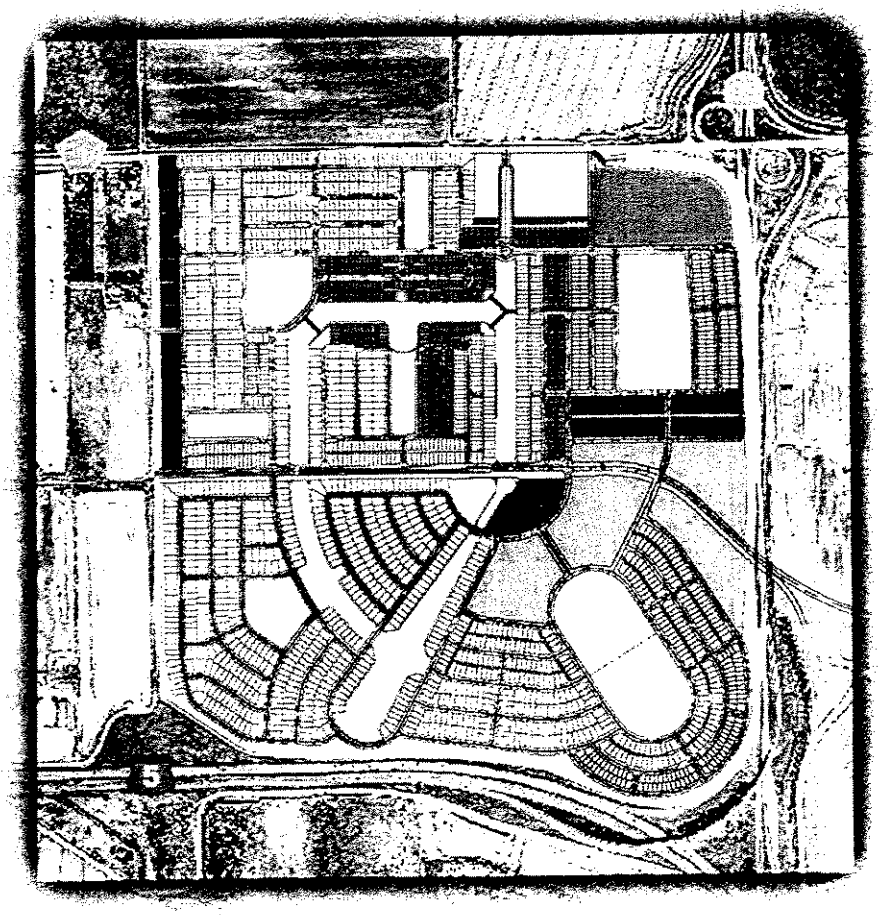
APPENDIX J

GREENBRIAR MASTER DRAINAGE STUDY

Preliminary

Greenbriar
Master Drainage Study



July2005

Prepared by

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EXECUTIVE SUMMARY

Greenbriar is a proposed residential development of approximately 577 acres located in the County of Sacramento, California. The project has initiated the application process into the City of Sacramento.

The purpose of this report is to present the design of required on-site and off-site drainage facilities.

The proposed development will require an on-site detention basin, outfall structure and gravity storm drain systems which will mitigate the outfall runoff to the existing RD1000 system at a peak discharge value set by RD1000 at 0.1 cfs/acre.

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1. INTRODUCTION

1.1 OVERVIEW

Greenbriar is a proposed mix-use development of approximately 577 acres located in the County of Sacramento, California. There are approximately an additional 50 acres of offsite freeway drainage area draining into the site under existing conditions. The site is bordered by Elkhorn Blvd. along the north boundary, the future Metro Air Park on the west boundary, Interstate-5 along the south, and Highway 99 to the east. See **FIGURES 1, 2,** and **3** for the vicinity map, site plan, and the proposed land use plan.

1.2 PURPOSE

This Drainage Study analyzes drainage systems in pre-development conditions and documents the design of the post-development onsite storm drainage system, detention basin, and outfall structure to mitigate storm runoff in post-development conditions.

1.3 PREVIOUS STUDIES

The 2002 Final Metro Air Park Master Drainage Study, prepared by Watermark Engineering, was developed to address drainage associated with the future Metro Airport Park project west of Greenbriar.

The Metro Air Park Off-Site Drainage Improvements Plans by Stantec (formerly known as The Spink Corporation) were developed to improve the drainage facilities from the proposed Metro Air Park pump station outfall to the West Drainage Canal. The data from the improved channel and Interstate 5 crossing was used to analyze the developed Greenbriar downstream condition.

1.4 EXISTING CONDITIONS

The existing site is flat and used for agriculture. The drainage on the site consists of several drainage/irrigations ditches which ultimately convey flows south. The site slopes from westward and southward. Elevations range from approximately 5 to 25 feet mean sea level (MSL).

The existing project site consists of two major watersheds. A narrow eastern shed drains into the existing Natomas Mutual channel, under Highway 99, then southward towards the West Drainage Canal. The western part of the site drains into the Lone Tree Canal, joins runoff from the southern part of the site, and flows under Interstate-5 through three existing 5-ft by 8-ft box culverts towards the West Drainage Canal. The West Drainage Canal drains south and terminates in the Natomas Main Drainage Channel, which is pumped into the Sacramento River.

1.5 FEMA INFORMATION

The most recent Federal Emergency Management Agency's (FEMA) Flood Insurance Study (FIS) Flood Insurance Rate Maps (FIRMs), revised July 06, 1998, shows the site in Zone X, which is designated as outside of a special flood hazard zone. The Flood Insurance Rate Map is displayed in **FIGURE 4.**

1.6 SOILS INFORMATION

Based on the Soil Survey of Sacramento County, the Greenbriar watershed consists primarily of soil classified by the Natural Resources Conservation Service (NRCS) as Hydrologic Soil Group "D". Type "D" soil generally has a high runoff rate and low infiltration rate. (See **FIGURE 5**)

1.7 PROPOSED CONDITIONS ONSITE GRADING

It is intended that the proposed development will not be required to import fill. Earthwork cut and fill volumes were balanced onsite using an Autocad Digital Terrain Model. The model included a soil shrinkage factor of 0.85 to depict the potential shrinkage when the excavated soil is spread and compacted over the site.

1.8 CRITERIA AND METHODOLOGY

1.8.a Existing Conditions

Under Existing Conditions, the 100-year and 10-year storms with 10-day and 24-hour durations were examined. These storms utilized the historic West Drain Canal 100-year 10-day stage hydrograph provided by RD1000 as the downstream boundary condition in the southerly RD1000 Canal. With the Greenbriar site's peak flow discharging into the channel much earlier than the channel's peak flow, the assumption of using the first 24 hours of the 10-day stage hydrograph as the 24-hour storm's boundary condition is conservative. Hydrographs were developed using SACCALC software as documented in the City of Sacramento Drainage Manual, Volume 2 Hydrology Standards (City of Sacramento Standards).

Hydrographs at outlets and places of interest were developed to depict the existing condition. However, no hydraulic model was developed under this condition as there are no significant drainage facilities present at the site.

1.8.b Ultimate Conditions

100-year and 10-year storm hydrographs with 10-day and 24-hour durations were developed for this study reflecting Ultimate Conditions. Hydrology was computed using SACCALC as documented in the City of Sacramento Hydrology Standards.

The 10-year storm was used to analyze the onsite pipe drainage system while the 100-year storm was used to size the detention pond and outfall structure.

To determine detention storage and system outflow, the system was analyzed using an unsteady HEC-RAS model per City of Sacramento Standards. SACCALC output hydrographs were used as input hydrographs in the HEC-RAS model. The outfall structure was modeled such that the peak outflow from the site would be lower than 0.1 cfs per acre or total of 62cfs (set forth by RD1000). The maximum pond water surface was designed to have one foot of freeboard to the top of the pond.

A preliminary on-site storm drain trunk system was designed according to City of Sacramento standards using the Sacramento method for quantifying 10-year peak runoff and hydraulic grade lines. Only major trunk systems

were analyzed and those pipes were designed based on the proposed grading pad and minimum pipe velocity. For the downstream end boundary condition, the 10-year peak stage in the pond from the HEC-RAS model was used.

2. ANALYSIS AND RESULTS

2.1 ANALYSIS OF EXISTING CONDITIONS

The drainage pattern of Greenbriar and its adjacent properties are illustrated in **FIGURE 6**. Part of the existing drainage area as reported in the "Metro Air Park Master Drainage Study," 2002, prepared by Watermark Engineering, are included. Aerial photographs and topographic maps were utilized to determine the drainage trends of the project site and its surroundings. A site visit determined the approximate size of drainage features.

FIGURE 7 shows the results of the Existing Conditions analysis of the project site. The Existing Conditions SACCALC peak flow is summarized in **Table 1**.

TABLE 1. Existing Conditions 100-Year Peak Flow

Subbasin	Area (ac)	*100yr-10day Peak Flow (cfs)	*100yr-24hr Peak Flow (cfs)
East Basin – E1	448	199	307
West Basin – E2 (Different drainage system)	173	82	134
Metro Offsite – E4	735	253	327
North Offsite – E5	538	252	407
Outflow @ HWY 5 Crossing (Excludes E2)	1721	660	904

*Note that these flows do not reflect onsite and offsite storage that would likely considerably reduce peak flows.

See **APPENDIX A** for watershed flows, land use summaries, watercourse lengths, and rainfall hyetographs in the SACCALC output file.

2.1a Interstate-5 Crossing Drainage Conditions

There are three existing 5-ft by 8-ft box culverts at the I-5 crossing with inverts at approximately 5.5 ft (**REFERENCE NO. 5**). With 904 csf passing through the three existing box culverts, the headwater stage is 13.0 ft (see **APPENDIX C**) which is about a foot lower than the edge of the I-5 pavement. The adjacent low-lying area would likely provide enough storage attenuation to the high water surface and most likely lower headwater elevation.

2.1b Offsite Drainage Conditions

Runoff from the 540 ac offsite watershed north of the project site discharges into the Lone Tree Canal during storms. The drainage ditch parallels the west

property boundary and drains from north to south. The ditch will remain in place under post-development conditions to convey runoff from the offsite watershed. The ditch measures approximately 12 ft wide at bottom and 6 ft deep with 1.5 horizontal to 1 vertical side slopes and 0.0007 ft/ft bottom slope (**REFERENCE NO. 5**). With a 100-year peak flow of 355 cfs in the channel, it is at capacity but not overflowing.

2.2 ANALYSIS OF ULTIMATE CONDITIONS

2.2a Ultimate Detention Basins

Under ultimate conditions, the Greenbriar watershed consists of approximately 620 acres of low, medium, and high-density residential land use, parks, commercial land use and offsite highway drainage.

FIGURE 8 shows the proposed ultimate condition drainage in the context of surrounding drainage features. **FIGURE 9** shows drainage within the project site as developed.

A hydrologic model was developed in SACCALC and its output hydrographs were entered in HEC-RAS around the detention pond.

As shown in **FIGURE 10**, the stormwater detention storage ranges from a water surface of 11.0 ft to 16.0 ft while the permanent pool ranges from a water surface of 3.0 ft to 11.0 ft. The outflow from the detention pond is constrained to 62 cfs with two eight-foot wide Rubicon gates, a 48" reinforced concrete pipe and a flap gate. During the peak stage in the pond, water will overtop the fully closed Rubicon gates. (see **APPENDIX D**)

2.2b Proposed Ultimate Peak Flows, Stages, and Volumes

Required stormwater detention storage volumes and peak stages were developed in the HEC-RAS model. Ultimate conditions runoff and storage results are summarized in **Table 2**.

TABLE 2. Pond Ultimate Condition Results

Peak Parameter Values	100-yr 10-day	100-yr 24-hr	10-yr 24-hr
1. Total Inflow to pond (cfs)	408	912	609
2. Stage (ft)	14.9	14.9	13.5
3. Storage (ac-ft)	330	330	279
4. Outflow (cfs)	62	62	61

See **APPENDIX B** for ultimate condition SACCALC and HEC-RAS input and output files.

2.2c Water Quality

Water quality treatment will be provided in the detention pond per the requirements set out in the "North Natomas Design and Procedures Manual" (**REFERENCE NO.6**). The water quality storage was sized using the Sato Design Curve for Sizing of Water Quality Wet Pond per section 11.6222b of the Sacramento County Hydrology Standards (**REFERENCE NO. 6**). Based

on the 620 ac drainage area and 50% percent imperviousness, Sato volume was determined to be 25 ac-ft. The volume was then multiplied by 1.25 and rounded up for a 35 ac-ft permanent pool requirement. The proposed permanent pool depth of 8.0 ft in the detention pond yields a total wet pool volume of 198 ac-ft, which exceeds the required 35 ac-ft.

2.2d Interstate-5 Crossing Drainage Conditions

The future Metro Air Park plans to improve the Interstate 5 undercrossing by adding two- 78" reinforced concrete pipes. Upstream to downstream flowlines will be 5.6 ft to 5.5 ft, respectively. All of the HEC-RAS models presented in this report were simulated with the proposed pipes.

For the worst-case scenario, a 100-year 24-hr model was simulated without the proposed pipes to reflect that the construction of the two undercrossing pipes did not occur. Differences were only found at the immediate upstream of the crossing where the water surface was about a foot higher and flow was about ten percent more than the existing condition. These changes did not project far enough to influence the hydraulic conditions at the Greenbriar site and in the Lone Tree Channel.

TABLE 3. I-5 Crossing Analysis – Ultimate Conditions

	Proposed Crossing	Existing Crossing
I-5 Crossing Parameters	**2-78" RCP & 3-8'x5' Box**	**3-8'x5' Box**
Peak Flow (cfs)	376	391
Upstream Stage (ft)	8.9	9.7
Top of Bank (ft)	13	13

2.2e Offsite Drainage Conditions

Under the Ultimate Conditions, Lone Tree Channel was modeled utilizing HEC-RAS, yielding an average freeboard to top of bank of 0.5 ft during the 100-year storm. With the proposed house pad elevations at approximately 18.0 ft along the western site boundary, the freeboard below the house pads is 2.5 ft.

The proposed Metro Air Park 100-year peak pump outflow of 270 cfs was introduced into Lone Tree Channel in the HEC-RAS model during the whole storm duration. This conservative approach generates higher water surfaces than will likely occur.

3. PROPOSED ON-SITE STORM DRAINAGE PIPE SYSTEM

A preliminary design of the on-site storm drainage trunk system was developed consistent with the City of Sacramento requirements. Trunks were sized using the prorated SACCALC watershed flows and the 10-year

detention pond water surface from HEC-RAS output results. The pipes were sized with approximately two feet of freeboard below the proposed grading.

See **FIGURE 9** and **APPENDIX E** for results and calculations.

4. CONCLUSION

Greenbriar can be developed under ultimate conditions with the proposed facilities outlined in this report. The proposed detention basins with permanent water quality features, outlet described and the on-site storm system will adequately convey runoff from the design storm.

The analyses of the adjacent offsite Lone Tree Channel and Interstate 5 crossing proved adequate for severe storms.

5. REFERENCES

1. Federal Emergency Management Agency, Flood Insurance Study, revised July 06, 1998 and Rate Map for West Sacramento, California, Community Panel Numbers 0602660020F, 060262004E, 0602620045E, Revised July 01, 1998.
2. Watermark Engineering, "Metro Air Park Master Drainage Study," Final 2002.
3. Aerials Express, Digital Aerial Viewer, 2003.
4. USGS Quadrangle Map.
5. Metro Air Park, Offsite Drainage Improvements, The Spin Corporation.
6. North Natomas Drainage Design & Procedures Manual, West Yost & Associates, July 1998.
7. Hydrology Standards, Vol.2 of the Sacramento City/County Drainage Manual, Dec. 1996.

FIGURE 1

VICINITY MAP

GREENBRIAR

CITY OF SACRAMENTO, CALIFORNIA

JULY, 2005

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FIGURE 2

SITE PLAN

GREENBRIAR

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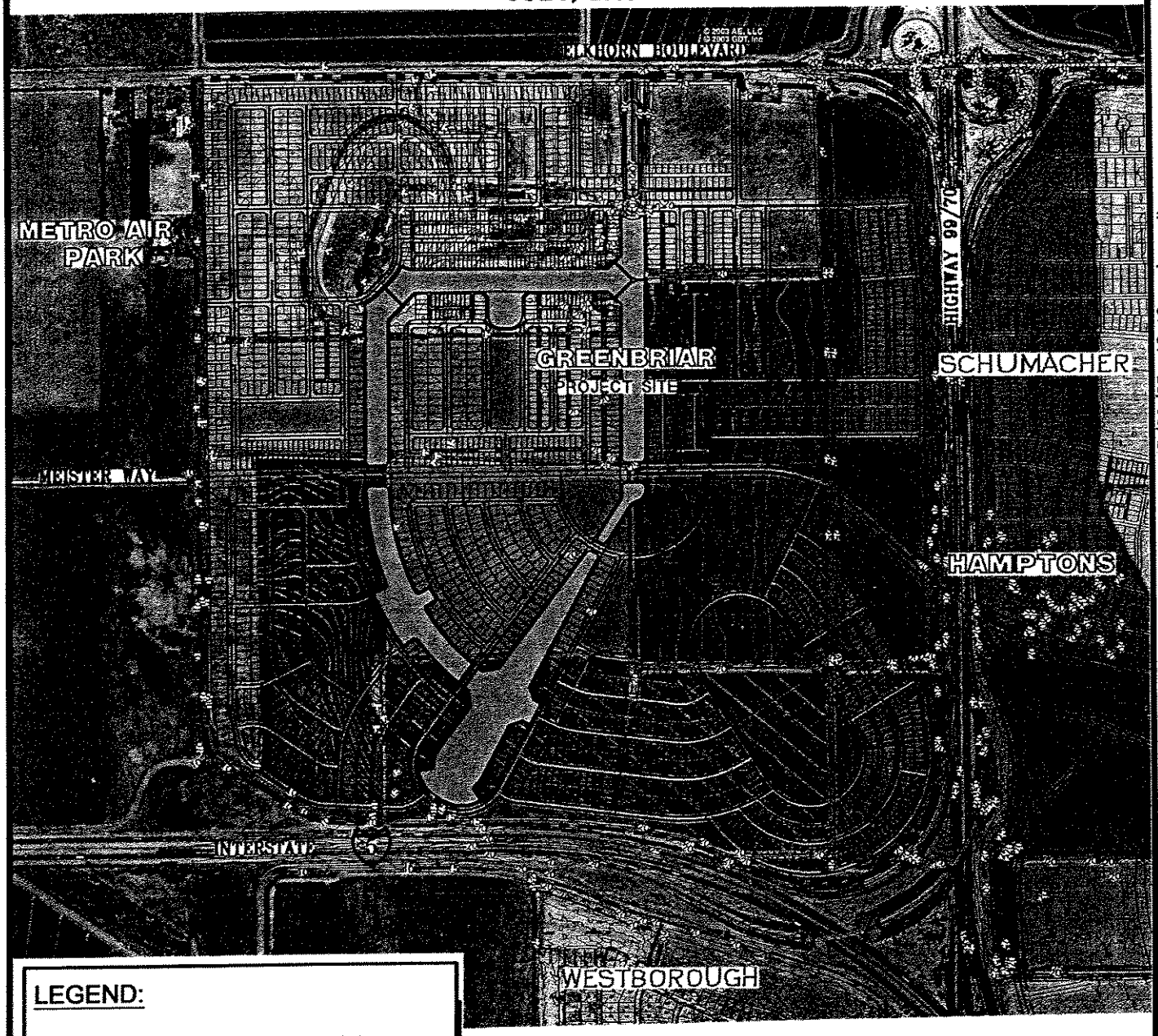

LEGEND:

- PROJECT BOUNDARY
- 20 EXISTING GROUND CONTOUR
- PROPOSED DETENTION BASIN

NORTH

0 1,000'

500' 2,000'

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FIGURE 3

PROPOSED LANDUSE

GREENBRIAR

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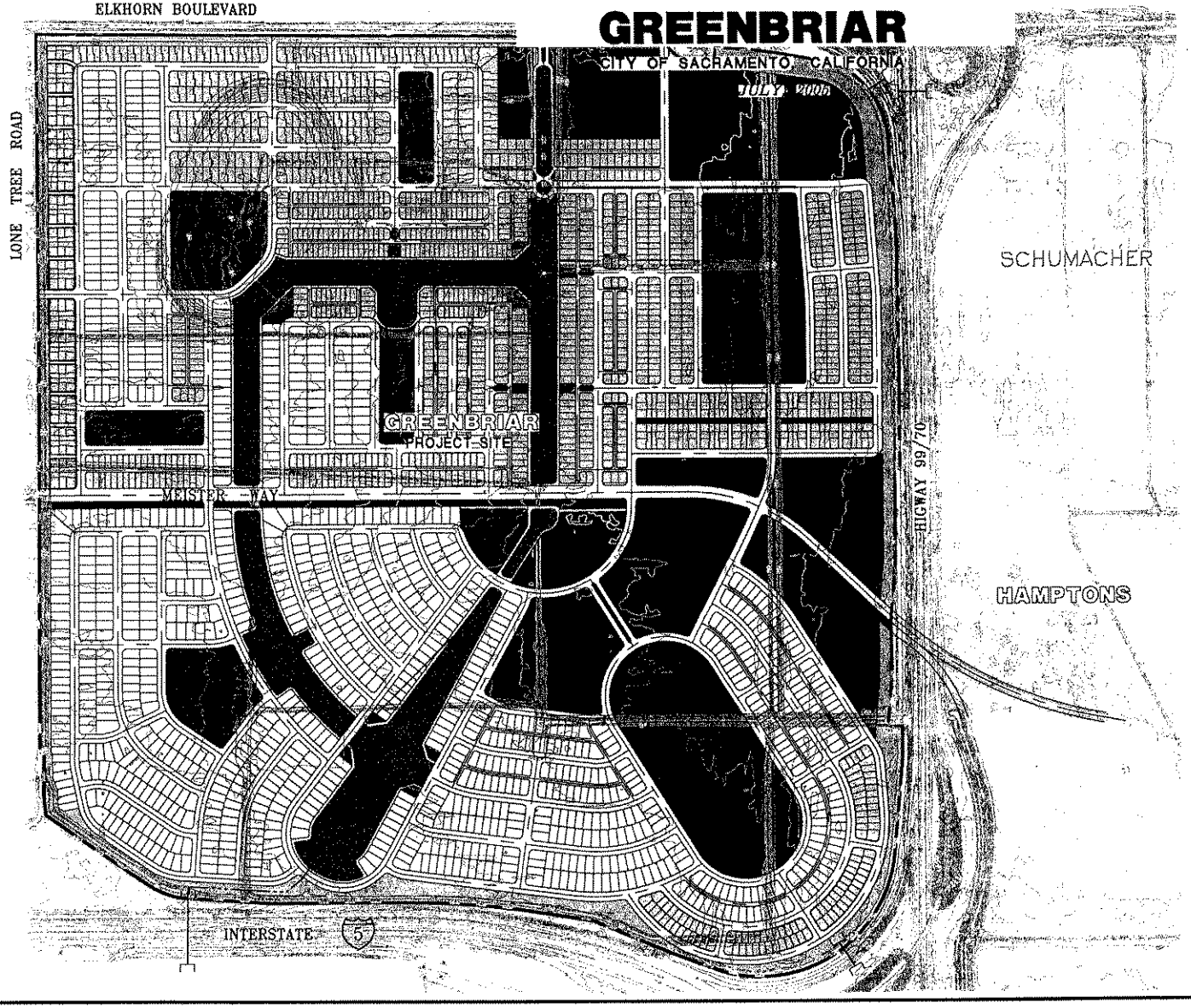

LEGEND:

- PROJECT BOUNDARY
- EXISTING GROUND CONTOUR
- WATERWAYS AND DRAIN
- DRAIN FLOW DIRECTION
- EXISTING DRAIN CULVERT

LANDUSE LEGEND:

- LDR — LOW DENSITY RESIDENTIAL
- MDR — MEDIUM DENSITY RESIDENTIAL
- HIGH DENSITY RESIDENTIAL
- PARKS
- LS/OS — LANDSCAPE/OPEN SPACE
- VILLAGE COMMERCIAL
- COMMUNITY COMMERCIAL
- DETENTION BASIN
- SCHOOL

NORTH

0 300' 600' 1,200'

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J:\Jobs\1116-GreenbriarFarms\Civil\Exhibits\EXH-FIG_3-LANDUSE-PLAN.dwg 7/26/05 12:23pm jcornell

FIGURE 4

FEMA FLOODPLAIN

GREENBRIAR

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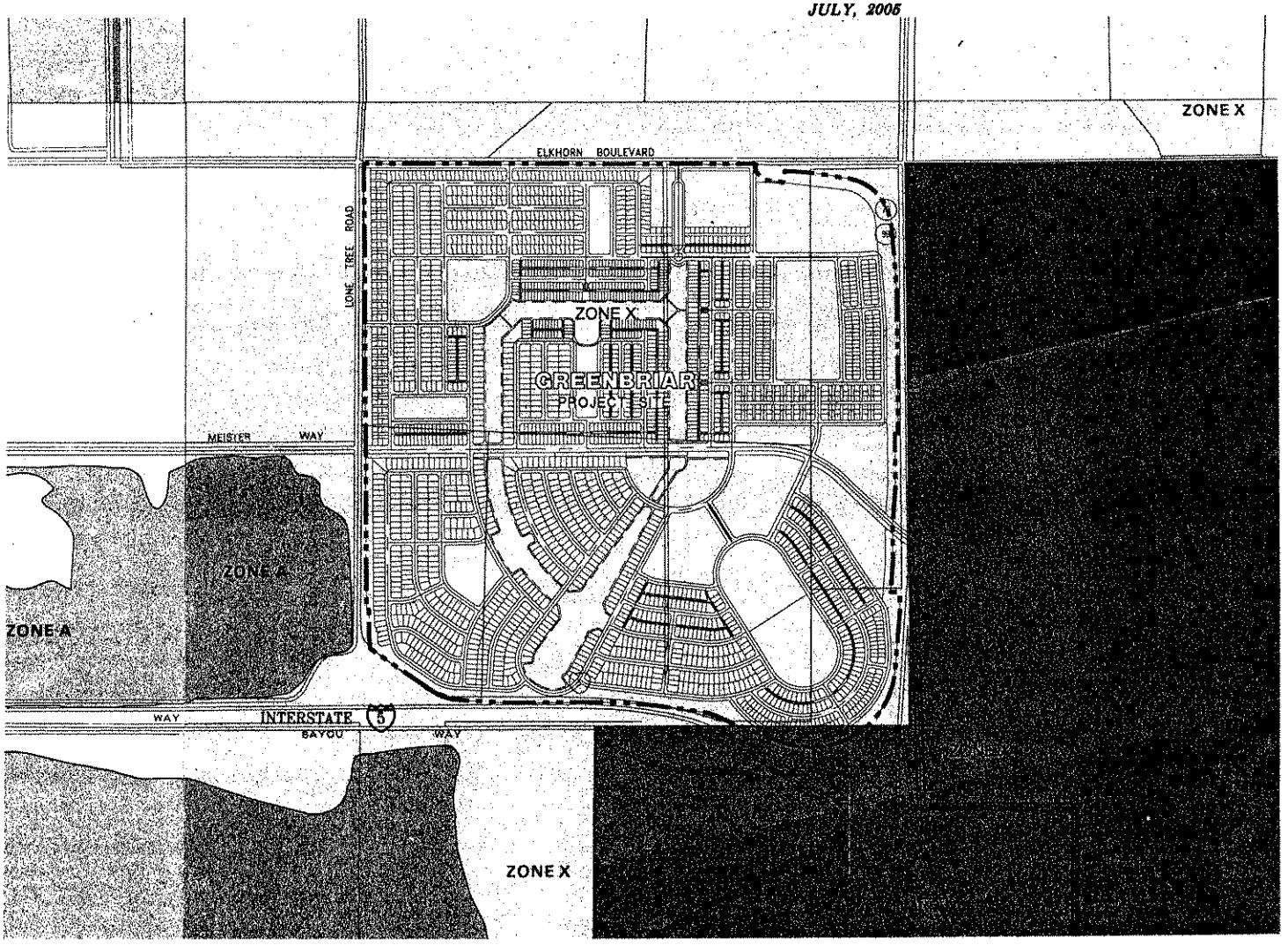

LEGEND:

PROJECT BOUNDARY

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base flood elevations determined.
- **ZONE AR** — Area of special flood hazard which results from the decertification of a previously accredited flood protection system which is determined to be in the process of being restored to provide a 100-year or greater level of flood protection.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood-plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

SOURCE:

1. FEMA FLOOD INSURANCE RATE MAP FOR WEST SACRAMENTO, CALIFORNIA, COMMUNITY PANEL NUMBER 0602660020F, 060262004E, 0602620045E, REVISED JULY 06, 1998.

NORTH 0 500' 1,000' 2,000'

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J:\Jobs\1116-GreenbriarFarms\1116-GreenbriarFarms\Civil\Exhibits\EXH-FIG_4-FEMA-FLOODPLAINS.dwg 7/26/05 2:39pm jcornell

HYDROLOGIC SOIL MAP

GREENBRIAR

CITY OF SACRAMENTO, CALIFORNIA

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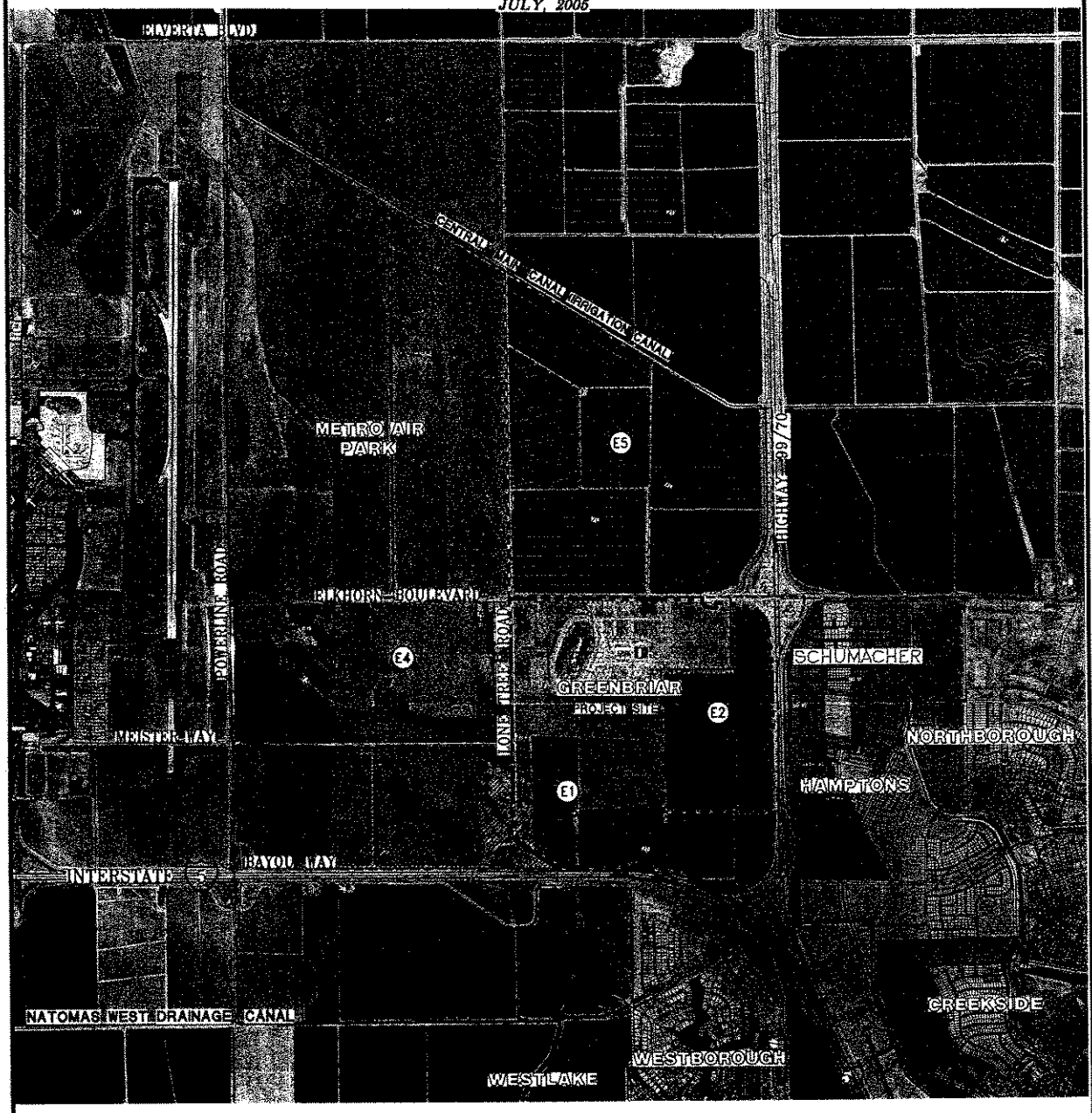

LEGEND:

- PROJECT BOUNDARY
- 20 EXITING GROUND CONTOUR
- EXISTING WATERSHED BOUNDARY
- SOIL GROUP 'D'
- SOIL GROUP 'B'
- SOIL GROUP 'C'
- (1) BASIN IDENTIFIER

* SOURCES:

1. USGS QUADRANGLE MAP
2. AERIAL PHOTO: AERIALS EXPRESS PHOTO DATE: MARCH 2003
3. SOIL MAP: U.S. DEPARTMENT OF AGRICULTURE CONSERVATION SERVICE, DATED APRIL 1993

NORTH

0 2,000'

1,000' 4,000'

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FIGURE 5

J:\Jobs\1116-GreenbriarFarms\1116-GreenbriarFarms\Civil\Exhibits\EXH-FIG_5-HYDROLOGIC-SOILS_GROUP.dwg 7/26/05 12:11pm jcornell

OVERALL EXISTING DRAINAGE CONDITIONS

GREENBRIAR

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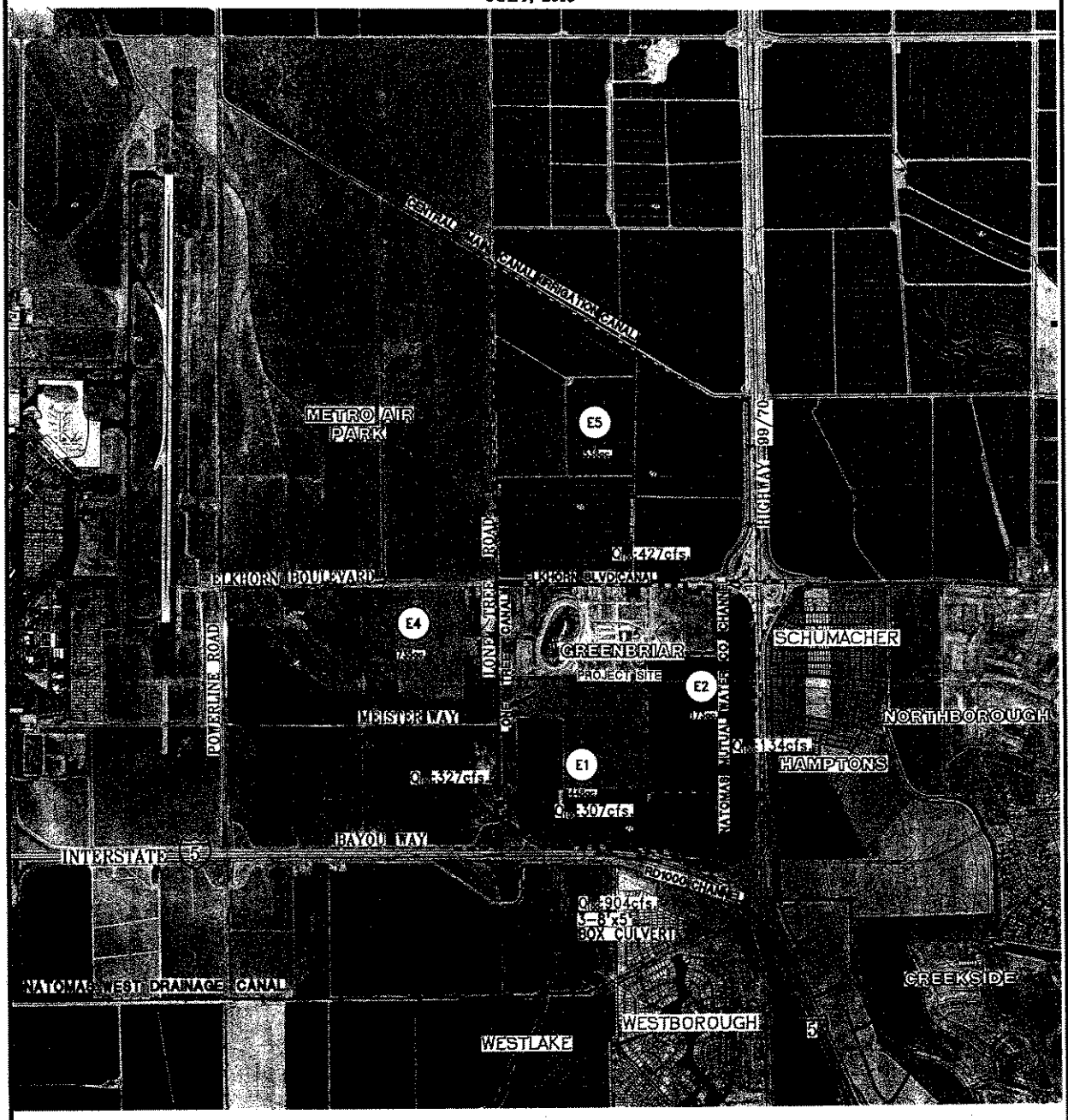

LEGEND:

- PROJECT BOUNDARY
- WATERWAYS AND DRAIN
- DRAIN FLOW DIRECTION
- WATERSHED BOUNDARY
- EXISTING GROUND CONTOUR
- OVERLAND RELEASE PATH
- (E5) BASIN IDENTIFIER

* SOURCES:

1. USGS QUADRANGLE MAP
2. AERIALS EXPRESS PHOTO DATE: MARCH 2003

NORTH

0 2,000'

1,000' 4,000'

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FIGURE 6

J:\Jobs\1116-GreenbriarFarms\1116-GreenbriarFarms\Civil\Exhibits\EXH-FIG_6-OA-EXISTING_DRAINAGE_COND.dwg 7/26/05 1:22pm jcornell

EXISTING ONSITE DRAINAGE CONDITIONS

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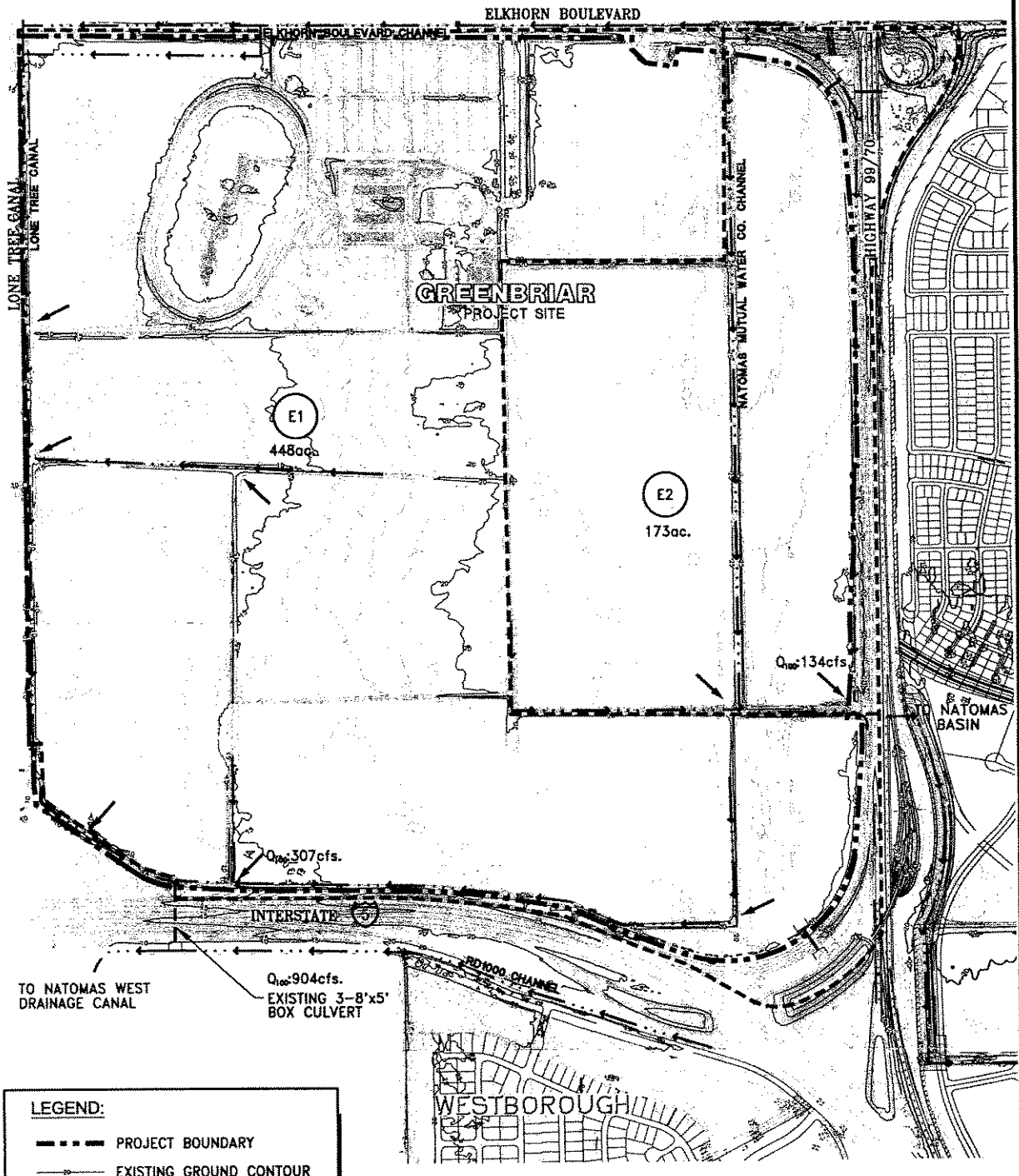

LEGEND:

- PROJECT BOUNDARY
- EXISTING GROUND CONTOUR
- WATERWAYS AND DRAIN
- DRAIN FLOW DIRECTION
- WATERSHED BOUNDARY
- E2 BASIN IDENTIFIER

NORTH 0 300' 600' 1,200'

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FIGURE 7

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OVERALL ULTIMATE DRAINAGE CONDITIONS

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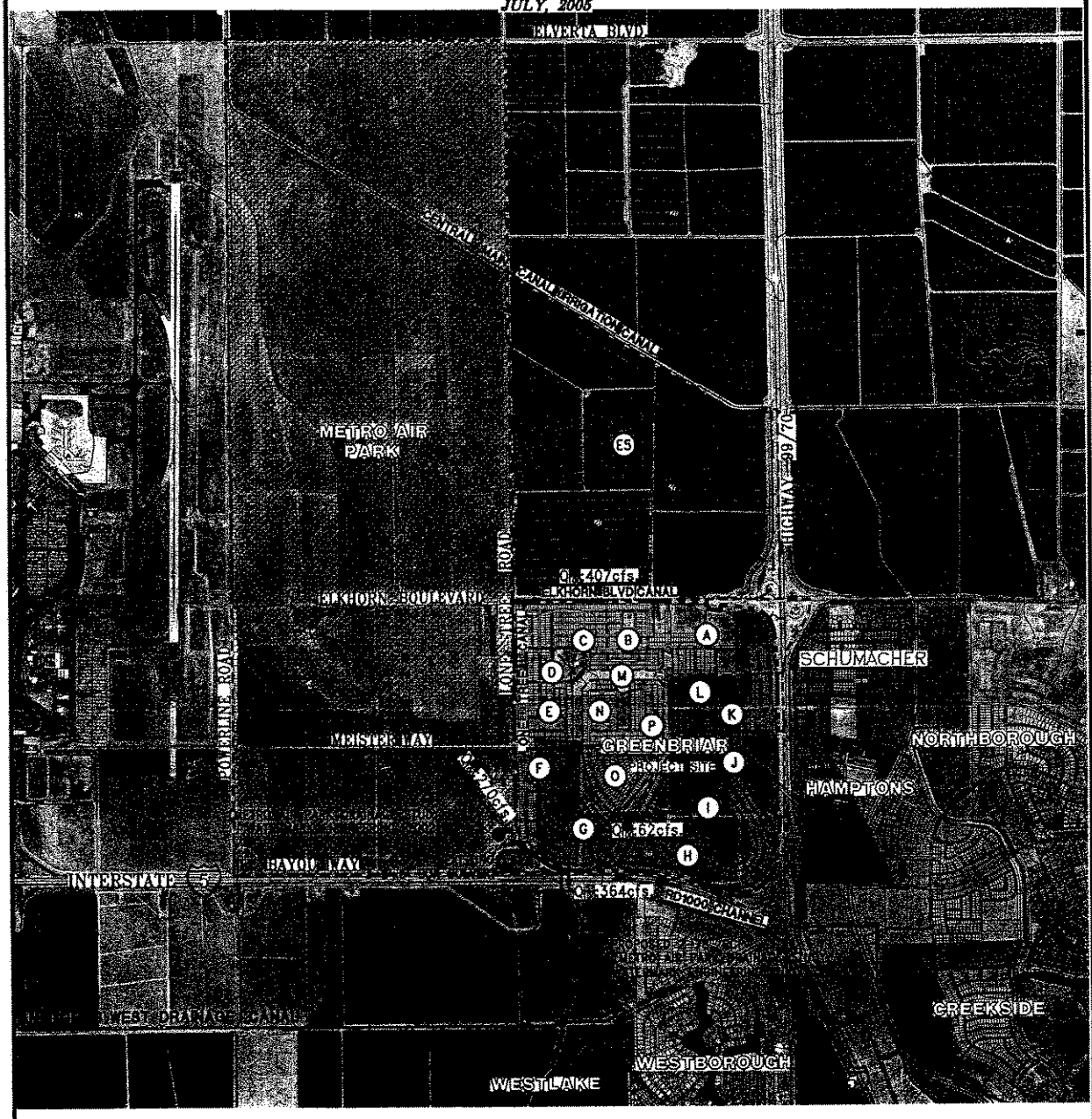

LEGEND:

- PROJECT BOUNDARY
- WATERWAYS AND DRAIN
- DRAIN FLOW DIRECTION
- EXISTING WATERWAYS W/ PROPOSED IMPROVEMENTS
- EXISTING GROUND CONTOUR
- OVERLAND RELEASE PATH
- PROPOSED DETENTION BASIN
- DEVELOPED PROPERTY
- (1) BASIN IDENTIFIER
- PUMP STATION

* SOURCES:

1. USGS QUADRANGLE MAP
2. AERIALS EXPRESS PHOTO DATE: MARCH 2003

NORTH 0 1,000' 2,000' 4,000'

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FIGURE 8

J:\Jobs\1116-Greenbriar farms\Civil\Exhibits\EXH-FIG_8-OA_ULTIMATE_DRAINAGE_COND.dwg 7/26/05 11:45am jcornell

ULTIMATE ONSITE DRAINAGE CONDITIONS

GREENBRIAR

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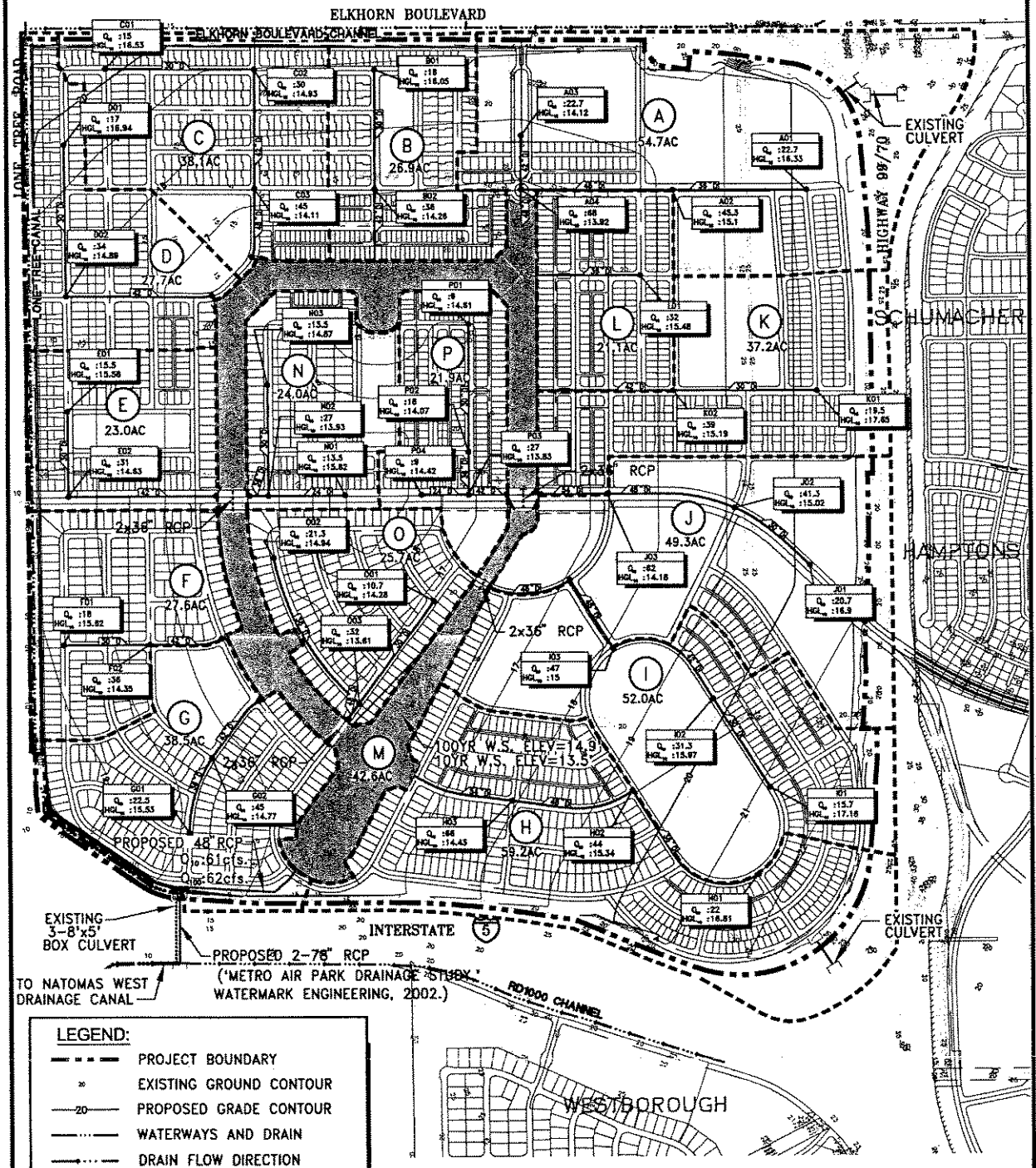

LEGEND:

- PROJECT BOUNDARY
- EXISTING GROUND CONTOUR
- PROPOSED GRADE CONTOUR
- WATERWAYS AND DRAIN
- DRAIN FLOW DIRECTION
- EXISTING WATERWAYS W/ PROPOSED IMPROVEMENTS
- PROPOSED DRAIN PIPE
- PROPOSED ONSITE SHED
- PROPOSED DETENTION BASIN
- PROPOSED DRAIN PIPE SIZE
- (A) WATERSHED I.D.
- NODE NUMBER
- 10 yr PEAK FLOW
- 10 yr HGL ELEV

STAGE-STORAGE DATA		
ELEV. (ft)	STORAGE (ac-ft)	
3.0	0.0	
4.0	20.0	PERMANENT POOL
5.0	42.0	
7.0	89.0	
11.0	197.0	STORMWATER STORGAE
13.0	261.0	
16.0	369.0	

NORTH 0 300' 600' 1,200'

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FIGURE 9

J:\Jobs\1116-GreenbriarFarms\Civil Exhibits\EXH-FIG_9-ULTIMATE_DRAINAGE_COND.dwg 7/26/05 11:42am jcarnell

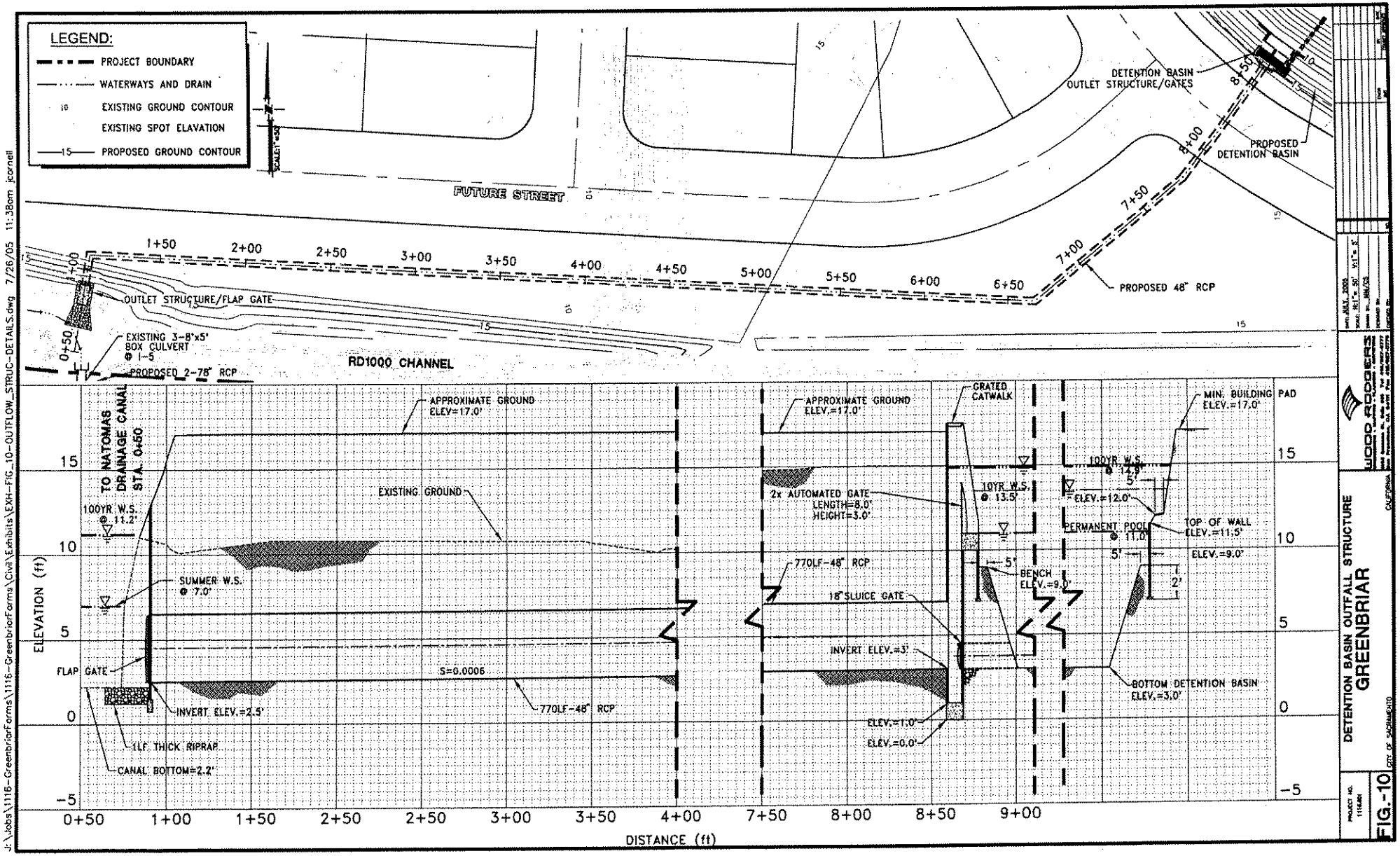

LEGEND:
PROJECT BOUNDARY
WATERWAYS AND DRAIN
EXISTING GROUND CONTOUR
EXISTING SPOT ELAVATION
PROPOSED GROUND CONTOUR
FUTURE STREET
DETENTION BASIN OUTLET STRUCTURE/GATES
PROPOSED DETENTION BASIN
PROPOSED 48" RCP
OUTLET STRUCTURE/FLAP GATE
EXISTING 3-8'x5' BOX CULVERT @ I-5
PROPOSED 2-78" RCP
RD1000 CHANNEL
TO NATOMAS DRAINAGE CANAL STA. 0+50
APPROXIMATE GROUND ELEV.=17.0'
EXISTING GROUND
100YR W.S. @ 11.2'
SUMMER W.S. @ 7.0'
FLAP GATE
S=0.0006
INVERT ELEV.=2.5'
770LF-48" RCP
1LF THICK RIPRAP
CANAL BOTTOM=2.2'
2x AUTOMATED GATE LENGTH=8.0' HEIGHT=5.0'
GRATED CATWALK
10YR W.S. @ 13.5'
18" SLUICE GATE
INVERT ELEV.=3'
BENCH ELEV.=9.0'
ELEV.=1.0'
ELEV.=0.0'
100YR W.S. @ 14.9'
ELEV.=12.0'
PERMANENT POOL @ 11.0'
MIN. BUILDING PAD ELEV.=17.0'
TOP OF WALL ELEV.=11.5'
ELEV.=9.0'
BOTTOM DETENTION BASIN ELEV.=3.0'
ELEVATION (ft)
DISTANCE (ft)
DETENTION BASIN OUTFALL STRUCTURE
GREENBRIAR
FIG.-10
WOOD RODGERS
CITY OF SACRAMENTO
J:\Jobs\1116-GreenbriarForms\Civil\Exhibits\EXH-FIG_10-OUTFLOW_STRUC-DETAILS.dwg 7/26/05 11:38am jcornell

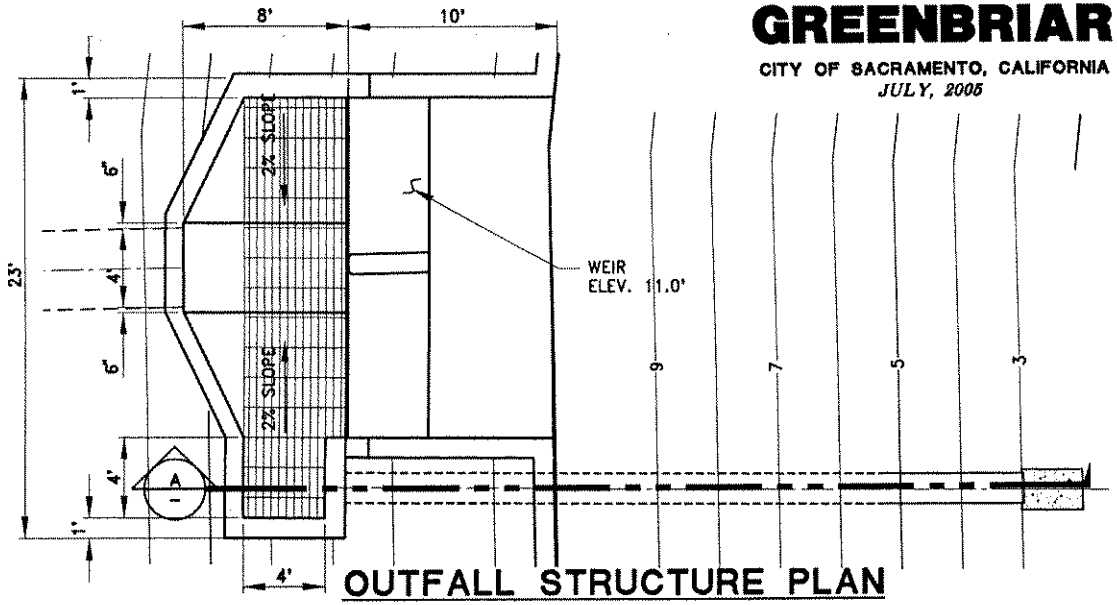
FIGURE 11

OUTFALL STRUCTURE

GREENBRIAR

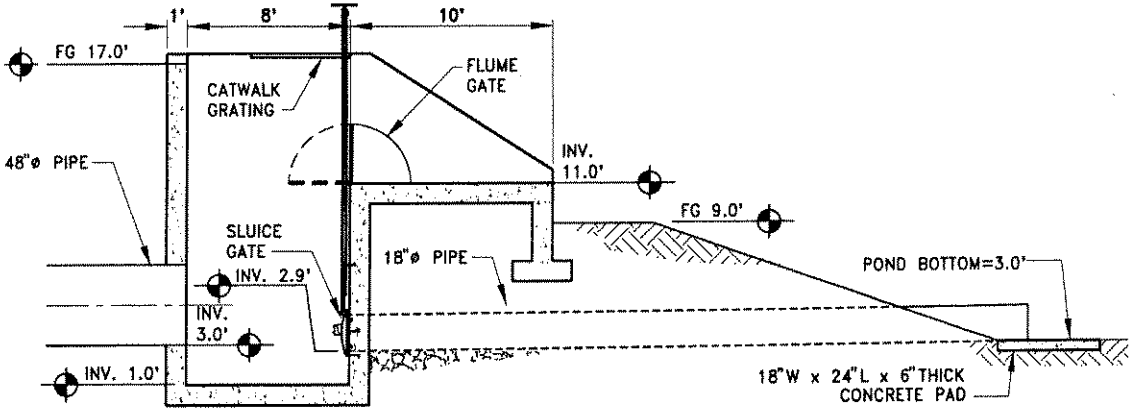
CITY OF SACRAMENTO, CALIFORNIA

JULY, 2005



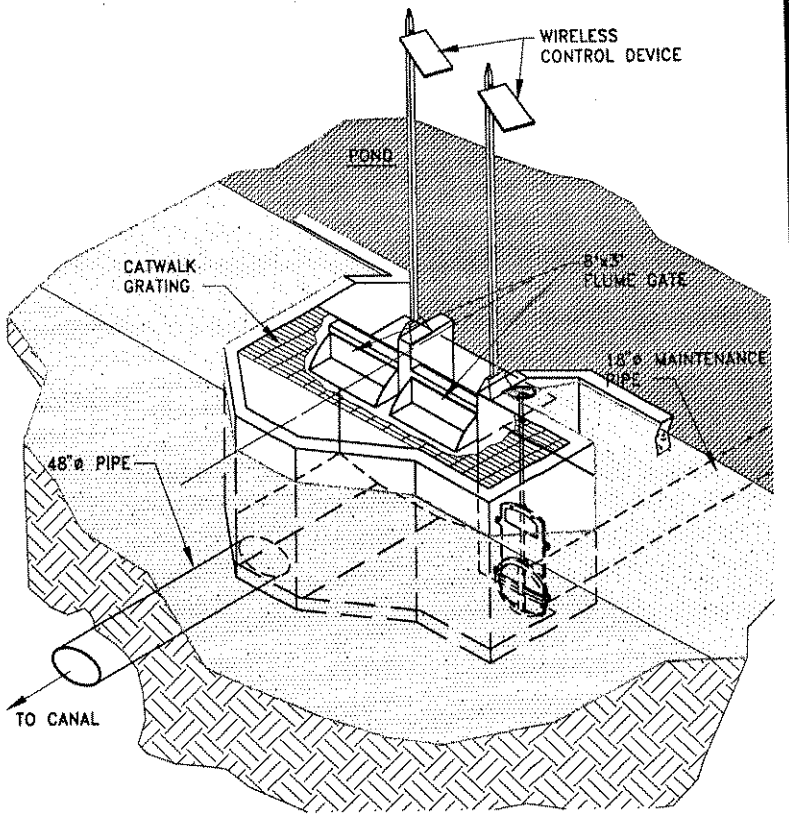
OUTFALL STRUCTURE PLAN

SCALE: 1" = 6'



OUTFALL STRUCTURE SECTION

SCALE: 1" = 6'



FLUME GATE ISOMETRIC

NOT TO SCALE

WOOD RODGERS

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San Francisco, CA 94111 Fax 415/627-0778

J:\Jobs\1116-GreenbriarFarms\Civil\Exhibits\EXH-FIG_11-FLUMEGATE-DETAILS.dwg 7/26/05 1:31pm jcornell

6. APPENDIX A –

Existing Conditions SacCalc Model

23

```
 INPUT  FILENAME ====>J:\Jobs\1116-GreenbriarFarms\1116-GreenbriarFarms\Civil\Docs\Report\SACCALC\Existing\sc.dat
 OUTPUT FILENAME ===>J:\Jobs\1116-GreenbriarFarms\1116-GreenbriarFarms\Civil\Docs\Report\SACCALC\Existing\sc.hecout
 DSS FILENAME ===>hcalc.dss
1*****************************************
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1L)  *
 *             JULY   1998               *
 *           VERSION 4.1(L)              *
 *                                       *
 *  RUN DATE   13JUL05  TIME  10:17:29   *
 *                                       *
 *****************************************

 ****************************************
 *                                      *
 *    U.S. ARMY CORPS OF ENGINEERS      *
 *    HYDROLOGIC ENGINEERING CENTER     *
 *          609 SECOND STREET           *
 *        DAVIS, CALIFORNIA 95616       *
 *             (916) 756-1104           *
 *                                      *
 ****************************************

     X     X  XXXXXXX   XXXXX          X   X
     X     X  X       X     X        XX   X
     X     X  X       X              X X   X
     XXXXXXX  XXXX    X       XXXXX  X X   X
     X     X  X       X              X X   X
     X     X  X       X     X        X X   X
     X     X  XXXXXXX   XXXXX        XXX  XXXX

 Special version of HEC-1 with Extra-large array
 Modified by David Ford Consulting Engineers (2000)
  Program dimensions:
  Number of hydrograph ordinates: 20000
  Unit hydrograph ordinates: 3000

   THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

   THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
   THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
   NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
   DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
   KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                          HEC-1L INPUT                                                    PAGE   1

     LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.......10

                    * SacCalc, developed by David Ford Consulting Engineers
                    * File generated 07/13/2005 10:17:28
                    *
       1            ID   10010 & 1010 &10024&1024
                    * Lag computation for station E1
                    *   Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
                    *   Basin "n" composition (based on Table 7-1)
                    *             Developed                    Undeveloped
                    *          n   adj n   fract            n   adj n   fract
                    *   ---------------------------------------------------
                    *       0.030  0.0300  0.0000        0.067  0.0670  0.0000
                    *       0.031  0.0310  0.0000        0.070  0.0700  0.0000
                    *       0.032  0.0320  0.0000        0.071  0.0710  0.0000
                    *       0.033  0.0330  0.0000        0.072  0.0720  0.0000
                    *       0.034  0.0340  0.0000        0.073  0.0730  0.0000
                    *       0.035  0.0350  0.0000        0.074  0.0740  0.0000
                    *       0.037  0.0370  0.0000        0.076  0.0760  0.0000
                    *       0.040  0.0400  0.0000        0.080  0.0800  0.0000
                    *       0.042  0.0420  0.0000        0.084  0.0840  0.0000
                    *       0.046  0.0460  0.0000        0.088  0.0880  0.0000
                    *       0.050  0.0500  0.0000        0.090  0.0900  0.0000
                    *       0.053  0.0530  0.0000        0.093  0.0930  0.0000
                    *       0.056  0.0560  0.0000        0.096  0.0960  0.0000
                    *       0.060  0.0600  0.0000        0.100  0.1000  0.0000
                    *       0.065  0.0650  0.0000        0.110  0.1100  0.0000
                    *       0.070  0.0700  0.5000        0.115  0.1150  0.5000
                    *       0.075  0.0750  0.0000        0.120  0.1200  0.0000
                    *       0.080  0.0800  0.0000        0.150  0.1500  0.0000
                    *   ---------------------------------------------------
                    *   Equation (7-1) with L=  1.1364, Lc=  0.5682, S=    6.864, n=0.0925
                    *   Resulting lag:   90.9 minutes
                    * Lag computation for station E2
                    *   Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
                    *   Basin "n" composition (based on Table 7-1)
                    *             Developed                    Undeveloped
                    *          n   adj n   fract            n   adj n   fract
                    *   ---------------------------------------------------
                    *       0.030  0.0300  0.0000        0.067  0.0670  0.0000
                    *       0.031  0.0310  0.0000        0.070  0.0700  0.0000
                    *       0.032  0.0320  0.0000        0.071  0.0710  0.0000
                    *       0.033  0.0330  0.0000        0.072  0.0720  0.0000
                    *       0.034  0.0340  0.0000        0.073  0.0730  0.0000
```

```
*      0.035  0.0350  0.0000        0.074  0.0740  0.0000
*      0.037  0.0370  0.0000        0.076  0.0760  0.0000
*      0.040  0.0400  0.0000        0.080  0.0800  0.0000
*      0.042  0.0420  0.0000        0.084  0.0840  0.0000
*      0.046  0.0460  0.0000        0.088  0.0880  0.0000
*      0.050  0.0500  0.0000        0.090  0.0900  0.0000
*      0.053  0.0530  0.0000        0.093  0.0930  0.0000
*      0.056  0.0560  0.0000        0.096  0.0960  0.0000
*      0.060  0.0600  0.0000        0.100  0.1000  0.0000
*      0.065  0.0650  0.0000        0.110  0.1100  0.0000
*      0.070  0.0700  0.5000        0.115  0.1150  0.5000
*      0.075  0.0750  0.0000        0.120  0.1200  0.0000
*      0.080  0.0800  0.0000        0.150  0.1500  0.0000
*    ---------------------------------------------------
*    Equation (7-1) with L=  0.7576, Lc=  0.3822, S=    4.224, n=0.0925
*    Resulting lag:   75.6 minutes
* Lag computation for station E4
*   Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
*   Basin "n" composition (based on Table 7-1)
*             Developed                    Undeveloped
*          n   adj n   fract            n   adj n   fract
*    ---------------------------------------------------
*      0.030  0.0300  0.0000        0.067  0.0670  0.0000
*      0.031  0.0310  0.0000        0.070  0.0700  0.0000
*      0.032  0.0320  0.0000        0.071  0.0710  0.0000
*      0.033  0.0330  0.0000        0.072  0.0720  0.0000
*      0.034  0.0340  0.0000        0.073  0.0730  0.0000
*      0.035  0.0350  0.0000        0.074  0.0740  0.0000
*      0.037  0.0370  0.0000        0.076  0.0760  0.0000
*      0.040  0.0400  0.0000        0.080  0.0800  0.0000
*      0.042  0.0420  0.0000        0.084  0.0840  0.0000
*      0.046  0.0460  0.0000        0.088  0.0880  0.0000
*      0.050  0.0500  0.0000        0.090  0.0900  0.0000
*      0.053  0.0530  0.0000        0.093  0.0930  0.0000
*      0.056  0.0560  0.0000        0.096  0.0960  0.0000
*      0.060  0.0600  0.0000        0.100  0.1000  0.0000
*      0.065  0.0650  0.0000        0.110  0.1100  0.0000
*      0.070  0.0700  0.5000        0.115  0.1150  0.5000
*      0.075  0.0750  0.0000        0.120  0.1200  0.0000
*      0.080  0.0800  0.0000        0.150  0.1500  0.0000
*    ---------------------------------------------------
*    Equation (7-1) with L=  2.3674, Lc=  1.1364, S=    2.640, n=0.0925
*    Resulting lag:  170.4 minutes
* Lag computation for station E5
*   Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
*   Basin "n" composition (based on Table 7-1)
*             Developed                    Undeveloped
*          n   adj n   fract            n   adj n   fract
*    ---------------------------------------------------
*      0.030  0.0300  0.0000        0.067  0.0670  0.0000
*      0.031  0.0310  0.0000        0.070  0.0700  0.0000
*      0.032  0.0320  0.0000        0.071  0.0710  0.0000
*      0.033  0.0330  0.0000        0.072  0.0720  0.0000
*      0.034  0.0340  0.0000        0.073  0.0730  0.0000
*      0.035  0.0350  0.0000        0.074  0.0740  0.0000
*      0.037  0.0370  0.0000        0.076  0.0760  0.0000
*      0.040  0.0400  0.0000        0.080  0.0800  0.0000
*      0.042  0.0420  0.0000        0.084  0.0840  0.0000
*      0.046  0.0460  0.0000        0.088  0.0880  0.0000
*      0.050  0.0500  0.0000        0.090  0.0900  0.0000
*      0.053  0.0530  0.0000        0.093  0.0930  0.0000
*      0.056  0.0560  0.0000        0.096  0.0960  0.0000
*      0.060  0.0600  0.0000        0.100  0.1000  0.0000
*      0.065  0.0650  0.0000        0.110  0.1100  0.0000
*      0.070  0.0700  0.5000        0.115  0.1150  0.5000
*      0.075  0.0750  0.0000        0.120  0.1200  0.0000
*      0.080  0.0800  0.0000        0.150  0.1500  0.0000
*    ---------------------------------------------------
*    Equation (7-1) with L=  0.9470, Lc=  0.3788, S=    5.280, n=0.0925
*    Resulting lag:   78.2 minutes
* End of lag computations
*
*   NMIN  JXDATE  JXTIME      NQ
1                              HEC-1L INPUT                                    PAGE  2

LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

   2          IT       1 31DEC99    2400   15592
              *   IPRT    IPLT
   3          IO       3       0
              *

   4          KK  E2
              *  JXMIN    Time interval for input data
   5          IN      60
   6          KM
              *
              * Design storm construction details
              *
              * Regional multiplier (zone 2) applied:  1.000
              * Areal adjustment using area:  2.959
              *   multiplier from table 4-4: 0.9808
              *
              * Adjusted depths for each duration from table 4-1: frequency:  10
              * Duration----Regional------Elev-----Areal (adjustments)
```

```
                * 5 min          0.2500    0.2500    0.2452
                * 10 min         0.3600    0.3600    0.3531
                * 15 min         0.4300    0.4300    0.4217
                * 30 min         0.5700    0.5700    0.5591
                * 1 hour         0.7700    0.7700    0.7552
                * 2 hours        1.0400    1.0400    1.0196
                * 3 hours        1.2300    1.2300    1.2177
                * 6 hours        1.6500    1.6500    1.6335
                * 12 hours       2.2500    2.2500    2.2284
                * 24 hours       2.9800    2.9800    2.9800
                * 36 hours       3.5400    3.5400    3.5046
                * 2 days          3.9500    3.9500    3.9500
                * 3 days          4.6500    4.6500    4.6500
                * 5 days          5.7600    5.7600    5.7024
                * 10 days         7.5400    7.5400    7.4646
                * Storm duration:  10, length:  240 ordinates
                * Distrubution using table 4-8 of total rainfall:  7.4646
  7             PB        0
  8             PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
  9             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 10             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 11             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
 12             PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
 13             PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 14             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 15             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 16             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 17             PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
 18             PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
 19             PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
 20             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
 21             PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
 22             PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
 23             PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
 24             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 25             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 26             PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
1                                      HEC-1L INPUT                                          PAGE  3

LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 27             PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
 28             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 29             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 30             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
 31             PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
                *
                * Precipitation losses computation (Chapter 5)
                *   Computing RTIMP (percent impervious) from land use and table 5-2
                *   Computing CNSTL (infiltration rate) from soil type and table 5-2
                *  TAREA    subbasin area (sq mi)
 32             BA  0.2703
                *  STRTL    CNSTL    RTIMP
 33             LU    0.20    0.070    2.000
                *
                * Runoff hydrograph computation (Chapter 6)
                *   Using basin lag:  75.6 minutes
                *   Using unit duration (Step 2): 1. min
                *   Lag Time + Unit Duration / 2 (Step 3): 76.07659
                *   Volume of runoff (Step 4) V=    7.268403
 34             UI    0.96    1.93    2.89    3.94    5.33    6.71    8.10    9.51   10.96   12.40
 35             UI   13.85   15.38   16.96   18.54   20.12   21.40   22.59   23.78   24.97   27.12
 36             UI   29.29   31.46   33.55   35.29   37.02   38.75   40.64   42.80   44.95   47.11
 37             UI   49.32   51.56   53.81   56.05   58.48   60.97   63.46   65.94   68.46   70.97
 38             UI   73.49   76.08   79.08   82.08   85.08   88.16   91.39   94.61   97.84  100.90
 39             UI  103.84  106.78  109.72  110.99  111.70  112.41  113.12  113.53  113.92  114.31
 40             UI  114.59  114.20  113.81  113.42  112.92  112.21  111.50  110.80  109.22  106.89
 41             UI  104.55  102.22   99.83   97.41   95.00   92.59   90.15   87.71   85.27   82.86
 42             UI   80.72   78.58   76.44   74.56   73.22   71.87   70.53   69.20   67.87   66.55
 43             UI   65.22   63.72   62.16   60.59   59.02   58.00   57.04   56.07   55.10   54.09
 44             UI   53.08   52.07   51.05   50.01   48.97   47.93   47.02   46.24   45.45   44.67
 45             UI   43.88   43.08   42.28   41.48   40.76   40.05   39.34   38.64   37.91   37.19
 46             UI   36.47   35.80   35.31   34.81   34.31   33.77   33.18   32.60   32.01   31.50
 47             UI   31.03   30.57   30.10   29.62   29.14   28.66   28.18   27.74   27.30   26.87
 48             UI   26.45   26.09   25.72   25.36   25.02   24.71   24.39   24.07   23.72   23.34
 49             UI   22.96   22.59   22.27   21.97   21.67   21.37   21.10   20.83   20.56   20.29
 50             UI   20.01   19.74   19.47   19.23   19.04   18.84   18.65   18.38   18.08   17.78
 51             UI   17.48   17.29   17.12   16.96   16.79   16.52   16.25   15.98   15.74   15.62
 52             UI   15.50   15.38   15.22   15.01   14.80   14.58   14.45   14.36   14.27   14.18
 53             UI   14.04   13.89   13.74   13.59   13.48   13.37   13.27   13.16   13.02   12.89
 54             UI   12.75   12.61   12.48   12.34   12.21   12.08   11.96   11.84   11.72   11.62
 55             UI   11.53   11.44   11.35   11.23   11.11   10.99   10.87   10.77   10.66   10.56
 56             UI   10.46   10.39   10.31   10.24   10.14   10.04    9.93    9.83    9.72    9.62
 57             UI    9.51    9.40    9.34    9.28    9.22    9.15    9.05    8.94    8.84    8.75
 58             UI    8.69    8.63    8.57    8.48    8.38    8.27    8.17    8.11    8.06    8.02
 59             UI    7.97    7.87    7.76    7.66    7.56    7.50    7.44    7.38    7.31    7.24
 60             UI    7.16    7.09    7.03    7.00    6.97    6.94    6.87    6.78    6.69    6.60
 61             UI    6.54    6.48    6.42    6.36    6.30    6.23    6.17    6.11    6.05    5.99
 62             UI    5.93    5.88    5.84    5.79    5.75    5.70    5.65    5.61    5.56    5.51
 63             UI    5.45    5.39    5.33    5.28    5.24    5.19    5.15    5.10    5.06    5.01
 64             UI    4.96    4.92    4.87    4.83    4.78    4.74    4.69    4.65    4.60    4.56
 65             UI    4.51    4.47    4.42    4.38    4.33    4.29    4.26    4.23    4.20    4.16
 66             UI    4.10    4.04    3.98    3.94    3.90    3.87    3.84    3.80    3.76    3.71
 67             UI    3.67    3.64    3.61    3.58    3.55    3.52    3.49    3.46    3.43    3.40
 68             UI    3.37    3.34    3.31    3.27    3.24    3.21    3.18    3.15    3.12    3.09
```

```
 69          UI    3.06    3.03    3.00    2.97    2.94    2.91    2.88    2.86    2.84    2.83
1                                          HEC-1L INPUT                                          PAGE  4

LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 70          UI    2.81    2.80    2.78    2.77    2.75    2.73    2.70    2.67    2.64    2.62
 71          UI    2.61    2.59    2.57    2.54    2.51    2.48    2.45    2.42    2.39    2.36
 72          UI    2.34    2.33    2.31    2.30    2.28    2.27    2.25    2.24    2.21    2.18
 73          UI    2.14    2.12    2.10    2.09    2.07    2.05    2.02    1.99    1.96    1.94
 74          UI    1.92    1.91    1.89    1.88    1.86    1.85    1.83    1.82    1.80    1.79
 75          UI    1.77    1.76    1.74    1.73    1.71    1.70    1.68    1.67    1.65    1.64
 76          UI    1.62    1.61    1.59    1.58    1.56    1.55    1.53    1.52    1.50    1.49
 77          UI    1.47    1.46    1.44    1.43    1.41    1.40    1.38    1.38    1.38    1.38
 78          UI    1.38    1.36    1.35    1.33    1.32    1.30    1.29    1.27    1.26    1.24
 79          UI    1.23    1.21    1.20    1.20    1.20    1.20
 80          ZW   C=FLOW F=010YR-10DY A=GREENBRI
             *

 81          KK  E1
             *  JXMIN    Time interval for input data
 82          IN      60
 83          KM
             *
             * Design storm construction details
             *
             * Regional multiplier (zone 2) applied:  1.000
             * Areal adjustment using area:  2.959
             *   multiplier from table 4-4: 0.9808
             *
             * Adjusted depths for each duration from table 4-1: frequency:  10
             * Duration----Regional------Elev-----Areal (adjustments)
             * 5 min          0.2500    0.2500    0.2452
             * 10 min         0.3600    0.3600    0.3531
             * 15 min         0.4300    0.4300    0.4217
             * 30 min         0.5700    0.5700    0.5591
             * 1 hour         0.7700    0.7700    0.7552
             * 2 hours        1.0400    1.0400    1.0196
             * 3 hours        1.2300    1.2300    1.2177
             * 6 hours        1.6500    1.6500    1.6335
             * 12 hours       2.2500    2.2500    2.2284
             * 24 hours       2.9800    2.9800    2.9800
             * 36 hours       3.5400    3.5400    3.5046
             * 2 days         3.9500    3.9500    3.9500
             * 3 days         4.6500    4.6500    4.6500
             * 5 days         5.7600    5.7600    5.7024
             * 10 days        7.5400    7.5400    7.4646
             * Storm duration:  10, length:  240 ordinates
             * Distrubution using table 4-8 of total rainfall:  7.4646
 84          PB       0
 85          PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
 86          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 87          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 88          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
 89          PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
 90          PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 91          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 92          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 93          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 94          PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
 95          PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
1                                          HEC-1L INPUT                                          PAGE  5

LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 96          PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
 97          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
 98          PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
 99          PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
100          PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
101          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
102          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
103          PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
104          PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
105          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
106          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
107          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
108          PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
             *
             * Precipitation losses computation (Chapter 5)
             *   Computing RTIMP (percent impervious) from land use and table 5-2
             *   Computing CNSTL (infiltration rate) from soil type and table 5-2
             *  TAREA    subbasin area (sq mi)
109          BA  0.7000
             *  STRTL    CNSTL    RTIMP
110          LU    0.20    0.070    2.000
             *
             * Runoff hydrograph computation (Chapter 6)
             *   Using basin lag:  90.9 minutes
             *   Using unit duration (Step 2): 1. min
             *   Lag Time + Unit Duration / 2 (Step 3): 91.39346
             *   Volume of runoff (Step 4) V=   18.822222
111          UI    1.73    3.46    5.19    6.92    8.98   11.47   13.95   16.44   18.93   21.51
112          UI   24.11   26.70   29.30   31.97   34.80   37.64   40.48   43.32   45.65   47.79
113          UI   49.93   52.06   54.47   58.36   62.25   66.15   70.04   73.48   76.59   79.70
114          UI   82.81   85.93   89.79   93.66   97.53  101.39  105.33  109.36  113.39  117.42
```

```
115        UI  121.45  125.86  130.32  134.78  139.24  143.72  148.24  152.75  157.27  161.78
116        UI  166.93  172.32  177.70  183.08  188.53  194.31  200.10  205.89  211.67  217.15
117        UI  222.43  227.70  232.97  238.15  239.42  240.69  241.96  243.23  244.24  244.95
118        UI  245.65  246.35  247.06  246.51  245.81  245.11  244.40  243.52  242.25  240.98
119        UI  239.71  238.44  234.99  230.80  226.61  222.42  218.20  213.87  209.55  205.22
120        UI  200.89  196.54  192.15  187.77  183.39  179.03  175.19  171.35  167.51  163.67
121        UI  160.50  158.10  155.69  153.28  150.88  148.49  146.11  143.73  141.36  138.83
122        UI  136.02  133.21  130.40  127.58  125.59  123.86  122.13  120.40  118.65  116.84
123        UI  115.03  113.22  111.41  109.56  107.70  105.83  103.97  102.12  100.72   99.31
124        UI   97.90   96.50   95.08   93.65   92.21   90.78   89.35   88.06   86.79   85.52
125        UI   84.25   82.97   81.67   80.37   79.07   77.78   76.79   75.90   75.01   74.11
126        UI   73.19   72.13   71.08   70.02   68.97   68.05   67.21   66.37   65.54   64.70
127        UI   63.83   62.97   62.10   61.24   60.41   59.63   58.84   58.06   57.27   56.61
128        UI   55.96   55.32   54.67   54.05   53.48   52.91   52.34   51.77   51.12   50.45
129        UI   49.77   49.09   48.45   47.91   47.37   46.82   46.28   45.78   45.29   44.80
130        UI   44.32   43.83   43.34   42.86   42.37   41.88   41.47   41.11   40.76   40.41
131        UI   40.06   39.53   38.99   38.45   37.91   37.46   37.16   36.86   36.56   36.27
132        UI   35.82   35.33   34.85   34.36   33.93   33.72   33.50   33.28   33.07   32.74
133        UI   32.37   31.99   31.61   31.25   31.09   30.92   30.76   30.60   30.38   30.11
134        UI   29.84   29.57   29.30   29.11   28.92   28.73   28.54   28.33   28.09   27.84
135        UI   27.60   27.36   27.11   26.87   26.63   26.38   26.15   25.93   25.71   25.50
136        UI   25.28   25.10   24.94   24.78   24.61   24.45   24.23   24.01   23.80   23.58
137        UI   23.38   23.19   23.00   22.81   22.62   22.48   22.35   22.21   22.08   21.92
138        UI   21.73   21.54   21.35   21.16   20.98   20.79   20.60   20.41   20.24   20.13
1                                        HEC-1L INPUT                                  PAGE  6

LINE       ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

139        UI   20.02   19.91   19.81   19.64   19.45   19.26   19.07   18.89   18.79   18.68
140        UI   18.57   18.46   18.31   18.12   17.93   17.74   17.55   17.47   17.39   17.31
141        UI   17.22   17.10   16.91   16.72   16.53   16.34   16.22   16.11   16.00   15.90
142        UI   15.78   15.65   15.51   15.38   15.24   15.16   15.11   15.05   15.00   14.93
143        UI   14.77   14.61   14.45   14.28   14.15   14.04   13.93   13.83   13.72   13.61
144        UI   13.50   13.39   13.29   13.18   13.07   12.96   12.85   12.74   12.66   12.58
145        UI   12.50   12.42   12.33   12.25   12.17   12.09   12.01   11.91   11.80   11.69
146        UI   11.59   11.48   11.40   11.32   11.24   11.16   11.08   10.99   10.91   10.83
147        UI   10.75   10.67   10.59   10.51   10.43   10.35   10.26   10.18   10.10   10.02
148        UI    9.94    9.86    9.78    9.70    9.62    9.53    9.45    9.37    9.29    9.23
149        UI    9.17    9.12    9.07    9.00    8.90    8.79    8.68    8.57    8.49    8.44
150        UI    8.39    8.33    8.28    8.20    8.12    8.04    7.95    7.88    7.83    7.78
151        UI    7.72    7.67    7.61    7.56    7.51    7.45    7.40    7.34    7.29    7.24
152        UI    7.18    7.13    7.07    7.02    6.97    6.91    6.86    6.80    6.75    6.69
153        UI    6.64    6.59    6.53    6.48    6.42    6.37    6.32    6.26    6.21    6.17
154        UI    6.14    6.11    6.09    6.06    6.03    6.00    5.98    5.95    5.91    5.86
155        UI    5.81    5.75    5.70    5.66    5.64    5.61    5.58    5.55    5.50    5.44
156        UI    5.39    5.33    5.28    5.23    5.17    5.12    5.07    5.04    5.01    4.98
157        UI    4.96    4.93    4.90    4.88    4.85    4.82    4.77    4.72    4.66    4.61
158        UI    4.56    4.54    4.51    4.48    4.46    4.41    4.35    4.30    4.25    4.20
159        UI    4.17    4.14    4.12    4.09    4.06    4.03    4.01    3.98    3.95    3.93
160        UI    3.90    3.87    3.84    3.82    3.79    3.76    3.74    3.71    3.68    3.66
161        UI    3.63    3.60    3.57    3.55    3.52    3.49    3.47    3.44    3.41    3.39
162        UI    3.36    3.33    3.30    3.28    3.25    3.22    3.20    3.17    3.14    3.11
163        UI    3.09    3.06    3.03    3.01    2.98    2.97    2.97    2.97    2.97    2.97
164        UI    2.94    2.91    2.89    2.86    2.83    2.81    2.78    2.75    2.72    2.70
165        UI    2.67    2.64    2.62    2.59    2.59    2.59    2.59    2.59
166        ZW   C=FLOW F=010YR-10DY A=GREENBRI
           *

167        KK  E4
           *  JXMIN    Time interval for input data
168        IN      60
169        KM   Part of future Metro Air Park
           *
           * Design storm construction details
           *
           * Regional multiplier (zone 2) applied:  1.000
           * Areal adjustment using area:  2.959
           *   multiplier from table 4-4: 0.9808
           *
           * Adjusted depths for each duration from table 4-1: frequency:  10
           * Duration----Regional------Elev-----Areal (adjustments)
           * 5 min          0.2500     0.2500     0.2452
           * 10 min         0.3600     0.3600     0.3531
           * 15 min         0.4300     0.4300     0.4217
           * 30 min         0.5700     0.5700     0.5591
           * 1 hour         0.7700     0.7700     0.7552
           * 2 hours        1.0400     1.0400     1.0196
           * 3 hours        1.2300     1.2300     1.2177
           * 6 hours        1.6500     1.6500     1.6335
           * 12 hours       2.2500     2.2500     2.2284
           * 24 hours       2.9800     2.9800     2.9800
           * 36 hours       3.5400     3.5400     3.5046
           * 2 days         3.9500     3.9500     3.9500
           * 3 days         4.6500     4.6500     4.6500
           * 5 days         5.7600     5.7600     5.7024
           * 10 days        7.5400     7.5400     7.4646
           * Storm duration:  10, length:  240 ordinates
           * Distrubution using table 4-8 of total rainfall:  7.4646
1                                        HEC-1L INPUT                                  PAGE  7

LINE       ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

170        PB       0
171        PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
172        PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
```

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173          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
174          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
175          PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
176          PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
177          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
178          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
179          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
180          PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
181          PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
182          PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
183          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
184          PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
185          PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
186          PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
187          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
188          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
189          PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
190          PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
191          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
192          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
193          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
194          PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
             *
             * Precipitation losses computation (Chapter 5)
             *   Computing RTIMP (percent impervious) from land use and table 5-2
             *   Computing CNSTL (infiltration rate) from soil type and table 5-2
             *  TAREA   subbasin area (sq mi)
195          BA  1.1484
             *  STRTL   CNSTL   RTIMP
196          LU    0.20   0.070   2.000
             *
             * Runoff hydrograph computation (Chapter 6)
             *   Using basin lag: 170.4 minutes
             *   Using unit duration (Step 2): 1. min
             *   Lag Time + Unit Duration / 2 (Step 3):170.92508
             *   Volume of runoff (Step 4) V=   30.880209
197          UI    0.81    1.62    2.44    3.25    4.06    4.87    5.68    6.49    7.47    8.63
198          UI    9.80   10.97   12.13   13.30   14.47   15.64   16.80   18.02   19.23   20.45
199          UI   21.67   22.89   24.10   25.32   26.54   27.80   29.13   30.46   31.79   33.12
200          UI   34.46   35.79   37.12   38.45   39.52   40.52   41.52   42.52   43.52   44.53
201          UI   45.53   46.53   47.75   49.58   51.41   53.23   55.06   56.89   58.71   60.54
202          UI   62.36   63.93   65.38   66.84   68.30   69.76   71.22   72.68   74.14   75.66
203          UI   77.47   79.28   81.10   82.91   84.73   86.54   88.35   90.17   92.03   93.92
204          UI   95.81   97.70   99.59  101.48  103.37  105.26  107.17  109.26  111.35  113.44
205          UI  115.54  117.63  119.72  121.81  123.91  126.01  128.13  130.25  132.37  134.49
206          UI  136.61  138.72  140.84  142.96  145.48  148.00  150.53  153.05  155.58  158.10
207          UI  160.62  163.15  165.76  168.47  171.19  173.90  176.61  179.33  182.04  184.76
208          UI  187.47  189.97  192.44  194.92  197.39  199.86  202.34  204.81  207.28  209.10
209          UI  209.69  210.29  210.88  211.48  212.08  212.67  213.27  213.86  214.25  214.58
210          UI  214.91  215.24  215.56  215.89  216.22  216.55  216.71  216.38  216.05  215.72
211          UI  215.39  215.06  214.73  214.40  214.07  213.55  212.96  212.36  211.77  211.17
212          UI  210.57  209.98  209.38  208.56  206.59  204.62  202.66  200.69  198.73  196.76
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HEC-1L INPUT

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LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
213          UI  194.79  192.83  190.82  188.79  186.76  184.73  182.70  180.68  178.65  176.62
214          UI  174.59  172.53  170.48  168.42  166.37  164.31  162.26  160.20  158.15  156.23
215          UI  154.43  152.62  150.82  149.02  147.22  145.42  143.62  141.82  140.68  139.55
216          UI  138.42  137.29  136.16  135.03  133.90  132.78  131.65  130.54  129.42  128.30
217          UI  127.19  126.07  124.95  123.84  122.72  121.43  120.11  118.79  117.47  116.15
218          UI  114.83  113.51  112.19  111.05  110.24  109.42  108.61  107.80  106.99  106.18
219          UI  105.36  104.55  103.71  102.86  102.01  101.16  100.31   99.46   98.61   97.76
220          UI   96.91   96.03   95.16   94.28   93.41   92.53   91.65   90.78   89.90   89.18
221          UI   88.52   87.86   87.20   86.54   85.88   85.22   84.56   83.90   83.23   82.56
222          UI   81.89   81.21   80.54   79.87   79.20   78.52   77.90   77.30   76.71   76.11
223          UI   75.51   74.92   74.32   73.73   73.13   72.52   71.91   71.30   70.69   70.09
224          UI   69.48   68.87   68.26   67.75   67.33   66.91   66.49   66.07   65.66   65.24
225          UI   64.82   64.40   63.91   63.41   62.92   62.42   61.93   61.43   60.94   60.44
226          UI   59.99   59.60   59.21   58.81   58.42   58.03   57.63   57.24   56.85   56.44
227          UI   56.04   55.63   55.23   54.82   54.41   54.01   53.60   53.21   52.84   52.47
228          UI   52.11   51.74   51.37   51.00   50.63   50.27   49.95   49.64   49.34   49.04
229          UI   48.73   48.43   48.12   47.82   47.52   47.26   46.99   46.72   46.46   46.19
230          UI   45.92   45.66   45.39   45.09   44.77   44.46   44.14   43.82   43.50   43.19
231          UI   42.87   42.56   42.31   42.06   41.80   41.55   41.29   41.04   40.79   40.53
232          UI   40.30   40.07   39.84   39.61   39.38   39.15   38.93   38.70   38.47   38.24
233          UI   38.01   37.78   37.56   37.33   37.10   36.87   36.64   36.45   36.28   36.12
234          UI   35.95   35.79   35.62   35.46   35.29   35.13   34.88   34.62   34.37   34.12
235          UI   33.86   33.61   33.35   33.10   32.89   32.76   32.62   32.48   32.34   32.20
236          UI   32.06   31.92   31.78   31.56   31.33   31.11   30.88   30.65   30.42   30.19
237          UI   29.96   29.78   29.68   29.57   29.47   29.37   29.27   29.17   29.07   28.96
238          UI   28.80   28.63   28.45   28.27   28.09   27.92   27.74   27.56   27.41   27.33
239          UI   27.25   27.18   27.10   27.03   26.95   26.87   26.80   26.69   26.56   26.43
240          UI   26.31   26.18   26.05   25.93   25.80   25.68   25.59   25.50   25.41   25.32
241          UI   25.23   25.15   25.06   24.97   24.86   24.75   24.64   24.52   24.41   24.29
242          UI   24.18   24.06   23.95   23.84   23.72   23.61   23.49   23.38   23.27   23.15
243          UI   23.04   22.93   22.83   22.73   22.63   22.52   22.42   22.32   22.22   22.12
244          UI   22.04   21.96   21.89   21.81   21.74   21.66   21.58   21.51   21.42   21.32
245          UI   21.22   21.12   21.02   20.91   20.81   20.71   20.61   20.52   20.43   20.34
246          UI   20.25   20.16   20.08   19.99   19.90   19.82   19.75   19.69   19.63   19.56
247          UI   19.50   19.44   19.37   19.31   19.23   19.14   19.05   18.96   18.87   18.78
248          UI   18.69   18.61   18.52   18.43   18.34   18.25   18.16   18.07   17.98   17.89
249          UI   17.81   17.74   17.69   17.64   17.59   17.54   17.49   17.44   17.39   17.33
250          UI   17.24   17.15   17.07   16.98   16.89   16.80   16.71   16.62   16.56   16.50
251          UI   16.45   16.40   16.35   16.30   16.25   16.20   16.15   16.06   15.97   15.88
```

```
252          UI   15.79   15.70   15.62   15.53   15.44   15.37   15.34   15.30   15.26   15.22
253          UI   15.18   15.15   15.11   15.07   14.98   14.89   14.81   14.72   14.63   14.54
254          UI   14.45   14.36   14.29   14.24   14.19   14.14   14.09   14.03   13.98   13.93
255          UI   13.88   13.82   13.76   13.69   13.63   13.57   13.50   13.44   13.38   13.33
256          UI   13.30   13.27   13.25   13.22   13.20   13.17   13.15   13.12   13.06   12.98
257          UI   12.91   12.83   12.75   12.68   12.60   12.53   12.45   12.40   12.35   12.30
258          UI   12.25   12.20   12.15   12.10   12.05   12.00   11.95   11.90   11.85   11.80
259          UI   11.74   11.69   11.64   11.59   11.54   11.49   11.44   11.39   11.34   11.29
260          UI   11.24   11.19   11.14   11.11   11.07   11.03   10.99   10.95   10.91   10.88
261          UI   10.84   10.80   10.76   10.72   10.69   10.65   10.61   10.57   10.53   10.49
262          UI   10.44   10.39   10.34   10.29   10.24   10.19   10.13   10.08   10.05   10.01
263          UI    9.97    9.93    9.89    9.86    9.82    9.78    9.74    9.70    9.66    9.63
264          UI    9.59    9.55    9.51    9.47    9.44    9.40    9.36    9.32    9.28    9.25
265          UI    9.21    9.17    9.13    9.09    9.06    9.02    8.98    8.94    8.90    8.87
266          UI    8.83    8.79    8.75    8.71    8.68    8.64    8.60    8.56    8.52    8.49
267          UI    8.45    8.41    8.37    8.33    8.30    8.26    8.22    8.18    8.14    8.11
1                                          HEC-1L INPUT                                  PAGE  9

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

268          UI    8.09    8.06    8.04    8.01    7.99    7.96    7.94    7.91    7.86    7.81
269          UI    7.76    7.70    7.65    7.60    7.55    7.50    7.47    7.44    7.41    7.39
270          UI    7.36    7.34    7.31    7.29    7.26    7.22    7.19    7.15    7.11    7.07
271          UI    7.03    7.00    6.96    6.93    6.90    6.87    6.85    6.82    6.80    6.77
272          UI    6.75    6.72    6.70    6.67    6.65    6.62    6.60    6.57    6.54    6.52
273          UI    6.49    6.47    6.44    6.42    6.39    6.37    6.34    6.32    6.29    6.27
274          UI    6.24    6.22    6.19    6.16    6.14    6.11    6.09    6.06    6.04    6.01
275          UI    5.99    5.96    5.94    5.91    5.89    5.86    5.83    5.81    5.78    5.76
276          UI    5.73    5.71    5.68    5.66    5.63    5.61    5.58    5.56    5.53    5.50
277          UI    5.48    5.45    5.43    5.41    5.40    5.39    5.37    5.36    5.35    5.34
278          UI    5.32    5.31    5.30    5.28    5.27    5.26    5.25    5.23    5.22    5.21
279          UI    5.19    5.16    5.14    5.11    5.09    5.06    5.04    5.01    4.99    4.97
280          UI    4.96    4.95    4.94    4.92    4.91    4.90    4.88    4.87    4.84    4.82
281          UI    4.79    4.76    4.74    4.71    4.69    4.66    4.64    4.61    4.59    4.56
282          UI    4.54    4.51    4.49    4.46    4.44    4.43    4.41    4.40    4.39    4.38
283          UI    4.36    4.35    4.34    4.33    4.31    4.30    4.29    4.27    4.26    4.25
284          UI    4.24    4.22    4.20    4.17    4.14    4.12    4.09    4.07    4.04    4.02
285          UI    4.00    3.99    3.98    3.96    3.95    3.94    3.93    3.91    3.90    3.87
286          UI    3.85    3.82    3.80    3.77    3.75    3.72    3.69    3.68    3.66    3.65
287          UI    3.64    3.63    3.61    3.60    3.59    3.58    3.56    3.55    3.54    3.53
288          UI    3.51    3.50    3.49    3.47    3.46    3.45    3.44    3.42    3.41    3.40
289          UI    3.39    3.37    3.36    3.35    3.33    3.32    3.31    3.30    3.28    3.27
290          UI    3.26    3.25    3.23    3.22    3.21    3.20    3.18    3.17    3.16    3.14
291          UI    3.13    3.12    3.11    3.09    3.08    3.07    3.06    3.04    3.03    3.02
292          UI    3.01    2.99    2.98    2.97    2.95    2.94    2.93    2.92    2.90    2.89
293          UI    2.88    2.87    2.85    2.84    2.83    2.81    2.80    2.79    2.78    2.76
294          UI    2.75    2.74    2.73    2.71    2.70    2.69    2.68    2.66    2.65    2.64
295          UI    2.62    2.61    2.60    2.60    2.60    2.60    2.60    2.60    2.60    2.60
296          UI    2.60    2.59    2.58    2.57    2.56    2.54    2.53    2.52    2.50    2.49
297          UI    2.48    2.47    2.45    2.44    2.43    2.42    2.40    2.39    2.38    2.37
298          UI    2.35    2.34    2.33    2.31    2.30    2.29    2.28    2.28    2.28    2.28
299          UI    2.28    2.28    2.28    2.28    2.28
300          ZW    C=FLOW F=010YR-10DY A=GREENBRI
             *

301          KK  E5
             *  JXMIN    Time interval for input data
302          IN      60
303          KM   E5
             *
             * Design storm construction details
             *
             * Regional multiplier (zone 2) applied:  1.000
             * Areal adjustment using area:  2.959
             *   multiplier from table 4-4: 0.9808
             *
             * Adjusted depths for each duration from table 4-1: frequency:  10
             * Duration----Regional------Elev-----Areal (adjustments)
             * 5 min          0.2500     0.2500     0.2452
             * 10 min         0.3600     0.3600     0.3531
             * 15 min         0.4300     0.4300     0.4217
             * 30 min         0.5700     0.5700     0.5591
             * 1 hour         0.7700     0.7700     0.7552
             * 2 hours        1.0400     1.0400     1.0196
             * 3 hours        1.2300     1.2300     1.2177
             * 6 hours        1.6500     1.6500     1.6335
             * 12 hours       2.2500     2.2500     2.2284
             * 24 hours       2.9800     2.9800     2.9800
             * 36 hours       3.5400     3.5400     3.5046
             * 2 days         3.9500     3.9500     3.9500
             * 3 days         4.6500     4.6500     4.6500
             * 5 days         5.7600     5.7600     5.7024
             * 10 days        7.5400     7.5400     7.4646
             * Storm duration:  10, length:  240 ordinates
             * Distrubution using table 4-8 of total rainfall:  7.4646
1                                          HEC-1L INPUT                                  PAGE 10

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

304          PB       0
305          PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
306          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
307          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
308          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
309          PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
```

```
310          PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
311          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
312          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
313          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
314          PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
315          PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
316          PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
317          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
318          PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
319          PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
320          PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
321          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
322          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
323          PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
324          PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
325          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
326          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
327          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
328          PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
             *
             * Precipitation losses computation (Chapter 5)
             *   Computing RTIMP (percent impervious) from land use and table 5-2
             *   Computing CNSTL (infiltration rate) from soil type and table 5-2
             *  TAREA   subbasin area (sq mi)
329          BA  0.8406
             *  STRTL   CNSTL   RTIMP
330          LU    0.20   0.070   2.000
             *
             * Runoff hydrograph computation (Chapter 6)
             *   Using basin lag:  78.2 minutes
             *   Using unit duration (Step 2): 1. min
             *   Lag Time + Unit Duration / 2 (Step 3): 78.67958
             *   Volume of runoff (Step 4) V=   22.603472
331          UI    2.80    5.61    8.41   11.30   15.33   19.36   23.39   27.45   31.65   35.86
332          UI   40.06   44.35   48.95   53.55   58.15   62.45   65.91   69.37   72.83   77.24
333          UI   83.55   89.86   96.17  101.97  107.01  112.05  117.09  122.69  128.96  135.22
334          UI  141.49  147.90  154.42  160.95  167.48  174.43  181.66  188.89  196.11  203.40
335          UI  210.72  218.04  225.35  233.69  242.41  251.13  259.85  269.09  278.46  287.84
336          UI  297.22  305.88  314.42  322.97  331.51  334.06  336.12  338.18  340.24  341.39
337          UI  342.53  343.67  344.68  343.54  342.40  341.26  340.01  337.95  335.89  333.83
338          UI  330.88  324.09  317.30  310.51  303.66  296.65  289.64  282.63  275.59  268.49
339          UI  261.39  254.29  247.53  241.31  235.09  228.87  223.70  219.80  215.90  212.00
340          UI  208.12  204.27  200.41  196.55  192.29  187.73  183.17  178.62  175.20  172.40
341          UI  169.59  166.79  163.89  160.95  158.02  155.08  152.08  149.06  146.03  143.01
342          UI  140.62  138.34  136.06  133.78  131.46  129.14  126.82  124.50  122.43  120.37
343          UI  118.31  116.25  114.15  112.05  109.94  107.91  106.47  105.02  103.58  102.08
344          UI  100.37   98.67   96.96   95.33   93.98   92.62   91.26   89.89   88.48   87.08
345          UI   85.68   84.33   83.06   81.79   80.52   79.34   78.29   77.24   76.19   75.20
346          UI   74.28   73.36   72.44   71.42   70.33   69.23   68.14   67.18   66.30   65.43
1                                        HEC-1L INPUT                                    PAGE 11

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

347          UI   64.55   63.74   62.95   62.16   61.37   60.58   59.79   59.00   58.22   57.61
348          UI   57.04   56.47   55.90   55.06   54.18   53.30   52.43   51.93   51.45   50.97
349          UI   50.48   49.69   48.90   48.11   47.37   47.02   46.66   46.31   45.92   45.31
350          UI   44.69   44.08   43.55   43.29   43.02   42.76   42.44   42.01   41.57   41.13
351          UI   40.74   40.43   40.13   39.82   39.47   39.08   38.69   38.29   37.90   37.50
352          UI   37.11   36.71   36.34   35.99   35.64   35.29   35.00   34.73   34.47   34.21
353          UI   33.89   33.53   33.18   32.83   32.52   32.21   31.90   31.60   31.36   31.14
354          UI   30.92   30.71   30.41   30.10   29.79   29.49   29.18   28.87   28.57   28.26
355          UI   28.09   27.91   27.74   27.55   27.24   26.94   26.63   26.34   26.17   25.99
356          UI   25.82   25.61   25.31   25.00   24.69   24.44   24.31   24.18   24.04   23.85
357          UI   23.54   23.24   22.93   22.68   22.50   22.33   22.15   21.96   21.74   21.52
358          UI   21.30   21.15   21.07   20.98   20.89   20.69   20.43   20.17   19.90   19.70
359          UI   19.53   19.35   19.18   19.00   18.83   18.65   18.48   18.30   18.12   17.95
360          UI   17.77   17.64   17.51   17.37   17.24   17.11   16.98   16.85   16.72   16.54
361          UI   16.37   16.19   16.02   15.89   15.76   15.63   15.49   15.36   15.23   15.10
362          UI   14.97   14.84   14.71   14.57   14.44   14.31   14.18   14.05   13.92   13.78
363          UI   13.65   13.52   13.39   13.26   13.13   13.00   12.89   12.80   12.71   12.62
364          UI   12.49   12.31   12.14   11.96   11.84   11.75   11.66   11.58   11.46   11.33
365          UI   11.20   11.07   10.97   10.88   10.79   10.70   10.62   10.53   10.44   10.35
366          UI   10.27   10.18   10.09   10.00    9.91    9.83    9.74    9.65    9.56    9.48
367          UI    9.39    9.30    9.21    9.13    9.04    8.95    8.86    8.78    8.69    8.61
368          UI    8.57    8.52    8.48    8.43    8.39    8.35    8.30    8.24    8.16    8.07
369          UI    7.98    7.91    7.87    7.82    7.78    7.72    7.63    7.54    7.45    7.36
370          UI    7.28    7.19    7.10    7.04    7.00    6.95    6.91    6.87    6.82    6.78
371          UI    6.73    6.66    6.57    6.48    6.40    6.34    6.30    6.26    6.21    6.13
372          UI    6.04    5.95    5.87    5.82    5.78    5.73    5.69    5.64    5.60    5.56
373          UI    5.51    5.47    5.43    5.38    5.34    5.29    5.25    5.21    5.16    5.12
374          UI    5.07    5.03    4.99    4.94    4.90    4.86    4.81    4.77    4.72    4.68
375          UI    4.64    4.59    4.55    4.51    4.46    4.42    4.37    4.33    4.29    4.24
376          UI    4.20    4.15    4.14    4.14    4.14    4.14    4.11    4.06    4.02    3.98
377          UI    3.93    3.89    3.85    3.80    3.76    3.71    3.67    3.63    3.62    3.62
378          UI    3.62    3.62
379          ZW   C=FLOW F=010YR-10DY A=GREENBRI
             *

380          KK  ISCROS
381          KM
382          HC       3
383          ZW   C=FLOW
384          ZZ
1**************************************                **************************************
 *                                    *                *                                    *
```

```
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1L)  *
*              JULY  1998               *
*            VERSION 4.1(L)             *
*                                       *
*  RUN DATE   13JUL05  TIME  10:17:29   *
*                                       *
*****************************************
```

```
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

10010 & 1010 &l0024&1024

```
  3 IO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                      NMIN          1  MINUTES IN COMPUTATION INTERVAL
                     IDATE    31DEC99  STARTING DATE
                     ITIME       0000  STARTING TIME
                        NQ      15592  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE    11JAN 0  ENDING DATE
                    NDTIME       1951  ENDING TIME
                     ICENT         19  CENTURY MARK

                  COMPUTATION INTERVAL     0.02 HOURS
                      TOTAL TIME BASE   259.85 HOURS

            ENGLISH UNITS
                 DRAINAGE AREA          SQUARE MILES
                 PRECIPITATION DEPTH    INCHES
                 LENGTH, ELEVATION      FEET
                 FLOW                   CUBIC FEET PER SECOND
                 STORAGE VOLUME         ACRE-FEET
                 SURFACE AREA           ACRES
                 TEMPERATURE            DEGREES FAHRENHEIT
```

*** ***

```
            **************
            *            *
  4 KK      *    E2      *
            *            *
            **************
```

```
  5 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN         60  TIME INTERVAL IN MINUTES
                    JXDATE   31DEC99  STARTING DATE
                    JXTIME       2400  STARTING TIME

                SUBBASIN RUNOFF DATA

 32 BA          SUBBASIN CHARACTERISTICS
                     TAREA,       0.27  SUBBASIN AREA

                PRECIPITATION DATA

  7 PB               STORM       7.46  BASIN TOTAL PRECIPITATION

 33 LU          UNIFORM LOSS RATE
                     STRTL       0.20  INITIAL LOSS
                     CNSTL       0.07  UNIFORM LOSS RATE
                     RTIMP       2.00  PERCENT IMPERVIOUS AREA

 32 UI          INPUT UNITGRAPH, 456 ORDINATES,  VOLUME = 1.00
                    1.0      1.9      2.9      3.9      5.3      6.7      8.1      9.5     11.0     12.4
                   13.9     15.4     17.0     18.5     20.1     21.4     22.6     23.8     25.0     27.1
                   29.3     31.5     33.5     35.3     37.0     38.8     40.6     42.8     45.0     47.1
                   49.3     51.6     53.8     56.0     58.5     61.0     63.5     65.9     68.5     71.0
                   73.5     76.1     79.1     82.1     85.1     88.2     91.4     94.6     97.8    100.9
                  103.8    106.8    109.7    111.0    111.7    112.4    113.1    113.5    113.9    114.3
                  114.6    114.2    113.8    113.4    112.9    112.2    111.5    110.8    109.2    106.9
                  104.6    102.2     99.8     97.4     95.0     92.6     90.2     87.7     85.3     82.9
                   80.7     78.6     76.4     74.6     73.2     71.9     70.5     69.2     67.9     66.6
                   65.2     63.7     62.2     60.6     59.0     58.0     57.0     56.1     55.1     54.1
                   53.1     52.1     51.0     50.0     49.0     47.9     47.0     46.2     45.5     44.7
                   43.9     43.1     42.3     41.5     40.8     40.0     39.3     38.6     37.9     37.2
                   36.5     35.8     35.3     34.8     34.3     33.8     33.2     32.6     32.0     31.5
                   31.0     30.6     30.1     29.6     29.1     28.7     28.2     27.7     27.3     26.9
                   26.5     26.1     25.7     25.4     25.0     24.7     24.4     24.1     23.7     23.3
                   23.0     22.6     22.3     22.0     21.7     21.4     21.1     20.8     20.6     20.3
                   20.0     19.7     19.5     19.2     19.0     18.8     18.6     18.4     18.1     17.8
                   17.5     17.3     17.1     17.0     16.8     16.5     16.3     16.0     15.7     15.6
                   15.5     15.4     15.2     15.0     14.8     14.6     14.4     14.4     14.3     14.2
                   14.0     13.9     13.7     13.6     13.5     13.4     13.3     13.2     13.0     12.9
                   12.8     12.6     12.5     12.3     12.2     12.1     12.0     11.8     11.7     11.6
                   11.5     11.4     11.4     11.2     11.1     11.0     10.9     10.8     10.7     10.6
                   10.5     10.4     10.3     10.2     10.1     10.0      9.9      9.8      9.7      9.6
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  9.5   9.4   9.3   9.3   9.2   9.1   9.1   8.9   8.8   8.8
  8.7   8.6   8.6   8.5   8.4   8.3   8.2   8.1   8.1   8.0
  8.0   7.9   7.8   7.7   7.6   7.5   7.4   7.4   7.3   7.2
  7.2   7.1   7.0   7.0   7.0   6.9   6.9   6.8   6.7   6.6
  6.5   6.5   6.4   6.4   6.3   6.2   6.2   6.1   6.1   6.0
  5.9   5.9   5.8   5.8   5.8   5.7   5.7   5.6   5.6   5.5
  5.4   5.4   5.3   5.3   5.2   5.2   5.2   5.1   5.1   5.0
  5.0   4.9   4.9   4.8   4.8   4.7   4.7   4.7   4.6   4.6
  4.5   4.5   4.4   4.4   4.3   4.3   4.3   4.2   4.2   4.2
  4.1   4.0   4.0   3.9   3.9   3.9   3.8   3.8   3.8   3.7
  3.7   3.6   3.6   3.6   3.5   3.5   3.5   3.5   3.4   3.4
  3.4   3.3   3.3   3.3   3.2   3.2   3.2   3.2   3.1   3.1
  3.1   3.0   3.0   3.0   2.9   2.9   2.9   2.9   2.8   2.8
  2.8   2.8   2.8   2.8   2.8   2.7   2.7   2.7   2.6   2.6
  2.6   2.6   2.6   2.5   2.5   2.5   2.5   2.4   2.4   2.4
  2.3   2.3   2.3   2.3   2.3   2.3   2.3   2.2   2.2   2.2
  2.1   2.1   2.1   2.1   2.1   2.0   2.0   2.0   2.0   1.9
  1.9   1.9   1.9   1.9   1.9   1.9   1.8   1.8   1.8   1.8
  1.8   1.8   1.7   1.7   1.7   1.7   1.7   1.7   1.6   1.6
  1.6   1.6   1.6   1.6   1.6   1.5   1.5   1.5   1.5   1.5
  1.5   1.5   1.4   1.4   1.4   1.4   1.4   1.4   1.4   1.4
  1.4   1.4   1.4   1.3   1.3   1.3   1.3   1.3   1.3   1.2
  1.2   1.2   1.2   1.2   1.2   1.2

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                 HYDROGRAPH AT STATION   E2

  TOTAL RAINFALL =   7.46, TOTAL LOSS =   4.55, TOTAL EXCESS =   2.92

 PEAK FLOW     TIME                    MAXIMUM AVERAGE FLOW
                                6-HR        24-HR       72-HR     259.85-HR
+  (CFS)       (HR)
                (CFS)
+     52.   153.58                28.         11.          5.          2.
                (INCHES)        0.949       1.484       1.969       2.916
                 (AC-FT)         14.         21.         28.         42.

                CUMULATIVE AREA =   0.27 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 81 KK    *    E1      *
          *            *
          **************


 82 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN          60  TIME INTERVAL IN MINUTES
                    JXDATE    31DEC99  STARTING DATE
                    JXTIME        2400  STARTING TIME

               SUBBASIN RUNOFF DATA

109 BA         SUBBASIN CHARACTERISTICS
                    TAREA.        0.70  SUBBASIN AREA

               PRECIPITATION DATA

 84 PB               STORM        7.46  BASIN TOTAL PRECIPITATION

110 LU         UNIFORM LOSS RATE
                    STRTL        0.20  INITIAL LOSS
                    CNSTL        0.07  UNIFORM LOSS RATE
                    RTIMP        2.00  PERCENT IMPERVIOUS AREA

109 UI         INPUT UNITGRAPH, 548 ORDINATES,  VOLUME = 1.00
                  1.7     3.5     5.2     6.9     9.0    11.5    13.9    16.4    18.9    21.5
                 24.1    26.7    29.3    32.0    34.8    37.6    40.5    43.3    45.7    47.8
                 49.9    52.1    54.5    58.4    62.3    66.2    70.0    73.5    76.6    79.7
                 82.8    85.9    89.8    93.7    97.5   101.4   105.3   109.4   113.4   117.4
                121.4   125.9   130.3   134.8   139.2   143.7   148.2   152.8   157.3   161.8
                166.9   172.3   177.7   183.1   188.5   194.3   200.1   205.9   211.7   217.1
                222.4   227.7   233.0   238.1   239.4   240.7   242.0   243.2   244.2   244.9
                245.6   246.4   247.1   246.5   245.8   245.1   244.4   243.5   242.3   241.0
                239.7   238.4   235.0   230.8   226.6   222.4   218.2   213.9   209.6   205.2
                200.9   196.5   192.1   187.8   183.4   179.0   175.2   171.4   167.5   163.7
                160.5   158.1   155.7   153.3   150.9   148.5   146.1   143.7   141.4   138.8
                136.0   133.2   130.4   127.6   125.6   123.9   122.1   120.4   118.7   116.8
                115.0   113.2   111.4   109.6   107.7   105.8   104.0   102.1   100.7    99.3
                 97.9    96.5    95.1    93.7    92.2    90.8    89.3    88.1    86.8    85.5
                 84.3    83.0    81.7    80.4    79.1    77.8    76.8    75.9    75.0    74.1
                 73.2    72.1    71.1    70.0    69.0    68.1    67.2    66.4    65.5    64.7
                 63.8    63.0    62.1    61.2    60.4    59.6    58.8    58.1    57.3    56.6
                 56.0    55.3    54.7    54.0    53.5    52.9    52.3    51.8    51.1    50.5
                 49.8    49.1    48.5    47.9    47.4    46.8    46.3    45.8    45.3    44.8
                 44.3    43.8    43.3    42.9    42.4    41.9    41.5    41.1    40.8    40.4
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40.1	39.5	39.0	38.5	37.9	37.5	37.2	36.9	36.6	36.3
35.8	35.3	34.8	34.4	33.9	33.7	33.5	33.3	33.1	32.7
32.4	32.0	31.6	31.3	31.1	30.9	30.8	30.6	30.4	30.1
29.8	29.6	29.3	29.1	28.9	28.7	28.5	28.3	28.1	27.8
27.6	27.4	27.1	26.9	26.6	26.4	26.1	25.9	25.7	25.5
25.3	25.1	24.9	24.8	24.6	24.5	24.2	24.0	23.8	23.6
23.4	23.2	23.0	22.8	22.6	22.5	22.4	22.2	22.1	21.9
21.7	21.5	21.4	21.2	21.0	20.8	20.6	20.4	20.2	20.1
20.0	19.9	19.8	19.6	19.5	19.3	19.1	18.9	18.8	18.7
18.6	18.5	18.3	18.1	17.9	17.7	17.5	17.5	17.4	17.3
17.2	17.1	16.9	16.7	16.5	16.3	16.2	16.1	16.0	15.9
15.8	15.6	15.5	15.4	15.2	15.2	15.1	15.1	15.0	14.9
14.8	14.6	14.4	14.3	14.1	14.0	13.9	13.8	13.7	13.6
13.5	13.4	13.3	13.2	13.1	13.0	12.9	12.7	12.7	12.6
12.5	12.4	12.3	12.3	12.2	12.1	12.0	11.9	11.8	11.7
11.6	11.5	11.4	11.3	11.2	11.2	11.1	11.0	10.9	10.8
10.8	10.7	10.6	10.5	10.4	10.4	10.3	10.2	10.1	10.0
9.9	9.9	9.8	9.7	9.6	9.5	9.4	9.4	9.3	9.2
9.2	9.1	9.1	9.0	8.9	8.8	8.7	8.6	8.5	8.4
8.4	8.3	8.3	8.2	8.1	8.0	7.9	7.9	7.8	7.8
7.7	7.7	7.6	7.6	7.5	7.4	7.4	7.3	7.3	7.2
7.2	7.1	7.1	7.0	7.0	6.9	6.9	6.8	6.8	6.7
6.6	6.6	6.5	6.5	6.4	6.4	6.3	6.3	6.2	6.2
6.1	6.1	6.1	6.1	6.0	6.0	6.0	5.9	5.9	5.9
5.8	5.8	5.7	5.7	5.7	5.6	5.6	5.6	5.5	5.4
5.4	5.3	5.3	5.2	5.2	5.1	5.1	5.0	5.0	5.0
5.0	4.9	4.9	4.9	4.8	4.8	4.8	4.7	4.7	4.6
4.6	4.5	4.5	4.5	4.5	4.4	4.3	4.3	4.3	4.2
4.2	4.1	4.1	4.1	4.1	4.0	4.0	4.0	4.0	3.9
3.9	3.9	3.8	3.8	3.8	3.8	3.7	3.7	3.7	3.7
3.6	3.6	3.6	3.5	3.5	3.5	3.5	3.4	3.4	3.4
3.4	3.3	3.3	3.3	3.3	3.2	3.2	3.2	3.1	3.1
3.1	3.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
2.9	2.9	2.9	2.9	2.8	2.8	2.8	2.8	2.7	2.7
2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6		

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HYDROGRAPH AT STATION E1

TOTAL RAINFALL = 7.46, TOTAL LOSS = 4.55, TOTAL EXCESS = 2.92

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	259.85-HR
+	(CFS)	(HR)					
			(CFS)				
+	127.	153.78		70.	28.	12.	5.
			(INCHES)	0.929	1.483	1.969	2.916
			(AC-FT)	35.	55.	74.	109.

CUMULATIVE AREA = 0.70 SQ MI

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          **************
          *            *
167 KK    *     E4     *
          *            *
          **************
                Part of future Metro Air Park

168 IN         TIME DATA FOR INPUT TIME SERIES
                    JXMIN          60  TIME INTERVAL IN MINUTES
                    JXDATE    31DEC99  STARTING DATE
                    JXTIME       2400  STARTING TIME

           SUBBASIN RUNOFF DATA

195 BA         SUBBASIN CHARACTERISTICS
                    TAREA,       1.15  SUBBASIN AREA

               PRECIPITATION DATA

170 PB              STORM        7.46  BASIN TOTAL PRECIPITATION

196 LU         UNIFORM LOSS RATE
                    STRTL        0.20  INITIAL LOSS
                    CNSTL        0.07  UNIFORM LOSS RATE
                    RTIMP        2.00  PERCENT IMPERVIOUS AREA

195 UI         INPUT UNITGRAPH,1025 ORDINATES,  VOLUME = 1.00
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0.8	1.6	2.4	3.3	4.1	4.9	5.7	6.5	7.5	8.6
9.8	11.0	12.1	13.3	14.5	15.6	16.8	18.0	19.2	20.5
21.7	22.9	24.1	25.3	26.5	27.8	29.1	30.5	31.8	33.1
34.5	35.8	37.1	38.5	39.5	40.5	41.5	42.5	43.5	44.5
45.5	46.5	47.8	49.6	51.4	53.2	55.1	56.9	58.7	60.5
62.4	63.9	65.4	66.8	68.3	69.8	71.2	72.7	74.1	75.7
77.5	79.3	81.1	82.9	84.7	86.5	88.3	90.2	92.0	93.9

95.8	97.7	99.6	101.5	103.4	105.3	107.2	109.3	111.3	113.4
115.5	117.6	119.7	121.8	123.9	126.0	128.1	130.3	132.4	134.5
136.6	138.7	140.8	143.0	145.5	148.0	150.5	153.1	155.6	158.1
160.6	163.1	165.8	168.5	171.2	173.9	176.6	179.3	182.0	184.8
187.5	190.0	192.4	194.9	197.4	199.9	202.3	204.8	207.3	209.1
209.7	210.3	210.9	211.5	212.1	212.7	213.3	213.9	214.3	214.6
214.9	215.2	215.6	215.9	216.2	216.6	216.7	216.4	216.1	215.7
215.4	215.1	214.7	214.4	214.1	213.6	213.0	212.4	211.8	211.2
210.6	210.0	209.4	208.6	206.6	204.6	202.7	200.7	198.7	196.8
194.8	192.8	190.8	188.8	186.8	184.7	182.7	180.7	178.6	176.6
174.6	172.5	170.5	168.4	166.4	164.3	162.3	160.2	158.1	156.2
154.4	152.6	150.8	149.0	147.2	145.4	143.6	141.8	140.7	139.6
138.4	137.3	136.2	135.0	133.9	132.8	131.6	130.5	129.4	128.3
127.2	126.1	124.9	123.8	122.7	121.4	120.1	118.8	117.5	116.2
114.8	113.5	112.2	111.1	110.2	109.4	108.6	107.8	107.0	106.2
105.4	104.6	103.7	102.9	102.0	101.2	100.3	99.5	98.6	97.8
96.9	96.0	95.2	94.3	93.4	92.5	91.7	90.8	89.9	89.2
88.5	87.9	87.2	86.5	85.9	85.2	84.6	83.9	83.2	82.6
81.9	81.2	80.5	79.9	79.2	78.5	77.9	77.3	76.7	76.1
75.5	74.9	74.3	73.7	73.1	72.5	71.9	71.3	70.7	70.1
69.5	68.9	68.3	67.8	67.3	66.9	66.5	66.1	65.7	65.2
64.8	64.4	63.9	63.4	62.9	62.4	61.9	61.4	60.9	60.4
60.0	59.6	59.2	58.8	58.4	58.0	57.6	57.2	56.8	56.4
56.0	55.6	55.2	54.8	54.4	54.0	53.6	53.2	52.8	52.5
52.1	51.7	51.4	51.0	50.6	50.3	50.0	49.6	49.3	49.0
48.7	48.4	48.1	47.8	47.5	47.3	47.0	46.7	46.5	46.2
45.9	45.7	45.4	45.1	44.8	44.5	44.1	43.8	43.5	43.2
42.9	42.6	42.3	42.1	41.8	41.5	41.3	41.0	40.8	40.5
40.3	40.1	39.8	39.6	39.4	39.2	38.9	38.7	38.5	38.2
38.0	37.8	37.6	37.3	37.1	36.9	36.6	36.5	36.3	36.1
36.0	35.8	35.6	35.5	35.3	35.1	34.9	34.6	34.4	34.1
33.9	33.6	33.3	33.1	32.9	32.8	32.6	32.5	32.3	32.2
32.1	31.9	31.8	31.6	31.3	31.1	30.9	30.6	30.4	30.2
30.0	29.8	29.7	29.6	29.5	29.4	29.3	29.2	29.1	29.0
28.8	28.6	28.5	28.3	28.1	27.9	27.7	27.6	27.4	27.3
27.3	27.2	27.1	27.0	27.0	26.9	26.8	26.7	26.6	26.4
26.3	26.2	26.0	25.9	25.8	25.7	25.6	25.5	25.4	25.3
25.2	25.1	25.1	25.0	24.9	24.8	24.6	24.5	24.4	24.3
24.2	24.1	24.0	23.8	23.7	23.6	23.5	23.4	23.3	23.1
23.0	22.9	22.8	22.7	22.6	22.5	22.4	22.3	22.2	22.1
22.0	22.0	21.9	21.8	21.7	21.7	21.6	21.5	21.4	21.3
21.2	21.1	21.0	20.9	20.8	20.7	20.6	20.5	20.4	20.3
20.3	20.2	20.1	20.0	19.9	19.8	19.8	19.7	19.6	19.6
19.5	19.4	19.4	19.3	19.2	19.1	19.0	19.0	18.9	18.8
18.7	18.6	18.5	18.4	18.3	18.3	18.2	18.1	18.0	17.9
17.8	17.7	17.7	17.6	17.6	17.5	17.5	17.4	17.4	17.3
17.2	17.1	17.1	17.0	16.9	16.8	16.7	16.6	16.6	16.5
16.5	16.4	16.4	16.3	16.3	16.2	16.1	16.1	16.0	15.9
15.8	15.7	15.6	15.5	15.4	15.4	15.3	15.3	15.3	15.2
15.2	15.1	15.1	15.1	15.0	14.9	14.8	14.7	14.6	14.5
14.4	14.4	14.3	14.2	14.2	14.1	14.1	14.0	14.0	13.9
13.9	13.8	13.8	13.7	13.6	13.6	13.5	13.4	13.4	13.3
13.3	13.3	13.3	13.2	13.2	13.2	13.1	13.1	13.1	13.0
12.9	12.8	12.8	12.7	12.6	12.5	12.4	12.4	12.4	12.3
12.3	12.2	12.1	12.1	12.1	12.0	11.9	11.9	11.9	11.8
11.7	11.7	11.6	11.6	11.5	11.5	11.4	11.4	11.3	11.3
11.2	11.2	11.1	11.1	11.1	11.0	11.0	10.9	10.9	10.9
10.8	10.8	10.8	10.7	10.7	10.6	10.6	10.6	10.5	10.5
10.4	10.4	10.3	10.3	10.2	10.2	10.1	10.1	10.1	10.0
10.0	9.9	9.9	9.9	9.8	9.8	9.7	9.7	9.7	9.6
9.6	9.6	9.5	9.5	9.4	9.4	9.4	9.3	9.3	9.3
9.2	9.2	9.1	9.1	9.1	9.0	9.0	8.9	8.9	8.9
8.8	8.8	8.8	8.7	8.7	8.6	8.6	8.6	8.5	8.5
8.4	8.4	8.4	8.3	8.3	8.3	8.2	8.2	8.1	8.1
8.1	8.1	8.0	8.0	8.0	8.0	7.9	7.9	7.9	7.8
7.8	7.7	7.7	7.6	7.6	7.5	7.5	7.4	7.4	7.4
7.4	7.3	7.3	7.3	7.3	7.2	7.2	7.2	7.1	7.1
7.0	7.0	7.0	6.9	6.9	6.9	6.8	6.8	6.8	6.8
6.8	6.7	6.7	6.7	6.7	6.6	6.6	6.6	6.5	6.5
6.5	6.5	6.4	6.4	6.4	6.4	6.3	6.3	6.3	6.3
6.2	6.2	6.2	6.2	6.1	6.1	6.1	6.1	6.0	6.0
6.0	6.0	5.9	5.9	5.9	5.9	5.8	5.8	5.8	5.8
5.7	5.7	5.7	5.7	5.6	5.6	5.6	5.6	5.5	5.5
5.5	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.3	5.3
5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.2	5.2	5.2
5.2	5.2	5.1	5.1	5.1	5.1	5.0	5.0	5.0	5.0
5.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.8	4.8
4.8	4.8	4.7	4.7	4.7	4.7	4.6	4.6	4.6	4.6
4.5	4.5	4.5	4.5	4.4	4.4	4.4	4.4	4.4	4.4
4.4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
4.2	4.2	4.2	4.2	4.1	4.1	4.1	4.1	4.0	4.0
4.0	4.0	4.0	4.0	4.0	3.9	3.9	3.9	3.9	3.9
3.8	3.8	3.8	3.8	3.8	3.7	3.7	3.7	3.7	3.7
3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.5	3.5	3.5
3.5	3.5	3.5	3.5	3.5	3.5	3.4	3.4	3.4	3.4
3.4	3.4	3.4	3.3	3.3	3.3	3.3	3.3	3.3	3.3
3.3	3.3	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.1
3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.0	3.0	3.0
3.0	3.0	3.0	3.0	3.0	2.9	2.9	2.9	2.9	2.9
2.9	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
2.8	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.6
2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
2.6	2.6	2.6	2.6	2.6	2.5	2.5	2.5	2.5	2.5
2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4
2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3

```
                    2.3       2.3       2.3       2.3       2.3
                                                                ***

     ***             ***               ***               ***               ***

                        HYDROGRAPH AT STATION   E4

     TOTAL RAINFALL =    7.46, TOTAL LOSS =    4.55, TOTAL EXCESS =    2.92

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR        72-HR     259.85-HR
+   (CFS)        (HR)
                                (CFS)
+     158.     154.75                  103.          45.          20.           8.
                              (INCHES)  0.837       1.456        1.968         2.916
                              (AC-FT)     51.         89.         121.          179.

                        CUMULATIVE AREA =    1.15 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


                ***************
                *               *
301 KK          *    ES         *
                *               *
                ***************
                          ES

302 IN                TIME DATA FOR INPUT TIME SERIES
                           JXMIN          60  TIME INTERVAL IN MINUTES
                          JXDATE      31DEC99  STARTING DATE
                          JXTIME        2400  STARTING TIME

                    SUBBASIN RUNOFF DATA

329 BA                SUBBASIN CHARACTERISTICS
                           TAREA,        0.84  SUBBASIN AREA

                    PRECIPITATION DATA

304 PB                     STORM        7.46  BASIN TOTAL PRECIPITATION


330 LU                UNIFORM LOSS RATE
                           STRTL        0.20  INITIAL LOSS
                           CNSTL        0.07  UNIFORM LOSS RATE
                           RTIMP        2.00  PERCENT IMPERVIOUS AREA

329 UI                INPUT UNITGRAPH, 472 ORDINATES,  VOLUME = 1.00
                          2.8       5.6       8.4      11.3      15.3      19.4      23.4      27.5      31.6      35.9
                         40.1      44.3      49.0      53.5      58.2      62.5      65.9      69.4      72.8      77.2
                         83.6      89.9      96.2     102.0     107.0     112.1     117.1     122.7     129.0     135.2
                        141.5     147.9     154.4     160.9     167.5     174.4     181.7     188.9     196.1     203.4
                        210.7     218.0     225.4     233.7     242.4     251.1     259.9     269.1     278.5     287.8
                        297.2     305.9     314.4     323.0     331.5     334.1     336.1     338.2     340.2     341.4
                        342.5     343.7     344.7     343.5     342.4     341.3     340.0     338.0     335.9     333.8
                        330.9     324.1     317.3     310.5     303.7     296.6     289.6     282.6     275.6     268.5
                        261.4     254.3     247.5     241.3     235.1     228.9     223.7     219.8     215.9     212.0
                        208.1     204.3     200.4     196.6     192.3     187.7     183.2     178.6     175.2     172.4
                        169.6     166.8     163.9     160.9     158.0     155.1     152.1     149.1     146.0     143.0
                        140.6     138.3     136.1     133.8     131.5     129.1     126.8     124.5     122.4     120.4
                        118.3     116.3     114.2     112.1     109.9     107.9     106.5     105.0     103.6     102.1
                        100.4      98.7      97.0      95.3      94.0      92.6      91.3      89.9      88.5      87.1
                         85.7      84.3      83.1      81.8      80.5      79.3      78.3      77.2      76.2      75.2
                         74.3      73.4      72.4      71.4      70.3      69.2      68.1      67.2      66.3      65.4
                         64.6      63.7      63.0      62.2      61.4      60.6      59.8      59.0      58.2      57.6
                         57.0      56.5      55.9      55.1      54.2      53.3      52.4      51.9      51.5      51.0
                         50.5      49.7      48.9      48.1      47.4      47.0      46.7      46.3      45.9      45.3
                         44.7      44.1      43.5      43.3      43.0      42.8      42.4      42.0      41.6      41.1
                         40.7      40.4      40.1      39.8      39.5      39.1      38.7      38.3      37.9      37.5
                         37.1      36.7      36.3      36.0      35.6      35.3      35.0      34.7      34.5      34.2
                         33.9      33.5      33.2      32.8      32.5      32.2      31.9      31.6      31.4      31.1
                         30.9      30.7      30.4      30.1      29.8      29.5      29.2      28.9      28.6      28.3
                         28.1      27.9      27.7      27.5      27.2      26.9      26.6      26.3      26.2      26.0
                         25.8      25.6      25.3      25.0      24.7      24.4      24.3      24.2      24.0      23.9
                         23.5      23.2      22.9      22.7      22.5      22.3      22.1      22.0      21.7      21.5
                         21.3      21.1      21.1      21.0      20.9      20.7      20.4      20.2      19.9      19.7
                         19.5      19.4      19.2      19.0      18.8      18.6      18.5      18.3      18.1      18.0
                         17.8      17.6      17.5      17.4      17.2      17.1      17.0      16.9      16.7      16.5
                         16.4      16.2      16.0      15.9      15.8      15.6      15.5      15.4      15.2      15.1
                         15.0      14.8      14.7      14.6      14.4      14.3      14.2      14.1      13.9      13.8
                         13.6      13.5      13.4      13.3      13.1      13.0      12.9      12.8      12.7      12.6
                         12.5      12.3      12.1      12.0      11.8      11.8      11.7      11.6      11.5      11.3
                         11.2      11.1      11.0      10.9      10.8      10.7      10.6      10.5      10.4      10.4
                         10.3      10.2      10.1      10.0       9.9       9.8       9.7       9.6       9.6       9.5
                          9.4       9.3       9.2       9.1       9.0       8.9       8.9       8.8       8.7       8.6
                          8.6       8.5       8.5       8.4       8.4       8.4       8.3       8.2       8.2       8.1
                          8.0       7.9       7.9       7.8       7.8       7.7       7.6       7.5       7.4       7.4
                          7.3       7.2       7.1       7.0       7.0       6.9       6.9       6.9       6.8       6.8
                          6.7       6.7       6.6       6.5       6.4       6.3       6.3       6.3       6.2       6.1
```

6.0	5.9	5.9	5.8	5.8	5.7	5.7	5.6	5.6	5.6
5.5	5.5	5.4	5.4	5.3	5.3	5.3	5.2	5.2	5.1
5.1	5.0	5.0	4.9	4.9	4.9	4.8	4.8	4.7	4.7
4.6	4.6	4.6	4.5	4.5	4.4	4.4	4.3	4.3	4.2
4.2	4.2	4.1	4.1	4.1	4.1	4.1	4.1	4.0	4.0
3.9	3.9	3.8	3.8	3.8	3.7	3.7	3.6	3.6	3.6
3.6	3.6								

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*** *** *** *** ***

HYDROGRAPH AT STATION E5

TOTAL RAINFALL = 7.46, TOTAL LOSS = 4.55, TOTAL EXCESS = 2.92

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	259.85-HR
+ (CFS)	(HR)					
		(CFS)				
+ 161.	153.62		85.	34.	15.	6.
		(INCHES)	0.945	1.484	1.969	2.916
		(AC-FT)	42.	67.	88.	131.

CUMULATIVE AREA = 0.84 SQ MI

*** ***

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              **************
              *            *
380 KK        *   I5CROS   *
              *            *
              **************
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382 HC HYDROGRAPH COMBINATION
ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

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*** *** *** *** ***

HYDROGRAPH AT STATION I5CROS

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	259.85-HR
+ (CFS)	(HR)					
		(CFS)				
+ 415.	153.85		255.	106.	47.	19.
		(INCHES)	0.883	1.466	1.968	2.916
		(AC-FT)	127.	210.	282.	418.

CUMULATIVE AREA = 2.69 SQ MI

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+					6-HOUR	24-HOUR	72-HOUR			
+	HYDROGRAPH AT	E2	52.	153.58	28.	11.	5.	0.27		
+	HYDROGRAPH AT	E1	127.	153.78	70.	28.	12.	0.70		
+	HYDROGRAPH AT	E4	158.	154.75	103.	45.	20.	1.15		
+	HYDROGRAPH AT	E5	161.	153.62	85.	34.	15.	0.84		
+	3 COMBINED AT	I5CROS	415.	153.85	255.	106.	47.	2.69		

*** NORMAL END OF HEC-1L ***

7. APPENDIX B –

Ultimate Conditions SacCalc Model

24

```
INPUT  FILENAME ====>J:\Jobs\1116-GreenbriarFarms\1116-GreenbriarFarms\Civil\Docs\Report\SACCALC\Developed\sc.dat
 OUTPUT FILENAME ===>J:\Jobs\1116-GreenbriarFarms\1116-GreenbriarFarms\Civil\Docs\Report\SACCALC\Developed\sc.hecout
 DSS FILENAME ====>hcalc.dss
1*****************************************
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1L)  *
 *              JULY  1998               *
 *            VERSION 4.1(L)             *
 *                                       *
 *  RUN DATE   12JUL05  TIME  19:20:27   *
 *                                       *
 *****************************************

 ****************************************
 *                                      *
 *    U.S. ARMY CORPS OF ENGINEERS      *
 *    HYDROLOGIC ENGINEERING CENTER     *
 *          609 SECOND STREET           *
 *        DAVIS, CALIFORNIA 95616       *
 *           (916) 756-1104             *
 *                                      *
 ****************************************

X     X  XXXXXXX   XXXXX          X   X
X     X  X        X     X        XX  X
X     X  X        X              X   X
XXXXXXX  XXXX     X        XXXXX X   X
X     X  X        X              X   X
X     X  X        X     X        X   X
X     X  XXXXXXX   XXXXX         XXX XXXX

Special version of HEC-1 with Extra-large array
Modified by David Ford Consulting Engineers (2000)
 Program dimensions:
 Number of hydrograph ordinates: 20000
 Unit hydrograph ordinates: 3000


   THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

   THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
   THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
   NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
   DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
   KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                        HEC-1L INPUT                                                PAGE   1

     LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

                    * SacCalc, developed by David Ford Consulting Engineers
                    * File generated 07/12/2005 19:20:26
                    *
       1            ID   10010 & 1010 &10024&1024
                    * Lag computation for station A
                    *   Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
                    *   Basin "n" composition (based on Table 7-1)
                    *             Developed                    Undeveloped
                    *          n   adj n   fract           n   adj n   fract
                    *   ---------------------------------------------------
                    *      0.030  0.0300  0.0000       0.067  0.0670  0.0000
                    *      0.031  0.0310  0.3757       0.070  0.0700  0.0000
                    *      0.032  0.0320  0.0000       0.071  0.0710  0.0000
                    *      0.033  0.0330  0.0000       0.072  0.0720  0.0000
                    *      0.034  0.0340  0.0000       0.073  0.0730  0.0000
                    *      0.035  0.0350  0.1751       0.074  0.0740  0.0000
                    *      0.037  0.0370  0.0000       0.076  0.0760  0.0000
                    *      0.040  0.0400  0.1337       0.080  0.0800  0.1350
                    *      0.042  0.0420  0.0000       0.084  0.0840  0.0000
                    *      0.046  0.0460  0.0000       0.088  0.0880  0.0000
                    *      0.050  0.0500  0.0000       0.090  0.0900  0.0000
                    *      0.053  0.0530  0.0000       0.093  0.0930  0.0000
                    *      0.056  0.0560  0.0000       0.096  0.0960  0.0000
                    *      0.060  0.0600  0.0000       0.100  0.1000  0.0000
                    *      0.065  0.0650  0.0414       0.110  0.1100  0.0535
                    *      0.070  0.0700  0.0856       0.115  0.1150  0.0000
                    *      0.075  0.0750  0.0000       0.120  0.1200  0.0000
                    *      0.080  0.0800  0.0000       0.150  0.1500  0.0000
                    *   ---------------------------------------------------
                    *   Equation (7-1) with L=  0.6705, Lc=  0.2765, S=   13.200, n=0.0485
                    *   Resulting lag:   28.3 minutes
                    * Lag computation for station B
                    *   Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
                    *   Basin "n" composition (based on Table 7-1)
                    *             Developed                    Undeveloped
                    *          n   adj n   fract           n   adj n   fract
                    *   ---------------------------------------------------
                    *      0.030  0.0300  0.0000       0.067  0.0670  0.0000
                    *      0.031  0.0310  0.0000       0.070  0.0700  0.0000
                    *      0.032  0.0320  0.0000       0.071  0.0710  0.0000
                    *      0.033  0.0330  0.0000       0.072  0.0720  0.0000
                    *      0.034  0.0340  0.0000       0.073  0.0730  0.0000
```

```
*      0.035  0.0350  0.7942        0.074  0.0740  0.0000
*      0.037  0.0370  0.0000        0.076  0.0760  0.0000
*      0.040  0.0400  0.0289        0.080  0.0800  0.0000
*      0.042  0.0420  0.0000        0.084  0.0840  0.0000
*      0.046  0.0460  0.0000        0.088  0.0880  0.0000
*      0.050  0.0500  0.0000        0.090  0.0900  0.0000
*      0.053  0.0530  0.0000        0.093  0.0930  0.0000
*      0.056  0.0560  0.0000        0.096  0.0960  0.0000
*      0.060  0.0600  0.0000        0.100  0.1000  0.0000
*      0.065  0.0650  0.1480        0.110  0.1100  0.0000
*      0.070  0.0700  0.0144        0.115  0.1150  0.0144
*      0.075  0.0750  0.0000        0.120  0.1200  0.0000
*      0.080  0.0800  0.0000        0.150  0.1500  0.0000
*    ---------------------------------------------------
*    Equation (7-1) with L=  0.3504, Lc=  0.1186, S=   13.200, n=0.0412
*    Resulting lag:   14.7 minutes
* Lag computation for station C
*    Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
*    Basin "n" composition (based on Table 7-1)
*                Developed                    Undeveloped
*           n   adj n   fract            n   adj n   fract
*    ---------------------------------------------------
*      0.030  0.0300  0.0000        0.067  0.0670  0.0000
*      0.031  0.0310  0.0000        0.070  0.0700  0.0000
*      0.032  0.0320  0.0000        0.071  0.0710  0.0000
*      0.033  0.0330  0.0000        0.072  0.0720  0.0000
*      0.034  0.0340  0.0000        0.073  0.0730  0.0000
*      0.035  0.0350  0.6675        0.074  0.0740  0.0000
*      0.037  0.0370  0.0000        0.076  0.0760  0.0000
*      0.040  0.0400  0.0914        0.080  0.0800  0.1015
*      0.042  0.0420  0.0000        0.084  0.0840  0.0000
*      0.046  0.0460  0.0000        0.088  0.0880  0.0000
*      0.050  0.0500  0.0000        0.090  0.0900  0.0000
*      0.053  0.0530  0.0000        0.093  0.0930  0.0000
*      0.056  0.0560  0.0000        0.096  0.0960  0.0000
*      0.060  0.0600  0.0000        0.100  0.1000  0.0000
*      0.065  0.0650  0.1041        0.110  0.1100  0.0000
*      0.070  0.0700  0.0178        0.115  0.1150  0.0178
*      0.075  0.0750  0.0000        0.120  0.1200  0.0000
*      0.080  0.0800  0.0000        0.150  0.1500  0.0000
*    ---------------------------------------------------
*    Equation (7-1) with L=  0.4485, Lc=  0.1420, S=   13.200, n=0.0452
*    Resulting lag:   18.6 minutes
* Lag computation for station D
*    Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
*    Basin "n" composition (based on Table 7-1)
*                Developed                    Undeveloped
*           n   adj n   fract            n   adj n   fract
*    ---------------------------------------------------
*      0.030  0.0300  0.0000        0.067  0.0670  0.0000
*      0.031  0.0310  0.0000        0.070  0.0700  0.0000
*      0.032  0.0320  0.0000        0.071  0.0710  0.0000
*      0.033  0.0330  0.0000        0.072  0.0720  0.0000
*      0.034  0.0340  0.0000        0.073  0.0730  0.0000
*      0.035  0.0350  0.3054        0.074  0.0740  0.0000
*      0.037  0.0370  0.0000        0.076  0.0760  0.0000
*      0.040  0.0400  0.4966        0.080  0.0800  0.0000
*      0.042  0.0420  0.0000        0.084  0.0840  0.0000
*      0.046  0.0460  0.0000        0.088  0.0880  0.0000
*      0.050  0.0500  0.0000        0.090  0.0900  0.0000
*      0.053  0.0530  0.0000        0.093  0.0930  0.0000
*      0.056  0.0560  0.0000        0.096  0.0960  0.0000
*      0.060  0.0600  0.0000        0.100  0.1000  0.0000
*      0.065  0.0650  0.1443        0.110  0.1100  0.0000
*      0.070  0.0700  0.0201        0.115  0.1150  0.0336
*      0.075  0.0750  0.0000        0.120  0.1200  0.0000
*      0.080  0.0800  0.0000        0.150  0.1500  0.0000
*    ---------------------------------------------------
*    Equation (7-1) with L=  0.4555, Lc=  0.1290, S=   13.200, n=0.0452
*    Resulting lag:   18.1 minutes
* Lag computation for station E
*    Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
*    Basin "n" composition (based on Table 7-1)
*                Developed                    Undeveloped
*           n   adj n   fract            n   adj n   fract
*    ---------------------------------------------------
*      0.030  0.0300  0.2282        0.067  0.0670  0.0000
*      0.031  0.0310  0.0000        0.070  0.0700  0.0000
*      0.032  0.0320  0.0000        0.071  0.0710  0.0000
*      0.033  0.0330  0.0000        0.072  0.0720  0.0000
*      0.034  0.0340  0.0000        0.073  0.0730  0.0000
*      0.035  0.0350  0.3983        0.074  0.0740  0.0000
*      0.037  0.0370  0.0000        0.076  0.0760  0.0000
*      0.040  0.0400  0.2075        0.080  0.0800  0.0000
*      0.042  0.0420  0.0000        0.084  0.0840  0.0000
*      0.046  0.0460  0.0000        0.088  0.0880  0.0000
*      0.050  0.0500  0.0000        0.090  0.0900  0.0000
*      0.053  0.0530  0.0000        0.093  0.0930  0.0000
*      0.056  0.0560  0.0000        0.096  0.0960  0.0000
*      0.060  0.0600  0.0000        0.100  0.1000  0.0000
*      0.065  0.0650  0.1660        0.110  0.1100  0.0000
*      0.070  0.0700  0.0000        0.115  0.1150  0.0000
*      0.075  0.0750  0.0000        0.120  0.1200  0.0000
*      0.080  0.0800  0.0000        0.150  0.1500  0.0000
*    ---------------------------------------------------
```

```
*   Equation (7-1) with L=  3.3797, Lc=  0.1150, S=   10.560, n=0.0399
*   Resulting lag:   15.0 minutes
* Lag computation for station F
*   Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
*   Basin "n" composition (based on Table 7-1)
*              Developed                    Undeveloped
*         n   adj n   fract           n   adj n   fract
*   ---------------------------------------------------
*      0.030  0.0300  0.0000       0.067  0.0670  0.0000
*      0.031  0.0310  0.0000       0.070  0.0700  0.0000
*      0.032  0.0320  0.0000       0.071  0.0710  0.0000
*      0.033  0.0330  0.0000       0.072  0.0720  0.0000
*      0.034  0.0340  0.0000       0.073  0.0730  0.0000
*      0.035  0.0350  0.0000       0.074  0.0740  0.0000
*      0.037  0.0370  0.0000       0.076  0.0760  0.0000
*      0.040  0.0400  0.9898       0.080  0.0800  0.0000
*      0.042  0.0420  0.0000       0.084  0.0840  0.0000
*      0.046  0.0460  0.0000       0.088  0.0880  0.0000
*      0.050  0.0500  0.0000       0.090  0.0900  0.0000
*      0.053  0.0530  0.0000       0.093  0.0930  0.0000
*      0.056  0.0560  0.0000       0.096  0.0960  0.0000
*      0.060  0.0600  0.0000       0.100  0.1000  0.0000
*      0.065  0.0650  0.0000       0.110  0.1100  0.0000
*      0.070  0.0700  0.0051       0.115  0.1150  0.0051
*      0.075  0.0750  0.0000       0.120  0.1200  0.0000
*      0.080  0.0800  0.0000       0.150  0.1500  0.0000
*   ---------------------------------------------------
*   Equation (7-1) with L=  0.3589, Lc=  0.1383, S=   10.560, n=0.0405
*   Resulting lag:   15.9 minutes
* Lag computation for station G
*   Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
*   Basin "n" composition (based on Table 7-1)
*              Developed                    Undeveloped
*         n   adj n   fract           n   adj n   fract
*   ---------------------------------------------------
*      0.030  0.0300  0.0000       0.067  0.0670  0.0000
*      0.031  0.0310  0.0000       0.070  0.0700  0.0000
*      0.032  0.0320  0.0000       0.071  0.0710  0.0000
*      0.033  0.0330  0.0000       0.072  0.0720  0.0000
*      0.034  0.0340  0.0000       0.073  0.0730  0.0000
*      0.035  0.0350  0.0000       0.074  0.0740  0.0000
*      0.037  0.0370  0.0000       0.076  0.0760  0.0000
*      0.040  0.0400  0.7583       0.080  0.0800  0.0000
*      0.042  0.0420  0.0000       0.084  0.0840  0.0000
*      0.046  0.0460  0.0000       0.088  0.0880  0.0000
*      0.050  0.0500  0.0000       0.090  0.0900  0.0000
*      0.053  0.0530  0.0000       0.093  0.0930  0.0000
*      0.056  0.0560  0.0000       0.096  0.0960  0.0000
*      0.060  0.0600  0.0000       0.100  0.1000  0.0000
*      0.065  0.0650  0.1730       0.110  0.1100  0.0000
*      0.070  0.0700  0.0433       0.115  0.1150  0.0254
*      0.075  0.0750  0.0000       0.120  0.1200  0.0000
*      0.080  0.0800  0.0000       0.150  0.1500  0.0000
*   ---------------------------------------------------
*   Equation (7-1) with L=  0.3930, Lc=  0.1231, S=   13.200, n=0.0475
*   Resulting lag:   17.8 minutes
* Lag computation for station H
*   Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
*   Basin "n" composition (based on Table 7-1)
*              Developed                    Undeveloped
*         n   adj n   fract           n   adj n   fract
*   ---------------------------------------------------
*      0.030  0.0300  0.0000       0.067  0.0670  0.0000
*      0.031  0.0310  0.0000       0.070  0.0700  0.0000
*      0.032  0.0320  0.0000       0.071  0.0710  0.0000
*      0.033  0.0330  0.0000       0.072  0.0720  0.0000
*      0.034  0.0340  0.0000       0.073  0.0730  0.0000
*      0.035  0.0350  0.1213       0.074  0.0740  0.0000
*      0.037  0.0370  0.0000       0.076  0.0760  0.0000
*      0.040  0.0400  0.6798       0.080  0.0800  0.0846
*      0.042  0.0420  0.0000       0.084  0.0840  0.0000
*      0.046  0.0460  0.0000       0.088  0.0880  0.0000
*      0.050  0.0500  0.0000       0.090  0.0900  0.0000
*      0.053  0.0530  0.0000       0.093  0.0930  0.0000
*      0.056  0.0560  0.0000       0.096  0.0960  0.0000
*      0.060  0.0600  0.0000       0.100  0.1000  0.0000
*      0.065  0.0650  0.0000       0.110  0.1100  0.0000
*      0.070  0.0700  0.0578       0.115  0.1150  0.0564
*      0.075  0.0750  0.0000       0.120  0.1200  0.0000
*      0.080  0.0800  0.0000       0.150  0.1500  0.0000
*   ---------------------------------------------------
*   Equation (7-1) with L=  0.6178, Lc=  0.2131, S=   10.560, n=0.0487
*   Resulting lag:   26.4 minutes
* Lag computation for station I
*   Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
*   Basin "n" composition (based on Table 7-1)
*              Developed                    Undeveloped
*         n   adj n   fract           n   adj n   fract
*   ---------------------------------------------------
*      0.030  0.0300  0.0000       0.067  0.0670  0.0000
*      0.031  0.0310  0.0000       0.070  0.0700  0.0000
*      0.032  0.0320  0.0000       0.071  0.0710  0.0000
*      0.033  0.0330  0.1959       0.072  0.0720  0.0000
*      0.034  0.0340  0.0000       0.073  0.0730  0.0000
*      0.035  0.0350  0.0591       0.074  0.0740  0.0000
```

```
*      0.037  0.0370  0.0000        0.076  0.0760  0.0000
*      0.040  0.0400  0.5083        0.080  0.0800  0.0000
*      0.042  0.0420  0.0000        0.084  0.0840  0.0000
*      0.046  0.0460  0.0000        0.088  0.0880  0.0000
*      0.050  0.0500  0.0000        0.090  0.0900  0.0000
*      0.053  0.0530  0.0000        0.093  0.0930  0.0000
*      0.056  0.0560  0.0000        0.096  0.0960  0.0000
*      0.060  0.0600  0.0000        0.100  0.1000  0.0000
*      0.065  0.0650  0.2089        0.110  0.1100  0.0000
*      0.070  0.0700  0.0092        0.115  0.1150  0.0185
*      0.075  0.0750  0.0000        0.120  0.1200  0.0000
*      0.080  0.0800  0.0000        0.150  0.1500  0.0000
*    ---------------------------------------------------
*    Equation (7-1) with L=  0.6780, Lc=  0.3822, S=   10.560, n=0.0452
*    Resulting lag:   30.6 minutes
* Lag computation for station J
*    Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
*    Basin "n" composition (based on Table 7-1)
*              Developed                    Undeveloped
*           n   adj n   fract            n   adj n   fract
*    ---------------------------------------------------
*      0.030  0.0300  0.1145        0.067  0.0670  0.0000
*      0.031  0.0310  0.0000        0.070  0.0700  0.0000
*      0.032  0.0320  0.0000        0.071  0.0710  0.0000
*      0.033  0.0330  0.6964        0.072  0.0720  0.0000
*      0.034  0.0340  0.0000        0.073  0.0730  0.0000
*      0.035  0.0350  0.0000        0.074  0.0740  0.0000
*      0.037  0.0370  0.0000        0.076  0.0760  0.0000
*      0.040  0.0400  0.1164        0.080  0.0800  0.0545
*      0.042  0.0420  0.0000        0.084  0.0840  0.0000
*      0.046  0.0460  0.0000        0.088  0.0880  0.0000
*      0.050  0.0500  0.0000        0.090  0.0900  0.0000
*      0.053  0.0530  0.0000        0.093  0.0930  0.0000
*      0.056  0.0560  0.0000        0.096  0.0960  0.0000
*      0.060  0.0600  0.0000        0.100  0.1000  0.0000
*      0.065  0.0650  0.0000        0.110  0.1100  0.0000
*      0.070  0.0700  0.0091        0.115  0.1150  0.0091
*      0.075  0.0750  0.0000        0.120  0.1200  0.0000
*      0.080  0.0800  0.0000        0.150  0.1500  0.0000
*    ---------------------------------------------------
*    Equation (7-1) with L=  0.5758, Lc=  0.2036, S=   10.560, n=0.0371
*    Resulting lag:   19.3 minutes
* Lag computation for station K
*    Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
*    Basin "n" composition (based on Table 7-1)
*              Developed                    Undeveloped
*           n   adj n   fract            n   adj n   fract
*    ---------------------------------------------------
*      0.030  0.0300  0.0000        0.067  0.0670  0.0000
*      0.031  0.0310  0.0000        0.070  0.0700  0.0000
*      0.032  0.0320  0.0000        0.071  0.0710  0.0000
*      0.033  0.0330  0.0000        0.072  0.0720  0.0000
*      0.034  0.0340  0.0000        0.073  0.0730  0.0000
*      0.035  0.0350  0.6104        0.074  0.0740  0.0000
*      0.037  0.0370  0.0000        0.076  0.0760  0.0000
*      0.040  0.0400  0.0248        0.080  0.0800  0.0521
*      0.042  0.0420  0.0000        0.084  0.0840  0.0000
*      0.046  0.0460  0.0000        0.088  0.0880  0.0000
*      0.050  0.0500  0.0000        0.090  0.0900  0.0000
*      0.053  0.0530  0.0000        0.093  0.0930  0.0000
*      0.056  0.0560  0.0000        0.096  0.0960  0.0000
*      0.060  0.0600  0.0000        0.100  0.1000  0.0000
*      0.065  0.0650  0.2481        0.110  0.1100  0.0000
*      0.070  0.0700  0.0397        0.115  0.1150  0.0248
*      0.075  0.0750  0.0000        0.120  0.1200  0.0000
*      0.080  0.0800  0.0000        0.150  0.1500  0.0000
*    ---------------------------------------------------
*    Equation (7-1) with L=  0.4909, Lc=  0.2286, S=   10.560, n=0.0483
*    Resulting lag:   24.8 minutes
* Lag computation for station L
*    Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
*    Basin "n" composition (based on Table 7-1)
*              Developed                    Undeveloped
*           n   adj n   fract            n   adj n   fract
*    ---------------------------------------------------
*      0.030  0.0300  0.0000        0.067  0.0670  0.0000
*      0.031  0.0310  0.0000        0.070  0.0700  0.0000
*      0.032  0.0320  0.0000        0.071  0.0710  0.0000
*      0.033  0.0330  0.0000        0.072  0.0720  0.0000
*      0.034  0.0340  0.0000        0.073  0.0730  0.0000
*      0.035  0.0350  1.0000        0.074  0.0740  0.0000
*      0.037  0.0370  0.0000        0.076  0.0760  0.0000
*      0.040  0.0400  0.0000        0.080  0.0800  0.0000
*      0.042  0.0420  0.0000        0.084  0.0840  0.0000
*      0.046  0.0460  0.0000        0.088  0.0880  0.0000
*      0.050  0.0500  0.0000        0.090  0.0900  0.0000
*      0.053  0.0530  0.0000        0.093  0.0930  0.0000
*      0.056  0.0560  0.0000        0.096  0.0960  0.0000
*      0.060  0.0600  0.0000        0.100  0.1000  0.0000
*      0.065  0.0650  0.0000        0.110  0.1100  0.0000
*      0.070  0.0700  0.0000        0.115  0.1150  0.0000
*      0.075  0.0750  0.0000        0.120  0.1200  0.0000
*      0.080  0.0800  0.0000        0.150  0.1500  0.0000
*    ---------------------------------------------------
*    Equation (7-1) with L=  0.2784, Lc=  0.0848, S=   10.560, n=0.0350
```

```
*   Resulting lag:   10.8 minutes
* Lag computation for station M
*   Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
*   Basin "n" composition (based on Table 7-1)
*                Developed                      Undeveloped
*          n   adj n   fract            n   adj n   fract
*   ----------------------------------------------------
*      0.030  0.0300  1.0000        0.067  0.0670  0.0000
*      0.031  0.0310  0.0000        0.070  0.0700  0.0000
*      0.032  0.0320  0.0000        0.071  0.0710  0.0000
*      0.033  0.0330  0.0000        0.072  0.0720  0.0000
*      0.034  0.0340  0.0000        0.073  0.0730  0.0000
*      0.035  0.0350  0.0000        0.074  0.0740  0.0000
*      0.037  0.0370  0.0000        0.076  0.0760  0.0000
*      0.040  0.0400  0.0000        0.080  0.0800  0.0000
*      0.042  0.0420  0.0000        0.084  0.0840  0.0000
*      0.046  0.0460  0.0000        0.088  0.0880  0.0000
*      0.050  0.0500  0.0000        0.090  0.0900  0.0000
*      0.053  0.0530  0.0000        0.093  0.0930  0.0000
*      0.056  0.0560  0.0000        0.096  0.0960  0.0000
*      0.060  0.0600  0.0000        0.100  0.1000  0.0000
*      0.065  0.0650  0.0000        0.110  0.1100  0.0000
*      0.070  0.0700  0.0000        0.115  0.1150  0.0000
*      0.075  0.0750  0.0000        0.120  0.1200  0.0000
*      0.080  0.0800  0.0000        0.150  0.1500  0.0000
*   ----------------------------------------------------
*   Equation (7-1) with L=  0.8854, Lc=  0.4290, S=    4.752, n=0.0300
*   Resulting lag:   26.3 minutes
* Lag computation for station N
*   Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
*   Basin "n" composition (based on Table 7-1)
*                Developed                      Undeveloped
*          n   adj n   fract            n   adj n   fract
*   ----------------------------------------------------
*      0.030  0.0300  0.0000        0.067  0.0670  0.0000
*      0.031  0.0310  0.0000        0.070  0.0700  0.0000
*      0.032  0.0320  0.0000        0.071  0.0710  0.0000
*      0.033  0.0330  0.0000        0.072  0.0720  0.0000
*      0.034  0.0340  0.0000        0.073  0.0730  0.0000
*      0.035  0.0350  0.2500        0.074  0.0740  0.0000
*      0.037  0.0370  0.0000        0.076  0.0760  0.0000
*      0.040  0.0400  0.4917        0.080  0.0800  0.0000
*      0.042  0.0420  0.0000        0.084  0.0840  0.0000
*      0.046  0.0460  0.0000        0.088  0.0880  0.0000
*      0.050  0.0500  0.0000        0.090  0.0900  0.0000
*      0.053  0.0530  0.0000        0.093  0.0930  0.0000
*      0.056  0.0560  0.0000        0.096  0.0960  0.0000
*      0.060  0.0600  0.0000        0.100  0.1000  0.0000
*      0.065  0.0650  0.1708        0.110  0.1100  0.0000
*      0.070  0.0700  0.0875        0.115  0.1150  0.0000
*      0.075  0.0750  0.0000        0.120  0.1200  0.0000
*      0.080  0.0800  0.0000        0.150  0.1500  0.0000
*   ----------------------------------------------------
*   Equation (7-1) with L=  0.4350, Lc=  0.1388, S=   10.560, n=0.0456
*   Resulting lag:   19.1 minutes
* Lag computation for station O
*   Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
*   Basin "n" composition (based on Table 7-1)
*                Developed                      Undeveloped
*          n   adj n   fract            n   adj n   fract
*   ----------------------------------------------------
*      0.030  0.0300  0.0000        0.067  0.0670  0.0000
*      0.031  0.0310  0.0000        0.070  0.0700  0.0000
*      0.032  0.0320  0.0000        0.071  0.0710  0.0000
*      0.033  0.0330  0.0000        0.072  0.0720  0.0000
*      0.034  0.0340  0.0000        0.073  0.0730  0.0000
*      0.035  0.0350  0.0000        0.074  0.0740  0.0000
*      0.037  0.0370  0.0000        0.076  0.0760  0.0000
*      0.040  0.0400  1.0000        0.080  0.0800  0.0000
*      0.042  0.0420  0.0000        0.084  0.0840  0.0000
*      0.046  0.0460  0.0000        0.088  0.0880  0.0000
*      0.050  0.0500  0.0000        0.090  0.0900  0.0000
*      0.053  0.0530  0.0000        0.093  0.0930  0.0000
*      0.056  0.0560  0.0000        0.096  0.0960  0.0000
*      0.060  0.0600  0.0000        0.100  0.1000  0.0000
*      0.065  0.0650  0.0000        0.110  0.1100  0.0000
*      0.070  0.0700  0.0000        0.115  0.1150  0.0000
*      0.075  0.0750  0.0000        0.120  0.1200  0.0000
*      0.080  0.0800  0.0000        0.150  0.1500  0.0000
*   ----------------------------------------------------
*   Equation (7-1) with L=  0.2949, Lc=  0.1515, S=   10.560, n=0.0400
*   Resulting lag:   15.2 minutes
* Lag computation for station P
*   Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
*   Basin "n" composition (based on Table 7-1)
*                Developed                      Undeveloped
*          n   adj n   fract            n   adj n   fract
*   ----------------------------------------------------
*      0.030  0.0300  0.0000        0.067  0.0670  0.0000
*      0.031  0.0310  0.0000        0.070  0.0700  0.0000
*      0.032  0.0320  0.0000        0.071  0.0710  0.0000
*      0.033  0.0330  0.0000        0.072  0.0720  0.0000
*      0.034  0.0340  0.0000        0.073  0.0730  0.0000
*      0.035  0.0350  0.7945        0.074  0.0740  0.0000
*      0.037  0.0370  0.0000        0.076  0.0760  0.0000
```

```
*      0.040  0.0400  0.0000        0.080  0.0800  0.0000
*      0.042  0.0420  0.0000        0.084  0.0840  0.0000
*      0.046  0.0460  0.0000        0.088  0.0880  0.0000
*      0.050  0.0500  0.0000        0.090  0.0900  0.0000
*      0.053  0.0530  0.0000        0.093  0.0930  0.0000
*      0.056  0.0560  0.0000        0.096  0.0960  0.0000
*      0.060  0.0600  0.0000        0.100  0.1000  0.0000
*      0.065  0.0650  0.1187        0.110  0.1100  0.0000
*      0.070  0.0700  0.0868        0.115  0.1150  0.0000
*      0.075  0.0750  0.0000        0.120  0.1200  0.0000
*      0.080  0.0800  0.0000        0.150  0.1500  0.0000
*    ---------------------------------------------------
*    Equation (7-1) with L=  0.3576, Lc=  0.1437, S=   10.560, n=0.0416
*    Resulting lag:   16.5 minutes
* Lag computation for station OFF-N
*    Lag frequency factor of 1.0 (Table 7-6) for frequency  10 years will be appl
*    Basin "n" composition (based on Table 7-1)
*                Developed                    Undeveloped
*           n   adj n   fract            n   adj n   fract
*    ---------------------------------------------------
*      0.030  0.0300  0.0000        0.067  0.0670  0.0000
*      0.031  0.0310  0.0000        0.070  0.0700  0.0000
*      0.032  0.0320  0.0000        0.071  0.0710  0.0000
*      0.033  0.0330  0.0000        0.072  0.0720  0.0000
*      0.034  0.0340  0.0000        0.073  0.0730  0.0000
*      0.035  0.0350  0.0000        0.074  0.0740  0.0000
*      0.037  0.0370  0.0000        0.076  0.0760  0.0000
*      0.040  0.0400  0.0000        0.080  0.0800  0.0000
*      0.042  0.0420  0.0000        0.084  0.0840  0.0000
*      0.046  0.0460  0.0000        0.088  0.0880  0.0000
*      0.050  0.0500  0.0000        0.090  0.0900  0.0000
*      0.053  0.0530  0.0000        0.093  0.0930  0.0000
*      0.056  0.0560  0.0000        0.096  0.0960  0.0000
*      0.060  0.0600  0.0000        0.100  0.1000  0.0000
*      0.065  0.0650  0.0000        0.110  0.1100  0.0000
*      0.070  0.0700  0.5000        0.115  0.1150  0.5000
*      0.075  0.0750  0.0000        0.120  0.1200  0.0000
*      0.080  0.0800  0.0000        0.150  0.1500  0.0000
*    ---------------------------------------------------
*    Equation (7-1) with L=  0.9470, Lc=  0.3788, S=    5.280, n=0.0925
*    Resulting lag:   78.2 minutes
* End of lag computations
*
*   NMIN  JXDATE  JXTIME      NQ
1                             HEC-1L INPUT                                    PAGE  2

LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

   2          IT       1 31DEC99    2400   14947
              *   IPRT    IPLT
   3          IO       3       0
              *

   4          KK  A
              *  JXMIN    Time interval for input data
   5          IN      60
   6          KM
              *
              * Design storm construction details
              *
              * Regional multiplier (zone 2) applied:  1.000
              * Areal adjustment using area:  1.813
              *   multiplier from table 4-4: 1.0000
              *
              * Adjusted depths for each duration from table 4-1: frequency:  10
              * Duration----Regional------Elev-----Areal (adjustments)
              * 5 min         0.2500     0.2500     0.2500
              * 10 min        0.3600     0.3600     0.3600
              * 15 min        0.4300     0.4300     0.4300
              * 30 min        0.5700     0.5700     0.5700
              * 1 hour        0.7700     0.7700     0.7700
              * 2 hours       1.0400     1.0400     1.0315
              * 3 hours       1.2300     1.2300     1.2200
              * 6 hours       1.6500     1.6500     1.6366
              * 12 hours      2.2500     2.2500     2.2500
              * 24 hours      2.9800     2.9800     2.9800
              * 36 hours      3.5400     3.5400     3.5046
              * 2 days        3.9500     3.9500     3.9500
              * 3 days        4.6500     4.6500     4.6500
              * 5 days        5.7600     5.7600     5.7024
              * 10 days       7.5400     7.5400     7.4646
              * Storm duration:  10, length:  240 ordinates
              * Distrubution using table 4-8 of total rainfall:  7.4646
   7          PB       0
   8          PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
   9          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
  10          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
  11          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
  12          PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
  13          PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
  14          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
  15          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
  16          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
  17          PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
  18          PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
```

```
19          PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
20          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
21          PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
22          PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
23          PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
24          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
25          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
26          PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
1                                          HEC-1L INPUT                                  PAGE  3

LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

27          PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
28          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
29          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
30          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
31          PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
            *
            * Precipitation losses computation (Chapter 5)
            *   Computing RTIMP (percent impervious) from land use and table 5-2
            *   Computing CNSTL (infiltration rate) from soil type and table 5-2
            *  TAREA   subbasin area (sq mi)
32          BA  0.1169
            *  STRTL    CNSTL    RTIMP
33          LU    0.20    0.061   60.151
            *
            * Runoff hydrograph computation (Chapter 6)
            *   Using basin lag:  28.3 minutes
            *   Using unit duration (Step 2): 1. min
            *   Lag Time + Unit Duration / 2 (Step 3): 28.83720
            *   Volume of runoff (Step 4) V=     3.142639
34          UI    2.90    6.51   10.71   15.06   19.69   24.18   27.76   33.67   39.74   44.96
35          UI   51.33   57.94   64.71   72.19   79.73   87.50   96.53  106.03  115.51  124.36
36          UI  127.74  129.51  130.69  129.68  128.03  125.67  118.64  111.48  104.21   96.86
37          UI   90.17   84.40   80.36   76.37   72.09   67.37   64.39   61.41   58.37   55.24
38          UI   52.59   50.23   47.82   45.62   43.48   41.30   39.71   38.10   36.33   34.92
39          UI   33.49   32.05   30.73   29.57   28.51   27.55   26.46   25.40   24.49   23.67
40          UI   22.85   22.04   21.45   20.68   19.82   19.32   18.61   17.90   17.53   16.96
41          UI   16.45   16.18   15.74   15.35   15.03   14.62   14.21   13.81   13.45   13.15
42          UI   12.85   12.49   12.17   11.88   11.65   11.34   11.03   10.72   10.53   10.27
43          UI    9.97    9.79    9.51    9.25    9.11    8.82    8.56    8.38    8.15    8.00
44          UI    7.89    7.62    7.41    7.22    7.04    6.86    6.69    6.56    6.42    6.27
45          UI    6.09    5.95    5.81    5.68    5.54    5.40    5.27    5.13    5.00    4.87
46          UI    4.78    4.61    4.47    4.38    4.24    4.13    4.04    3.95    3.86    3.77
47          UI    3.68    3.59    3.50    3.41    3.32    3.25    3.20    3.16    3.09    3.00
48          UI    2.96    2.88    2.79    2.70    2.64    2.60    2.55    2.47    2.40    2.35
49          UI    2.26    2.20    2.15    2.11    2.06    2.01    1.97    1.92    1.88    1.83
50          UI    1.79    1.74    1.70    1.65    1.61    1.57    1.57    1.54    1.49    1.44
51          UI    1.40    1.37    1.37
52          ZW   C=FLOW P=010YR-10DY A=GREENBRI
            *

53          KK  B
            *  JXMIN    Time interval for input data
54          IN      60
55          KM
            *
            * Design storm construction details
            *
            * Regional multiplier (zone 2) applied:  1.000
            * Areal adjustment using area:  1.813
            *   multiplier from table 4-4: 1.0000
            *
            * Adjusted depths for each duration from table 4-1: frequency:  10
            * Duration----Regional------Elev-----Areal (adjustments)
            * 5 min          0.2500    0.2500    0.2500
            * 10 min         0.3600    0.3600    0.3600
            * 15 min         0.4300    0.4300    0.4300
            * 30 min         0.5700    0.5700    0.5700
            * 1 hour         0.7700    0.7700    0.7700
            * 2 hours        1.0400    1.0400    1.0315
            * 3 hours        1.2300    1.2300    1.2200
            * 6 hours        1.6500    1.6500    1.6366
            * 12 hours       2.2500    2.2500    2.2500
            * 24 hours       2.9800    2.9800    2.9800
            * 36 hours       3.5400    3.5400    3.5046
            * 2 days         3.9500    3.9500    3.9500
            * 3 days         4.6500    4.6500    4.6500
            * 5 days         5.7600    5.7600    5.7024
            * 10 days        7.5400    7.5400    7.4646
            * Storm duration:  10, length:  240 ordinates
            * Distrubution using table 4-8 of total rainfall:  7.4646
1                                          HEC-1L INPUT                                  PAGE  4

LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

56          PB       0
57          PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
58          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
59          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
60          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
61          PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
62          PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
63          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
64          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
```

```
 65          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 66          PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
 67          PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
 68          PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
 69          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
 70          PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
 71          PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
 72          PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
 73          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 74          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 75          PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
 76          PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
 77          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 78          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 79          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
 80          PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
             *
             * Precipitation losses computation (Chapter 5)
             *   Computing RTIMP (percent impervious) from land use and table 5-2
             *   Computing CNSTL (infiltration rate) from soil type and table 5-2
             *  TAREA   subbasin area (sq mi)
 81          BA  0.0433
             *  STRTL   CNSTL   RTIMP
 82          LU    0.20   0.062  57.838
             *
             * Runoff hydrograph computation (Chapter 6)
             *   Using basin lag:  14.7 minutes
             *   Using unit duration (Step 2): 1. min
             *   Lag Time + Unit Duration / 2 (Step 3): 15.21310
             *   Volume of runoff (Step 4) V=    1.163785
 83          UI   4.266   9.933  16.116  21.721  29.648  37.728  46.837  56.841  68.140  80.809
 84          UI  89.443  91.531  90.410  85.565  76.047  66.329  58.610  53.270  47.241  43.300
 85          UI  39.201  35.757  32.628  29.766  27.467  25.216  23.323  21.504  20.029  18.681
 86          UI  17.346  16.237  15.239  14.230  13.438  12.502  11.842  11.349  10.791  10.315
 87          UI   9.772   9.304   8.893   8.449   8.119   7.696   7.383   7.004   6.705   6.417
 88          UI   6.050   5.792   5.583   5.281   5.039   4.797   4.599   4.406   4.191   4.010
 89          UI   3.829   3.648   3.467   3.325   3.125   2.970   2.838   2.718   2.597   2.476
 90          UI   2.355   2.265   2.205   2.098   2.010   1.890   1.825   1.740   1.659   1.553
 91          UI   1.492   1.432   1.372   1.311   1.251   1.191   1.130   1.102   1.055   0.995
 92          UI   0.964
 93          ZW   C=FLOW F=010YR-10DY A=GREENBRI
             *
```



```
LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 94          KK  C
             *  JXMIN    Time interval for input data
 95          IN      60
 96          KM
             *
             * Design storm construction details
             *
             * Regional multiplier (zone 2) applied:  1.000
             * Areal adjustment using area:  1.813
             *   multiplier from table 4-4: 1.0000
             *
             * Adjusted depths for each duration from table 4-1: frequency:  10
             * Duration----Regional------Elev-----Areal (adjustments)
             * 5 min         0.2500    0.2500    0.2500
             * 10 min        0.3600    0.3600    0.3600
             * 15 min        0.4300    0.4300    0.4300
             * 30 min        0.5700    0.5700    0.5700
             * 1 hour        0.7700    0.7700    0.7700
             * 2 hours       1.0400    1.0400    1.0315
             * 3 hours       1.2300    1.2300    1.2200
             * 6 hours       1.6500    1.6500    1.6366
             * 12 hours      2.2500    2.2500    2.2500
             * 24 hours      2.9800    2.9800    2.9800
             * 36 hours      3.5400    3.5400    3.5046
             * 2 days        3.9500    3.9500    3.9500
             * 3 days        4.6500    4.6500    4.6500
             * 5 days        5.7600    5.7600    5.7024
             * 10 days       7.5400    7.5400    7.4646
             * Storm duration:  10, length:  240 ordinates
             * Distrubution using table 4-8 of total rainfall:  7.4646
 97          PB      0
 98          PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
 99          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
100          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
101          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
102          PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
103          PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
104          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
105          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
106          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
107          PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
108          PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
109          PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
110          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
111          PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
112          PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
113          PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
114          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
```

```
115          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
116          PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
117          PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
118          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
119          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
120          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
1                                        HEC-1L INPUT                                    PAGE  6

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

121          PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
             *
             * Precipitation losses computation (Chapter 5)
             *   Computing RTIMP (percent impervious) from land use and table 5-2
             *   Computing CNSTL (infiltration rate) from soil type and table 5-2
             *  TAREA   subbasin area (sq mi)
122          BA  0.0616
             *  STRTL    CNSTL    RTIMP
123          LU    0.20    0.063  56.962
             *
             * Runoff hydrograph computation (Chapter 6)
             *   Using basin lag:  18.6 minutes
             *   Using unit duration (Step 2): 1. min
             *   Lag Time + Unit Duration / 2 (Step 3): 19.06322
             *   Volume of runoff (Step 4) V=    1.655347
124          UI    3.57    8.62   13.94   19.41   24.56   31.99   38.77   46.71   55.23   64.30
125          UI   74.33   85.66   96.73  102.08  103.85  103.14  100.80   93.26   84.54   75.69
126          UI   68.00   63.14   58.22   52.91   49.38   45.68   42.20   39.34   36.58   33.98
127          UI   31.77   29.78   27.91   26.18   24.55   23.16   21.98   20.65   19.52   18.53
128          UI   17.55   16.81   15.77   15.11   14.24   13.72   13.08   12.68   12.20   11.77
129          UI   11.28   10.81   10.44   10.04    9.64    9.34    8.98    8.60    8.36    7.99
130          UI    7.76    7.39    7.21    6.85    6.62    6.38    6.21    5.92    5.70    5.48
131          UI    5.29    5.13    4.93    4.75    4.58    4.42    4.25    4.09    3.93    3.81
132          UI    3.60    3.49    3.33    3.22    3.11    3.00    2.89    2.78    2.67    2.58
133          UI    2.53    2.45    2.37    2.28    2.17    2.10    2.04    1.95    1.88    1.78
134          UI    1.72    1.67    1.61    1.56    1.50    1.45    1.39    1.34    1.28    1.25
135          UI    1.23    1.17    1.12    1.09
136          ZW   C=FLOW F=010YR-10DY A=GREENBRI
             *

137          KK  D
             *  JXMIN    Time interval for input data
138          IN      60
139          KM
             *
             * Design storm construction details
             *
             * Regional multiplier (zone 2) applied:  1.000
             * Areal adjustment using area:  1.813
             *   multiplier from table 4-4: 1.0000
             *
             * Adjusted depths for each duration from table 4-1: frequency:  10
             * Duration----Regional------Elev-----Areal (adjustments)
             * 5 min          0.2500     0.2500     0.2500
             * 10 min         0.3600     0.3600     0.3600
             * 15 min         0.4300     0.4300     0.4300
             * 30 min         0.5700     0.5700     0.5700
             * 1 hour         0.7700     0.7700     0.7700
             * 2 hours        1.0400     1.0400     1.0315
             * 3 hours        1.2300     1.2300     1.2200
             * 6 hours        1.6500     1.6500     1.6366
             * 12 hours       2.2500     2.2500     2.2500
             * 24 hours       2.9800     2.9800     2.9800
             * 36 hours       3.5400     3.5400     3.5046
             * 2 days         3.9500     3.9500     3.9500
             * 3 days         4.6500     4.6500     4.6500
             * 5 days         5.7600     5.7600     5.7024
             * 10 days        7.5400     7.5400     7.4646
             * Storm duration:  10, length:  240 ordinates
             * Distrubution using table 4-8 of total rainfall:  7.4646
1                                        HEC-1L INPUT                                    PAGE  7

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

140          PB       0
141          PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
142          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
143          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
144          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
145          PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
146          PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
147          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
148          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
149          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
150          PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
151          PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
152          PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
153          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
154          PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
155          PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
156          PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
157          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
158          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
159          PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
160          PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
```

```
161          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
162          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
163          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
164          PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
             *
             * Precipitation losses computation (Chapter 5)
             *   Computing RTIMP (percent impervious) from land use and table 5-2
             *   Computing CNSTL (infiltration rate) from soil type and table 5-2
             *  TAREA   subbasin area (sq mi)
165          BA  0.0466
             *  STRTL    CNSTL    RTIMP
166          LU    0.20    0.067  47.037
             *
             * Runoff hydrograph computation (Chapter 6)
             *   Using basin lag:  18.1 minutes
             *   Using unit duration (Step 2): 1. min
             *   Lag Time + Unit Duration / 2 (Step 3): 18.57796
             *   Volume of runoff (Step 4) V=    1.252014
167          UI   2.873   6.902  11.165  15.414  19.858  25.588  31.201  37.574  44.506  51.751
168          UI  60.110  69.329  77.880  79.895  80.715  79.393  76.031  69.207  62.206  55.583
169          UI  50.704  46.857  42.534  39.361  36.464  33.468  31.195  28.922  26.867  24.958
170          UI  23.431  21.878  20.508  19.188  18.063  17.110  16.061  15.156  14.365  13.594
171          UI  12.989  12.197  11.635  11.001  10.545  10.104   9.746   9.392   9.027   8.635
172          UI   8.280   8.011   7.667   7.373   7.138   6.833   6.573   6.345   6.103   5.857
173          UI   5.661   5.409   5.204   4.994   4.895   4.642   4.468   4.293   4.131   4.000
174          UI   3.852   3.698   3.568   3.437   3.307   3.176   3.046   2.954   2.786   2.694
175          UI   2.572   2.485   2.398   2.311   2.223   2.136   2.049   1.992   1.948   1.869
176          UI   1.821   1.735   1.653   1.610   1.555   1.482   1.421   1.355   1.311   1.267
177          UI   1.224   1.180   1.137   1.093   1.050   1.006   0.970   0.960   0.916   0.873
178          UI   0.849
179          ZW   C=FLOW F=010YR-10DY A=GREENBRI
             *
1                                    HEC-1L INPUT                                        PAGE  8

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10


180          KK  E
             *  JXMIN    Time interval for input data
181          IN      60
182          KM
             *
             * Design storm construction details
             *
             * Regional multiplier (zone 2) applied:  1.000
             * Areal adjustment using area:  1.813
             *   multiplier from table 4-4: 1.0000
             *
             * Adjusted depths for each duration from table 4-1: frequency:  10
             * Duration----Regional------Elev-----Areal (adjustments)
             * 5 min         0.2500    0.2500    0.2500
             * 10 min        0.3600    0.3600    0.3600
             * 15 min        0.4300    0.4300    0.4300
             * 30 min        0.5700    0.5700    0.5700
             * 1 hour        0.7700    0.7700    0.7700
             * 2 hours       1.0400    1.0400    1.0315
             * 3 hours       1.2300    1.2300    1.2200
             * 6 hours       1.6500    1.6500    1.6366
             * 12 hours      2.2500    2.2500    2.2500
             * 24 hours      2.9800    2.9800    2.9800
             * 36 hours      3.5400    3.5400    3.5046
             * 2 days        3.9500    3.9500    3.9500
             * 3 days        4.6500    4.6500    4.6500
             * 5 days        5.7600    5.7600    5.7024
             * 10 days       7.5400    7.5400    7.4646
             * Storm duration:  10, length:  240 ordinates
             * Distrubution using table 4-8 of total rainfall:  7.4646
183          PB      0
184          PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
185          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
186          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
187          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
188          PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
189          PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
190          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
191          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
192          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
193          PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
194          PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
195          PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
196          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
197          PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
198          PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
199          PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
200          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
201          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
202          PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
203          PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
204          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
205          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
206          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
1                                    HEC-1L INPUT                                        PAGE  9

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
```

```
207          PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
             *
             * Precipitation losses computation (Chapter 5)
             *   Computing RTIMP (percent impervious) from land use and table 5-2
             *   Computing CNSTL (infiltration rate) from soil type and table 5-2
             *  TAREA   subbasin area (sq mi)
208          BA  0.0377
             *  STRTL   CNSTL   RTIMP
209          LU    0.20   0.059  60.768
             *
             * Runoff hydrograph computation (Chapter 6)
             *   Using basin lag:  15.0 minutes
             *   Using unit duration (Step 2): 1. min
             *   Lag Time + Unit Duration / 2 (Step 3): 15.50161
             *   Volume of runoff (Step 4) V=    1.012535
210          UI   3.555   8.297  13.458  17.994  24.763  31.391  38.884  47.252  56.463  67.056
211          UI  75.874  77.854  77.595  75.140  67.234  59.093  51.633  47.003  42.232  38.233
212          UI  34.861  31.628  28.972  26.519  24.243  22.447  20.736  19.140  17.755  16.624
213          UI  15.406  14.416  13.506  12.766  11.847  11.168  10.546   9.909   9.556   9.122
214          UI   8.697   8.250   7.883   7.519   7.160   6.880   6.526   6.282   5.962   5.700
215          UI   5.471   5.159   4.942   4.768   4.516   4.311   4.109   3.939   3.783   3.596
216          UI   3.445   3.293   3.141   2.990   2.872   2.692   2.574   2.451   2.350   2.249
217          UI   2.147   2.046   1.952   1.902   1.821   1.759   1.658   1.582   1.531   1.442
218          UI   1.371   1.301   1.251   1.200   1.150   1.099   1.048   0.998   0.947   0.936
219          UI   0.885   0.835   0.823
220          ZW   C=FLOW F=010YR-10DY A=GREENBRI
             *

221          KK  DUMMY1
222          KM
223          HC       5
224          ZW   C=FLOW
             *

225          KK  F
             *  JXMIN    Time interval for input data
226          IN      60
227          KM
             *
             * Design storm construction details
             *
             * Regional multiplier (zone 2) applied:  1.000
             * Areal adjustment using area:  1.813
             *   multiplier from table 4-4: 1.0000
             *
             * Adjusted depths for each duration from table 4-1: frequency:  10
             * Duration----Regional------Elev-----Areal (adjustments)
             * 5 min          0.2500     0.2500     0.2500
             * 10 min         0.3600     0.3600     0.3600
             * 15 min         0.4300     0.4300     0.4300
             * 30 min         0.5700     0.5700     0.5700
             * 1 hour         0.7700     0.7700     0.7700
             * 2 hours        1.0400     1.0400     1.0315
             * 3 hours        1.2300     1.2300     1.2200
             * 6 hours        1.6500     1.6500     1.6366
             * 12 hours       2.2500     2.2500     2.2500
             * 24 hours       2.9800     2.9800     2.9800
             * 36 hours       3.5400     3.5400     3.5046
             * 2 days         3.9500     3.9500     3.9500
             * 3 days         4.6500     4.6500     4.6500
             * 5 days         5.7600     5.7600     5.7024
             * 10 days        7.5400     7.5400     7.4646
             * Storm duration:  10, length:  240 ordinates
             * Distrubution using table 4-8 of total rainfall:  7.4646
1                                    HEC-1L INPUT                                                    PAGE 10

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

228          PB       0
229          PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
230          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
231          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
232          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
233          PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
234          PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
235          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
236          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
237          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
238          PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
239          PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
240          PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
241          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
242          PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
243          PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
244          PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
245          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
246          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
247          PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
248          PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
249          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
250          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
251          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
252          PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
             *
             * Precipitation losses computation (Chapter 5)
```

```
                *   Computing RTIMP (percent impervious) from land use and table 5-2
                *   Computing CNSTL (infiltration rate) from soil type and table 5-2
                *  TAREA   subbasin area (sq mi)
253             BA  0.0458
                *  STRTL   CNSTL   RTIMP
254             LU    0.20   0.070  49.509
                *
                * Runoff hydrograph computation (Chapter 6)
                *   Using basin lag:  15.9 minutes
                *   Using unit duration (Step 2): 1. min
                *   Lag Time + Unit Duration / 2 (Step 3): 16.40914
                *   Volume of runoff (Step 4) V=    1.231007
255             UI   3.787   8.913  14.446  19.182  26.594  33.298  41.287  50.002  59.141  70.142
256             UI  81.534  88.062  89.842  88.719  84.767  76.150  67.308  59.265  54.244  49.145
257             UI  44.512  40.890  37.147  34.283  31.502  28.893  26.873  24.804  23.088  21.408
258             UI  19.994  18.812  17.490  16.433  15.445  14.655  13.636  12.933  12.186  11.543
259             UI  11.125  10.608  10.187   9.693   9.237   8.888   8.462   8.124   7.784   7.400
260             UI   7.151   6.819   6.518   6.281   5.935   5.704   5.494   5.259   5.012   4.793
261             UI   4.589   4.425   4.225   4.050   3.886   3.721   3.557   3.392   3.268   3.077
262             UI   2.943   2.813   2.703   2.593   2.484   2.374   2.264   2.202   2.135   2.048
263             UI   1.960   1.850   1.793   1.721   1.638   1.547   1.484   1.429   1.374   1.319
264             UI   1.264   1.209   1.154   1.100   1.080   1.035   0.980   0.945
265             ZW   C=FLOW F=010YR-10DY A=GREENBRI
                *
                                          HEC-1L INPUT                                          PAGE 11
1
LINE            ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

266             KK  G
                *  JXMIN    Time interval for input data
267             IN      60
268             KM
                *
                * Design storm construction details
                *
                * Regional multiplier (zone 2) applied:  1.000
                * Areal adjustment using area:  1.813
                *   multiplier from table 4-4: 1.0000
                *
                * Adjusted depths for each duration from table 4-1: frequency:  10
                * Duration----Regional------Elev-----Areal (adjustments)
                * 5 min          0.2500    0.2500    0.2500
                * 10 min         0.3600    0.3600    0.3600
                * 15 min         0.4300    0.4300    0.4300
                * 30 min         0.5700    0.5700    0.5700
                * 1 hour         0.7700    0.7700    0.7700
                * 2 hours        1.0400    1.0400    1.0315
                * 3 hours        1.2300    1.2300    1.2200
                * 6 hours        1.6500    1.6500    1.6366
                * 12 hours       2.2500    2.2500    2.2500
                * 24 hours       2.9800    2.9800    2.9800
                * 36 hours       3.5400    3.5400    3.5046
                * 2 days          3.9500    3.9500    3.9500
                * 3 days          4.6500    4.6500    4.6500
                * 5 days          5.7600    5.7600    5.7024
                * 10 days         7.5400    7.5400    7.4646
                * Storm duration:  10, length:  240 ordinates
                * Distrubution using table 4-8 of total rainfall:  7.4646
269             PB       0
270             PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
271             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
272             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
273             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
274             PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
275             PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
276             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
277             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
278             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
279             PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
280             PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
281             PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
282             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
283             PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
284             PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
285             PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
286             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
287             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
288             PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
289             PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
290             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
291             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
292             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
                                          HEC-1L INPUT                                          PAGE 12
1
LINE            ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

293             PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
                *
                * Precipitation losses computation (Chapter 5)
                *   Computing RTIMP (percent impervious) from land use and table 5-2
                *   Computing CNSTL (infiltration rate) from soil type and table 5-2
                *  TAREA   subbasin area (sq mi)
294             BA  0.0614
                *  STRTL   CNSTL   RTIMP
```

```
295          LU    0.20   0.070  38.916
             *
             * Runoff hydrograph computation (Chapter 6)
             *   Using basin lag:  17.8 minutes
             *   Using unit duration (Step 2): 1. min
             *   Lag Time + Unit Duration / 2 (Step 3): 18.33008
             *   Volume of runoff (Step 4) V=    1.651146
296          UI    3.91    9.38   15.17   20.85   27.11   34.74   42.49   51.16   60.66   70.49
297          UI   82.07   94.59  104.62  107.08  107.58  105.53   99.55   90.24   80.72   72.06
298          UI   66.30   61.10   55.18   51.37   47.39   43.66   40.57   37.62   34.82   32.58
299          UI   30.37   28.46   26.58   24.90   23.51   22.21   20.84   19.71   18.65   17.76
300          UI   16.72   15.94   14.94   14.42   13.64   13.25   12.70   12.25   11.72   11.22
301          UI   10.82   10.38    9.96    9.64    9.24    8.84    8.57    8.21    7.91    7.60
302          UI    7.30    6.99    6.72    6.56    6.24    6.00    5.76    5.54    5.36    5.16
303          UI    4.95    4.77    4.60    4.42    4.24    4.07    3.94    3.72    3.59    3.43
304          UI    3.31    3.19    3.07    2.96    2.84    2.72    2.65    2.59    2.48    2.41
305          UI    2.29    2.20    2.14    2.05    1.96    1.87    1.79    1.73    1.67    1.62
306          UI    1.56    1.50    1.44    1.38    1.32    1.30    1.26    1.20    1.14
307          ZW   C=FLOW F=010YR-10DY A=GREENBRI
             *

308          KK  H
             *  JXMIN    Time interval for input data
309          IN      60
310          KM
             *
             * Design storm construction details
             *
             * Regional multiplier (zone 2) applied:  1.000
             * Areal adjustment using area:  1.813
             *   multiplier from table 4-4: 1.0000
             *
             * Adjusted depths for each duration from table 4-1: frequency:  10
             * Duration----Regional------Elev------Areal (adjustments)
             * 5 min         0.2500    0.2500    0.2500
             * 10 min        0.3600    0.3600    0.3600
             * 15 min        0.4300    0.4300    0.4300
             * 30 min        0.5700    0.5700    0.5700
             * 1 hour        0.7700    0.7700    0.7700
             * 2 hours       1.0400    1.0400    1.0315
             * 3 hours       1.2300    1.2300    1.2200
             * 6 hours       1.6500    1.6500    1.6366
             * 12 hours      2.2500    2.2500    2.2500
             * 24 hours      2.9800    2.9800    2.9800
             * 36 hours      3.5400    3.5400    3.5046
             * 2 days        3.9500    3.9500    3.9500
             * 3 days        4.6500    4.6500    4.6500
             * 5 days        5.7600    5.7600    5.7024
             * 10 days       7.5400    7.5400    7.4646
             * Storm duration:  10, length:  240 ordinates
             * Distrubution using table 4-8 of total rainfall:  7.4646
1                                    HEC-1L INPUT                                          PAGE 13

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

311          PB       0
312          PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
313          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
314          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
315          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
316          PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
317          PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
318          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
319          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
320          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
321          PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
322          PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
323          PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
324          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
325          PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
326          PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
327          PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
328          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
329          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
330          PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
331          PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
332          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
333          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
334          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
335          PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
             *
             * Precipitation losses computation (Chapter 5)
             *   Computing RTIMP (percent impervious) from land use and table 5-2
             *   Computing CNSTL (infiltration rate) from soil type and table 5-2
             *  TAREA   subbasin area (sq mi)
336          BA  0.1108
             *  STRTL   CNSTL   RTIMP
337          LU    0.20   0.069  46.942
             *
             * Runoff hydrograph computation (Chapter 6)
             *   Using basin lag:  26.4 minutes
             *   Using unit duration (Step 2): 1. min
             *   Lag Time + Unit Duration / 2 (Step 3): 26.89606
             *   Volume of runoff (Step 4) V=    2.978785
338          UI    3.16    7.23   11.84   16.58   21.76   26.15   30.94   38.05   43.83   50.33
```

```
339          UI   57.46   64.83   72.90   81.11   89.69   99.52  109.99  120.08  128.45  130.77
340          UI  132.24  132.28  130.85  128.53  121.97  114.20  106.29   98.28   91.03   85.10
341          UI   80.70   76.35   71.43   67.04   63.88   60.57   57.19   54.07   51.50   48.88
342          UI   46.45   44.12   41.74   40.09   38.27   36.46   34.92   33.35   31.85   30.48
343          UI   29.29   28.24   27.09   25.91   24.92   24.02   23.13   22.28   21.64   20.71
344          UI   19.94   19.35   18.46   17.96   17.43   16.78   16.48   16.04   15.61   15.25
345          UI   14.81   14.36   13.94   13.55   13.25   12.88   12.51   12.16   11.91   11.60
346          UI   11.26   10.91   10.71   10.42   10.11    9.91    9.58    9.35    9.15    8.81
347          UI    8.59    8.37    8.15    8.05    7.78    7.54    7.34    7.14    6.95    6.77
348          UI    6.62    6.48    6.29    6.11    5.96    5.82    5.67    5.52    5.37    5.22
349          UI    5.08    4.95    4.84    4.65    4.52    4.40    4.25    4.15    4.06    3.96
350          UI    3.86    3.76    3.66    3.56    3.46    3.36    3.29    3.24    3.19    3.10
351          UI    3.03    2.97    2.87    2.77    2.70    2.65    2.60    2.51    2.43    2.38
352          UI    2.28    2.22    2.17    2.12    2.07    2.02    1.97    1.92    1.87    1.82
353          UI    1.78    1.73    1.68    1.63    1.59    1.59    1.55    1.50    1.45    1.40
                                          HEC-1L INPUT                                          PAGE 14
1

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

354          UI    1.40
355          ZW   C=FLOW F=010YR-10DY A=GREENBRI
             *

356          KK  I
             *  JXMIN    Time interval for input data
357          IN      60
358          KM
             *
             * Design storm construction details
             *
             * Regional multiplier (zone 2) applied:  1.000
             * Areal adjustment using area:  1.813
             *   multiplier from table 4-4: 1.0000
             *
             * Adjusted depths for each duration from table 4-1: frequency:  10
             * Duration----Regional------Elev-----Areal (adjustments)
             * 5 min          0.2500    0.2500    0.2500
             * 10 min         0.3600    0.3600    0.3600
             * 15 min         0.4300    0.4300    0.4300
             * 30 min         0.5700    0.5700    0.5700
             * 1 hour         0.7700    0.7700    0.7700
             * 2 hours        1.0400    1.0400    1.0315
             * 3 hours        1.2300    1.2300    1.2200
             * 6 hours        1.6500    1.6500    1.6366
             * 12 hours       2.2500    2.2500    2.2500
             * 24 hours       2.9800    2.9800    2.9800
             * 36 hours       3.5400    3.5400    3.5046
             * 2 days         3.9500    3.9500    3.9500
             * 3 days         4.6500    4.6500    4.6500
             * 5 days         5.7600    5.7600    5.7024
             * 10 days        7.5400    7.5400    7.4646
             * Storm duration:  10, length:  240 ordinates
             * Distrubution using table 4-8 of total rainfall:  7.4646
359          PB       0
360          PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
361          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
362          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
363          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
364          PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
365          PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
366          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
367          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
368          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
369          PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
370          PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
371          PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
372          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
373          PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
374          PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
375          PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
376          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
377          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
378          PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
379          PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
                                          HEC-1L INPUT                                          PAGE 15
1

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

380          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
381          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
382          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
383          PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
             *
             * Precipitation losses computation (Chapter 5)
             *   Computing RTIMP (percent impervious) from land use and table 5-2
             *   Computing CNSTL (infiltration rate) from soil type and table 5-2
             *  TAREA    subbasin area (SQ mi)
384          BA  0.0845
             *  STRTL    CNSTL    RTIMP
385          LU    0.20    0.066  46.331
             *
             * Runoff hydrograph computation (Chapter 6)
             *   Using basin lag:  30.6 minutes
             *   Using unit duration (Step 2): 1. min
             *   Lag Time + Unit Duration / 2 (Step 3): 31.11960
```

```
                *   Volume of runoff (Step 4) V=    2.272951
386             UI   1.803   3.955   6.546   9.238  12.026  14.983  17.372  20.000  24.055  27.569
387             UI  30.893  34.920  39.041  43.238  47.883  52.555  57.259  62.759  68.502  74.530
388             UI  80.144  84.734  86.058  86.991  87.571  86.838  85.782  84.458  80.116  75.689
389             UI  71.182  66.627  62.247  58.247  55.395  52.894  50.416  47.642  44.826  43.023
390             UI  41.175  39.288  37.345  35.609  34.144  32.655  31.216  29.892  28.547  27.283
391             UI  26.354  25.314  24.238  23.365  22.476  21.575  20.757  20.000  19.325  18.722
392             UI  18.095  17.391  16.794  16.242  15.735  15.228  14.735  14.368  13.896  13.333
393             UI  13.018  12.625  12.118  11.856  11.577  11.183  10.959  10.768  10.486  10.259
394             UI  10.057   9.803   9.550   9.296   9.070   8.869   8.700   8.482   8.266   8.068
395             UI   7.914   7.762   7.565   7.367   7.177   7.065   6.907   6.710   6.595   6.447
396             UI   6.250   6.150   6.031   5.834   5.700   5.582   5.441   5.354   5.289   5.120
397             UI   4.981   4.868   4.755   4.643   4.530   4.441   4.357   4.272   4.167   4.060
398             UI   3.975   3.891   3.806   3.722   3.637   3.553   3.468   3.384   3.299   3.239
399             UI   3.166   3.053   2.982   2.920   2.836   2.769   2.713   2.657   2.600   2.544
400             UI   2.488   2.431   2.375   2.319   2.262   2.206   2.170   2.142   2.114   2.068
401             UI   2.014   1.986   1.943   1.887   1.830   1.785   1.757   1.729   1.693   1.636
402             UI   1.601   1.568   1.511   1.472   1.444   1.416   1.388   1.360   1.332   1.303
403             UI   1.275   1.247   1.219   1.191   1.163   1.135   1.106   1.078   1.052   1.052
404             UI   1.038   1.009   0.981   0.953   0.925   0.920
405             ZW   C=FLOW F=010YR-10DY A=GREENBRI
                *

406             KK  J
                *  JXMIN    Time interval for input data
407             IN      60
408             KM
                *
                * Design storm construction details
                *
                * Regional multiplier (zone 2) applied:  1.000
                * Areal adjustment using area:  1.813
                *   multiplier from table 4-4: 1.0000
                *
                * Adjusted depths for each duration from table 4-1: frequency:  10
                * Duration----Regional------Elev-----Areal (adjustments)
                * 5 min         0.2500     0.2500     0.2500
                * 10 min        0.3600     0.3600     0.3600
                * 15 min        0.4300     0.4300     0.4300
                * 30 min        0.5700     0.5700     0.5700
                * 1 hour        0.7700     0.7700     0.7700
                * 2 hours       1.0400     1.0400     1.0315
                * 3 hours       1.2300     1.2300     1.2200
                * 6 hours       1.6500     1.6500     1.6366
                * 12 hours      2.2500     2.2500     2.2500
                * 24 hours      2.9800     2.9800     2.9800
                * 36 hours      3.5400     3.5400     3.5046
                * 2 days        3.9500     3.9500     3.9500
                * 3 days        4.6500     4.6500     4.6500
                * 5 days        5.7600     5.7600     5.7024
                * 10 days       7.5400     7.5400     7.4646
                * Storm duration:  10, length:  240 ordinates
                * Distrubution using table 4-8 of total rainfall:  7.4646

1                                        HEC-1L INPUT                                                    PAGE 16

LINE            ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

409             PB       0
410             PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
411             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
412             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
413             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
414             PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
415             PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
416             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
417             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
418             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
419             PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
420             PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
421             PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
422             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
423             PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
424             PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
425             PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
426             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
427             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
428             PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
429             PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
430             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
431             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
432             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
433             PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
                *
                * Precipitation losses computation (Chapter 5)
                *   Computing RTIMP (percent impervious) from land use and table 5-2
                *   Computing CNSTL (infiltration rate) from soil type and table 5-2
                *  TAREA   subbasin area (sq mi)
434             BA  0.0859
                *  STRTL   CNSTL   RTIMP
435             LU    0.20   0.056  75.173
                *
                * Runoff hydrograph computation (Chapter 6)
                *   Using basin lag:  19.3 minutes
                *   Using unit duration (Step 2): 1. min
                *   Lag Time + Unit Duration / 2 (Step 3): 19.84462
```

```
                *   Volume of runoff (Step 4) V=    2.310764
436             UI    4.52   11.00   17.78   25.11   30.86   40.90   49.10   59.20   69.77   81.40
437             UI   93.35  107.46  122.39  134.99  138.13  139.50  137.48  133.10  122.14  110.85
438             UI   99.67   90.31   84.06   77.65   70.88   66.33   61.58   56.98   53.31   49.67
439             UI   46.35   43.23   40.80   38.20   36.00   33.80   31.86   30.23   28.67   27.02
440             UI   25.66   24.39   23.24   22.16   20.97   20.02   19.01   18.29   17.52   16.98
441             UI   16.36   15.81   15.18   14.58   14.07   13.59   13.06   12.63   12.21   11.72
442             UI   11.32   10.94   10.55   10.16    9.81    9.46    9.08    8.76    8.52    8.22
443             UI    7.88    7.60    7.32    7.07    6.86    6.61    6.37    6.16    5.95    5.74
444             UI    5.53    5.31    5.15    4.92    4.73    4.54    4.38    4.24    4.09    3.95
445             UI    3.81    3.67    3.53    3.44    3.37    3.25    3.16    3.04    2.90    2.81
446             UI    2.74    2.61    2.53    2.40    2.32    2.25    2.18    2.11    2.04    1.97
447             UI    1.90    1.83    1.75    1.68    1.68    1.61    1.54    1.47    1.47
448             ZW   C=FLOW F=010YR-10DY A=GREENBRI
                *
1                                        HEC-1L INPUT                                          PAGE 17

LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10


449             KK  OFF-N
                *  JXMIN    Time interval for input data
450             IN      60
451             KM   E5
                *
                * Design storm construction details
                *
                * Regional multiplier (zone 2) applied:  1.000
                * Areal adjustment using area:  1.813
                *   multiplier from table 4-4: 1.0000
                *
                * Adjusted depths for each duration from table 4-1: frequency:  10
                * Duration----Regional------Elev-----Areal (adjustments)
                * 5 min          0.2500     0.2500     0.2500
                * 10 min         0.3600     0.3600     0.3600
                * 15 min         0.4300     0.4300     0.4300
                * 30 min         0.5700     0.5700     0.5700
                * 1 hour         0.7700     0.7700     0.7700
                * 2 hours        1.0400     1.0400     1.0315
                * 3 hours        1.2300     1.2300     1.2200
                * 6 hours        1.6500     1.6500     1.6366
                * 12 hours       2.2500     2.2500     2.2500
                * 24 hours       2.9800     2.9800     2.9800
                * 36 hours       3.5400     3.5400     3.5046
                * 2 days         3.9500     3.9500     3.9500
                * 3 days         4.6500     4.6500     4.6500
                * 5 days         5.7600     5.7600     5.7024
                * 10 days        7.5400     7.5400     7.4646
                * Storm duration:  10, length:  240 ordinates
                * Distrubution using table 4-8 of total rainfall:  7.4646
452             PB       0
453             PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
454             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
455             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
456             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
457             PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
458             PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
459             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
460             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
461             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
462             PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
463             PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
464             PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
465             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
466             PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
467             PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
468             PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
469             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
470             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
471             PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
472             PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
473             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
474             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
475             PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
1                                        HEC-1L INPUT                                          PAGE 18

LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

476             PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
                *
                * Precipitation losses computation (Chapter 5)
                *   Computing RTIMP (percent impervious) from land use and table 5-2
                *   Computing CNSTL (infiltration rate) from soil type and table 5-2
                *  TAREA    subbasin area (sq mi)
477             BA  0.8438
                *  STRTL    CNSTL    RTIMP
478             LU    0.20    0.070    2.000
                *
                * Runoff hydrograph computation (Chapter 6)
                *   Using basin lag:  78.2 minutes
                *   Using unit duration (Step 2): 1. min
                *   Lag Time + Unit Duration / 2 (Step 3): 78.67958
                *   Volume of runoff (Step 4) V=    22.687500
479             UI    2.81    5.63    8.44   11.34   15.39   19.43   23.48   27.55   31.77   35.99
480             UI   40.21   44.51   49.13   53.75   58.37   62.68   66.16   69.63   73.11   77.52
```

```
481          UI   83.86   90.19   96.52  102.35  107.41  112.47  117.52  123.15  129.44  135.73
482          UI  142.02  148.44  155.00  161.55  168.10  175.07  182.33  189.59  196.84  204.16
483          UI  211.50  218.85  226.19  234.56  243.31  252.06  260.81  270.09  279.50  288.91
484          UI  298.32  307.02  315.59  324.17  332.74  335.30  337.37  339.44  341.51  342.66
485          UI  343.80  344.94  345.96  344.82  343.67  342.53  341.27  339.21  337.14  335.07
486          UI  332.11  325.29  318.48  311.66  304.79  297.75  290.71  283.68  276.61  269.49
487          UI  262.36  255.24  248.45  242.21  235.96  229.72  224.53  220.61  216.70  212.79
488          UI  208.89  205.02  201.15  197.28  193.00  188.43  183.86  179.28  175.85  173.04
489          UI  170.22  167.41  164.50  161.55  158.61  155.66  152.64  149.61  146.57  143.54
490          UI  141.14  138.85  136.57  134.28  131.95  129.62  127.29  124.96  122.89  120.82
491          UI  118.75  116.68  114.57  112.46  110.35  108.31  106.86  105.41  103.96  102.46
492          UI  100.75   99.03   97.32   95.69   94.32   92.96   91.60   90.22   88.81   87.41
493          UI   86.00   84.64   83.37   82.09   80.82   79.64   78.58   77.53   76.47   75.48
494          UI   74.56   73.64   72.71   71.69   70.59   69.49   68.39   67.43   66.55   65.67
495          UI   64.79   63.97   63.18   62.39   61.60   60.81   60.02   59.22   58.43   57.83
496          UI   57.25   56.68   56.11   55.26   54.38   53.50   52.62   52.13   51.64   51.16
497          UI   50.66   49.87   49.08   48.29   47.54   47.19   46.84   46.49   46.09   45.47
498          UI   44.86   44.24   43.71   43.45   43.18   42.92   42.60   42.16   41.72   41.28
499          UI   40.89   40.58   40.28   39.97   39.62   39.23   38.83   38.43   38.04   37.64
500          UI   37.25   36.85   36.48   36.13   35.78   35.42   35.13   34.86   34.60   34.34
501          UI   34.01   33.66   33.31   32.96   32.64   32.33   32.02   31.71   31.48   31.26
502          UI   31.04   30.82   30.52   30.21   29.90   29.60   29.29   28.98   28.67   28.37
503          UI   28.19   28.02   27.84   27.65   27.35   27.04   26.73   26.44   26.27   26.09
504          UI   25.92   25.71   25.40   25.09   24.79   24.53   24.40   24.27   24.13   23.94
505          UI   23.63   23.32   23.02   22.76   22.59   22.41   22.24   22.04   21.82   21.60
506          UI   21.38   21.23   21.14   21.06   20.97   20.77   20.51   20.24   19.98   19.78
507          UI   19.60   19.42   19.25   19.07   18.90   18.72   18.54   18.37   18.19   18.02
508          UI   17.84   17.70   17.57   17.44   17.31   17.18   17.04   16.91   16.78   16.60
509          UI   16.43   16.25   16.08   15.95   15.82   15.68   15.55   15.42   15.29   15.16
510          UI   15.02   14.89   14.76   14.63   14.50   14.36   14.23   14.10   13.97   13.84
511          UI   13.70   13.57   13.44   13.31   13.18   13.04   12.93   12.85   12.76   12.67
512          UI   12.53   12.36   12.18   12.01   11.88   11.80   11.71   11.62   11.50   11.37
513          UI   11.24   11.11   11.01   10.92   10.83   10.74   10.66   10.57   10.48   10.39
514          UI   10.30   10.22   10.13   10.04    9.95    9.86    9.78    9.69    9.60    9.51
515          UI    9.42    9.34    9.25    9.16    9.07    8.98    8.90    8.81    8.72    8.64
516          UI    8.60    8.55    8.51    8.47    8.42    8.38    8.33    8.27    8.19    8.10
517          UI    8.01    7.94    7.90    7.85    7.81    7.74    7.66    7.57    7.48    7.39
518          UI    7.30    7.22    7.13    7.07    7.02    6.98    6.94    6.89    6.85    6.80
1                                        HEC-1L INPUT                                    PAGE 19

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

519          UI    6.76    6.68    6.59    6.51    6.42    6.37    6.32    6.28    6.23    6.15
520          UI    6.06    5.98    5.89    5.84    5.80    5.75    5.71    5.67    5.62    5.58
521          UI    5.53    5.49    5.45    5.40    5.36    5.31    5.27    5.23    5.18    5.14
522          UI    5.09    5.05    5.01    4.96    4.92    4.87    4.83    4.79    4.74    4.70
523          UI    4.65    4.61    4.57    4.52    4.48    4.43    4.39    4.35    4.30    4.26
524          UI    4.21    4.17    4.15    4.15    4.15    4.15    4.12    4.08    4.04    3.99
525          UI    3.95    3.90    3.86    3.82    3.77    3.73    3.68    3.64    3.63    3.63
526          UI    3.63    3.63
527          ZW   C=FLOW F=010YR-10DY A=GREENBRI
             *
528          KK  DUMMY2
529          KM
530          HC       6
531          ZW   C=FLOW
             *
532          KK  K
             *  JXMIN    Time interval for input data
533          IN      60
534          KM
             *
             * Design storm construction details
             *
             * Regional multiplier (zone 2) applied:  1.000
             * Areal adjustment using area:  1.813
             *   multiplier from table 4-4: 1.0000
             *
             * Adjusted depths for each duration from table 4-1: frequency:  10
             * Duration----Regional------Elev-----Areal (adjustments)
             * 5 min          0.2500    0.2500    0.2500
             * 10 min         0.3600    0.3600    0.3600
             * 15 min         0.4300    0.4300    0.4300
             * 30 min         0.5700    0.5700    0.5700
             * 1 hour         0.7700    0.7700    0.7700
             * 2 hours        1.0400    1.0400    1.0315
             * 3 hours        1.2300    1.2300    1.2200
             * 6 hours        1.6500    1.6500    1.6366
             * 12 hours       2.2500    2.2500    2.2500
             * 24 hours       2.9800    2.9800    2.9800
             * 36 hours       3.5400    3.5400    3.5046
             * 2 days         3.9500    3.9500    3.9500
             * 3 days         4.6500    4.6500    4.6500
             * 5 days         5.7600    5.7600    5.7024
             * 10 days        7.5400    7.5400    7.4646
             * Storm duration:  10, length:  240 ordinates
             * Distrubution using table 4-8 of total rainfall:  7.4646
535          PB       0
536          PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
537          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
538          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
539          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
540          PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
```

```
541   PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
542   PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
1                              HEC-1L INPUT                                    PAGE 20

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

543   PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
544   PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
545   PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
546   PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
547   PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
548   PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
549   PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
550   PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
551   PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
552   PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
553   PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
554   PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
555   PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
556   PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
557   PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
558   PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
559   PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
      *
      * Precipitation losses computation (Chapter 5)
      *   Computing RTIMP (percent impervious) from land use and table 5-2
      *   Computing CNSTL (infiltration rate) from soil type and table 5-2
      *  TAREA   subbasin area (sq mi)
560   BA  0.0630
      *  STRTL   CNSTL   RTIMP
561   LU    0.20   0.064  47.945
      *
      * Runoff hydrograph computation (Chapter 6)
      *   Using basin lag:  24.8 minutes
      *   Using unit duration (Step 2): 1. min
      *   Lag Time + Unit Duration / 2 (Step 3): 25.30746
      *   Volume of runoff (Step 4) V=    1.693160
562   UI   2.030   4.713   7.691  10.795  14.126  16.683  20.577  24.770  28.545  33.081
563   UI  37.785  42.822  48.078  53.458  59.771  66.472  72.929  77.779  79.257  80.081
564   UI  79.662  78.512  76.256  71.339  66.270  61.150  56.282  52.049  49.226  46.431
565   UI  43.319  40.484  38.444  36.318  34.140  32.258  30.599  28.925  27.434  25.918
566   UI  24.637  23.544  22.307  21.318  20.312  19.339  18.448  17.686  17.012  16.264
567   UI  15.532  14.905  14.334  13.763  13.285  12.801  12.183  11.834  11.309  10.905
568   UI  10.602  10.157   9.966   9.683   9.410   9.175   8.890   8.604   8.340   8.112
569   UI   7.913   7.659   7.433   7.250   7.069   6.847   6.625   6.480   6.301   6.106
570   UI   5.978   5.756   5.629   5.472   5.271   5.144   4.987   4.894   4.777   4.596
571   UI   4.469   4.342   4.216   4.100   4.005   3.910   3.788   3.679   3.584   3.489
572   UI   3.394   3.299   3.203   3.108   3.013   2.949   2.840   2.742   2.673   2.577
573   UI   2.511   2.448   2.384   2.321   2.257   2.194   2.131   2.067   2.005   1.974
574   UI   1.942   1.894   1.838   1.807   1.743   1.680   1.631   1.599   1.568   1.506
575   UI   1.464   1.420   1.361   1.329   1.297   1.265   1.234   1.202   1.170   1.138
576   UI   1.107   1.075   1.043   1.012   0.980   0.963   0.957   0.925   0.893   0.861
577   UI   0.843
578   ZW   C=FLOW F=010YR-10DY A=GREENBRI
      *
1                              HEC-1L INPUT                                    PAGE 21

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

579   KK  L
      *  JXMIN    Time interval for input data
580   IN      60
581   KM
      *
      * Design storm construction details
      *
      * Regional multiplier (zone 2) applied:  1.000
      * Areal adjustment using area:  1.813
      *   multiplier from table 4-4: 1.0000
      *
      * Adjusted depths for each duration from table 4-1: frequency:  10
      * Duration----Regional------Elev-----Areal (adjustments)
      * 5 min          0.2500     0.2500     0.2500
      * 10 min         0.3600     0.3600     0.3600
      * 15 min         0.4300     0.4300     0.4300
      * 30 min         0.5700     0.5700     0.5700
      * 1 hour         0.7700     0.7700     0.7700
      * 2 hours        1.0400     1.0400     1.0315
      * 3 hours        1.2300     1.2300     1.2200
      * 6 hours        1.6500     1.6500     1.6366
      * 12 hours       2.2500     2.2500     2.2500
      * 24 hours       2.9800     2.9800     2.9800
      * 36 hours       3.5400     3.5400     3.5046
      * 2 days          3.9500     3.9500     3.9500
      * 3 days          4.6500     4.6500     4.6500
      * 5 days          5.7600     5.7600     5.7024
      * 10 days         7.5400     7.5400     7.4646
      * Storm duration:  10, length:  240 ordinates
      * Distrubution using table 4-8 of total rainfall:  7.4646
582   PB       0
583   PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
584   PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
585   PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
586   PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
```

```
587          PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
588          PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
589          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
590          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
591          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
592          PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
593          PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
594          PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
595          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
596          PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
597          PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
598          PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
599          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
600          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
601          PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
602          PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
603          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
604          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
605          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
1                                          HEC-1L INPUT                                    PAGE 22

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

606          PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
             *
             * Precipitation losses computation (Chapter 5)
             *   Computing RTIMP (percent impervious) from land use and table 5-2
             *   Computing CNSTL (infiltration rate) from soil type and table 5-2
             *  TAREA   subbasin area (sq mi)
607          BA  0.0330
             *  STRTL   CNSTL   RTIMP
608          LU    0.20   0.060  70.000
             *
             * Runoff hydrograph computation (Chapter 6)
             *   Using basin lag:  10.8 minutes
             *   Using unit duration (Step 2): 1. min
             *   Lag Time + Unit Duration / 2 (Step 3): 11.25192
             *   Volume of runoff (Step 4) V=     0.886493
609          UI   6.407  14.667  22.873  33.597  45.864  59.705  76.233  91.581  94.540  91.593
610          UI  79.589  66.331  57.178  49.115  43.425  38.013  33.648  29.652  26.656  23.939
611          UI  21.516  19.636  17.744  16.220  14.903  13.668  12.625  11.742  11.022  10.309
612          UI   9.615   9.027   8.495   7.940   7.493   7.046   6.604   6.137   5.784   5.418
613          UI   5.081   4.776   4.504   4.225   3.973   3.721   3.494   3.232   3.016   2.848
614          UI   2.680   2.512   2.354   2.270   2.139   1.982   1.876   1.745   1.619   1.529
615          UI   1.445   1.361   1.277   1.193   1.135   1.072   0.993
616          ZW   C=FLOW F=010YR-10DY A=GREENBRI
             *

617          KK  M
             *  JXMIN    Time interval for input data
618          IN      60
619          KM
             *
             * Design storm construction details
             *
             * Regional multiplier (zone 2) applied:  1.000
             * Areal adjustment using area:  1.813
             *   multiplier from table 4-4: 1.0000
             *
             * Adjusted depths for each duration from table 4-1: frequency:  10
             * Duration----Regional------Elev-----Areal (adjustments)
             * 5 min          0.2500     0.2500     0.2500
             * 10 min         0.3600     0.3600     0.3600
             * 15 min         0.4300     0.4300     0.4300
             * 30 min         0.5700     0.5700     0.5700
             * 1 hour         0.7700     0.7700     0.7700
             * 2 hours        1.0400     1.0400     1.0315
             * 3 hours        1.2300     1.2300     1.2200
             * 6 hours        1.6500     1.6500     1.6366
             * 12 hours       2.2500     2.2500     2.2500
             * 24 hours       2.9800     2.9800     2.9800
             * 36 hours       3.5400     3.5400     3.5046
             * 2 days         3.9500     3.9500     3.9500
             * 3 days         4.6500     4.6500     4.6500
             * 5 days         5.7600     5.7600     5.7024
             * 10 days        7.5400     7.5400     7.4646
             * Storm duration:  10, length:  240 ordinates
             * Distrubution using table 4-8 of total rainfall:  7.4646
1                                          HEC-1L INPUT                                    PAGE 23

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

620          PB       0
621          PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
622          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
623          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
624          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
625          PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
626          PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
627          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
628          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
629          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
630          PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
631          PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
632          PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
```

```
633          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
634          PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
635          PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
636          PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
637          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
638          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
639          PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
640          PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
641          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
642          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
643          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
644          PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
             *
             * Precipitation losses computation (Chapter 5)
             *   Computing RTIMP (percent impervious) from land use and table 5-2
             *   Computing CNSTL (infiltration rate) from soil type and table 5-2
             *  TAREA   subbasin area (sq mi)
645          BA  0.0666
             *  STRTL   CNSTL   RTIMP
646          LU    0.20   0.040  95.000
             *
             * Runoff hydrograph computation (Chapter 6)
             *   Using basin lag:  26.3 minutes
             *   Using unit duration (Step 2): 1. min
             *   Lag Time + Unit Duration / 2 (Step 3): 26.79198
             *   Volume of runoff (Step 4) V=    1.789792
647          UI   1.915   4.383   7.174  10.047  13.183  15.826  18.777  23.086  26.559  30.522
648          UI  34.851  39.310  44.219  49.193  54.442  60.397  66.766  72.836  77.583  78.990
649          UI  79.827  79.723  78.803  77.397  73.123  68.404  63.604  58.757  54.429  51.019
650          UI  48.362  45.729  42.689  40.188  38.257  36.253  34.198  32.383  30.823  29.237
651          UI  27.797  26.377  25.000  24.013  22.883  21.825  20.894  19.936  19.048  18.246
652          UI  17.536  16.908  16.189  15.503  14.909  14.371  13.832  13.353  12.952  12.354
653          UI  11.949  11.540  11.013  10.774  10.409  10.076   9.894   9.595   9.357   9.127
654          UI   8.858   8.588   8.339   8.119   7.939   7.701   7.481   7.290   7.140   6.933
655          UI   6.723   6.539   6.420   6.215   6.060   5.917   5.707   5.609   5.449   5.261
656          UI   5.142   4.995   4.896   4.809   4.629   4.503   4.383   4.264   4.144   4.050
657          UI   3.961   3.865   3.745   3.651   3.561   3.472   3.382   3.292   3.202   3.113
658          UI   3.023   2.957   2.869   2.758   2.698   2.614   2.538   2.478   2.418   2.358
659          UI   2.299   2.239   2.179   2.119   2.059   2.002   1.972   1.942   1.900   1.842
660          UI   1.812   1.761   1.701   1.642   1.612   1.582   1.542   1.482   1.452   1.402
661          UI   1.353   1.323   1.293   1.263   1.233   1.203   1.173   1.143   1.113   1.083
662          UI   1.053   1.023   0.993   0.964   0.962   0.944   0.914   0.884   0.854   0.842
1                                          HEC-1L INPUT                                    PAGE 24

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

663          ZW   C=FLOW F=010YR-10DY A=GREENBRI
             *

664          KK  N
             *  JXMIN    Time interval for input data
665          IN      60
666          KM
             *
             * Design storm construction details
             *
             * Regional multiplier (zone 2) applied:  1.000
             * Areal adjustment using area:  1.813
             *   multiplier from table 4-4: 1.0000
             *
             * Adjusted depths for each duration from table 4-1: frequency:  10
             * Duration----Regional------Elev-----Areal (adjustments)
             * 5 min         0.2500    0.2500    0.2500
             * 10 min        0.3600    0.3600    0.3600
             * 15 min        0.4300    0.4300    0.4300
             * 30 min        0.5700    0.5700    0.5700
             * 1 hour        0.7700    0.7700    0.7700
             * 2 hours       1.0400    1.0400    1.0315
             * 3 hours       1.2300    1.2300    1.2200
             * 6 hours       1.6500    1.6500    1.6366
             * 12 hours      2.2500    2.2500    2.2500
             * 24 hours      2.9800    2.9800    2.9800
             * 36 hours      3.5400    3.5400    3.5046
             * 2 days        3.9500    3.9500    3.9500
             * 3 days        4.6500    4.6500    4.6500
             * 5 days        5.7600    5.7600    5.7024
             * 10 days       7.5400    7.5400    7.4646
             * Storm duration:  10, length:  240 ordinates
             * Distrubution using table 4-8 of total rainfall:  7.4646
667          PB       0
668          PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
669          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
670          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
671          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
672          PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
673          PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
674          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
675          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
676          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
677          PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
678          PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
679          PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
680          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
681          PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
682          PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
```

```
 683          PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
 684          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 685          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 686          PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
 687          PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
 688          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
1                                        HEC-1L INPUT                                        PAGE 25

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 689          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 690          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
 691          PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
              *
              * Precipitation losses computation (Chapter 5)
              *   Computing RTIMP (percent impervious) from land use and table 5-2
              *   Computing CNSTL (infiltration rate) from soil type and table 5-2
              *  TAREA   subbasin area (sq mi)
 692          BA  0.0375
              *  STRTL    CNSTL    RTIMP
 693          LU    0.20    0.868  43.112
              *
              * Runoff hydrograph computation (Chapter 6)
              *   Using basin lag:  19.1 minutes
              *   Using unit duration (Step 2): 1. min
              *   Lag Time + Unit Duration / 2 (Step 3): 19.61394
              *   Volume of runoff (Step 4) V=     1.008333
 694          UI   2.030   4.928   7.964  11.204  13.886  18.309  22.045  26.572  31.346  36.548
 695          UI  42.014  48.382  54.963  59.839  61.126  61.438  60.404  57.745  52.812  47.756
 696          UI  42.915  39.157  36.372  33.371  30.707  28.647  26.506  24.625  22.972  21.414
 697          UI  19.917  18.699  17.541  16.479  15.483  14.542  13.742  13.057  12.301  11.637
 698          UI  11.057  10.491  10.056   9.460   9.076   8.535   8.254   7.828   7.625   7.315
 699          UI   7.093   6.810   6.529   6.281   6.087   5.839   5.626   5.460   5.240   5.036
 700          UI   4.892   4.692   4.544   4.356   4.227   4.035   3.899   3.773   3.666   3.501
 701          UI   3.375   3.249   3.137   3.042   2.933   2.823   2.728   2.634   2.540   2.445
 702          UI   2.351   2.276   2.174   2.088   2.004   1.931   1.868   1.806   1.743   1.680
 703          UI   1.617   1.554   1.517   1.485   1.427   1.391   1.332   1.269   1.235   1.204
 704          UI   1.142   1.110   1.048   1.016   0.985   0.954   0.922   0.891   0.859   0.828
 705          UI   0.796   0.765   0.740   0.733   0.701   0.670   0.648
 706          ZW   C=FLOW F=010YR-10DY A=GREENSRI
              *

 707          KK  O
              *  JXMIN    Time interval for input data
 708          IN      60
 709          KM
              *
              * Design storm construction details
              *
              * Regional multiplier (zone 2) applied:  1.000
              * Areal adjustment using area:  1.813
              *   multiplier from table 4-4: 1.0000
              *
              * Adjusted depths for each duration from table 4-1: frequency:  10
              * Duration----Regional------Elev-----Areal (adjustments)
              * 5 min          0.2500     0.2500     0.2500
              * 10 min         0.3600     0.3600     0.3600
              * 15 min         0.4300     0.4300     0.4300
              * 30 min         0.5700     0.5700     0.5700
              * 1 hour         0.7700     0.7700     0.7700
              * 2 hours        1.0400     1.0400     1.0315
              * 3 hours        1.2300     1.2300     1.2200
              * 6 hours        1.6500     1.6500     1.6366
              * 12 hours       2.2500     2.2500     2.2500
              * 24 hours       2.9800     2.9800     2.9800
              * 36 hours       3.5400     3.5400     3.5046
              * 2 days          3.9500     3.9500     3.9500
              * 3 days          4.6500     4.6500     4.6500
              * 5 days          5.7600     5.7600     5.7024
              * 10 days         7.5400     7.5400     7.4646
              * Storm duration:  10, length:  240 ordinates
              * Distrubution using table 4-8 of total rainfall:  7.4646
1                                        HEC-1L INPUT                                        PAGE 26

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 710          PB       0
 711          PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
 712          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 713          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 714          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
 715          PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
 716          PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 717          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 718          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 719          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 720          PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
 721          PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
 722          PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
 723          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
 724          PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
 725          PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
 726          PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
 727          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
 728          PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
```

```
729         PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
730         PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
731         PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
732         PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
733         PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
734         PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
            *
            * Precipitation losses computation (Chapter 5)
            *   Computing RTIMP (percent impervious) from land use and table 5-2
            *   Computing CNSTL (infiltration rate) from soil type and table 5-2
            *  TAREA   subbasin area (sq mi)
735         BA  0.0402
            *  STRTL   CNSTL   RTIMP
736         LU    0.20   0.070  50.000
            *
            * Runoff hydrograph computation (Chapter 6)
            *   Using basin lag:  15.2 minutes
            *   Using unit duration (Step 2): 1. min
            *   Lag Time + Unit Duration / 2 (Step 3): 15.66410
            *   Volume of runoff (Step 4) V=    1.079757
737         UI   3.700   8.650  14.029  18.671  25.815  32.653  40.437  49.127  58.596  69.581
738         UI  79.786  81.989  82.075  79.942  72.282  63.797  55.826  50.481  45.662  41.057
739         UI  37.576  34.011  31.250  28.611  26.091  24.250  22.347  20.679  19.122  17.893
740         UI  16.687  15.545  14.582  13.717  12.831  12.134  11.294  10.743  10.266   9.781
741         UI   9.383   8.907   8.469   8.130   7.726   7.417   7.070   6.735   6.454   6.189
742         UI   5.858   5.635   5.348   5.098   4.949   4.673   4.462   4.253   4.095   3.911
743         UI   3.737   3.578   3.420   3.261   3.103   2.975   2.809   2.669   2.556   2.450
744         UI   2.345   2.239   2.134   2.048   1.995   1.901   1.835   1.730   1.660   1.601
745         UI   1.513   1.431   1.366   1.313   1.260   1.207   1.155   1.102   1.049   0.996
746         UI   0.985   0.932   0.879
747         ZW   C=FLOW F=010YR-10DY A=GREENBRI
            *
1                                        HEC-1L INPUT                                    PAGE 27

LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10


748         KK  P
            *  JXMIN    Time interval for input data
749         IN      60
750         KM
            *
            * Design storm construction details
            *
            * Regional multiplier (zone 2) applied:  1.000
            * Areal adjustment using area:  1.813
            *   multiplier from table 4-4: 1.0000
            *
            * Adjusted depths for each duration from table 4-1: frequency:  10
            * Duration----Regional------Elev------Areal (adjustments)
            * 5 min          0.2500    0.2500    0.2500
            * 10 min         0.3600    0.3600    0.3600
            * 15 min         0.4300    0.4300    0.4300
            * 30 min         0.5700    0.5700    0.5700
            * 1 hour         0.7700    0.7700    0.7700
            * 2 hours        1.0400    1.0400    1.0315
            * 3 hours        1.2300    1.2300    1.2200
            * 6 hours        1.6500    1.6500    1.6366
            * 12 hours       2.2500    2.2500    2.2500
            * 24 hours       2.9800    2.9800    2.9800
            * 36 hours       3.5400    3.5400    3.5046
            * 2 days          3.9500    3.9500    3.9500
            * 3 days          4.6500    4.6500    4.6500
            * 5 days          5.7600    5.7600    5.7024
            * 10 days         7.5400    7.5400    7.4646
            * Storm duration:  10, length:  240 ordinates
            * Distrubution using table 4-8 of total rainfall:  7.4646
751         PB        0
752         PI  0.0224  0.0821  0.2015  0.1120  0.0373  0.0224  0.0075  0.0000  0.0000  0.0000
753         PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
754         PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
755         PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224
756         PI  0.0373  0.0523  0.0672  0.0970  0.2239  0.1418  0.0746  0.0597  0.0448  0.0373
757         PI  0.0299  0.0224  0.0149  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
758         PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
759         PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
760         PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
761         PI  0.0000  0.0000  0.0000  0.0075  0.0149  0.0224  0.0299  0.0373  0.0448  0.0523
762         PI  0.0672  0.1120  0.3956  0.1642  0.0746  0.0597  0.0448  0.0373  0.0299  0.0224
763         PI  0.0224  0.0149  0.0149  0.0075  0.0075  0.0000  0.0000  0.0000  0.0000  0.0000
764         PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075  0.0075
765         PI  0.0149  0.0149  0.0149  0.0224  0.0373  0.0448  0.0523  0.0672  0.0746  0.0821
766         PI  0.0970  0.1045  0.1194  0.1269  0.1344  0.1418  0.1568  0.1120  0.0896  0.0672
767         PI  0.2314  0.2911  0.5001  0.2463  0.0373  0.0224  0.0149  0.0075  0.0075  0.0075
768         PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
769         PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
770         PI  0.0075  0.0149  0.0224  0.0299  0.0373  0.0523  0.0672  0.0970  0.2911  0.1493
771         PI  0.0746  0.0597  0.0523  0.0448  0.0373  0.0299  0.0224  0.0149  0.0075  0.0000
772         PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
773         PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000
774         PI  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0000  0.0075
1                                        HEC-1L INPUT                                    PAGE 28

LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
```

```
          775           PI  0.0149  0.0373  0.0523  0.0746  0.2165  0.1194  0.0597  0.0448  0.0299  0.0149
                        *
                        * Precipitation losses computation (Chapter 5)
                        *   Computing RTIMP (percent impervious) from land use and table 5-2
                        *   Computing CNSTL (infiltration rate) from soil type and table 5-2
                        *  TAREA   subbasin area (sq mi)
          776           BA  0.0342
                        *  STRTL   CNSTL   RTIMP
          777           LU    0.20   0.062  56.384
                        *
                        * Runoff hydrograph computation (Chapter 6)
                        *   Using basin lag:  16.5 minutes
                        *   Using unit duration (Step 2): 1. min
                        *   Lag Time + Unit Duration / 2 (Step 3): 17.01644
                        *   Volume of runoff (Step 4) V=    0.920104
          778           UI   2.600   6.153   9.967  13.380  18.241  22.789  28.286  34.177  40.506  47.656
          779           UI  55.696  62.676  64.278  64.502  63.082  58.468  52.398  46.323  41.479  38.101
          780           UI  34.392  31.539  28.996  26.479  24.484  22.572  20.756  19.368  17.921  16.730
          781           UI  15.552  14.546  13.707  12.781  12.021  11.335  10.728  10.081   9.564   8.918
          782           UI   8.577   8.137   7.838   7.527   7.202   6.861   6.571   6.316   6.030   5.813
          783           UI   5.561   5.305   5.124   4.903   4.688   4.527   4.284   4.125   3.968   3.824
          784           UI   3.641   3.488   3.337   3.223   3.095   2.962   2.847   2.733   2.618   2.504
          785           UI   2.404   2.287   2.187   2.079   2.002   1.925   1.849   1.773   1.697   1.621
          786           UI   1.583   1.533   1.474   1.413   1.336   1.295   1.249   1.186   1.129   1.078
          787           UI   1.040   1.001   0.963   0.925   0.887   0.849   0.811   0.779   0.767   0.729
          788           UI   0.691   0.681
          789           ZW   C=FLOW F=010YR-10DY A=GREENBRI
                        *

          790           KK  DUMMY3
          791           KM
          792           HC       6
          793           ZW   C=FLOW
          794           ZZ
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1L)  *
*              JULY   1998              *
*            VERSION 4.1(L)             *
*                                       *
*  RUN DATE   12JUL05  TIME  19:20:27   *
*                                       *
*****************************************

*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************

                      10010 & 1010 &10024&1024

  3 IO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                      NMIN          1  MINUTES IN COMPUTATION INTERVAL
                     IDATE   31DEC99  STARTING DATE
                     ITIME       0000  STARTING TIME
                        NQ      14947  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE   11JAN 0  ENDING DATE
                     NDTIME       0906  ENDING TIME
                      ICENT         19  CENTURY MARK

                  COMPUTATION INTERVAL     0.02 HOURS
                      TOTAL TIME BASE  249.10 HOURS

       ENGLISH UNITS
            DRAINAGE AREA          SQUARE MILES
            PRECIPITATION DEPTH    INCHES
            LENGTH, ELEVATION      FEET
            FLOW                   CUBIC FEET PER SECOND
            STORAGE VOLUME         ACRE-FEET
            SURFACE AREA           ACRES
            TEMPERATURE            DEGREES FAHRENHEIT


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
  4 KK    *    A       *
          *            *
          **************


  5 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN         60  TIME INTERVAL IN MINUTES
                    JXDATE   31DEC99  STARTING DATE
                    JXTIME       2400  STARTING TIME

              SUBBASIN RUNOFF DATA
```

```
 32 BA          SUBBASIN CHARACTERISTICS
                     TAREA.        0.12  SUBBASIN AREA

                PRECIPITATION DATA

  7 PB               STORM         7.46  BASIN TOTAL PRECIPITATION


 33 LU          UNIFORM LOSS RATE
                     STRTL         0.20  INITIAL LOSS
                     CNSTL         0.06  UNIFORM LOSS RATE
                     RTIMP        60.15  PERCENT IMPERVIOUS AREA

 32 UI          INPUT UNITGRAPH, 173 ORDINATES,  VOLUME = 1.00
                     2.9       6.5      10.7      15.1      19.7      24.2      27.8      33.7      39.7      45.0
                    51.3      57.9      64.7      72.2      79.7      87.5      96.5     106.0     115.5     124.4
                   127.7     129.5     130.7     129.7     128.0     125.7     118.6     111.5     104.2      96.9
                    90.2      84.4      80.4      76.4      72.1      67.4      64.4      61.4      58.4      55.2
                    52.6      50.2      47.8      45.6      43.5      41.3      39.7      38.1      36.3      34.9
                    33.5      32.0      30.7      29.6      28.5      27.5      26.5      25.4      24.5      23.7
                    22.9      22.0      21.5      20.7      19.8      19.3      18.6      17.9      17.5      17.0
                    16.5      16.2      15.7      15.4      15.0      14.6      14.2      13.8      13.4      13.1
                    12.9      12.5      12.2      11.9      11.6      11.3      11.0      10.7      10.5      10.3
                    10.0       9.8       9.5       9.3       9.1       8.8       8.6       8.4       8.1       8.0
                     7.9       7.6       7.4       7.2       7.0       6.9       6.7       6.6       6.4       6.3
                     6.1       5.9       5.8       5.7       5.5       5.4       5.3       5.1       5.0       4.9
                     4.8       4.6       4.5       4.4       4.2       4.1       4.0       4.0       3.9       3.8
                     3.7       3.6       3.5       3.4       3.3       3.3       3.2       3.2       3.1       3.0
                     3.0       2.9       2.8       2.7       2.6       2.6       2.5       2.5       2.4       2.3
                     2.3       2.2       2.2       2.1       2.1       2.0       2.0       1.9       1.9       1.8
                     1.8       1.7       1.7       1.6       1.6       1.6       1.6       1.5       1.5       1.4
                     1.4       1.4       1.4
                                                                          ***
     ***               ***               ***               ***               ***

                       HYDROGRAPH AT STATION    A

     TOTAL RAINFALL =     7.46, TOTAL LOSS =     1.72, TOTAL EXCESS =     5.74

   PEAK FLOW      TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR          24-HR          72-HR     249.10-HR
+    (CFS)        (HR)
                                (CFS)
+      33.     153.07                      16.            7.             4.            2.
                              (INCHES)     1.245          2.366          3.390         5.736
                              (AC-FT)        8.            15.            21.           36.

                       CUMULATIVE AREA =     0.12 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


                ***************
                *               *
 53 KK          *       B       *
                *               *
                ***************


 54 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN           60  TIME INTERVAL IN MINUTES
                     JXDATE      31DEC99  STARTING DATE
                     JXTIME         2400  STARTING TIME

               SUBBASIN RUNOFF DATA

 81 BA          SUBBASIN CHARACTERISTICS
                     TAREA.        0.04  SUBBASIN AREA

                PRECIPITATION DATA

 56 PB               STORM         7.46  BASIN TOTAL PRECIPITATION


 82 LU          UNIFORM LOSS RATE
                     STRTL         0.20  INITIAL LOSS
                     CNSTL         0.06  UNIFORM LOSS RATE
                     RTIMP        57.84  PERCENT IMPERVIOUS AREA

 81 UI          INPUT UNITGRAPH,  91 ORDINATES,  VOLUME = 1.00
                     4.3       9.9      16.1      21.7      29.6      37.7      46.8      56.8      68.1      80.8
                    89.4      91.5      90.4      85.6      76.0      66.3      58.6      53.3      47.2      43.3
                    39.2      35.8      32.6      29.8      27.5      25.2      23.3      21.5      20.0      18.7
                    17.3      16.2      15.2      14.2      13.4      12.5      11.8      11.3      10.8      10.3
                     9.8       9.3       8.9       8.4       8.1       7.7       7.4       7.0       6.7       6.4
                     6.1       5.8       5.6       5.3       5.0       4.8       4.6       4.4       4.2       4.0
                     3.8       3.6       3.5       3.3       3.1       3.0       2.8       2.7       2.6       2.5
                     2.4       2.3       2.2       2.1       2.0       1.9       1.8       1.7       1.7       1.6
                     1.5       1.4       1.4       1.3       1.3       1.2       1.1       1.1       1.1       1.0
                     1.0
```

```
                                                                      ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION   B

     TOTAL RAINFALL =    7.46, TOTAL LOSS =    1.84, TOTAL EXCESS =    5.63

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR    249.10-HR
+   (CFS)       (HR)
                          (CFS)
+      13.    153.00                   6.           3.           1.           1.
                        (INCHES)     1.251        2.328        3.329        5.617
                        (AC-FT)         3.           5.           8.          13.

                        CUMULATIVE AREA =    0.04 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  94 KK     *    C       *
            *            *
            **************


  95 IN          TIME DATA FOR INPUT TIME SERIES
                      JXMIN          60  TIME INTERVAL IN MINUTES
                     JXDATE     31DEC99  STARTING DATE
                     JXTIME        2400  STARTING TIME

                 SUBBASIN RUNOFF DATA

 122 BA          SUBBASIN CHARACTERISTICS
                      TAREA,        0.06  SUBBASIN AREA

                 PRECIPITATION DATA

  97 PB               STORM         7.46  BASIN TOTAL PRECIPITATION


 123 LU          UNIFORM LOSS RATE
                      STRTL         0.20  INITIAL LOSS
                      CNSTL         0.06  UNIFORM LOSS RATE
                      RTIMP        56.96  PERCENT IMPERVIOUS AREA

 122 UI          INPUT UNITGRAPH, 114 ORDINATES,  VOLUME = 1.00
                      3.6        8.6       13.9       19.4       24.6       32.0       38.8       46.7       55.2       64.3
                     74.3       85.7       96.7      102.1      103.8      103.1      100.8       93.3       84.5       75.7
                     68.0       63.1       58.2       52.9       49.4       45.7       42.2       39.3       36.6       34.0
                     31.8       29.8       27.9       26.2       24.5       23.2       22.0       20.6       19.5       18.5
                     17.5       16.8       15.8       15.1       14.2       13.7       13.1       12.7       12.2       11.8
                     11.3       10.8       10.4       10.0        9.6        9.3        9.0        8.6        8.4        8.0
                      7.8        7.4        7.2        6.8        6.6        6.4        6.2        5.9        5.7        5.5
                      5.3        5.1        4.9        4.8        4.6        4.4        4.3        4.1        3.9        3.8
                      3.6        3.5        3.3        3.2        3.1        3.0        2.9        2.8        2.7        2.6
                      2.5        2.5        2.4        2.3        2.2        2.1        2.0        2.0        1.9        1.8
                      1.7        1.7        1.6        1.6        1.5        1.5        1.4        1.3        1.3        1.3
                      1.2        1.2        1.1        1.1

                                                                      ***

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION   C

     TOTAL RAINFALL =    7.46, TOTAL LOSS =    1.89, TOTAL EXCESS =    5.57

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR    249.10-HR
+   (CFS)       (HR)
                          (CFS)
+      18.    153.02                   8.           4.           2.           1.
                        (INCHES)     1.241        2.310        3.301        5.563
                        (AC-FT)         4.           8.          11.          18.

                        CUMULATIVE AREA =    0.06 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


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            *            *
 137 KK     *    D       *
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138 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN          60  TIME INTERVAL IN MINUTES
                    JXDATE    31DEC99  STARTING DATE
                    JXTIME        2400  STARTING TIME

               SUBBASIN RUNOFF DATA

165 BA          SUBBASIN CHARACTERISTICS
                     TAREA,       0.05  SUBBASIN AREA

                PRECIPITATION DATA

140 PB               STORM        7.46  BASIN TOTAL PRECIPITATION


166 LU          UNIFORM LOSS RATE
                     STRTL        0.20  INITIAL LOSS
                     CNSTL        0.07  UNIFORM LOSS RATE
                     RTIMP       47.04  PERCENT IMPERVIOUS AREA

165 UI          INPUT UNITGRAPH, 111 ORDINATES,  VOLUME = 1.00
                    2.9      6.9      11.2     15.4     19.9     25.6     31.2     37.6     44.5     51.8
                   60.1     69.3      77.9     79.9     80.7     79.4     76.0     69.2     62.2     55.6
                   50.7     46.9      42.5     39.4     36.5     33.5     31.2     28.9     26.9     25.0
                   23.4     21.9      20.5     19.2     18.1     17.1     16.1     15.2     14.4     13.6
                   13.0     12.2      11.6     11.0     10.5     10.1      9.7      9.4      9.0      8.6
                    8.3      8.0       7.7      7.4      7.1      6.8      6.6      6.3      6.1      5.9
                    5.7      5.4       5.2      5.0      4.9      4.6      4.5      4.3      4.1      4.0
                    3.9      3.7       3.6      3.4      3.3      3.2      3.0      3.0      2.8      2.7
                    2.6      2.5       2.4      2.3      2.2      2.1      2.0      2.0      1.9      1.9
                    1.8      1.7       1.7      1.6      1.6      1.5      1.4      1.4      1.3      1.3
                    1.2      1.2       1.1      1.1      1.0      1.0      1.0      1.0      0.9      0.9
                    0.8

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     ***             ***              ***              ***              ***

                       HYDROGRAPH AT STATION   D

   TOTAL RAINFALL =    7.46, TOTAL LOSS =    2.41, TOTAL EXCESS =    5.06

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR    249.10-HR
+   (CFS)       (HR)
                          (CFS)
+      14.    153.02                     6.           3.           1.           1.
                       (INCHES)      1.192        2.145        3.040        5.052
                        (AC-FT)         3.           5.           8.          13.

                       CUMULATIVE AREA =    0.05 SQ MI


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180 KK         *    E       *
               *            *
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181 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN          60  TIME INTERVAL IN MINUTES
                    JXDATE    31DEC99  STARTING DATE
                    JXTIME        2400  STARTING TIME

               SUBBASIN RUNOFF DATA

208 BA          SUBBASIN CHARACTERISTICS
                     TAREA,       0.04  SUBBASIN AREA

                PRECIPITATION DATA

183 PB               STORM        7.46  BASIN TOTAL PRECIPITATION


209 LU          UNIFORM LOSS RATE
                     STRTL        0.20  INITIAL LOSS
                     CNSTL        0.06  UNIFORM LOSS RATE
                     RTIMP       60.77  PERCENT IMPERVIOUS AREA

208 UI          INPUT UNITGRAPH,  93 ORDINATES,  VOLUME = 1.00
                    3.6      8.3      13.5     18.0     24.8     31.4     38.9     47.3     56.5     67.1
                   75.9     77.9      77.6     75.1     67.2     59.1     51.6     47.0     42.2     38.2
                   34.9     31.6      29.0     26.5     24.2     22.4     20.7     19.1     17.8     16.6
                   15.4     14.4      13.5     12.8     11.8     11.2     10.5      9.9      9.6      9.1
                    8.7      8.3       7.9      7.5      7.2      6.9      6.5      6.3      6.0      5.7
                    5.5      5.2       4.9      4.8      4.5      4.3      4.1      3.9      3.8      3.6
                    3.4      3.3       3.1      3.0      2.9      2.7      2.6      2.5      2.3      2.2
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                2.1       2.0       2.0       1.9       1.8       1.8       1.7       1.6       1.5       1.4
                1.4       1.3       1.3       1.2       1.1       1.1       1.0       1.0       0.9       0.9
                0.9       0.8       0.8

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                    HYDROGRAPH AT STATION    E

     TOTAL RAINFALL =     7.46, TOTAL LOSS =     1.67, TOTAL EXCESS =     5.80

  PEAK FLOW      TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR     249.10-HR
+   (CFS)        (HR)
                                (CFS)
+      11.     153.00                        5.           2.           1.           1.
                             (INCHES)     1.268        2.386        3.418        5.788
                              (AC-FT)        3.           5.           7.          12.

                             CUMULATIVE AREA =     0.04 SQ MI


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  221 KK       *    DUMMY1    *
               *              *
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  223 HC           HYDROGRAPH COMBINATION
                        ICOMP           5  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

     ***               ***               ***               ***               ***

                    HYDROGRAPH AT STATION    DUMMY1

  PEAK FLOW      TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR     249.10-HR
+   (CFS)        (HR)
                                (CFS)
+      89.     153.02                       41.          19.           9.           4.
                             (INCHES)     1.237        2.318        3.314        5.587
                              (AC-FT)       20.          38.          54.          91.

                             CUMULATIVE AREA =     0.31 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


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               *              *
  225 KK       *    F         *
               *              *
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  226 IN           TIME DATA FOR INPUT TIME SERIES
                        JXMIN          60  TIME INTERVAL IN MINUTES
                       JXDATE    31DEC99  STARTING DATE
                       JXTIME        2400  STARTING TIME

                SUBBASIN RUNOFF DATA

  253 BA           SUBBASIN CHARACTERISTICS
                        TAREA,        0.05  SUBBASIN AREA

                   PRECIPITATION DATA

  228 PB                STORM        7.46  BASIN TOTAL PRECIPITATION


  254 LU           UNIFORM LOSS RATE
                        STRTL        0.20  INITIAL LOSS
                        CNSTL        0.07  UNIFORM LOSS RATE
                        RTIMP       49.51  PERCENT IMPERVIOUS AREA

  253 UI           INPUT UNITGRAPH,  98 ORDINATES,  VOLUME = 1.00
                        3.8       8.9      14.4      19.2      26.6      33.3      41.3      50.0      59.1      70.1
                       81.5      88.1      89.8      88.7      84.8      76.2      67.3      59.3      54.2      49.1
                       44.5      40.9      37.1      34.3      31.5      28.9      26.9      24.8      23.1      21.4
                       20.0      18.8      17.5      16.4      15.4      14.7      13.6      12.9      12.2      11.5
                       11.1      10.6      10.2       9.7       9.2       8.9       8.5       8.1       7.8       7.4
                        7.2       6.8       6.5       6.3       5.9       5.7       5.5       5.3       5.0       4.8
                        4.6       4.4       4.2       4.1       3.9       3.7       3.6       3.4       3.3       3.1
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                2.9       2.8       2.7       2.6       2.5       2.4       2.3       2.2       2.1       2.0
                2.0       1.9       1.8       1.7       1.6       1.5       1.5       1.4       1.4       1.3
                1.3       1.2       1.2       1.1       1.1       1.0       1.0       0.9

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                        HYDROGRAPH AT STATION   F

     TOTAL RAINFALL =    7.46, TOTAL LOSS =    2.34, TOTAL EXCESS =    5.12

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR     249.10-HR
+   (CFS)        (HR)
                                    (CFS)
+      13.     153.00                  6.           3.           1.           1.
                                  (INCHES)       1.197        2.155        3.066        5.114
                                   (AC-FT)          3.           5.           7.          12.

                        CUMULATIVE AREA =    0.05 SQ MI


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266 KK         *       G       *
               *               *
               ***************


267 IN              TIME DATA FOR INPUT TIME SERIES
                         JXMIN          60  TIME INTERVAL IN MINUTES
                        JXDATE      31DEC99  STARTING DATE
                        JXTIME        2400  STARTING TIME

                  SUBBASIN RUNOFF DATA

294 BA              SUBBASIN CHARACTERISTICS
                         TAREA,        0.06  SUBBASIN AREA

                    PRECIPITATION DATA

269 PB                   STORM         7.46  BASIN TOTAL PRECIPITATION


295 LU              UNIFORM LOSS RATE
                         STRTL         0.20  INITIAL LOSS
                         CNSTL         0.07  UNIFORM LOSS RATE
                         RTIMP        38.92  PERCENT IMPERVIOUS AREA

294 UI              INPUT UNITGRAPH, 109 ORDINATES,  VOLUME = 1.00
                         3.9       9.4      15.2      20.9      27.1      34.7      42.5      51.2      60.7      70.5
                        82.1      94.6     104.6     107.1     107.6     105.5      99.6      90.2      80.7      72.1
                        66.3      61.1      55.2      51.4      47.4      43.7      40.6      37.6      34.8      32.6
                        30.4      28.5      26.6      24.9      23.5      22.2      20.8      19.7      18.6      17.8
                        16.7      15.9      14.9      14.4      13.6      13.3      12.7      12.3      11.7      11.2
                        10.8      10.4      10.0       9.6       9.2       8.8       8.6       8.2       7.9       7.6
                         7.3       7.0       6.7       6.6       6.2       6.0       5.8       5.5       5.4       5.2
                         4.9       4.8       4.6       4.4       4.2       4.1       3.9       3.7       3.6       3.4
                         3.3       3.2       3.1       3.0       2.8       2.7       2.7       2.6       2.5       2.4
                         2.3       2.2       2.1       2.0       2.0       1.9       1.8       1.7       1.7       1.6
                         1.6       1.5       1.4       1.4       1.3       1.3       1.3       1.2       1.1

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     ***               ***               ***               ***               ***

                        HYDROGRAPH AT STATION   G

     TOTAL RAINFALL =    7.46, TOTAL LOSS =    2.83, TOTAL EXCESS =    4.63

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR     249.10-HR
+   (CFS)        (HR)
                                    (CFS)
+      18.     153.02                  8.           3.           2.           1.
                                  (INCHES)       1.152        2.007        2.822        4.625
                                   (AC-FT)          4.           7.           9.          15.

                        CUMULATIVE AREA =    0.06 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


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               *               *
308 KK         *       H       *
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309 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN          60  TIME INTERVAL IN MINUTES
                    JXDATE    31DEC99  STARTING DATE
                    JXTIME        2400  STARTING TIME

               SUBBASIN RUNOFF DATA

336 BA          SUBBASIN CHARACTERISTICS
                     TAREA,        0.11  SUBBASIN AREA

                PRECIPITATION DATA

311 PB               STORM         7.46  BASIN TOTAL PRECIPITATION

337 LU          UNIFORM LOSS RATE
                     STRTL         0.20  INITIAL LOSS
                     CNSTL         0.07  UNIFORM LOSS RATE
                     RTIMP        46.94  PERCENT IMPERVIOUS AREA

336 UI          INPUT UNITGRAPH, 161 ORDINATES,  VOLUME = 1.00
                     3.2       7.2      11.8      16.6      21.8      26.1      30.9      38.0      43.8      50.3
                    57.5      64.8      72.9      81.1      89.7      99.5     110.0     120.1     128.4     130.8
                   132.2     132.3     130.9     128.5     122.0     114.2     106.3      98.3      91.0      85.1
                    80.7      76.3      71.4      67.0      63.9      60.6      57.2      54.1      51.5      48.9
                    46.5      44.1      41.7      40.1      38.3      36.5      34.9      33.3      31.9      30.5
                    29.3      28.2      27.1      25.9      24.9      24.0      23.1      22.3      21.6      20.7
                    19.9      19.4      18.5      18.0      17.4      16.8      16.5      16.0      15.6      15.3
                    14.8      14.4      13.9      13.6      13.3      12.9      12.5      12.2      11.9      11.6
                    11.3      10.9      10.7      10.4      10.1       9.9       9.6       9.4       9.1       8.8
                     8.6       8.4       8.1       8.1       7.8       7.5       7.3       7.1       6.9       6.8
                     6.6       6.5       6.3       6.1       6.0       5.8       5.7       5.5       5.4       5.2
                     5.1       4.9       4.8       4.7       4.5       4.4       4.3       4.2       4.1       4.0
                     3.9       3.8       3.7       3.6       3.5       3.4       3.3       3.2       3.2       3.1
                     3.0       3.0       2.9       2.8       2.7       2.7       2.6       2.5       2.4       2.4
                     2.3       2.2       2.2       2.1       2.1       2.0       2.0       1.9       1.9       1.8
                     1.8       1.7       1.7       1.6       1.6       1.6       1.5       1.5       1.5       1.4
                     1.4

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     ***             ***             ***             ***             ***

                       HYDROGRAPH AT STATION   H

    TOTAL RAINFALL =    7.46, TOTAL LOSS =    2.44, TOTAL EXCESS =    5.02

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR    249.10-HR
+   (CFS)       (HR)
                                    (CFS)
+     31.     153.05                  14.           6.           3.           1.
                                (INCHES)       1.177        2.128        3.019        5.015
                                 (AC-FT)          7.          13.          18.          30.

                       CUMULATIVE AREA =    0.11 SQ MI

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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356 KK     *    I       *
           *            *
           **************

357 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN          60  TIME INTERVAL IN MINUTES
                    JXDATE    31DEC99  STARTING DATE
                    JXTIME        2400  STARTING TIME

               SUBBASIN RUNOFF DATA

384 BA          SUBBASIN CHARACTERISTICS
                     TAREA,        0.08  SUBBASIN AREA

                PRECIPITATION DATA

359 PB               STORM         7.46  BASIN TOTAL PRECIPITATION

385 LU          UNIFORM LOSS RATE
                     STRTL         0.20  INITIAL LOSS
                     CNSTL         0.07  UNIFORM LOSS RATE
                     RTIMP        46.33  PERCENT IMPERVIOUS AREA

384 UI          INPUT UNITGRAPH, 186 ORDINATES,  VOLUME = 1.00
                     1.8       4.0       6.5       9.2      12.0      15.0      17.4      20.0      24.1      27.6
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      30.9     34.9     39.0     43.2     47.9     52.6     57.3     62.8     68.5     74.5
      80.1     84.7     86.1     87.0     87.6     86.8     85.8     84.5     80.1     75.7
      71.2     66.6     62.2     58.2     55.4     52.9     50.4     47.6     44.8     43.0
      41.2     39.3     37.3     35.6     34.1     32.7     31.2     29.9     28.5     27.3
      26.4     25.3     24.2     23.4     22.5     21.6     20.8     20.0     19.3     18.7
      18.1     17.4     16.8     16.2     15.7     15.2     14.7     14.4     13.9     13.3
      13.0     12.6     12.1     11.9     11.6     11.2     11.0     10.8     10.5     10.3
      10.1      9.8      9.6      9.3      9.1      8.9      8.7      8.5      8.3      8.1
       7.9      7.8      7.6      7.4      7.2      7.1      6.9      6.7      6.6      6.4
       6.3      6.2      6.0      5.8      5.7      5.6      5.4      5.4      5.3      5.1
       5.0      4.9      4.8      4.6      4.5      4.4      4.4      4.3      4.2      4.1
       4.0      3.9      3.8      3.7      3.6      3.6      3.5      3.4      3.3      3.2
       3.2      3.1      3.0      2.9      2.8      2.8      2.7      2.7      2.6      2.5
       2.5      2.4      2.4      2.3      2.3      2.2      2.2      2.1      2.1      2.1
       2.0      2.0      1.9      1.9      1.8      1.8      1.8      1.7      1.7      1.6
       1.6      1.6      1.5      1.5      1.4      1.4      1.4      1.4      1.3      1.3
       1.3      1.2      1.2      1.2      1.2      1.1      1.1      1.1      1.1      1.1
       1.0      1.0      1.0      1.0      0.9      0.9

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   ***              ***              ***              ***              ***

                        HYDROGRAPH AT STATION   I

     TOTAL RAINFALL =    7.46, TOTAL LOSS =    2.42, TOTAL EXCESS =    5.05

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR     249.10-HR
+   (CFS)        (HR)          (CFS)
+      23.     153.08                 11.           5.           2.           1.
                             (INCHES)  1.178        2.146        3.038        5.043
                              (AC-FT)     5.          10.          14.          23.

                        CUMULATIVE AREA =    0.08 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


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406 KK      *    J       *
            *            *
            **************


407 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN         60  TIME INTERVAL IN MINUTES
                    JXDATE   31DEC99  STARTING DATE
                    JXTIME       2400  STARTING TIME

              SUBBASIN RUNOFF DATA

434 BA          SUBBASIN CHARACTERISTICS
                     TAREA,       0.09  SUBBASIN AREA

                PRECIPITATION DATA

409 PB               STORM        7.46  BASIN TOTAL PRECIPITATION


435 LU          UNIFORM LOSS RATE
                     STRTL        0.20  INITIAL LOSS
                     CNSTL        0.06  UNIFORM LOSS RATE
                     RTIMP       75.17  PERCENT IMPERVIOUS AREA

434 UI          INPUT UNITGRAPH, 119 ORDINATES,  VOLUME = 1.00
                      4.5      11.0      17.8      25.1      30.9      40.9      49.1      59.2      69.8      81.4
                     93.3     107.5     122.4     135.0     138.1     139.5     137.5     133.1     122.1     110.8
                     99.7      90.3      84.1      77.7      70.9      66.3      61.6      57.0      53.3      49.7
                     46.3      43.2      40.8      38.2      36.0      33.8      31.9      30.2      28.7      27.0
                     25.7      24.4      23.2      22.2      21.0      20.0      19.0      18.3      17.5      17.0
                     16.4      15.8      15.2      14.6      14.1      13.6      13.1      12.6      12.2      11.7
                     11.3      10.9      10.6      10.2       9.8       9.5       9.1       8.8       8.5       8.2
                      7.9       7.6       7.3       7.1       6.9       6.6       6.4       6.2       5.9       5.7
                      5.5       5.3       5.2       4.9       4.7       4.5       4.4       4.2       4.1       4.0
                      3.8       3.7       3.5       3.4       3.4       3.3       3.2       3.0       2.9       2.8
                      2.7       2.6       2.5       2.4       2.3       2.3       2.2       2.1       2.0       2.0
                      1.9       1.8       1.8       1.7       1.7       1.6       1.5       1.5       1.5

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   ***              ***              ***              ***              ***

                        HYDROGRAPH AT STATION   J

     TOTAL RAINFALL =    7.46, TOTAL LOSS =    1.02, TOTAL EXCESS =    6.44

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR     249.10-HR
+   (CFS)        (HR)
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                (CFS)
+     26.   153.02                12.          6.          3.          1.
            (INCHES)              1.319        2.580       3.740       6.439
             (AC-FT)              6.           12.         17.         29.

                CUMULATIVE AREA =    0.09 SQ MI

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449 KK    *    OFF-N   *
          *            *
          **************
                  E5

450 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN          60  TIME INTERVAL IN MINUTES
                    JXDATE    31DEC99  STARTING DATE
                    JXTIME        2400  STARTING TIME

              SUBBASIN RUNOFF DATA

477 BA          SUBBASIN CHARACTERISTICS
                     TAREA,       0.84  SUBBASIN AREA

                PRECIPITATION DATA

452 PB               STORM        7.46  BASIN TOTAL PRECIPITATION


478 LU          UNIFORM LOSS RATE
                     STRTL        0.20  INITIAL LOSS
                     CNSTL        0.07  UNIFORM LOSS RATE
                     RTIMP        2.00  PERCENT IMPERVIOUS AREA

477 UI          INPUT UNITGRAPH, 472 ORDINATES,  VOLUME = 1.00
                   2.8       5.6       8.4      11.3      15.4      19.4      23.5      27.5      31.8      36.0
                  40.2      44.5      49.1      53.8      58.4      62.7      66.2      69.6      73.1      77.5
                  83.9      90.2      96.5     102.3     107.4     112.5     117.5     123.2     129.4     135.7
                 142.0     148.4     155.0     161.6     168.1     175.1     182.3     189.6     196.8     204.2
                 211.5     218.9     226.2     234.6     243.3     252.1     260.8     270.1     279.5     288.9
                 298.3     307.0     315.6     324.2     332.7     335.3     337.4     339.4     341.5     342.7
                 343.8     344.9     346.0     344.8     343.7     342.5     341.3     339.2     337.1     335.1
                 332.1     325.3     318.5     311.7     304.8     297.8     290.7     283.7     276.6     269.5
                 262.4     255.2     248.4     242.2     236.0     229.7     224.5     220.6     216.7     212.8
                 208.9     205.0     201.1     197.3     193.0     188.4     183.9     179.3     175.9     173.0
                 170.2     167.4     164.5     161.6     158.6     155.7     152.6     149.6     146.6     143.5
                 141.1     138.9     136.6     134.3     131.9     129.6     127.3     125.0     122.9     120.8
                 118.8     116.7     114.6     112.5     110.3     108.3     106.9     105.4     104.0     102.5
                 100.8      99.0      97.3      95.7      94.3      93.0      91.6      90.2      88.8      87.4
                  86.0      84.6      83.4      82.1      80.8      79.6      78.6      77.5      76.5      75.5
                  74.6      73.6      72.7      71.7      70.6      69.5      68.4      67.4      66.6      65.7
                  64.8      64.0      63.2      62.4      61.6      60.8      60.0      59.2      58.4      57.8
                  57.3      56.7      56.1      55.3      54.4      53.5      52.6      52.1      51.6      51.2
                  50.7      49.9      49.1      48.3      47.5      47.2      46.8      46.5      46.1      45.5
                  44.9      44.2      43.7      43.5      43.2      42.9      42.6      42.2      41.7      41.3
                  40.9      40.6      40.3      40.0      39.6      39.2      38.8      38.4      38.0      37.6
                  37.3      36.8      36.5      36.1      35.8      35.4      35.1      34.9      34.6      34.3
                  34.0      33.7      33.3      33.0      32.6      32.3      32.0      31.7      31.5      31.3
                  31.0      30.8      30.5      30.2      29.9      29.6      29.3      29.0      28.7      28.4
                  28.2      28.0      27.8      27.6      27.4      27.0      26.7      26.4      26.3      26.1
                  25.9      25.7      25.4      25.1      24.8      24.5      24.4      24.3      24.1      23.9
                  23.6      23.3      23.0      22.8      22.6      22.4      22.2      22.0      21.8      21.6
                  21.4      21.2      21.1      21.1      21.0      20.8      20.5      20.2      20.0      19.8
                  19.6      19.4      19.3      19.1      18.9      18.7      18.5      18.4      18.2      18.0
                  17.8      17.7      17.6      17.4      17.3      17.2      17.0      16.9      16.8      16.6
                  16.4      16.3      16.1      15.9      15.8      15.7      15.6      15.4      15.3      15.2
                  15.0      14.9      14.8      14.6      14.5      14.4      14.2      14.1      14.0      13.8
                  13.7      13.6      13.4      13.3      13.2      13.0      12.9      12.9      12.8      12.7
                  12.5      12.4      12.2      12.0      11.9      11.8      11.7      11.6      11.5      11.4
                  11.2      11.1      11.0      10.9      10.8      10.7      10.7      10.6      10.5      10.4
                  10.3      10.2      10.1      10.0       9.9       9.9       9.8       9.7       9.6       9.5
                   9.4       9.3       9.3       9.2       9.1       9.0       8.9       8.8       8.7       8.6
                   8.6       8.6       8.5       8.5       8.4       8.4       8.3       8.3       8.2       8.1
                   8.0       7.9       7.9       7.8       7.8       7.7       7.7       7.6       7.5       7.4
                   7.3       7.2       7.1       7.1       7.0       7.0       6.9       6.9       6.8       6.8
                   6.8       6.7       6.6       6.5       6.4       6.4       6.3       6.3       6.2       6.2
                   6.1       6.0       5.9       5.8       5.8       5.8       5.7       5.7       5.6       5.6
                   5.5       5.5       5.4       5.4       5.4       5.3       5.3       5.2       5.2       5.1
                   5.1       5.1       5.0       5.0       4.9       4.9       4.8       4.8       4.7       4.7
                   4.7       4.6       4.6       4.5       4.5       4.4       4.4       4.3       4.3       4.3
                   4.2       4.2       4.2       4.2       4.2       4.2       4.1       4.1       4.0       4.0
                   4.0       3.9       3.9       3.8       3.8       3.7       3.7       3.6       3.6       3.6
                   3.6       3.6

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                    HYDROGRAPH AT STATION   OFF-N
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TOTAL RAINFALL = 7.46, TOTAL LOSS = 4.55, TOTAL EXCESS = 2.92

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	249.10-HR
(CFS)	(HR)	(CFS)				
162.	153.62		86.	34.	15.	6.
		(INCHES)	0.945	1.484	1.969	2.916
		(AC-FT)	43.	67.	89.	131.

CUMULATIVE AREA = 0.84 SQ MI

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528 KK
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* DUMMY2 *
* *
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530 HC HYDROGRAPH COMBINATION
ICOMP 6 NUMBER OF HYDROGRAPHS TO COMBINE

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*** *** *** ***

HYDROGRAPH AT STATION DUMMY2

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	249.10-HR
(CFS)	(HR)	(CFS)				
252.	153.17		134.	56.	26.	12.
		(INCHES)	1.010	1.703	2.344	3.663
		(AC-FT)	66.	112.	154.	241.

CUMULATIVE AREA = 1.23 SQ MI

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532 KK
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* K *
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533 IN TIME DATA FOR INPUT TIME SERIES
JXMIN 60 TIME INTERVAL IN MINUTES
JXDATE 31DEC99 STARTING DATE
JXTIME 2400 STARTING TIME

SUBBASIN RUNOFF DATA

560 BA SUBBASIN CHARACTERISTICS
TAREA, 0.06 SUBBASIN AREA

PRECIPITATION DATA

535 PB STORM 7.46 BASIN TOTAL PRECIPITATION

561 LU UNIFORM LOSS RATE
STRTL 0.20 INITIAL LOSS
CNSTL 0.06 UNIFORM LOSS RATE
RTIMP 47.94 PERCENT IMPERVIOUS AREA

560 UI INPUT UNITGRAPH, 151 ORDINATES, VOLUME = 1.00

2.0	4.7	7.7	10.8	14.1	16.7	20.6	24.8	28.5	33.1
37.8	42.8	48.1	53.5	59.8	66.5	72.9	77.8	79.3	80.1
79.7	78.5	76.3	71.3	66.3	61.2	56.3	52.0	49.2	46.4
43.3	40.5	38.4	36.3	34.1	32.3	30.6	28.9	27.4	25.9
24.6	23.5	22.3	21.3	20.3	19.3	18.4	17.7	17.0	16.3
15.5	14.9	14.3	13.8	13.3	12.8	12.2	11.8	11.3	10.9
10.6	10.2	10.0	9.7	9.4	9.2	8.9	8.6	8.3	8.1
7.9	7.7	7.4	7.3	7.1	6.8	6.6	6.5	6.3	6.1
6.0	5.8	5.6	5.5	5.3	5.1	5.0	4.9	4.8	4.6
4.5	4.3	4.2	4.1	4.0	3.9	3.8	3.7	3.6	3.5
3.4	3.3	3.2	3.1	3.0	2.9	2.8	2.7	2.7	2.6
2.5	2.4	2.4	2.3	2.3	2.2	2.1	2.1	2.0	2.0
1.9	1.9	1.8	1.8	1.7	1.7	1.6	1.6	1.6	1.5
1.5	1.4	1.4	1.3	1.3	1.3	1.2	1.2	1.2	1.1
1.1	1.1	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9
0.8									

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                        HYDROGRAPH AT STATION   K

     TOTAL RAINFALL =    7.46, TOTAL LOSS =    2.31, TOTAL EXCESS =    5.16

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR    249.10-HR
+   (CFS)       (HR)
                          (CFS)
+      18.    153.05                        8.           4.           2.           1.
                        (INCHES)        1.196        2.184        3.094        5.149
                         (AC-FT)           4.           7.          10.          17.

                        CUMULATIVE AREA =    0.06 SQ MI


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  579 KK    *    L       *
            *            *
            **************


  580 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN          60  TIME INTERVAL IN MINUTES
                      JXDATE    31DEC99  STARTING DATE
                      JXTIME        2400  STARTING TIME

                SUBBASIN RUNOFF DATA

  607 BA          SUBBASIN CHARACTERISTICS
                       TAREA,        0.03  SUBBASIN AREA

                  PRECIPITATION DATA

  582 PB               STORM         7.46  BASIN TOTAL PRECIPITATION


  608 LU          UNIFORM LOSS RATE
                       STRTL         0.20  INITIAL LOSS
                       CNSTL         0.06  UNIFORM LOSS RATE
                       RTIMP        70.00  PERCENT IMPERVIOUS AREA

  607 UI          INPUT UNITGRAPH,  67 ORDINATES,  VOLUME = 1.00
                        6.4       14.7       22.9       33.6       45.9       59.7       76.2       91.6       94.5       91.6
                       79.6       66.3       57.2       49.1       43.4       38.0       33.6       29.7       26.7       23.9
                       21.5       19.6       17.7       16.2       14.9       13.7       12.6       11.7       11.0       10.3
                        9.6        9.0        8.5        7.9        7.5        7.0        6.6        6.1        5.8        5.4
                        5.1        4.8        4.5        4.2        4.0        3.7        3.5        3.2        3.0        2.8
                        2.7        2.5        2.4        2.3        2.1        2.0        1.9        1.7        1.6        1.5
                        1.4        1.4        1.3        1.2        1.1        1.1        1.0

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                        HYDROGRAPH AT STATION   L

     TOTAL RAINFALL =    7.46, TOTAL LOSS =    1.29, TOTAL EXCESS =    6.18

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR    249.10-HR
+   (CFS)       (HR)
                          (CFS)
+      10.    153.00                        5.           2.           1.           1.
                        (INCHES)        1.303        2.494        3.603        6.168
                         (AC-FT)           2.           4.           6.          11.

                        CUMULATIVE AREA =    0.03 SQ MI


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  617 KK    *    M       *
            *            *
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  618 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN          60  TIME INTERVAL IN MINUTES
                      JXDATE    31DEC99  STARTING DATE
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                    JXTIME        2400  STARTING TIME

               SUBBASIN RUNOFF DATA

645 BA           SUBBASIN CHARACTERISTICS
                       TAREA,      0.07  SUBBASIN AREA

                 PRECIPITATION DATA

620 PB                 STORM      7.46  BASIN TOTAL PRECIPITATION


646 LU           UNIFORM LOSS RATE
                       STRTL      0.20  INITIAL LOSS
                       CNSTL      0.04  UNIFORM LOSS RATE
                       RTIMP     95.00  PERCENT IMPERVIOUS AREA

645 UI           INPUT UNITGRAPH, 160 ORDINATES,  VOLUME = 1.00
                     1.9      4.4      7.2     10.0     13.2     15.8     18.8     23.1     26.6     30.5
                    34.9     39.3     44.2     49.2     54.4     60.4     66.8     72.8     77.6     79.0
                    79.8     79.7     78.8     77.4     73.1     68.4     63.6     58.8     54.4     51.0
                    48.4     45.7     42.7     40.2     38.3     36.3     34.2     32.4     30.8     29.2
                    27.8     26.4     25.0     24.0     22.9     21.8     20.9     19.9     19.0     18.2
                    17.5     16.9     16.2     15.5     14.9     14.4     13.8     13.4     13.0     12.4
                    11.9     11.5     11.0     10.8     10.4     10.1      9.9      9.6      9.4      9.1
                     8.9      8.6      8.3      8.1      7.9      7.7      7.5      7.3      7.1      6.9
                     6.7      6.5      6.4      6.2      6.1      5.9      5.7      5.6      5.4      5.3
                     5.1      5.0      4.9      4.8      4.6      4.5      4.4      4.3      4.1      4.1
                     4.0      3.9      3.7      3.7      3.6      3.5      3.4      3.3      3.2      3.1
                     3.0      3.0      2.9      2.8      2.7      2.6      2.5      2.5      2.4      2.4
                     2.3      2.2      2.2      2.1      2.1      2.0      2.0      1.9      1.9      1.8
                     1.8      1.8      1.7      1.6      1.6      1.6      1.5      1.5      1.5      1.4
                     1.4      1.3      1.3      1.3      1.2      1.2      1.2      1.1      1.1      1.1
                     1.1      1.0      1.0      1.0      1.0      0.9      0.9      0.9      0.9      0.8

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                        HYDROGRAPH AT STATION   M

     TOTAL RAINFALL =    7.46, TOTAL LOSS =    0.17, TOTAL EXCESS =    7.30

   PEAK FLOW      TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR    249.10-HR
+    (CFS)        (HR)
                                (CFS)
+      20.     153.05                      10.           5.           2.           1.
                               (INCHES)    1.378        2.825        4.154        7.286
                                (AC-FT)       5.          10.          15.          26.

                        CUMULATIVE AREA =    0.07 SQ MI


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664 KK         *     N         *
               *               *
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665 IN           TIME DATA FOR INPUT TIME SERIES
                       JXMIN        60  TIME INTERVAL IN MINUTES
                      JXDATE  31DEC99  STARTING DATE
                      JXTIME      2400  STARTING TIME

               SUBBASIN RUNOFF DATA

692 BA           SUBBASIN CHARACTERISTICS
                       TAREA,      0.04  SUBBASIN AREA

                 PRECIPITATION DATA

667 PB                 STORM      7.46  BASIN TOTAL PRECIPITATION

693 LU           UNIFORM LOSS RATE
                       STRTL      0.20  INITIAL LOSS
                       CNSTL      0.07  UNIFORM LOSS RATE
                       RTIMP     43.11  PERCENT IMPERVIOUS AREA

692 UI           INPUT UNITGRAPH, 117 ORDINATES,  VOLUME = 1.00
                     2.0      4.9      8.0     11.2     13.9     18.3     22.0     26.6     31.3     36.5
                    42.0     48.4     55.0     59.8     61.1     61.4     60.4     57.7     52.8     47.8
                    42.9     39.2     36.4     33.4     30.7     28.6     26.5     24.6     23.0     21.4
                    19.9     18.7     17.5     16.5     15.5     14.5     13.7     13.1     12.3     11.6
                    11.1     10.5     10.1      9.5      9.1      8.5      8.3      7.8      7.6      7.3
                     7.1      6.8      6.5      6.3      6.1      5.8      5.6      5.5      5.2      5.0
                     4.9      4.7      4.5      4.4      4.2      4.0      3.9      3.8      3.7      3.5
                     3.4      3.2      3.1      3.0      2.9      2.8      2.7      2.6      2.5      2.4
                     2.4      2.3      2.2      2.1      2.0      1.9      1.9      1.8      1.7      1.7
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                1.6       1.6       1.5       1.5       1.4       1.4       1.3       1.3       1.2       1.2
                1.1       1.1       1.0       1.0       1.0       1.0       0.9       0.9       0.9       0.8
                0.8       0.8       0.7       0.7       0.7       0.7       0.6

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                       HYDROGRAPH AT STATION   N

     TOTAL RAINFALL =    7.46, TOTAL LOSS =    2.60, TOTAL EXCESS =    4.86

  PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR        72-HR     249.10-HR
+   (CFS)       (HR)
                          (CFS)
+      11.    153.02                     5.           2.           1.           0.
                         (INCHES)      1.173        2.083        2.941        4.856
                         (AC-FT)         2.           4.           6.          10.

                         CUMULATIVE AREA =    0.04 SQ MI


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 707 KK     *    O       *
            *            *
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 708 IN          TIME DATA FOR INPUT TIME SERIES
                      JXMIN         60  TIME INTERVAL IN MINUTES
                     JXDATE   31DEC99  STARTING DATE
                     JXTIME       2400  STARTING TIME

                SUBBASIN RUNOFF DATA

 735 BA          SUBBASIN CHARACTERISTICS
                      TAREA,       0.04  SUBBASIN AREA

                PRECIPITATION DATA

 710 PB               STORM        7.46  BASIN TOTAL PRECIPITATION


 736 LU          UNIFORM LOSS RATE
                      STRTL        0.20  INITIAL LOSS
                      CNSTL        0.07  UNIFORM LOSS RATE
                      RTIMP       50.00  PERCENT IMPERVIOUS AREA

 735 UI          INPUT UNITGRAPH,  93 ORDINATES,  VOLUME = 1.00
                     3.7       8.6      14.0      18.7      25.8      32.7      40.4      49.1      58.6      69.6
                    79.8      82.0      82.1      79.9      72.3      63.8      55.8      50.5      45.7      41.1
                    37.6      34.0      31.3      28.6      26.1      24.3      22.3      20.7      19.1      17.9
                    16.7      15.5      14.6      13.7      12.8      12.1      11.3      10.7      10.3       9.8
                     9.4       8.9       8.5       8.1       7.7       7.4       7.1       6.7       6.5       6.2
                     5.9       5.6       5.3       5.1       4.9       4.7       4.5       4.3       4.1       3.9
                     3.7       3.6       3.4       3.3       3.1       3.0       2.8       2.7       2.6       2.5
                     2.3       2.2       2.1       2.0       2.0       1.9       1.8       1.7       1.7       1.6
                     1.5       1.4       1.4       1.3       1.3       1.2       1.2       1.1       1.0       1.0
                     1.0       0.9       0.9

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     ***               ***               ***               ***               ***

                       HYDROGRAPH AT STATION   O

     TOTAL RAINFALL =    7.46, TOTAL LOSS =    2.32, TOTAL EXCESS =    5.15

  PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR        72-HR     249.10-HR
+   (CFS)       (HR)
                          (CFS)
+      12.    153.00                     5.           2.           1.           1.
                         (INCHES)      1.199        2.162        3.076        5.135
                         (AC-FT)         3.           5.           7.          11.

                         CUMULATIVE AREA =    0.04 SQ MI


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 748 KK     *    P       *
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749 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN          60  TIME INTERVAL IN MINUTES
                    JXDATE     31DEC99  STARTING DATE
                    JXTIME        2400  STARTING TIME

               SUBBASIN RUNOFF DATA

776 BA          SUBBASIN CHARACTERISTICS
                     TAREA,        0.03  SUBBASIN AREA

               PRECIPITATION DATA

751 PB               STORM         7.46  BASIN TOTAL PRECIPITATION


777 LU          UNIFORM LOSS RATE
                     STRTL         0.20  INITIAL LOSS
                     CNSTL         0.06  UNIFORM LOSS RATE
                     RTIMP        56.38  PERCENT IMPERVIOUS AREA

776 UI          INPUT UNITGRAPH, 102 ORDINATES,  VOLUME = 1.00
                     2.6        6.2       10.0       13.4       18.2       22.8       28.3       34.2       40.5       47.7
                    55.7       62.7       64.3       64.5       63.1       58.5       52.4       46.3       41.5       38.1
                    34.4       31.5       29.0       26.5       24.5       22.6       20.8       19.4       17.9       16.7
                    15.6       14.5       13.7       12.8       12.0       11.3       10.7       10.1        9.6        8.9
                     8.6        8.1        7.8        7.5        7.2        6.9        6.6        6.3        6.0        5.8
                     5.6        5.3        5.1        4.9        4.7        4.5        4.3        4.1        4.0        3.8
                     3.6        3.5        3.3        3.2        3.1        3.0        2.8        2.7        2.6        2.5
                     2.4        2.3        2.2        2.1        2.0        1.9        1.8        1.8        1.7        1.6
                     1.6        1.5        1.5        1.4        1.3        1.3        1.2        1.2        1.1        1.1
                     1.0        1.0        1.0        0.9        0.9        0.8        0.8        0.8        0.8        0.7
                     0.7        0.7

                                                                                                                      ***

     ***             ***             ***             ***             ***

                       HYDROGRAPH AT STATION   P

   TOTAL RAINFALL =    7.46, TOTAL LOSS =    1.90, TOTAL EXCESS =    5.56

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    249.10-HR
+   (CFS)       (HR)
                          (CFS)
+      10.    153.02                    5.          2.          1.          0.
                       (INCHES)      1.245       2.313       3.303       5.562
                        (AC-FT)         2.          4.          6.         10.

                       CUMULATIVE AREA =    0.03 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
790 KK    *   DUMMY3   *
          *            *
          **************


792 HC          HYDROGRAPH COMBINATION
                     ICOMP           6  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                      ***

     ***             ***             ***             ***             ***

                       HYDROGRAPH AT STATION   DUMMY3

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    249.10-HR
+   (CFS)       (HR)
                          (CFS)
+      81.    153.02                   37.         18.          8.          4.
                       (INCHES)      1.255       2.376       3.415       5.799
                        (AC-FT)        18.         35.         50.         85.

                       CUMULATIVE AREA =    0.27 SQ MI

1
                                                RUNOFF SUMMARY
                                          FLOW IN CUBIC FEET PER SECOND
                                        TIME IN HOURS,  AREA IN SQUARE MILES

                                  PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
        OPERATION      STATION    FLOW    PEAK                                           AREA      STAGE     MAX STAGE
+                                                    6-HOUR      24-HOUR     72-HOUR
```

+	HYDROGRAPH AT	A	33.	153.07	16.	7.	4.	0.12
+	HYDROGRAPH AT	B	13.	153.00	6.	3.	1.	0.04
+	HYDROGRAPH AT	C	18.	153.02	8.	4.	2.	0.06
+	HYDROGRAPH AT	D	14.	153.02	6.	3.	1.	0.05
+	HYDROGRAPH AT	E	11.	153.00	5.	2.	1.	0.04
+	5 COMBINED AT	DUMMY1	89.	153.02	41.	19.	9.	0.31
+	HYDROGRAPH AT	F	13.	153.00	6.	3.	1.	0.05
+	HYDROGRAPH AT	G	18.	153.02	8.	3.	2.	0.06
+	HYDROGRAPH AT	H	31.	153.05	14.	6.	3.	0.11
+	HYDROGRAPH AT	I	23.	153.08	11.	5.	2.	0.08
+	HYDROGRAPH AT	J	26.	153.02	12.	6.	3.	0.09
+	HYDROGRAPH AT	OFF-N	162.	153.62	86.	34.	15.	0.84
+	6 COMBINED AT	DUMMY2	252.	153.17	134.	56.	26.	1.23
+	HYDROGRAPH AT	K	18.	153.05	8.	4.	2.	0.06
+	HYDROGRAPH AT	L	10.	153.00	5.	2.	1.	0.03
+	HYDROGRAPH AT	M	20.	153.05	10.	5.	2.	0.07
+	HYDROGRAPH AT	N	11.	153.02	5.	2.	1.	0.04
+	HYDROGRAPH AT	O	12.	153.00	5.	2.	1.	0.04
+	HYDROGRAPH AT	P	10.	153.02	5.	2.	1.	0.03
+	6 COMBINED AT	DUMMY3	81.	153.02	37.	18.	8.	0.27

*** NORMAL END OF HEC-1L ***

Ultimate Conditions HEC-RAS Model

25 100year 24hour Model

```
                HEC-RAS Version 3.1.3 May 2005
                 U.S. Army Corp of Engineers
                Hydrologic Engineering Center
                      609 Second Street
                      Davis, California

     X     X  XXXXXX    XXXX        XXXX       XX      XXXX
     X     X  X        X    X       X   X     X  X     X
     X     X  X        X            X   X     X    X   X
     XXXXXXX  XXXX     X       XXX  XXXX      XXXXXX    XXXX
     X     X  X        X            X  X       X    X       X
     X     X  X        X    X       X   X      X    X       X
     X     X  XXXXXX    XXXX        X    X     X    X   XXXXX

PROJECT DATA
Project Title: GREENBRIAR FARMS
Project File : GB.prj
Run Date and Time: 7/14/2005 3:37:39 PM

Project in English units

Project Description:
References:
1) Offsite Drainage Improvements-Metro Air Park, Exhibit D-2
(Offsite improved channels and Interstate 5 crossing)
2) 100yr-10day &
10yr-10day, STA 0+00, West Drain Stages, Mark Kubik @ Mead & Hunt Inc.



PLAN DATA

Plan Title: P3-100YR24HR-DEVELOP
Plan File : j:\Jobs\1116-GreenbriarFarms\1116-GreenbriarFarms\Civil\Docs\Report\HEC-RAS\GB.p03

          Geometry Title: DEVELOP
          Geometry File : j:\Jobs\1116-GreenbriarFarms\1116-GreenbriarFarms\Civil\Docs\Report\HEC-RAS\GB.g01

          Flow Title    :
          Flow File     :

Plan Summary Information:
Number of:  Cross Sections =  207    Multiple Openings  =    0
            Culverts       =    6    Inline Structures  =    1
            Bridges        =    0    Lateral Structures =    0

Computational Information
    Water surface calculation tolerance  =  0.01
    Critical depth calculation tolerance =  0.01
    Maximum number of iterations         =  20
    Maximum difference tolerance         =  0.3
    Flow tolerance factor                =  0.001

Computation Options
    Critical depth computed only where necessary
    Conveyance Calculation Method: At breaks in n values only
    Friction Slope Method:         Average Conveyance
    Computational Flow Regime:     Subcritical Flow


Profile Output Table - Concise Table 1
```

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	E.G. Elev (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)
WEST DETENTION	1	5540	Max WS	5.89	11.00	14.90	14.90	0.00	1472.20
WEST DETENTION	1	5460	Max WS	5.88	11.00	14.90	14.90	0.00	1351.94
WEST DETENTION	1	5438	Max WS	5.88	11.00	14.90	14.90	0.01	628.37
WEST DETENTION	1	5412	Max WS	5.88	11.00	14.90	14.90	0.01	531.02
WEST DETENTION	1	4950	Max WS	5.87	11.00	14.90	14.90	0.01	514.07
WEST DETENTION	1	4907	Max WS	5.87	11.00	14.90	14.90	0.01	671.81
WEST DETENTION	1	4611	Max WS	9.41	11.00	14.90	14.90	0.01	659.33
WEST DETENTION	1	4537	Max WS	11.83	11.00	14.90	14.90	0.02	514.64
WEST DETENTION	1	3571	Max WS	11.83	11.00	14.90	14.90	0.02	512.48
WEST DETENTION	1	3570		Culvert					
WEST DETENTION	1	3417	Max WS	11.67	11.00	14.87	14.87	0.02	508.82
WEST DETENTION	1	3400	Max WS	11.67	11.00	14.87	14.87	0.02	508.48
WEST DETENTION	1	3383	Max WS	13.96	11.00	14.87	14.87	0.03	509.83
WEST DETENTION	1	2760	Max WS	16.03	11.00	14.87	14.87	0.03	507.98
WEST DETENTION	1	2722	Max WS	18.58	11.00	14.87	14.87	0.02	909.49
WEST DETENTION	1	2635	Max WS	18.58	11.00	14.87	14.87	0.02	916.87
WEST DETENTION	1	2586	Max WS	18.58	11.00	14.87	14.87	0.01	1301.49
WEST DETENTION	1	2545	Max WS	18.57	11.00	14.87	14.87	0.01	1301.91

WEST DETENTION	1	2507	Max WS	18.57	11.00	14.87	14.87	0.02	925.62
WEST DETENTION	1	2402	Max WS	18.57	11.00	14.87	14.87	0.02	914.81
WEST DETENTION	1	2367	Max WS	21.74	11.00	14.87	14.87	0.04	519.80
WEST DETENTION	1	1987	Max WS	21.73	11.00	14.87	14.87	0.04	510.69
WEST DETENTION	1	1986		Culvert					
WEST DETENTION	1	1922	Max WS	21.70	11.00	14.79	14.79	0.04	497.47
WEST DETENTION	1	1891	Max WS	21.70	11.00	14.79	14.79	0.04	496.93
WEST DETENTION	1	1815	Max WS	23.76	11.00	14.79	14.79	0.02	1052.61
SOUTH DETENTION	3	1636	Max WS	49.37	11.00	14.79	14.79	0.03	1451.36
SOUTH DETENTION	3	1561	Max WS	49.37	11.00	14.79	14.79	0.05	991.54
SOUTH DETENTION	3	1153	Max WS	55.95	11.00	14.79	14.79	0.05	1212.08
SOUTH DETENTION	3	1080	Max WS	55.95	11.00	14.79	14.79	0.05	1045.94
SOUTH DETENTION	3	1012	Max WS	61.46	11.00	14.79	14.79	0.04	1598.14
SOUTH DETENTION	3	945	Max WS	61.46	11.00	14.79	14.79	0.05	1123.51
SOUTH DETENTION	3	942		Inl Struct					
SOUTH DETENTION	3	940	Max WS	61.46	2.70	14.79	14.79	0.02	4385.12
SOUTH DETENTION	3	930	Max WS	61.46	2.70	14.79	14.79	0.02	4385.12
SOUTH DETENTION	3	500		Culvert					
SOUTH DETENTION	3	150	Max WS	61.43	2.20	8.84	8.84	0.03	1919.15
SOUTH DETENTION	3	100	Max WS	61.25	2.20	8.84	8.84	0.03	1919.15
SOUTH DETENTION	3	90	Max WS	61.22	2.20	8.84	8.84	0.03	1919.15
OFFSITE	R8 NORTH	5350	Max WS	402.66	9.00	15.70	15.82	2.72	147.89
OFFSITE	R8 NORTH	1100	Max WS	383.17	6.00	8.84	9.82	7.97	48.09
OFFSITE	R8 NORTH	1050	Max WS	386.23	2.30	9.03	9.08	1.66	232.12
OFFSITE	R8 NORTH	100	Max WS	384.32	2.20	8.84	8.88	1.70	226.60
OFFSITE	R8 SOUTH	3500	Max WS	445.54	2.20	8.84	8.90	1.97	226.60
OFFSITE	R8 SOUTH	3450	Max WS	445.51	2.20	8.85	8.89	1.52	293.71
OFFSITE	R8 SOUTH	3300		Culvert					
OFFSITE	R8 SOUTH	3100	Max WS	444.62	2.00	8.46	8.49	1.58	281.07
OFFSITE	R8 SOUTH	100	Max WS	181.03	1.80	7.56	7.58	0.98	184.16
EAST DETENTION	2	5600	Max WS	-0.89	11.00	14.90	14.90	0.00	1472.54
EAST DETENTION	2	5560	Max WS	-0.89	11.00	14.90	14.90	0.00	1464.29
EAST DETENTION	2	5520	Max WS	-0.89	11.00	14.90	14.90	0.00	1362.87
EAST DETENTION	2	5480	Max WS	-0.89	11.00	14.90	14.90	0.00	624.64
EAST DETENTION	2	5455	Max WS	-0.89	11.00	14.90	14.90	0.00	514.64
EAST DETENTION	2	4920	Max WS	-0.91	11.00	14.90	14.90	0.00	513.99
EAST DETENTION	2	4880	Max WS	-0.91	11.00	14.90	14.90	0.00	898.34
EAST DETENTION	2	4850	Max WS	-0.92	11.00	14.90	14.90	0.00	2129.66
EAST DETENTION	2	4775	Max WS	6.92	11.00	14.90	14.90	0.01	965.98
EAST DETENTION	2	4653	Max WS	8.67	11.00	14.90	14.90	0.02	553.84
EAST DETENTION	2	4126	Max WS	8.66	11.00	14.90	14.90	0.02	515.17
EAST DETENTION	2	3563	Max WS	12.39	11.00	14.90	14.90	0.02	513.52
EAST DETENTION	2	3562		Culvert					
EAST DETENTION	2	3414	Max WS	11.88	11.00	14.86	14.86	0.02	507.39
EAST DETENTION	2	3335	Max WS	11.88	11.00	14.86	14.86	0.03	464.78
EAST DETENTION	2	3282	Max WS	14.06	11.00	14.86	14.86	0.06	221.68
EAST DETENTION	2	2946	Max WS	20.50	11.00	14.86	14.86	0.10	195.65
EAST DETENTION	2	2945		Culvert					
EAST DETENTION	2	2855	Max WS	20.38	11.00	14.79	14.79	0.09	229.22
EAST DETENTION	2	2804	Max WS	20.38	11.00	14.79	14.79	0.08	254.88
EAST DETENTION	2	1864	Max WS	25.61	11.00	14.79	14.79	0.03	809.85
EAST DETENTION	2	1800	Max WS	25.61	11.00	14.79	14.79	0.02	1318.29
DUMMY	4	1	Max WS	5.00	11.00	14.90	14.90	0.01	337.64
DUMMY	4	0	Max WS	5.00	11.00	14.90	14.90	0.01	339.48

Profile Output Table - ChannelVolume

River	Reach	River Sta	Profile	Volume (acre-ft)
WEST DETENTION	1	5540	Max WS	57.07
WEST DETENTION	1	5460	Max WS	54.64
WEST DETENTION	1	5438	Max WS	52.39
WEST DETENTION	1	5412	Max WS	52.01
WEST DETENTION	1	4950	Max WS	46.45
WEST DETENTION	1	4907	Max WS	45.70
WEST DETENTION	1	4611	Max WS	41.03
WEST DETENTION	1	4537	Max WS	40.07
WEST DETENTION	1	3571	Max WS	28.69
WEST DETENTION	1	3570		Culvert
WEST DETENTION	1	3417	Max WS	26.86
WEST DETENTION	1	3400	Max WS	26.66
WEST DETENTION	1	3383	Max WS	26.48
WEST DETENTION	1	2760	Max WS	19.28
WEST DETENTION	1	2722	Max WS	18.30
WEST DETENTION	1	2635	Max WS	16.47
WEST DETENTION	1	2586	Max WS	14.58
WEST DETENTION	1	2545	Max WS	13.37
WEST DETENTION	1	2507	Max WS	11.73
WEST DETENTION	1	2402	Max WS	9.41
WEST DETENTION	1	2367	Max WS	8.39
WEST DETENTION	1	1987	Max WS	3.89
WEST DETENTION	1	1986		Culvert
WEST DETENTION	1	1922	Max WS	3.15
WEST DETENTION	1	1891	Max WS	2.79
WEST DETENTION	1	1815	Max WS	1.44
SOUTH DETENTION	3	1636	Max WS	80.12
SOUTH DETENTION	3	1561	Max WS	78.00
SOUTH DETENTION	3	1153	Max WS	67.68
SOUTH DETENTION	3	1080	Max WS	65.79
SOUTH DETENTION	3	1012	Max WS	63.73
SOUTH DETENTION	3	945	Max WS	61.64
SOUTH DETENTION	3	942		Inl Struct
SOUTH DETENTION	3	940	Max WS	61.32

SOUTH DETENTION	3		930	Max WS	60.32
SOUTH DETENTION	3		500		Culvert
SOUTH DETENTION	3		150	Max WS	3.87
SOUTH DETENTION	3		100	Max WS	1.67
SOUTH DETENTION	3		90	Max WS	1.23
OFFSITE	R8	NORTH	5350	Max WS	17.46
OFFSITE	R8	NORTH	1100	Max WS	5.42
OFFSITE	R8	NORTH	1050	Max WS	5.26
OFFSITE	R8	NORTH	100	Max WS	0.26
OFFSITE	R8	SOUTH	3500	Max WS	18.78
OFFSITE	R8	SOUTH	3450	Max WS	18.48
OFFSITE	R8	SOUTH	3300		Culvert
OFFSITE	R8	SOUTH	3100	Max WS	16.17
OFFSITE	R8	SOUTH	100	Max WS	
EAST DETENTION	2		5600	Max WS	60.85
EAST DETENTION	2		5560	Max WS	59.64
EAST DETENTION	2		5520	Max WS	58.23
EAST DETENTION	2		5480	Max WS	55.94
EAST DETENTION	2		5455	Max WS	55.49
EAST DETENTION	2		4920	Max WS	49.17
EAST DETENTION	2		4880	Max WS	48.19
EAST DETENTION	2		4850	Max WS	42.39
EAST DETENTION	2		4775	Max WS	35.26
EAST DETENTION	2		4653	Max WS	33.14
EAST DETENTION	2		4126	Max WS	26.66
EAST DETENTION	2		3563	Max WS	20.02
EAST DETENTION	2		3562		Culvert
EAST DETENTION	2		3414	Max WS	18.27
EAST DETENTION	2		3335	Max WS	17.39
EAST DETENTION	2		3282	Max WS	16.97
EAST DETENTION	2		2946	Max WS	15.36
EAST DETENTION	2		2945		Culvert
EAST DETENTION	2		2855	Max WS	14.92
EAST DETENTION	2		2804	Max WS	14.63
EAST DETENTION	2		1864	Max WS	3.15
EAST DETENTION	2		1800	Max WS	1.59
DUMMY	4		1	Max WS	0.10
DUMMY	4		0	Max WS	0.02

25 100year 10day Model

HEC-RAS Version 3.1.3 May 2005
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X       X    X       X   X     X  X     X
X     X  X       X            X   X     X    X   X
XXXXXXX  XXXX    X       XXX  XXXX      XXXXXX    XXXX
X     X  X       X            X  X      X    X       X
X     X  X       X    X       X   X     X    X       X
X     X  XXXXXX   XXXX        X    X    X    X   XXXXX
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PROJECT DATA
Project Title: GREENBRIAR FARMS
Project File : GB.prj
Run Date and Time: 7/14/2005 9:49:06 AM

Project in English units

Project Description:
References:
1) Offsite Drainage Improvements-Metro Air Park, Exhibit D-2
(Offsite improved channels and Interstate 5 crossing)
2) 100yr-10day &
10yr-10day, STA 0+00, West Drain Stages, Mark Kubik @ Mead & Hunt Inc.

PLAN DATA

Plan Title: P1-100YR10DAY-DEVELOP
Plan File : j:\Jobs\1116-GreenbriarFarms\1116-GreenbriarFarms\Civil\Docs\Report\HEC-RAS\GB.p01

Geometry Title: DEVELOP
Geometry File : j:\Jobs\1116-GreenbriarFarms\1116-GreenbriarFarms\Civil\Docs\Report\HEC-RAS\GB.g01

Flow Title :
Flow File :

Plan Summary Information:
Number of: Cross Sections = 207 Multiple Openings = 0
Culverts = 6 Inline Structures = 1
Bridges = 0 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

Profile Output Table - Concise Table 1

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	E.G. Elev (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)
WEST DETENTION	1	5540	Max WS	6.79	11.00	14.87	14.87	0.00	1461.31
WEST DETENTION	1	5460	Max WS	6.77	11.00	14.87	14.87	0.01	1341.81
WEST DETENTION	1	5438	Max WS	6.76	11.00	14.87	14.87	0.01	623.47
WEST DETENTION	1	5412	Max WS	6.75	11.00	14.87	14.87	0.01	526.81
WEST DETENTION	1	4950	Max WS	6.72	11.00	14.87	14.87	0.01	510.06
WEST DETENTION	1	4907	Max WS	6.71	11.00	14.87	14.87	0.01	666.62
WEST DETENTION	1	4611	Max WS	9.19	11.00	14.87	14.87	0.01	654.24
WEST DETENTION	1	4537	Max WS	10.90	11.00	14.87	14.87	0.02	510.62
WEST DETENTION	1	3571	Max WS	10.81	11.00	14.87	14.87	0.02	508.48
WEST DETENTION	1	3570		Culvert					
WEST DETENTION	1	3417	Max WS	9.75	11.00	14.84	14.84	0.02	505.40
WEST DETENTION	1	3400	Max WS	9.75	11.00	14.84	14.84	0.02	505.06
WEST DETENTION	1	3383	Max WS	11.25	11.00	14.84	14.84	0.02	506.40
WEST DETENTION	1	2760	Max WS	12.95	11.00	14.84	14.84	0.03	504.55
WEST DETENTION	1	2722	Max WS	14.85	11.00	14.84	14.84	0.02	903.57
WEST DETENTION	1	2635	Max WS	14.85	11.00	14.84	14.84	0.02	910.91
WEST DETENTION	1	2586	Max WS	14.84	11.00	14.84	14.84	0.01	1293.13
WEST DETENTION	1	2545	Max WS	14.83	11.00	14.84	14.84	0.01	1293.55
WEST DETENTION	1	2507	Max WS	14.83	11.00	14.84	14.84	0.02	919.60

WEST DETENTION	1	2402	Max WS	14.82	11.00	14.84	14.84	0.02	908.85
WEST DETENTION	1	2367	Max WS	17.26	11.00	14.84	14.84	0.03	516.29
WEST DETENTION	1	1987	Max WS	17.24	11.00	14.84	14.84	0.03	507.23
WEST DETENTION	1	1986		Culvert					
WEST DETENTION	1	1922	Max WS	15.26	11.00	14.80	14.80	0.03	498.95
WEST DETENTION	1	1891	Max WS	15.26	11.00	14.80	14.80	0.03	498.42
WEST DETENTION	1	1815	Max WS	17.30	11.00	14.80	14.80	0.02	1055.66
SOUTH DETENTION	3	1636	Max WS	42.53	11.00	14.80	14.80	0.03	1455.50
SOUTH DETENTION	3	1561	Max WS	42.53	11.00	14.80	14.80	0.04	994.38
SOUTH DETENTION	3	1153	Max WS	53.13	11.00	14.80	14.80	0.04	1215.51
SOUTH DETENTION	3	1080	Max WS	53.12	11.00	14.80	14.80	0.05	1048.91
SOUTH DETENTION	3	1012	Max WS	61.47	11.00	14.80	14.80	0.04	1602.65
SOUTH DETENTION	3	945	Max WS	61.46	11.00	14.80	14.80	0.05	1126.79
SOUTH DETENTION	3	942		Inl Struct					
SOUTH DETENTION	3	940	Max WS	61.46	2.70	14.80	14.80	0.02	4389.69
SOUTH DETENTION	3	930	Max WS	61.46	2.70	14.80	14.80	0.02	4389.69
SOUTH DETENTION	3	500		Culvert					
SOUTH DETENTION	3	150	Max WS	46.18	2.20	11.21	11.21	0.02	2906.49
SOUTH DETENTION	3	100	Max WS	46.18	2.20	11.21	11.21	0.02	2906.49
SOUTH DETENTION	3	90	Max WS	46.18	2.20	11.21	11.21	0.02	2906.49
OFFSITE	R8 NORTH	5350	Max WS	251.59	9.00	14.18	14.27	2.46	102.28
OFFSITE	R8 NORTH	1100	Max WS	19.48	6.00	11.21	11.21	0.18	110.05
OFFSITE	R8 NORTH	1050	Max WS	19.48	2.30	11.21	11.21	0.06	345.95
OFFSITE	R8 NORTH	100	Max WS	19.46	2.20	11.21	11.21	0.06	350.01
OFFSITE	R8 SOUTH	3500	Max WS	65.63	2.20	11.21	11.21	0.19	350.01
OFFSITE	R8 SOUTH	3450	Max WS	65.63	2.20	11.21	11.21	0.15	440.12
OFFSITE	R8 SOUTH	3300		Culvert					
OFFSITE	R8 SOUTH	3100	Max WS	65.63	2.00	11.20	11.20	0.15	449.24
OFFSITE	R8 SOUTH	100	Max WS	63.33	1.80	11.19	11.19	0.17	365.14
EAST DETENTION	2	5600	Max WS	-1.79	11.00	14.87	14.87	0.00	1461.65
EAST DETENTION	2	5560	Max WS	-1.80	11.00	14.87	14.87	0.00	1453.45
EAST DETENTION	2	5520	Max WS	-1.80	11.00	14.87	14.87	0.00	1352.68
EAST DETENTION	2	5480	Max WS	-1.82	11.00	14.87	14.87	0.00	619.76
EAST DETENTION	2	5455	Max WS	-1.82	11.00	14.87	14.87	0.00	510.62
EAST DETENTION	2	4920	Max WS	-1.87	11.00	14.87	14.87	0.00	509.97
EAST DETENTION	2	4880	Max WS	-1.88	11.00	14.87	14.87	0.00	891.37
EAST DETENTION	2	4850	Max WS	-1.92	11.00	14.87	14.87	0.00	2113.88
EAST DETENTION	2	4775	Max WS	6.48	11.00	14.87	14.87	0.01	958.63
EAST DETENTION	2	4653	Max WS	7.42	11.00	14.87	14.87	0.01	549.49
EAST DETENTION	2	4126	Max WS	7.36	11.00	14.87	14.87	0.01	511.14
EAST DETENTION	2	3563	Max WS	10.82	11.00	14.87	14.87	0.02	509.49
EAST DETENTION	2	3562		Culvert					
EAST DETENTION	2	3414	Max WS	8.84	11.00	14.84	14.84	0.02	504.30
EAST DETENTION	2	3335	Max WS	8.84	11.00	14.84	14.84	0.02	461.92
EAST DETENTION	2	3282	Max WS	10.38	11.00	14.84	14.84	0.05	220.17
EAST DETENTION	2	2946	Max WS	16.11	11.00	14.84	14.84	0.08	194.30
EAST DETENTION	2	2945		Culvert					
EAST DETENTION	2	2855	Max WS	15.55	11.00	14.80	14.80	0.07	229.97
EAST DETENTION	2	2804	Max WS	15.55	11.00	14.80	14.80	0.06	255.70
EAST DETENTION	2	1864	Max WS	25.24	11.00	14.80	14.80	0.03	812.18
EAST DETENTION	2	1800	Max WS	25.23	11.00	14.80	14.80	0.02	1322.08
DUMMY	4	1	Max WS	5.00	11.00	14.87	14.87	0.01	334.52
DUMMY	4	0	Max WS	5.00	11.00	14.87	14.87	0.01	336.36

Profile Output Table - ChannelVolume

River	Reach	River Sta	Profile	Volume (acre-ft)
WEST DETENTION	1	5540	Max WS	56.70
WEST DETENTION	1	5460	Max WS	54.28
WEST DETENTION	1	5438	Max WS	52.05
WEST DETENTION	1	5412	Max WS	51.67
WEST DETENTION	1	4950	Max WS	46.15
WEST DETENTION	1	4907	Max WS	45.41
WEST DETENTION	1	4611	Max WS	40.77
WEST DETENTION	1	4537	Max WS	39.82
WEST DETENTION	1	3571	Max WS	28.53
WEST DETENTION	1	3570		Culvert
WEST DETENTION	1	3417	Max WS	26.72
WEST DETENTION	1	3400	Max WS	26.51
WEST DETENTION	1	3383	Max WS	26.33
WEST DETENTION	1	2760	Max WS	19.18
WEST DETENTION	1	2722	Max WS	18.22
WEST DETENTION	1	2635	Max WS	16.39
WEST DETENTION	1	2586	Max WS	14.52
WEST DETENTION	1	2545	Max WS	13.31
WEST DETENTION	1	2507	Max WS	11.68
WEST DETENTION	1	2402	Max WS	9.38
WEST DETENTION	1	2367	Max WS	8.37
WEST DETENTION	1	1987	Max WS	3.90
WEST DETENTION	1	1986		Culvert
WEST DETENTION	1	1922	Max WS	3.16
WEST DETENTION	1	1891	Max WS	2.80
WEST DETENTION	1	1815	Max WS	1.44
SOUTH DETENTION	3	1636	Max WS	91.06
SOUTH DETENTION	3	1561	Max WS	88.93
SOUTH DETENTION	3	1153	Max WS	78.58
SOUTH DETENTION	3	1080	Max WS	76.68
SOUTH DETENTION	3	1012	Max WS	74.62
SOUTH DETENTION	3	945	Max WS	72.52
SOUTH DETENTION	3	942		Inl Struct
SOUTH DETENTION	3	940	Max WS	72.20
SOUTH DETENTION	3	930	Max WS	71.20

SOUTH DETENTION	3		500		Culvert
SOUTH DETENTION	3		150	Max WS	5.87
SOUTH DETENTION	3		100	Max WS	2.54
SOUTH DETENTION	3		90	Max WS	1.87
OFFSITE	R8	NORTH	5350	Max WS	18.01
OFFSITE	R8	NORTH	1100	Max WS	8.25
OFFSITE	R8	NORTH	1050	Max WS	7.99
OFFSITE	R8	NORTH	100	Max WS	0.40
OFFSITE	R8	SOUTH	3500	Max WS	32.09
OFFSITE	R8	SOUTH	3450	Max WS	31.64
OFFSITE	R8	SOUTH	3300		Culvert
OFFSITE	R8	SOUTH	3100	Max WS	28.07
OFFSITE	R8	SOUTH	100	Max WS	
EAST DETENTION	2		5600	Max WS	60.54
EAST DETENTION	2		5560	Max WS	59.35
EAST DETENTION	2		5520	Max WS	57.95
EAST DETENTION	2		5480	Max WS	55.68
EAST DETENTION	2		5455	Max WS	55.23
EAST DETENTION	2		4920	Max WS	48.96
EAST DETENTION	2		4880	Max WS	47.98
EAST DETENTION	2		4850	Max WS	42.23
EAST DETENTION	2		4775	Max WS	35.15
EAST DETENTION	2		4653	Max WS	33.04
EAST DETENTION	2		4126	Max WS	26.62
EAST DETENTION	2		3563	Max WS	20.03
EAST DETENTION	2		3562		Culvert
EAST DETENTION	2		3414	Max WS	18.29
EAST DETENTION	2		3335	Max WS	17.42
EAST DETENTION	2		3282	Max WS	17.00
EAST DETENTION	2		2946	Max WS	15.41
EAST DETENTION	2		2945		Culvert
EAST DETENTION	2		2855	Max WS	14.96
EAST DETENTION	2		2804	Max WS	14.68
EAST DETENTION	2		1864	Max WS	3.16
EAST DETENTION	2		1800	Max WS	1.59
DUMMY	4		1	Max WS	0.10
DUMMY	4		0	Max WS	0.02

25 10year 24hour Model

```
                HEC-RAS Version 3.1.3 May 2005
                 U.S. Army Corp of Engineers
                Hydrologic Engineering Center
                      609 Second Street
                      Davis, California

X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X      X   X     X  X     X
X     X  X        X           X   X     X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X           X  X      X    X        X
X     X  X        X    X      X   X     X    X        X
X     X  XXXXXX    XXXX       X    X    X    X   XXXXX
```

PROJECT DATA
Project Title: GREENBRIAR FARMS
Project File : GB.prj
Run Date and Time: 7/15/2005 10:41:24 AM

Project in English units

Project Description:
References:
1) Offsite Drainage Improvements-Metro Air Park, Exhibit D-2
(Offsite improved channels and Interstate 5 crossing)
2) 100yr-10day &
10yr-10day, STA 0+00, West Drain Stages, Mark Kubik @ Mead & Hunt Inc.

PLAN DATA

Plan Title: P4-10YR24HR-DEVELOP
Plan File : j:\Jobs\1116-GreenbriarFarms\1116-GreenbriarFarms\Civil\Docs\Report\HEC-RAS\GB.p05

Geometry Title: DEVELOP
Geometry File : j:\Jobs\1116-GreenbriarFarms\1116-GreenbriarFarms\Civil\Docs\Report\HEC-RAS\GB.g01

Flow Title :
Flow File :

Plan Summary Information:
Number of: Cross Sections = 207 Multiple Openings = 0
Culverts = 6 Inline Structures = 1
Bridges = 0 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

Profile Output Table - Concise Table 1

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	E.G. Elev (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)
WEST DETENTION	1	5540	Max WS	5.83	11.00	13.54	13.54	0.01	950.13
WEST DETENTION	1	5460	Max WS	5.83	11.00	13.54	13.54	0.01	867.68
WEST DETENTION	1	5438	Max WS	5.83	11.00	13.54	13.54	0.01	397.43
WEST DETENTION	1	5412	Max WS	5.83	11.00	13.54	13.54	0.02	333.77
WEST DETENTION	1	4950	Max WS	5.82	11.00	13.54	13.54	0.02	325.08
WEST DETENTION	1	4907	Max WS	5.82	11.00	13.54	13.54	0.01	426.32
WEST DETENTION	1	4611	Max WS	9.27	11.00	13.54	13.54	0.02	418.73
WEST DETENTION	1	4537	Max WS	11.61	11.00	13.54	13.54	0.04	325.44
WEST DETENTION	1	3571	Max WS	11.60	11.00	13.54	13.54	0.04	323.91
WEST DETENTION	1	3570		Culvert					
WEST DETENTION	1	3417	Max WS	11.38	11.00	13.50	13.50	0.04	318.96
WEST DETENTION	1	3400	Max WS	11.38	11.00	13.50	13.50	0.04	318.63
WEST DETENTION	1	3383	Max WS	13.61	11.00	13.50	13.50	0.04	319.72
WEST DETENTION	1	2760	Max WS	15.56	11.00	13.50	13.50	0.05	318.28
WEST DETENTION	1	2722	Max WS	17.94	11.00	13.50	13.50	0.03	576.20
WEST DETENTION	1	2635	Max WS	17.93	11.00	13.50	13.50	0.03	582.88
WEST DETENTION	1	2586	Max WS	17.93	11.00	13.50	13.50	0.02	831.71
WEST DETENTION	1	2545	Max WS	17.93	11.00	13.50	13.50	0.02	832.26

WEST DETENTION	1	2507	Max WS	17.93	11.00	13.50	13.50	0.03	588.23
WEST DETENTION	1	2402	Max WS	17.93	11.00	13.50	13.50	0.03	581.57
WEST DETENTION	1	2367	Max WS	20.91	11.00	13.50	13.50	0.06	325.70
WEST DETENTION	1	1987	Max WS	20.91	11.00	13.50	13.50	0.07	320.13
WEST DETENTION	1	1986		Culvert					
WEST DETENTION	1	1922	Max WS	20.82	11.00	13.41	13.41	0.07	306.61
WEST DETENTION	1	1891	Max WS	20.81	11.00	13.41	13.41	0.07	306.21
WEST DETENTION	1	1815	Max WS	23.06	11.00	13.41	13.41	0.04	656.13
SOUTH DETENTION	3	1636	Max WS	48.55	11.00	13.41	13.41	0.05	910.82
SOUTH DETENTION	3	1561	Max WS	48.54	11.00	13.41	13.41	0.08	620.72
SOUTH DETENTION	3	1153	Max WS	55.63	11.00	13.41	13.41	0.07	761.75
SOUTH DETENTION	3	1080	Max WS	55.62	11.00	13.41	13.41	0.08	656.09
SOUTH DETENTION	3	1012	Max WS	61.38	11.00	13.41	13.41	0.06	1003.90
SOUTH DETENTION	3	945	Max WS	61.37	11.00	13.41	13.41	0.09	695.48
SOUTH DETENTION	3	942		Inl Struct					
SOUTH DETENTION	3	940	Max WS	61.37	2.70	13.40	13.40	0.02	3772.13
SOUTH DETENTION	3	930	Max WS	61.37	2.70	13.40	13.40	0.02	3772.13
SOUTH DETENTION	3	500		Culvert					
SOUTH DETENTION	3	150	Max WS	61.36	2.20	8.19	8.19	0.04	1710.23
SOUTH DETENTION	3	100	Max WS	61.23	2.20	8.19	8.19	0.04	1710.23
SOUTH DETENTION	3	90	Max WS	61.21	2.20	8.19	8.19	0.04	1710.23
OFFSITE	RB NORTH	5350	Max WS	241.70	9.00	13.95	14.05	2.51	96.17
OFFSITE	RB NORTH	1100	Max WS	229.18	6.00	8.26	8.89	5.36	36.01
OFFSITE	RB NORTH	1050	Max WS	229.88	2.30	8.30	8.32	1.16	197.86
OFFSITE	RB NORTH	100	Max WS	229.04	2.20	8.19	8.21	1.16	196.88
OFFSITE	RB SOUTH	3500	Max WS	290.25	2.20	8.19	8.22	1.47	196.88
OFFSITE	RB SOUTH	3450	Max WS	290.23	2.20	8.20	8.22	1.13	257.17
OFFSITE	RB SOUTH	3300		Culvert					
OFFSITE	RB SOUTH	3100	Max WS	290.09	2.00	7.99	8.01	1.14	255.17
OFFSITE	RB SOUTH	100	Max WS	128.88	1.80	7.56	7.57	0.70	184.16
EAST DETENTION	2	5600	Max WS	-0.83	11.00	13.54	13.54	0.00	950.30
EAST DETENTION	2	5560	Max WS	-0.83	11.00	13.54	13.54	0.00	944.64
EAST DETENTION	2	5520	Max WS	-0.83	11.00	13.54	13.54	0.00	876.14
EAST DETENTION	2	5480	Max WS	-0.84	11.00	13.54	13.54	0.00	395.08
EAST DETENTION	2	5455	Max WS	-0.84	11.00	13.54	13.54	0.00	325.47
EAST DETENTION	2	4920	Max WS	-0.84	11.00	13.54	13.54	0.00	324.97
EAST DETENTION	2	4880	Max WS	-0.85	11.00	13.54	13.54	0.00	569.95
EAST DETENTION	2	4850	Max WS	-0.85	11.00	13.54	13.54	0.00	1374.82
EAST DETENTION	2	4775	Max WS	6.76	11.00	13.54	13.54	0.01	617.66
EAST DETENTION	2	4653	Max WS	8.65	11.00	13.54	13.54	0.02	349.80
EAST DETENTION	2	4126	Max WS	8.64	11.00	13.54	13.54	0.03	325.81
EAST DETENTION	2	3563	Max WS	12.18	11.00	13.54	13.54	0.04	324.71
EAST DETENTION	2	3562		Culvert					
EAST DETENTION	2	3414	Max WS	11.15	11.00	13.50	13.50	0.04	317.97
EAST DETENTION	2	3335	Max WS	11.15	11.00	13.50	13.50	0.04	289.72
EAST DETENTION	2	3282	Max WS	13.33	11.00	13.50	13.50	0.10	132.23
EAST DETENTION	2	2946	Max WS	19.77	11.00	13.50	13.50	0.17	116.24
EAST DETENTION	2	2945		Culvert					
EAST DETENTION	2	2855	Max WS	19.76	11.00	13.41	13.41	0.15	135.99
EAST DETENTION	2	2804	Max WS	19.76	11.00	13.41	13.41	0.13	152.17
EAST DETENTION	2	1864	Max WS	25.50	11.00	13.41	13.41	0.05	505.61
EAST DETENTION	2	1800	Max WS	25.49	11.00	13.41	13.41	0.03	823.79
DUMMY	4	1	Max WS	5.00	11.00	13.54	13.54	0.03	198.21
DUMMY	4	0	Max WS	5.00	11.00	13.54	13.54	0.03	199.73

Profile Output Table - ChannelVolume

River	Reach	River Sta	Profile	Volume (acre-ft)
WEST DETENTION	1	5540	Max WS	36.06
WEST DETENTION	1	5460	Max WS	34.49
WEST DETENTION	1	5438	Max WS	33.06
WEST DETENTION	1	5412	Max WS	32.82
WEST DETENTION	1	4950	Max WS	29.31
WEST DETENTION	1	4907	Max WS	28.84
WEST DETENTION	1	4611	Max WS	25.87
WEST DETENTION	1	4537	Max WS	25.27
WEST DETENTION	1	3571	Max WS	18.07
WEST DETENTION	1	3570		Culvert
WEST DETENTION	1	3417	Max WS	16.92
WEST DETENTION	1	3400	Max WS	16.79
WEST DETENTION	1	3383	Max WS	16.68
WEST DETENTION	1	2760	Max WS	12.17
WEST DETENTION	1	2722	Max WS	11.55
WEST DETENTION	1	2635	Max WS	10.38
WEST DETENTION	1	2586	Max WS	9.18
WEST DETENTION	1	2545	Max WS	8.41
WEST DETENTION	1	2507	Max WS	7.36
WEST DETENTION	1	2402	Max WS	5.88
WEST DETENTION	1	2367	Max WS	5.24
WEST DETENTION	1	1987	Max WS	2.42
WEST DETENTION	1	1986		Culvert
WEST DETENTION	1	1922	Max WS	1.96
WEST DETENTION	1	1891	Max WS	1.74
WEST DETENTION	1	1815	Max WS	0.90
SOUTH DETENTION	3	1636	Max WS	65.25
SOUTH DETENTION	3	1561	Max WS	63.92
SOUTH DETENTION	3	1153	Max WS	57.44
SOUTH DETENTION	3	1080	Max WS	56.26
SOUTH DETENTION	3	1012	Max WS	54.96
SOUTH DETENTION	3	945	Max WS	53.66
SOUTH DETENTION	3	942		Inl Struct
SOUTH DETENTION	3	940	Max WS	53.40

SOUTH DETENTION	3		930	Max WS	52.53
SOUTH DETENTION	3		500		Culvert
SOUTH DETENTION	3		150	Max WS	3.45
SOUTH DETENTION	3		100	Max WS	1.49
SOUTH DETENTION	3		90	Max WS	1.09
OFFSITE	R8	NORTH	5350	Max WS	12.94
OFFSITE	R8	NORTH	1100	Max WS	4.66
OFFSITE	R8	NORTH	1050	Max WS	4.53
OFFSITE	R8	NORTH	100	Max WS	0.23
OFFSITE	R8	SOUTH	3500	Max WS	17.48
OFFSITE	R8	SOUTH	3450	Max WS	17.22
OFFSITE	R8	SOUTH	3300		Culvert
OFFSITE	R8	SOUTH	3100	Max WS	15.16
OFFSITE	R8	SOUTH	100	Max WS	
EAST DETENTION	2		5600	Max WS	38.37
EAST DETENTION	2		5560	Max WS	37.60
EAST DETENTION	2		5520	Max WS	36.69
EAST DETENTION	2		5480	Max WS	35.23
EAST DETENTION	2		5455	Max WS	34.94
EAST DETENTION	2		4920	Max WS	30.94
EAST DETENTION	2		4880	Max WS	30.32
EAST DETENTION	2		4850	Max WS	26.60
EAST DETENTION	2		4775	Max WS	22.01
EAST DETENTION	2		4653	Max WS	20.66
EAST DETENTION	2		4126	Max WS	16.56
EAST DETENTION	2		3563	Max WS	12.36
EAST DETENTION	2		3562		Culvert
EAST DETENTION	2		3414	Max WS	11.26
EAST DETENTION	2		3335	Max WS	10.71
EAST DETENTION	2		3282	Max WS	10.46
EAST DETENTION	2		2946	Max WS	9.50
EAST DETENTION	2		2945		Culvert
EAST DETENTION	2		2855	Max WS	9.23
EAST DETENTION	2		2804	Max WS	9.06
EAST DETENTION	2		1864	Max WS	1.97
EAST DETENTION	2		1800	Max WS	1.00
DUMMY	4		1	Max WS	0.06
DUMMY	4		0	Max WS	0.01

8. APPENDIX C –

Existing Culvert Capacities

AppC.TXT
BOX CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

July 15, 2005

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Culvert Span (ft)	8.0
Culvert Rise (ft)	5.0
FHWA Chart Number	8
FHWA Scale Number (Type of Culvert Entrance)	1
Manning's Roughness Coefficient (n-value)	0.012
Entrance Loss Coefficient of Culvert Opening	0.5
Culvert Length (ft)	340.0
Invert Elevation at Downstream end of Culvert (ft)	5.3
Invert Elevation at Upstream end of Culvert (ft)	5.5
Culvert Slope (ft/ft)	0.0006
Starting Flow Rate (cfs)	301.0
Incremental Flow Rate (cfs)	0.0
Ending Flow Rate (cfs)	301.0
Starting Tailwater Depth (ft)	7.0
Incremental Tailwater Depth (ft)	4.2
Ending Tailwater Depth (ft)	11.2

COMPUTATION RESULTS

Flow Rate (cfs)	Tailwater Depth (ft)	Headwater (ft) Inlet Control	Headwater (ft) Outlet Control	Normal Depth (ft)	Critical Depth (ft)	Depth at Outlet (ft)	Outlet Velocity (fps)
301.0	7.0	5.73	8.83	5.0	3.53	5.0	7.53
301.0	11.2	5.73	13.03	5.0	3.53	5.0	7.53

Results and Discussion:
Under existing conditions, the 100-year peak flow through the 3-8'x5' box culverts is 904cfs (see Table 1). The culvert was analyzed individually by prorating the flow.

9. APPENDIX D –

Gate Maximum Outflow Calculations

Worksheet
Worksheet for Broad Crested Weir

Project Description	
Worksheet	Weir
Type	Broad Crested Weir
Solve For	Discharge

Input Data		
Headwater Elevation	14.90	ft
Crest Elevation	14.00	ft
Tailwater Elevation	11.20	ft
Crest Surface Type	Paved	
Crest Breadth	6.00	ft
Crest Length	16.00	ft

Results		
Discharge	41.69	cfs
Headwater Height Above Crest	0.90	ft
Tailwater Height Above Crest	-2.80	ft
Discharge Coefficient	3.05	US
Submergence Factor	1.00	
Adjusted Discharge Coefficient	3.05	US
Flow Area	14.4	ft²
Velocity	2.90	ft/s
Wetted Perimeter	17.80	ft
Top Width	16.00	ft

Result and Discussion:
During the peak stage, 14.9', in the pond, the Rubicon gate will close to reduce the total outflow. With the top of the gate at elevation 14.0', there will be weir flow above the gate and the total outflow was determined to be 42 cfs, which is less than the total allowable of 62 cfs.

10. APPENDIX E –

Onsite Drain Pipe Design

10-YEAR STORM EVENT ONSITE HYDRAULIC DESIGN SUMMARY

HGL CALCULATIONS - 10 YEAR

FROM NODE	TO NODE	Upstream (FROM) Flowline (ft)	Downstream (TO) Flowline (ft)	Diameter (in)	Pipe Area (ft^2)	Length (ft)	Design Flow (cfs)	Pipe-full Velocity (ft/s)	Pipe-full Flow (cfs)	HGL Slope (ft/ft)	Head Loss (ft)	Pipe Slope (ft/ft)	U/S HGL (ft)	U/S Crown Elev. (ft)	D/S HGL (ft)	D/S Crown Elev. (ft)	Average Pad Elev. (ft)	Average Gutter Elev. (ft)	Average Target HGL Elev. (ft)	0.5ft Freeboard ok?	Target to Calc. Delta (ft)	Pipe Submerg. (ft)	Pipe Cover (ft)
A01	A02	10.91	10.43	24	7.07	600	22.7	2.0	14.20	0.0015	1.22	0.0006	**16.33**	13.91	**15.10**	13.43	20.0	18.5	18.0	ok	1.67	2.42	4.8
A02	R06	9.43	9.06	24	12.57	200	45.3	2.0	25.28	0.0013	1.19	0.0004	**15.10**	13.43	**13.92**	13.06	18.0	16.5	16.0	ok	0.90	1.68	3.3
A03	A04	9.70	9.56	15	9.62	280	22.7	2.0	19.35	0.0007	0.20	0.0005	**14.12**	13.20	**13.92**	13.06	18.0	16.5	16.0	ok	1.88	0.91	3.5
A04	POND	9.06	9.00	24	12.57	140	68.0	2.0	25.28	0.0030	0.42	0.0004	**13.92**	13.06	**13.50**	13.00	17.0	15.5	15.0	ok	1.08	0.86	2.6
B01	B02	10.76	10.22	12	4.91	700	11.3	2.0	9.89	0.0026	1.79	0.0008	**16.05**	13.26	**14.26**	12.72	18.0	16.5	17.0	ok	0.95	2.79	4.4
B02	POND	9.22	9.00	24	9.62	450	34.0	2.0	19.35	0.0017	0.76	0.0005	**14.26**	12.72	**13.50**	12.50	17.0	15.5	15.0	ok	0.74	1.54	3.0
C01	C02	11.73	11.04	12	4.91	900	11.3	2.0	9.89	0.0018	1.59	0.0008	**16.53**	14.23	**14.93**	13.54	20.0	18.5	18.0	ok	1.47	2.30	4.5
C02	C03	10.04	9.69	24	9.62	700	34.0	2.0	19.35	0.0012	0.82	0.0005	**14.93**	13.54	**14.11**	13.19	18.0	16.5	17.0	ok	2.07	1.40	4.2
C03	POND	9.19	9.00	24	12.57	140	45.3	2.0	25.28	0.0013	0.61	0.0004	**14.11**	13.19	**13.50**	13.00	17.0	15.5	15.0	ok	0.89	0.92	2.5
D01	D02	11.14	10.45	12	4.91	900	11.3	2.0	9.89	0.0023	2.05	0.0008	**16.94**	13.64	**14.89**	12.95	18.0	16.5	18.0	ok	1.06	3.29	5.1
D02	POND	9.45	9.00	24	9.62	900	34.0	2.0	19.35	0.0015	1.39	0.0005	**14.89**	12.95	**13.50**	12.50	18.5	17.0	16.5	ok	1.61	1.94	4.2
E01	E02	10.83	10.44	12	4.91	700	11.3	2.0	9.89	0.0019	0.95	0.0008	**15.58**	13.33	**14.63**	12.94	18.0	16.5	16.0	ok	0.42	2.25	3.4
E02	POND	9.44	9.00	24	9.62	850	34.0	2.0	19.35	0.0013	1.13	0.0005	**14.63**	12.94	**13.50**	12.50	18.0	16.5	16.0	ok	1.37	1.69	3.8
F01	R02	10.63	10.25	12	4.91	600	11.3	2.0	9.89	0.0026	1.28	0.0008	**15.62**	13.13	**14.35**	12.75	18.0	16.5	17.0	ok	1.38	2.49	4.6
F02	POND	9.25	9.00	24	9.62	800	34.0	2.0	19.35	0.0017	0.85	0.0005	**14.35**	12.75	**13.50**	12.50	17.5	16.0	15.5	ok	1.15	1.60	3.5
G01	G02	10.04	9.74	18	7.07	600	22.7	2.0	14.20	0.0015	0.75	0.0006	**15.53**	13.04	**14.77**	12.74	18.0	16.5	16.0	ok	0.47	2.49	3.7
G02	POND	9.24	9.00	24	9.62	480	34.0	2.0	19.35	0.0026	1.27	0.0005	**14.77**	12.74	**13.50**	12.50	17.0	15.5	15.0	ok	0.23	2.04	3.0
H01	H02	11.63	11.02	12	7.07	1020	22.7	2.0	14.20	0.0014	1.47	0.0006	**16.81**	14.63	**15.34**	14.02	20.0	18.5	19.5	ok	2.89	2.18	5.6
H02	R03	10.02	9.72	18	12.57	1070	45.3	2.0	25.28	0.0012	0.91	0.0004	**15.34**	14.02	**14.43**	13.72	18.0	16.5	17.5	ok	2.16	1.32	4.2
P01	POND	9.22	9.00	24	15.90	900	56.6	2.0	31.97	0.0015	0.93	0.0004	**14.43**	13.72	**13.50**	13.50	17.0	15.5	16.0	ok	1.57	0.71	3.0
P02	P03	11.79	11.30	12	4.91	500	11.3	2.0	9.89	0.0019	1.22	0.0008	**17.18**	14.29	**15.97**	13.80	19.0	17.5	19.0	ok	1.82	2.90	5.4
P03	P04	10.30	9.93	18	9.62	280	34.0	2.0	19.35	0.0013	0.96	0.0005	**15.97**	13.80	**15.00**	13.43	18.0	16.5	18.0	ok	2.03	2.16	4.9
P04	POND	9.43	9.00	18	12.57	600	45.3	2.0	25.28	0.0014	1.50	0.0004	**15.00**	13.43	**13.50**	13.00	16.0	14.5	16.0	ok	1.00	1.57	3.3
P05	P06	11.92	11.49	12	4.91	430	11.3	2.0	9.89	0.0034	1.88	0.0008	**16.90**	14.42	**15.02**	13.99	18.0	16.5	18.0	ok	1.10	2.48	4.3
P06	P07	9.99	9.68	18	12.57	770	45.3	2.0	25.28	0.0011	0.83	0.0004	**15.02**	13.99	**14.18**	13.68	17.0	15.5	17.0	ok	1.98	1.02	3.7
P07	POND	9.18	9.00	24	15.90	900	56.6	2.0	31.97	0.0013	0.68	0.0004	**14.18**	13.68	**13.50**	13.50	15.0	13.5	15.0	ok	0.82	0.50	2.0
R01	R02	11.05	10.42	12	4.91	600	11.3	2.0	9.89	0.0030	2.45	0.0008	**17.65**	13.55	**15.19**	12.92	18.0	16.5	18.0	ok	0.35	4.10	5.2
R02	POND	9.42	9.00	24	9.62	850	34.0	2.0	19.35	0.0020	1.69	0.0005	**15.19**	12.92	**13.50**	12.50	16.0	14.5	16.0	ok	0.81	2.27	3.8
R03	POND	9.39	9.00	18	7.07	450	22.7	2.0	14.20	0.0030	1.98	0.0006	**15.48**	12.39	**13.50**	12.00	16.0	14.5	16.0	ok	0.52	3.09	4.3
R04	R05	10.53	10.12	12	3.14	400	11.3	2.0	6.31	0.0047	1.89	0.0010	**15.82**	12.53	**13.93**	12.12	16.5	15.0	16.5	ok	0.68	3.29	4.7
R05	R06	9.12	9.00	18	7.07	180	22.7	2.0	14.20	0.0022	0.43	0.0006	**13.93**	12.12	**13.50**	12.00	15.0	13.5	15.0	ok	1.07	1.81	3.6
R06	POND	10.12	9.62	24	4.91	850	11.3	2.0	9.89	0.0014	0.93	0.0008	**14.87**	12.62	**13.93**	12.12	15.0	13.5	15.0	ok	0.13	2.25	3.1
S01	S02	11.15	10.57	12	4.91	750	11.3	2.0	9.89	0.0009	0.67	0.0008	**14.28**	13.65	**13.61**	13.07	16.0	14.5	15.0	ok	0.72	0.64	2.1
S02	S03	10.66	10.07	18	7.07	850	22.7	2.0	14.20	0.0014	1.33	0.0006	**14.94**	13.66	**13.61**	13.07	15.0	13.5	15.0	ok	0.06	1.28	2.0
S03	POND	9.07	9.00	24	12.57	180	45.3	2.0	25.28	0.0007	0.11	0.0004	**13.61**	13.07	**13.50**	13.00	14.5	13.0	14.5	ok	0.89	0.54	2.1
P07	P08	10.86	10.32	12	4.91	700	11.3	2.0	9.89	0.0008	0.54	0.0008	**14.61**	13.36	**14.07**	12.82	15.0	13.5	15.0	ok	0.39	1.25	2.3
P08	P09	9.82	9.67	18	7.07	200	22.7	2.0	14.20	0.0010	0.24	0.0006	**14.07**	12.82	**13.83**	12.67	15.0	13.5	15.0	ok	0.93	1.25	2.9
S03	POND	9.17	9.00	24	9.62	350	34.0	2.0	19.35	0.0010	0.33	0.0005	**13.83**	12.67	**13.50**	12.50	15.0	13.5	15.0	ok	1.17	1.16	3.0
R04	R05	10.96	10.67	12	3.14	280	11.3	2.0	6.31	0.0021	0.59	0.0010	**14.42**	12.96	**13.83**	12.67	16.5	14.5	16.5	ok	2.08	1.46	4.2
POND		9.00											13.50										

Input Data
Ext. Pipe P01

Design Flow=Prorated flow from SacCalc peak flow