Drainage Report for The Waterfront Addition

Wichita, Kansas

Location

The site is located in Wichita, Sedgwick County, Kansas, on the northeast corner of Webb Road and 13th Street North. The site is bounded by Webb Road to the west, 13th Street to the south, and undeveloped meadow area to the east. The Burlington Northern Railroad abuts the property to the north, with the Eastminster Addition to the north of the railroad. It lies in the Southwest Quarter, Section 9, Township 27 South, Range 2 East. Currently, the total site area is approximately 100 acres. The site is shown on the Andover, Kansas Quadrangle located in Appendix A.

Soils

According to the NRCS (SCS) Sedgwick County Soil Survey (Appendix B), most of the site is in the Irwin Series (Ia: Irwin silty clay loam, with 1 to 3 percent slopes) and the Rose Hill Series (Rd: silty clay, 1 to 3 percent slopes). A small portion in the northwest corner of the site is in the Vanoss Series (Va: Vanoss silt loam, with 1 to 3 percent slopes). The Hydrological Soil Group (HSG) for the Irwin and Rose Hill series soils is D. The HSG for the Vanoss series soil is B. The Vanoss series comprises a very small portion of the area, therefore the drainage calculations were based on soil group D.

Pre-Project Conditions

Development

The site was undeveloped open space prior to the Waterfront Addition. The site was used as a recreational area for an employee's club.

Landform and Slope

Slopes across the site ranged from 1-4% from east to west. An existing lake covered approximately 14 acres of the site, with a 1.5 acre silt pond to the north of the lake. Elevations on the site ranged from 1386 ft. in the northeast corner to 1369 ft. at the lake water surface. The lake exits the property to the south through a bridge under 13th St. North. The bridge opening was 27' wide. On the south side of 13th Street, the lake is still used by the Beech Employees Club. The lake flowed to the southwest through a concrete weir structure. This structure controled flow from both the north and south portions of the lake.

Drainage Conditions

An area surrounding the existing lake was designated as Zone A (FIRM Panel 150, Sedgwick County, June 3, 1986) (shown in Appendix C). The remainder of the site is in Zone C.

Upstream of Site

Approximately 775 acres drained into the lake. Approximately 225 acres drained from the north to the Eastminster Addition, directly north of the site. This runoff passed through an existing detention facility east of the Eastminster Presbyterian Church, north of the railroad. An additional 105 acres drained to the existing 11'x9' reinforced concrete box (RCB) which passed under the railroad tracks. The runoff then passed through an existing channel and into the silt pond on the site. An additional 28 acres drained to the silt pond. An existing earthen dam separated the silt pond from the lake. The runoff must pass around the dam to the west and into the lake. An

additional 196 acres drained to the existing lake. This includes approximately 48 acres from the west side of Webb Road. This area drains through an existing RCB under Webb Road and into the lake. Most of the developable area upstream of the site is already developed, with the exception of the area just west of Webb Road, which is currently undeveloped pasture land.

Runoff Characteristics

The pre-project watershed is divided into six different sub-watersheds. The drainage area descriptions are shown in Table 1. These areas are shown on the Pre-Project TR-20 Key Map, Appendix D.

Table 1. Pre-Project Watersheds.

TR-20 ID	Description	Area (sq. mi.)	Time of Concentration (hr.)	Curve Number
005	North of Eastminster	0.1953	1.0958	89.3
025	Tributary from the West	0.1566	1.117	88.3
035	Area draining to the Railroad	0.1638	0.775	90.1
045	Area draining to silt pond	0.0432	0.8117	84.4
055	East of the site, the site, and the area west of Webb Road	0.3071	1.4333	86.4
065	Area draining to lake south of 13th Street	0.3483	1.0448	86.3

The SCS TR-20 software model was used to calculate peak flows using the SCS 24-hour Type II design storm, Appendix E. A peaking factor of 484 was used for these calculations. The curve numbers used for the sub-watersheds were calculated based on percentage of development within each sub-watershed. The Time of Concentration for each watershed was calculated using the FAA method. Excel spreadsheets were used for detailed calculations of both Curve Number and Time of Concentration, Appendix F.

Due to the complexity of modeling the lakes north and south of Webb Road as separate reservoirs, the lakes were combined and modeled as one reservoir. Since the lakes are at the same normal pool elevation, the north lake and silt pond elevations are controlled by the elevation of the lake downstream. The lakes were modeled based on an existing control structure and spillway at the south end of the south lake. The existing weir is a concrete structure with a 12' low flow crest at elevation 1368.7', and an additional 70' high flow crest at elevation 1369.7'. Rating curves for the weir were developed using the HY-8 computer software program. The pre-project lakes provided 164 acre-feet of storage in the 100-year design event.

A summary of pre-project flows from the TR-20 output is in Table 2.

Table 2. Pre-Project Flowrates.

TR-20 ID	Description	Design Storm Flows (cfs)					
		2-Yr	5-Yr	10-Yr	50-Yr	100-Yr	500-Yr
005	Flow into lakes	968	1340	1589	2156	2414	2883
018	Flow from lake at Webb Rd	215	381	493	925	1120	1468

Current Conditions

Development

The site is currently being developed for commercial use. Several restaurants, banks, and office buildings are complete and other buildings are under construction or being planned. The site has been platted in multiple steps. Some areas have been re-platted to better suit the needs of the site. Other areas have been platted to privide additional land to the project.

Landform and Slope

The land slopes of the developed area resemble pre-project conditions. Stormwater Sewer (SWS) has been constructed for most of the developed land to drain storm water into the lake. The basic shape of the lake has remained the same, but the lake has been modified with the development. A seawall and sidewalk have been constructed along the southeast edge of the lake. An existing RCB was extended so that fill could be placed to provide more parking along the west side of the lake. An RCB has been placed to allow the creek to flow under Waterfront Parkway. The area south of Waterfront Parkway has been excavated to extend the normal pool to the Parkway.

Drainage Conditions

The site has been modeled using HEC-RAS hydraulic modeling software. An application for a Conditional Letter of Map Revision (CLOMR) has been submitted to and approved by the Federal Emergency Management Agency (FEMA) as Case Number 04-07-031R, Appendix G.

Upstream of Site

The construction of this site does not increase the water surface elevation upstream of the property.

Runoff Characteristics

The TR-20 hydrologic model has been updated to reflect the development of the Waterfront Addition, Appendix H. The drainage areas used in the hydrologic model are in Table 3. Curve Numbers have been increased to reflect the development, Appendix I. The detention pond has been reshaped and now provides 358 acre-feet of storage for the 100-year design event. An additional detention pond has been constructed east of the main lake giving the site a total of 176 acre-feet of storage. The Current Conditions TR-20 Key Map shows the location of the pond and revised drainage boundaries, Appendix J. A summary of the flows calculated using TR-20 is shown in Table 4.

Table 3. Current Watersheds.

TR-20 ID	Description	Area (sq. mi.)	Time of Concentration (hr.)	Curve Number
005	North of Eastminster	0.1953	0.6003	88.8
025	Tributary from the West	0.1566	0.5738	90.1
035	Area draining to the Railroad	0.1638	0.5328	90.6
045	Area draining to silt pond	0.0432	0.3960	95.3
053	Area east of and including site	0.1455	0.8340	85.8
055	The site and the area west of Webb Road	0.1614	0.5739	92.2
065	Area draining to lake south of Webb 13th Street	0.3483	1.0448	86.8

Table 4. Current Flowrates.

TR-20 ID	Description	Design Storm Flows (cfs)					
		2-Yr	5-Yr	10-Yr	50-Yr	100-Yr	500-Yr
005	Flow into lakes	1040	1431	1680	2221	2467	2913
025	Flow from lake at Webb Rd	221	390	511	972	1171	1527

A comparison of the pre-project and current flows exiting Beech Lake at Webb Road is shown in Table 5.

Table 5. Pre-Project and Current Flowrate Comparison at Webb Road.

Design Storm	Pre-Project (cfs)	Current Conditions (cfs)	Change
2-Year	215	221	2.79%
5-Year	381	390	2.36%
10-Year	493	511	3.65%
50-Year	925	972	5.08%
100-Year	1120	1171	4.55%
500-Year	1468	1572	7.08%

Future Conditions

Development

The Waterfront is planning to expand east of the current development. Future development in Basins 053 and 065 has been modeled with commercial land use.

Landform and Slope

The project will maintain slopes similar to pre-project slopes. The area will be shaped to drain to the existing lake both through the Waterfront Addition and under 13th Street North.

Drainage Conditions

A Letter of Map Revision will need to be completed once all construction around the lake is complete. As-built survey will be done of the area and the hydraulic model will be updated to match the existing conditions.

Upstream of Site

The developments of this site are designed to maintain the 100-year water surface elevation at the North property line of the site. There won't be an increase in water surface elevation upstream of the site.

Runoff Characteristics

The current detention ponds do not provide adequate detention for future development. The size of the detention will need to be increased to decrease peak flow rates from the property. The amount of additional detention needed will depend on the land use of future development and location of future detention facilities. Two additional models have been run to represent future conditions. Both models increase curve numbers for portions of basins 053 and 065 to commercial use. A TR-20 key-map shows the anticipated development, Appendix K.

Future Option 1 provides additional detention for the area by increasing the size of the main lake. Future Option 2 provides additional detention for the area by increasing detention in basin 053. The hotel pond outlet structure was modified and the pond area was expanded to provide additional detention. Both options were modeled in TR-20, Appendix L. These two options were used to estimate future detention needs of an additional 16 to 21 acre-feet of storage. A spreadsheet was used to approximate detention requirements for these scenarios, Appendix M.

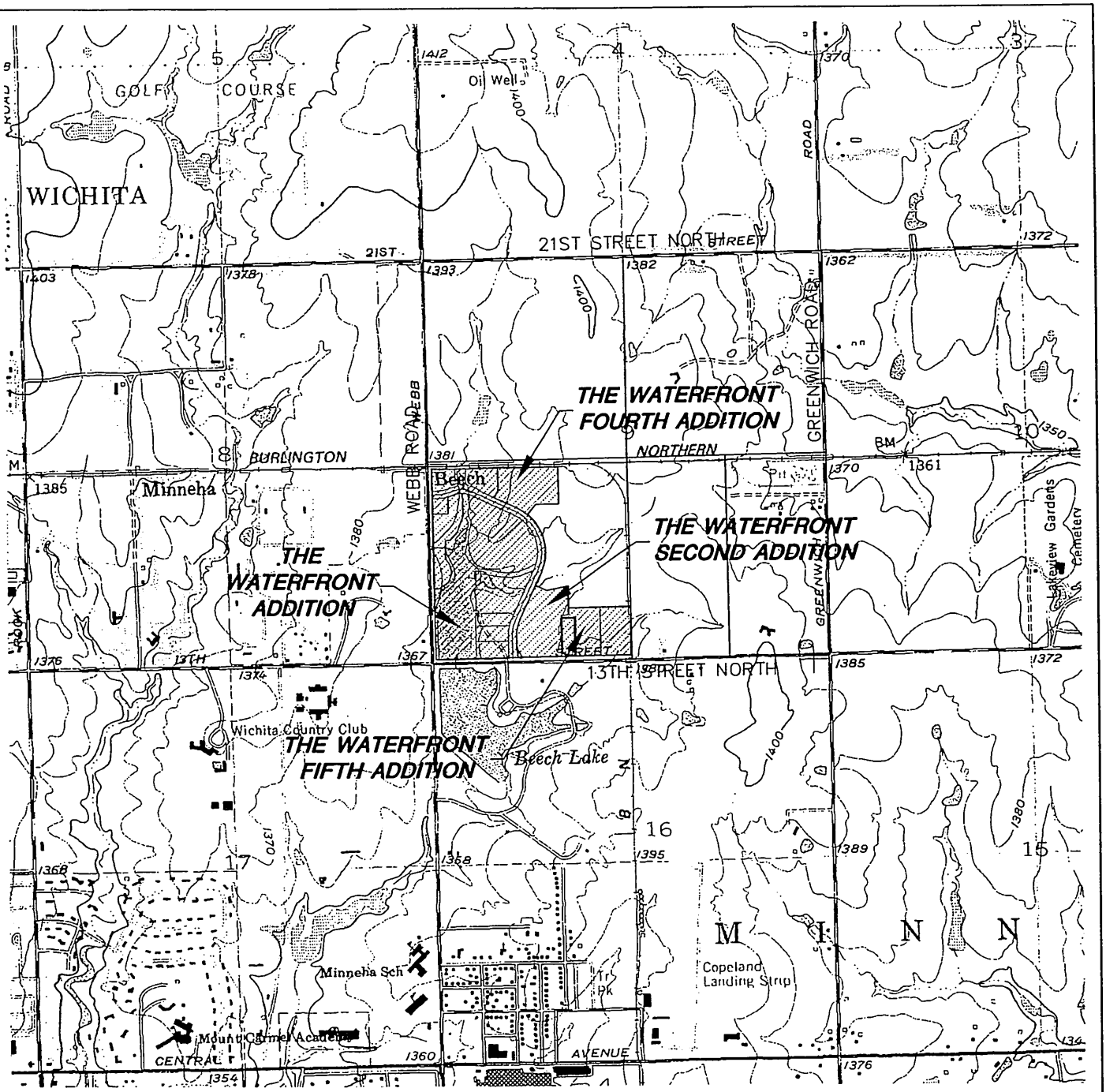
Both of these options do not provide additional detention in basin 065 upstream of 13th Street North. With future development, the peak flow rate to 13th Street will be increased. Additional storm water sewer will be necessary under 13th Street to convey runoff to the lake. Sizes of this storm water sewer will need to be determined once the site layout has been determined.

This detention can be provided in a variety of locations. The exact detention location and configurations will need to be modeled to verify the detention facilities effectiveness. Modification of the structure at 13th Street will not provide additional detention due to the low velocity between the ponds. The ponds have been modeled as one facility due to the backwater of the lower pond.

Summary

The Waterfront Addition is a multi-use development. Many of the areas around the lake have developed as banks, restaurants, and office space. The site is continuing to develop with planned uses including restaurants, office space, and residential. The current conditions do not provide adequate detention to reduce the peak flow rate to pre-project conditions. Additional detention will need to be provided with future development.

Appendix A
Quadrangle Map



6559 II SW

SCALE 1:24 000

1 0 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

MKEC ENGINEERING CONSULTANTS, INC.

411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

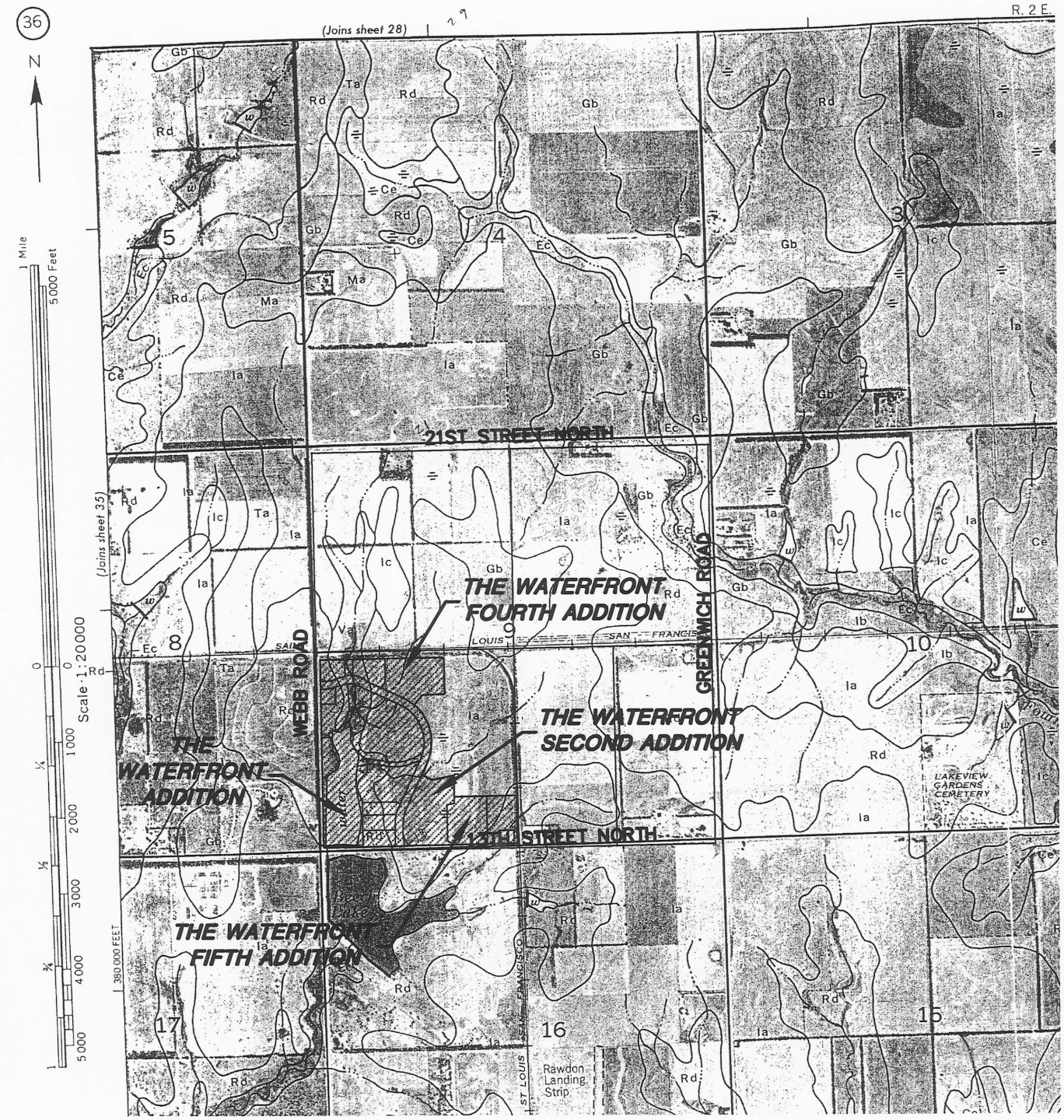
THE WATERFRONT ADDITION
PROJECT NAME

ANDOVER, KANSAS QUADRANGLE
SHEET TITLE

KLA	JFL	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
MARCH 2006	02014	1 / 1
DATE	JOB NO.	SHEET/OF

I:\CIVIL\02014\DWG\DRNG\02016TOVL_1-22-06.DWG

Appendix B
Soil Survey



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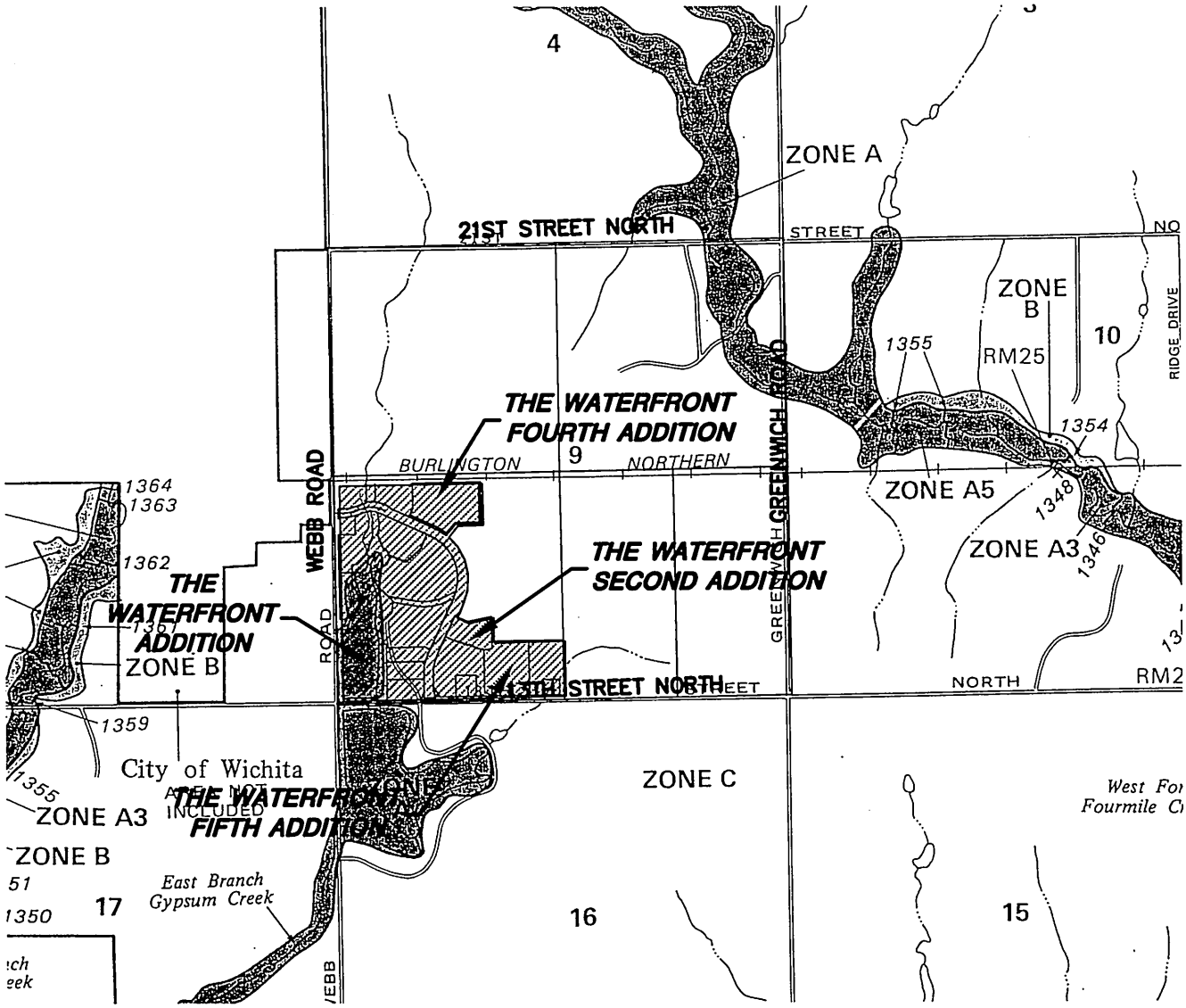
MKEC ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

THE WATERFRONT ADDITION
PROJECT NAME

SOIL SURVEY OF SEDGWICK COUNTY, KANSAS
SHEET TITLE

KLA	KLA	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
SEPTEMBER 2002	02014	1 / 1
DATE	JOB NO.	SHEET/OF

Appendix C
Flood Insurance Rate Map (FIRM)



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

SEDGWICK
COUNTY,
KANSAS
(UNINCORPORATED AREAS)

PANEL 150 OF 300

COMMUNITY-PANEL NUMBER
200321 0150 A

EFFECTIVE DATE:
JUNE 3, 1986

Federal Emergency Management Agency

APPROXIMATE SCALE
2000 0 2000 FEET

H:\CIVIL\02014\DWG\DRNG\02014FLD.DWG

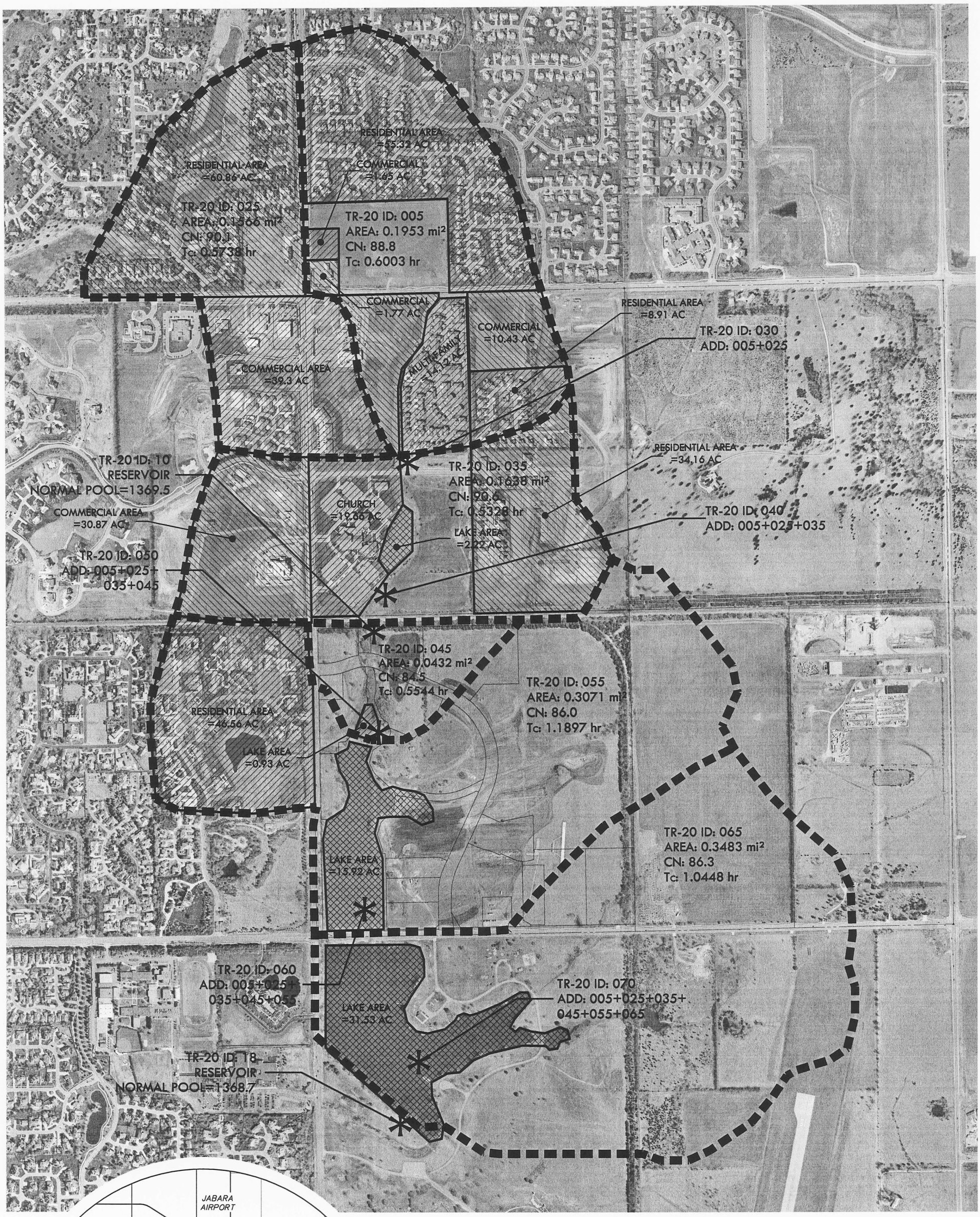
MKEC ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

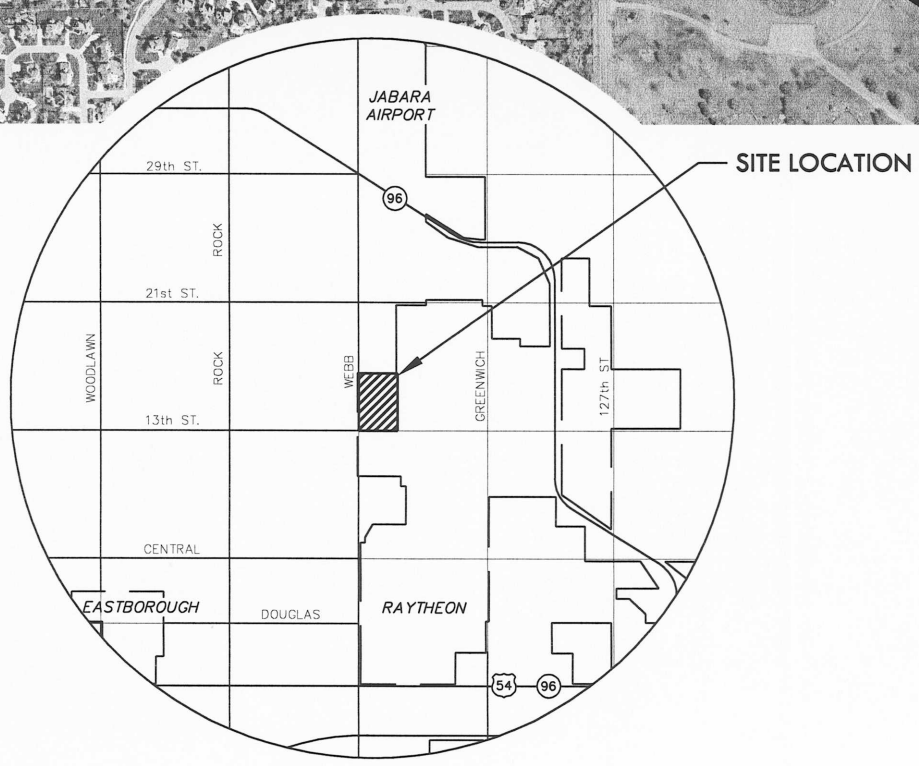
THE WATERFRONT ADDITION
PROJECT NAME

FIRM PANEL 150 OF 300
SEDGWICK COUNTY, KANSAS
SHEET TITLE

KLA	KLA	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
SEPTEMBER 2002	02014	1 / 1
DATE	JOB NO.	SHEET/OF

Appendix D
Pre-Project TR-20 Key Map





VICINITY MAP

LEGEND

- POLE - POLE
- HLP - HIGH LINE POLE
- WATERSHED BOUNDARIES
- PR - POWER POLE AND GUY ANCHOR
- TR - TELEPHONE RISER
- INLET
- BM - BENCHMARK

BENCHMARKS

BM#1 Square cut SE. corner headwall 44' N. and 42' E. of W. ¼ cor., Sec. 9, T27S, R2E
ELEV. = 192.73'(City Datum)
1380.13 NGVD

BM#2 Square cut SW. corner signal light pole base NE. corner Webb and 13th.
ELEV. = 185.945'(City Datum)
1373.345' NGVD

SCALE: 1"=400'

400 0 400 800

2003 AERIAL

WATERFRONT ADDITION
PROJECT NAME

PRE-PROJECT TR-20 KEY MAP
DESIGN TITLE

KLA	JFL
DESIGN	DRAWN BY:
GJA	FEB. 2006
CHECKED BY:	DATE
02014	1 / 1
JOB NO.	SHEET/OF

H:\Civil\02014\dwg\Dmg\TR-20\TR-20_KEY_PRE.dwg 2/14/2006 11:21:09 AM CST

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Appendix E
Pre-Project TR-20 Output

```
*****************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****************

 JOB TR-20                      FULLPRINT          SUMMARY   NOPLOTS
 TITLE 001 PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06
 TITLE WTRFTPP.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL CHANCE
  4 DIMHYD              0.02                                                484 SCS
  8          .000       .030       .100       .190       .310       UNIT
HYD
  8          .470       .660       .820       .930       .990
  8         1.000       .990       .930       .860       .780
  8          .680       .560       .460       .390       .330
  8          .280       .241       .207       .174       .147
  8          .126       .107       .091       .077       .066
  8          .055       .047       .040       .034       .029
  8          .025       .021       .018       .015       .013
  8          .011       .009       .008       .007       .006
  8          .005       .004       .003       .002       .001
  8          .000       .000       .000       .000       .000
  9 ENDTBL
  3 STRUCT      10                                                          R-EB-
BN
  8                    1369.4      0.0        0.0
RAILROAD
  8                    1370.4      6.0        0.279
ESTMNSTR
  8                    1371.4      14.0       1.093
  8                    1372.4      30.0       2.269
  8                    1373.4      60.0       3.606
  8                    1374.4      320.0      7.212
  8                    1375.4      580.0      11.361
  8                    1376.4      760.0      16.450
  8                    1377.4      925.0      23.036
  8                    1378.4      1085.0     31.035
  8                    1379.4      1240.0     40.834
  9 ENDTBL
  3 STRUCT      18                                                          NORTH &
  8                    1368.7      0.0        0.0                         SOUTH
  8                    1369.0      100.0      13.60                       BEECH
  8                    1370.0      180.0      60.40                       LAKE
  8                    1371.0      490.0      109.58
  8                    1372.0      1160.0     167.28
  9 ENDTBL
  6 RUNOFF 1 005       3 0.1953    88.8       0.6003              1
N&S21EWB
  6 RUNOFF 1 025       1 0.1566    90.1       0.5738              1 WWEBB
  6 ADDHYD 4 030   1 3 2                                         1
  6 RUNOFF 1 035       1 0.1638    90.6       0.5328              1
  6 ADDHYD 4 040   1 2 3                                         1
  6 RESVOR 2    10 3   1 1369.4                                  1 EM/RR
  6 RUNOFF 1 045       2 0.0432    84.5       0.5544              1 NWTRFT
  6 ADDHYD 4 050   1 2 3                                         1
  6 RUNOFF 1 055       2 0.3071    86.0       1.1897              1
  6 ADDHYD 4 060   2 3 1                                         1
  6 RUNOFF 1 065       3 0.3483    86.3       1.0448              1
  6 ADDHYD 4 070   1 3 2                                         1
  6 RESVOR 2    18 2   1 1368.7                                  1
BEECHLKE
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

  7 INCREM 6             0.10
  7 COMPUT 7 005      18 0.0         3.50        1.0         2 2  11  01
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         4.55        1.0         2 2  12  02
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         5.25        1.0         2 2  13  03
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         6.98        1.0         2 2  13  04
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         7.80        1.0         2 2  14  05
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         9.35        1.0         2 2  15  06
    ENDCMP 1
    ENDJOB 2

 **********END OF 80-80 LIST**********
1
```

DIMENSIONLESS HYDROGRAPH TABLE ENTERED

8	.0000	.0300	.1000	.1900	.3100
8	.4700	.6600	.8200	.9300	.9900
8	1.0000	.9900	.9300	.8600	.7800
8	.6800	.5600	.4600	.3900	.3300
8	.2800	.2410	.2070	.1740	.1470
8	.1260	.1070	.0910	.0770	.0660
8	.0550	.0470	.0400	.0340	.0290
8	.0250	.0210	.0180	.0150	.0130
8	.0110	.0090	.0080	.0070	.0060
8	.0050	.0040	.0030	.0020	.0010
8	.0000	.0000	.0000	.0000	.0000
9	ENDTBL				

COMPUTED TIME INCREMENT = .0200

COMPUTED PEAK RATE FACTOR = 484.000

1

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .100 HOURS

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 3.50 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =11 STORM NO. = 1 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	219.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.34 WATERSHED INCHES; 295 CFS-HRS; 24.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	188.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.46 WATERSHED INCHES; 248 CFS-HRS; 20.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	407.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.39 WATERSHED INCHES; 543 CFS-HRS; 44.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	210.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.50 WATERSHED INCHES; 264 CFS-HRS; 21.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	616.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.42 WATERSHED INCHES; 807 CFS-HRS; 66.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.38	515.1	1375.15

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.42 WATERSHED INCHES; 807 CFS-HRS; 66.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 85. TIME OF CONCENTRATION = .55 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0739 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	43.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.97 WATERSHED INCHES; 55 CFS-HRS; 4.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.36	550.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.39 WATERSHED INCHES; 862 CFS-HRS; 71.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .31 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = 1.19 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0952 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.61	199.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.10 WATERSHED INCHES; 416 CFS-HRS; 34.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.41	724.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.29 WATERSHED INCHES; 1278 CFS-HRS; 105.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.52	249.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.12 WATERSHED INCHES; 477 CFS-HRS; 39.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	967.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.24 WATERSHED INCHES; 1755 CFS-HRS; 145.0 ACRE-FEET.
1

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.63	215.0	1370.11

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.23 WATERSHED INCHES; 1748 CFS-HRS; 144.5 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 4.55 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =12 STORM NO. = 2 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	309.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.32 WATERSHED INCHES; 419 CFS-HRS; 34.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	263.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.45 WATERSHED INCHES; 349 CFS-HRS; 28.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	572.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.38 WATERSHED INCHES; 767 CFS-HRS; 63.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	291.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.50 WATERSHED INCHES; 370 CFS-HRS; 30.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	861.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.42 WATERSHED INCHES; 1137 CFS-HRS; 94.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.40	677.3	1375.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.42 WATERSHED INCHES; 1138 CFS-HRS; 94.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 85. TIME OF CONCENTRATION = .55 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0739 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	63.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.91 WATERSHED INCHES; 81 CFS-HRS; 6.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	727.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.38 WATERSHED INCHES; 1219 CFS-HRS; 100.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .31 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = 1.19 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0952 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.61	288.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.05 WATERSHED INCHES; 604 CFS-HRS; 49.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	987.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.26 WATERSHED INCHES; 1823 CFS-HRS; 150.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.51	359.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.07 WATERSHED INCHES; 691 CFS-HRS; 57.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.46	1340.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.21 WATERSHED INCHES; 2514 CFS-HRS; 207.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.42	381.1	1370.65

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.20 WATERSHED INCHES; 2505 CFS-HRS; 207.0 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 5.25 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =13 STORM NO. = 3 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	368.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.99 WATERSHED INCHES; 502 CFS-HRS; 41.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	313.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.12 WATERSHED INCHES; 417 CFS-HRS; 34.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	681.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.05 WATERSHED INCHES; 919 CFS-HRS; 76.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	344.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.18 WATERSHED INCHES; 442 CFS-HRS; 36.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	1023.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.09 WATERSHED INCHES; 1361 CFS-HRS; 112.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.42	776.9	1376.50

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.09 WATERSHED INCHES; 1361 CFS-HRS; 112.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 85. TIME OF CONCENTRATION = .55 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0739 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	77.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.55 WATERSHED INCHES; 99 CFS-HRS; 8.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.38	835.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.05 WATERSHED INCHES; 1460 CFS-HRS; 120.7 ACRE-FEET.
1

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .31 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = 1.19 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0952 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.60	350.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.70 WATERSHED INCHES; 734 CFS-HRS; 60.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.45	1157.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.93 WATERSHED INCHES; 2194 CFS-HRS; 181.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.51	435.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.73 WATERSHED INCHES; 839 CFS-HRS; 69.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.47	1589.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.87 WATERSHED INCHES; 3032 CFS-HRS; 250.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.36	493.5	1371.01

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.86 WATERSHED INCHES; 3022 CFS-HRS; 249.7 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 3
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 6.98 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =13 STORM NO. = 4 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	515.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 713 CFS-HRS; 58.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	433.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.81 WATERSHED INCHES; 587 CFS-HRS; 48.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	948.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.73 WATERSHED INCHES; 1300 CFS-HRS; 107.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	478.2	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.87 WATERSHED INCHES; 620 CFS-HRS; 51.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	1424.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.77 WATERSHED INCHES; 1921 CFS-HRS; 158.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.45	981.5	1377.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.77 WATERSHED INCHES; 1920 CFS-HRS; 158.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 85. TIME OF CONCENTRATION = .55 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0739 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	112.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.17 WATERSHED INCHES; 144 CFS-HRS; 11.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.40	1060.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.72 WATERSHED INCHES; 2064 CFS-HRS; 170.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .31 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = 1.19 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0952 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.59	501.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.34 WATERSHED INCHES; 1058 CFS-HRS; 87.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.48	1532.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.59 WATERSHED INCHES; 3123 CFS-HRS; 258.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	623.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.38 WATERSHED INCHES; 1208 CFS-HRS; 99.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.49	2156.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.53 WATERSHED INCHES; 4331 CFS-HRS; 357.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.21	925.5	1371.65

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.51 WATERSHED INCHES; 4314 CFS-HRS; 356.5 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 4
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 7.80 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =14 STORM NO. = 5 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	585.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.46 WATERSHED INCHES; 814 CFS-HRS; 67.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	491.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.61 WATERSHED INCHES; 668 CFS-HRS; 55.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	1076.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.53 WATERSHED INCHES; 1483 CFS-HRS; 122.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	537.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 706 CFS-HRS; 58.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	1610.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.58 WATERSHED INCHES; 2188 CFS-HRS; 180.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.46	1071.4	1378.31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.57 WATERSHED INCHES; 2188 CFS-HRS; 180.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 85. TIME OF CONCENTRATION = .55 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0739 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	127.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.96 WATERSHED INCHES; 166 CFS-HRS; 13.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.42	1160.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.53 WATERSHED INCHES; 2354 CFS-HRS; 194.6 ACRE-FEET.
1

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .31 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = 1.19 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0952 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.59	571.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.13 WATERSHED INCHES; 1215 CFS-HRS; 100.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.49	1703.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.39 WATERSHED INCHES; 3569 CFS-HRS; 295.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	710.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.17 WATERSHED INCHES; 1386 CFS-HRS; 114.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.49	2413.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.32 WATERSHED INCHES; 4955 CFS-HRS; 409.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.20	1119.8	1371.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.30 WATERSHED INCHES; 4934 CFS-HRS; 407.7 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 5
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 9.35 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =15 STORM NO. = 6 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	716.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.98 WATERSHED INCHES; 1006 CFS-HRS; 83.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	601.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.15 WATERSHED INCHES; 823 CFS-HRS; 68.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	1317.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.05 WATERSHED INCHES; 1829 CFS-HRS; 151.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	654.2	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.20 WATERSHED INCHES; 867 CFS-HRS; 71.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	1968.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.10 WATERSHED INCHES; 2696 CFS-HRS; 222.8 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.49	1224.3	1379.30

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.10 WATERSHED INCHES; 2696 CFS-HRS; 222.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 85. TIME OF CONCENTRATION = .55 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0739 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	158.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.46 WATERSHED INCHES; 208 CFS-HRS; 17.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	1329.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.05 WATERSHED INCHES; 2904 CFS-HRS; 240.0 ACRE-FEET.
1

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .31 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = 1.19 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0952 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.59	707.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.65 WATERSHED INCHES; 1515 CFS-HRS; 125.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	2009.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.91 WATERSHED INCHES; 4419 CFS-HRS; 365.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	873.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.67 WATERSHED INCHES; 1725 CFS-HRS; 142.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	2883.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.84 WATERSHED INCHES; 6144 CFS-HRS; 507.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70
1

*** WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 18,
VALUE EXTRAPOLATED. ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.20	1468.4	1372.46

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.80 WATERSHED INCHES; 6114 CFS-HRS; 505.3 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 6
1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 3.50 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .100 HOURS							
ALTERNATE 11 STORM 1							
XSECTION 5	RUNOFF	.20	2.34	---	12.24	219	1095.0
XSECTION 25	RUNOFF	.16	2.46	---	12.22	189	1181.3
XSECTION 30	ADDHYD	.35	2.39	---	12.23	408	1165.7
XSECTION 35	RUNOFF	.16	2.50	---	12.20	210	1312.5
XSECTION 40	ADDHYD	.52	2.42	---	12.22	617	1186.5
STRUCTURE 10	RESVOR	.52	2.42	1375.15	12.38	515	990.4
XSECTION 45	RUNOFF	.04	1.97	---	12.22	43	1075.0
XSECTION 50	ADDHYD	.56	2.39	---	12.36	551	983.9
XSECTION 55	RUNOFF	.31	2.10	---	12.61	199	641.9
XSECTION 60	ADDHYD	.87	2.29	---	12.41	725	833.3
XSECTION 65	RUNOFF	.35	2.12	---	12.52	250	714.3
XSECTION 70	ADDHYD	1.21	2.24	---	12.43	968	800.0
STRUCTURE 18	RESVOR	1.21	2.23	1370.11	13.63	215	177.7
RAINFALL OF 4.55 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 12 STORM 2							
XSECTION 5	RUNOFF	.20	3.32	---	12.23	309	1545.0
XSECTION 25	RUNOFF	.16	3.45	---	12.22	263	1643.8
XSECTION 30	ADDHYD	.35	3.38	---	12.22	572	1634.3
XSECTION 35	RUNOFF	.16	3.50	---	12.19	291	1818.8
XSECTION 40	ADDHYD	.52	3.42	---	12.21	861	1655.8
STRUCTURE 10	RESVOR	.52	3.42	1375.94	12.40	677	1301.9
XSECTION 45	RUNOFF	.04	2.91	---	12.21	64	1600.0
XSECTION 50	ADDHYD	.56	3.38	---	12.37	727	1298.2
XSECTION 55	RUNOFF	.31	3.05	---	12.61	289	932.3
XSECTION 60	ADDHYD	.87	3.26	---	12.43	988	1135.6

1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 12 STORM 2							
XSECTION 65	RUNOFF	.35	3.07	---	12.51	359	1025.7
XSECTION 70	ADDHYD	1.21	3.21	---	12.46	1340	1107.4
STRUCTURE 18	RESVOR	1.21	3.20	1370.65	13.42	381	314.9
RAINFALL OF 5.25 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 13 STORM 3							
XSECTION 5	RUNOFF	.20	3.99	---	12.23	369	1845.0
XSECTION 25	RUNOFF	.16	4.12	---	12.22	313	1956.3
XSECTION 30	ADDHYD	.35	4.05	---	12.22	682	1948.6
XSECTION 35	RUNOFF	.16	4.18	---	12.19	344	2150.0
XSECTION 40	ADDHYD	.52	4.09	---	12.21	1024	1969.2
STRUCTURE 10	RESVOR	.52	4.09	1376.50	12.42	777	1494.2
XSECTION 45	RUNOFF	.04	3.55	---	12.21	78	1950.0
XSECTION 50	ADDHYD	.56	4.05	---	12.38	836	1492.9
XSECTION 55	RUNOFF	.31	3.70	---	12.60	350	1129.0
XSECTION 60	ADDHYD	.87	3.93	---	12.45	1157	1329.9
XSECTION 65	RUNOFF	.35	3.73	---	12.51	435	1242.9
XSECTION 70	ADDHYD	1.21	3.87	---	12.47	1589	1313.2
STRUCTURE 18	RESVOR	1.21	3.86	1371.01	13.36	493	407.4
RAINFALL OF 6.98 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 13 STORM 4							
XSECTION 5	RUNOFF	.20	5.66	---	12.23	516	2580.0
XSECTION 25	RUNOFF	.16	5.81	---	12.21	434	2712.5
XSECTION 30	ADDHYD	.35	5.73	---	12.22	949	2711.4
XSECTION 35	RUNOFF	.16	5.87	---	12.19	478	2987.5
XSECTION 40	ADDHYD	.52	5.77	---	12.21	1424	2738.5

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 13 STORM 4							
STRUCTURE 10	RESVOR	.52	5.77	1377.75	12.45	981	1886.5
XSECTION 45	RUNOFF	.04	5.17	---	12.21	112	2800.0
XSECTION 50	ADDHYD	.56	5.72	---	12.40	1061	1894.6
XSECTION 55	RUNOFF	.31	5.34	---	12.59	501	1616.1
XSECTION 60	ADDHYD	.87	5.59	---	12.48	1533	1762.1
XSECTION 65	RUNOFF	.35	5.38	---	12.50	624	1782.9
XSECTION 70	ADDHYD	1.21	5.53	---	12.49	2156	1781.8
STRUCTURE 18	RESVOR	1.21	5.51	1371.65	13.21	925	764.5
RAINFALL OF 7.80 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 14 STORM 5							
XSECTION 5	RUNOFF	.20	6.46	---	12.23	586	2930.0
XSECTION 25	RUNOFF	.16	6.61	---	12.21	491	3068.8
XSECTION 30	ADDHYD	.35	6.53	---	12.22	1077	3077.1
XSECTION 35	RUNOFF	.16	6.68	---	12.19	537	3356.3
XSECTION 40	ADDHYD	.52	6.58	---	12.21	1611	3098.1
STRUCTURE 10	RESVOR	.52	6.57	1378.31	12.46	1071	2059.6
XSECTION 45	RUNOFF	.04	5.96	---	12.21	128	3200.0
XSECTION 50	ADDHYD	.56	6.53	---	12.42	1161	2073.2
XSECTION 55	RUNOFF	.31	6.13	---	12.59	572	1845.2
XSECTION 60	ADDHYD	.87	6.39	---	12.49	1704	1958.6
XSECTION 65	RUNOFF	.35	6.17	---	12.50	710	2028.6
XSECTION 70	ADDHYD	1.21	6.32	---	12.49	2414	1995.0
STRUCTURE 18	RESVOR	1.21	6.30	1371.94	13.20	1120	925.6
RAINFALL OF 9.35 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 15 STORM 6							

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 15 STORM 6							
XSECTION 5	RUNOFF	.20	7.98	---	12.23	716	3580.0
XSECTION 25	RUNOFF	.16	8.15	---	12.21	601	3756.3
XSECTION 30	ADDHYD	.35	8.05	---	12.22	1317	3762.9
XSECTION 35	RUNOFF	.16	8.20	---	12.19	654	4087.5
XSECTION 40	ADDHYD	.52	8.10	---	12.21	1969	3786.5
STRUCTURE 10	RESVOR	.52	8.10	1379.30	12.49	1224	2353.8
XSECTION 45	RUNOFF	.04	7.46	---	12.20	158	3950.0
XSECTION 50	ADDHYD	.56	8.05	---	12.43	1329	2373.2
XSECTION 55	RUNOFF	.31	7.65	---	12.59	707	2280.6
XSECTION 60	ADDHYD	.87	7.91	---	12.50	2010	2310.3
XSECTION 65	RUNOFF	.35	7.67	---	12.50	874	2497.1
XSECTION 70	ADDHYD	1.21	7.84	---	12.50	2883	2382.6
STRUCTURE 18	RESVOR	1.21	7.80	1372.46	13.20	1468	1213.2

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
STRUCTURE 18		1.21					
ALTERNATE	11		215	*********	*********	*********	*********
ALTERNATE	12		*********	381	*********	*********	*********
ALTERNATE	13		*********	*********	493	925	*********
ALTERNATE	14		*********	*********	*********	*********	1120
STRUCTURE 10		.52					
ALTERNATE	11		515	*********	*********	*********	*********
ALTERNATE	12		*********	677	*********	*********	*********
ALTERNATE	13		*********	*********	777	981	*********
ALTERNATE	14		*********	*********	*********	*********	1071
XSECTION 5		.20					
ALTERNATE	11		219	*********	*********	*********	*********
ALTERNATE	12		*********	309	*********	*********	*********
ALTERNATE	13		*********	*********	369	516	*********
ALTERNATE	14		*********	*********	*********	*********	586
XSECTION 25		.16					
ALTERNATE	11		189	*********	*********	*********	*********
ALTERNATE	12		*********	263	*********	*********	*********
ALTERNATE	13		*********	*********	313	434	*********
ALTERNATE	14		*********	*********	*********	*********	491
XSECTION 30		.35					
ALTERNATE	11		408	*********	*********	*********	*********
ALTERNATE	12		*********	572	*********	*********	*********
ALTERNATE	13		*********	*********	682	949	*********
ALTERNATE	14		*********	*********	*********	*********	1077
XSECTION 35		.16					
ALTERNATE	11		210	*********	*********	*********	*********
ALTERNATE	12		*********	291	*********	*********	*********
ALTERNATE	13		*********	*********	344	478	*********
ALTERNATE	14		*********	*********	*********	*********	537

```
 XSECTION   40          .52
 ---------------------------
    ALTERNATE   11               617 ********* ********* ********* *********
    ALTERNATE   12          *********       861 ********* ********* *********
    ALTERNATE   13          ********* *********      1024      1424 *********
1
```

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
XSECTION 40	.52					
ALTERNATE 14		*********	*********	*********	*********	1611
XSECTION 45	.04					
ALTERNATE 11		43	*********	*********	*********	*********
ALTERNATE 12		*********	64	*********	*********	*********
ALTERNATE 13		*********	*********	78	112	*********
ALTERNATE 14		*********	*********	*********	*********	128
XSECTION 50	.56					
ALTERNATE 11		551	*********	*********	*********	*********
ALTERNATE 12		*********	727	*********	*********	*********
ALTERNATE 13		*********	*********	836	1061	*********
ALTERNATE 14		*********	*********	*********	*********	1161
XSECTION 55	.31					
ALTERNATE 11		199	*********	*********	*********	*********
ALTERNATE 12		*********	289	*********	*********	*********
ALTERNATE 13		*********	*********	350	501	*********
ALTERNATE 14		*********	*********	*********	*********	572
XSECTION 60	.87					
ALTERNATE 11		725	*********	*********	*********	*********
ALTERNATE 12		*********	988	*********	*********	*********
ALTERNATE 13		*********	*********	1157	1533	*********
ALTERNATE 14		*********	*********	*********	*********	1704
XSECTION 65	.35					
ALTERNATE 11		250	*********	*********	*********	*********
ALTERNATE 12		*********	359	*********	*********	*********
ALTERNATE 13		*********	*********	435	624	*********
ALTERNATE 14		*********	*********	*********	*********	710
XSECTION 70	1.21					

ALTERNATE	11	968	*********	*********	*********	*********
ALTERNATE	12	*********	1340	*********	*********	*********
ALTERNATE	13	*********	*********	1589	2156	*********
ALTERNATE	14	*********	*********	*********	*********	2414

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 6
STRUCTURE 18	1.21	
ALTERNATE 15		1468

1

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 6
STRUCTURE	10	.52	
ALTERNATE	15		1224
XSECTION	5	.20	
ALTERNATE	15		716
XSECTION	25	.16	
ALTERNATE	15		601
XSECTION	30	.35	
ALTERNATE	15		1317
XSECTION	35	.16	
ALTERNATE	15		654
XSECTION	40	.52	
ALTERNATE	15		1969
XSECTION	45	.04	
ALTERNATE	15		158
XSECTION	50	.56	
ALTERNATE	15		1329
XSECTION	55	.31	
ALTERNATE	15		707
XSECTION	60	.87	
ALTERNATE	15		2010
XSECTION	65	.35	

```
 ---------------------------
    ALTERNATE   15                874

 XSECTION   70         1.21
 ---------------------------
    ALTERNATE   15               2883
1
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TR20 ---------- SCS -
PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06 VERSION
03/23/** TPP.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL2.04TEST

END OF 1 JOBS IN THIS RUN

SCS TR-20, VERSION 2.04TEST
FILES

INPUT = wtrftpp.t20 , GIVEN DATA FILE
OUTPUT = wtrftpp.OUT , DATED 03/23/**,16:07:43

FILES GENERATED - DATED 03/23/**,16:07:43

NONE!

TOTAL NUMBER OF WARNINGS = 1, MESSAGES = 0

*** TR-20 RUN COMPLETED ***

Appendix F
Pre-Project Time of Concentration and Curve Number Calculations

Time of Concentration Calculations by the FAA method

The Waterfront Addition - Pre-Project Calculations

$$T_c = \frac{(1.1-C)L^{1/2}}{100\,S^{1/3}}$$

Area Name	Land Use	Soil Group	Maximum Elevation	Minimum Elevation	Length (L)	Rational Runoff Coefficient, C				Time of Concentration (min), T_c				Time of Concentration (hr), T_c				CN
						2-Year	5-Year	10-Year	100-Year	2-Year	5-Year	10-Year	100-Year	2-Year	5-Year	10-Year	100-Year	
005	*Business - Neighborhood*	*D*	*1405.0*	*1375.0*	*3800*	0.68	0.69	0.73	0.80	50.4	49.2	44.4	36.0	0.8404	0.8204	0.7403	0.6003	88.8
025	*Business - Neighborhood*	*D*	*1405.0*	*1375.0*	*3600*	0.68	0.69	0.73	0.80	48.2	47.1	42.5	34.4	0.8034	0.7842	0.7077	0.5738	90.1
035	*Business - Neighborhood*	*D*	*1390.0*	*1370.0*	*2800*	0.68	0.69	0.73	0.80	44.8	43.7	39.4	32.0	0.7459	0.7281	0.6571	0.5328	90.6
045	*Undeveloped Urban*	*D*	*1390.0*	*1369.0*	*2000*	0.52	0.54	0.59	0.68	45.9	44.4	40.4	33.3	0.7656	0.7392	0.6732	0.5544	84.5
055	*Undeveloped Urban*	*D*	*1390.0*	*1369.0*	*5000*	0.52	0.54	0.59	0.68	98.6	95.2	86.7	71.4	1.6429	1.5862	1.4446	1.1897	86.0
065	*Undeveloped Urban*	*D*	*1400.0*	*1369.0*	*5000*	0.52	0.54	0.59	0.68	86.6	83.6	76.1	62.7	1.4429	1.3931	1.2687	1.0448	86.3

Project Name: The Waterfront Addition - Pre-Project
Project Number: 02014
Basin: TR-20 005

Total Area = 124.9 Acres
Total Area = 0.1952 sq. mi.
Composite Curve Number = 88.77

Land Use	Percent Impervious	Area/CN Hydrological Soil Group			
		A	B	C	D
Cultivated land without conservation treatment	0	72	81	88	91
Cultivated land with conservation treatement	0	62	71	78	81
Pasture or range land - poor condition	0	68	79	86	89
Pasture or range land - good condition	0	39	61	74	80
Meadow - good condition	0	30	58	71	78
Wood or Forest land - thin stand, poor cover, no mulch	0	45	66	77	83
Wood or Forest land - good cover	0	25	55	70	77
Open spaces - good condition - grass cover on 75% or more of area	0	39	61	74	80
Open spaces - fair condition - grass cover on 50-75% of area	0	49	69	79	20.2 84
Commercial and business	85	89	92	94	26.4 95
Industrial	72	81	88	91	93
Residential - 1/8 acre or less	65	77	85	90	14.1 92
Residential - 1/4 acre	38	61	75	83	64.2 87
Residentail - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residentail - 1 acre	20	51	68	79	84
Paved Parking lots, roofs, driveways, etc.	-	98	98	98	98
Streets and roads - paved with curbs and storm sewers	-	98	98	98	98
Streets and roads - gravel	-	76	85	89	91
Streets and roads - dirt	-	72	82	87	89
Lake/Pond	100	100	100	100	100

Project Name: The Waterfront Addition - Pre-Project
Project Number: 02014
Basin: TR-20 025

Total Area = 100.2 Acres
Total Area = 0.1566 sq. mi.
Composite Curve Number = 90.14

Land Use	Percent Impervious	Area/CN Hydrological Soil Group			
		A	B	C	D
Cultivated land without conservation treatment	0	72	81	88	91
Cultivated land with conservation treatement	0	62	71	78	81
Pasture or range land - poor condition	0	68	79	86	89
Pasture or range land - good condition	0	39	61	74	80
Meadow - good condition	0	30	58	71	78
Wood or Forest land - thin stand, poor cover, no mulch	0	45	66	77	83
Wood or Forest land - good cover	0	25	55	70	77
Open spaces - good condition - grass cover on 75% or more of area	0	39	61	74	80
Open spaces - fair condition - grass cover on 50-75% of area	0	49	69	79	84
Commercial and business	85	89	92	94	39.3 95
Industrial	72	81	88	91	93
Residential - 1/8 acre or less	65	77	85	90	92
Residential - 1/4 acre	38	61	75	83	60.9 87
Residentail - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residentail - 1 acre	20	51	68	79	84
Paved Parking lots, roofs, driveways, etc.	-	98	98	98	98
Streets and roads - paved with curbs and storm sewers	-	98	98	98	98
Streets and roads - gravel	-	76	85	89	91
Streets and roads - dirt	-	72	82	87	89
Lake/Pond	100	100	100	100	100

Project Name: The Waterfront Addition - Pre-Project
Project Number: 02014
Basin: TR-20 035

Total Area = 104.8 Acres
Total Area = 0.1638 sq. mi.
Composite Curve Number = 90.62

Land Use	Percent Impervious	Area/CN Hydrological Soil Group			
		A	B	C	D
Cultivated land without conservation treatment	0	72	81	88	91
Cultivated land with conservation treatement	0	62	71	78	81
Pasture or range land - poor condition	0	68	79	86	89
Pasture or range land - good condition	0	39	61	74	80
Meadow - good condition	0	30	58	71	78
Wood or Forest land - thin stand, poor cover, no mulch	0	45	66	77	83
Wood or Forest land - good cover	0	25	55	70	77
Open spaces - good condition - grass cover on 75% or more of area	0	39	61	74	80
Open spaces - fair condition - grass cover on 50-75% of area	0	49	69	79	17.9 84
Commercial and business	85	89	92	94	50.5 95
Industrial	72	81	88	91	93
Residential - 1/8 acre or less	65	77	85	90	92
Residential - 1/4 acre	38	61	75	83	34.2 87
Residentail - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residentail - 1 acre	20	51	68	79	84
Paved Parking lots, roofs, driveways, etc.	-	98	98	98	98
Streets and roads - paved with curbs and storm sewers	-	98	98	98	98
Streets and roads - gravel	-	76	85	89	91
Streets and roads - dirt	-	72	82	87	89
Lake/Pond	100	100	100	100	2.2 100

Project Name: The Waterfront Addition - Pre-Project
Project Number: 02014
Basin: TR-20 045

Total Area = 27.6 Acres
Total Area = 0.0431 sq. mi.
Composite Curve Number = 84.52

Land Use	Percent Impervious	Area/CN Hydrological Soil Group			
		A	B	C	D
Cultivated land without conservation treatment	0	72	81	88	91
Cultivated land with conservation treatement	0	62	71	78	81
Pasture or range land - poor condition	0	68	79	86	89
Pasture or range land - good condition	0	39	61	74	80
Meadow - good condition	0	30	58	71	78
Wood or Forest land - thin stand, poor cover, no mulch	0	45	66	77	83
Wood or Forest land - good cover	0	25	55	70	77
Open spaces - good condition - grass cover on 75% or more of area	0	39	61	74	80
Open spaces - fair condition - grass cover on 50-75% of area	0	49	69	79	26.7 84
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential - 1/8 acre or less	65	77	85	90	92
Residential - 1/4 acre	38	61	75	83	87
Residentail - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residentail - 1 acre	20	51	68	79	84
Paved Parking lots, roofs, driveways, etc.	-	98	98	98	98
Streets and roads - paved with curbs and storm sewers	-	98	98	98	98
Streets and roads - gravel	-	76	85	89	91
Streets and roads - dirt	-	72	82	87	89
Lake/Pond	100	100	100	100	0.9 100

Project Name: The Waterfront Addition - Pre-Project
Project Number: 02014
Basin: TR-20 055

Total Area = 196.5 Acres
Total Area = 0.3070 sq. mi.
Composite Curve Number = 86.00

Land Use	Percent Impervious	Area/CN Hydrological Soil Group			
		A	B	C	D
Cultivated land without conservation treatment	0	72	81	88	91
Cultivated land with conservation treatement	0	62	71	78	81
Pasture or range land - poor condition	0	68	79	86	89
Pasture or range land - good condition	0	39	61	74	80
Meadow - good condition	0	30	58	71	78
Wood or Forest land - thin stand, poor cover, no mulch	0	45	66	77	83
Wood or Forest land - good cover	0	25	55	70	77
Open spaces - good condition - grass cover on 75% or more of area	0	39	61	74	80
Open spaces - fair condition - grass cover on 50-75% of area	0	49	69	79	134.1 84
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential - 1/8 acre or less	65	77	85	90	92
Residential - 1/4 acre	38	61	75	83	46.5 87
Residentail - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residentail - 1 acre	20	51	68	79	84
Paved Parking lots, roofs, driveways, etc.	-	98	98	98	98
Streets and roads - paved with curbs and storm sewers	-	98	98	98	98
Streets and roads - gravel	-	76	85	89	91
Streets and roads - dirt	-	72	82	87	89
Lake/Pond	100	100	100	100	15.9 100

Project Name: The Waterfront Addition - Pre-Project
Project Number: 02014
Basin: TR-20 065

Total Area = 222.9 Acres
Total Area = 0.3483 sq. mi.
Composite Curve Number = 86.26

Land Use	Percent Impervious	Area/CN Hydrological Soil Group			
		A	B	C	D
Cultivated land without conservation treatment	0	72	81	88	91
Cultivated land with conservation treatement	0	62	71	78	81
Pasture or range land - poor condition	0	68	79	86	89
Pasture or range land - good condition	0	39	61	74	80
Meadow - good condition	0	30	58	71	78
Wood or Forest land - thin stand, poor cover, no mulch	0	45	66	77	83
Wood or Forest land - good cover	0	25	55	70	77
Open spaces - good condition - grass cover on 75% or more of area	0	39	61	74	80
Open spaces - fair condition - grass cover on 50-75% of area	0	49	69	79	84 191.4
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential - 1/8 acre or less	65	77	85	90	92
Residential - 1/4 acre	38	61	75	83	87
Residentail - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residentail - 1 acre	20	51	68	79	84
Paved Parking lots, roofs, driveways, etc.	-	98	98	98	98
Streets and roads - paved with curbs and storm sewers	-	98	98	98	98
Streets and roads - gravel	-	76	85	89	91
Streets and roads - dirt	-	72	82	87	89
Lake/Pond	100	100	100	100	100 31.5

Appendix G
Conditional Letter of Map Revision

Federal Emergency Management Agency

Washington, D.C. 20472

JUN 2 2 2004

IN REPLY REFER TO:
Case Number: 04-07-031R

Community: City of Wichita,
Sedgwick County, Kansas

Community No.: 200328

104

The Honorable Carlos Mayans
Mayor, City of Wichita
City Hall, First Floor
MS 1-135
455 North Main Street
Wichita, KS 67202

Dear Mayor Mayans:

This is in reference to a letter, dated October 23, 2003, from Ms. Kara L. Anderson, of MKEC Engineering Consultants, Inc., requesting a Conditional Letter of Map Revision (CLOMR) from the Federal Emergency Management Agency (FEMA) for the proposed Waterfront Addition project. The proposed project will be located along East Branch Gypsum Creek, from just upstream of 13th Street North to just downstream of the Burlington Northern Railroad, and will consist of the construction of several culverts at the proposed Waterfront Parkway and the placement of fill in the 1% annual chance (100-year) floodplain (Zone A). The area of the proposed project is shown on Flood Insurance Rate Map (FIRM) number 200321, panel 0150 A, and Flood Boundary and Floodway Map (FBFM) number 200321, panel 0150, both dated June 3, 1986.

We received the following data, prepared by Douglas R. Klassen, P.E., of MKEC Engineering Consultants, Inc., in support of this request:

- TR-20 hydrologic models, dated September 22, 2003, of the 10%, 2%, 1%, and 0.2% annual chance (10-year, 5-year, 100-year, and 500-year, respectively) floods, representing the existing conditions for East Branch Gypsum Creek;

- a HEC-RAS hydraulic model, dated October 7, 2003, of the 10%, 2%, 1%, and 0.2% annual chance floods for East Branch Gypsum Creek, representing the existing and proposed conditions for East Branch Gypsum Creek;

- a certified work map, titled *The Waterfront Addition, Existing Conditions*, dated September 2003, at a scale of 1 inch = 100 feet, with a contour interval of 1 foot, representing the existing conditions along East Branch Gypsum Creek;

- a certified work map, titled *The Waterfront Addition, Proposed Conditions*, dated September 2003, at a scale of 1 inch = 100 feet, with a contour interval of 1 foot, representing the proposed conditions along East Branch Gypsum Creek;

- a certified report, titled *The Waterfront Addition CLOMR, Wichita, Sedgwick County, Kansas*, dated October 2003, prepared by MKEC Engineering Consultants, Inc.; and

- completed certification/acknowledgement forms, including concurrence with the proposed project by the City of Wichita.

We received all of the data required to perform a technical review of the CLOMR request as of April 19, 2004.

We have reviewed the submitted data and determined that the proposed project meets the minimum floodplain management criteria of the National Flood Insurance Program (NFIP). If the project is built as proposed, a revision to the FIRM for your community will be warranted. This revision will show the following effects, as shown by the data submitted to support the request:

1% Annual Chance Floodplain

When we compared the proposed conditions with the effective conditions, it was determined that there would be shifting in the 1% annual chance floodplain for East Branch Gypsum Creek. A maximum shift of 200 feet would occur approximately 1,100 feet upstream of 13th Street North. Furthermore, the 1% annual chance floodplain delineation for East Branch Gypsum Creek would be extended approximately 1,000 feet upstream of the current delineation, to just downstream of the Burlington Northern Railroad.

Future revisions to the FIRM, or restudies of the flood hazards in this area could modify this determination.

We based this determination on the 1% annual chance discharges computed in the submitted hydrologic model. Future development of projects upstream may increase discharges, which may increase flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on discharges and, therefore, could establish greater flood hazards in this area.

Your community must approve all proposed floodplain development, including this proposed project, and ensure that permits required by other Federal agencies and/or State and local agencies have been obtained. State and/or community officials may set standards for construction that are more restrictive than the minimum NFIP standards or may limit development in floodplains, based on knowledge of local conditions and in the interest of safety. If the State and/or the community have adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

Culverts will fail to function as designed without proper maintenance, such as the regular clearing of the culvert. To avoid such failures, we require participating communities to ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained according to NFIP regulations Subparagraph 60.3(b)(7). Therefore, upon completion of the project, your community must submit documentation ensuring that the modified culverts will be maintained to preserve their design function. We may request that your community submit a description and schedule of its culvert maintenance, as outlined in Subparagraph 65.6(a)(12) of the NFIP regulations.

If fill is placed in your community to raise the ground surface to or above the Base (1% annual chance) Flood Elevation (BFE), your community must meet the criteria of NFIP regulations Sections 60.3 and 65.5, which require that the community's NFIP permit official certify that proposed or existing

structures to be removed from the Special Flood Hazard Area (SFHA) be "reasonably safe from flooding." "Reasonably safe from flooding" means base flood waters will not inundate the land or damage structures to be removed from the SFHA and that any subsurface waters related to the base flood will not damage existing or proposed buildings. The community and engineers should review and use *FEMA Technical Bulletin 10-01, Ensuring That Structures Built on Fill In or Near Special Flood Hazard Areas Are Reasonably Safe From Flooding*, which may be downloaded directly from the FEMA website at http://www.fema.gov/pdf/fima/tb1001.pdf.

Upon completion of the proposed project, your community should request a revision to the FIRM to assure that the physical change to the flooding conditions is used for flood insurance rating and floodplain management purposes. The revision request should be submitted to our Regional Office in Kansas City, Missouri, at (816) 283-7002, and include the data listed below.

1. Evidence of compliance with NFIP regulations Paragraph 65.4(b), which states that "all requests for changes to effective maps . . . must be made in writing by the community's Chief Executive Officer (CEO) or an official designated by the CEO."

2. As-built plans of all relevant project elements as well as a statement declaring that the project was built as proposed, both of which must be certified by a Professional Engineer. If the project was not built as proposed, please provide a description of the changes in design that have occurred since the issuance of the CLOMR. Please provide digital copies of the as-built plans, if available.

3. The detailed application and certification forms may be required if as-built conditions differ from the preliminary plans. If required, please submit new forms or annotated copies of the previously submitted forms showing the revised information.

4. Hydraulic analysis, for as-built conditions, of the 1% annual chance floods for East Branch Gypsum Creek.

5. Certified topographic mapping, delineating the 1% annual chance flood for East Branch Gypsum Creek, including the locations and alignments of the cross sections and flow lines used in the hydraulic model, representing as-built conditions.

    a. Please show this information on a map of suitable scale and topographic definition to provide reasonable accuracy. If available, please provide mapping in digital format with the vertical datum and horizontal projection clearly noted.

    b. Please label all items for easy cross-referencing to the hydraulic model and summary data.

    c. Please ensure that the vertical datum used for the mapping is consistent with the vertical datum used for data in the hydraulic model.

6. A copy of the Sedgwick County, Kansas (Unincorporated Areas) FIRM, number 200321, panel 0150 A, annotated to reflect as-built conditions.

7. Documentation of individual legal notices that were sent to property owners who are adversely impacted by any increase or shifting of the 1% annual chance floodplain for East Branch Gypsum Creek.

    a. If you submit notification and acceptance from the adversely impacted property owners, FEMA can issue a Letter of Map Revision (LOMR) effective the date of issuance.

    b. If you submit notification of, but not acceptance by, the adversely impacted property owners, FEMA may issue a LOMR effective one month after the date of issuance.

8. Documentation showing compliance with NFIP regulations Subparagraph 65.5(a)(4) regarding the placement of fill and Subparagraph 65.6(a)(12) regarding culvert maintenance, as previously discussed.

If the project is built as proposed in the data submitted in support of this request, you do not have to resubmit items 3 through 6 listed above; otherwise, please resubmit them.

We have enclosed a copy of our application/certification forms for your reference. The application/certification forms package may be downloaded directly from the FEMA website at http://www.fema.gov/fhm/en_main.shtm or copies may be obtained by contacting the FEMA Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627). Typically, we do not require all of these forms if the project is completed as proposed in the data submitted in support of this request. The enclosed document, titled *Requirements for Submitting Application/ Certification Forms to Support Requests for NFIP Map Revisions*, describes in detail the circumstances under which the forms are required.

We recover costs associated with reviewing and processing requests for modifications to published FIRMs to minimize the financial burden on the policyholders. The fee for an as-built LOMR request in follow-up to this CLOMR is $3,800, which we must receive before we can begin processing. This fee represents the fee schedule effective September 1, 2002. However, the fee schedule is subject to change, and the requester is required to submit the fee in effect at the time of the submission. Your payment must be a check or money order made payable to the National Flood Insurance Program and should be forwarded to:

Federal Emergency Management Agency
Fee Charge System Administrator
P.O. Box 3173
Merrifield, Virginia 22216

Once we receive the processing fee and the items listed above, complete our review, and verify that the completed project meets all applicable NFIP standards, we will revise your community's Flood Insurance Study, FIRM, and FBFM to incorporate the effects of the completed project, as appropriate.

Part 65 of the enclosed NFIP regulations further describes the data needed to support a request to revise the FIRM. Your compliance with the criteria outlined in the NFIP regulations will streamline our review, allowing us to expeditiously revise your community's FIRM.

If you have any questions regarding this CLOMR, please contact the FEMA Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627).

Sincerely,

Kelly A. Bronowicz, CFM, Project Engineer
Hazard Identification Section
Mitigation Division
Emergency Preparedness
and Response Directorate

For: Doug Bellomo, P.E., CFM, Acting Chief
Hazard Identification Section
Mitigation Division
Emergency Preparedness
and Response Directorate

Enclosures

cc: Christopher M. Carrier, P.E., Interim Director of Public Works, City of Wichita
Douglas R. Klassen, MKEC Engineering Consultants, Inc.
Kara L. Anderson, MKEC Engineering Consultants, Inc.
Johnny Stevens

Appendix H
Current TR-20 Output

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*****************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****************

 JOB TR-20                      FULLPRINT          SUMMARY   NOPLOTS
 TITLE 001 WATERFRONT CURRENT    EAST BRANCH GYPSUM CREEK 2/06
 TITLE WTRFTE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL CHANCE
  4 DIMHYD              0.02                                              484 SCS
  8          .000       .030       .100       .190       .310            UNIT
HYD
  8          .470       .660       .820       .930       .990
  8         1.000       .990       .930       .860       .780
  8          .680       .560       .460       .390       .330
  8          .280       .241       .207       .174       .147
  8          .126       .107       .091       .077       .066
  8          .055       .047       .040       .034       .029
  8          .025       .021       .018       .015       .013
  8          .011       .009       .008       .007       .006
  8          .005       .004       .003       .002       .001
  8          .000       .000       .000       .000       .000
  9 ENDTBL
  3 STRUCT      10                                                          R-EB-
BN
  8                    1369.4      0.0        0.0
RAILROAD
  8                    1370.4      6.0        0.279
ESTMNSTR
  8                    1371.4      14.0       1.093
  8                    1372.4      30.0       2.269
  8                    1373.4      60.0       3.606
  8                    1374.4      320.0      7.212
  8                    1375.4      580.0      11.361
  8                    1376.4      760.0      16.450
  8                    1377.4      925.0      23.036
  8                    1378.4      1085.0     31.035
  8                    1379.4      1240.0     40.834
  9 ENDTBL
  3 STRUCT      15
  8                    1373.0      0.0        0.0                         HOTEL
  8                    1374.0      9.46       1.98                        POND
  8                    1375.0      158.50     4.44
  8                    1376.0      256.63     7.73
  8                    1377.0      331.69     11.24
  9 ENDTBL
  3 STRUCT      18                                                         NORTH &
  8                    1368.7      0.0        0.0                         SOUTH
  8                    1369.0      100.0      14.40                       BEECH
  8                    1370.0      180.0      63.09                       LAKE
  8                    1371.0      490.0      113.69
  8                    1372.0      1160.0     167.00
  9 ENDTBL
  6 RUNOFF 1 005       3 0.1953    88.8       0.6003              1
N&S21EWB
  6 RUNOFF 1 025       1 0.1566    90.1       0.5738              1 WWEBB
  6 ADDHYD 4 030   1 3 2                                           1
  6 RUNOFF 1 035       1 0.1638    90.6       0.5328              1
  6 ADDHYD 4 040   1 2 3                                           1
  6 RESVOR 2    10 3   1 1369.4                                   1 EM/RR
  6 RUNOFF 1 045       2 0.0432    95.3       0.3960              1 NWTRFT
```

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**********80-80 LIST OF INPUT DATA (CONTINUED)**********

  6 ADDHYD 4 050   1 2 4                                          1
  6 RUNOFF 1 053       1 0.1455      85.8        0.8340           1 EWTRFT
  6 RESVOR 2    15 1   2 1373.0                                   1
HOTELPND
  6 ADDHYD 4 054   2 4 3                                          1
  6 RUNOFF 1 055       2 0.1614      92.2        0.5739           1
  6 ADDHYD 4 060   2 3 1                                          1
  6 RUNOFF 1 065       3 0.3483      86.8        1.0448           1
  6 ADDHYD 4 070   1 3 2                                          1
  6 RESVOR 2    18 2   1 1368.7                                   1
BEECHLKE
    ENDATA
  7 INCREM 6             0.10
  7 COMPUT 7 005      18 0.0         3.50        1.0         2 2  11  01
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         4.55        1.0         2 2  12  02
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         5.25        1.0         2 2  13  03
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         6.98        1.0         2 2  13  04
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         7.80        1.0         2 2  14  05
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         9.35        1.0         2 2  15  06
    ENDCMP 1
    ENDJOB 2

 **********END OF 80-80 LIST**********
1
```

DIMENSIONLESS HYDROGRAPH TABLE ENTERED

8	.0000	.0300	.1000	.1900	.3100
8	.4700	.6600	.8200	.9300	.9900
8	1.0000	.9900	.9300	.8600	.7800
8	.6800	.5600	.4600	.3900	.3300
8	.2800	.2410	.2070	.1740	.1470
8	.1260	.1070	.0910	.0770	.0660
8	.0550	.0470	.0400	.0340	.0290
8	.0250	.0210	.0180	.0150	.0130
8	.0110	.0090	.0080	.0070	.0060
8	.0050	.0040	.0030	.0020	.0010
8	.0000	.0000	.0000	.0000	.0000

9 ENDTBL

COMPUTED TIME INCREMENT = .0200

COMPUTED PEAK RATE FACTOR = 484.000

1

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .100 HOURS

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 3.50 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =11 STORM NO. = 1 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	219.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.34 WATERSHED INCHES; 295 CFS-HRS; 24.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	188.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.46 WATERSHED INCHES; 248 CFS-HRS; 20.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	407.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.39 WATERSHED INCHES; 543 CFS-HRS; 44.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	210.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.50 WATERSHED INCHES; 264 CFS-HRS; 21.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	616.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.42 WATERSHED INCHES; 807 CFS-HRS; 66.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.38	515.1	1375.15

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.42 WATERSHED INCHES; 807 CFS-HRS; 66.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .40 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0528 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	75.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.97 WATERSHED INCHES; 83 CFS-HRS; 6.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	554.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.47 WATERSHED INCHES; 890 CFS-HRS; 73.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 53
OUTPUT HYDROGRAPH = 1 AREA = .15 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = .83 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0910 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.39	118.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.08 WATERSHED INCHES; 195 CFS-HRS; 16.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 1 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.61	99.6	1374.60

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.08 WATERSHED INCHES; 195 CFS-HRS; 16.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,4 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.39	628.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.39 WATERSHED INCHES; 1085 CFS-HRS; 89.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 92. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	208.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.65 WATERSHED INCHES; 276 CFS-HRS; 22.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.34	809.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.44 WATERSHED INCHES; 1362 CFS-HRS; 112.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.52	254.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.16 WATERSHED INCHES; 486 CFS-HRS; 40.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	1039.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.36 WATERSHED INCHES; 1848 CFS-HRS; 152.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.52	221.1	1370.13

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.36 WATERSHED INCHES; 1848 CFS-HRS; 152.7 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 4.55 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =12 STORM NO. = 2 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	309.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.32 WATERSHED INCHES; 419 CFS-HRS; 34.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	263.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.45 WATERSHED INCHES; 349 CFS-HRS; 28.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	572.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.38 WATERSHED INCHES; 767 CFS-HRS; 63.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	291.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.50 WATERSHED INCHES; 370 CFS-HRS; 30.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	861.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.42 WATERSHED INCHES; 1137 CFS-HRS; 94.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.40	677.3	1375.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.42 WATERSHED INCHES; 1138 CFS-HRS; 94.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .40 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0528 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	99.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.01 WATERSHED INCHES; 112 CFS-HRS; 9.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	724.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.46 WATERSHED INCHES; 1249 CFS-HRS; 103.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 53
OUTPUT HYDROGRAPH = 1 AREA = .15 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = .83 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0910 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.39	171.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.03 WATERSHED INCHES; 284 CFS-HRS; 23.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 1 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.58	150.0	1374.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.03 WATERSHED INCHES; 284 CFS-HRS; 23.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,4 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.41	854.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.37 WATERSHED INCHES; 1533 CFS-HRS; 126.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 92. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	285.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.67 WATERSHED INCHES; 382 CFS-HRS; 31.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.32	1100.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.43 WATERSHED INCHES; 1915 CFS-HRS; 158.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.51	364.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.12 WATERSHED INCHES; 702 CFS-HRS; 58.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	1431.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.34 WATERSHED INCHES; 2617 CFS-HRS; 216.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.33	389.5	1370.68

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.34 WATERSHED INCHES; 2617 CFS-HRS; 216.3 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 5.25 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =13 STORM NO. = 3 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	368.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.99 WATERSHED INCHES; 502 CFS-HRS; 41.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	313.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.12 WATERSHED INCHES; 417 CFS-HRS; 34.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	681.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.05 WATERSHED INCHES; 919 CFS-HRS; 76.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	344.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.18 WATERSHED INCHES; 442 CFS-HRS; 36.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	1023.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.09 WATERSHED INCHES; 1361 CFS-HRS; 112.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.42	776.9	1376.50

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.09 WATERSHED INCHES; 1361 CFS-HRS; 112.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .40 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0528 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	117.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.70 WATERSHED INCHES; 131 CFS-HRS; 10.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.36	829.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.14 WATERSHED INCHES; 1492 CFS-HRS; 123.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 53
OUTPUT HYDROGRAPH = 1 AREA = .15 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = .83 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0910 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.38	208.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.68 WATERSHED INCHES; 345 CFS-HRS; 28.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 1 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.60	174.1	1375.16

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.68 WATERSHED INCHES; 345 CFS-HRS; 28.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,4 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.41	989.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.04 WATERSHED INCHES; 1837 CFS-HRS; 151.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 92. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	336.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 453 CFS-HRS; 37.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.32	1281.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.10 WATERSHED INCHES; 2290 CFS-HRS; 189.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.51	441.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.78 WATERSHED INCHES; 850 CFS-HRS; 70.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	1680.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.01 WATERSHED INCHES; 3141 CFS-HRS; 259.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.26	511.2	1371.03

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.01 WATERSHED INCHES; 3141 CFS-HRS; 259.5 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 3
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 6.98 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =13 STORM NO. = 4 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	515.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 713 CFS-HRS; 58.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	433.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.81 WATERSHED INCHES; 587 CFS-HRS; 48.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	948.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.73 WATERSHED INCHES; 1300 CFS-HRS; 107.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	478.2	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.87 WATERSHED INCHES; 620 CFS-HRS; 51.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	1424.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.77 WATERSHED INCHES; 1921 CFS-HRS; 158.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.45	981.5	1377.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.77 WATERSHED INCHES; 1920 CFS-HRS; 158.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .40 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0528 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	156.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.41 WATERSHED INCHES; 179 CFS-HRS; 14.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.38	1044.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.82 WATERSHED INCHES; 2100 CFS-HRS; 173.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 53
OUTPUT HYDROGRAPH = 1 AREA = .15 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = .83 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0910 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	297.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.31 WATERSHED INCHES; 499 CFS-HRS; 41.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 1 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.63	234.4	1375.77

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.32 WATERSHED INCHES; 499 CFS-HRS; 41.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,4 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.44	1256.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.72 WATERSHED INCHES; 2599 CFS-HRS; 214.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 92. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	461.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.06 WATERSHED INCHES; 631 CFS-HRS; 52.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.31	1647.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.78 WATERSHED INCHES; 3230 CFS-HRS; 266.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	628.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.43 WATERSHED INCHES; 1221 CFS-HRS; 100.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.38	2221.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.68 WATERSHED INCHES; 4451 CFS-HRS; 367.8 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.14	972.0	1371.72

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.68 WATERSHED INCHES; 4449 CFS-HRS; 367.7 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 4
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 7.80 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =14 STORM NO. = 5 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	585.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.46 WATERSHED INCHES; 814 CFS-HRS; 67.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	491.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.61 WATERSHED INCHES; 668 CFS-HRS; 55.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	1076.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.53 WATERSHED INCHES; 1483 CFS-HRS; 122.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	537.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 706 CFS-HRS; 58.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	1610.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.58 WATERSHED INCHES; 2188 CFS-HRS; 180.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.46	1071.4	1378.31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.57 WATERSHED INCHES; 2188 CFS-HRS; 180.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .40 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0528 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	174.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.23 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.40	1139.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.63 WATERSHED INCHES; 2390 CFS-HRS; 197.5 ACRE-FEET.

1

OPERATION RUNOFF XSECTION 53
OUTPUT HYDROGRAPH = 1 AREA = .15 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = .83 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0910 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.38	340.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.11 WATERSHED INCHES; 574 CFS-HRS; 47.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 1 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.64	262.8	1376.08

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.11 WATERSHED INCHES; 574 CFS-HRS; 47.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,4 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.46	1379.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.52 WATERSHED INCHES; 2964 CFS-HRS; 244.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 92. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	518.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.86 WATERSHED INCHES; 715 CFS-HRS; 59.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.31	1809.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.58 WATERSHED INCHES; 3678 CFS-HRS; 304.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	715.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.22 WATERSHED INCHES; 1399 CFS-HRS; 115.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.38	2467.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.48 WATERSHED INCHES; 5077 CFS-HRS; 419.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

*** WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 18,
VALUE EXTRAPOLATED. ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.14	1171.4	1372.02

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.48 WATERSHED INCHES; 5077 CFS-HRS; 419.6 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 5
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 9.35 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =15 STORM NO. = 6 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	716.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.98 WATERSHED INCHES; 1006 CFS-HRS; 83.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	601.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.15 WATERSHED INCHES; 823 CFS-HRS; 68.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	1317.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.05 WATERSHED INCHES; 1829 CFS-HRS; 151.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	654.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.20 WATERSHED INCHES; 867 CFS-HRS; 71.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	1968.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.10 WATERSHED INCHES; 2696 CFS-HRS; 222.8 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.49	1224.3	1379.30

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.10 WATERSHED INCHES; 2696 CFS-HRS; 222.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .40 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0528 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	210.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.78 WATERSHED INCHES; 245 CFS-HRS; 20.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.42	1300.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.15 WATERSHED INCHES; 2941 CFS-HRS; 243.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 53
OUTPUT HYDROGRAPH = 1 AREA = .15 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = .83 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0910 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	420.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.61 WATERSHED INCHES; 715 CFS-HRS; 59.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 1 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.67	308.7	1376.69

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.61 WATERSHED INCHES; 715 CFS-HRS; 59.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,4 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.48	1585.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.04 WATERSHED INCHES; 3655 CFS-HRS; 302.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 92. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	626.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.40 WATERSHED INCHES; 875 CFS-HRS; 72.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.31	2106.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.11 WATERSHED INCHES; 4530 CFS-HRS; 374.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	878.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.74 WATERSHED INCHES; 1739 CFS-HRS; 143.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.38	2913.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.00 WATERSHED INCHES; 6269 CFS-HRS; 518.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

*** WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 18,
VALUE EXTRAPOLATED. ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.14	1526.5	1372.55

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.00 WATERSHED INCHES; 6270 CFS-HRS; 518.2 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 6
1

1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
RAINFALL OF 3.50 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .100 HOURS							
ALTERNATE 11 STORM 1							
XSECTION 5	RUNOFF	.20	2.34	---	12.24	219	1095.0
XSECTION 25	RUNOFF	.16	2.46	---	12.22	189	1181.3
XSECTION 30	ADDHYD	.35	2.39	---	12.23	408	1165.7
XSECTION 35	RUNOFF	.16	2.50	---	12.20	210	1312.5
XSECTION 40	ADDHYD	.52	2.42	---	12.22	617	1186.5
STRUCTURE 10	RESVOR	.52	2.42	1375.15	12.38	515	990.4
XSECTION 45	RUNOFF	.04	2.97	---	12.11	76	1900.0
XSECTION 50	ADDHYD	.56	2.47	---	12.35	554	989.3
XSECTION 53	RUNOFF	.15	2.08	---	12.39	118	786.7
STRUCTURE 15	RESVOR	.15	2.08	1374.60	12.61	100	666.7
XSECTION 54	ADDHYD	.70	2.39	---	12.39	629	898.6
XSECTION 55	RUNOFF	.16	2.65	---	12.22	209	1306.3
XSECTION 60	ADDHYD	.87	2.44	---	12.34	809	929.9
XSECTION 65	RUNOFF	.35	2.16	---	12.52	254	725.7
XSECTION 70	ADDHYD	1.21	2.36	---	12.37	1040	859.5
STRUCTURE 18	RESVOR	1.21	2.36	1370.13	13.52	221	182.6
RAINFALL OF 4.55 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 12 STORM 2							
XSECTION 5	RUNOFF	.20	3.32	---	12.23	309	1545.0
XSECTION 25	RUNOFF	.16	3.45	---	12.22	263	1643.8
XSECTION 30	ADDHYD	.35	3.38	---	12.22	572	1634.3
XSECTION 35	RUNOFF	.16	3.50	---	12.19	291	1818.8
XSECTION 40	ADDHYD	.52	3.42	---	12.21	861	1655.8
STRUCTURE 10	RESVOR	.52	3.42	1375.94	12.40	677	1301.9
XSECTION 45	RUNOFF	.04	4.01	---	12.11	100	2500.0

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 12 STORM 2							
XSECTION 50	ADDHYD	.56	3.46	---	12.35	725	1294.6
XSECTION 53	RUNOFF	.15	3.03	---	12.39	172	1146.7
STRUCTURE 15	RESVOR	.15	3.03	1374.94	12.58	150	1000.0
XSECTION 54	ADDHYD	.70	3.37	---	12.41	855	1221.4
XSECTION 55	RUNOFF	.16	3.67	---	12.22	285	1781.3
XSECTION 60	ADDHYD	.87	3.43	---	12.32	1100	1264.4
XSECTION 65	RUNOFF	.35	3.12	---	12.51	365	1042.9
XSECTION 70	ADDHYD	1.21	3.34	---	12.37	1431	1182.6
STRUCTURE 18	RESVOR	1.21	3.34	1370.68	13.33	390	322.3
RAINFALL OF 5.25 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 13 STORM 3							
XSECTION 5	RUNOFF	.20	3.99	---	12.23	369	1845.0
XSECTION 25	RUNOFF	.16	4.12	---	12.22	313	1956.3
XSECTION 30	ADDHYD	.35	4.05	---	12.22	682	1948.6
XSECTION 35	RUNOFF	.16	4.18	---	12.19	344	2150.0
XSECTION 40	ADDHYD	.52	4.09	---	12.21	1024	1969.2
STRUCTURE 10	RESVOR	.52	4.09	1376.50	12.42	777	1494.2
XSECTION 45	RUNOFF	.04	4.70	---	12.11	117	2925.0
XSECTION 50	ADDHYD	.56	4.14	---	12.36	829	1480.4
XSECTION 53	RUNOFF	.15	3.68	---	12.38	208	1386.7
STRUCTURE 15	RESVOR	.15	3.68	1375.16	12.60	174	1160.0
XSECTION 54	ADDHYD	.70	4.04	---	12.41	990	1414.3
XSECTION 55	RUNOFF	.16	4.35	---	12.21	336	2100.0
XSECTION 60	ADDHYD	.87	4.10	---	12.32	1281	1472.4
XSECTION 65	RUNOFF	.35	3.78	---	12.51	442	1262.9
XSECTION 70	ADDHYD	1.21	4.01	---	12.37	1680	1388.4
STRUCTURE 18	RESVOR	1.21	4.01	1371.03	13.26	511	422.3

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
RAINFALL OF 6.98 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 13 STORM 4							
XSECTION 5	RUNOFF	.20	5.66	---	12.23	516	2580.0
XSECTION 25	RUNOFF	.16	5.81	---	12.21	434	2712.5
XSECTION 30	ADDHYD	.35	5.73	---	12.22	949	2711.4
XSECTION 35	RUNOFF	.16	5.87	---	12.19	478	2987.5
XSECTION 40	ADDHYD	.52	5.77	---	12.21	1424	2738.5
STRUCTURE 10	RESVOR	.52	5.77	1377.75	12.45	981	1886.5
XSECTION 45	RUNOFF	.04	6.41	---	12.11	156	3900.0
XSECTION 50	ADDHYD	.56	5.82	---	12.38	1045	1866.1
XSECTION 53	RUNOFF	.15	5.31	---	12.37	298	1986.7
STRUCTURE 15	RESVOR	.15	5.32	1375.77	12.63	234	1560.0
XSECTION 54	ADDHYD	.70	5.72	---	12.44	1256	1794.3
XSECTION 55	RUNOFF	.16	6.06	---	12.21	462	2887.5
XSECTION 60	ADDHYD	.87	5.78	---	12.31	1647	1893.1
XSECTION 65	RUNOFF	.35	5.43	---	12.50	629	1797.1
XSECTION 70	ADDHYD	1.21	5.68	---	12.38	2221	1835.5
STRUCTURE 18	RESVOR	1.21	5.68	1371.72	13.14	972	803.3
RAINFALL OF 7.80 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 14 STORM 5							
XSECTION 5	RUNOFF	.20	6.46	---	12.23	586	2930.0
XSECTION 25	RUNOFF	.16	6.61	---	12.21	491	3068.8
XSECTION 30	ADDHYD	.35	6.53	---	12.22	1077	3077.1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 14 STORM 5							
XSECTION 35	RUNOFF	.16	6.68	---	12.19	537	3356.3
XSECTION 40	ADDHYD	.52	6.58	---	12.21	1611	3098.1
STRUCTURE 10	RESVOR	.52	6.57	1378.31	12.46	1071	2059.6
XSECTION 45	RUNOFF	.04	7.23	---	12.11	175	4375.0
XSECTION 50	ADDHYD	.56	6.63	---	12.40	1139	2033.9
XSECTION 53	RUNOFF	.15	6.11	---	12.38	340	2266.7
STRUCTURE 15	RESVOR	.15	6.11	1376.08	12.64	263	1753.3
XSECTION 54	ADDHYD	.70	6.52	---	12.46	1380	1971.4
XSECTION 55	RUNOFF	.16	6.86	---	12.21	518	3237.5
XSECTION 60	ADDHYD	.87	6.58	---	12.31	1809	2079.3
XSECTION 65	RUNOFF	.35	6.22	---	12.50	715	2042.9
XSECTION 70	ADDHYD	1.21	6.48	---	12.38	2467	2038.8
STRUCTURE 18	RESVOR	1.21	6.48	1372.02	13.14	1171	967.8
RAINFALL OF 9.35 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 15 STORM 6							
XSECTION 5	RUNOFF	.20	7.98	---	12.23	716	3580.0
XSECTION 25	RUNOFF	.16	8.15	---	12.21	601	3756.3
XSECTION 30	ADDHYD	.35	8.05	---	12.22	1317	3762.9
XSECTION 35	RUNOFF	.16	8.20	---	12.19	654	4087.5
XSECTION 40	ADDHYD	.52	8.10	---	12.21	1969	3786.5
STRUCTURE 10	RESVOR	.52	8.10	1379.30	12.49	1224	2353.8
XSECTION 45	RUNOFF	.04	8.78	---	12.11	211	5275.0
XSECTION 50	ADDHYD	.56	8.15	---	12.42	1300	2321.4
XSECTION 53	RUNOFF	.15	7.61	---	12.37	421	2806.7
STRUCTURE 15	RESVOR	.15	7.61	1376.69	12.67	309	2060.0
XSECTION 54	ADDHYD	.70	8.04	---	12.48	1585	2264.3
XSECTION 55	RUNOFF	.16	8.40	---	12.21	626	3912.5
XSECTION 60	ADDHYD	.87	8.11	---	12.31	2106	2420.7

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 15 STORM 6							
XSECTION 65	RUNOFF	.35	7.74	---	12.50	879	2511.4
XSECTION 70	ADDHYD	1.21	8.00	---	12.38	2913	2407.4
STRUCTURE 18	RESVOR	1.21	8.00	1372.55	13.14	1527	1262.0

1

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
STRUCTURE 18		1.21					
ALTERNATE	11		221	*********	*********	*********	*********
ALTERNATE	12		*********	390	*********	*********	*********
ALTERNATE	13		*********	*********	511	972	*********
ALTERNATE	14		*********	*********	*********	*********	1171
STRUCTURE 15		.15					
ALTERNATE	11		100	*********	*********	*********	*********
ALTERNATE	12		*********	150	*********	*********	*********
ALTERNATE	13		*********	*********	174	234	*********
ALTERNATE	14		*********	*********	*********	*********	263
STRUCTURE 10		.52					
ALTERNATE	11		515	*********	*********	*********	*********
ALTERNATE	12		*********	677	*********	*********	*********
ALTERNATE	13		*********	*********	777	981	*********
ALTERNATE	14		*********	*********	*********	*********	1071
XSECTION 5		.20					
ALTERNATE	11		219	*********	*********	*********	*********
ALTERNATE	12		*********	309	*********	*********	*********
ALTERNATE	13		*********	*********	369	516	*********
ALTERNATE	14		*********	*********	*********	*********	586
XSECTION 25		.16					
ALTERNATE	11		189	*********	*********	*********	*********
ALTERNATE	12		*********	263	*********	*********	*********
ALTERNATE	13		*********	*********	313	434	*********
ALTERNATE	14		*********	*********	*********	*********	491
XSECTION 30		.35					
ALTERNATE	11		408	*********	*********	*********	*********
ALTERNATE	12		*********	572	*********	*********	*********
ALTERNATE	13		*********	*********	682	949	*********
ALTERNATE	14		*********	*********	*********	*********	1077

```
 XSECTION   35          .16
 ---------------------------
    ALTERNATE   11               210 ********* ********* ********* *********
    ALTERNATE   12          *********       291 ********* ********* *********
    ALTERNATE   13          ********* *********       344       478 *********
1
```

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
XSECTION 35	.16					
ALTERNATE 14		*********	*********	*********	*********	537
XSECTION 40	.52					
ALTERNATE 11		617	*********	*********	*********	*********
ALTERNATE 12		*********	861	*********	*********	*********
ALTERNATE 13		*********	*********	1024	1424	*********
ALTERNATE 14		*********	*********	*********	*********	1611
XSECTION 45	.04					
ALTERNATE 11		76	*********	*********	*********	*********
ALTERNATE 12		*********	100	*********	*********	*********
ALTERNATE 13		*********	*********	117	156	*********
ALTERNATE 14		*********	*********	*********	*********	175
XSECTION 50	.56					
ALTERNATE 11		554	*********	*********	*********	*********
ALTERNATE 12		*********	725	*********	*********	*********
ALTERNATE 13		*********	*********	829	1045	*********
ALTERNATE 14		*********	*********	*********	*********	1139
XSECTION 53	.15					
ALTERNATE 11		118	*********	*********	*********	*********
ALTERNATE 12		*********	172	*********	*********	*********
ALTERNATE 13		*********	*********	208	298	*********
ALTERNATE 14		*********	*********	*********	*********	340
XSECTION 54	.70					
ALTERNATE 11		629	*********	*********	*********	*********
ALTERNATE 12		*********	855	*********	*********	*********
ALTERNATE 13		*********	*********	990	1256	*********
ALTERNATE 14		*********	*********	*********	*********	1380
XSECTION 55	.16					

```
    ALTERNATE   11                209 ********* ********* ********* *********
    ALTERNATE   12            ********       285 ********* ********* *********
    ALTERNATE   13            ********* *********       336       462 *********
    ALTERNATE   14            ********* ********* ********* *********       518

 XSECTION   60          .87
 ---------------------------
    ALTERNATE   11                809 ********* ********* ********* *********
1
```

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
XSECTION 60	.87					
ALTERNATE 12		*********	1100	*********	*********	*********
ALTERNATE 13		*********	*********	1281	1647	*********
ALTERNATE 14		*********	*********	*********	*********	1809
XSECTION 65	.35					
ALTERNATE 11		254	*********	*********	*********	*********
ALTERNATE 12		*********	365	*********	*********	*********
ALTERNATE 13		*********	*********	442	629	*********
ALTERNATE 14		*********	*********	*********	*********	715
XSECTION 70	1.21					
ALTERNATE 11		1040	*********	*********	*********	*********
ALTERNATE 12		*********	1431	*********	*********	*********
ALTERNATE 13		*********	*********	1680	2221	*********
ALTERNATE 14		*********	*********	*********	*********	2467

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 6
STRUCTURE 18	1.21	
ALTERNATE 15		1527
STRUCTURE 15	.15	
ALTERNATE 15		309
STRUCTURE 10	.52	
ALTERNATE 15		1224

```
 XSECTION    5          .20
 ---------------------------
    ALTERNATE   15                716

 XSECTION   25          .16
 ---------------------------
    ALTERNATE   15                601

 XSECTION   30          .35
 ---------------------------
    ALTERNATE   15               1317

 XSECTION   35          .16
 ---------------------------
    ALTERNATE   15                654

 XSECTION   40          .52
 ---------------------------
    ALTERNATE   15               1969
1
```

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 6
XSECTION 45	.04	
ALTERNATE 15		211
XSECTION 50	.56	
ALTERNATE 15		1300
XSECTION 53	.15	
ALTERNATE 15		421
XSECTION 54	.70	
ALTERNATE 15		1585
XSECTION 55	.16	
ALTERNATE 15		626
XSECTION 60	.87	
ALTERNATE 15		2106
XSECTION 65	.35	
ALTERNATE 15		879
XSECTION 70	1.21	
ALTERNATE 15		2913

TR20 ---------- SCS -
WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
03/01/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST

END OF 1 JOBS IN THIS RUN

SCS TR-20, VERSION 2.04TEST
FILES

INPUT = wtrftc.t20 , GIVEN DATA FILE
OUTPUT = wtrftc.OUT , DATED 03/01/**,11:47:03

FILES GENERATED - DATED 03/01/**,11:47:03

NONE!

TOTAL NUMBER OF WARNINGS = 2, MESSAGES = 0

*** TR-20 RUN COMPLETED ***

Appendix I
Current Time of Concentration and Curve Number Calculations

Time of Concentration Calculations by the FAA method

The Waterfront Addition - Current Conditions Calcuations

$$T_c = \frac{(1.1-C)L^{1/2}}{100\ S^{1/3}}$$

Area Name	Land Use	Soil Group	Maximum Elevation	Minimum Elevation	Length (L)	Rational Runoff Coefficient, C				Time of Concentration (min), T_c				Time of Concentration (hr), T_c				CN
						2-Year	5-Year	10-Year	100-Year	2-Year	5-Year	10-Year	100-Year	2-Year	5-Year	10-Year	100-Year	
005	*Business - Neighborhood*	*D*	*1405.0*	*1375.0*	*3800*	0.68	0.69	0.73	0.80	50.4	49.2	44.4	36.0	0.8404	0.8204	0.7403	0.6003	88.8
025	*Business - Neighborhood*	*D*	*1405.0*	*1375.0*	*3600*	0.68	0.69	0.73	0.80	48.2	47.1	42.5	34.4	0.8034	0.7842	0.7077	0.5738	90.1
035	*Business - Neighborhood*	*D*	*1390.0*	*1370.0*	*2800*	0.68	0.69	0.73	0.80	44.8	43.7	39.4	32.0	0.7459	0.7281	0.6571	0.5328	90.6
045	*Business - Neighborhood*	*D*	*1390.0*	*1369.0*	*2000*	0.68	0.69	0.73	0.80	33.3	32.5	29.3	23.8	0.5544	0.5412	0.4884	0.3960	95.3
053	*Undeveloped Urban*	*D*	*1390.0*	*1373.0*	*3000*	0.52	0.54	0.59	0.68	69.1	66.7	60.8	50.0	1.1517	1.1120	1.0127	0.8340	85.8
055	*Business - Neighborhood*	*B*	*1385.0*	*1369.0*	*2800*	0.68	0.69	0.73	0.80	48.2	47.1	42.5	34.4	0.8034	0.7843	0.7078	0.5739	92.2
065	*Undeveloped Urban*	*D*	*1400.0*	*1369.0*	*5000*	0.52	0.54	0.59	0.68	86.6	83.6	76.1	62.7	1.4429	1.3931	1.2687	1.0448	86.8

Project Name: The Waterfront Addition - Current Conditions
Project Number: 02014
Basin: TR-20 005

Total Area = 125.0 Acres
Total Area = 0.1953 sq. mi.
Composite Curve Number = 88.77

Land Use	Percent Impervious	Area/CN Hydrological Soil Group			
		A	B	C	D
Cultivated land without conservation treatment	0	72	81	88	91
Cultivated land with conservation treatement	0	62	71	78	81
Pasture or range land - poor condition	0	68	79	86	89
Pasture or range land - good condition	0	39	61	74	80
Meadow - good condition	0	30	58	71	78
Wood or Forest land - thin stand, poor cover, no mulch	0	45	66	77	83
Wood or Forest land - good cover	0	25	55	70	77
Open spaces - good condition - grass cover on 75% or more of area	0	39	61	74	80
Open spaces - fair condition - grass cover on 50-75% of area	0	49	69	79	20.2 84
Commercial and business	85	89	92	94	26.4 95
Industrial	72	81	88	91	93
Residential - 1/8 acre or less	65	77	85	90	14.1 92
Residential - 1/4 acre	38	61	75	83	64.2 87
Residentail - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residentail - 1 acre	20	51	68	79	84
Paved Parking lots, roofs, driveways, etc.	-	98	98	98	98
Streets and roads - paved with curbs and storm sewers	-	98	98	98	98
Streets and roads - gravel	-	76	85	89	91
Streets and roads - dirt	-	72	82	87	89
Lake/Pond	100	100	100	100	100

Project Name: The Waterfront Addition - Current Conditions
Project Number: 02014
Basin: TR-20 025

Total Area = 100.2 Acres
Total Area = 0.1566 sq. mi.
Composite Curve Number = 90.14

Land Use	Percent Impervious	Area/CN Hydrological Soil Group			
		A	B	C	D
Cultivated land without conservation treatment	0	72	81	88	91
Cultivated land with conservation treatement	0	62	71	78	81
Pasture or range land - poor condition	0	68	79	86	89
Pasture or range land - good condition	0	39	61	74	80
Meadow - good condition	0	30	58	71	78
Wood or Forest land - thin stand, poor cover, no mulch	0	45	66	77	83
Wood or Forest land - good cover	0	25	55	70	77
Open spaces - good condition - grass cover on 75% or more of area	0	39	61	74	80
Open spaces - fair condition - grass cover on 50-75% of area	0	49	69	79	84
Commercial and business	85	89	92	94	39.3 95
Industrial	72	81	88	91	93
Residential - 1/8 acre or less	65	77	85	90	92
Residential - 1/4 acre	38	61	75	83	60.9 87
Residentail - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residentail - 1 acre	20	51	68	79	84
Paved Parking lots, roofs, driveways, etc.	-	98	98	98	98
Streets and roads - paved with curbs and storm sewers	-	98	98	98	98
Streets and roads - gravel	-	76	85	89	91
Streets and roads - dirt	-	72	82	87	89
Lake/Pond	100	100	100	100	100

Project Name: The Waterfront Addition - Current Conditions
Project Number: 02014
Basin: TR-20 035

Total Area = 104.8 Acres
Total Area = 0.1638 sq. mi.
Composite Curve Number = 90.62

Land Use	Percent Impervious	Area/CN Hydrological Soil Group			
		A	B	C	D
Cultivated land without conservation treatment	0				
		72	81	88	91
Cultivated land with conservation treatement	0				
		62	71	78	81
Pasture or range land - poor condition	0				
		68	79	86	89
Pasture or range land - good condition	0				
		39	61	74	80
Meadow - good condition	0				
		30	58	71	78
Wood or Forest land - thin stand, poor cover, no mulch	0				
		45	66	77	83
Wood or Forest land - good cover	0				
		25	55	70	77
Open spaces - good condition - grass cover on 75% or more of area	0				
		39	61	74	80
Open spaces - fair condition - grass cover on 50-75% of area	0				17.9
		49	69	79	84
Commercial and business	85				50.5
		89	92	94	95
Industrial	72				
		81	88	91	93
Residential - 1/8 acre or less	65				
		77	85	90	92
Residential - 1/4 acre	38				34.2
		61	75	83	87
Residentail - 1/3 acre	30				
		57	72	81	86
Residential - 1/2 acre	25				
		54	70	80	85
Residentail - 1 acre	20				
		51	68	79	84
Paved Parking lots, roofs, driveways, etc.	-				
		98	98	98	98
Streets and roads - paved with curbs and storm sewers	-				
		98	98	98	98
Streets and roads - gravel	-				
		76	85	89	91
Streets and roads - dirt	-				
		72	82	87	89
Lake/Pond	100				2.2
		100	100	100	100

Project Name: The Waterfront Addition - Current Conditions
Project Number: 02014
Basin: TR-20 045

Total Area = 27.6 Acres
Total Area = 0.0431 sq. mi.
Composite Curve Number = 95.33

Land Use	Percent Impervious	Area/CN Hydrological Soil Group			
		A	B	C	D
Cultivated land without conservation treatment	0	72	81	88	91
Cultivated land with conservation treatement	0	62	71	78	81
Pasture or range land - poor condition	0	68	79	86	89
Pasture or range land - good condition	0	39	61	74	80
Meadow - good condition	0	30	58	71	78
Wood or Forest land - thin stand, poor cover, no mulch	0	45	66	77	83
Wood or Forest land - good cover	0	25	55	70	77
Open spaces - good condition - grass cover on 75% or more of area	0	39	61	74	80
Open spaces - fair condition - grass cover on 50-75% of area	0	49	69	79	84
Commercial and business	85	89	92	94	25.8 95
Industrial	72	81	88	91	93
Residential - 1/8 acre or less	65	77	85	90	92
Residential - 1/4 acre	38	61	75	83	87
Residentail - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residentail - 1 acre	20	51	68	79	84
Paved Parking lots, roofs, driveways, etc.	-	98	98	98	98
Streets and roads - paved with curbs and storm sewers	-	98	98	98	98
Streets and roads - gravel	-	76	85	89	91
Streets and roads - dirt	-	72	82	87	89
Lake/Pond	100	100	100	100	1.8 100

Project Name: The Waterfront Addition - Current Conditions
Project Number: 02014
Basin: TR-20 055

Total Area = 93.1 Acres
Total Area = 0.1455 sq. mi.
Composite Curve Number = 85.77

Land Use	Percent Impervious	Area/CN Hydrological Soil Group			
		A	B	C	D
Cultivated land without conservation treatment	0	72	81	88	91
Cultivated land with conservation treatement	0	62	71	78	81
Pasture or range land - poor condition	0	68	79	86	89
Pasture or range land - good condition	0	39	61	74	80
Meadow - good condition	0	30	58	71	78
Wood or Forest land - thin stand, poor cover, no mulch	0	45	66	77	83
Wood or Forest land - good cover	0	25	55	70	77
Open spaces - good condition - grass cover on 75% or more of area	0	39	61	74	80
Open spaces - fair condition - grass cover on 50-75% of area	0	49	69	79	79.4 84
Commercial and business	85	89	92	94	10.9 95
Industrial	72	81	88	91	93
Residential - 1/8 acre or less	65	77	85	90	92
Residential - 1/4 acre	38	61	75	83	87
Residentail - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residentail - 1 acre	20	51	68	79	84
Paved Parking lots, roofs, driveways, etc.	-	98	98	98	98
Streets and roads - paved with curbs and storm sewers	-	98	98	98	98
Streets and roads - gravel	-	76	85	89	91
Streets and roads - dirt	-	72	82	87	89
Lake/Pond	100	100	100	100	2.8 100

Project Name: The Waterfront Addition - Current Conditions
Project Number: 02014
Basin: TR-20 055

Total Area = 103.3 Acres
Total Area = 0.1614 sq. mi.
Composite Curve Number = 92.19

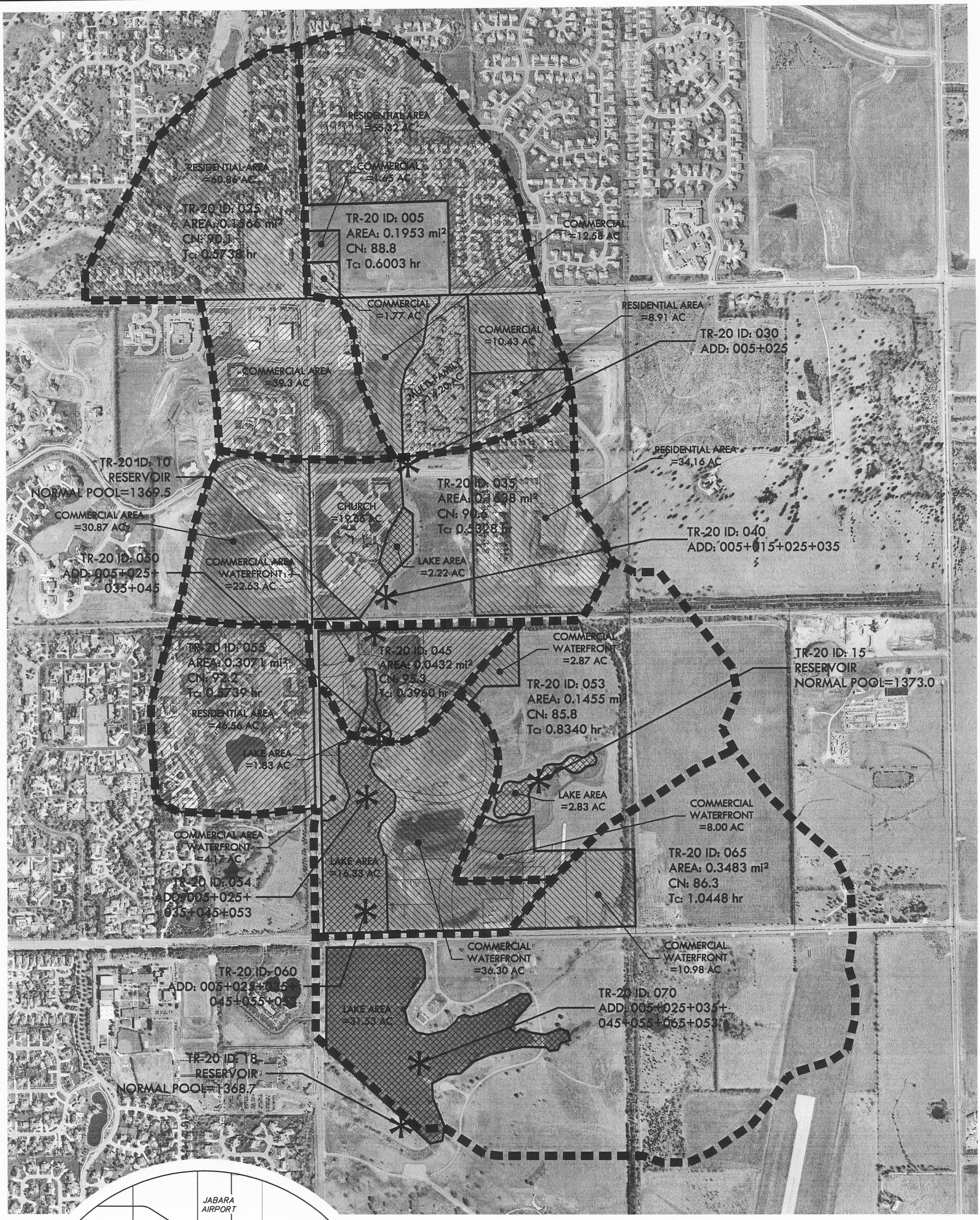
Land Use	Percent Impervious	Area/CN Hydrological Soil Group			
		A	B	C	D
Cultivated land without conservation treatment	0	72	81	88	91
Cultivated land with conservation treatement	0	62	71	78	81
Pasture or range land - poor condition	0	68	79	86	89
Pasture or range land - good condition	0	39	61	74	80
Meadow - good condition	0	30	58	71	78
Wood or Forest land - thin stand, poor cover, no mulch	0	45	66	77	83
Wood or Forest land - good cover	0	25	55	70	77
Open spaces - good condition - grass cover on 75% or more of area	0	39	61	74	80
Open spaces - fair condition - grass cover on 50-75% of area	0	49	69	79	84
Commercial and business	85	89	92	94	40.5 95
Industrial	72	81	88	91	93
Residential - 1/8 acre or less	65	77	85	90	92
Residential - 1/4 acre	38	61	75	83	46.5 87
Residentail - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residentail - 1 acre	20	51	68	79	84
Paved Parking lots, roofs, driveways, etc.	-	98	98	98	98
Streets and roads - paved with curbs and storm sewers	-	98	98	98	98
Streets and roads - gravel	-	76	85	89	91
Streets and roads - dirt	-	72	82	87	89
Lake/Pond	100	100	100	100	16.3 100

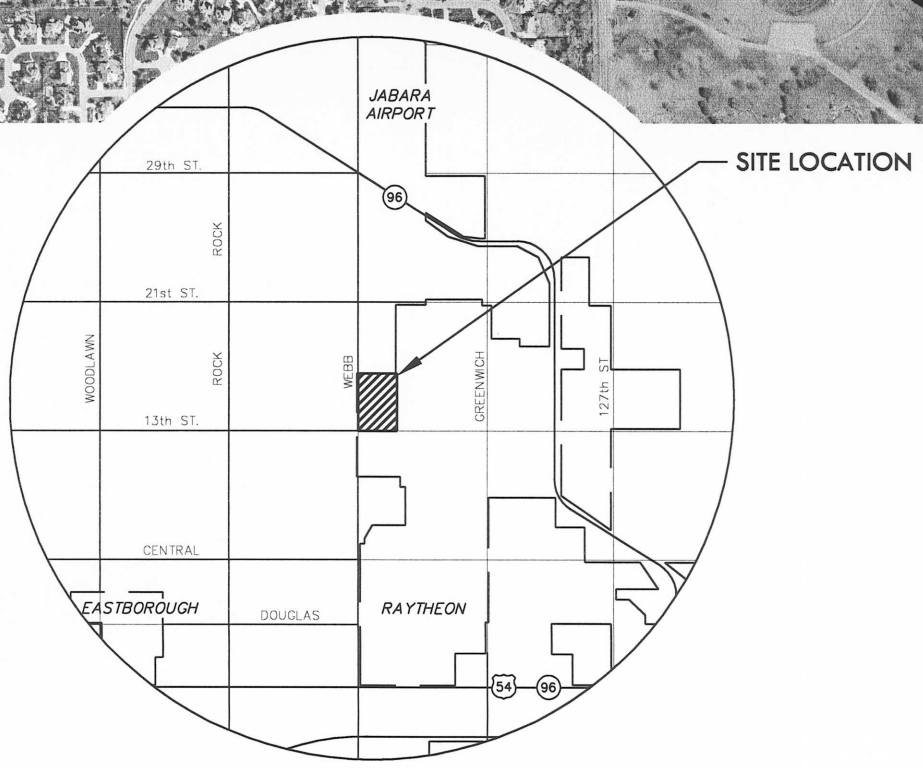
Project Name: The Waterfront Addition - Current Conditions
Project Number: 02014
Basin: TR-20 065

Total Area = 222.9 Acres
Total Area = 0.3483 sq. mi.
Composite Curve Number = 86.80

Land Use	Percent Impervious	Area/CN Hydrological Soil Group			
		A	B	C	D
Cultivated land without conservation treatment	0	72	81	88	91
Cultivated land with conservation treatement	0	62	71	78	81
Pasture or range land - poor condition	0	68	79	86	89
Pasture or range land - good condition	0	39	61	74	80
Meadow - good condition	0	30	58	71	78
Wood or Forest land - thin stand, poor cover, no mulch	0	45	66	77	83
Wood or Forest land - good cover	0	25	55	70	77
Open spaces - good condition - grass cover on 75% or more of area	0	39	61	74	80
Open spaces - fair condition - grass cover on 50-75% of area	0	49	69	79	84 180.4
Commercial and business	85	89	92	94	95 11.0
Industrial	72	81	88	91	93
Residential - 1/8 acre or less	65	77	85	90	92
Residential - 1/4 acre	38	61	75	83	87
Residentail - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residentail - 1 acre	20	51	68	79	84
Paved Parking lots, roofs, driveways, etc.	-	98	98	98	98
Streets and roads - paved with curbs and storm sewers	-	98	98	98	98
Streets and roads - gravel	-	76	85	89	91
Streets and roads - dirt	-	72	82	87	89
Lake/Pond	100	100	100	100	100 31.5

Appendix J
Current TR-20 Key Map





VICINITY MAP

LEGEND

- POLE - POLE
- HLP - HIGH LINE POLE
- WATERSHED BOUNDARIES
- PR - POWER POLE AND GUY ANCHOR
- TR - TELEPHONE RISER
- INLET
- BM - BENCHMARK

BENCHMARKS

BM#1 Square cut SE. corner headwall 44' N. and 42' E. of W. ¼ cor., Sec. 9, T27S, R2E
ELEV. = 192.73'(City Datum)
1380.13 NGVD

BM#2 Square cut SW. corner signal light pole base NE. corner Webb and 13th.
ELEV. = 185.945'(City Datum)
1373.345' NGVD

SCALE: 1"=400'

400 0 400 800

2003 AERIAL

WATERFRONT ADDITION
PROJECT NAME

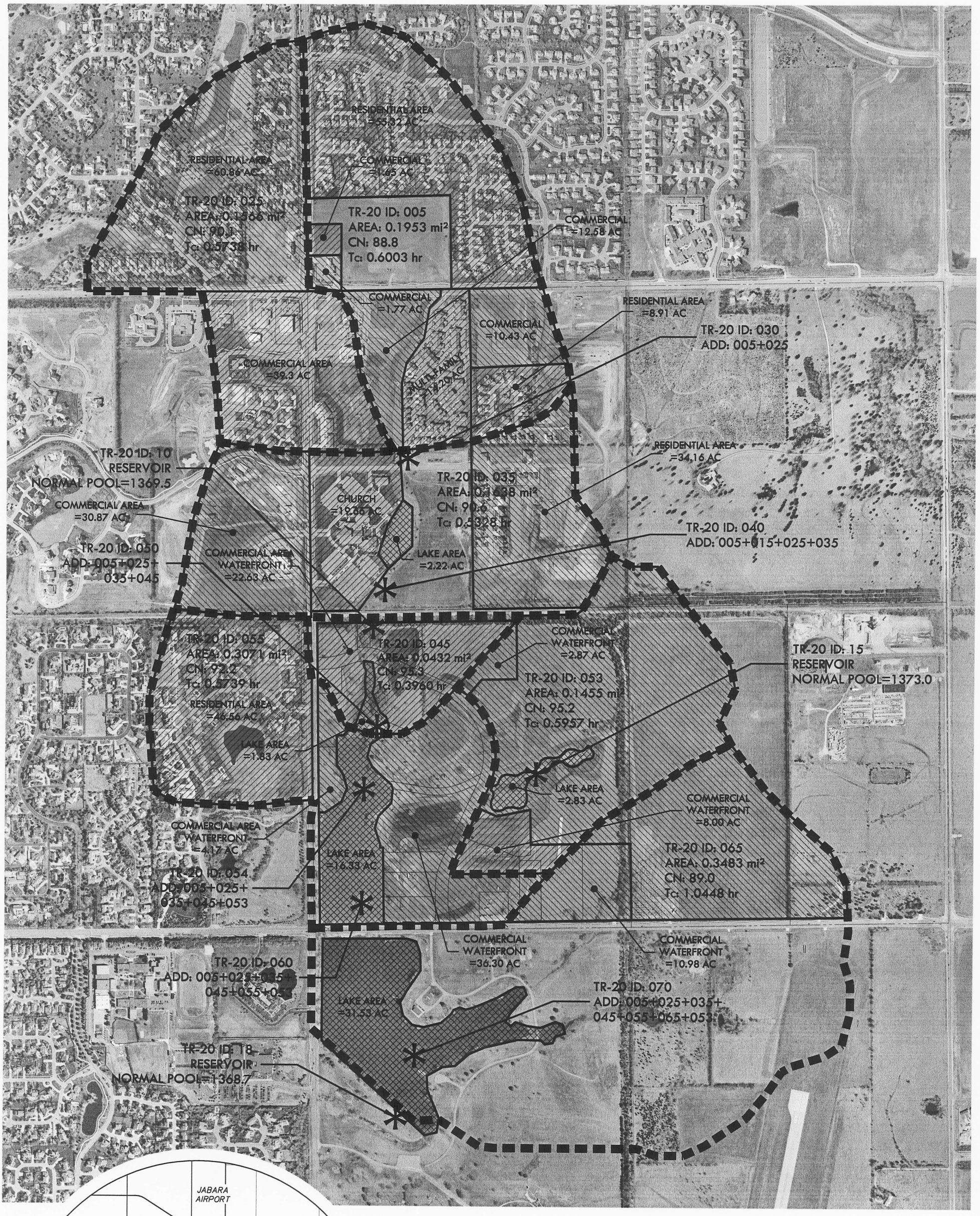
CURRENT CONDITIONS
TR-20 KEY MAP
DESIGN TITLE

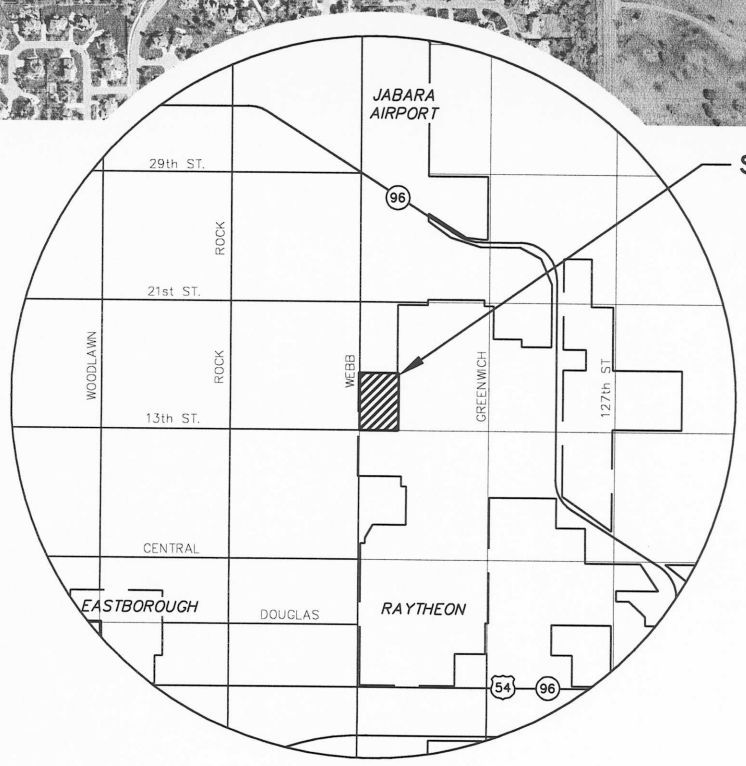
KLA	JFL
DESIGN	DRAWN BY:
GJA	FEB. 2006
CHECKED BY:	DATE
02014	1 / 1
JOB NO.	SHEET/OF

H:\Civil\02014\dwg\Dmg\TR-20\TR-20_KEY_CC.dwg 2/14/2006 11:21:09 AM CST

MKEC ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600
www.mkec.com

Appendix K
Future TR-20 Key Map





SITE LOCATION

VICINITY MAP

LEGEND

- POLE - POLE
- HLP - HIGH LINE POLE
- WATERSHED BOUNDARIES
- PR - POWER POLE AND GUY ANCHOR
- TR - TELEPHONE RISER
- INLET
- BM - BENCHMARK

BENCHMARKS

BM#1 Square cut SE. corner headwall 44' N. and 42' E. of W. ¼ cor., Sec. 9, T27S, R2E
ELEV. = 192.73'(City Datum)
1380.13 NGVD

BM#2 Square cut SW. corner signal light pole base NE. corner Webb and 13th.
ELEV. = 185.945'(City Datum)
1373.345' NGVD

SCALE: 1"=400'

400 0 400 800

2003 AERIAL

WATERFRONT ADDITION
PROJECT NAME

FUTURE CONDITIONS
TR-20 KEY MAP
DESIGN TITLE

KLA	JFL
DESIGN	DRAWN BY:
GJA	FEB. 2006
CHECKED BY:	DATE
02014	1 / 1
JOB NO.	SHEET/OF

H:\Civil\02014\dwg\Drng\TR-20\TR-20_KEY_CC.dwg 2/14/2006 11:21:09 AM CST

MKEC ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600
www.mkec.com

Appendix L
Future TR-20 Output

```
 *****************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****************

 JOB TR-20                      FULLPRINT          SUMMARY   NOPLOTS
 TITLE 001 WATERFRONT FUTURE OPTION 1 LARGER LAKE EAST BRANCH GYPSUM CREEK 5/06
 TITLE WTRFTF.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL CHANCE
  4 DIMHYD               0.02                                              484 SCS
  8          .000        .030        .100        .190        .310        UNIT
HYD
  8          .470        .660        .820        .930        .990
  8         1.000        .990        .930        .860        .780
  8          .680        .560        .460        .390        .330
  8          .280        .241        .207        .174        .147
  8          .126        .107        .091        .077        .066
  8          .055        .047        .040        .034        .029
  8          .025        .021        .018        .015        .013
  8          .011        .009        .008        .007        .006
  8          .005        .004        .003        .002        .001
  8          .000        .000        .000        .000        .000
  9 ENDTBL
  3 STRUCT      10                                                          R-EB-
BN
  8                     1369.4      0.0         0.0
RAILROAD
  8                     1370.4      6.0         0.279
ESTMNSTR
  8                     1371.4      14.0        1.093
  8                     1372.4      30.0        2.269
  8                     1373.4      60.0        3.606
  8                     1374.4      320.0       7.212
  8                     1375.4      580.0       11.361
  8                     1376.4      760.0       16.450
  8                     1377.4      925.0       23.036
  8                     1378.4      1085.0      31.035
  8                     1379.4      1240.0      40.834
  9 ENDTBL
  3 STRUCT      15
  8                     1373.0      0.0         0.0                       HOTEL
  8                     1374.0      9.46        1.98                      POND
  8                     1375.0      158.50      4.44
  8                     1376.0      256.63      7.73
  8                     1377.0      331.69      11.24
  9 ENDTBL
  3 STRUCT      18                                                        NORTH &
  8                     1368.7      0.0         0.0                       SOUTH
  8                     1369.0      100.0       16.6                      BEECH
  8                     1370.0      180.0       72.6                      LAKE
  8                     1371.0      490.0       130.7
  8                     1372.0      1160.0      192.1
  9 ENDTBL
  6 RUNOFF 1 005       3 0.1953     88.8        0.6003              1
N&S21EWB
  6 RUNOFF 1 025       1 0.1566     90.1        0.5738              1 WWEBB
  6 ADDHYD 4 030   1 3 2                                           1
```

```
  6 RUNOFF 1 035       1 0.1638      90.6        0.5328                1
  6 ADDHYD 4 040   1 2 3                                              1
  6 RESVOR 2    10 3   1 1369.4                                       1 EM/RR
  6 RUNOFF 1 045       2 0.0432      95.3        0.3960                1 NWTRFT
1



 **********80-80 LIST OF INPUT DATA (CONTINUED)**********

  6 ADDHYD 4 050   1 2 4                                              1
  6 RUNOFF 1 053       1 0.1455      95.2        0.5957                1 EWTRFT
  6 RESVOR 2    15 1   2 1373.0                                       1
HOTELPND
  6 ADDHYD 4 054   2 4 3                                              1
  6 RUNOFF 1 055       2 0.1614      92.2        0.5739                1
  6 ADDHYD 4 060   2 3 1                                              1
  6 RUNOFF 1 065       3 0.3483      89.0        1.0448                1
  6 ADDHYD 4 070   1 3 2                                              1
  6 RESVOR 2    18 2   1 1368.7                                       1
BEECHLKE
    ENDATA
  7 INCREM 6             0.10
  7 COMPUT 7 005      18 0.0         3.50        1.0         2 2  11  01
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         4.55        1.0         2 2  12  02
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         5.25        1.0         2 2  13  03
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         6.98        1.0         2 2  13  04
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         7.80        1.0         2 2  14  05
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         9.35        1.0         2 2  15  06
    ENDCMP 1
    ENDJOB 2

 ***********************************END OF 80-80 LIST***********************************
1
```

DIMENSIONLESS HYDROGRAPH TABLE ENTERED

8	.0000	.0300	.1000	.1900	.3100
8	.4700	.6600	.8200	.9300	.9900
8	1.0000	.9900	.9300	.8600	.7800
8	.6800	.5600	.4600	.3900	.3300
8	.2800	.2410	.2070	.1740	.1470
8	.1260	.1070	.0910	.0770	.0660
8	.0550	.0470	.0400	.0340	.0290
8	.0250	.0210	.0180	.0150	.0130
8	.0110	.0090	.0080	.0070	.0060
8	.0050	.0040	.0030	.0020	.0010
8	.0000	.0000	.0000	.0000	.0000

9 ENDTBL

COMPUTED TIME INCREMENT = .0200

COMPUTED PEAK RATE FACTOR = 484.000

1

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .100 HOURS

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 3.50 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =11 STORM NO. = 1 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	219.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.34 WATERSHED INCHES; 295 CFS-HRS; 24.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	188.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.46 WATERSHED INCHES; 248 CFS-HRS; 20.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	407.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.39 WATERSHED INCHES; 543 CFS-HRS; 44.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	210.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.50 WATERSHED INCHES; 264 CFS-HRS; 21.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	616.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.42 WATERSHED INCHES; 807 CFS-HRS; 66.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.38	515.1	1375.15

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.42 WATERSHED INCHES; 807 CFS-HRS; 66.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .40 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0528 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	75.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.97 WATERSHED INCHES; 83 CFS-HRS; 6.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	554.0	(NULL)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.47 WATERSHED INCHES; 890 CFS-HRS; 73.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 53
OUTPUT HYDROGRAPH = 1 AREA = .15 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0794 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	199.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.96 WATERSHED INCHES; 278 CFS-HRS; 23.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 1 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.40	162.5	1375.04

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.96 WATERSHED INCHES; 278 CFS-HRS; 23.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,4 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.36	714.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.57 WATERSHED INCHES; 1168 CFS-HRS; 96.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 92. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	208.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.65 WATERSHED INCHES; 276 CFS-HRS; 22.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.32	904.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.58 WATERSHED INCHES; 1444 CFS-HRS; 119.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.51	275.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.35 WATERSHED INCHES; 529 CFS-HRS; 43.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	1152.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.52 WATERSHED INCHES; 1974 CFS-HRS; 163.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.56	212.4	1370.10

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.52 WATERSHED INCHES; 1973 CFS-HRS; 163.1 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 4.55 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =12 STORM NO. = 2 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	309.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.32 WATERSHED INCHES; 419 CFS-HRS; 34.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	263.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.45 WATERSHED INCHES; 349 CFS-HRS; 28.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	572.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.38 WATERSHED INCHES; 767 CFS-HRS; 63.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	291.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.50 WATERSHED INCHES; 370 CFS-HRS; 30.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	861.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.42 WATERSHED INCHES; 1137 CFS-HRS; 94.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.40	677.3	1375.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.42 WATERSHED INCHES; 1138 CFS-HRS; 94.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .40 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0528 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	99.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.01 WATERSHED INCHES; 112 CFS-HRS; 9.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	724.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.46 WATERSHED INCHES; 1249 CFS-HRS; 103.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 53
OUTPUT HYDROGRAPH = 1 AREA = .15 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0794 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	265.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.99 WATERSHED INCHES; 375 CFS-HRS; 31.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 1 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	200.6	1375.43

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.99 WATERSHED INCHES; 375 CFS-HRS; 31.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,4 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	922.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.57 WATERSHED INCHES; 1624 CFS-HRS; 134.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 92. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	285.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.67 WATERSHED INCHES; 382 CFS-HRS; 31.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.30	1179.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.59 WATERSHED INCHES; 2006 CFS-HRS; 165.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	390.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.34 WATERSHED INCHES; 752 CFS-HRS; 62.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	1528.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.52 WATERSHED INCHES; 2757 CFS-HRS; 227.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.36	369.5	1370.61

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.52 WATERSHED INCHES; 2757 CFS-HRS; 227.9 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 5.25 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =13 STORM NO. = 3 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	368.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.99 WATERSHED INCHES; 502 CFS-HRS; 41.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	313.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.12 WATERSHED INCHES; 417 CFS-HRS; 34.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	681.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.05 WATERSHED INCHES; 919 CFS-HRS; 76.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	344.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.18 WATERSHED INCHES; 442 CFS-HRS; 36.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	1023.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.09 WATERSHED INCHES; 1361 CFS-HRS; 112.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.42	776.9	1376.50

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.09 WATERSHED INCHES; 1361 CFS-HRS; 112.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .40 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0528 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	117.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.70 WATERSHED INCHES; 131 CFS-HRS; 10.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.36	829.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.14 WATERSHED INCHES; 1492 CFS-HRS; 123.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 53
OUTPUT HYDROGRAPH = 1 AREA = .15 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0794 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	309.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.69 WATERSHED INCHES; 440 CFS-HRS; 36.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 1 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.45	227.1	1375.70

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.68 WATERSHED INCHES; 440 CFS-HRS; 36.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,4 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.39	1053.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.25 WATERSHED INCHES; 1931 CFS-HRS; 159.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 92. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	336.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 453 CFS-HRS; 37.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.31	1351.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.27 WATERSHED INCHES; 2385 CFS-HRS; 197.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	466.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.01 WATERSHED INCHES; 901 CFS-HRS; 74.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.36	1772.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.19 WATERSHED INCHES; 3286 CFS-HRS; 271.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.31	472.7	1370.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.19 WATERSHED INCHES; 3286 CFS-HRS; 271.5 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 3
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 6.98 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =13 STORM NO. = 4 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	515.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 713 CFS-HRS; 58.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	433.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.81 WATERSHED INCHES; 587 CFS-HRS; 48.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	948.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.73 WATERSHED INCHES; 1300 CFS-HRS; 107.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	478.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.87 WATERSHED INCHES; 620 CFS-HRS; 51.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	1424.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.77 WATERSHED INCHES; 1921 CFS-HRS; 158.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.45	981.5	1377.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.77 WATERSHED INCHES; 1920 CFS-HRS; 158.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .40 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0528 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	156.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.41 WATERSHED INCHES; 179 CFS-HRS; 14.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.38	1044.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.82 WATERSHED INCHES; 2100 CFS-HRS; 173.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 53
OUTPUT HYDROGRAPH = 1 AREA = .15 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0794 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	416.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.40 WATERSHED INCHES; 601 CFS-HRS; 49.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 1 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.47	286.8	1376.40

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.40 WATERSHED INCHES; 601 CFS-HRS; 49.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,4 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.41	1328.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.94 WATERSHED INCHES; 2701 CFS-HRS; 223.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 92. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	461.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.06 WATERSHED INCHES; 631 CFS-HRS; 52.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.31	1730.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.96 WATERSHED INCHES; 3332 CFS-HRS; 275.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	648.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.68 WATERSHED INCHES; 1277 CFS-HRS; 105.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	2318.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.88 WATERSHED INCHES; 4609 CFS-HRS; 380.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.18	899.2	1371.61

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.88 WATERSHED INCHES; 4608 CFS-HRS; 380.8 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 4
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 7.80 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =14 STORM NO. = 5 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	585.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.46 WATERSHED INCHES; 814 CFS-HRS; 67.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	491.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.61 WATERSHED INCHES; 668 CFS-HRS; 55.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	1076.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.53 WATERSHED INCHES; 1483 CFS-HRS; 122.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	537.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 706 CFS-HRS; 58.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	1610.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.58 WATERSHED INCHES; 2188 CFS-HRS; 180.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.46	1071.4	1378.31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.57 WATERSHED INCHES; 2188 CFS-HRS; 180.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .40 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0528 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	174.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.23 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.40	1139.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.63 WATERSHED INCHES; 2390 CFS-HRS; 197.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 53
OUTPUT HYDROGRAPH = 1 AREA = .15 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0794 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	467.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.22 WATERSHED INCHES; 678 CFS-HRS; 56.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 1 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.48	313.3	1376.76

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.21 WATERSHED INCHES; 677 CFS-HRS; 56.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,4 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	1449.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.75 WATERSHED INCHES; 3068 CFS-HRS; 253.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 92. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	518.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.86 WATERSHED INCHES; 715 CFS-HRS; 59.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.31	1894.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.77 WATERSHED INCHES; 3783 CFS-HRS; 312.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	735.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.48 WATERSHED INCHES; 1458 CFS-HRS; 120.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	2567.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.69 WATERSHED INCHES; 5241 CFS-HRS; 433.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.17	1090.7	1371.90

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.69 WATERSHED INCHES; 5240 CFS-HRS; 433.0 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 5
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 9.35 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =15 STORM NO. = 6 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	716.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.98 WATERSHED INCHES; 1006 CFS-HRS; 83.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	601.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.15 WATERSHED INCHES; 823 CFS-HRS; 68.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	1317.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.05 WATERSHED INCHES; 1829 CFS-HRS; 151.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	654.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.20 WATERSHED INCHES; 867 CFS-HRS; 71.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	1968.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.10 WATERSHED INCHES; 2696 CFS-HRS; 222.8 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.49	1224.3	1379.30

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.10 WATERSHED INCHES; 2696 CFS-HRS; 222.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .40 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0528 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	210.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.78 WATERSHED INCHES; 245 CFS-HRS; 20.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.42	1300.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.15 WATERSHED INCHES; 2941 CFS-HRS; 243.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 53
OUTPUT HYDROGRAPH = 1 AREA = .15 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0794 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	565.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.77 WATERSHED INCHES; 823 CFS-HRS; 68.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 1 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

*** WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 15,
VALUE EXTRAPOLATED. ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	365.3	1377.45

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.76 WATERSHED INCHES; 823 CFS-HRS; 68.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,4 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.44	1662.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.28 WATERSHED INCHES; 3764 CFS-HRS; 311.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 92. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	626.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.40 WATERSHED INCHES; 875 CFS-HRS; 72.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.31	2196.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.30 WATERSHED INCHES; 4639 CFS-HRS; 383.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	900.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.01 WATERSHED INCHES; 1800 CFS-HRS; 148.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	3022.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.22 WATERSHED INCHES; 6439 CFS-HRS; 532.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

*** WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 18,
VALUE EXTRAPOLATED. ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.17	1431.7	1372.41

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.22 WATERSHED INCHES; 6439 CFS-HRS; 532.1 ACRE-FEET.

1

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 6
1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
RAINFALL OF 3.50 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .100 HOURS							
ALTERNATE 11 STORM 1							
XSECTION 5	RUNOFF	.20	2.34	---	12.24	219	1095.0
XSECTION 25	RUNOFF	.16	2.46	---	12.22	189	1181.3
XSECTION 30	ADDHYD	.35	2.39	---	12.23	408	1165.7
XSECTION 35	RUNOFF	.16	2.50	---	12.20	210	1312.5
XSECTION 40	ADDHYD	.52	2.42	---	12.22	617	1186.5
STRUCTURE 10	RESVOR	.52	2.42	1375.15	12.38	515	990.4
XSECTION 45	RUNOFF	.04	2.97	---	12.11	76	1900.0
XSECTION 50	ADDHYD	.56	2.47	---	12.35	554	989.3
XSECTION 53	RUNOFF	.15	2.96	---	12.22	200	1333.3
STRUCTURE 15	RESVOR	.15	2.96	1375.04	12.40	163	1086.7
XSECTION 54	ADDHYD	.70	2.57	---	12.36	714	1020.0
XSECTION 55	RUNOFF	.16	2.65	---	12.22	209	1306.3
XSECTION 60	ADDHYD	.87	2.58	---	12.32	905	1040.2
XSECTION 65	RUNOFF	.35	2.35	---	12.51	275	785.7
XSECTION 70	ADDHYD	1.21	2.52	---	12.35	1152	952.1
STRUCTURE 18	RESVOR	1.21	2.52	1370.10	13.56	212	175.2
RAINFALL OF 4.55 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 12 STORM 2							
XSECTION 5	RUNOFF	.20	3.32	---	12.23	309	1545.0
XSECTION 25	RUNOFF	.16	3.45	---	12.22	263	1643.8
XSECTION 30	ADDHYD	.35	3.38	---	12.22	572	1634.3
XSECTION 35	RUNOFF	.16	3.50	---	12.19	291	1818.8
XSECTION 40	ADDHYD	.52	3.42	---	12.21	861	1655.8
STRUCTURE 10	RESVOR	.52	3.42	1375.94	12.40	677	1301.9
XSECTION 45	RUNOFF	.04	4.01	---	12.11	100	2500.0

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 12 STORM 2							
XSECTION 50	ADDHYD	.56	3.46	---	12.35	725	1294.6
XSECTION 53	RUNOFF	.15	3.99	---	12.22	265	1766.7
STRUCTURE 15	RESVOR	.15	3.99	1375.43	12.43	201	1340.0
XSECTION 54	ADDHYD	.70	3.57	---	12.37	922	1317.1
XSECTION 55	RUNOFF	.16	3.67	---	12.22	285	1781.3
XSECTION 60	ADDHYD	.87	3.59	---	12.30	1179	1355.2
XSECTION 65	RUNOFF	.35	3.34	---	12.50	391	1117.1
XSECTION 70	ADDHYD	1.21	3.52	---	12.35	1529	1263.6
STRUCTURE 18	RESVOR	1.21	3.52	1370.61	13.36	369	305.0
RAINFALL OF 5.25 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 13 STORM 3							
XSECTION 5	RUNOFF	.20	3.99	---	12.23	369	1845.0
XSECTION 25	RUNOFF	.16	4.12	---	12.22	313	1956.3
XSECTION 30	ADDHYD	.35	4.05	---	12.22	682	1948.6
XSECTION 35	RUNOFF	.16	4.18	---	12.19	344	2150.0
XSECTION 40	ADDHYD	.52	4.09	---	12.21	1024	1969.2
STRUCTURE 10	RESVOR	.52	4.09	1376.50	12.42	777	1494.2
XSECTION 45	RUNOFF	.04	4.70	---	12.11	117	2925.0
XSECTION 50	ADDHYD	.56	4.14	---	12.36	829	1480.4
XSECTION 53	RUNOFF	.15	4.69	---	12.22	309	2060.0
STRUCTURE 15	RESVOR	.15	4.68	1375.70	12.45	227	1513.3
XSECTION 54	ADDHYD	.70	4.25	---	12.39	1053	1504.3
XSECTION 55	RUNOFF	.16	4.35	---	12.21	336	2100.0
XSECTION 60	ADDHYD	.87	4.27	---	12.31	1352	1554.0
XSECTION 65	RUNOFF	.35	4.01	---	12.50	466	1331.4
XSECTION 70	ADDHYD	1.21	4.19	---	12.36	1773	1465.3
STRUCTURE 18	RESVOR	1.21	4.19	1370.94	13.31	473	390.9

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
RAINFALL OF 6.98 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 13 STORM 4							
XSECTION 5	RUNOFF	.20	5.66	---	12.23	516	2580.0
XSECTION 25	RUNOFF	.16	5.81	---	12.21	434	2712.5
XSECTION 30	ADDHYD	.35	5.73	---	12.22	949	2711.4
XSECTION 35	RUNOFF	.16	5.87	---	12.19	478	2987.5
XSECTION 40	ADDHYD	.52	5.77	---	12.21	1424	2738.5
STRUCTURE 10	RESVOR	.52	5.77	1377.75	12.45	981	1886.5
XSECTION 45	RUNOFF	.04	6.41	---	12.11	156	3900.0
XSECTION 50	ADDHYD	.56	5.82	---	12.38	1045	1866.1
XSECTION 53	RUNOFF	.15	6.40	---	12.22	416	2773.3
STRUCTURE 15	RESVOR	.15	6.40	1376.40	12.47	287	1913.3
XSECTION 54	ADDHYD	.70	5.94	---	12.41	1328	1897.1
XSECTION 55	RUNOFF	.16	6.06	---	12.21	462	2887.5
XSECTION 60	ADDHYD	.87	5.96	---	12.31	1731	1989.7
XSECTION 65	RUNOFF	.35	5.68	---	12.50	648	1851.4
XSECTION 70	ADDHYD	1.21	5.88	---	12.37	2319	1916.5
STRUCTURE 18	RESVOR	1.21	5.88	1371.61	13.18	899	743.0
RAINFALL OF 7.80 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 14 STORM 5							
XSECTION 5	RUNOFF	.20	6.46	---	12.23	586	2930.0
XSECTION 25	RUNOFF	.16	6.61	---	12.21	491	3068.8
XSECTION 30	ADDHYD	.35	6.53	---	12.22	1077	3077.1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 14 STORM 5							
XSECTION 35	RUNOFF	.16	6.68	---	12.19	537	3356.3
XSECTION 40	ADDHYD	.52	6.58	---	12.21	1611	3098.1
STRUCTURE 10	RESVOR	.52	6.57	1378.31	12.46	1071	2059.6
XSECTION 45	RUNOFF	.04	7.23	---	12.11	175	4375.0
XSECTION 50	ADDHYD	.56	6.63	---	12.40	1139	2033.9
XSECTION 53	RUNOFF	.15	7.22	---	12.22	467	3113.3
STRUCTURE 15	RESVOR	.15	7.21	1376.76	12.48	313	2086.7
XSECTION 54	ADDHYD	.70	6.75	---	12.43	1450	2071.4
XSECTION 55	RUNOFF	.16	6.86	---	12.21	518	3237.5
XSECTION 60	ADDHYD	.87	6.77	---	12.31	1895	2178.2
XSECTION 65	RUNOFF	.35	6.48	---	12.50	735	2100.0
XSECTION 70	ADDHYD	1.21	6.69	---	12.37	2567	2121.5
STRUCTURE 18	RESVOR	1.21	6.69	1371.90	13.17	1091	901.7
RAINFALL OF 9.35 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 15 STORM 6							
XSECTION 5	RUNOFF	.20	7.98	---	12.23	716	3580.0
XSECTION 25	RUNOFF	.16	8.15	---	12.21	601	3756.3
XSECTION 30	ADDHYD	.35	8.05	---	12.22	1317	3762.9
XSECTION 35	RUNOFF	.16	8.20	---	12.19	654	4087.5
XSECTION 40	ADDHYD	.52	8.10	---	12.21	1969	3786.5
STRUCTURE 10	RESVOR	.52	8.10	1379.30	12.49	1224	2353.8
XSECTION 45	RUNOFF	.04	8.78	---	12.11	211	5275.0
XSECTION 50	ADDHYD	.56	8.15	---	12.42	1300	2321.4
XSECTION 53	RUNOFF	.15	8.77	---	12.22	566	3773.3
STRUCTURE 15	RESVOR	.15	8.76	1377.45	12.50	365	2433.3
XSECTION 54	ADDHYD	.70	8.28	---	12.44	1662	2374.3
XSECTION 55	RUNOFF	.16	8.40	---	12.21	626	3912.5
XSECTION 60	ADDHYD	.87	8.30	---	12.31	2196	2524.1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION		DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE 15 STORM 6								
XSECTION 65	RUNOFF		.35	8.01	---	12.50	901	2574.3
XSECTION 70	ADDHYD		1.21	8.22	---	12.37	3022	2497.5
STRUCTURE 18	RESVOR		1.21	8.22	1372.41	13.17	1432	1183.5

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SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
STRUCTURE 18		1.21					
	ALTERNATE 11		212	*********	*********	*********	*********
	ALTERNATE 12		*********	369	*********	*********	*********
	ALTERNATE 13		*********	*********	473	899	*********
	ALTERNATE 14		*********	*********	*********	*********	1091
STRUCTURE 15		.15					
	ALTERNATE 11		163	*********	*********	*********	*********
	ALTERNATE 12		*********	201	*********	*********	*********
	ALTERNATE 13		*********	*********	227	287	*********
	ALTERNATE 14		*********	*********	*********	*********	313
STRUCTURE 10		.52					
	ALTERNATE 11		515	*********	*********	*********	*********
	ALTERNATE 12		*********	677	*********	*********	*********
	ALTERNATE 13		*********	*********	777	981	*********
	ALTERNATE 14		*********	*********	*********	*********	1071
XSECTION 5		.20					
	ALTERNATE 11		219	*********	*********	*********	*********
	ALTERNATE 12		*********	309	*********	*********	*********
	ALTERNATE 13		*********	*********	369	516	*********
	ALTERNATE 14		*********	*********	*********	*********	586
XSECTION 25		.16					
	ALTERNATE 11		189	*********	*********	*********	*********
	ALTERNATE 12		*********	263	*********	*********	*********
	ALTERNATE 13		*********	*********	313	434	*********
	ALTERNATE 14		*********	*********	*********	*********	491
XSECTION 30		.35					
	ALTERNATE 11		408	*********	*********	*********	*********
	ALTERNATE 12		*********	572	*********	*********	*********
	ALTERNATE 13		*********	*********	682	949	*********
	ALTERNATE 14		*********	*********	*********	*********	1077

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 XSECTION   35          .16
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    ALTERNATE   11               210 ********* ********* ********* *********
    ALTERNATE   12          *********       291 ********* ********* *********
    ALTERNATE   13          ********* *********       344       478 *********
1
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SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
XSECTION 35	.16					
ALTERNATE 14		*********	*********	*********	*********	537
XSECTION 40	.52					
ALTERNATE 11		617	*********	*********	*********	*********
ALTERNATE 12		*********	861	*********	*********	*********
ALTERNATE 13		*********	*********	1024	1424	*********
ALTERNATE 14		*********	*********	*********	*********	1611
XSECTION 45	.04					
ALTERNATE 11		76	*********	*********	*********	*********
ALTERNATE 12		*********	100	*********	*********	*********
ALTERNATE 13		*********	*********	117	156	*********
ALTERNATE 14		*********	*********	*********	*********	175
XSECTION 50	.56					
ALTERNATE 11		554	*********	*********	*********	*********
ALTERNATE 12		*********	725	*********	*********	*********
ALTERNATE 13		*********	*********	829	1045	*********
ALTERNATE 14		*********	*********	*********	*********	1139
XSECTION 53	.15					
ALTERNATE 11		200	*********	*********	*********	*********
ALTERNATE 12		*********	265	*********	*********	*********
ALTERNATE 13		*********	*********	309	416	*********
ALTERNATE 14		*********	*********	*********	*********	467
XSECTION 54	.70					
ALTERNATE 11		714	*********	*********	*********	*********
ALTERNATE 12		*********	922	*********	*********	*********
ALTERNATE 13		*********	*********	1053	1328	*********
ALTERNATE 14		*********	*********	*********	*********	1450
XSECTION 55	.16					

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    ALTERNATE   11                209 ********* ********* ********* *********
    ALTERNATE   12            ********       285 ********* ********* *********
    ALTERNATE   13            ********* *********       336       462 *********
    ALTERNATE   14            ********* ********* ********* *********       518

 XSECTION   60          .87
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    ALTERNATE   11                905 ********* ********* ********* *********
1
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SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
XSECTION 60		.87					
	ALTERNATE 12		*********	1179	*********	*********	*********
	ALTERNATE 13		*********	*********	1352	1731	*********
	ALTERNATE 14		*********	*********	*********	*********	1895
XSECTION 65		.35					
	ALTERNATE 11		275	*********	*********	*********	*********
	ALTERNATE 12		*********	391	*********	*********	*********
	ALTERNATE 13		*********	*********	466	648	*********
	ALTERNATE 14		*********	*********	*********	*********	735
XSECTION 70		1.21					
	ALTERNATE 11		1152	*********	*********	*********	*********
	ALTERNATE 12		*********	1529	*********	*********	*********
	ALTERNATE 13		*********	*********	1773	2319	*********
	ALTERNATE 14		*********	*********	*********	*********	2567

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 6
STRUCTURE 18		1.21	
	ALTERNATE 15		1432
STRUCTURE 15		.15	
	ALTERNATE 15		365
STRUCTURE 10		.52	
	ALTERNATE 15		1224

```
 XSECTION    5          .20
 ---------------------------
    ALTERNATE   15                716

 XSECTION   25          .16
 ---------------------------
    ALTERNATE   15                601

 XSECTION   30          .35
 ---------------------------
    ALTERNATE   15               1317

 XSECTION   35          .16
 ---------------------------
    ALTERNATE   15                654

 XSECTION   40          .52
 ---------------------------
    ALTERNATE   15               1969
1
```

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 6
XSECTION 45	.04	
ALTERNATE 15		211
XSECTION 50	.56	
ALTERNATE 15		1300
XSECTION 53	.15	
ALTERNATE 15		566
XSECTION 54	.70	
ALTERNATE 15		1662
XSECTION 55	.16	
ALTERNATE 15		626
XSECTION 60	.87	
ALTERNATE 15		2196
XSECTION 65	.35	
ALTERNATE 15		901
XSECTION 70	1.21	
ALTERNATE 15		3022

```
TR20 ------------------------------------------------------------------------ SCS -
         WATERFRONT FUTURE OPTION 1 LARGER LAKE EAST BRANCH GYPSUM CREE VERSION
05/03/** TF.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST



END OF  1 JOBS IN THIS RUN
```

SCS TR-20, VERSION 2.04TEST
FILES

INPUT = WTRFTF1.T20 , GIVEN DATA FILE
OUTPUT = WTRFTF1.OUT , DATED 05/03/**,13:43:41

FILES GENERATED - DATED 05/03/**,13:43:41

NONE!

TOTAL NUMBER OF WARNINGS = 2, MESSAGES = 0

*** TR-20 RUN COMPLETED ***

```
 *****************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****************

 JOB TR-20                      FULLPRINT          SUMMARY   NOPLOTS
 TITLE 001 WATERFRONT FUTURE    EAST BRANCH GYPSUM CREEK 5/06
 TITLE WTRFTF.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL CHANCE
  4 DIMHYD               0.02                                              484 SCS
  8          .000        .030        .100        .190        .310        UNIT
HYD
  8          .470        .660        .820        .930        .990
  8         1.000        .990        .930        .860        .780
  8          .680        .560        .460        .390        .330
  8          .280        .241        .207        .174        .147
  8          .126        .107        .091        .077        .066
  8          .055        .047        .040        .034        .029
  8          .025        .021        .018        .015        .013
  8          .011        .009        .008        .007        .006
  8          .005        .004        .003        .002        .001
  8          .000        .000        .000        .000        .000
  9 ENDTBL
  3 STRUCT      10                                                          R-EB-
BN
  8                     1369.4      0.0         0.0
RAILROAD
  8                     1370.4      6.0         0.279
ESTMNSTR
  8                     1371.4      14.0        1.093
  8                     1372.4      30.0        2.269
  8                     1373.4      60.0        3.606
  8                     1374.4      320.0       7.212
  8                     1375.4      580.0       11.361
  8                     1376.4      760.0       16.450
  8                     1377.4      925.0       23.036
  8                     1378.4      1085.0      31.035
  8                     1379.4      1240.0      40.834
  9 ENDTBL
  3 STRUCT      15
  8                     1373.0      0.0         0.0                       HOTEL
  8                     1374.0      6.549       5.0                       POND
  8                     1375.0      15.593      11.7
  8                     1376.0      54.032      20.1
  8                     1377.0      194.24      29.0
  9 ENDTBL
  3 STRUCT      18                                                          NORTH &
  8                     1368.7      0.0         0.0                       SOUTH
  8                     1369.0      100.0       14.40                     BEECH
  8                     1370.0      180.0       63.09                     LAKE
  8                     1371.0      490.0       113.69
  8                     1372.0      1160.0      167.00
  9 ENDTBL
  6 RUNOFF 1 005       3 0.1953     88.8        0.6003              1
N&S21EWB
  6 RUNOFF 1 025       1 0.1566     90.1        0.5738              1 WWEBB
  6 ADDHYD 4 030   1 3 2                                           1
```

```
  6 RUNOFF 1 035       1 0.1638      90.6        0.5328                1
  6 ADDHYD 4 040   1 2 3                                              1
  6 RESVOR 2    10 3   1 1369.4                                       1 EM/RR
  6 RUNOFF 1 045       2 0.0432      95.3        0.3960                1 NWTRFT
1



 **********80-80 LIST OF INPUT DATA (CONTINUED)**********

  6 ADDHYD 4 050   1 2 4                                              1
  6 RUNOFF 1 053       1 0.1455      95.2        0.5957                1 EWTRFT
  6 RESVOR 2    15 1   2 1373.0                                       1
HOTELPND
  6 ADDHYD 4 054   2 4 3                                              1
  6 RUNOFF 1 055       2 0.1614      92.2        0.5739                1
  6 ADDHYD 4 060   2 3 1                                              1
  6 RUNOFF 1 065       3 0.3483      89.0        1.0448                1
  6 ADDHYD 4 070   1 3 2                                              1
  6 RESVOR 2    18 2   1 1368.7                                       1
BEECHLKE
    ENDATA
  7 INCREM 6             0.10
  7 COMPUT 7 005      18 0.0         3.50        1.0         2 2  11  01
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         4.55        1.0         2 2  12  02
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         5.25        1.0         2 2  13  03
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         6.98        1.0         2 2  13  04
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         7.80        1.0         2 2  14  05
    ENDCMP 1
  7 COMPUT 7 005      18 0.0         9.35        1.0         2 2  15  06
    ENDCMP 1
    ENDJOB 2

 ***********************************END OF 80-80 LIST***********************************
1
```

DIMENSIONLESS HYDROGRAPH TABLE ENTERED

8	.0000	.0300	.1000	.1900	.3100
8	.4700	.6600	.8200	.9300	.9900
8	1.0000	.9900	.9300	.8600	.7800
8	.6800	.5600	.4600	.3900	.3300
8	.2800	.2410	.2070	.1740	.1470
8	.1260	.1070	.0910	.0770	.0660
8	.0550	.0470	.0400	.0340	.0290
8	.0250	.0210	.0180	.0150	.0130
8	.0110	.0090	.0080	.0070	.0060
8	.0050	.0040	.0030	.0020	.0010
8	.0000	.0000	.0000	.0000	.0000

9 ENDTBL

COMPUTED TIME INCREMENT = .0200

COMPUTED PEAK RATE FACTOR = 484.000

1

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .100 HOURS

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 3.50 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =11 STORM NO. = 1 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	219.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.34 WATERSHED INCHES; 295 CFS-HRS; 24.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	188.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.46 WATERSHED INCHES; 248 CFS-HRS; 20.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	407.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.39 WATERSHED INCHES; 543 CFS-HRS; 44.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	210.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.50 WATERSHED INCHES; 264 CFS-HRS; 21.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	616.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.42 WATERSHED INCHES; 807 CFS-HRS; 66.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.38	515.1	1375.15

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.42 WATERSHED INCHES; 807 CFS-HRS; 66.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .40 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0528 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	75.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.97 WATERSHED INCHES; 83 CFS-HRS; 6.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	554.0	(NULL)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.47 WATERSHED INCHES; 890 CFS-HRS; 73.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 53
OUTPUT HYDROGRAPH = 1 AREA = .15 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0794 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	199.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.96 WATERSHED INCHES; 278 CFS-HRS; 23.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 1 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.36	24.9	1375.24

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.83 WATERSHED INCHES; 266 CFS-HRS; 22.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,4 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	565.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.54 WATERSHED INCHES; 1156 CFS-HRS; 95.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 92. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	208.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.65 WATERSHED INCHES; 276 CFS-HRS; 22.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.31	756.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.56 WATERSHED INCHES; 1432 CFS-HRS; 118.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.51	275.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.35 WATERSHED INCHES; 529 CFS-HRS; 43.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	1001.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.50 WATERSHED INCHES; 1962 CFS-HRS; 162.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.57	207.8	1370.09

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.50 WATERSHED INCHES; 1959 CFS-HRS; 161.9 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 4.55 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =12 STORM NO. = 2 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	309.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.32 WATERSHED INCHES; 419 CFS-HRS; 34.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	263.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.45 WATERSHED INCHES; 349 CFS-HRS; 28.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	572.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.38 WATERSHED INCHES; 767 CFS-HRS; 63.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	291.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.50 WATERSHED INCHES; 370 CFS-HRS; 30.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	861.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.42 WATERSHED INCHES; 1137 CFS-HRS; 94.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.40	677.3	1375.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.42 WATERSHED INCHES; 1138 CFS-HRS; 94.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .40 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0528 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	99.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.01 WATERSHED INCHES; 112 CFS-HRS; 9.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	724.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.46 WATERSHED INCHES; 1249 CFS-HRS; 103.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 53
OUTPUT HYDROGRAPH = 1 AREA = .15 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0794 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	265.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.99 WATERSHED INCHES; 375 CFS-HRS; 31.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 1 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.14	43.4	1375.72

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.84 WATERSHED INCHES; 360 CFS-HRS; 29.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,4 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	748.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.54 WATERSHED INCHES; 1609 CFS-HRS; 132.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 92. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	285.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.67 WATERSHED INCHES; 382 CFS-HRS; 31.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.29	1007.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.56 WATERSHED INCHES; 1991 CFS-HRS; 164.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	390.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.34 WATERSHED INCHES; 752 CFS-HRS; 62.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	1354.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.50 WATERSHED INCHES; 2742 CFS-HRS; 226.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.35	365.9	1370.60

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.50 WATERSHED INCHES; 2739 CFS-HRS; 226.4 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 5.25 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =13 STORM NO. = 3 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	368.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.99 WATERSHED INCHES; 502 CFS-HRS; 41.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	313.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.12 WATERSHED INCHES; 417 CFS-HRS; 34.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	681.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.05 WATERSHED INCHES; 919 CFS-HRS; 76.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	344.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.18 WATERSHED INCHES; 442 CFS-HRS; 36.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	1023.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.09 WATERSHED INCHES; 1361 CFS-HRS; 112.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.42	776.9	1376.50

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.09 WATERSHED INCHES; 1361 CFS-HRS; 112.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .40 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0528 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	117.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.70 WATERSHED INCHES; 131 CFS-HRS; 10.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.36	829.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.14 WATERSHED INCHES; 1492 CFS-HRS; 123.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 53
OUTPUT HYDROGRAPH = 1 AREA = .15 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0794 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	309.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.69 WATERSHED INCHES; 440 CFS-HRS; 36.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 1 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.04	59.1	1376.04

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.51 WATERSHED INCHES; 424 CFS-HRS; 35.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,4 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.39	864.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.21 WATERSHED INCHES; 1915 CFS-HRS; 158.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 92. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	336.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 453 CFS-HRS; 37.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.30	1166.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.24 WATERSHED INCHES; 2369 CFS-HRS; 195.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	466.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.01 WATERSHED INCHES; 901 CFS-HRS; 74.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	1584.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.17 WATERSHED INCHES; 3270 CFS-HRS; 270.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.30	470.2	1370.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.17 WATERSHED INCHES; 3266 CFS-HRS; 269.9 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 3
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 6.98 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =13 STORM NO. = 4 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	515.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 713 CFS-HRS; 58.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	433.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.81 WATERSHED INCHES; 587 CFS-HRS; 48.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	948.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.73 WATERSHED INCHES; 1300 CFS-HRS; 107.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	478.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.87 WATERSHED INCHES; 620 CFS-HRS; 51.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	1424.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.77 WATERSHED INCHES; 1921 CFS-HRS; 158.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.45	981.5	1377.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.77 WATERSHED INCHES; 1920 CFS-HRS; 158.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .40 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0528 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	156.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.41 WATERSHED INCHES; 179 CFS-HRS; 14.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.38	1044.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.82 WATERSHED INCHES; 2100 CFS-HRS; 173.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 53
OUTPUT HYDROGRAPH = 1 AREA = .15 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0794 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	416.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.40 WATERSHED INCHES; 601 CFS-HRS; 49.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 1 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.78	134.9	1376.58

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.20 WATERSHED INCHES; 583 CFS-HRS; 48.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,4 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.47	1139.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.90 WATERSHED INCHES; 2682 CFS-HRS; 221.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 92. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	461.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.06 WATERSHED INCHES; 631 CFS-HRS; 52.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.31	1515.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.93 WATERSHED INCHES; 3313 CFS-HRS; 273.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	648.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.68 WATERSHED INCHES; 1277 CFS-HRS; 105.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.39	2117.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.86 WATERSHED INCHES; 4590 CFS-HRS; 379.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.15	915.2	1371.63

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.85 WATERSHED INCHES; 4584 CFS-HRS; 378.9 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 4
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 7.80 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =14 STORM NO. = 5 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	585.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.46 WATERSHED INCHES; 814 CFS-HRS; 67.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	491.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.61 WATERSHED INCHES; 668 CFS-HRS; 55.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	1076.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.53 WATERSHED INCHES; 1483 CFS-HRS; 122.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	537.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 706 CFS-HRS; 58.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	1610.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.58 WATERSHED INCHES; 2188 CFS-HRS; 180.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.46	1071.4	1378.31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.57 WATERSHED INCHES; 2188 CFS-HRS; 180.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .40 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0528 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	174.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.23 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.40	1139.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.63 WATERSHED INCHES; 2390 CFS-HRS; 197.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 53
OUTPUT HYDROGRAPH = 1 AREA = .15 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0794 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	467.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.22 WATERSHED INCHES; 678 CFS-HRS; 56.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 1 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.73	169.0	1376.82

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.01 WATERSHED INCHES; 658 CFS-HRS; 54.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,4 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.47	1276.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.70 WATERSHED INCHES; 3047 CFS-HRS; 251.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 92. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	518.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.86 WATERSHED INCHES; 715 CFS-HRS; 59.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.32	1693.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.73 WATERSHED INCHES; 3762 CFS-HRS; 310.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	735.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.48 WATERSHED INCHES; 1458 CFS-HRS; 120.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.39	2380.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.66 WATERSHED INCHES; 5220 CFS-HRS; 431.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.15	1116.6	1371.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.66 WATERSHED INCHES; 5215 CFS-HRS; 431.0 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 5
1

EXECUTIVE CONTROL COMPUT FROM XSECTION 5 TO STRUCTURE 18
STARTING TIME = .00 RAIN DEPTH = 9.35 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =15 STORM NO. = 6 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 5
OUTPUT HYDROGRAPH = 3 AREA = .20 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0800 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	716.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.98 WATERSHED INCHES; 1006 CFS-HRS; 83.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 90. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	601.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.15 WATERSHED INCHES; 823 CFS-HRS; 68.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 30
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	1317.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.05 WATERSHED INCHES; 1829 CFS-HRS; 151.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 35
OUTPUT HYDROGRAPH = 1 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 91. TIME OF CONCENTRATION = .53 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0710 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	654.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.20 WATERSHED INCHES; 867 CFS-HRS; 71.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 40
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	1968.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.10 WATERSHED INCHES; 2696 CFS-HRS; 222.8 ACRE-FEET.

OPERATION RESVOR STRUCTURE 10
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1369.40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.49	1224.3	1379.30

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.10 WATERSHED INCHES; 2696 CFS-HRS; 222.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 45
OUTPUT HYDROGRAPH = 2 AREA = .04 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .40 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0528 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	210.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.78 WATERSHED INCHES; 245 CFS-HRS; 20.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 50
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.42	1300.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.15 WATERSHED INCHES; 2941 CFS-HRS; 243.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 53
OUTPUT HYDROGRAPH = 1 AREA = .15 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .60 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0794 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	565.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.77 WATERSHED INCHES; 823 CFS-HRS; 68.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 1 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

*** WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 15,
VALUE EXTRAPOLATED. ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.67	232.0	1377.27

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.53 WATERSHED INCHES; 801 CFS-HRS; 66.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,4 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.48	1508.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.23 WATERSHED INCHES; 3742 CFS-HRS; 309.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 92. TIME OF CONCENTRATION = .57 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0765 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	626.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.40 WATERSHED INCHES; 875 CFS-HRS; 72.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 2,3 OUTPUT HYDROGRAPH 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.32	2018.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.26 WATERSHED INCHES; 4616 CFS-HRS; 381.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 65
OUTPUT HYDROGRAPH = 3 AREA = .35 SQ MI
INPUT RUNOFF CURVE = 89. TIME OF CONCENTRATION = 1.04 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	900.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.01 WATERSHED INCHES; 1800 CFS-HRS; 148.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 1,3 OUTPUT HYDROGRAPH 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.39	2854.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.19 WATERSHED INCHES; 6417 CFS-HRS; 530.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 18
INPUT HYDROGRAPH 2 OUTPUT HYDROGRAPH 1
SURFACE ELEVATION = 1368.70

*** WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 18,
VALUE EXTRAPOLATED. ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.14	1474.7	1372.47

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.18 WATERSHED INCHES; 6412 CFS-HRS; 529.9 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 6
1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
RAINFALL OF 3.50 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .100 HOURS							
ALTERNATE 11 STORM 1							
XSECTION 5	RUNOFF	.20	2.34	---	12.24	219	1095.0
XSECTION 25	RUNOFF	.16	2.46	---	12.22	189	1181.3
XSECTION 30	ADDHYD	.35	2.39	---	12.23	408	1165.7
XSECTION 35	RUNOFF	.16	2.50	---	12.20	210	1312.5
XSECTION 40	ADDHYD	.52	2.42	---	12.22	617	1186.5
STRUCTURE 10	RESVOR	.52	2.42	1375.15	12.38	515	990.4
XSECTION 45	RUNOFF	.04	2.97	---	12.11	76	1900.0
XSECTION 50	ADDHYD	.56	2.47	---	12.35	554	989.3
XSECTION 53	RUNOFF	.15	2.96	---	12.22	200	1333.3
STRUCTURE 15	RESVOR	.15	2.83	1375.24	13.36	25	166.7
XSECTION 54	ADDHYD	.70	2.54	---	12.35	566	808.6
XSECTION 55	RUNOFF	.16	2.65	---	12.22	209	1306.3
XSECTION 60	ADDHYD	.87	2.56	---	12.31	756	869.0
XSECTION 65	RUNOFF	.35	2.35	---	12.51	275	785.7
XSECTION 70	ADDHYD	1.21	2.50	---	12.35	1002	828.1
STRUCTURE 18	RESVOR	1.21	2.50	1370.09	13.57	208	171.9
RAINFALL OF 4.55 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 12 STORM 2							
XSECTION 5	RUNOFF	.20	3.32	---	12.23	309	1545.0
XSECTION 25	RUNOFF	.16	3.45	---	12.22	263	1643.8
XSECTION 30	ADDHYD	.35	3.38	---	12.22	572	1634.3
XSECTION 35	RUNOFF	.16	3.50	---	12.19	291	1818.8
XSECTION 40	ADDHYD	.52	3.42	---	12.21	861	1655.8
STRUCTURE 10	RESVOR	.52	3.42	1375.94	12.40	677	1301.9
XSECTION 45	RUNOFF	.04	4.01	---	12.11	100	2500.0

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 12 STORM 2							
XSECTION 50	ADDHYD	.56	3.46	---	12.35	725	1294.6
XSECTION 53	RUNOFF	.15	3.99	---	12.22	265	1766.7
STRUCTURE 15	RESVOR	.15	3.84	1375.72	13.14	43	286.7
XSECTION 54	ADDHYD	.70	3.54	---	12.37	748	1068.6
XSECTION 55	RUNOFF	.16	3.67	---	12.22	285	1781.3
XSECTION 60	ADDHYD	.87	3.56	---	12.29	1007	1157.5
XSECTION 65	RUNOFF	.35	3.34	---	12.50	391	1117.1
XSECTION 70	ADDHYD	1.21	3.50	---	12.35	1354	1119.0
STRUCTURE 18	RESVOR	1.21	3.50	1370.60	13.35	366	302.5
RAINFALL OF 5.25 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 13 STORM 3							
XSECTION 5	RUNOFF	.20	3.99	---	12.23	369	1845.0
XSECTION 25	RUNOFF	.16	4.12	---	12.22	313	1956.3
XSECTION 30	ADDHYD	.35	4.05	---	12.22	682	1948.6
XSECTION 35	RUNOFF	.16	4.18	---	12.19	344	2150.0
XSECTION 40	ADDHYD	.52	4.09	---	12.21	1024	1969.2
STRUCTURE 10	RESVOR	.52	4.09	1376.50	12.42	777	1494.2
XSECTION 45	RUNOFF	.04	4.70	---	12.11	117	2925.0
XSECTION 50	ADDHYD	.56	4.14	---	12.36	829	1480.4
XSECTION 53	RUNOFF	.15	4.69	---	12.22	309	2060.0
STRUCTURE 15	RESVOR	.15	4.51	1376.04	13.04	59	393.3
XSECTION 54	ADDHYD	.70	4.21	---	12.39	864	1234.3
XSECTION 55	RUNOFF	.16	4.35	---	12.21	336	2100.0
XSECTION 60	ADDHYD	.87	4.24	---	12.30	1167	1341.4
XSECTION 65	RUNOFF	.35	4.01	---	12.50	466	1331.4
XSECTION 70	ADDHYD	1.21	4.17	---	12.35	1585	1309.9
STRUCTURE 18	RESVOR	1.21	4.17	1370.94	13.30	470	388.4

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
RAINFALL OF 6.98 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 13 STORM 4							
XSECTION 5	RUNOFF	.20	5.66	---	12.23	516	2580.0
XSECTION 25	RUNOFF	.16	5.81	---	12.21	434	2712.5
XSECTION 30	ADDHYD	.35	5.73	---	12.22	949	2711.4
XSECTION 35	RUNOFF	.16	5.87	---	12.19	478	2987.5
XSECTION 40	ADDHYD	.52	5.77	---	12.21	1424	2738.5
STRUCTURE 10	RESVOR	.52	5.77	1377.75	12.45	981	1886.5
XSECTION 45	RUNOFF	.04	6.41	---	12.11	156	3900.0
XSECTION 50	ADDHYD	.56	5.82	---	12.38	1045	1866.1
XSECTION 53	RUNOFF	.15	6.40	---	12.22	416	2773.3
STRUCTURE 15	RESVOR	.15	6.20	1376.58	12.78	135	900.0
XSECTION 54	ADDHYD	.70	5.90	---	12.47	1139	1627.1
XSECTION 55	RUNOFF	.16	6.06	---	12.21	462	2887.5
XSECTION 60	ADDHYD	.87	5.93	---	12.31	1515	1741.4
XSECTION 65	RUNOFF	.35	5.68	---	12.50	648	1851.4
XSECTION 70	ADDHYD	1.21	5.86	---	12.39	2117	1749.6
STRUCTURE 18	RESVOR	1.21	5.85	1371.63	13.15	915	756.2
RAINFALL OF 7.80 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 14 STORM 5							
XSECTION 5	RUNOFF	.20	6.46	---	12.23	586	2930.0
XSECTION 25	RUNOFF	.16	6.61	---	12.21	491	3068.8
XSECTION 30	ADDHYD	.35	6.53	---	12.22	1077	3077.1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 14 STORM 5							
XSECTION 35	RUNOFF	.16	6.68	---	12.19	537	3356.3
XSECTION 40	ADDHYD	.52	6.58	---	12.21	1611	3098.1
STRUCTURE 10	RESVOR	.52	6.57	1378.31	12.46	1071	2059.6
XSECTION 45	RUNOFF	.04	7.23	---	12.11	175	4375.0
XSECTION 50	ADDHYD	.56	6.63	---	12.40	1139	2033.9
XSECTION 53	RUNOFF	.15	7.22	---	12.22	467	3113.3
STRUCTURE 15	RESVOR	.15	7.01	1376.82	12.73	169	1126.7
XSECTION 54	ADDHYD	.70	6.70	---	12.47	1276	1822.9
XSECTION 55	RUNOFF	.16	6.86	---	12.21	518	3237.5
XSECTION 60	ADDHYD	.87	6.73	---	12.32	1694	1947.1
XSECTION 65	RUNOFF	.35	6.48	---	12.50	735	2100.0
XSECTION 70	ADDHYD	1.21	6.66	---	12.39	2380	1966.9
STRUCTURE 18	RESVOR	1.21	6.66	1371.94	13.15	1117	923.1
RAINFALL OF 9.35 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 15 STORM 6							
XSECTION 5	RUNOFF	.20	7.98	---	12.23	716	3580.0
XSECTION 25	RUNOFF	.16	8.15	---	12.21	601	3756.3
XSECTION 30	ADDHYD	.35	8.05	---	12.22	1317	3762.9
XSECTION 35	RUNOFF	.16	8.20	---	12.19	654	4087.5
XSECTION 40	ADDHYD	.52	8.10	---	12.21	1969	3786.5
STRUCTURE 10	RESVOR	.52	8.10	1379.30	12.49	1224	2353.8
XSECTION 45	RUNOFF	.04	8.78	---	12.11	211	5275.0
XSECTION 50	ADDHYD	.56	8.15	---	12.42	1300	2321.4
XSECTION 53	RUNOFF	.15	8.77	---	12.22	566	3773.3
STRUCTURE 15	RESVOR	.15	8.53	1377.27	12.67	232	1546.7
XSECTION 54	ADDHYD	.70	8.23	---	12.48	1508	2154.3
XSECTION 55	RUNOFF	.16	8.40	---	12.21	626	3912.5
XSECTION 60	ADDHYD	.87	8.26	---	12.32	2018	2319.5

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 15 STORM 6							
XSECTION 65	RUNOFF	.35	8.01	---	12.50	901	2574.3
XSECTION 70	ADDHYD	1.21	8.19	---	12.39	2855	2359.5
STRUCTURE 18	RESVOR	1.21	8.18	1372.47	13.14	1475	1219.0

1

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
STRUCTURE 18		1.21					
ALTERNATE	11		208	*********	*********	*********	*********
ALTERNATE	12		*********	366	*********	*********	*********
ALTERNATE	13		*********	*********	470	915	*********
ALTERNATE	14		*********	*********	*********	*********	1117
STRUCTURE 15		.15					
ALTERNATE	11		25	*********	*********	*********	*********
ALTERNATE	12		*********	43	*********	*********	*********
ALTERNATE	13		*********	*********	59	135	*********
ALTERNATE	14		*********	*********	*********	*********	169
STRUCTURE 10		.52					
ALTERNATE	11		515	*********	*********	*********	*********
ALTERNATE	12		*********	677	*********	*********	*********
ALTERNATE	13		*********	*********	777	981	*********
ALTERNATE	14		*********	*********	*********	*********	1071
XSECTION 5		.20					
ALTERNATE	11		219	*********	*********	*********	*********
ALTERNATE	12		*********	309	*********	*********	*********
ALTERNATE	13		*********	*********	369	516	*********
ALTERNATE	14		*********	*********	*********	*********	586
XSECTION 25		.16					
ALTERNATE	11		189	*********	*********	*********	*********
ALTERNATE	12		*********	263	*********	*********	*********
ALTERNATE	13		*********	*********	313	434	*********
ALTERNATE	14		*********	*********	*********	*********	491
XSECTION 30		.35					
ALTERNATE	11		408	*********	*********	*********	*********
ALTERNATE	12		*********	572	*********	*********	*********
ALTERNATE	13		*********	*********	682	949	*********
ALTERNATE	14		*********	*********	*********	*********	1077

```
 XSECTION   35          .16
 ---------------------------
    ALTERNATE   11               210 ********* ********* ********* *********
    ALTERNATE   12          *********       291 ********* ********* *********
    ALTERNATE   13          ********* *********       344       478 *********
1
```

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
XSECTION 35	.16					
ALTERNATE 14		*********	*********	*********	*********	537
XSECTION 40	.52					
ALTERNATE 11		617	*********	*********	*********	*********
ALTERNATE 12		*********	861	*********	*********	*********
ALTERNATE 13		*********	*********	1024	1424	*********
ALTERNATE 14		*********	*********	*********	*********	1611
XSECTION 45	.04					
ALTERNATE 11		76	*********	*********	*********	*********
ALTERNATE 12		*********	100	*********	*********	*********
ALTERNATE 13		*********	*********	117	156	*********
ALTERNATE 14		*********	*********	*********	*********	175
XSECTION 50	.56					
ALTERNATE 11		554	*********	*********	*********	*********
ALTERNATE 12		*********	725	*********	*********	*********
ALTERNATE 13		*********	*********	829	1045	*********
ALTERNATE 14		*********	*********	*********	*********	1139
XSECTION 53	.15					
ALTERNATE 11		200	*********	*********	*********	*********
ALTERNATE 12		*********	265	*********	*********	*********
ALTERNATE 13		*********	*********	309	416	*********
ALTERNATE 14		*********	*********	*********	*********	467
XSECTION 54	.70					
ALTERNATE 11		566	*********	*********	*********	*********
ALTERNATE 12		*********	748	*********	*********	*********
ALTERNATE 13		*********	*********	864	1139	*********
ALTERNATE 14		*********	*********	*********	*********	1276
XSECTION 55	.16					

```
    ALTERNATE   11                209 ********* ********* ********* *********
    ALTERNATE   12            ********       285 ********* ********* *********
    ALTERNATE   13            ********* *********       336       462 *********
    ALTERNATE   14            ********* ********* ********* *********       518

 XSECTION   60          .87
 ---------------------------
    ALTERNATE   11                756 ********* ********* ********* *********
1
```

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
XSECTION 60	.87					
ALTERNATE 12		*********	1007	*********	*********	*********
ALTERNATE 13		*********	*********	1167	1515	*********
ALTERNATE 14		*********	*********	*********	*********	1694
XSECTION 65	.35					
ALTERNATE 11		275	*********	*********	*********	*********
ALTERNATE 12		*********	391	*********	*********	*********
ALTERNATE 13		*********	*********	466	648	*********
ALTERNATE 14		*********	*********	*********	*********	735
XSECTION 70	1.21					
ALTERNATE 11		1002	*********	*********	*********	*********
ALTERNATE 12		*********	1354	*********	*********	*********
ALTERNATE 13		*********	*********	1585	2117	*********
ALTERNATE 14		*********	*********	*********	*********	2380

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 6
STRUCTURE 18	1.21	
ALTERNATE 15		1475
STRUCTURE 15	.15	
ALTERNATE 15		232
STRUCTURE 10	.52	
ALTERNATE 15		1224

```
 XSECTION    5          .20
 ---------------------------
    ALTERNATE   15                716

 XSECTION   25          .16
 ---------------------------
    ALTERNATE   15                601

 XSECTION   30          .35
 ---------------------------
    ALTERNATE   15               1317

 XSECTION   35          .16
 ---------------------------
    ALTERNATE   15                654

 XSECTION   40          .52
 ---------------------------
    ALTERNATE   15               1969
1
```

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 6
XSECTION 45	.04	
ALTERNATE 15		211
XSECTION 50	.56	
ALTERNATE 15		1300
XSECTION 53	.15	
ALTERNATE 15		566
XSECTION 54	.70	
ALTERNATE 15		1508
XSECTION 55	.16	
ALTERNATE 15		626
XSECTION 60	.87	
ALTERNATE 15		2018
XSECTION 65	.35	
ALTERNATE 15		901
XSECTION 70	1.21	
ALTERNATE 15		2855

TR20 ---------- SCS -
WATERFRONT FUTURE EAST BRANCH GYPSUM CREEK 5/06 VERSION
05/04/** TF.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST

END OF 1 JOBS IN THIS RUN

SCS TR-20, VERSION 2.04TEST
FILES

INPUT = wtrftf2.t20 , GIVEN DATA FILE
OUTPUT = wtrftf2.OUT , DATED 05/04/**,09:49:12

FILES GENERATED - DATED 05/04/**,09:49:12

NONE!

TOTAL NUMBER OF WARNINGS = 2, MESSAGES = 0

*** TR-20 RUN COMPLETED ***

Appendix M
Detention Calculations

Detention Calculations

Pre-Project (wtrftpp.t20)

Total Storage = 164

Main Pond Storage=164 ac-ft 100-Year = 1371.94			Hotel Pond=0 ac-ft 100-Year = n/a		
Stage (ft)	Discharge (cfs)	Storage (ac-ft)	Stage (ft)	Discharge (cfs)	Storage (ac-ft)
1368.7	0	0			
1369	100	13.6			
1370	180	60.4			
1371	490	109.58			
1372	1160	167.28			

Current (wtrftc.t20)

Total Storage = 176

Main Pond Storage=167 ac-ft 100-Year = 1372.0			Hotel Pond=9 ac-ft 100-Year = 1376.08		
Stage (ft)	Discharge (cfs)	Storage (ac-ft)	Stage (ft)	Discharge (cfs)	Storage (ac-ft)
1368.7	0	0	1373	0	0
1369	100	14.4	1374	9.46	1.98
1370	180	63.09	1375	158.5	4.44
1371	490	113.69	1376	256.63	7.73
1372	1160	167	1377	331.69	11.24

Future Option 1 (wtrftf1.t20)

Total Storage = 196

Additional storage for future development = 21

Main Pond Storage=186 ac-ft 100-Year = 1371.9			Hotel Pond=10 ac-ft 100-Year = 1376.76		
Stage (ft)	Discharge (cfs)	Storage (ac-ft)	Stage (ft)	Discharge (cfs)	Storage (ac-ft)
1368.7	0	0	1373	0	0
1369	100	16.6	1374	9.46	1.98
1370	180	72.6	1375	158.5	4.44
1371	490	130.7	1376	256.63	7.73
1372	1160	192.1	1377	331.69	11.24

Future Option 2 (wtrftf2.t20)

Total Storage = 191

Additional storage for future development = 16

Main Pond Storage=164 ac-ft 100-Year = 1371.94			Hotel Pond=27 ac-ft 100-Year = 1376.82		
Stage (ft)	Discharge (cfs)	Storage (ac-ft)	Stage (ft)	Discharge (cfs)	Storage (ac-ft)
1368.7	0	0	1373	0	0.0
1369	100	14.4	1374	6.549	5.0
1370	180	63.09	1375	15.593	11.7
1371	490	113.69	1376	54.032	20.1
1372	1160	167	1377	194.24	29.0

* 2.6 ac-ft additional storage provided by modifying the Hotel Pond outlet structure. 13 additional ac-ft of storage provided by additional detention facilities.