAK FLOW RATE(CFS) =    3088.27

****************************************************************************
  FLOW PROCESS FROM NODE   3148.00 TO NODE   3149.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  38.25
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.932
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                  D        1.10      0.20       1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    1.10      SUBAREA RUNOFF(CFS) =    1.72
  EFFECTIVE AREA(ACRES) =   2039.17   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   2108.20       PEAK FLOW RATE(CFS) =    3089.99

****************************************************************************
  FLOW PROCESS FROM NODE   3149.00 TO NODE   3150.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    440.00  DOWNSTREAM(FEET) =    420.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   579.00   CHANNEL SLOPE =  0.0345
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   3089.99
  FLOW VELOCITY(FEET/SEC.) =  18.99   FLOW DEPTH(FEET) =   7.30
  TRAVEL TIME(MIN.) =   0.51   Tc(MIN.) =  38.76
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3150.00 = 25090.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3149.00 TO NODE   3150.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  38.76
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.917
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        0.90      0.30       1.00    86
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       B        1.40      0.30       1.00    63
  NATURAL FAIR COVER
  "GRASS"                     B       18.50      0.30       1.00    69
  URBAN FAIR COVER
  "TURF"                      B        4.10      0.30       1.00    65
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        0.20      0.30       1.00    66
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"        B        0.40      0.30       0.60    56
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.99
  SUBAREA AREA(ACRES) =   25.50      SUBAREA RUNOFF(CFS) =   37.16
  EFFECTIVE AREA(ACRES) =   2064.67   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   2133.70       PEAK FLOW RATE(CFS) =    3099.17

****************************************************************************
  FLOW PROCESS FROM NODE   3149.00 TO NODE   3150.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  38.76
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.917
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                  B        0.90      0.30       1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                    C        0.70      0.25       1.00    91
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C       24.90      0.25       1.00    75
  NATURAL FAIR COVER
  "GRASS"                     C       21.70      0.25       1.00    79
  URBAN FAIR COVER
  "TURF"                      C        0.90      0.25       1.00    77
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       81.80      0.25       1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =  130.90      SUBAREA RUNOFF(CFS) =  196.38
  EFFECTIVE AREA(ACRES) =   2195.57   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   2264.60       PEAK FLOW RATE(CFS) =    3295.55

****************************************************************************
  FLOW PROCESS FROM NODE   3149.00 TO NODE   3150.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  38.76
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.917
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"        C        2.30      0.25       0.60    69
  NATURAL FAIR COVER
  "WOODLAND"                  C        5.10      0.25       1.00    73
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       D        6.20      0.20       1.00    81
  NATURAL FAIR COVER
  "GRASS"                     D        6.00      0.20       1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"                D        5.30      0.20       1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
```

```
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.96
  SUBAREA AREA(ACRES) =   24.90      SUBAREA RUNOFF(CFS) =   38.36
  EFFECTIVE AREA(ACRES) =   2220.47   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   2289.50       PEAK FLOW RATE(CFS) =    3333.91

****************************************************************************
  FLOW PROCESS FROM NODE   3150.00 TO NODE   3151.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    420.00  DOWNSTREAM(FEET) =    400.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1410.00   CHANNEL SLOPE =  0.0142
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   3333.91
  FLOW VELOCITY(FEET/SEC.) =  14.00   FLOW DEPTH(FEET) =   9.66
  TRAVEL TIME(MIN.) =   1.68   Tc(MIN.) =  40.44
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3151.00 = 26500.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3150.00 TO NODE   3151.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  40.44
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.870
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   B        0.60      0.30      1.00    86
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      B        0.20      0.30      1.00    63
  NATURAL FAIR COVER
  "GRASS"                    B       17.10      0.30      1.00    69
  URBAN FAIR COVER
  "TURF"                     B        5.10      0.30      1.00    65
  AGRICULTURAL POOR COVER
  "FALLOW"                   C        4.20      0.25      1.00    91
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      C        5.90      0.25      1.00    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   33.10      SUBAREA RUNOFF(CFS) =   47.22
  EFFECTIVE AREA(ACRES) =   2253.57   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   2322.60       PEAK FLOW RATE(CFS) =    3333.91
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   3150.00 TO NODE   3151.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  40.44
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.870
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    C       13.10      0.25      1.00    79
  URBAN FAIR COVER
  "TURF"                     C        1.00      0.25      1.00    77
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       36.30      0.25      1.00    77
  NATURAL FAIR COVER
  "WOODLAND"                 C        5.40      0.25      1.00    73
  NATURAL FAIR COVER
  "GRASS"                    D        1.30      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D        3.30      0.20      1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   60.40      SUBAREA RUNOFF(CFS) =   88.27
  EFFECTIVE AREA(ACRES) =   2313.97   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   2383.00       PEAK FLOW RATE(CFS) =    3374.90

****************************************************************************
  FLOW PROCESS FROM NODE   3151.00 TO NODE   3152.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    400.00  DOWNSTREAM(FEET) =    398.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   191.00   CHANNEL SLOPE =  0.0105
  CHANNEL BASE(FEET) =   20.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   3374.90
  FLOW VELOCITY(FEET/SEC.) =  12.39   FLOW DEPTH(FEET) =   9.30
  TRAVEL TIME(MIN.) =   0.26   Tc(MIN.) =  40.69
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3152.00 = 26691.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3151.00 TO NODE   3152.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  40.69
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.864
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    B       14.60      0.30      1.00    69
  URBAN FAIR COVER
  "TURF"                     B        0.80      0.30      1.00    65
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      B        2.40      0.30      1.00    63
  NATURAL FAIR COVER
  "GRASS"                    C       16.80      0.25      1.00    79
  AGRICULTURAL GOOD COVER
  "SMALL GRAIN,CONTOURED"    C        0.20      0.25      1.00    81
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        0.70      0.25      1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   35.50      SUBAREA RUNOFF(CFS) =   50.77
  EFFECTIVE AREA(ACRES) =   2349.47   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   2418.50       PEAK FLOW RATE(CFS) =    3413.36

****************************************************************************
  FLOW PROCESS FROM NODE   3151.00 TO NODE   3152.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  40.69
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.864
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
```

```
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      C       15.80      0.25      1.00    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   15.80      SUBAREA RUNOFF(CFS) =   22.95
  EFFECTIVE AREA(ACRES) =   2365.27   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =   2434.30       PEAK FLOW RATE(CFS) =    3436.31

****************************************************************************
  FLOW PROCESS FROM NODE   3152.00 TO NODE   3153.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    398.00  DOWNSTREAM(FEET) =    396.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   231.00   CHANNEL SLOPE =  0.0087
  CHANNEL BASE(FEET) =   20.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   3436.31
  FLOW VELOCITY(FEET/SEC.) =  11.62   FLOW DEPTH(FEET) =   9.89
  TRAVEL TIME(MIN.) =   0.33   Tc(MIN.) =  41.02
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3153.00 = 26922.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3152.00 TO NODE   3153.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  41.02
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.856
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   B        2.60      0.30      1.00    86
  URBAN FAIR COVER
  "TURF"                     B        1.40      0.30      1.00    65
  AGRICULTURAL POOR COVER
  "FALLOW"                   C       44.50      0.25      1.00    91
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      C        3.30      0.25      1.00    75
  NATURAL FAIR COVER
  "GRASS"                    C        8.30      0.25      1.00    79
  URBAN FAIR COVER
  "TURF"                     C        0.10      0.25      1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   60.20      SUBAREA RUNOFF(CFS) =   86.86
  EFFECTIVE AREA(ACRES) =   2425.47   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2494.50       PEAK FLOW RATE(CFS) =    3506.94

****************************************************************************
  FLOW PROCESS FROM NODE   3152.00 TO NODE   3153.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  41.02
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.856
  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       11.30      0.25      1.00    77
  NATURAL FAIR COVER
  "WOODLAND"                 C        0.40      0.25      1.00    73
```

```
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        5.70      0.20      1.00    94
  NATURAL FAIR COVER
  "GRASS"                    D        2.70      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D        1.30      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                 D        0.40      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.23
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   21.80      SUBAREA RUNOFF(CFS) =   31.97
  EFFECTIVE AREA(ACRES) =   2447.27   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2516.30       PEAK FLOW RATE(CFS) =    3538.92

****************************************************************************
  FLOW PROCESS FROM NODE   3153.00 TO NODE   3154.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    396.00  DOWNSTREAM(FEET) =    385.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   894.00   CHANNEL SLOPE =  0.0123
  CHANNEL BASE(FEET) =   20.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   3538.92
  FLOW VELOCITY(FEET/SEC.) =  13.31   FLOW DEPTH(FEET) =   9.13
  TRAVEL TIME(MIN.) =   1.12   Tc(MIN.) =  42.14
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3154.00 = 27816.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3153.00 TO NODE   3154.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  42.14
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.831
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   B        0.20      0.30      1.00    86
  NATURAL FAIR COVER
  "GRASS"                    B       11.10      0.30      1.00    69
  URBAN FAIR COVER
  "TURF"                     B        7.50      0.30      1.00    65
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      B        0.20      0.30      1.00    63
  AGRICULTURAL POOR COVER
  "FALLOW"                   C        0.10      0.25      1.00    91
  NATURAL FAIR COVER
  "GRASS"                    C        0.20      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   19.30      SUBAREA RUNOFF(CFS) =   26.60
  EFFECTIVE AREA(ACRES) =   2466.57   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2535.60       PEAK FLOW RATE(CFS) =    3538.92
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   3153.00 TO NODE   3154.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  42.14
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.831
```

```
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  URBAN FAIR COVER
  "TURF"                      C        0.50      0.25       1.00    77
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C        3.70      0.25       1.00    75
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        2.70      0.20       1.00    94
  NATURAL FAIR COVER
  "GRASS"                     D        6.30      0.20       1.00    84
  URBAN FAIR COVER
  "TURF"                      D        0.20      0.20       1.00    82
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   13.40      SUBAREA RUNOFF(CFS) =   19.48
  EFFECTIVE AREA(ACRES) =   2479.97   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2549.00       PEAK FLOW RATE(CFS) =    3538.92
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   3154.00 TO NODE   3155.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    385.00  DOWNSTREAM(FEET) =    380.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   712.00   CHANNEL SLOPE =  0.0070
  CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   3538.92
  FLOW VELOCITY(FEET/SEC.) =  10.69   FLOW DEPTH(FEET) =   9.58
  TRAVEL TIME(MIN.) =   1.11   Tc(MIN.) =  43.25
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3155.00 = 28528.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3154.00 TO NODE   3155.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  43.25
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.805
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        0.50      0.30       1.00    86
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       B        8.30      0.30       1.00    63
  NATURAL FAIR COVER
  "GRASS"                     B       23.90      0.30       1.00    69
  URBAN FAIR COVER
  "TURF"                      B       19.70      0.30       1.00    65
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        2.20      0.30       1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B        0.40      0.30       1.00    69
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   55.00      SUBAREA RUNOFF(CFS) =   74.50
  EFFECTIVE AREA(ACRES) =   2534.97   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2604.00       PEAK FLOW RATE(CFS) =    3545.77

****************************************************************************
  FLOW PROCESS FROM NODE   3154.00 TO NODE   3155.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  43.25
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.805
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                  B        0.20      0.30       1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                    C        6.60      0.25       1.00    91
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C       48.20      0.25       1.00    75
  NATURAL POOR COVER
  "BARREN"                    C        3.50      0.25       1.00    91
  NATURAL FAIR COVER
  "GRASS"                     C       25.70      0.25       1.00    79
  URBAN FAIR COVER
  "TURF"                      C        0.20      0.25       1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   84.40      SUBAREA RUNOFF(CFS) =  118.12
  EFFECTIVE AREA(ACRES) =   2619.37   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2688.40       PEAK FLOW RATE(CFS) =    3663.89

****************************************************************************
  FLOW PROCESS FROM NODE   3154.00 TO NODE   3155.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  43.25
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.805
  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       78.70      0.25       1.00    77
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           C       11.40      0.25       1.00    79
  NATURAL FAIR COVER
  "WOODLAND"                  C        1.10      0.25       1.00    73
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        0.90      0.20       1.00    94
  NATURAL FAIR COVER
  "GRASS"                     D        6.40      0.20       1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"                D        1.00      0.20       1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   99.50      SUBAREA RUNOFF(CFS) =  139.64
  EFFECTIVE AREA(ACRES) =   2718.87   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2787.90       PEAK FLOW RATE(CFS) =    3803.53

****************************************************************************
  FLOW PROCESS FROM NODE   3154.00 TO NODE   3155.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  43.25
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.805
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
```

```
  "PASTURE,DRYLAND"          D       12.60      0.20      1.00    84
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      D       20.90      0.20      1.00    81
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   33.50      SUBAREA RUNOFF(CFS) =   48.39
  EFFECTIVE AREA(ACRES) =   2752.37   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2821.40       PEAK FLOW RATE(CFS) =    3851.92

****************************************************************************
  FLOW PROCESS FROM NODE   3155.00 TO NODE   3156.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    380.00  DOWNSTREAM(FEET) =    360.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   424.00   CHANNEL SLOPE =  0.0472
  CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   3851.92
  FLOW VELOCITY(FEET/SEC.) =  21.45   FLOW DEPTH(FEET) =   5.83
  TRAVEL TIME(MIN.) =   0.33   Tc(MIN.) =  43.58
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3156.00 = 28952.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3155.00 TO NODE   3156.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  43.58
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.798
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   B        0.40      0.30      1.00    86
  NATURAL FAIR COVER
  "GRASS"                    B       15.00      0.30      1.00    69
  URBAN FAIR COVER
  "TURF"                     B       13.10      0.30      1.00    65
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      B        0.60      0.30      1.00    63
  NATURAL FAIR COVER
  "GRASS"                    C        3.10      0.25      1.00    79
  URBAN FAIR COVER
  "TURF"                     C        0.20      0.25      1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.29
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   32.40      SUBAREA RUNOFF(CFS) =   43.82
  EFFECTIVE AREA(ACRES) =   2784.77   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2853.80       PEAK FLOW RATE(CFS) =    3876.97

****************************************************************************
  FLOW PROCESS FROM NODE   3155.00 TO NODE   3156.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  43.58
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.798
  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        0.50      0.25      1.00    77
  NATURAL FAIR COVER
```

```
  "CHAPARRAL,BROADLEAF"      C        2.40      0.25      1.00    75
  NATURAL FAIR COVER
  "GRASS"                    D       11.40      0.20      1.00    84
  URBAN FAIR COVER
  "TURF"                     D        1.10      0.20      1.00    82
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"      D       13.50      0.20      1.00    81
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   28.90      SUBAREA RUNOFF(CFS) =   41.42
  EFFECTIVE AREA(ACRES) =   2813.67   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2882.70       PEAK FLOW RATE(CFS) =    3918.39

****************************************************************************
  FLOW PROCESS FROM NODE   3156.00 TO NODE   3157.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    360.00  DOWNSTREAM(FEET) =    352.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   647.00   CHANNEL SLOPE =  0.0124
  CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   3918.39
  FLOW VELOCITY(FEET/SEC.) =  13.46   FLOW DEPTH(FEET) =   8.65
  TRAVEL TIME(MIN.) =   0.80   Tc(MIN.) =  44.39
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3157.00 = 29599.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3156.00 TO NODE   3157.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  44.39
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.779
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    B       11.50      0.30      1.00    69
  URBAN FAIR COVER
  "TURF"                     B        9.30      0.30      1.00    65
  NATURAL FAIR COVER
  "GRASS"                    C        0.40      0.25      1.00    79
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        0.20      0.20      1.00    94
  NATURAL FAIR COVER
  "GRASS"                    D       13.80      0.20      1.00    84
  URBAN FAIR COVER
  "TURF"                     D        0.70      0.20      1.00    82
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.26
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   35.90      SUBAREA RUNOFF(CFS) =   49.13
  EFFECTIVE AREA(ACRES) =   2849.57   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2918.60       PEAK FLOW RATE(CFS) =    3920.87

****************************************************************************
  FLOW PROCESS FROM NODE   3156.00 TO NODE   3157.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  44.39
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.779
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
```

```
       LAND USE             GROUP   (ACRES)   (INCH/HR)   (DECIMAL)   CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       D       25.10      0.20       1.00     81
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   25.10      SUBAREA RUNOFF(CFS) =   35.67
  EFFECTIVE AREA(ACRES) =   2874.67   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   2943.70       PEAK FLOW RATE(CFS) =    3956.55
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)      =   2943.70  TC(MIN.) =     44.39
  EFFECTIVE AREA(ACRES) =   2874.67  AREA-AVERAGED Fm(INCH/HR)=  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  PEAK FLOW RATE(CFS)   =   3956.55

  ** PEAK FLOW RATE TABLE **
   STREAM     Q      Tc   Intensity   Fp(Fm)     Ap   Ae     HEADWATER
   NUMBER   (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
      1   3956.55  44.39    1.779  0.26( 0.25) 0.97  2874.7    3120.00
      2   3698.90  50.26    1.646  0.26( 0.25) 0.97  2943.7    3100.00
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
 ************************************************************************
             RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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              Ver. 8.0  Release Date: 01/01/2003  License ID 1202

                           Analysis prepared by:

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  ************************** DESCRIPTION OF STUDY **************************
 * AREA 08 (PROPOSED CONDITION)                                           *
 * 100-YEAR HIGH CONFIDENCE STORM EVENT                                   *
 * CHIQUITA                                                               *
  ************************************************************************

   FILE NAME: CP08100H.DAT
   TIME/DATE OF STUDY: 07:33 04/01/2004
 ========================================================================
   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) II ASSUMED FOR RATIONAL METHOD*

   *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
      HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
      WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

   GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
     1. Relative Flow-Depth =  0.00 FEET
        as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
     2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
   *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
    OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
   *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

   UNIT-HYDROGRAPH MODEL SELECTIONS/PARAMETERS:
     WATERSHED LAG = 0.80 * Tc
           S-GRAPH TYPE                  PERCENTAGE(DECIMAL)
         VALLEY(DEVELOPED)                    0.160
         FOOTHILL                             0.140
         MOUNTAIN                             0.620
         VALLEY(UNDEVELOPED)/DESERT           0.080
         DESERT(UNDEVELOPED)                  0.000
     SIERRA MADRE DEPTH-AREA FACTORS USED.
                     AREA-AVERAGED
         DURATION    RAINFALL(INCH)
         5-MINUTES         0.52
        30-MINUTES         1.09
         1-HOUR            1.45
         3-HOUR            2.43
         6-HOUR            3.36
        24-HOUR            5.63
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR UNIT HYDROGRAPH METHOD*

 ************************************************************************
   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) =   325.00
   ELEVATION DATA: UPSTREAM(FEET) =    445.00  DOWNSTREAM(FEET) =    420.00

   Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
   SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.957
   * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.120
   SUBAREA Tc AND LOSS RATE DATA(AMC  II):
    DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
        LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
   RESIDENTIAL
   "3-4 DWELLINGS/ACRE"       C        0.20      0.25       0.60    69    6.96
   RESIDENTIAL
   "3-4 DWELLINGS/ACRE"       D        1.10      0.20       0.60    75    6.96
   SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
   SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.60
   SUBAREA RUNOFF(CFS) =      5.84
   TOTAL AREA(ACRES) =      1.30   PEAK FLOW RATE(CFS) =      5.84

 ************************************************************************
   FLOW PROCESS FROM NODE    801.00 TO NODE    802.00 IS CODE =  31
 ------------------------------------------------------------------------
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
 ========================================================================
   ELEVATION DATA: UPSTREAM(FEET) =   420.00  DOWNSTREAM(FEET) =   390.00
   FLOW LENGTH(FEET) =   505.00   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.) =  11.31
   ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
   PIPE-FLOW(CFS) =      5.84
   PIPE TRAVEL TIME(MIN.) =   0.74    Tc(MIN.) =   7.70
   LONGEST FLOWPATH FROM NODE    800.00 TO NODE    802.00 =   830.00 FEET.

 ************************************************************************
   FLOW PROCESS FROM NODE    801.00 TO NODE    802.00 IS CODE =  81
 ------------------------------------------------------------------------
   >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
 ========================================================================
   MAINLINE Tc(MIN) =   7.70
   * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.840
   SUBAREA LOSS RATE DATA(AMC  II):
    DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
        LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
   RESIDENTIAL
   "3-4 DWELLINGS/ACRE"       C        0.40      0.25       0.60    69
   RESIDENTIAL
   "3-4 DWELLINGS/ACRE"       D        1.10      0.20       0.60    75
   SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
   SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.60
   SUBAREA AREA(ACRES) =    1.50      SUBAREA RUNOFF(CFS) =    6.36
   EFFECTIVE AREA(ACRES) =      2.80   AREA-AVERAGED Fm(INCH/HR) =  0.13
   AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  0.60
   TOTAL AREA(ACRES) =      2.80       PEAK FLOW RATE(CFS) =      11.88

 ************************************************************************
   FLOW PROCESS FROM NODE    802.00 TO NODE    803.00 IS CODE =  31
 ------------------------------------------------------------------------
   >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
```

```
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   390.00  DOWNSTREAM(FEET) =   360.00
  FLOW LENGTH(FEET) =   501.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   8.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.71
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     11.88
  PIPE TRAVEL TIME(MIN.) =   0.61    Tc(MIN.) =   8.31
  LONGEST FLOWPATH FROM NODE    800.00 TO NODE    803.00 =  1331.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    802.00 TO NODE    803.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =   8.31
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.660
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       C        1.80      0.25      0.60    69
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       D        1.10      0.20      0.60    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.23
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.60
  SUBAREA AREA(ACRES) =    2.90      SUBAREA RUNOFF(CFS) =   11.80
  EFFECTIVE AREA(ACRES) =      5.70   AREA-AVERAGED Fm(INCH/HR) =  0.13
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.60
  TOTAL AREA(ACRES) =      5.70       PEAK FLOW RATE(CFS) =      23.23

****************************************************************************
  FLOW PROCESS FROM NODE    803.00 TO NODE    804.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   360.00  DOWNSTREAM(FEET) =   340.00
  FLOW LENGTH(FEET) =   323.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  13.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.95
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     23.23
  PIPE TRAVEL TIME(MIN.) =   0.34    Tc(MIN.) =   8.65
  LONGEST FLOWPATH FROM NODE    800.00 TO NODE    804.00 =  1654.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    803.00 TO NODE    804.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =   8.65
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.560
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       C        2.00      0.25      0.60    69
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       D        2.20      0.20      0.60    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.60
  SUBAREA AREA(ACRES) =    4.20      SUBAREA RUNOFF(CFS) =   16.73
  EFFECTIVE AREA(ACRES) =      9.90   AREA-AVERAGED Fm(INCH/HR) =  0.13
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.60
  TOTAL AREA(ACRES) =      9.90       PEAK FLOW RATE(CFS) =      39.44

****************************************************************************
  FLOW PROCESS FROM NODE    804.00 TO NODE    805.00 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) =   320.00
  FLOW LENGTH(FEET) =   349.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.03
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     39.44
  PIPE TRAVEL TIME(MIN.) =   0.32    Tc(MIN.) =   8.97
  LONGEST FLOWPATH FROM NODE    800.00 TO NODE    805.00 =  2003.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    804.00 TO NODE    805.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =   8.97
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.465
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       C        0.40      0.25      0.60    69
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       D        3.10      0.20      0.60    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.60
  SUBAREA AREA(ACRES) =    3.50      SUBAREA RUNOFF(CFS) =   13.67
  EFFECTIVE AREA(ACRES) =     13.40   AREA-AVERAGED Fm(INCH/HR) =  0.13
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.60
  TOTAL AREA(ACRES) =     13.40       PEAK FLOW RATE(CFS) =      52.27

****************************************************************************
  FLOW PROCESS FROM NODE    805.00 TO NODE    806.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   320.00  DOWNSTREAM(FEET) =   300.00
  FLOW LENGTH(FEET) =   422.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  18.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  17.94
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     52.27
  PIPE TRAVEL TIME(MIN.) =   0.39    Tc(MIN.) =   9.36
  LONGEST FLOWPATH FROM NODE    800.00 TO NODE    806.00 =  2425.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    805.00 TO NODE    806.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =   9.36
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.349
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       C        0.70      0.25      0.60    69
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       D        1.10      0.20      0.60    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
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 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.60
 SUBAREA AREA(ACRES) =    1.80      SUBAREA RUNOFF(CFS) =    6.83
 EFFECTIVE AREA(ACRES) =     15.20   AREA-AVERAGED Fm(INCH/HR) =  0.13
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.60
 TOTAL AREA(ACRES) =     15.20       PEAK FLOW RATE(CFS) =      57.70

****************************************************************************
 FLOW PROCESS FROM NODE    806.00 TO NODE    807.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   300.00  DOWNSTREAM(FEET) =   290.00
 FLOW LENGTH(FEET) =   290.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  30.0 INCH PIPE IS  20.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  16.35
 ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =     57.70
 PIPE TRAVEL TIME(MIN.) =   0.30    Tc(MIN.) =   9.66
 LONGEST FLOWPATH FROM NODE    800.00 TO NODE    807.00 =  2715.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    806.00 TO NODE    807.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =   9.66
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.261
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        C        3.20      0.25      0.60    69
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        D       10.10      0.20      0.60    75
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.60
 SUBAREA AREA(ACRES) =   13.30      SUBAREA RUNOFF(CFS) =   49.48
 EFFECTIVE AREA(ACRES) =     28.50   AREA-AVERAGED Fm(INCH/HR) =  0.13
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.60
 TOTAL AREA(ACRES) =     28.50       PEAK FLOW RATE(CFS) =     105.98

****************************************************************************
 FLOW PROCESS FROM NODE    807.00 TO NODE    808.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    290.00  DOWNSTREAM(FEET) =    250.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   323.00   CHANNEL SLOPE =  0.1238
 CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    105.98
 FLOW VELOCITY(FEET/SEC.) =  13.38   FLOW DEPTH(FEET) =   1.99
 TRAVEL TIME(MIN.) =   0.40   Tc(MIN.) =  10.06
 LONGEST FLOWPATH FROM NODE    800.00 TO NODE    808.00 =  3038.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    807.00 TO NODE    808.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.06
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.148
 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        0.20      0.25      1.00    77
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           C        0.20      0.25      1.00    79
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        C        2.80      0.25      0.60    69
 NATURAL FAIR COVER
 "WOODLAND"                  C        0.40      0.25      1.00    73
 NATURAL FAIR COVER
 "GRASS"                     D        0.20      0.20      1.00    84
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           D        0.40      0.20      1.00    84
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.24
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.73
 SUBAREA AREA(ACRES) =    4.20      SUBAREA RUNOFF(CFS) =   15.01
 EFFECTIVE AREA(ACRES) =     32.70   AREA-AVERAGED Fm(INCH/HR) =  0.14
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.62
 TOTAL AREA(ACRES) =     32.70       PEAK FLOW RATE(CFS) =     118.09

****************************************************************************
 FLOW PROCESS FROM NODE    807.00 TO NODE    808.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.06
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.148
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        D        8.20      0.20      0.60    75
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.60
 SUBAREA AREA(ACRES) =    8.20      SUBAREA RUNOFF(CFS) =   29.73
 EFFECTIVE AREA(ACRES) =     40.90   AREA-AVERAGED Fm(INCH/HR) =  0.13
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.61
 TOTAL AREA(ACRES) =     40.90       PEAK FLOW RATE(CFS) =     147.82

****************************************************************************
 FLOW PROCESS FROM NODE    808.00 TO NODE    809.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    250.00  DOWNSTREAM(FEET) =    195.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   615.00   CHANNEL SLOPE =  0.0894
 CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    147.82
 FLOW VELOCITY(FEET/SEC.) =  12.86   FLOW DEPTH(FEET) =   2.21
 TRAVEL TIME(MIN.) =   0.80   Tc(MIN.) =  10.86
 LONGEST FLOWPATH FROM NODE    800.00 TO NODE    809.00 =  3653.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    808.00 TO NODE    809.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  10.86
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.988
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     A        0.40      0.40      1.00    50
 NATURAL FAIR COVER
 "OPEN BRUSH"                A        6.90      0.40      1.00    46
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  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          A        4.40      0.40      1.00    49
  NATURAL FAIR COVER
  "WOODLAND"                 A       12.00      0.40      1.00    36
  NATURAL FAIR COVER
  "GRASS"                    B        4.00      0.30      1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        1.40      0.30      1.00    66
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.38
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   29.10      SUBAREA RUNOFF(CFS) =   94.47
  EFFECTIVE AREA(ACRES) =     70.00   AREA-AVERAGED Fm(INCH/HR) =  0.24
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.77
  TOTAL AREA(ACRES) =     70.00       PEAK FLOW RATE(CFS) =     236.41

****************************************************************************
  FLOW PROCESS FROM NODE    808.00 TO NODE    809.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  10.86
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.988
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          B       16.90      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                 B        6.20      0.30      1.00    60
  NATURAL POOR COVER
  "BARREN"                   C        0.10      0.25      1.00    91
  NATURAL FAIR COVER
  "GRASS"                    C       67.20      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       10.00      0.25      1.00    77
  COMMERCIAL                 C        5.20      0.25      0.10    69
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.26
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.96
  SUBAREA AREA(ACRES) =  105.60      SUBAREA RUNOFF(CFS) =  355.31
  EFFECTIVE AREA(ACRES) =    175.60   AREA-AVERAGED Fm(INCH/HR) =  0.24
  AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  0.88
  TOTAL AREA(ACRES) =    175.60       PEAK FLOW RATE(CFS) =     591.72

****************************************************************************
  FLOW PROCESS FROM NODE    808.00 TO NODE    809.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  10.86
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.988
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          C        1.50      0.25      1.00    79
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       C       17.90      0.25      0.20    69
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       C        1.30      0.25      0.60    69
  NATURAL FAIR COVER
  "WOODLAND"                 C       46.80      0.25      1.00    73
  NATURAL FAIR COVER
  "GRASS"                    D        2.70      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D       11.10      0.20      1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.24
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.82
  SUBAREA AREA(ACRES) =   81.30      SUBAREA RUNOFF(CFS) =  277.50
  EFFECTIVE AREA(ACRES) =    256.90   AREA-AVERAGED Fm(INCH/HR) =  0.23
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.86
  TOTAL AREA(ACRES) =    256.90       PEAK FLOW RATE(CFS) =     869.22

****************************************************************************
  FLOW PROCESS FROM NODE    808.00 TO NODE    809.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  10.86
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.988
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  PUBLIC PARK                D        0.10      0.20      0.85    75
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       D        0.30      0.20      0.20    75
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          D        0.60      0.20      1.00    84
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       D       19.50      0.20      0.60    75
  NATURAL FAIR COVER
  "WOODLAND"                 D       12.20      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.75
  SUBAREA AREA(ACRES) =   32.70      SUBAREA RUNOFF(CFS) =  112.94
  EFFECTIVE AREA(ACRES) =    289.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.85
  TOTAL AREA(ACRES) =    289.60       PEAK FLOW RATE(CFS) =     982.16

****************************************************************************
  FLOW PROCESS FROM NODE    809.00 TO NODE    826.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    195.00  DOWNSTREAM(FEET) =    176.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  6031.00   CHANNEL SLOPE =  0.0032
  CHANNEL BASE(FEET) =   85.00   "Z" FACTOR =   2.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  15.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    982.16
  FLOW VELOCITY(FEET/SEC.) =   4.70   FLOW DEPTH(FEET) =   2.33
  TRAVEL TIME(MIN.) =  21.40   Tc(MIN.) =  32.25
  LONGEST FLOWPATH FROM NODE    800.00 TO NODE    826.00 =  9684.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    809.00 TO NODE    826.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  32.25
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.134
  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"               A        0.90      0.40      1.00    46
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          A        0.10      0.40      1.00    49
  NATURAL FAIR COVER
  "WOODLAND"                 A        5.20      0.40      1.00    36
  NATURAL FAIR COVER
  "GRASS"                    B        6.60      0.30      1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        1.70      0.30      1.00    66
  AGRICULTURAL FAIR COVER
```

```
"PASTURE,DRYLAND"          B        0.40      0.30      1.00    69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.34
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =   14.90      SUBAREA RUNOFF(CFS) =   24.04
EFFECTIVE AREA(ACRES) =    304.50   AREA-AVERAGED Fm(INCH/HR) =  0.23
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.86
TOTAL AREA(ACRES) =    304.50       PEAK FLOW RATE(CFS) =     982.16
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
FLOW PROCESS FROM NODE    809.00 TO NODE    826.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  32.25
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.134
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"WOODLAND"                 B       10.30      0.30      1.00    60
NATURAL FAIR COVER
"GRASS"                    C      143.90      0.25      1.00    79
NATURAL FAIR COVER
"OPEN BRUSH"               C       11.30      0.25      1.00    77
COMMERCIAL                 C        2.90      0.25      0.10    69
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"          C        0.20      0.25      1.00    79
NATURAL FAIR COVER
"CHAPARRAL,BROADLEAF"      C        0.90      0.25      1.00    75
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.98
SUBAREA AREA(ACRES) =  169.50      SUBAREA RUNOFF(CFS) =  287.58
EFFECTIVE AREA(ACRES) =    474.00   AREA-AVERAGED Fm(INCH/HR) =  0.23
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.90
TOTAL AREA(ACRES) =    474.00       PEAK FLOW RATE(CFS) =     982.16
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
FLOW PROCESS FROM NODE    809.00 TO NODE    826.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  32.25
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.134
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"WOODLAND"                 C        8.30      0.25      1.00    73
NATURAL FAIR COVER
"GRASS"                    D        6.50      0.20      1.00    84
NATURAL FAIR COVER
"OPEN BRUSH"               D       21.60      0.20      1.00    83
RESIDENTIAL
"11+ DWELLINGS/ACRE"       D        3.50      0.20      0.20    75
AGRICULTURAL FAIR COVER
"PASTURE,DRYLAND"          D        2.10      0.20      1.00    84
RESIDENTIAL
"3-4 DWELLINGS/ACRE"       D        5.50      0.20      0.60    75
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.89
SUBAREA AREA(ACRES) =   47.50      SUBAREA RUNOFF(CFS) =   83.22
EFFECTIVE AREA(ACRES) =    521.50   AREA-AVERAGED Fm(INCH/HR) =  0.23
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.90
TOTAL AREA(ACRES) =    521.50       PEAK FLOW RATE(CFS) =     982.16
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
FLOW PROCESS FROM NODE    809.00 TO NODE    826.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  32.25
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.134
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"WOODLAND"                 D       19.00      0.20      1.00    79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =   19.00      SUBAREA RUNOFF(CFS) =   33.08
EFFECTIVE AREA(ACRES) =    540.50   AREA-AVERAGED Fm(INCH/HR) =  0.23
AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.91
TOTAL AREA(ACRES) =    540.50       PEAK FLOW RATE(CFS) =     982.16
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
FLOW PROCESS FROM NODE    826.00 TO NODE    826.00 IS CODE =  10
----------------------------------------------------------------------------
>>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
FLOW PROCESS FROM NODE   3157.00 TO NODE   3157.00 IS CODE = 15.1
----------------------------------------------------------------------------
>>>>>DEFINE MEMORY BANK # 2 <<<<<
============================================================================
PEAK FLOWRATE TABLE FILE NAME: CP31100H.DNA
MEMORY BANK #  2 DEFINED AS FOLLOWS:
 STREAM     Q     Tc      Fp(Fm)     Ap   Ae     HEADWATER
 NUMBER   (CFS) (MIN.)  (INCH/HR)        (ACRES)    NODE
    1   3956.55  44.39  0.26( 0.25) 0.97  2874.7    3120.00
    2   3698.90  50.26  0.26( 0.25) 0.97  2943.7    3100.00
  TOTAL AREA(ACRES) =  2943.70
LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3157.00 = 29599.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE   3157.00 TO NODE   3157.00 IS CODE = 14.0
----------------------------------------------------------------------------
>>>>>MEMORY BANK #  2 COPIED ONTO MAIN-STREAM MEMORY<<<<<
============================================================================

MAIN-STREAM MEMORY DEFINED AS FOLLOWS:
 STREAM     Q     Tc      Fp(Fm)     Ap   Ae     HEADWATER
 NUMBER   (CFS) (MIN.)  (INCH/HR)        (ACRES)    NODE
    1   3956.55  44.39  0.26( 0.25) 0.97  2874.7    3120.00
    2   3698.90  50.26  0.26( 0.25) 0.97  2943.7    3100.00
  TOTAL AREA(ACRES) =   2943.70
LONGEST FLOWPATH FROM NODE   3100.00 TO NODE   3157.00 = 29599.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE   3157.00 TO NODE   3157.00 IS CODE =  12
----------------------------------------------------------------------------
>>>>>CLEAR MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
FLOW PROCESS FROM NODE   3157.00 TO NODE    820.00 IS CODE =  51
----------------------------------------------------------------------------
>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =    352.00  DOWNSTREAM(FEET) =    310.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  2262.00   CHANNEL SLOPE =  0.0186
 CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   3956.55
 FLOW VELOCITY(FEET/SEC.) =  15.60   FLOW DEPTH(FEET) =   7.75
 TRAVEL TIME(MIN.) =   2.42   Tc(MIN.) =  46.80
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    820.00 = 31861.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   3157.00 TO NODE    820.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  46.80
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.724
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL POOR COVER
 "FALLOW"                   B        0.20      0.30       1.00    86
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      B        0.40      0.30       1.00    63
 NATURAL FAIR COVER
 "GRASS"                    B       30.40      0.30       1.00    69
 URBAN FAIR COVER
 "TURF"                     B        7.80      0.30       1.00    65
 AGRICULTURAL POOR COVER
 "FALLOW"                   C        0.60      0.25       1.00    91
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      C       18.30      0.25       1.00    75
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   57.70      SUBAREA RUNOFF(CFS) =   74.78
 EFFECTIVE AREA(ACRES) =   2932.37   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =   3001.40       PEAK FLOW RATE(CFS) =    3956.55
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE   3157.00 TO NODE    820.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  46.80
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.724
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                    C       19.40      0.25       1.00    79
 URBAN FAIR COVER
 "TURF"                     C        0.40      0.25       1.00    77
 NATURAL FAIR COVER
 "OPEN BRUSH"               C       36.50      0.25       1.00    77
 NATURAL FAIR COVER
 "GRASS"                    D       19.60      0.20       1.00    84
 URBAN FAIR COVER
 "TURF"                     D        1.00      0.20       1.00    82
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      D       18.40      0.20       1.00    81
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.23
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   95.30      SUBAREA RUNOFF(CFS) =  128.14
 EFFECTIVE AREA(ACRES) =   3027.67   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =   3096.70       PEAK FLOW RATE(CFS) =    4015.63

****************************************************************************
 FLOW PROCESS FROM NODE    820.00 TO NODE    821.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    310.00  DOWNSTREAM(FEET) =    300.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   754.00   CHANNEL SLOPE =  0.0133
 CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   4015.63
 FLOW VELOCITY(FEET/SEC.) =  13.91   FLOW DEPTH(FEET) =   8.60
 TRAVEL TIME(MIN.) =   0.90   Tc(MIN.) =  47.71
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    821.00 = 32615.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    820.00 TO NODE    821.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  47.71
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.703
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                    B       30.70      0.30       1.00    69
 AGRICULTURAL FAIR COVER
 "ORCHARDS"                 B        0.40      0.30       1.00    65
 URBAN FAIR COVER
 "TURF"                     B       15.80      0.30       1.00    65
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          B        0.20      0.30       1.00    69
 NATURAL FAIR COVER
 "GRASS"                    C        0.40      0.25       1.00    79
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      D       53.00      0.20       1.00    81
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =  100.50      SUBAREA RUNOFF(CFS) =  131.67
 EFFECTIVE AREA(ACRES) =   3128.17   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =   3197.20       PEAK FLOW RATE(CFS) =    4090.66

****************************************************************************
 FLOW PROCESS FROM NODE    820.00 TO NODE    821.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  47.71
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.703
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       D        4.10      0.20       0.50    75
 NATURAL FAIR COVER
 "GRASS"                    D       60.70      0.20       1.00    84
 AGRICULTURAL FAIR COVER
 "ORCHARDS"                 D        0.70      0.20       1.00    82
 URBAN FAIR COVER
 "TURF"                     D        2.70      0.20       1.00    82
 NATURAL FAIR COVER
 "OPEN BRUSH"               D        2.50      0.20       1.00    83
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          D        6.20      0.20       1.00    84
```

```
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.97
  SUBAREA AREA(ACRES) =   76.90      SUBAREA RUNOFF(CFS) =  104.37
  EFFECTIVE AREA(ACRES) =   3205.07   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   3274.10       PEAK FLOW RATE(CFS) =    4195.03

****************************************************************************
  FLOW PROCESS FROM NODE    820.00 TO NODE    821.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  47.71
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.703
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                  D        0.20      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    0.20      SUBAREA RUNOFF(CFS) =    0.27
  EFFECTIVE AREA(ACRES) =   3205.27   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   3274.30       PEAK FLOW RATE(CFS) =    4195.30

****************************************************************************
  FLOW PROCESS FROM NODE    821.00 TO NODE    822.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    300.00  DOWNSTREAM(FEET) =    270.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1631.00   CHANNEL SLOPE =  0.0184
  CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   4195.30
  FLOW VELOCITY(FEET/SEC.) =  15.82   FLOW DEPTH(FEET) =   8.03
  TRAVEL TIME(MIN.) =   1.72   Tc(MIN.) =  49.42
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    822.00 = 34246.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    821.00 TO NODE    822.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  49.42
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.663
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        9.40      0.30      1.00    86
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       B        0.40      0.30      1.00    63
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        B        0.80      0.30      0.50    56
  NATURAL FAIR COVER
  "GRASS"                     B        5.60      0.30      1.00    69
  AGRICULTURAL FAIR COVER
  "ORCHARDS"                  B        5.60      0.30      1.00    65
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        0.90      0.30      1.00    66
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.98
  SUBAREA AREA(ACRES) =   22.70      SUBAREA RUNOFF(CFS) =   27.96
  EFFECTIVE AREA(ACRES) =   3227.97   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   3297.00       PEAK FLOW RATE(CFS) =    4195.30
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    821.00 TO NODE    822.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  49.42
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.663
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    C        4.30      0.25      1.00    91
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C       20.20      0.25      1.00    75
  NATURAL FAIR COVER
  "GRASS"                     C       18.70      0.25      1.00    79
  AGRICULTURAL FAIR COVER
  "ORCHARDS"                  C        0.70      0.25      1.00    77
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       41.60      0.25      1.00    77
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        1.70      0.20      1.00    94
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   87.20      SUBAREA RUNOFF(CFS) =  110.99
  EFFECTIVE AREA(ACRES) =   3315.17   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   3384.20       PEAK FLOW RATE(CFS) =    4220.21

****************************************************************************
  FLOW PROCESS FROM NODE    821.00 TO NODE    822.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  49.42
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.663
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       D        1.30      0.20      1.00    81
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D        3.00      0.20      0.50    75
  NATURAL FAIR COVER
  "GRASS"                     D        4.50      0.20      1.00    84
  AGRICULTURAL FAIR COVER
  "ORCHARDS"                  D        0.20      0.20      1.00    82
  URBAN FAIR COVER
  "TURF"                      D        0.10      0.20      1.00    82
  NATURAL FAIR COVER
  "OPEN BRUSH"                D        5.00      0.20      1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.89
  SUBAREA AREA(ACRES) =   14.10      SUBAREA RUNOFF(CFS) =   18.84
  EFFECTIVE AREA(ACRES) =   3329.27   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =   3398.30       PEAK FLOW RATE(CFS) =    4239.05

****************************************************************************
  FLOW PROCESS FROM NODE    821.00 TO NODE    822.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
```

```
 MAINLINE Tc(MIN) =  49.42
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.663
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "WOODLAND"                  D        4.00      0.20      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    4.00      SUBAREA RUNOFF(CFS) =    5.27
 EFFECTIVE AREA(ACRES) =   3333.27   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =   3402.30       PEAK FLOW RATE(CFS) =    4244.31

****************************************************************************
 FLOW PROCESS FROM NODE    822.00 TO NODE    823.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    270.00  DOWNSTREAM(FEET) =    255.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1203.00   CHANNEL SLOPE =  0.0125
 CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   4244.31
 FLOW VELOCITY(FEET/SEC.) =  13.82   FLOW DEPTH(FEET) =   9.03
 TRAVEL TIME(MIN.) =   1.45   Tc(MIN.) =  50.88
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    823.00 = 35449.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    822.00 TO NODE    823.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  50.88
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.636
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL POOR COVER
 "FALLOW"                    B        1.00      0.30      1.00    86
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"        B       29.50      0.30      0.50    56
 NATURAL FAIR COVER
 "GRASS"                     B        8.70      0.30      1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"                B        1.60      0.30      1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B        8.50      0.30      1.00    69
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        B        0.50      0.30      0.60    56
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.70
 SUBAREA AREA(ACRES) =   49.80      SUBAREA RUNOFF(CFS) =   63.92
 EFFECTIVE AREA(ACRES) =   3383.07   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =   3452.10       PEAK FLOW RATE(CFS) =    4244.31
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    822.00 TO NODE    823.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  50.88
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.636
 SUBAREA LOSS RATE DATA(AMC  II):
```

```
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       C        4.10      0.25      1.00    75
 NATURAL FAIR COVER
 "GRASS"                     C       13.20      0.25      1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"                C       17.40      0.25      1.00    77
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           C        1.30      0.25      1.00    79
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        C        7.50      0.25      0.60    69
 NATURAL FAIR COVER
 "WOODLAND"                  C        2.70      0.25      1.00    73
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.94
 SUBAREA AREA(ACRES) =   46.20      SUBAREA RUNOFF(CFS) =   58.30
 EFFECTIVE AREA(ACRES) =   3429.27   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.97
 TOTAL AREA(ACRES) =   3498.30       PEAK FLOW RATE(CFS) =    4284.79

****************************************************************************
 FLOW PROCESS FROM NODE    822.00 TO NODE    823.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  50.88
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.636
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL POOR COVER
 "FALLOW"                    D        1.40      0.20      1.00    94
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"        D       45.60      0.20      0.50    75
 NATURAL FAIR COVER
 "GRASS"                     D       77.10      0.20      1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"                D        1.10      0.20      1.00    83
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           D       10.10      0.20      1.00    84
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       D        3.10      0.20      1.00    81
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.84
 SUBAREA AREA(ACRES) =  138.40      SUBAREA RUNOFF(CFS) =  182.97
 EFFECTIVE AREA(ACRES) =   3567.67   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   3636.70       PEAK FLOW RATE(CFS) =    4467.76

****************************************************************************
 FLOW PROCESS FROM NODE    822.00 TO NODE    823.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  50.88
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.636
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        D       32.70      0.20      0.60    75
 NATURAL FAIR COVER
 "WOODLAND"                  D        2.00      0.20      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.62
 SUBAREA AREA(ACRES) =   34.70      SUBAREA RUNOFF(CFS) =   47.20
```

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 EFFECTIVE AREA(ACRES) =   3602.37   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   3671.40       PEAK FLOW RATE(CFS) =    4514.96

****************************************************************************
 FLOW PROCESS FROM NODE    823.00 TO NODE    824.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    255.00  DOWNSTREAM(FEET) =    235.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1331.00   CHANNEL SLOPE =  0.0150
 CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   4514.96
 FLOW VELOCITY(FEET/SEC.) =  15.03   FLOW DEPTH(FEET) =   8.87
 TRAVEL TIME(MIN.) =   1.48   Tc(MIN.) =  52.35
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    824.00 = 36780.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    823.00 TO NODE    824.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  52.35
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.612
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL POOR COVER
 "FALLOW"                   B        2.50      0.30      1.00    86
 NATURAL FAIR COVER
 "GRASS"                    B       10.30      0.30      1.00    69
 NATURAL FAIR COVER
 "OPEN BRUSH"               B        0.60      0.30      1.00    66
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          B        3.90      0.30      1.00    69
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"       B       15.30      0.30      0.60    56
 NATURAL FAIR COVER
 "WOODLAND"                 B        0.40      0.30      1.00    60
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.81
 SUBAREA AREA(ACRES) =   33.00      SUBAREA RUNOFF(CFS) =   40.63
 EFFECTIVE AREA(ACRES) =   3635.37   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.96
 TOTAL AREA(ACRES) =   3704.40       PEAK FLOW RATE(CFS) =    4514.96
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    823.00 TO NODE    824.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  52.35
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.612
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL POOR COVER
 "FALLOW"                   C        0.20      0.25      1.00    91
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      C        0.20      0.25      1.00    75
 NATURAL FAIR COVER
 "GRASS"                    C        9.90      0.25      1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"               C       24.60      0.25      1.00    77
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"       C       63.30      0.25      0.60    69
 NATURAL FAIR COVER
 "WOODLAND"                 C        5.00      0.25      1.00    73
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.75
 SUBAREA AREA(ACRES) =  103.20      SUBAREA RUNOFF(CFS) =  132.23
 EFFECTIVE AREA(ACRES) =   3738.57   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.95
 TOTAL AREA(ACRES) =   3807.60       PEAK FLOW RATE(CFS) =    4611.28

****************************************************************************
 FLOW PROCESS FROM NODE    823.00 TO NODE    824.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  52.35
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.612
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL POOR COVER
 "FALLOW"                   D        1.00      0.20      1.00    94
 NATURAL FAIR COVER
 "GRASS"                    D        3.60      0.20      1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"               D        0.50      0.20      1.00    83
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"       D       23.80      0.20      0.60    75
 NATURAL FAIR COVER
 "WOODLAND"                 D        2.30      0.20      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.69
 SUBAREA AREA(ACRES) =   31.20      SUBAREA RUNOFF(CFS) =   41.37
 EFFECTIVE AREA(ACRES) =   3769.77   AREA-AVERAGED Fm(INCH/HR) =  0.24
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.95
 TOTAL AREA(ACRES) =   3838.80       PEAK FLOW RATE(CFS) =    4652.65

****************************************************************************
 FLOW PROCESS FROM NODE    824.00 TO NODE    825.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    235.00  DOWNSTREAM(FEET) =    210.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1566.00   CHANNEL SLOPE =  0.0160
 CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   4652.65
 FLOW VELOCITY(FEET/SEC.) =  15.49   FLOW DEPTH(FEET) =   8.87
 TRAVEL TIME(MIN.) =   1.68   Tc(MIN.) =  54.04
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    825.00 = 38346.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    824.00 TO NODE    825.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  54.04
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.585
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"          A        0.40      0.40      1.00    49
 AGRICULTURAL POOR COVER
 "FALLOW"                   B        6.30      0.30      1.00    86
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  NATURAL FAIR COVER
  "GRASS"                  B       24.60      0.30      1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"             B        0.40      0.30      1.00    66
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"        B        2.50      0.30      1.00    69
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"     B        0.90      0.30      0.60    56
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.99
  SUBAREA AREA(ACRES) =   35.10      SUBAREA RUNOFF(CFS) =   40.67
  EFFECTIVE AREA(ACRES) =   3804.87   AREA-AVERAGED Fm(INCH/HR) =  0.24
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.95
  TOTAL AREA(ACRES) =   3873.90       PEAK FLOW RATE(CFS) =    4652.65
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    824.00 TO NODE    825.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  54.04
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.585
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                 B        0.50      0.30      1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                   C        2.00      0.25      1.00    91
  NATURAL FAIR COVER
  "GRASS"                    C       25.50      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        4.80      0.25      1.00    77
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       C       24.20      0.25      0.60    69
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        0.70      0.20      1.00    94
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.83
  SUBAREA AREA(ACRES) =   57.70      SUBAREA RUNOFF(CFS) =   71.53
  EFFECTIVE AREA(ACRES) =   3862.57   AREA-AVERAGED Fm(INCH/HR) =  0.24
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.95
  TOTAL AREA(ACRES) =   3931.60       PEAK FLOW RATE(CFS) =    4673.39

****************************************************************************
  FLOW PROCESS FROM NODE    824.00 TO NODE    825.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  54.04
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.585
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    D       14.00      0.20      1.00    84
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       D       39.90      0.20      0.60    75
  NATURAL FAIR COVER
  "WOODLAND"                 D        3.50      0.20      1.00    79
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          D        0.70      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.73
  SUBAREA AREA(ACRES) =   58.10      SUBAREA RUNOFF(CFS) =   75.32
  EFFECTIVE AREA(ACRES) =   3920.67   AREA-AVERAGED Fm(INCH/HR) =  0.24
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.95
  TOTAL AREA(ACRES) =   3989.70       PEAK FLOW RATE(CFS) =    4748.70

****************************************************************************
  FLOW PROCESS FROM NODE    825.00 TO NODE    826.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    210.00  DOWNSTREAM(FEET) =    176.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2723.00   CHANNEL SLOPE =  0.0125
  CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   4748.70
  FLOW VELOCITY(FEET/SEC.) =  14.28   FLOW DEPTH(FEET) =   9.61
  TRAVEL TIME(MIN.) =   3.18   Tc(MIN.) =  57.22
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    826.00 = 41069.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    825.00 TO NODE    826.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  57.22
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.535
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   A        0.20      0.40      1.00    77
  NATURAL FAIR COVER
  "GRASS"                    A        0.40      0.40      1.00    50
  NATURAL FAIR COVER
  "OPEN BRUSH"               A        0.90      0.40      1.00    46
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          A        0.60      0.40      1.00    49
  NATURAL FAIR COVER
  "WOODLAND"                 A        0.60      0.40      1.00    36
  AGRICULTURAL POOR COVER
  "FALLOW"                   B        3.60      0.30      1.00    86
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.34
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    6.30      SUBAREA RUNOFF(CFS) =    6.76
  EFFECTIVE AREA(ACRES) =   3926.97   AREA-AVERAGED Fm(INCH/HR) =  0.24
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.95
  TOTAL AREA(ACRES) =   3996.00       PEAK FLOW RATE(CFS) =    4748.70
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    825.00 TO NODE    826.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  57.22
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.535
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    B        0.90      0.30      1.00    69
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"          B        0.20      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                 B        0.40      0.30      1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                   C       11.60      0.25      1.00    91
  NATURAL FAIR COVER
```

```
"GRASS"                    C       19.50      0.25      1.00    79
NATURAL FAIR COVER
"OPEN BRUSH"               C       16.60      0.25      1.00    77
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =   49.20      SUBAREA RUNOFF(CFS) =   56.81
EFFECTIVE AREA(ACRES) =   3976.17   AREA-AVERAGED Fm(INCH/HR) =  0.24
AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.95
TOTAL AREA(ACRES) =   4045.20       PEAK FLOW RATE(CFS) =    4748.70
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
FLOW PROCESS FROM NODE    825.00 TO NODE    826.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  57.22
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.535
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"WOODLAND"                 C        1.00      0.25      1.00    73
AGRICULTURAL POOR COVER
"FALLOW"                   D        2.50      0.20      1.00    94
NATURAL FAIR COVER
"GRASS"                    D        4.50      0.20      1.00    84
NATURAL FAIR COVER
"OPEN BRUSH"               D        6.40      0.20      1.00    83
NATURAL FAIR COVER
"WOODLAND"                 D        2.90      0.20      1.00    79
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =   17.30      SUBAREA RUNOFF(CFS) =   20.73
EFFECTIVE AREA(ACRES) =   3993.47   AREA-AVERAGED Fm(INCH/HR) =  0.24
AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.95
TOTAL AREA(ACRES) =   4062.50       PEAK FLOW RATE(CFS) =    4748.70
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
FLOW PROCESS FROM NODE    826.00 TO NODE    826.00 IS CODE =   7
----------------------------------------------------------------------------
>>>>>PEAK FLOW RATE ESTIMATOR CHANGED TO UNIT-HYDROGRAPH METHOD<<<<<
>>>>>USING TIME-OF-CONCENTRATION OF LONGEST FLOWPATH<<<<<
============================================================================
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
S-GRAPH: VALLEY(DEV.)= 16.0%;VALLEY(UNDEV.)/DESERT=  8.0%
         MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
Tc(HR) = 1.06; LAG(HR) = 0.84; Fm(INCH/HR) = 0.24; Ybar = 0.43
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.82; 30M = 0.82; 1HR = 0.82;
3HR = 0.97; 6HR = 0.99; 24HR= 0.99
UNIT-INTERVAL(MIN) =  5.00   TOTAL AREA(ACRES) =   4062.50
LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    826.00 = 41069.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0295; Lca/L=0.4,n=.0265; Lca/L=0.5,n=.0243;Lca/L=0.6,n=.0227
TIME OF PEAK FLOW(HR) = 16.58  RUNOFF VOLUME(AF) =    1188.57
UNIT-HYDROGRAPH METHOD PEAK FLOW RATE(CFS) =   3368.48
TOTAL PEAK FLOW RATE(CFS) =   3368.48 (SOURCE FLOW INCLUDED)
RATIONAL METHOD PEAK FLOW RATE(CFS) =   4748.70
 (UPSTREAM NODE PEAK FLOW RATE(CFS) =   4748.70)
PEAK FLOW RATE(CFS) USED =   4748.70

****************************************************************************
FLOW PROCESS FROM NODE    826.00 TO NODE    826.00 IS CODE =  11
----------------------------------------------------------------------------
>>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

** MAIN STREAM CONFLUENCE DATA **
PEAK FLOW RATE(CFS) =     4748.70    Tc(MIN.) =  63.30
AREA-AVERAGED Fm(INCH/HR) =  0.24    Ybar = 0.43
TOTAL AREA(ACRES) =    4062.50
LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    826.00 = 41069.00 FEET.

** MEMORY BANK #  1 CONFLUENCE DATA **
 STREAM     Q      Tc    Intensity   Fp(Fm)      Ap    Ae      HEADWATER
 NUMBER    (CFS) (MIN.) (INCH/HR) (INCH/HR)        (ACRES)     NODE
    1    982.16  32.25     2.134  0.25( 0.23) 0.91   540.5      800.00
LONGEST FLOWPATH FROM NODE    800.00 TO NODE    826.00 =  9684.00 FEET.

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
S-GRAPH: VALLEY(DEV.)= 16.0%;VALLEY(UNDEV.)/DESERT=  8.0%
         MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
Tc(HR) = 1.06; LAG(HR) = 0.84; Fm(INCH/HR) = 0.24; Ybar = 0.43
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.80; 30M = 0.80; 1HR = 0.80;
3HR = 0.97; 6HR = 0.98; 24HR= 0.99
UNIT-INTERVAL(MIN) =  5.00   TOTAL AREA(ACRES) =   4603.00
LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    826.00 = 41069.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0295; Lca/L=0.4,n=.0265; Lca/L=0.5,n=.0243;Lca/L=0.6,n=.0227
TIME OF PEAK FLOW(HR) = 16.58  RUNOFF VOLUME(AF) =    1341.89
PEAK FLOW RATE(CFS) =    3728.67
  (UPSTREAM NODE PEAK FLOW RATE(CFS) =   4748.70)
PEAK FLOW RATE(CFS) USED =   4748.70

****************************************************************************
FLOW PROCESS FROM NODE    826.00 TO NODE    826.00 IS CODE =  12
----------------------------------------------------------------------------
>>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
FLOW PROCESS FROM NODE    826.00 TO NODE    848.00 IS CODE =  51
----------------------------------------------------------------------------
>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =    176.00  DOWNSTREAM(FEET) =    175.00
CHANNEL LENGTH THRU SUBAREA(FEET) =   170.00   CHANNEL SLOPE =  0.0059
CHANNEL BASE(FEET) =   85.00   "Z" FACTOR =   2.000
MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  15.00
CHANNEL FLOW THRU SUBAREA(CFS) =   4748.70
FLOW VELOCITY(FEET/SEC.) =  10.15   FLOW DEPTH(FEET) =   4.93
TRAVEL TIME(MIN.) =   0.28   Tc(MIN.) =  63.58
LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    848.00 = 41239.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    826.00 TO NODE    848.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  63.58
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.443
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"               A        0.20      0.40      1.00    46
NATURAL FAIR COVER
```

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"WOODLAND"                  A        0.10      0.40      1.00    36
NATURAL FAIR COVER
"OPEN BRUSH"                D        0.30      0.20      1.00    83
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =    0.60
UNIT-HYDROGRAPH DATA:
RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
S-GRAPH: VALLEY(DEV.)= 16.0%;VALLEY(UNDEV.)/DESERT=  8.0%
         MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
Tc(HR) = 1.06; LAG(HR) = 0.85; Fm(INCH/HR) = 0.24; Ybar = 0.43
USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
DEPTH-AREA FACTORS: 5M = 0.80; 30M = 0.80; 1HR = 0.80;
3HR = 0.97; 6HR = 0.98; 24HR= 0.99
UNIT-INTERVAL(MIN) =  5.00   TOTAL AREA(ACRES) =   4603.60
LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    848.00 = 41239.00 FEET.
 EQUIVALENT BASIN FACTOR APPROXIMATIONS:
 Lca/L=0.3,n=.0295; Lca/L=0.4,n=.0265; Lca/L=0.5,n=.0243;Lca/L=0.6,n=.0227
TIME OF PEAK FLOW(HR) = 16.58  RUNOFF VOLUME(AF) =    1342.02
UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3721.64
TOTAL AREA(ACRES) =   4603.60       PEAK FLOW RATE(CFS) =    4748.70
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
FLOW PROCESS FROM NODE    848.00 TO NODE    848.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
PEAK FLOW RATE(CFS) =    4748.70    Tc(MIN.) =  63.58
AREA-AVERAGED Fm(INCH/HR) =  0.24   Ybar = 0.43
TOTAL AREA(ACRES) =    4603.60

****************************************************************************
FLOW PROCESS FROM NODE    830.00 TO NODE    831.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   327.00
ELEVATION DATA: UPSTREAM(FEET) =    895.00  DOWNSTREAM(FEET) =    820.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.606
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.277
SUBAREA Tc AND LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
NATURAL FAIR COVER
"GRASS"                     C        0.10      0.25      1.00    79    9.61
NATURAL FAIR COVER
"OPEN BRUSH"                C        0.30      0.25      1.00    77    9.61
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA RUNOFF(CFS) =      1.45
TOTAL AREA(ACRES) =      0.40   PEAK FLOW RATE(CFS) =      1.45

****************************************************************************
FLOW PROCESS FROM NODE    831.00 TO NODE    832.00 IS CODE =  51
----------------------------------------------------------------------------
>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =    820.00  DOWNSTREAM(FEET) =    790.00
CHANNEL LENGTH THRU SUBAREA(FEET) =   150.00   CHANNEL SLOPE =  0.2000
CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
CHANNEL FLOW THRU SUBAREA(CFS) =      1.45
FLOW VELOCITY(FEET/SEC.) =   5.08   FLOW DEPTH(FEET) =   0.23
TRAVEL TIME(MIN.) =   0.49   Tc(MIN.) =  10.10
LONGEST FLOWPATH FROM NODE    830.00 TO NODE    832.00 =   477.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    831.00 TO NODE    832.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  10.10
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.140
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"GRASS"                     C        0.50      0.25      1.00    79
NATURAL FAIR COVER
"OPEN BRUSH"                C        0.30      0.25      1.00    77
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =    0.80      SUBAREA RUNOFF(CFS) =    2.80
EFFECTIVE AREA(ACRES) =      1.20   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =      1.20       PEAK FLOW RATE(CFS) =       4.20

****************************************************************************
FLOW PROCESS FROM NODE    832.00 TO NODE    833.00 IS CODE =  51
----------------------------------------------------------------------------
>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =    790.00  DOWNSTREAM(FEET) =    762.00
CHANNEL LENGTH THRU SUBAREA(FEET) =   200.00   CHANNEL SLOPE =  0.1400
CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
CHANNEL FLOW THRU SUBAREA(CFS) =      4.20
FLOW VELOCITY(FEET/SEC.) =   6.11   FLOW DEPTH(FEET) =   0.47
TRAVEL TIME(MIN.) =   0.55   Tc(MIN.) =  10.64
LONGEST FLOWPATH FROM NODE    830.00 TO NODE    833.00 =   677.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    832.00 TO NODE    833.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN) =  10.64
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.031
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL FAIR COVER
"GRASS"                     C        0.40      0.25      1.00    79
NATURAL FAIR COVER
"OPEN BRUSH"                C        0.80      0.25      1.00    77
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
SUBAREA AREA(ACRES) =    1.20      SUBAREA RUNOFF(CFS) =    4.08
EFFECTIVE AREA(ACRES) =      2.40   AREA-AVERAGED Fm(INCH/HR) =  0.25
AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =      2.40       PEAK FLOW RATE(CFS) =       8.17

****************************************************************************
FLOW PROCESS FROM NODE    833.00 TO NODE    834.00 IS CODE =  51
----------------------------------------------------------------------------
>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
```

```
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    762.00  DOWNSTREAM(FEET) =    754.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   124.00   CHANNEL SLOPE =  0.0645
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      8.17
  FLOW VELOCITY(FEET/SEC.) =   5.54   FLOW DEPTH(FEET) =   0.81
  TRAVEL TIME(MIN.) =   0.37   Tc(MIN.) =  11.02
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    834.00 =   801.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    833.00 TO NODE    834.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
  MAINLINE Tc(MIN) =  11.02
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.957
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    C        0.70      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        1.10      0.25      1.00    77
  NATURAL FAIR COVER
  "GRASS"                    D        0.10      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D        0.40      0.20      1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.24
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    2.30      SUBAREA RUNOFF(CFS) =    7.70
  EFFECTIVE AREA(ACRES) =      4.70   AREA-AVERAGED Fm(INCH/HR) =  0.24
  AREA-AVERAGED Fp(INCH/HR) =  0.24  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =      4.70       PEAK FLOW RATE(CFS) =      15.70

****************************************************************************
  FLOW PROCESS FROM NODE    834.00 TO NODE    835.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    754.00  DOWNSTREAM(FEET) =    740.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   550.00   CHANNEL SLOPE =  0.0255
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     15.70
  FLOW VELOCITY(FEET/SEC.) =   4.54   FLOW DEPTH(FEET) =   1.11
  TRAVEL TIME(MIN.) =   2.02   Tc(MIN.) =  13.03
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    835.00 =  1351.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    834.00 TO NODE    835.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
  MAINLINE Tc(MIN) =  13.03
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.583
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    C        3.30      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        0.60      0.25      1.00    77
  NATURAL FAIR COVER
  "GRASS"                    D        6.00      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D        0.60      0.20      1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   10.50      SUBAREA RUNOFF(CFS) =   31.79
  EFFECTIVE AREA(ACRES) =     15.20   AREA-AVERAGED Fm(INCH/HR) =  0.23
  AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     15.20       PEAK FLOW RATE(CFS) =      45.92

****************************************************************************
  FLOW PROCESS FROM NODE    835.00 TO NODE    836.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    740.00  DOWNSTREAM(FEET) =    624.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   929.00   CHANNEL SLOPE =  0.1249
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     45.92
  FLOW VELOCITY(FEET/SEC.) =  10.86   FLOW DEPTH(FEET) =   1.29
  TRAVEL TIME(MIN.) =   1.43   Tc(MIN.) =  14.46
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    836.00 =  2280.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    835.00 TO NODE    836.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
  MAINLINE Tc(MIN) =  14.46
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.378
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    C        0.10      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C        0.10      0.25      1.00    77
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        4.50      0.20      1.00    94
  NATURAL FAIR COVER
  "GRASS"                    D       10.40      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D        0.40      0.20      1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   15.50      SUBAREA RUNOFF(CFS) =   44.32
  EFFECTIVE AREA(ACRES) =     30.70   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =     30.70       PEAK FLOW RATE(CFS) =      87.43

****************************************************************************
  FLOW PROCESS FROM NODE    836.00 TO NODE    837.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    624.00  DOWNSTREAM(FEET) =    592.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   417.00   CHANNEL SLOPE =  0.0767
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     87.43
  FLOW VELOCITY(FEET/SEC.) =  10.58   FLOW DEPTH(FEET) =   1.74
  TRAVEL TIME(MIN.) =   0.66   Tc(MIN.) =  15.12
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    837.00 =  2697.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE    836.00 TO NODE    837.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.12
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.287
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                   C        0.20      0.25      1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"              C        0.60      0.25      1.00    77
 AGRICULTURAL POOR COVER
 "FALLOW"                  D        2.30      0.20      1.00    94
 NATURAL FAIR COVER
 "GRASS"                   D        5.10      0.20      1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"              D        1.10      0.20      1.00    83
 NATURAL FAIR COVER
 "WOODLAND"                D        0.20      0.20      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    9.50      SUBAREA RUNOFF(CFS) =   26.36
 EFFECTIVE AREA(ACRES) =     40.20   AREA-AVERAGED Fm(INCH/HR) =  0.21
 AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     40.20       PEAK FLOW RATE(CFS) =     111.27

****************************************************************************
 FLOW PROCESS FROM NODE    837.00 TO NODE    838.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    592.00  DOWNSTREAM(FEET) =    591.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =    60.00   CHANNEL SLOPE =  0.0167
 CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    111.27
 FLOW VELOCITY(FEET/SEC.) =   6.40   FLOW DEPTH(FEET) =   2.93
 TRAVEL TIME(MIN.) =   0.16   Tc(MIN.) =  15.27
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    838.00 =  2757.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    837.00 TO NODE    838.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.27
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.269
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"     C        0.30      0.25      1.00    75
 NATURAL FAIR COVER
 "GRASS"                   C        1.10      0.25      1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"              C        7.00      0.25      1.00    77
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"     D        0.40      0.20      1.00    81
 NATURAL FAIR COVER
 "GRASS"                   D        7.50      0.20      1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"              D        1.80      0.20      1.00    83
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   18.10      SUBAREA RUNOFF(CFS) =   49.62
 EFFECTIVE AREA(ACRES) =     58.30   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     58.30       PEAK FLOW RATE(CFS) =     160.26

****************************************************************************
 FLOW PROCESS FROM NODE    837.00 TO NODE    838.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  15.27
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.269
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "WOODLAND"                D        0.20      0.20      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    0.20      SUBAREA RUNOFF(CFS) =    0.55
 EFFECTIVE AREA(ACRES) =     58.50   AREA-AVERAGED Fm(INCH/HR) =  0.21
 AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     58.50       PEAK FLOW RATE(CFS) =     160.82

****************************************************************************
 FLOW PROCESS FROM NODE    838.00 TO NODE    839.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    591.00  DOWNSTREAM(FEET) =    526.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   973.00   CHANNEL SLOPE =  0.0668
 CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    160.82
 FLOW VELOCITY(FEET/SEC.) =  11.80   FLOW DEPTH(FEET) =   2.48
 TRAVEL TIME(MIN.) =   1.37   Tc(MIN.) =  16.65
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    839.00 =  3730.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    838.00 TO NODE    839.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  16.65
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.116
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL POOR COVER
 "FALLOW"                  D        3.00      0.20      1.00    94
 NATURAL FAIR COVER
 "GRASS"                   D       16.40      0.20      1.00    84
 NATURAL FAIR COVER
 "WOODLAND"                D        0.60      0.20      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   20.00      SUBAREA RUNOFF(CFS) =   52.48
 EFFECTIVE AREA(ACRES) =     78.50   AREA-AVERAGED Fm(INCH/HR) =  0.21
 AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =     78.50       PEAK FLOW RATE(CFS) =     205.19

****************************************************************************
 FLOW PROCESS FROM NODE    839.00 TO NODE    840.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
```

```
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    526.00  DOWNSTREAM(FEET) =    455.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1045.00   CHANNEL SLOPE =  0.0679
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    205.19
  FLOW VELOCITY(FEET/SEC.) =  12.62   FLOW DEPTH(FEET) =   2.80
  TRAVEL TIME(MIN.) =   1.38   Tc(MIN.) =  18.03
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    840.00 =  4775.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    839.00 TO NODE    840.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  18.03
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.974
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                     C        1.00      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"                C        0.50      0.25      1.00    77
  NATURAL FAIR COVER
  "GRASS"                     D       31.60      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"                D        1.60      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                  D        0.40      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   35.10      SUBAREA RUNOFF(CFS) =   87.55
  EFFECTIVE AREA(ACRES) =   113.60   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    113.60       PEAK FLOW RATE(CFS) =     282.71

****************************************************************************
  FLOW PROCESS FROM NODE    840.00 TO NODE    841.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    455.00  DOWNSTREAM(FEET) =    409.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   675.00   CHANNEL SLOPE =  0.0681
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   4.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    282.71
  FLOW VELOCITY(FEET/SEC.) =  13.65   FLOW DEPTH(FEET) =   2.97
  TRAVEL TIME(MIN.) =   0.82   Tc(MIN.) =  18.85
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    841.00 =  5450.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    840.00 TO NODE    841.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  18.85
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.901
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        6.00      0.30      1.00    86
  NATURAL FAIR COVER
  "GRASS"                     B        7.40      0.30      1.00    69
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        4.10      0.20      1.00    94
  NATURAL FAIR COVER
  "GRASS"                     D       24.80      0.20      1.00    84
  NATURAL FAIR COVER
  "WOODLAND"                  D        0.90      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.23
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   43.20      SUBAREA RUNOFF(CFS) =  103.81
  EFFECTIVE AREA(ACRES) =   156.80   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    156.80       PEAK FLOW RATE(CFS) =     379.11

****************************************************************************
  FLOW PROCESS FROM NODE    841.00 TO NODE    842.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    409.00  DOWNSTREAM(FEET) =    405.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   142.00   CHANNEL SLOPE =  0.0282
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    379.11
  FLOW VELOCITY(FEET/SEC.) =  10.56   FLOW DEPTH(FEET) =   3.99
  TRAVEL TIME(MIN.) =   0.22   Tc(MIN.) =  19.08
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    842.00 =  5592.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    841.00 TO NODE    842.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  19.08
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.881
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C        0.10      0.25      1.00    75
  NATURAL FAIR COVER
  "GRASS"                     C        7.90      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"                C       26.10      0.25      1.00    77
  NATURAL FAIR COVER
  "GRASS"                     D       19.30      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"                D        2.10      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                  D        0.90      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.23
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   56.40      SUBAREA RUNOFF(CFS) =  134.57
  EFFECTIVE AREA(ACRES) =   213.20   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    213.20       PEAK FLOW RATE(CFS) =     510.89

****************************************************************************
  FLOW PROCESS FROM NODE    842.00 TO NODE    843.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    405.00  DOWNSTREAM(FEET) =    348.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2041.00   CHANNEL SLOPE =  0.0279
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    510.89
```

```
 FLOW VELOCITY(FEET/SEC.) =  11.36   FLOW DEPTH(FEET) =   4.66
 TRAVEL TIME(MIN.) =   2.99   Tc(MIN.) =  22.07
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    843.00 =  7633.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    842.00 TO NODE    843.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  22.07
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.643
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 AGRICULTURAL POOR COVER
 "FALLOW"                   B        0.60      0.30      1.00    86
 NATURAL FAIR COVER
 "GRASS"                    B        2.80      0.30      1.00    69
 NATURAL FAIR COVER
 "GRASS"                    C       10.20      0.25      1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"               C       17.70      0.25      1.00    77
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      D        0.30      0.20      1.00    81
 AGRICULTURAL POOR COVER
 "FALLOW"                   D        0.80      0.20      1.00    94
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   32.40      SUBAREA RUNOFF(CFS) =   69.67
 EFFECTIVE AREA(ACRES) =    245.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    245.60       PEAK FLOW RATE(CFS) =     534.77

****************************************************************************
 FLOW PROCESS FROM NODE    842.00 TO NODE    843.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  22.07
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.643
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                    D       78.70      0.20      1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"               D        0.70      0.20      1.00    83
 NATURAL FAIR COVER
 "WOODLAND"                 D        2.00      0.20      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   81.40      SUBAREA RUNOFF(CFS) =  178.95
 EFFECTIVE AREA(ACRES) =    327.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    327.00       PEAK FLOW RATE(CFS) =     713.72

****************************************************************************
 FLOW PROCESS FROM NODE    843.00 TO NODE    844.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    348.00  DOWNSTREAM(FEET) =    302.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1986.00   CHANNEL SLOPE =  0.0232
 CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   6.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    713.72
 FLOW VELOCITY(FEET/SEC.) =  11.51   FLOW DEPTH(FEET) =   5.43
 TRAVEL TIME(MIN.) =   2.88   Tc(MIN.) =  24.95
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    844.00 =  9619.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    843.00 TO NODE    844.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  24.95
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.463
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      C        0.40      0.25      1.00    75
 NATURAL FAIR COVER
 "GRASS"                    C       10.70      0.25      1.00    79
 NATURAL FAIR COVER
 "OPEN BRUSH"               C       23.90      0.25      1.00    77
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"      D        0.30      0.20      1.00    81
 NATURAL FAIR COVER
 "GRASS"                    D       55.10      0.20      1.00    84
 NATURAL FAIR COVER
 "OPEN BRUSH"               D        9.40      0.20      1.00    83
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =   99.80      SUBAREA RUNOFF(CFS) =  201.71
 EFFECTIVE AREA(ACRES) =    426.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    426.80       PEAK FLOW RATE(CFS) =     862.61

****************************************************************************
 FLOW PROCESS FROM NODE    843.00 TO NODE    844.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  24.95
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.463
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "WOODLAND"                 D        1.70      0.20      1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    1.70      SUBAREA RUNOFF(CFS) =    3.46
 EFFECTIVE AREA(ACRES) =    428.50   AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =    428.50       PEAK FLOW RATE(CFS) =     866.07

****************************************************************************
 FLOW PROCESS FROM NODE    844.00 TO NODE    845.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    302.00  DOWNSTREAM(FEET) =    273.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1696.00   CHANNEL SLOPE =  0.0171
 CHANNEL BASE(FEET) =    7.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   7.00
 CHANNEL FLOW THRU SUBAREA(CFS) =    866.07
 FLOW VELOCITY(FEET/SEC.) =  10.78   FLOW DEPTH(FEET) =   6.12
 TRAVEL TIME(MIN.) =   2.62   Tc(MIN.) =  27.57
 LONGEST FLOWPATH FROM NODE    830.00 TO NODE    845.00 = 11315.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    844.00 TO NODE    845.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  27.57
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.327
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       C         0.40      0.25      1.00    75
  NATURAL FAIR COVER
  "GRASS"                     C         4.90      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"                C         4.10      0.25      1.00    77
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        10.10      0.20      1.00    94
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       D         0.40      0.20      1.00    81
  NATURAL FAIR COVER
  "GRASS"                     D        35.60      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   55.50      SUBAREA RUNOFF(CFS) =  105.82
  EFFECTIVE AREA(ACRES) =    484.00   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    484.00       PEAK FLOW RATE(CFS) =     919.34

****************************************************************************
  FLOW PROCESS FROM NODE    844.00 TO NODE    845.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  27.57
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.327
  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"                D         3.80      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                  D         2.00      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    5.80      SUBAREA RUNOFF(CFS) =   11.10
  EFFECTIVE AREA(ACRES) =    489.80   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    489.80       PEAK FLOW RATE(CFS) =     930.45

****************************************************************************
  FLOW PROCESS FROM NODE    845.00 TO NODE    846.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    273.00  DOWNSTREAM(FEET) =    260.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   959.00   CHANNEL SLOPE =  0.0136
  CHANNEL BASE(FEET) =    7.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   7.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    930.45
  FLOW VELOCITY(FEET/SEC.) =  10.07   FLOW DEPTH(FEET) =   6.73
  TRAVEL TIME(MIN.) =   1.59   Tc(MIN.) =  29.16
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    846.00 = 12274.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    845.00 TO NODE    846.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  29.16
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.257
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B         0.90      0.30      1.00    86
  NATURAL FAIR COVER
  "GRASS"                     B         0.10      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                  B         0.80      0.30      1.00    60
  NATURAL FAIR COVER
  "GRASS"                     C         2.20      0.25      1.00    79
  AGRICULTURAL POOR COVER
  "FALLOW"                    D         3.60      0.20      1.00    94
  NATURAL FAIR COVER
  "GRASS"                     D         2.50      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.23
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   10.10      SUBAREA RUNOFF(CFS) =   18.44
  EFFECTIVE AREA(ACRES) =    499.90   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    499.90       PEAK FLOW RATE(CFS) =     930.45
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    845.00 TO NODE    846.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  29.16
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.257
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "OPEN BRUSH"                D         0.50      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                  D         0.20      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    0.70      SUBAREA RUNOFF(CFS) =    1.30
  EFFECTIVE AREA(ACRES) =    500.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    500.60       PEAK FLOW RATE(CFS) =     930.45
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    846.00 TO NODE    847.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    260.00  DOWNSTREAM(FEET) =    250.00
  FLOW LENGTH(FEET) =  1251.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN 108.0 INCH PIPE IS  78.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.78
  ESTIMATED PIPE DIAMETER(INCH) = 108.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =    930.45
  PIPE TRAVEL TIME(MIN.) =   1.11    Tc(MIN.) =  30.27
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    847.00 = 13525.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    846.00 TO NODE    847.00 IS CODE =  81
```

```
------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
  MAINLINE Tc(MIN) =  30.27
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.210
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        1.90      0.30      1.00    86
  NATURAL FAIR COVER
  "GRASS"                     B        1.60      0.30      1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        1.00      0.30      1.00    66
  COMMERCIAL                  B        1.60      0.30      0.10    56
  NATURAL FAIR COVER
  "WOODLAND"                  B        0.50      0.30      1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                    C        0.20      0.25      1.00    91
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.79
  SUBAREA AREA(ACRES) =    6.80      SUBAREA RUNOFF(CFS) =   12.09
  EFFECTIVE AREA(ACRES) =    507.40   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =    507.40       PEAK FLOW RATE(CFS) =     930.45
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    846.00 TO NODE    847.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
  MAINLINE Tc(MIN) =  30.27
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.210
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                     C        7.40      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"                C        3.30      0.25      1.00    77
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        2.30      0.20      1.00    94
  NATURAL FAIR COVER
  "GRASS"                     D       24.90      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"                D        6.20      0.20      1.00    83
  COMMERCIAL                  D        9.30      0.20      0.10    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.84
  SUBAREA AREA(ACRES) =   53.40      SUBAREA RUNOFF(CFS) =   97.62
  EFFECTIVE AREA(ACRES) =    560.80   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =    560.80       PEAK FLOW RATE(CFS) =    1007.80

****************************************************************************
  FLOW PROCESS FROM NODE    846.00 TO NODE    847.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
  MAINLINE Tc(MIN) =  30.27
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.210
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                  D        0.20      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    0.20      SUBAREA RUNOFF(CFS) =    0.36
  EFFECTIVE AREA(ACRES) =    561.00   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =    561.00       PEAK FLOW RATE(CFS) =    1008.16

****************************************************************************
  FLOW PROCESS FROM NODE    847.00 TO NODE    848.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    250.00  DOWNSTREAM(FEET) =    175.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1353.00   CHANNEL SLOPE =  0.0554
  CHANNEL BASE(FEET) =    7.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   7.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   1008.16
  FLOW VELOCITY(FEET/SEC.) =  17.35   FLOW DEPTH(FEET) =   4.89
  TRAVEL TIME(MIN.) =   1.30   Tc(MIN.) =  31.57
  LONGEST FLOWPATH FROM NODE    830.00 TO NODE    848.00 = 14878.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    847.00 TO NODE    848.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
  MAINLINE Tc(MIN) =  31.57
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.160
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        5.00      0.30      1.00    86
  NATURAL FAIR COVER
  "GRASS"                     B        1.60      0.30      1.00    69
  NATURAL FAIR COVER
  "OPEN BRUSH"                B        0.40      0.30      1.00    66
  NATURAL FAIR COVER
  "WOODLAND"                  B        0.40      0.30      1.00    60
  AGRICULTURAL POOR COVER
  "FALLOW"                    C        3.30      0.25      1.00    91
  NATURAL FAIR COVER
  "GRASS"                     C        0.50      0.25      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.28
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   11.20      SUBAREA RUNOFF(CFS) =   18.92
  EFFECTIVE AREA(ACRES) =    572.20   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =    572.20       PEAK FLOW RATE(CFS) =    1008.16
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    847.00 TO NODE    848.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
  MAINLINE Tc(MIN) =  31.57
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.160
  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        3.30      0.25      1.00    77
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        0.10      0.20      1.00    94
  NATURAL FAIR COVER
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  "GRASS"                    D        1.80      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D        2.80      0.20      1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    8.00      SUBAREA RUNOFF(CFS) =   13.97
  EFFECTIVE AREA(ACRES) =    580.20   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.98
  TOTAL AREA(ACRES) =    580.20       PEAK FLOW RATE(CFS) =    1016.12

****************************************************************************
  FLOW PROCESS FROM NODE    848.00 TO NODE    848.00 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.) =  31.57
  RAINFALL INTENSITY(INCH/HR) =   2.16
  AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.22
  AREA-AVERAGED Ap =  0.98
  EFFECTIVE STREAM AREA(ACRES) =   580.20
  TOTAL STREAM AREA(ACRES) =   580.20
  PEAK FLOW RATE(CFS) AT CONFLUENCE =   1016.12
  ** CONFLUENCE DATA **
  STREAM      Q         Tc      AREA      HEADWATER
  NUMBER    (CFS)     (MIN.)   (ACRES)      NODE
     1      4748.70   63.58     4603.60     3100.00
     2      1016.12   31.57      580.20      830.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  UNIT-HYDROGRAPH DATA:
  RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
  S-GRAPH: VALLEY(DEV.)= 16.0%;VALLEY(UNDEV.)/DESERT=  8.0%
           MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
  Tc(HR) = 1.06; LAG(HR) = 0.85; Fm(INCH/HR) = 0.24; Ybar = 0.42
  USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
  DEPTH-AREA FACTORS: 5M = 0.78; 30M = 0.78; 1HR = 0.78;
  3HR = 0.97; 6HR = 0.98; 24HR= 0.99
  UNIT-INTERVAL(MIN) =  5.00   TOTAL AREA(ACRES) =   5183.80
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    848.00 = 41239.00 FEET.
   EQUIVALENT BASIN FACTOR APPROXIMATIONS:
   Lca/L=0.3,n=.0295; Lca/L=0.4,n=.0265; Lca/L=0.5,n=.0243;Lca/L=0.6,n=.0227
  TIME OF PEAK FLOW(HR) = 16.58  RUNOFF VOLUME(AF) =    1524.92
  PEAK FLOW RATE(CFS) =   4134.05
    (UPSTREAM NODE PEAK FLOW RATE(CFS) =   4748.70)
  PEAK FLOW RATE(CFS) USED =   4748.70

****************************************************************************
  FLOW PROCESS FROM NODE    848.00 TO NODE    864.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    175.00  DOWNSTREAM(FEET) =    154.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  6117.00   CHANNEL SLOPE =  0.0034
  CHANNEL BASE(FEET) =   85.00   "Z" FACTOR =   2.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  15.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   4748.70
  FLOW VELOCITY(FEET/SEC.) =   8.52   FLOW DEPTH(FEET) =   5.77
  TRAVEL TIME(MIN.) =  11.97   Tc(MIN.) =  75.55
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    864.00 = 47356.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    848.00 TO NODE    864.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  75.55
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.305
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    A        0.90      0.40      1.00    50
  AGRICULTURAL FAIR COVER
  "ORCHARDS"                 A        0.80      0.40      1.00    44
  NATURAL FAIR COVER
  "OPEN BRUSH"               A        3.10      0.40      1.00    46
  COMMERCIAL                 A       13.10      0.40      0.10    32
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       A        0.20      0.40      0.20    32
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       A        2.60      0.40      0.60    32
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.37
  SUBAREA AREA(ACRES) =   20.70
  UNIT-HYDROGRAPH DATA:
  RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
  S-GRAPH: VALLEY(DEV.)= 16.0%;VALLEY(UNDEV.)/DESERT=  8.0%
           MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
  Tc(HR) = 1.26; LAG(HR) = 1.01; Fm(INCH/HR) = 0.24; Ybar = 0.42
  USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
  DEPTH-AREA FACTORS: 5M = 0.78; 30M = 0.78; 1HR = 0.78;
  3HR = 0.97; 6HR = 0.98; 24HR= 0.99
  UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5204.50
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    864.00 = 47356.00 FEET.
   EQUIVALENT BASIN FACTOR APPROXIMATIONS:
   Lca/L=0.3,n=.0309; Lca/L=0.4,n=.0277; Lca/L=0.5,n=.0254;Lca/L=0.6,n=.0237
  TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1531.04
  UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3617.22
  TOTAL AREA(ACRES) =   5204.50       PEAK FLOW RATE(CFS) =    4748.70
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    848.00 TO NODE    864.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  75.55
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.305
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                 A       13.70      0.40      1.00    36
  AGRICULTURAL POOR COVER
  "FALLOW"                   B        2.90      0.30      1.00    86
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"       B       16.50      0.30      0.50    56
  NATURAL FAIR COVER
  "GRASS"                    B        1.80      0.30      1.00    69
  AGRICULTURAL FAIR COVER
  "ORCHARDS"                 B        0.20      0.30      1.00    65
  NATURAL FAIR COVER
  "OPEN BRUSH"               B        0.60      0.30      1.00    66
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.35
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.77
  SUBAREA AREA(ACRES) =   35.70
  UNIT-HYDROGRAPH DATA:
  RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
  S-GRAPH: VALLEY(DEV.)= 16.0%;VALLEY(UNDEV.)/DESERT=  8.0%
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```
          MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
 Tc(HR) = 1.26; LAG(HR) = 1.01; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.78; 30M = 0.78; 1HR = 0.78;
 3HR = 0.97; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5240.20
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    864.00 = 47356.00 FEET.
  EQUIVALENT BASIN FACTOR APPROXIMATIONS:
  Lca/L=0.3,n=.0309; Lca/L=0.4,n=.0277; Lca/L=0.5,n=.0254;Lca/L=0.6,n=.0237
 TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1538.84
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3636.95
 TOTAL AREA(ACRES) =   5240.20       PEAK FLOW RATE(CFS) =    4748.70
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

********************************************************************************
 FLOW PROCESS FROM NODE    848.00 TO NODE    864.00 IS CODE =  81
--------------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  75.55
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.305
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 COMMERCIAL                  B       23.00      0.30       0.10    56
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           B        9.40      0.30       1.00    69
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"        B        0.70      0.30       0.20    56
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        B        0.10      0.30       0.60    56
 NATURAL FAIR COVER
 "WOODLAND"                  B        4.50      0.30       1.00    60
 NATURAL FAIR COVER
 "GRASS"                     C       91.40      0.25       1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.26
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.84
 SUBAREA AREA(ACRES) =  129.10
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
 S-GRAPH: VALLEY(DEV.)= 16.0%;VALLEY(UNDEV.)/DESERT=  8.0%
          MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
 Tc(HR) = 1.26; LAG(HR) = 1.01; Fm(INCH/HR) = 0.24; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.78; 30M = 0.78; 1HR = 0.78;
 3HR = 0.97; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5369.30
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    864.00 = 47356.00 FEET.
  EQUIVALENT BASIN FACTOR APPROXIMATIONS:
  Lca/L=0.3,n=.0309; Lca/L=0.4,n=.0277; Lca/L=0.5,n=.0254;Lca/L=0.6,n=.0237
 TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1577.86
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3715.89
 TOTAL AREA(ACRES) =   5369.30       PEAK FLOW RATE(CFS) =    4748.70
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

********************************************************************************
 FLOW PROCESS FROM NODE    848.00 TO NODE    864.00 IS CODE =  81
--------------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  75.55
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.305
 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        5.70      0.25       1.00    77
 COMMERCIAL                  C        6.60      0.25       0.10    69
 PUBLIC PARK                 C        0.20      0.25       0.85    69
 NATURAL FAIR COVER
 "WOODLAND"                  C       10.50      0.25       1.00    73
 AGRICULTURAL POOR COVER
 "FALLOW"                    D       16.50      0.20       1.00    94
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"        D       32.20      0.20       0.50    75
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.69
 SUBAREA AREA(ACRES) =   71.70
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
 S-GRAPH: VALLEY(DEV.)= 16.0%;VALLEY(UNDEV.)/DESERT=  8.0%
          MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
 Tc(HR) = 1.26; LAG(HR) = 1.01; Fm(INCH/HR) = 0.23; Ybar = 0.42
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.77; 30M = 0.77; 1HR = 0.77;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5441.00
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    864.00 = 47356.00 FEET.
  EQUIVALENT BASIN FACTOR APPROXIMATIONS:
  Lca/L=0.3,n=.0309; Lca/L=0.4,n=.0277; Lca/L=0.5,n=.0254;Lca/L=0.6,n=.0237
 TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1602.79
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3763.63
 TOTAL AREA(ACRES) =   5441.00       PEAK FLOW RATE(CFS) =    4748.70
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

********************************************************************************
 FLOW PROCESS FROM NODE    848.00 TO NODE    864.00 IS CODE =  81
--------------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
 MAINLINE Tc(MIN) =  75.55
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.305
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     D       22.50      0.20       1.00    84
 AGRICULTURAL FAIR COVER
 "ORCHARDS"                  D        0.70      0.20       1.00    82
 NATURAL FAIR COVER
 "OPEN BRUSH"                D       12.90      0.20       1.00    83
 COMMERCIAL                  D        5.50      0.20       0.10    75
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           D        1.80      0.20       1.00    84
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"        D       20.20      0.20       0.20    75
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.67
 SUBAREA AREA(ACRES) =   63.60
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
 S-GRAPH: VALLEY(DEV.)= 16.0%;VALLEY(UNDEV.)/DESERT=  8.0%
          MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
 Tc(HR) = 1.26; LAG(HR) = 1.01; Fm(INCH/HR) = 0.23; Ybar = 0.41
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.77; 30M = 0.77; 1HR = 0.77;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5504.60
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    864.00 = 47356.00 FEET.
  EQUIVALENT BASIN FACTOR APPROXIMATIONS:
  Lca/L=0.3,n=.0309; Lca/L=0.4,n=.0277; Lca/L=0.5,n=.0254;Lca/L=0.6,n=.0237
 TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1625.53
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3806.73
 TOTAL AREA(ACRES) =   5504.60       PEAK FLOW RATE(CFS) =    4748.70
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  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    848.00 TO NODE    864.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  75.55
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.305
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                  D       23.10      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   23.10
  UNIT-HYDROGRAPH DATA:
  RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
  S-GRAPH: VALLEY(DEV.)= 16.0%;VALLEY(UNDEV.)/DESERT=  8.0%
           MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
  Tc(HR) = 1.26; LAG(HR) = 1.01; Fm(INCH/HR) = 0.23; Ybar = 0.41
  USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
  DEPTH-AREA FACTORS: 5M = 0.77; 30M = 0.77; 1HR = 0.77;
  3HR = 0.96; 6HR = 0.98; 24HR= 0.99
  UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5527.70
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    864.00 = 47356.00 FEET.
   EQUIVALENT BASIN FACTOR APPROXIMATIONS:
   Lca/L=0.3,n=.0309; Lca/L=0.4,n=.0277; Lca/L=0.5,n=.0254;Lca/L=0.6,n=.0237
  TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1632.36
  UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3820.89
  TOTAL AREA(ACRES) =   5527.70       PEAK FLOW RATE(CFS) =    4748.70
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    864.00 TO NODE    864.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  PEAK FLOW RATE(CFS) =    4748.70    Tc(MIN.) =  75.55
  AREA-AVERAGED Fm(INCH/HR) =  0.23   Ybar = 0.41
  TOTAL AREA(ACRES) =    5527.70

****************************************************************************
  FLOW PROCESS FROM NODE    850.00 TO NODE    851.00 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) =    718.00  DOWNSTREAM(FEET) =    600.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.000
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  6.190
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D        0.80      0.20      0.50    75    5.00
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.50
  SUBAREA RUNOFF(CFS) =      4.38
  TOTAL AREA(ACRES) =      0.80   PEAK FLOW RATE(CFS) =      4.38

****************************************************************************
  FLOW PROCESS FROM NODE    851.00 TO NODE    852.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    600.00  DOWNSTREAM(FEET) =    560.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   144.00   CHANNEL SLOPE =  0.2778
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      4.38
  FLOW VELOCITY(FEET/SEC.) =   7.99   FLOW DEPTH(FEET) =   0.39
  TRAVEL TIME(MIN.) =   0.30   Tc(MIN.) =   5.30
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    852.00 =   472.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    851.00 TO NODE    852.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =   5.30
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  6.035
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D        1.10      0.20      0.50    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.50
  SUBAREA AREA(ACRES) =    1.10      SUBAREA RUNOFF(CFS) =    5.88
  EFFECTIVE AREA(ACRES) =      1.90   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.50
  TOTAL AREA(ACRES) =      1.90       PEAK FLOW RATE(CFS) =      10.15

****************************************************************************
  FLOW PROCESS FROM NODE    852.00 TO NODE    853.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    560.00  DOWNSTREAM(FEET) =    540.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   100.00   CHANNEL SLOPE =  0.2000
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     10.15
  FLOW VELOCITY(FEET/SEC.) =   8.85   FLOW DEPTH(FEET) =   0.68
  TRAVEL TIME(MIN.) =   0.19   Tc(MIN.) =   5.49
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    853.00 =   572.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    852.00 TO NODE    853.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =   5.49
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.938
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D        1.30      0.20      0.50    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.50
  SUBAREA AREA(ACRES) =    1.30      SUBAREA RUNOFF(CFS) =    6.83
  EFFECTIVE AREA(ACRES) =      3.20   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.50
  TOTAL AREA(ACRES) =      3.20       PEAK FLOW RATE(CFS) =      16.81
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    853.00 TO NODE    854.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    540.00  DOWNSTREAM(FEET) =    510.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   115.00   CHANNEL SLOPE =  0.2609
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     16.81
  FLOW VELOCITY(FEET/SEC.) =  11.13   FLOW DEPTH(FEET) =   0.83
  TRAVEL TIME(MIN.) =   0.17   Tc(MIN.) =   5.66
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    854.00 =   687.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    853.00 TO NODE    854.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =   5.66
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.849
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D        2.40      0.20       0.50    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.50
  SUBAREA AREA(ACRES) =    2.40      SUBAREA RUNOFF(CFS) =   12.42
  EFFECTIVE AREA(ACRES) =      5.60    AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.50
  TOTAL AREA(ACRES) =      5.60       PEAK FLOW RATE(CFS) =      28.97

****************************************************************************
  FLOW PROCESS FROM NODE    854.00 TO NODE    855.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    510.00  DOWNSTREAM(FEET) =    468.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   167.00   CHANNEL SLOPE =  0.2515
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     28.97
  FLOW VELOCITY(FEET/SEC.) =  12.36   FLOW DEPTH(FEET) =   0.83
  TRAVEL TIME(MIN.) =   0.23   Tc(MIN.) =   5.89
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    855.00 =   854.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    854.00 TO NODE    855.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =   5.89
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.733
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D        2.80      0.20       0.50    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.50
  SUBAREA AREA(ACRES) =    2.80      SUBAREA RUNOFF(CFS) =   14.19
  EFFECTIVE AREA(ACRES) =      8.40    AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.50
  TOTAL AREA(ACRES) =      8.40       PEAK FLOW RATE(CFS) =      42.58

****************************************************************************
  FLOW PROCESS FROM NODE    855.00 TO NODE    856.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    468.00  DOWNSTREAM(FEET) =    445.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   115.00   CHANNEL SLOPE =  0.2000
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     42.58
  FLOW VELOCITY(FEET/SEC.) =  12.67   FLOW DEPTH(FEET) =   1.09
  TRAVEL TIME(MIN.) =   0.15   Tc(MIN.) =   6.04
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    856.00 =   969.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    855.00 TO NODE    856.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =   6.04
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.655
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        0.40      0.20       1.00    94
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D        3.10      0.20       0.50    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.56
  SUBAREA AREA(ACRES) =    3.50      SUBAREA RUNOFF(CFS) =   17.46
  EFFECTIVE AREA(ACRES) =     11.90   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.52
  TOTAL AREA(ACRES) =     11.90       PEAK FLOW RATE(CFS) =      59.45

****************************************************************************
  FLOW PROCESS FROM NODE    856.00 TO NODE    857.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    445.00  DOWNSTREAM(FEET) =    366.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   423.00   CHANNEL SLOPE =  0.1868
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     59.45
  FLOW VELOCITY(FEET/SEC.) =  13.42   FLOW DEPTH(FEET) =   1.33
  TRAVEL TIME(MIN.) =   0.53   Tc(MIN.) =   6.56
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    857.00 =  1392.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    856.00 TO NODE    857.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =   6.56
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.384
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        2.30      0.20       1.00    94
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D        1.00      0.20       0.50    75
```

```
  NATURAL FAIR COVER
  "GRASS"                  D        1.30      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.89
  SUBAREA AREA(ACRES) =    4.60      SUBAREA RUNOFF(CFS) =   21.55
  EFFECTIVE AREA(ACRES) =     16.50   AREA-AVERAGED Fm(INCH/HR) =  0.12
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.62
  TOTAL AREA(ACRES) =     16.50       PEAK FLOW RATE(CFS) =      78.10

****************************************************************************
  FLOW PROCESS FROM NODE    857.00 TO NODE    858.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    366.00  DOWNSTREAM(FEET) =    300.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   574.00   CHANNEL SLOPE =  0.1150
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     78.10
  FLOW VELOCITY(FEET/SEC.) =  12.05   FLOW DEPTH(FEET) =   1.73
  TRAVEL TIME(MIN.) =   0.79   Tc(MIN.) =   7.36
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    858.00 =  1966.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    857.00 TO NODE    858.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =   7.36
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.974
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    B        0.20      0.30      1.00    69
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        0.50      0.20      1.00    94
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"       D        0.10      0.20      0.50    75
  NATURAL FAIR COVER
  "GRASS"                    D        2.80      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.99
  SUBAREA AREA(ACRES) =    3.60      SUBAREA RUNOFF(CFS) =   15.46
  EFFECTIVE AREA(ACRES) =     20.10   AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.69
  TOTAL AREA(ACRES) =     20.10       PEAK FLOW RATE(CFS) =      87.48

****************************************************************************
  FLOW PROCESS FROM NODE    858.00 TO NODE    859.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    300.00  DOWNSTREAM(FEET) =    276.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   341.00   CHANNEL SLOPE =  0.0704
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     87.48
  FLOW VELOCITY(FEET/SEC.) =  10.26   FLOW DEPTH(FEET) =   1.78
  TRAVEL TIME(MIN.) =   0.55   Tc(MIN.) =   7.91
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    859.00 =  2307.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    858.00 TO NODE    859.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =   7.91
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.779
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    B        1.10      0.30      1.00    69
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        1.10      0.20      1.00    94
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"       D        9.10      0.20      0.50    75
  NATURAL FAIR COVER
  "GRASS"                    D        4.00      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.70
  SUBAREA AREA(ACRES) =   15.30      SUBAREA RUNOFF(CFS) =   63.77
  EFFECTIVE AREA(ACRES) =     35.40   AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  0.69
  TOTAL AREA(ACRES) =     35.40       PEAK FLOW RATE(CFS) =     147.71

****************************************************************************
  FLOW PROCESS FROM NODE    859.00 TO NODE    860.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    276.00  DOWNSTREAM(FEET) =    250.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   634.00   CHANNEL SLOPE =  0.0410
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    147.71
  FLOW VELOCITY(FEET/SEC.) =   9.62   FLOW DEPTH(FEET) =   2.70
  TRAVEL TIME(MIN.) =   1.10   Tc(MIN.) =   9.01
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    860.00 =  2941.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    859.00 TO NODE    860.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =   9.01
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.453
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                   B        0.60      0.30      1.00    86
  NATURAL FAIR COVER
  "GRASS"                    B        1.50      0.30      1.00    69
  AGRICULTURAL POOR COVER
  "FALLOW"                   D        3.40      0.20      1.00    94
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"       D        3.40      0.20      0.50    75
  NATURAL FAIR COVER
  "GRASS"                    D        6.30      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.89
  SUBAREA AREA(ACRES) =   15.20      SUBAREA RUNOFF(CFS) =   58.30
  EFFECTIVE AREA(ACRES) =     50.60   AREA-AVERAGED Fm(INCH/HR) =  0.16
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  0.75
  TOTAL AREA(ACRES) =     50.60       PEAK FLOW RATE(CFS) =     195.65

****************************************************************************
  FLOW PROCESS FROM NODE    860.00 TO NODE    861.00 IS CODE =  51
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    250.00  DOWNSTREAM(FEET) =    230.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   885.00   CHANNEL SLOPE =  0.0226
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   4.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    195.65
  FLOW VELOCITY(FEET/SEC.) =   8.24   FLOW DEPTH(FEET) =   3.27
  TRAVEL TIME(MIN.) =   1.79   Tc(MIN.) =  10.80
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    861.00 =  3826.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    860.00 TO NODE    861.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  10.80
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.000
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        0.10      0.30       1.00    86
  NATURAL FAIR COVER
  "GRASS"                     B        0.10      0.30       1.00    69
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"        B        2.60      0.30       0.20    56
  AGRICULTURAL POOR COVER
  "FALLOW"                    D        0.20      0.20       1.00    94
  NATURAL FAIR COVER
  "GRASS"                     D        2.30      0.20       1.00    84
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"        D        2.40      0.20       0.20    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.48
  SUBAREA AREA(ACRES) =    7.70      SUBAREA RUNOFF(CFS) =   26.99
  EFFECTIVE AREA(ACRES) =     58.30   AREA-AVERAGED Fm(INCH/HR) =  0.15
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  0.72
  TOTAL AREA(ACRES) =     58.30       PEAK FLOW RATE(CFS) =     202.00

****************************************************************************
  FLOW PROCESS FROM NODE    861.00 TO NODE    862.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   230.00  DOWNSTREAM(FEET) =   225.00
  FLOW LENGTH(FEET) =    83.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  42.0 INCH PIPE IS  30.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  27.39
  ESTIMATED PIPE DIAMETER(INCH) =  42.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =    202.00
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =  10.85
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    862.00 =  3909.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    861.00 TO NODE    862.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  10.85
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.990
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  AGRICULTURAL POOR COVER
  "FALLOW"                    B        0.40      0.30       1.00    86
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"        B       17.00      0.30       0.20    56
  AGRICULTURAL POOR COVER
  "FALLOW"                    D       11.00      0.20       1.00    94
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D       59.60      0.20       0.50    75
  NATURAL FAIR COVER
  "GRASS"                     D        5.60      0.20       1.00    84
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"        D       51.80      0.20       0.20    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.42
  SUBAREA AREA(ACRES) =  145.40      SUBAREA RUNOFF(CFS) =  510.89
  EFFECTIVE AREA(ACRES) =    203.70   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  0.50
  TOTAL AREA(ACRES) =    203.70       PEAK FLOW RATE(CFS) =     712.35

****************************************************************************
  FLOW PROCESS FROM NODE    862.00 TO NODE    863.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    225.00  DOWNSTREAM(FEET) =    165.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2196.00   CHANNEL SLOPE =  0.0273
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   6.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    712.35
  FLOW VELOCITY(FEET/SEC.) =  12.24   FLOW DEPTH(FEET) =   5.20
  TRAVEL TIME(MIN.) =   2.99   Tc(MIN.) =  13.84
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    863.00 =  6105.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    862.00 TO NODE    863.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  13.84
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.467
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"        A        6.50      0.40       0.20    32
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B        0.10      0.30       1.00    69
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"        B       57.20      0.30       0.20    56
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        D       23.50      0.20       0.50    75
  NATURAL FAIR COVER
  "GRASS"                     D       11.70      0.20       1.00    84
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"        D       53.10      0.20       0.20    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.23
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.31
  SUBAREA AREA(ACRES) =  152.10      SUBAREA RUNOFF(CFS) =  464.86
  EFFECTIVE AREA(ACRES) =    355.80   AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  0.42
  TOTAL AREA(ACRES) =    355.80       PEAK FLOW RATE(CFS) =    1081.32

****************************************************************************
  FLOW PROCESS FROM NODE    862.00 TO NODE    863.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
```

```
  MAINLINE Tc(MIN) =  13.84
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.467
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "CHAPARRAL,BROADLEAF"       D        4.90      0.20       1.00    81
  NATURAL FAIR COVER
  "WOODLAND"                  D        0.20      0.20       1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    5.10      SUBAREA RUNOFF(CFS) =   14.99
  EFFECTIVE AREA(ACRES) =    360.90   AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  0.43
  TOTAL AREA(ACRES) =    360.90       PEAK FLOW RATE(CFS) =    1096.31

****************************************************************************
  FLOW PROCESS FROM NODE    863.00 TO NODE    864.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    165.00  DOWNSTREAM(FEET) =    154.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1172.00   CHANNEL SLOPE =  0.0094
  CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   8.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   1096.31
  FLOW VELOCITY(FEET/SEC.) =   9.13   FLOW DEPTH(FEET) =   7.66
  TRAVEL TIME(MIN.) =   2.14   Tc(MIN.) =  15.98
  LONGEST FLOWPATH FROM NODE    850.00 TO NODE    864.00 =  7277.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    863.00 TO NODE    864.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  15.98
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.190
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                  B        0.40      0.30       0.10    56
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"        B        0.10      0.30       0.20    56
  NATURAL FAIR COVER
  "WOODLAND"                  B        0.20      0.30       1.00    60
  URBAN FAIR COVER
  "TURF"                      D        1.20      0.20       1.00    82
  NATURAL FAIR COVER
  "OPEN BRUSH"                D        0.20      0.20       1.00    83
  COMMERCIAL                  D        0.90      0.20       0.10    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.58
  SUBAREA AREA(ACRES) =    3.00      SUBAREA RUNOFF(CFS) =    8.28
  EFFECTIVE AREA(ACRES) =    363.90   AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  0.43
  TOTAL AREA(ACRES) =    363.90       PEAK FLOW RATE(CFS) =    1096.31
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    863.00 TO NODE    864.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  15.98
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.190
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"        D        5.30      0.20       0.20    75
  NATURAL FAIR COVER
  "WOODLAND"                  D        4.60      0.20       1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.57
  SUBAREA AREA(ACRES) =    9.90      SUBAREA RUNOFF(CFS) =   27.41
  EFFECTIVE AREA(ACRES) =    373.80   AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  0.43
  TOTAL AREA(ACRES) =    373.80       PEAK FLOW RATE(CFS) =    1096.31
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    864.00 TO NODE    864.00 IS CODE =  1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  15.98
  RAINFALL INTENSITY(INCH/HR) =   3.19
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.21
  AREA-AVERAGED Ap =  0.43
  EFFECTIVE STREAM AREA(ACRES) =   373.80
  TOTAL STREAM AREA(ACRES) =   373.80
  PEAK FLOW RATE(CFS) AT CONFLUENCE =   1096.31
  ** CONFLUENCE DATA **
  STREAM      Q         Tc      AREA      HEADWATER
  NUMBER    (CFS)     (MIN.)   (ACRES)      NODE
     1      4748.70   75.55     5527.70     3100.00
     2      1096.31   15.98      373.80      850.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  UNIT-HYDROGRAPH DATA:
  RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
  S-GRAPH: VALLEY(DEV.)= 16.0%;VALLEY(UNDEV.)/DESERT=  8.0%
           MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
  Tc(HR) = 1.26; LAG(HR) = 1.01; Fm(INCH/HR) = 0.22; Ybar = 0.40
  USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
  DEPTH-AREA FACTORS: 5M = 0.76; 30M = 0.76; 1HR = 0.76;
  3HR = 0.96; 6HR = 0.98; 24HR= 0.99
  UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5901.50
  LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    864.00 = 47356.00 FEET.
   EQUIVALENT BASIN FACTOR APPROXIMATIONS:
   Lca/L=0.3,n=.0309; Lca/L=0.4,n=.0277; Lca/L=0.5,n=.0254;Lca/L=0.6,n=.0237
  TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1772.69
  PEAK FLOW RATE(CFS) =   4083.69
    (UPSTREAM NODE PEAK FLOW RATE(CFS) =   4748.70)
  PEAK FLOW RATE(CFS) USED =   4748.70

****************************************************************************
  FLOW PROCESS FROM NODE    864.00 TO NODE    884.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    154.00  DOWNSTREAM(FEET) =    135.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  6117.00   CHANNEL SLOPE =  0.0031
  CHANNEL BASE(FEET) =   85.00   "Z" FACTOR =   2.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  15.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   4748.70
  FLOW VELOCITY(FEET/SEC.) =   8.24   FLOW DEPTH(FEET) =   5.95
  TRAVEL TIME(MIN.) =  12.37   Tc(MIN.) =  87.92
```

```
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    884.00 = 53473.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    864.00 TO NODE    884.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  87.92
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.197
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "CHAPARRAL,BROADLEAF"       A        1.30      0.40       1.00    40
 AGRICULTURAL POOR COVER
 "FALLOW"                    A        0.30      0.40       1.00    77
 NATURAL FAIR COVER
 "GRASS"                     A        0.10      0.40       1.00    50
 AGRICULTURAL FAIR COVER
 "ORCHARDS"                  A        0.10      0.40       1.00    44
 COMMERCIAL                  A        8.50      0.40       0.10    32
 AGRICULTURAL FAIR COVER
 "PASTURE,DRYLAND"           A        1.00      0.40       1.00    49
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.32
 SUBAREA AREA(ACRES) =   11.30
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
 S-GRAPH: VALLEY(DEV.)= 16.0%;VALLEY(UNDEV.)/DESERT=  8.0%
          MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
 Tc(HR) = 1.47; LAG(HR) = 1.17; Fm(INCH/HR) = 0.22; Ybar = 0.40
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.76; 30M = 0.76; 1HR = 0.76;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5912.80
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    884.00 = 53473.00 FEET.
  EQUIVALENT BASIN FACTOR APPROXIMATIONS:
  Lca/L=0.3,n=.0321; Lca/L=0.4,n=.0288; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
 TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1776.50
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3843.56
 TOTAL AREA(ACRES) =   5912.80       PEAK FLOW RATE(CFS) =    4748.70
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    864.00 TO NODE    884.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  87.92
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.197
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "3-4 DWELLINGS/ACRE"        A        0.30      0.40       0.60    32
 NATURAL FAIR COVER
 "WOODLAND"                  A        2.80      0.40       1.00    36
 AGRICULTURAL POOR COVER
 "FALLOW"                    B        0.10      0.30       1.00    86
 NATURAL FAIR COVER
 "GRASS"                     B        0.20      0.30       1.00    69
 AGRICULTURAL FAIR COVER
 "ORCHARDS"                  B        0.20      0.30       1.00    65
 COMMERCIAL                  B       11.80      0.30       0.10    56
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.36
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.30
 SUBAREA AREA(ACRES) =   15.40
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
 S-GRAPH: VALLEY(DEV.)= 16.0%;VALLEY(UNDEV.)/DESERT=  8.0%
          MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
 Tc(HR) = 1.47; LAG(HR) = 1.17; Fm(INCH/HR) = 0.22; Ybar = 0.40
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.76; 30M = 0.76; 1HR = 0.76;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5928.20
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    884.00 = 53473.00 FEET.
  EQUIVALENT BASIN FACTOR APPROXIMATIONS:
  Lca/L=0.3,n=.0321; Lca/L=0.4,n=.0288; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
 TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1781.84
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3853.43
 TOTAL AREA(ACRES) =   5928.20       PEAK FLOW RATE(CFS) =    4748.70
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    864.00 TO NODE    884.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  87.92
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.197
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
      LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "GRASS"                     D        1.10      0.20       1.00    84
 AGRICULTURAL FAIR COVER
 "ORCHARDS"                  D        0.40      0.20       1.00    82
 COMMERCIAL                  D        1.40      0.20       0.10    75
 NATURAL FAIR COVER
 "WOODLAND"                  D        3.90      0.20       1.00    79
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.81
 SUBAREA AREA(ACRES) =    6.80
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
 S-GRAPH: VALLEY(DEV.)= 16.0%;VALLEY(UNDEV.)/DESERT=  8.0%
          MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
 Tc(HR) = 1.47; LAG(HR) = 1.17; Fm(INCH/HR) = 0.22; Ybar = 0.40
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.76; 30M = 0.76; 1HR = 0.76;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   5935.00
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    884.00 = 53473.00 FEET.
  EQUIVALENT BASIN FACTOR APPROXIMATIONS:
  Lca/L=0.3,n=.0321; Lca/L=0.4,n=.0288; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
 TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    1784.06
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   3857.50
 TOTAL AREA(ACRES) =   5935.00       PEAK FLOW RATE(CFS) =    4748.70
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    884.00 TO NODE    884.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 PEAK FLOW RATE(CFS) =    4748.70    Tc(MIN.) =  87.92
 AREA-AVERAGED Fm(INCH/HR) =  0.22   Ybar = 0.40
 TOTAL AREA(ACRES) =    5935.00

****************************************************************************
 FLOW PROCESS FROM NODE    870.00 TO NODE    871.00 IS CODE =  21
```

```
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   257.00
  ELEVATION DATA: UPSTREAM(FEET) =   1123.00  DOWNSTREAM(FEET) =   1075.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.089
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.430
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL FAIR COVER
  "GRASS"                     D        0.60      0.20       1.00    84    9.09
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA RUNOFF(CFS) =      2.28
  TOTAL AREA(ACRES) =      0.60   PEAK FLOW RATE(CFS) =      2.28

************************************************************************
  FLOW PROCESS FROM NODE    871.00 TO NODE    872.00 IS CODE =  51
------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1075.00  DOWNSTREAM(FEET) =   1025.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   160.00   CHANNEL SLOPE =  0.3125
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      2.28
  FLOW VELOCITY(FEET/SEC.) =   6.90   FLOW DEPTH(FEET) =   0.26
  TRAVEL TIME(MIN.) =   0.39   Tc(MIN.) =   9.48
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    872.00 =   417.00 FEET.

************************************************************************
  FLOW PROCESS FROM NODE    871.00 TO NODE    872.00 IS CODE =  81
------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
========================================================================
  MAINLINE Tc(MIN) =   9.48
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.315
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                     D        0.80      0.20       1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    0.80      SUBAREA RUNOFF(CFS) =    2.96
  EFFECTIVE AREA(ACRES) =      1.40   AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =      1.40       PEAK FLOW RATE(CFS) =       5.19

************************************************************************
  FLOW PROCESS FROM NODE    872.00 TO NODE    873.00 IS CODE =  51
------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1025.00  DOWNSTREAM(FEET) =   1000.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    89.00   CHANNEL SLOPE =  0.2809
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      5.19
  FLOW VELOCITY(FEET/SEC.) =   8.38   FLOW DEPTH(FEET) =   0.43
  TRAVEL TIME(MIN.) =   0.18   Tc(MIN.) =   9.65
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    873.00 =   506.00 FEET.

************************************************************************
  FLOW PROCESS FROM NODE    872.00 TO NODE    873.00 IS CODE =  81
------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
========================================================================
  MAINLINE Tc(MIN) =   9.65
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.263
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                     D        0.70      0.20       1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    0.70      SUBAREA RUNOFF(CFS) =    2.56
  EFFECTIVE AREA(ACRES) =      2.10   AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =      2.10       PEAK FLOW RATE(CFS) =       7.68

************************************************************************
  FLOW PROCESS FROM NODE    873.00 TO NODE    874.00 IS CODE =  51
------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1000.00  DOWNSTREAM(FEET) =    980.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    61.00   CHANNEL SLOPE =  0.3279
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      7.68
  FLOW VELOCITY(FEET/SEC.) =   9.87   FLOW DEPTH(FEET) =   0.51
  TRAVEL TIME(MIN.) =   0.10   Tc(MIN.) =   9.76
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    874.00 =   567.00 FEET.

************************************************************************
  FLOW PROCESS FROM NODE    873.00 TO NODE    874.00 IS CODE =  81
------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
========================================================================
  MAINLINE Tc(MIN) =   9.76
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.232
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                     D        2.00      0.20       1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"                D        0.30      0.20       1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    2.30      SUBAREA RUNOFF(CFS) =    8.35
  EFFECTIVE AREA(ACRES) =      4.40   AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =      4.40       PEAK FLOW RATE(CFS) =      15.97

************************************************************************
  FLOW PROCESS FROM NODE    874.00 TO NODE    875.00 IS CODE =  51
------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    980.00  DOWNSTREAM(FEET) =    950.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   179.00   CHANNEL SLOPE =  0.1676
  CHANNEL BASE(FEET) =    1.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   1.00
```

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  CHANNEL FLOW THRU SUBAREA(CFS) =     15.97
  FLOW VELOCITY(FEET/SEC.) =   9.38   FLOW DEPTH(FEET) =   0.90
  TRAVEL TIME(MIN.) =   0.32   Tc(MIN.) =  10.07
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    875.00 =   746.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    874.00 TO NODE    875.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  10.07
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.145
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    D        1.00      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D        0.80      0.20      1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    1.80      SUBAREA RUNOFF(CFS) =    6.39
  EFFECTIVE AREA(ACRES) =      6.20   AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =      6.20       PEAK FLOW RATE(CFS) =      22.01

****************************************************************************
  FLOW PROCESS FROM NODE    875.00 TO NODE    876.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    950.00  DOWNSTREAM(FEET) =    925.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   146.00   CHANNEL SLOPE =  0.1712
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     22.01
  FLOW VELOCITY(FEET/SEC.) =   9.98   FLOW DEPTH(FEET) =   0.79
  TRAVEL TIME(MIN.) =   0.24   Tc(MIN.) =  10.32
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    876.00 =   892.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    875.00 TO NODE    876.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  10.32
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.096
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    D        0.60      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D        1.70      0.20      1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    2.30      SUBAREA RUNOFF(CFS) =    8.07
  EFFECTIVE AREA(ACRES) =      8.50   AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =      8.50       PEAK FLOW RATE(CFS) =      29.81

****************************************************************************
  FLOW PROCESS FROM NODE    876.00 TO NODE    877.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    925.00  DOWNSTREAM(FEET) =    905.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   144.00   CHANNEL SLOPE =  0.1389
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     29.81
  FLOW VELOCITY(FEET/SEC.) =  10.01   FLOW DEPTH(FEET) =   0.99
  TRAVEL TIME(MIN.) =   0.24   Tc(MIN.) =  10.56
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    877.00 =  1036.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    876.00 TO NODE    877.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  10.56
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.049
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    D        0.30      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D        0.90      0.20      1.00    83
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       D        1.30      0.20      0.20    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.58
  SUBAREA AREA(ACRES) =    2.50      SUBAREA RUNOFF(CFS) =    8.85
  EFFECTIVE AREA(ACRES) =     11.00   AREA-AVERAGED Fm(INCH/HR) =  0.18
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.91
  TOTAL AREA(ACRES) =     11.00       PEAK FLOW RATE(CFS) =      38.29

****************************************************************************
  FLOW PROCESS FROM NODE    877.00 TO NODE    878.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    905.00  DOWNSTREAM(FEET) =    860.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   803.00   CHANNEL SLOPE =  0.0560
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     38.29
  FLOW VELOCITY(FEET/SEC.) =   7.69   FLOW DEPTH(FEET) =   1.44
  TRAVEL TIME(MIN.) =   1.74   Tc(MIN.) =  12.30
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    878.00 =  1839.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    877.00 TO NODE    878.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  12.30
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.701
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    D        2.50      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D        6.20      0.20      1.00    83
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       D        4.30      0.20      0.20    75
  NATURAL FAIR COVER
  "WOODLAND"                 D        0.40      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
```

```
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.74
  SUBAREA AREA(ACRES) =   13.40      SUBAREA RUNOFF(CFS) =   42.84
  EFFECTIVE AREA(ACRES) =     24.40   AREA-AVERAGED Fm(INCH/HR) =  0.16
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.82
  TOTAL AREA(ACRES) =     24.40       PEAK FLOW RATE(CFS) =      77.68

****************************************************************************
  FLOW PROCESS FROM NODE    878.00 TO NODE    879.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    860.00  DOWNSTREAM(FEET) =    755.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1104.00   CHANNEL SLOPE =  0.0951
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     77.68
  FLOW VELOCITY(FEET/SEC.) =  11.24   FLOW DEPTH(FEET) =   1.81
  TRAVEL TIME(MIN.) =   1.64   Tc(MIN.) =  13.93
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    879.00 =  2943.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    878.00 TO NODE    879.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  13.93
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.453
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    D        0.80      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D       10.40      0.20      1.00    83
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       D        5.40      0.20      0.20    75
  NATURAL FAIR COVER
  "WOODLAND"                 D        2.90      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.78
  SUBAREA AREA(ACRES) =   19.50      SUBAREA RUNOFF(CFS) =   57.88
  EFFECTIVE AREA(ACRES) =     43.90   AREA-AVERAGED Fm(INCH/HR) =  0.16
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.80
  TOTAL AREA(ACRES) =     43.90       PEAK FLOW RATE(CFS) =     130.13

****************************************************************************
  FLOW PROCESS FROM NODE    879.00 TO NODE    880.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    755.00  DOWNSTREAM(FEET) =    533.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1578.00   CHANNEL SLOPE =  0.1407
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   3.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    130.13
  FLOW VELOCITY(FEET/SEC.) =  14.68   FLOW DEPTH(FEET) =   1.83
  TRAVEL TIME(MIN.) =   1.79   Tc(MIN.) =  15.73
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    880.00 =  4521.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    879.00 TO NODE    880.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  15.73
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.219
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    C        9.80      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       11.40      0.25      1.00    77
  NATURAL FAIR COVER
  "WOODLAND"                 C        1.10      0.25      1.00    73
  NATURAL FAIR COVER
  "GRASS"                    D        8.30      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D       38.20      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                 D        8.70      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.21
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   77.50      SUBAREA RUNOFF(CFS) =  209.55
  EFFECTIVE AREA(ACRES) =    121.40   AREA-AVERAGED Fm(INCH/HR) =  0.19
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  0.93
  TOTAL AREA(ACRES) =    121.40       PEAK FLOW RATE(CFS) =     330.40

****************************************************************************
  FLOW PROCESS FROM NODE    880.00 TO NODE    881.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    533.00  DOWNSTREAM(FEET) =    415.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1236.00   CHANNEL SLOPE =  0.0955
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   4.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    330.40
  FLOW VELOCITY(FEET/SEC.) =  16.12   FLOW DEPTH(FEET) =   2.95
  TRAVEL TIME(MIN.) =   1.28   Tc(MIN.) =  17.00
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    881.00 =  5757.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    880.00 TO NODE    881.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  17.00
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.076
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    C       30.10      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       15.30      0.25      1.00    77
  NATURAL FAIR COVER
  "WOODLAND"                 C        2.00      0.25      1.00    73
  NATURAL FAIR COVER
  "GRASS"                    D       11.30      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D        5.10      0.20      1.00    83
  NATURAL FAIR COVER
  "WOODLAND"                 D        1.10      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.24
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   64.90      SUBAREA RUNOFF(CFS) =  165.83
  EFFECTIVE AREA(ACRES) =    186.30   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.95
  TOTAL AREA(ACRES) =    186.30       PEAK FLOW RATE(CFS) =     480.59
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    881.00 TO NODE    882.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    415.00  DOWNSTREAM(FEET) =    190.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2805.00   CHANNEL SLOPE =  0.0802
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   4.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    480.59
  FLOW VELOCITY(FEET/SEC.) =  16.63   FLOW DEPTH(FEET) =   3.74
  TRAVEL TIME(MIN.) =   2.81   Tc(MIN.) =  19.82
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    882.00 =  8562.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    881.00 TO NODE    882.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  19.82
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.816
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    B        0.50      0.30      1.00    69
  NATURAL FAIR COVER
  "WOODLAND"                 B        0.20      0.30      1.00    60
  NATURAL FAIR COVER
  "GRASS"                    C       18.20      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       10.80      0.25      1.00    77
  NATURAL FAIR COVER
  "WOODLAND"                 C        1.20      0.25      1.00    73
  NATURAL FAIR COVER
  "GRASS"                    D       36.30      0.20      1.00    84
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.22
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   67.20      SUBAREA RUNOFF(CFS) =  156.81
  EFFECTIVE AREA(ACRES) =    253.50   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =    253.50       PEAK FLOW RATE(CFS) =     593.92

****************************************************************************
  FLOW PROCESS FROM NODE    881.00 TO NODE    882.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  19.82
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.816
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "WOODLAND"                 D        7.10      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =    7.10      SUBAREA RUNOFF(CFS) =   16.72
  EFFECTIVE AREA(ACRES) =    260.60   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =    260.60       PEAK FLOW RATE(CFS) =     610.64

****************************************************************************
  FLOW PROCESS FROM NODE    882.00 TO NODE    883.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    190.00  DOWNSTREAM(FEET) =    184.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    86.00   CHANNEL SLOPE =  0.0698
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =   5.00
  CHANNEL FLOW THRU SUBAREA(CFS) =    610.64
  FLOW VELOCITY(FEET/SEC.) =  16.72   FLOW DEPTH(FEET) =   4.04
  TRAVEL TIME(MIN.) =   0.09   Tc(MIN.) =  19.90
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    883.00 =  8648.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    882.00 TO NODE    883.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  19.90
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.809
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    B        1.70      0.30      1.00    69
  COMMERCIAL                 B        0.30      0.30      0.10    56
  NATURAL FAIR COVER
  "GRASS"                    C       46.00      0.25      1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"               C       20.20      0.25      1.00    77
  NATURAL FAIR COVER
  "WOODLAND"                 C        4.40      0.25      1.00    73
  NATURAL POOR COVER
  "BARREN"                   D        0.40      0.20      1.00    93
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
  SUBAREA AREA(ACRES) =   73.00      SUBAREA RUNOFF(CFS) =  168.11
  EFFECTIVE AREA(ACRES) =    333.60   AREA-AVERAGED Fm(INCH/HR) =  0.22
  AREA-AVERAGED Fp(INCH/HR) =  0.23  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =    333.60       PEAK FLOW RATE(CFS) =     776.98

****************************************************************************
  FLOW PROCESS FROM NODE    882.00 TO NODE    883.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  19.90
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.809
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                    D      187.70      0.20      1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"               D       94.40      0.20      1.00    83
  COMMERCIAL                 D        7.70      0.20      0.10    75
  NATURAL FAIR COVER
  "WOODLAND"                 D        7.90      0.20      1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.98
  SUBAREA AREA(ACRES) =  297.70      SUBAREA RUNOFF(CFS) =  700.20
  EFFECTIVE AREA(ACRES) =    631.30   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.21  AREA-AVERAGED Ap =  0.97
  TOTAL AREA(ACRES) =    631.30       PEAK FLOW RATE(CFS) =    1477.18

****************************************************************************
  FLOW PROCESS FROM NODE    883.00 TO NODE    884.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
```

```
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    184.00  DOWNSTREAM(FEET) =    135.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  2633.00   CHANNEL SLOPE =  0.0186
  CHANNEL BASE(FEET) =    7.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   7.00
  CHANNEL FLOW THRU SUBAREA(CFS) =   1477.18
  FLOW VELOCITY(FEET/SEC.) =  15.79   FLOW DEPTH(FEET) =   6.79
  TRAVEL TIME(MIN.) =   2.78   Tc(MIN.) =  22.68
  LONGEST FLOWPATH FROM NODE    870.00 TO NODE    884.00 = 11281.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    883.00 TO NODE    884.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  22.68
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.599
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL FAIR COVER
  "GRASS"                     A        0.70      0.40       1.00    50
  COMMERCIAL                  A        1.60      0.40       0.10    32
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           A        0.60      0.40       1.00    49
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"        A       30.70      0.40       0.60    32
  NATURAL FAIR COVER
  "WOODLAND"                  A        1.50      0.40       1.00    36
  NATURAL POOR COVER
  "BARREN"                    B        2.00      0.30       1.00    86
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.39
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.63
  SUBAREA AREA(ACRES) =   37.10      SUBAREA RUNOFF(CFS) =   78.55
  EFFECTIVE AREA(ACRES) =    668.40   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.96
  TOTAL AREA(ACRES) =    668.40       PEAK FLOW RATE(CFS) =    1477.18
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE    883.00 TO NODE    884.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  22.68
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.599
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                  B        7.20      0.30       0.10    56
  AGRICULTURAL FAIR COVER
  "PASTURE,DRYLAND"           B        1.10      0.30       1.00    69
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"        B       14.80      0.30       0.60    56
  NATURAL FAIR COVER
  "WOODLAND"                  B        2.00      0.30       1.00    60
  NATURAL FAIR COVER
  "GRASS"                     C       23.10      0.25       1.00    79
  NATURAL FAIR COVER
  "OPEN BRUSH"                C        7.30      0.25       1.00    77
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.26
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.78
  SUBAREA AREA(ACRES) =   55.50      SUBAREA RUNOFF(CFS) =  119.56
  EFFECTIVE AREA(ACRES) =    723.90   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.94
  TOTAL AREA(ACRES) =    723.90       PEAK FLOW RATE(CFS) =    1556.26

****************************************************************************
  FLOW PROCESS FROM NODE    883.00 TO NODE    884.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  22.68
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.599
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                  C        6.20      0.25       0.10    69
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"        C        0.90      0.25       0.60    69
  NATURAL FAIR COVER
  "WOODLAND"                  C        0.30      0.25       1.00    73
  NATURAL POOR COVER
  "BARREN"                    D        0.20      0.20       1.00    93
  NATURAL FAIR COVER
  "GRASS"                     D       21.80      0.20       1.00    84
  NATURAL FAIR COVER
  "OPEN BRUSH"                D        1.60      0.20       1.00    83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.81
  SUBAREA AREA(ACRES) =   31.00      SUBAREA RUNOFF(CFS) =   67.94
  EFFECTIVE AREA(ACRES) =    754.90   AREA-AVERAGED Fm(INCH/HR) =  0.21
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.94
  TOTAL AREA(ACRES) =    754.90       PEAK FLOW RATE(CFS) =    1624.20

****************************************************************************
  FLOW PROCESS FROM NODE    883.00 TO NODE    884.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN) =  22.68
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.599
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                  D       44.40      0.20       0.10    75
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"        D        6.00      0.20       0.60    75
  NATURAL FAIR COVER
  "WOODLAND"                  D        1.40      0.20       1.00    79
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.18
  SUBAREA AREA(ACRES) =   51.80      SUBAREA RUNOFF(CFS) =  119.48
  EFFECTIVE AREA(ACRES) =    806.70   AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.22  AREA-AVERAGED Ap =  0.89
  TOTAL AREA(ACRES) =    806.70       PEAK FLOW RATE(CFS) =    1743.68

****************************************************************************
  FLOW PROCESS FROM NODE    884.00 TO NODE    884.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =  22.68
  RAINFALL INTENSITY(INCH/HR) =   2.60
  AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.22
  AREA-AVERAGED Ap =  0.89
  EFFECTIVE STREAM AREA(ACRES) =   806.70
  TOTAL STREAM AREA(ACRES) =   806.70
  PEAK FLOW RATE(CFS) AT CONFLUENCE =   1743.68
```

```
 ** CONFLUENCE DATA **
 STREAM       Q        Tc      AREA      HEADWATER
 NUMBER     (CFS)    (MIN.)   (ACRES)      NODE
    1      4748.70   87.92     5935.00     3100.00
    2      1743.68   22.68      806.70      870.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
 S-GRAPH: VALLEY(DEV.)= 16.0%;VALLEY(UNDEV.)/DESERT=  8.0%
          MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
 Tc(HR) = 1.47; LAG(HR) = 1.17; Fm(INCH/HR) = 0.22; Ybar = 0.39
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.74; 30M = 0.74; 1HR = 0.74;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   6741.70
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    884.00 = 53473.00 FEET.
  EQUIVALENT BASIN FACTOR APPROXIMATIONS:
  Lca/L=0.3,n=.0321; Lca/L=0.4,n=.0288; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
 TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    2036.33
 PEAK FLOW RATE(CFS) =   4308.35
   (UPSTREAM NODE PEAK FLOW RATE(CFS) =   4748.70)
 PEAK FLOW RATE(CFS) USED =   4748.70

****************************************************************************
 FLOW PROCESS FROM NODE    884.00 TO NODE    885.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    135.00  DOWNSTREAM(FEET) =    132.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   207.00   CHANNEL SLOPE =  0.0145
 CHANNEL BASE(FEET) =   85.00   "Z" FACTOR =   2.000
 MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =  15.00
 CHANNEL FLOW THRU SUBAREA(CFS) =   4748.70
 FLOW VELOCITY(FEET/SEC.) =  13.57   FLOW DEPTH(FEET) =   3.78
 TRAVEL TIME(MIN.) =   0.25   Tc(MIN.) =  88.17
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    885.00 = 53680.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    884.00 TO NODE    885.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN) =  88.17
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  1.195
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL FAIR COVER
 "WOODLAND"                 A        1.30      0.40      1.00    36
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.00
 SUBAREA AREA(ACRES) =    1.30
 UNIT-HYDROGRAPH DATA:
 RAINFALL(INCH): 5M= 0.52;30M= 1.09;1H= 1.45;3H= 2.43;6H= 3.36;24H= 5.63
 S-GRAPH: VALLEY(DEV.)= 16.0%;VALLEY(UNDEV.)/DESERT=  8.0%
          MOUNTAIN= 62.0%;FOOTHILL= 14.0%;DESERT(UNDEV.)=  0.0%
 Tc(HR) = 1.47; LAG(HR) = 1.18; Fm(INCH/HR) = 0.22; Ybar = 0.39
 USED SIERRA MADRE DEPTH-AREA CURVES WITH AMC  II CONDITION.
 DEPTH-AREA FACTORS: 5M = 0.74; 30M = 0.74; 1HR = 0.74;
 3HR = 0.96; 6HR = 0.98; 24HR= 0.99
 UNIT-INTERVAL(MIN) = 10.00   TOTAL AREA(ACRES) =   6743.00
 LONGEST FLOWPATH FROM NODE   3100.00 TO NODE    885.00 = 53680.00 FEET.
  EQUIVALENT BASIN FACTOR APPROXIMATIONS:
  Lca/L=0.3,n=.0321; Lca/L=0.4,n=.0288; Lca/L=0.5,n=.0265;Lca/L=0.6,n=.0247
 TIME OF PEAK FLOW(HR) = 16.83  RUNOFF VOLUME(AF) =    2036.45
 UNIT-HYDROGRAPH PEAK FLOW RATE(CFS) =   4301.63
 TOTAL AREA(ACRES) =   6743.00       PEAK FLOW RATE(CFS) =    4748.70
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =   6743.00  TC(MIN.) =     88.17
 AREA-AVERAGED Fm(INCH/HR)=  0.22   Ybar =  0.39
 PEAK FLOW RATE(CFS)   =   4748.70
============================================================================
============================================================================
 END OF INTEGRATED RATIONAL/UNIT-HYDROGRAPH METHOD ANALYSIS
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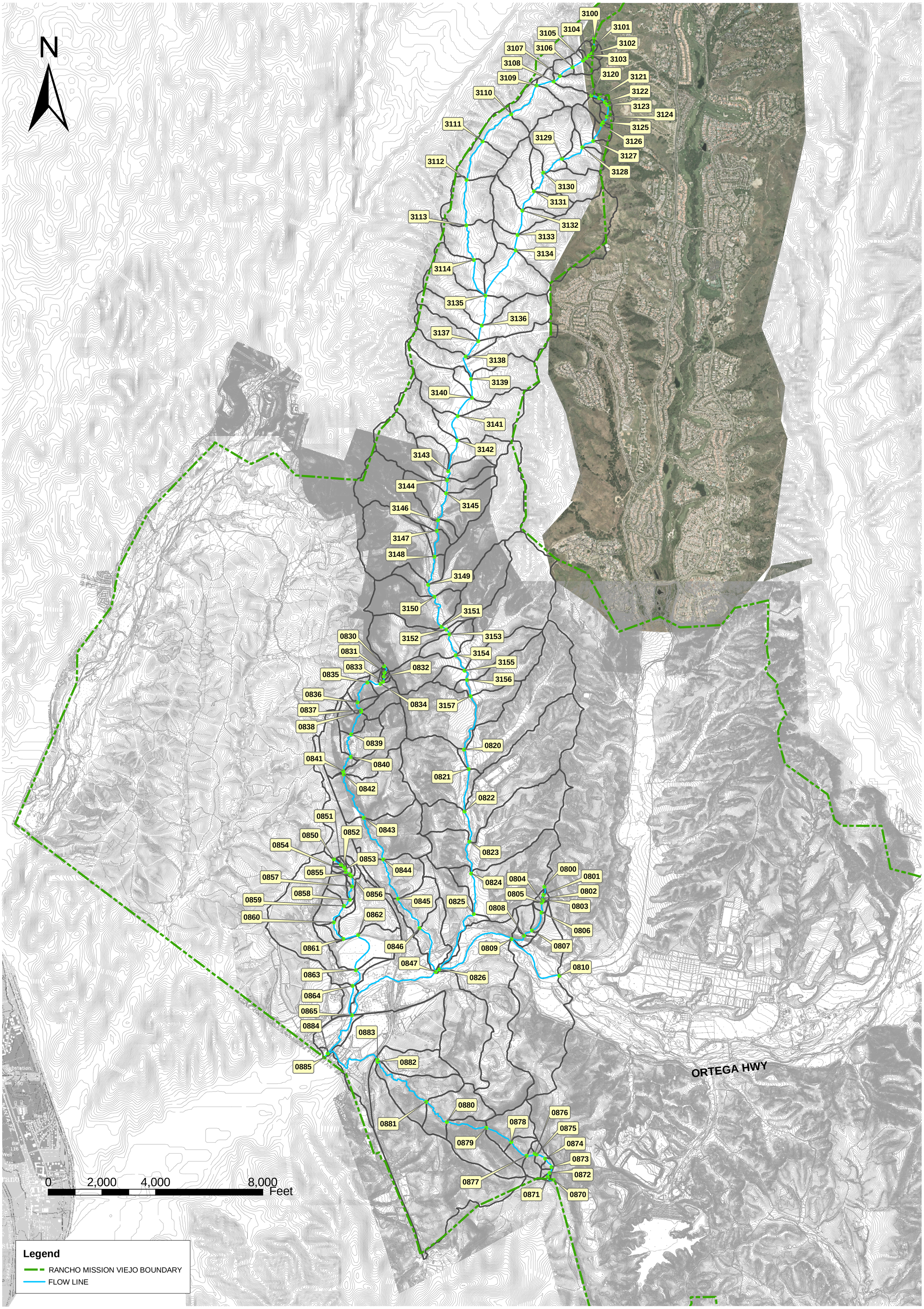

HYDROLOGIC MAP FOR EXISTING CONDITION

CANADA CHIQUITA CREEK CHANNEL

DATE: APRIL 1, 2004

H:/10075501/PH801/RMV WATERSHED/EX/SUBAREA EXISTING 08.MXD

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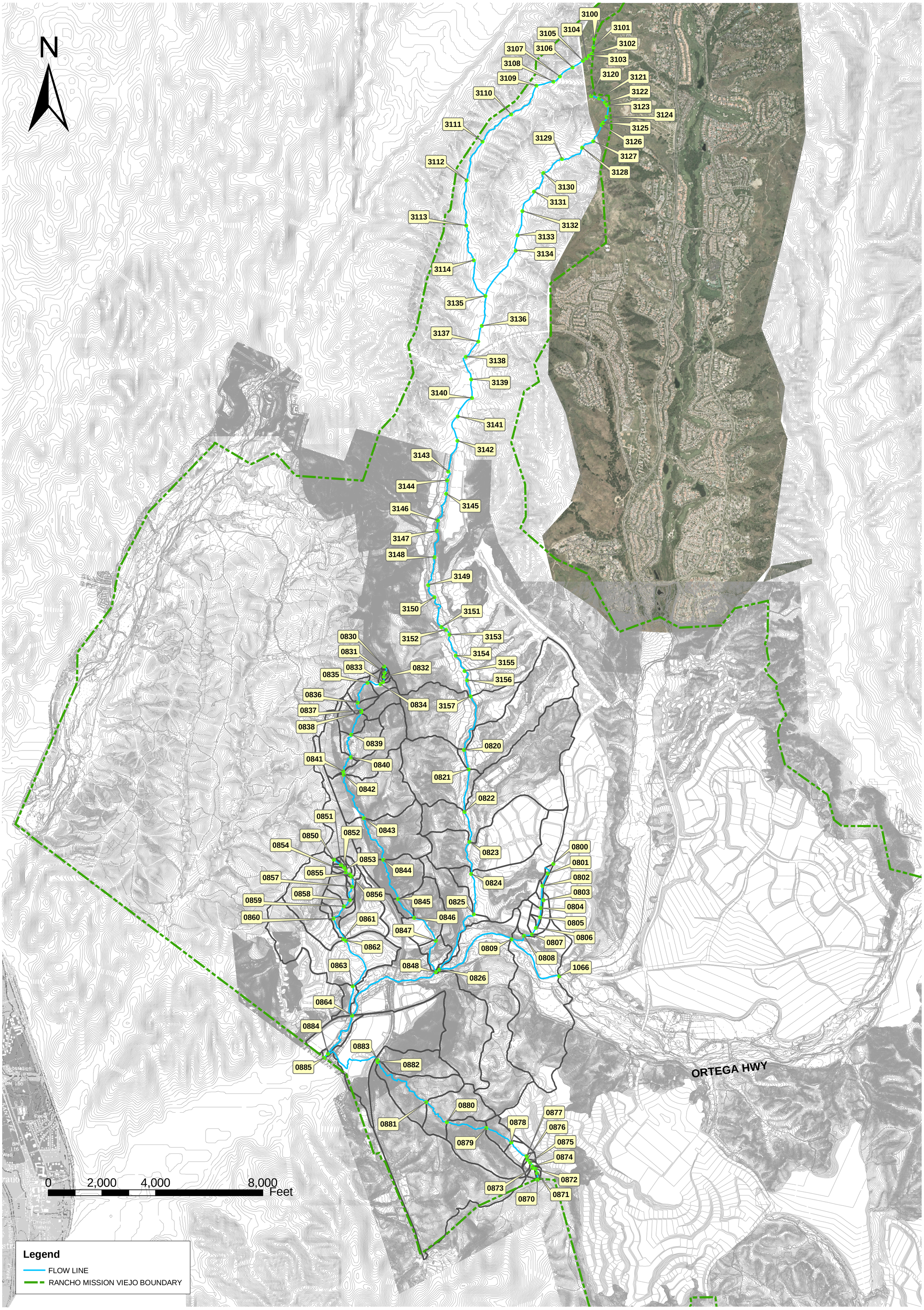

HYDROLOGIC MAP FOR PROPOSED CONDITION

CANADA CHIQUITA CREEK CHANNEL

DATE: APRIL 1, 2004

H:/10075501/PH801/RMV WATERSHED/EX/SUBAREA PROPOSED 08.MXD

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