

Supplemental 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 controlled 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. An area of approximately 17 acres on the northeast corner of 13th Street and Webb Road drains into the pond. This land is platted as the Foliage Addition, but is currently undeveloped. This land has been modeled as undeveloped in the pre-project condition.

Runoff Characteristics

The pre-project watershed has been divided into watersheds to correspond with the future conditions model. Additional watershed boundaries have been added at locations where ponds have been or will be constructed. These areas, their time of concentration, and curve number are shown on the Pre-Project TR-20 Key Map, Appendix D.

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. Storage calculations are shown in Table 1.

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

Table 1 Current Storage Calculations.

Current Conditions Total Storage=167ac-ft		
Main Pond Storage = 167c-ft		100-Year=1372.0
Stage	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

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
070	Flow into lakes	1050	1449	1713	2316	2592	3093
018	Flow from lake at Webb Rd	224	397	528	969	1165	1515

Post-Project Conditions

Development

The Waterfront is planning to expand commercial development east of the current development and the Foliage Addition will develop as commercial. Current and future development in Basins 045, 051, 052, 055, 061 and a portion of 065 has been modeled with commercial land use. Future development associated with the Waterfront Addition and the Foliage Addition is shown on the Future TR-20 key map, Appendix G.

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 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 will not 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 Table 3 shows the detention characteristics of the main lake and the hotel pond. The size of the detention will need to be increased to decrease peak flow rates from the property. In the post-project model, the outlet structure of the hotel pond has been modified to provide more detention. A third pond upstream of the two existing ponds was modeled to provide the additional detention needed. Storage calculations for the proposed post-project site are in Table 4. The site was modeled using SCS TR-20 software with the remaining portions of the Waterfront Addition and the Foliage Addition developed as commercial, Appendix H. Time of concentration calculations were done by the FAA method, Appendix I. Additional storage will be provided in the basins east of the main lake. For this analysis, the hotel pond was modified and an additional pond was added to the pond system. This pond expansion provides an additional 12 acre-feet of storage. Pond storage calculations were done in a spreadsheet, Appendix J. Final pond locations and layouts may change as the final site layouts are finalized. This additional storage reduces peak flow rates from the site below pre-project conditions.

Table 3 Current Storage Calculations.

Current Conditions Total Storage=176 ac-ft		
Main Pond Storage = 167c-ft		100-Year=1372.0
Stage	Discharge (cfs)	Storage (ac-ft)
1368.7	0	0
1369	100	14.4
1370	180	63.09
1371	490	113.69
1372	1160	167
Hotel Pond = 11 ac-ft		100-Year=1376.08
Stage	Discharge (cfs)	Storage (ac-ft)
1373	0	0
1374	9.46	1.98
1375	158.5	4.44
1376	256.63	7.73
1377	331.69	11.24

Table 4 Future Storage Calculations.

Future Conditions Total Storage=188 ac-ft		
Main Pond Storage = 167 ac-ft		100-Year=1372.01
Stage	Discharge (cfs)	Storage (ac-ft)
1368.7	0	0
1369	100	14.4
1370	180	63.09
1371	490	113.69
1372	1160	167
Hotel Pond = 11 ac-ft		100-Year=1376.78
Stage	Discharge (cfs)	Storage (ac-ft)
1373	0	0
1374	6.549	1.978
1375	15.593	4.757
1376	84.154	8.364
1377	249.377	12.12
Upper Hotel Pond = 10 ac-ft		100-Year = 1380.72
Stage	Discharge (cfs)	Storage (ac-ft)
1376	0	0
1377	0.1	1.984
1378	44.956	4.059
1379	64.723	6.224
1380	79.756	8.481
1381	92.204	10.832
1382	103.1393	13.278

Table 2. Future Flowrates.

TR-20 ID	Description	Design Storm Flows (cfs)					
		2-Yr	5-Yr	10-Yr	50-Yr	100-Yr	500-Yr
070	Flow into lakes	999	1374	1617	2210	2473	2945
018	Flow from lake at Webb Rd	218	383	497	956	1156	1511

Table 2. Comparison.

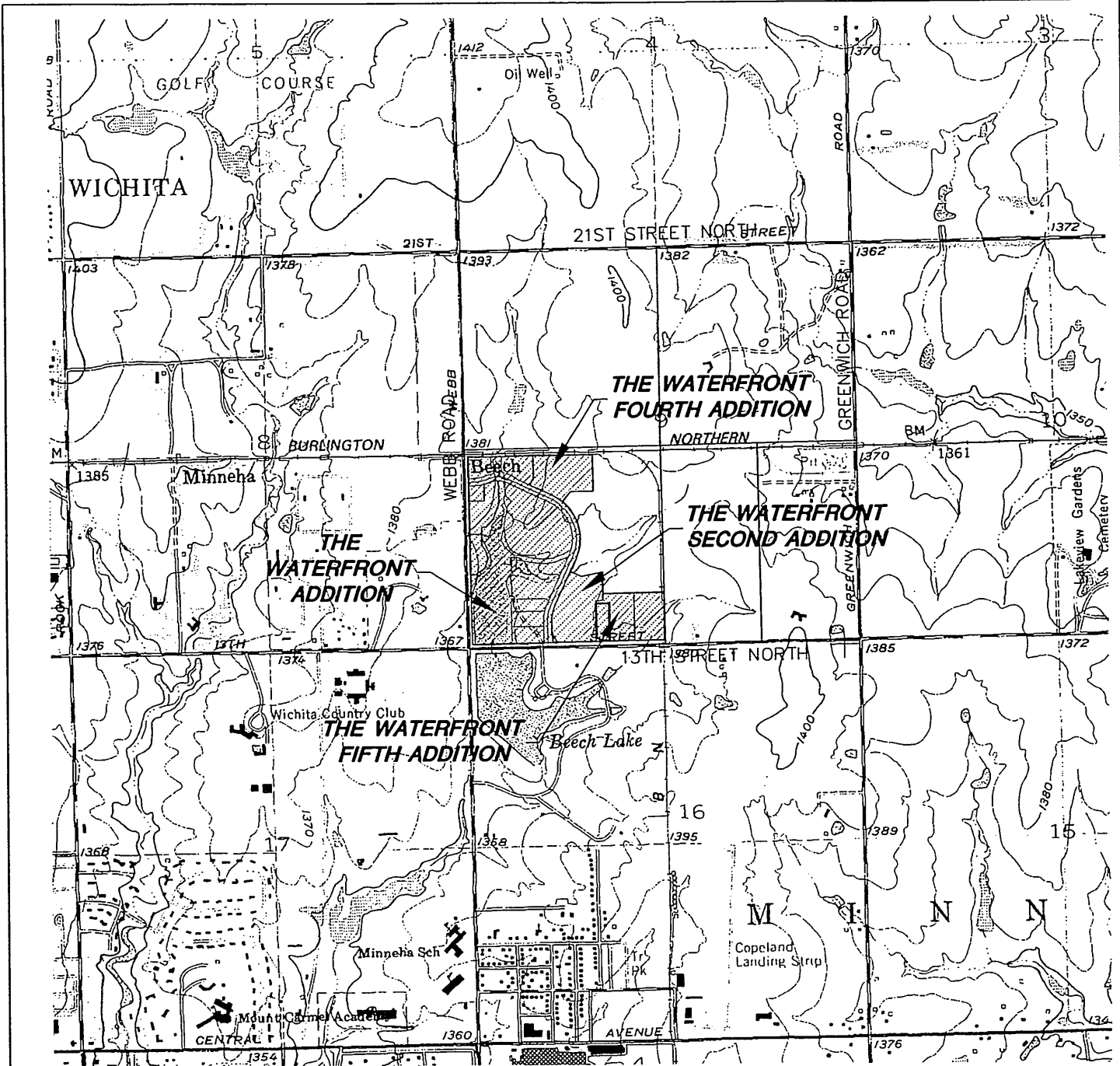
TR-20 ID	Description	Design Storm Flows (cfs)					
		2-Yr	5-Yr	10-Yr	50-Yr	100-Yr	500-Yr
018	Pre-Project Flow from lakes	224	397	528	969	1165	1515
018	Post-Project Flow from lakes	218	383	497	956	1156	1511

Summary

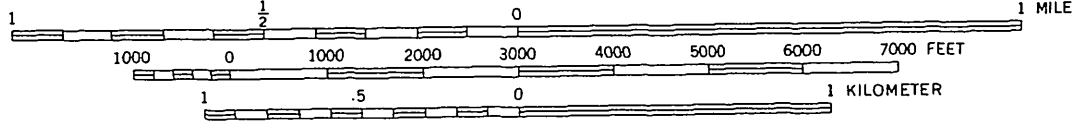
The Waterfront Addition is a multi-use development. Many of the areas around the lake have developed as banks, restaurants, and office space. The site is continuing to develop with planned uses including restaurants and office space. An existing detention pond near the hotel will be expanded and modified to provide detention for future commercial development of the Waterfront Addition. The peak outflow at the outlet of Beech Lake will not increase from pre-project conditions with the development of the Waterfront Addition and the Foliage Addition.

Appendix A

Quadrangle Map



6559 11 SW
SCALE 1:24 000



CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

\\s:\w\137201\A\DWG\DRWG\071610\11-22-06.dwg

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

Appendix B

Soil Survey

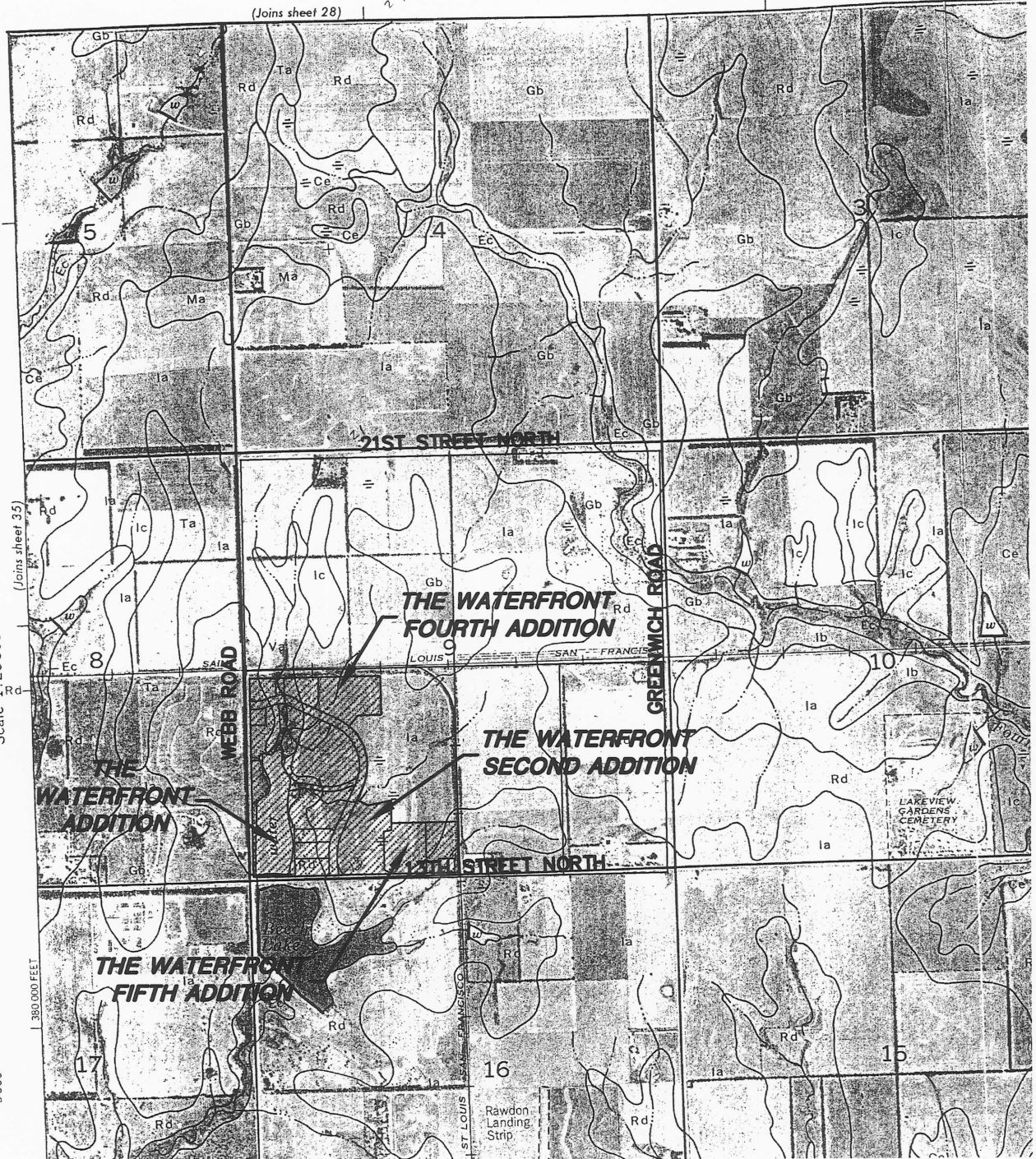
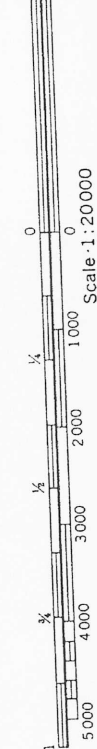
36

R. 2 E.

(Joins sheet 28)



1 Mile
5,000 Feet



H:\CIVIL\02014\DWG\DRWG_02014_SSD.DWG



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

DESIGN BY.

SEPTEMBER 2002

DATE

KLA

DRAWN BY.

02014

JOB NO.

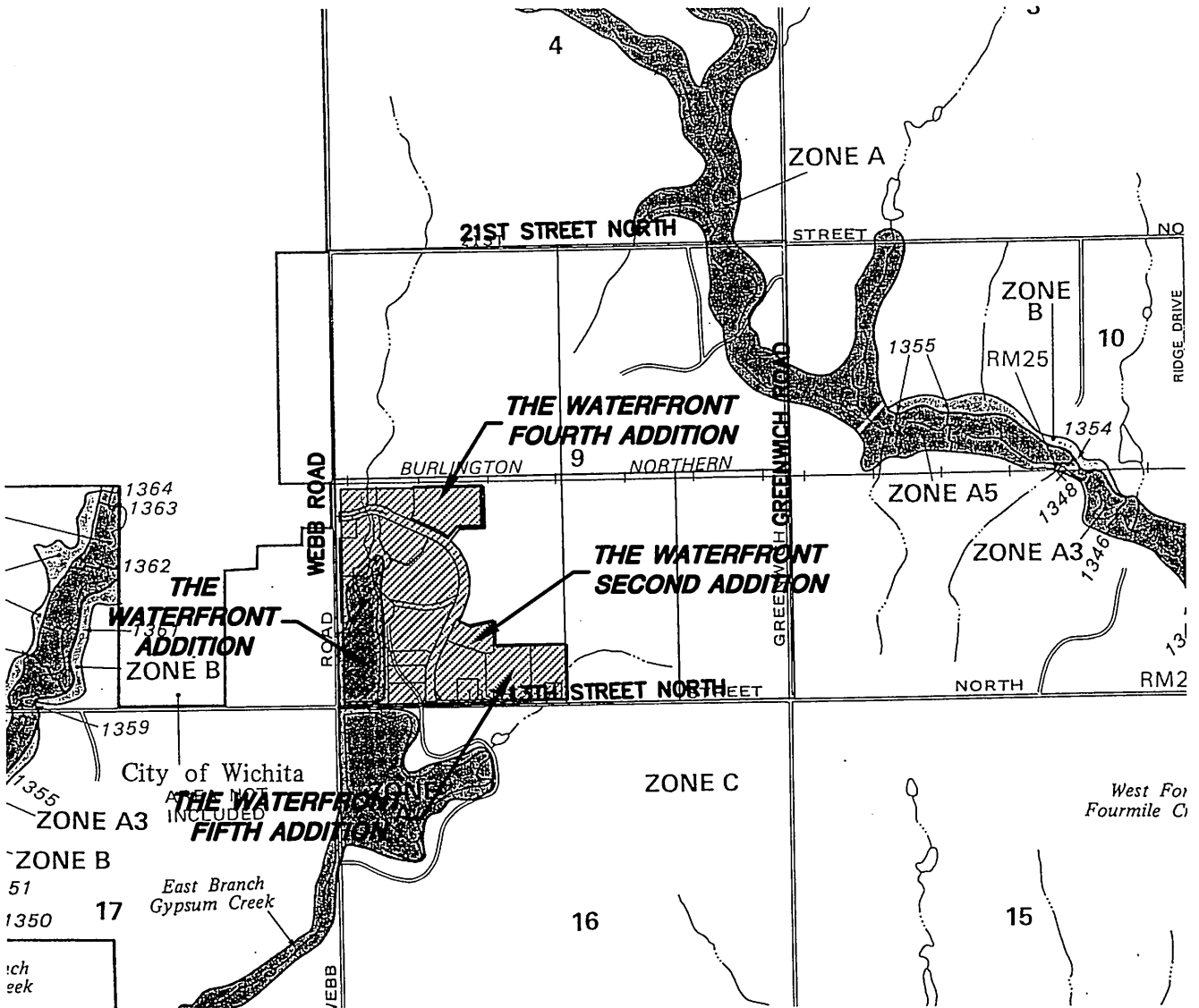
GM

CHECKED BY.

1 / 1

SHEET/OF

Appendix C
Flood Insurance Rate Map (FIRM)



NATIONAL FLOOD INSURANCE PROGRAM


FIRM
FLOOD INSURANCE RATE MAP

SEDGWICK COUNTY,
KANSAS
(UNINCORPORATED AREAS)

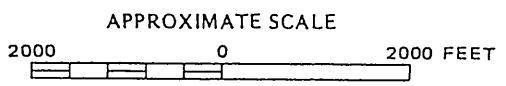

PANEL 150 OF 300

COMMUNITY-PANEL NUMBER
200321 0150 A

EFFECTIVE DATE:
JUNE 3, 1986



Federal Emergency Management Agency

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

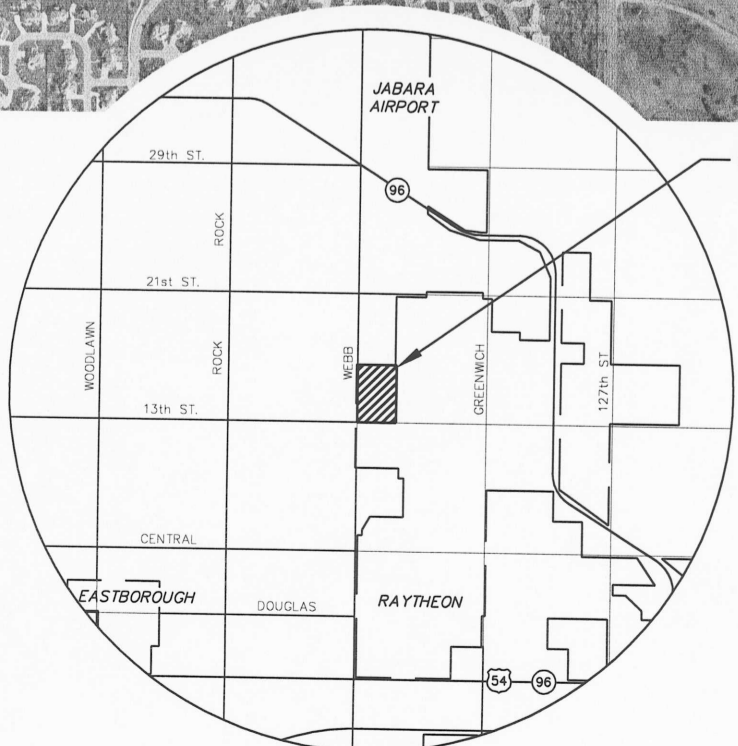
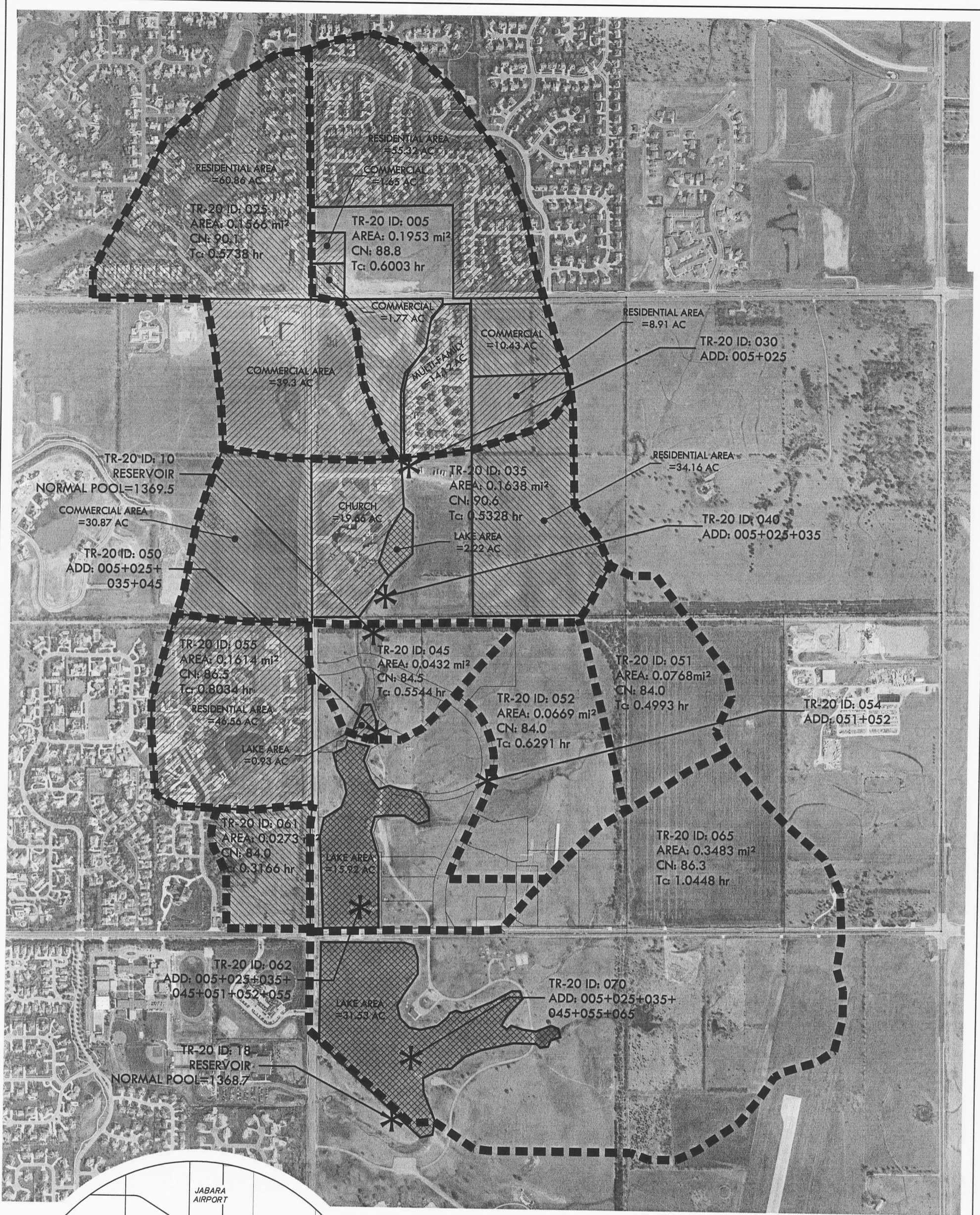
THE WATERFRONT ADDITION
PROJECT NAME

FIRM PANEL 150 OF 300
SEDGWICK COUNTY, KANSAS
SHEET TITLE

KJA	KJA	GA
DESIGN BY.	DRAWN BY.	CHECKED BY.
SEPTEMBER 2002	02014	1 / 1
DATE	JOB NO.	SHEET/OF

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Appendix D
Pre-Project TR-20 Key Map



SITE LOCATION

LEGEND

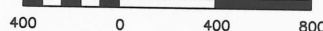
- POLE - POLE
- HLP - HIGH LINE POLE
- ▬ WATERSHED BOUNDARIES
- PP - POWER POLE AND GUY ANCHOR
- TR - TELEPHONE RISER
- INLET
- BM - BENCHMARK

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'



REVISED: 10/20/06
2000 AERIAL

WATERFRONT ADDITION
 PROJECT NAME

PRE-PROJECT TR-20 KEY MAP
 DESIGN TITLE

KLA DESIGN | JFL DRAWN BY

GJA CHECKED BY | FEB. 2006 DATE

02014 JOB NO. | 1 / 1 SHEET/OF

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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					ADD BASIN 052 & 051		
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	1 051	1 0.0786	84.0	0.4993		1	
6	RUNOFF	1 052	2 0.0669	84.0	0.6291		1	
6	ADDHYD	4 054	2 1 4					
6	RUNOFF	1 055	2 0.1614	86.5	0.8034		1	
6	ADDHYD	4 059	4 2 5				1	
6	ADDHYD	4 060	5 3 1				1	

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

6	RUNOFF	1 061	2 0.0273	84.0	0.3166		1	
6	ADDHYD	4 062	2 1 4				1	
6	RUNOFF	1 065	3 0.3483	86.3	1.0448		1	
6	ADDHYD	4 070	4 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*****

TR20 ----- SCS -
PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06 ADD BASIN 052 VERSION
10/19/** TPP.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL2.04TEST
14:25:21 PASS 1 JOB NO. 1 PAGE 1

COMPUTER PROGRAM FOR PROJECT FORMULATION - HYDROLOGY USER NOTES

The Users' Manual for this program is SCS Technical Release 20 (TR-20), dated April 1990. The TR-20 program is no longer supported on the mainframe since all post 1986 program changes have only been in the IBM compatible microcomputer environment.

Compatible input and data check programs are TR20INPT.EXE, version III, dated 01/30/90 and TR20CK.EXE, version II, which is forthcoming.

Major changes from the 1986 TR-20 microcomputer version are:

HYDROGRAPH GENERATION: program procedure to develop runoff hydrographs revised to preserve total hydrograph volume as well as the peak discharge. Hydrographs can contain up to four hundred main time increment points from the beginning of runoff.

ATKIN ROUTING: separate channel and floodplain lengths can be entered to define additional storage in meandering channels below the representative low ground elevation. Program changes have been made to better handle multiple peaked hydrographs.

FLOW DURATION: can be obtained if requested.

OUTPUT 80 COLUMNS: Output fits 80 column paper. Hydrograph coordinates over 100 cfs are rounded and shown as whole numbers.

ERRORS, WARNINGS, AND MESSAGES: expanded and updated.

LIST OPTIONS: can print all or selected parts of input data.

INTERMEDIATE PEAKS: requires new IPEAKS record.

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

TR20 ----- SCS -
PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06 ADD BASIN 052 VERSION
10/19/** TPP.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL2.04TEST
14:25:21 PASS 1 JOB NO. 1 PAGE 3

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 = 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 51
 OUTPUT HYDROGRAPH = 1 AREA = .08 SQ MI
 INPUT RUNOFF CURVE = 84. TIME OF CONCENTRATION = .50 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0666 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.19	82.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 1.93 WATERSHED INCHES; 98 CFS-HRS; 8.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 52
 OUTPUT HYDROGRAPH = 2 AREA = .07 SQ MI
 INPUT RUNOFF CURVE = 84. TIME OF CONCENTRATION = .63 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0839 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.26	60.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 1.93 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
 INPUT HYDROGRAPHS 2,1 OUTPUT HYDROGRAPH 4

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.21	141.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 1.93 WATERSHED INCHES; 182 CFS-HRS; 15.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
 OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
 INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .80 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .1071 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.37	136.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 2.14 WATERSHED INCHES; 223 CFS-HRS; 18.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 59
INPUT HYDROGRAPHS 4,2 OUTPUT HYDROGRAPH 5

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.27	266.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.04 WATERSHED INCHES; 405 CFS-HRS; 33.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
INPUT HYDROGRAPHS 5,3 OUTPUT HYDROGRAPH 1

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.33	811.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.27 WATERSHED INCHES; 1267 CFS-HRS; 104.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 61
OUTPUT HYDROGRAPH = 2 AREA = .03 SQ MI
INPUT RUNOFF CURVE = 84. TIME OF CONCENTRATION = .32 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0422 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.08	36.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.94 WATERSHED INCHES; 34 CFS-HRS; 2.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 62
INPUT HYDROGRAPHS 2,1 OUTPUT HYDROGRAPH 4

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.33	826.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.26 WATERSHED INCHES; 1301 CFS-HRS; 107.5 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

TR20 ----- SCS -
PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06 ADD BASIN 052 VERSION
10/19/** TPP.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL2.04TEST
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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 4,3 OUTPUT HYDROGRAPH 2

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.36	1050.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.22 WATERSHED INCHES; 1778 CFS-HRS; 146.9 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)
13.46	224.5	1370.14

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.21 WATERSHED INCHES; 1771 CFS-HRS; 146.4 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

TR20 ----- SCS -
PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06 ADD BASIN 052 VERSION
10/19/** TPP.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL2.04TEST
14:25:21 PASS 2 JOB NO. 1 PAGE 8

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 51
OUTPUT HYDROGRAPH = 1 AREA = .08 SQ MI
INPUT RUNOFF CURVE = 84. TIME OF CONCENTRATION = .50 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0666 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.18	121.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
2.86 WATERSHED INCHES;	145 CFS-HRS;	12.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 52
OUTPUT HYDROGRAPH = 2 AREA = .07 SQ MI
INPUT RUNOFF CURVE = 84. TIME OF CONCENTRATION = .63 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0839 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.26	88.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
2.86 WATERSHED INCHES;	123 CFS-HRS;	10.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,1 OUTPUT HYDROGRAPH 4

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.21	208.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
2.86 WATERSHED INCHES;	268 CFS-HRS;	22.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .80 HOURS
COMPUTED INTERNAL TIME INCREMENT = .1071 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.37	195.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
3.09 WATERSHED INCHES;	322 CFS-HRS;	26.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 59
INPUT HYDROGRAPHS 4,2 OUTPUT HYDROGRAPH 5

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.27	387.4	(NULL)
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
2.98 WATERSHED INCHES;	591 CFS-HRS;	48.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
 INPUT HYDROGRAPHS 5,3 OUTPUT HYDROGRAPH 1

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.33	1103.3	(NULL)
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
3.24 WATERSHED INCHES;	1809 CFS-HRS;	149.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 61
 OUTPUT HYDROGRAPH = 2 AREA = .03 SQ MI
 INPUT RUNOFF CURVE = 84. TIME OF CONCENTRATION = .32 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0422 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.08	53.7	(RUNOFF)
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
2.86 WATERSHED INCHES;	50 CFS-HRS;	4.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 62
 INPUT HYDROGRAPHS 2,1 OUTPUT HYDROGRAPH 4

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.31	1126.8	(NULL)
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
3.23 WATERSHED INCHES;	1860 CFS-HRS;	153.7 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)

TR20 ----- SCS -
PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06 ADD BASIN 052 VERSION
10/19/** TPP.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.07 WATERSHED INCHES; 691 CFS-HRS; 57.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 4,3 OUTPUT HYDROGRAPH 2

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.36	1449.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.18 WATERSHED INCHES; 2551 CFS-HRS; 210.8 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)
13.28	396.7	1370.70

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.17 WATERSHED INCHES; 2542 CFS-HRS; 210.1 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2

TR20 ----- SCS -
 PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06 ADD BASIN 052 VERSION
 10/19/** TPP.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL2.04TEST
 14:25:21 PASS 3 JOB NO. 1 PAGE 13

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.

OPERATION RUNOFF XSECTION 51
OUTPUT HYDROGRAPH = 1 AREA = .08 SQ MI
INPUT RUNOFF CURVE = 84. TIME OF CONCENTRATION = .50 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0666 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.18	147.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.50 WATERSHED INCHES; 177 CFS-HRS; 14.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 52
OUTPUT HYDROGRAPH = 2 AREA = .07 SQ MI
INPUT RUNOFF CURVE = 84. TIME OF CONCENTRATION = .63 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0839 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.26	109.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.50 WATERSHED INCHES; 151 CFS-HRS; 12.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,1 OUTPUT HYDROGRAPH 4

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.21	253.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.50 WATERSHED INCHES; 328 CFS-HRS; 27.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .80 HOURS
COMPUTED INTERNAL TIME INCREMENT = .1071 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.35	238.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.75 WATERSHED INCHES; 391 CFS-HRS; 32.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 59
INPUT HYDROGRAPHS 4,2 OUTPUT HYDROGRAPH 5

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.26	474.9	(NULL)
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
3.63 WATERSHED INCHES;	719 CFS-HRS;	59.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
 INPUT HYDROGRAPHS 5,3 OUTPUT HYDROGRAPH 1

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.32	1296.6	(NULL)
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
3.90 WATERSHED INCHES;	2180 CFS-HRS;	180.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 61
 OUTPUT HYDROGRAPH = 2 AREA = .03 SQ MI
 INPUT RUNOFF CURVE = 84. TIME OF CONCENTRATION = .32 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0422 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.08	65.8	(RUNOFF)
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
3.50 WATERSHED INCHES;	62 CFS-HRS;	5.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 62
 INPUT HYDROGRAPHS 2,1 OUTPUT HYDROGRAPH 4

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.31	1324.7	(NULL)
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
3.89 WATERSHED INCHES;	2241 CFS-HRS;	185.2 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)
12.51	435.3	(RUNOFF)

TR20 ----- SCS -
PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06 ADD BASIN 052 VERSION
10/19/** TPP.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL2.04TEST
14:25:21 PASS 3 JOB NO. 1 PAGE 17

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

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 4,3 OUTPUT HYDROGRAPH 2

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.36	1713.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.84 WATERSHED INCHES; 3080 CFS-HRS; 254.5 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)
13.21	527.9	1371.06

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.83 WATERSHED INCHES; 3069 CFS-HRS; 253.6 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 3

TR20 ----- SCS -
 PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06 ADD BASIN 052 VERSION
 10/19/** TPP.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL2.04TEST
 14:25:21 PASS 4 JOB NO. 1 PAGE 18

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)

TR20 ----- SCS -
PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06 ADD BASIN 052 VERSION
10/19/** TPP.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL2.04TEST
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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.

TR20 ----- SCS -
PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06 ADD BASIN 052 VERSION
10/19/** TPP.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL2.04TEST
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OPERATION RUNOFF XSECTION 51
OUTPUT HYDROGRAPH = 1 AREA = .08 SQ MI
INPUT RUNOFF CURVE = 84. TIME OF CONCENTRATION = .50 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0666 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.18	214.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.12 WATERSHED INCHES; 260 CFS-HRS; 21.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 52
OUTPUT HYDROGRAPH = 2 AREA = .07 SQ MI
INPUT RUNOFF CURVE = 84. TIME OF CONCENTRATION = .63 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0839 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.25	159.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.12 WATERSHED INCHES; 221 CFS-HRS; 18.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
INPUT HYDROGRAPHS 2,1 OUTPUT HYDROGRAPH 4

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.20	370.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.12 WATERSHED INCHES; 481 CFS-HRS; 39.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .80 HOURS
COMPUTED INTERNAL TIME INCREMENT = .1071 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.36	336.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.40 WATERSHED INCHES; 562 CFS-HRS; 46.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 59
INPUT HYDROGRAPHS 4,2 OUTPUT HYDROGRAPH 5

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.26 677.7 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 5.27 WATERSHED INCHES; 1043 CFS-HRS; 86.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
 INPUT HYDROGRAPHS 5,3 OUTPUT HYDROGRAPH 1

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.32 1711.7 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 5.56 WATERSHED INCHES; 3107 CFS-HRS; 256.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 61
 OUTPUT HYDROGRAPH = 2 AREA = .03 SQ MI
 INPUT RUNOFF CURVE = 84. TIME OF CONCENTRATION = .32 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0422 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.07 94.8 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 5.12 WATERSHED INCHES; 90 CFS-HRS; 7.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 62
 INPUT HYDROGRAPHS 2,1 OUTPUT HYDROGRAPH 4

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.31 1752.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 5.55 WATERSHED INCHES; 3197 CFS-HRS; 264.2 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)
 12.50 623.9 (RUNOFF)

TR20 ----- SCS -
PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06 ADD BASIN 052 VERSION
10/19/** TPP.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.38 WATERSHED INCHES; 1208 CFS-HRS; 99.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 4,3 OUTPUT HYDROGRAPH 2

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.36	2316.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.50 WATERSHED INCHES; 4406 CFS-HRS; 364.1 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)
13.11	969.5	1371.72

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.48 WATERSHED INCHES; 4389 CFS-HRS; 362.7 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 4

TR20 ----- SCS -
 PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06 ADD BASIN 052 VERSION
 10/19/** TPP.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL2.04TEST
 14:25:21 PASS 5 JOB NO. 1 PAGE 23

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.

OPERATION RUNOFF XSECTION 51
 OUTPUT HYDROGRAPH = 1 AREA = .08 SQ MI
 INPUT RUNOFF CURVE = 84. TIME OF CONCENTRATION = .50 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0666 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.18	245.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
5.90 WATERSHED INCHES;	299 CFS-HRS;	24.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 52
 OUTPUT HYDROGRAPH = 2 AREA = .07 SQ MI
 INPUT RUNOFF CURVE = 84. TIME OF CONCENTRATION = .63 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0839 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.25	181.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
5.90 WATERSHED INCHES;	255 CFS-HRS;	21.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
 INPUT HYDROGRAPHS 2,1 OUTPUT HYDROGRAPH 4

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.20	422.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
5.90 WATERSHED INCHES;	554 CFS-HRS;	45.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
 OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
 INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .80 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .1071 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.35	386.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
6.20 WATERSHED INCHES;	646 CFS-HRS;	53.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 59
 INPUT HYDROGRAPHS 4,2 OUTPUT HYDROGRAPH 5

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.26 778.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 6.06 WATERSHED INCHES; 1200 CFS-HRS; 99.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
 INPUT HYDROGRAPHS 5,3 OUTPUT HYDROGRAPH 1

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.32 1900.7 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 6.36 WATERSHED INCHES; 3554 CFS-HRS; 293.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 61
 OUTPUT HYDROGRAPH = 2 AREA = .03 SQ MI
 INPUT RUNOFF CURVE = 84. TIME OF CONCENTRATION = .32 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0422 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.07 108.5 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 5.90 WATERSHED INCHES; 104 CFS-HRS; 8.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 62
 INPUT HYDROGRAPHS 2,1 OUTPUT HYDROGRAPH 4

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.31 1947.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 6.35 WATERSHED INCHES; 3658 CFS-HRS; 302.3 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)
 12.50 710.3 (RUNOFF)

TR20 ----- SCS -
PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06 ADD BASIN 052 VERSION
10/19/** TPP.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.17 WATERSHED INCHES; 1386 CFS-HRS; 114.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 4,3 OUTPUT HYDROGRAPH 2

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.36	2592.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.30 WATERSHED INCHES; 5044 CFS-HRS; 416.8 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)
13.11	1165.1	1372.01

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.27 WATERSHED INCHES; 5023 CFS-HRS; 415.1 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 5

TR20 ----- SCS -
 PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06 ADD BASIN 052 VERSION
 10/19/** TPP.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL2.04TEST
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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)

TR20 ----- SCS -
PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06 ADD BASIN 052 VERSION
10/19/** TPP.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL2.04TEST
14:25:21 PASS 6 JOB NO. 1 PAGE 29

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.

OPERATION RUNOFF XSECTION 51
 OUTPUT HYDROGRAPH = 1 AREA = .08 SQ MI
 INPUT RUNOFF CURVE = 84. TIME OF CONCENTRATION = .50 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0666 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.17	305.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 7.39 WATERSHED INCHES; 375 CFS-HRS; 31.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 52
 OUTPUT HYDROGRAPH = 2 AREA = .07 SQ MI
 INPUT RUNOFF CURVE = 84. TIME OF CONCENTRATION = .63 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0839 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.25	226.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 7.40 WATERSHED INCHES; 319 CFS-HRS; 26.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 54
 INPUT HYDROGRAPHS 2,1 OUTPUT HYDROGRAPH 4

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.20	525.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 7.39 WATERSHED INCHES; 694 CFS-HRS; 57.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
 OUTPUT HYDROGRAPH = 2 AREA = .16 SQ MI
 INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .80 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .1071 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.34	477.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 7.70 WATERSHED INCHES; 802 CFS-HRS; 66.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 59
 INPUT HYDROGRAPHS 4,2 OUTPUT HYDROGRAPH 5

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.25 971.6 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 7.55 WATERSHED INCHES; 1496 CFS-HRS; 123.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 60
 INPUT HYDROGRAPHS 5,3 OUTPUT HYDROGRAPH 1

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.32 2246.7 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 7.87 WATERSHED INCHES; 4400 CFS-HRS; 363.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 61
 OUTPUT HYDROGRAPH = 2 AREA = .03 SQ MI
 INPUT RUNOFF CURVE = 84. TIME OF CONCENTRATION = .32 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0422 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.07 135.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 7.39 WATERSHED INCHES; 130 CFS-HRS; 10.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 62
 INPUT HYDROGRAPHS 2,1 OUTPUT HYDROGRAPH 4

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.30 2305.9 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 7.86 WATERSHED INCHES; 4530 CFS-HRS; 374.3 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)
 12.50 873.6 (RUNOFF)

TR20 ----- SCS -
PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06 ADD BASIN 052 VERSION
10/19/** TPP.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL2.04TEST
14:25:21 PASS 6 JOB NO. 1 PAGE 32

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

OPERATION ADDHYD XSECTION 70
INPUT HYDROGRAPHS 4,3 OUTPUT HYDROGRAPH 2

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.36	3092.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.81 WATERSHED INCHES; 6255 CFS-HRS; 516.9 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)
13.10	1514.9	1372.53

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.77 WATERSHED INCHES; 6225 CFS-HRS; 514.5 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 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)	TIME (HR)	RATE (CFS)	RATE (CSM)

RAINFALL OF 3.50 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.
 RAINFALL 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 51	RUNOFF	.08	1.93	---	12.19	83	1037.5
XSECTION 52	RUNOFF	.07	1.93	---	12.26	60	857.1
XSECTION 54	ADDHYD	.15	1.93	---	12.21	141	940.0
XSECTION 55	RUNOFF	.16	2.14	---	12.37	137	856.3
XSECTION 59	ADDHYD	.31	2.04	---	12.27	266	858.1
XSECTION 60	ADDHYD	.87	2.27	---	12.33	811	932.2
XSECTION 61	RUNOFF	.03	1.94	---	12.08	37	1233.3
XSECTION 62	ADDHYD	.89	2.26	---	12.33	827	929.2
XSECTION 65	RUNOFF	.35	2.12	---	12.52	250	714.3
XSECTION 70	ADDHYD	1.24	2.22	---	12.36	1050	846.8
STRUCTURE 18	RESVOR	1.24	2.21	1370.14	13.46	224	180.6

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

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 12 STORM 2

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 51	RUNOFF	.08	2.86	---	12.18	122	1525.0
XSECTION 52	RUNOFF	.07	2.86	---	12.26	89	1271.4
XSECTION 54	ADDHYD	.15	2.86	---	12.21	209	1393.3
XSECTION 55	RUNOFF	.16	3.09	---	12.37	196	1225.0
XSECTION 59	ADDHYD	.31	2.98	---	12.27	387	1248.4
XSECTION 60	ADDHYD	.87	3.24	---	12.33	1103	1267.8
XSECTION 61	RUNOFF	.03	2.86	---	12.08	54	1800.0
XSECTION 62	ADDHYD	.89	3.23	---	12.31	1127	1266.3
XSECTION 65	RUNOFF	.35	3.07	---	12.51	359	1025.7
XSECTION 70	ADDHYD	1.24	3.18	---	12.36	1449	1168.5
STRUCTURE 18	RESVOR	1.24	3.17	1370.70	13.28	397	320.2

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 51	RUNOFF	.08	3.50	---	12.18	147	1837.5
XSECTION 52	RUNOFF	.07	3.50	---	12.26	109	1557.1
XSECTION 54	ADDHYD	.15	3.50	---	12.21	254	1693.3
XSECTION 55	RUNOFF	.16	3.75	---	12.35	239	1493.8

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 13 STORM 3

XSECTION 59	ADDHYD	.31	3.63	---	12.26	475	1532.3
XSECTION 60	ADDHYD	.87	3.90	---	12.32	1297	1490.8
XSECTION 61	RUNOFF	.03	3.50	---	12.08	66	2200.0
XSECTION 62	ADDHYD	.89	3.89	---	12.31	1325	1488.8
XSECTION 65	RUNOFF	.35	3.73	---	12.51	435	1242.9
XSECTION 70	ADDHYD	1.24	3.84	---	12.36	1713	1381.5
STRUCTURE 18	RESVOR	1.24	3.83	1371.06	13.21	528	425.8

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	5.17	---	12.21	112	2800.0
XSECTION 50	ADDHYD	.56	5.72	---	12.40	1061	1894.6
XSECTION 51	RUNOFF	.08	5.12	---	12.18	215	2687.5
XSECTION 52	RUNOFF	.07	5.12	---	12.25	159	2271.4
XSECTION 54	ADDHYD	.15	5.12	---	12.20	370	2466.7
XSECTION 55	RUNOFF	.16	5.40	---	12.36	337	2106.3
XSECTION 59	ADDHYD	.31	5.27	---	12.26	678	2187.1
XSECTION 60	ADDHYD	.87	5.56	---	12.32	1712	1967.8
XSECTION 61	RUNOFF	.03	5.12	---	12.07	95	3166.7
XSECTION 62	ADDHYD	.89	5.55	---	12.31	1752	1968.5
XSECTION 65	RUNOFF	.35	5.38	---	12.50	624	1782.9
XSECTION 70	ADDHYD	1.24	5.50	---	12.36	2316	1867.7
STRUCTURE 18	RESVOR	1.24	5.48	1371.72	13.11	969	781.5

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)	TIME (HR)	RATE (CFS)	RATE (CSM)

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 51	RUNOFF	.08	5.90	---	12.18	246	3075.0
XSECTION 52	RUNOFF	.07	5.90	---	12.25	181	2585.7
XSECTION 54	ADDHYD	.15	5.90	---	12.20	423	2820.0
XSECTION 55	RUNOFF	.16	6.20	---	12.35	387	2418.8
XSECTION 59	ADDHYD	.31	6.06	---	12.26	778	2509.7
XSECTION 60	ADDHYD	.87	6.36	---	12.32	1901	2185.1
XSECTION 61	RUNOFF	.03	5.90	---	12.07	108	3600.0
XSECTION 62	ADDHYD	.89	6.35	---	12.31	1947	2187.6
XSECTION 65	RUNOFF	.35	6.17	---	12.50	710	2028.6
XSECTION 70	ADDHYD	1.24	6.30	---	12.36	2592	2090.3
STRUCTURE 18	RESVOR	1.24	6.27	1372.01	13.11	1165	939.5

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/		STANDARD		PEAK DISCHARGE			
STRUCTURE	CONTROL	DRAINAGE	RUNOFF	-----			
ID	OPERATION	AREA	AMOUNT	ELEVATION	TIME	RATE	RATE
		(SQ MI)	(IN)	(FT)	(HR)	(CFS)	(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	51	RUNOFF	.08	7.39	---	12.17	305 3812.5
XSECTION	52	RUNOFF	.07	7.40	---	12.25	226 3228.6
XSECTION	54	ADDHYD	.15	7.39	---	12.20	526 3506.7
XSECTION	55	RUNOFF	.16	7.70	---	12.34	478 2987.5
XSECTION	59	ADDHYD	.31	7.55	---	12.25	972 3135.5
XSECTION	60	ADDHYD	.87	7.87	---	12.32	2247 2582.8
XSECTION	61	RUNOFF	.03	7.39	---	12.07	135 4500.0
XSECTION	62	ADDHYD	.89	7.86	---	12.30	2306 2591.0
XSECTION	65	RUNOFF	.35	7.67	---	12.50	874 2497.1
XSECTION	70	ADDHYD	1.24	7.81	---	12.36	3093 2494.4
STRUCTURE	18	RESVOR	1.24	7.77	1372.53	13.10	1515 1221.8

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	1.24					
ALTERNATE 11		224	*****	*****	*****	*****
ALTERNATE 12		*****	397	*****	*****	*****
ALTERNATE 13		*****	*****	528	969	*****
ALTERNATE 14		*****	*****	*****	*****	1165
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	*****

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 51	.08					
ALTERNATE 11		83 *****	*****	*****	*****	*****
ALTERNATE 12		*****	122 *****	*****	*****	*****
ALTERNATE 13		*****	*****	147	215	*****
ALTERNATE 14		*****	*****	*****	*****	246
XSECTION 52	.07					
ALTERNATE 11		60 *****	*****	*****	*****	*****
ALTERNATE 12		*****	89 *****	*****	*****	*****
ALTERNATE 13		*****	*****	109	159	*****
ALTERNATE 14		*****	*****	*****	*****	181
XSECTION 54	.15					
ALTERNATE 11		141 *****	*****	*****	*****	*****
ALTERNATE 12		*****	209 *****	*****	*****	*****
ALTERNATE 13		*****	*****	254	370	*****
ALTERNATE 14		*****	*****	*****	*****	423
XSECTION 55	.16					
ALTERNATE 11		137 *****	*****	*****	*****	*****
ALTERNATE 12		*****	196 *****	*****	*****	*****
ALTERNATE 13		*****	*****	239	337	*****
ALTERNATE 14		*****	*****	*****	*****	387
XSECTION 59	.31					
ALTERNATE 11		266 *****	*****	*****	*****	*****

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 59	.31					
ALTERNATE 12		*****	387	*****	*****	*****
ALTERNATE 13		*****	*****	475	678	*****
ALTERNATE 14		*****	*****	*****	*****	778
XSECTION 60	.87					
ALTERNATE 11		811	*****	*****	*****	*****
ALTERNATE 12		*****	1103	*****	*****	*****
ALTERNATE 13		*****	*****	1297	1712	*****
ALTERNATE 14		*****	*****	*****	*****	1901
XSECTION 61	.03					
ALTERNATE 11		37	*****	*****	*****	*****
ALTERNATE 12		*****	54	*****	*****	*****
ALTERNATE 13		*****	*****	66	95	*****
ALTERNATE 14		*****	*****	*****	*****	108
XSECTION 62	.89					
ALTERNATE 11		827	*****	*****	*****	*****
ALTERNATE 12		*****	1127	*****	*****	*****
ALTERNATE 13		*****	*****	1325	1752	*****
ALTERNATE 14		*****	*****	*****	*****	1947
XSECTION 65	.35					
ALTERNATE 11		250	*****	*****	*****	*****
ALTERNATE 12		*****	359	*****	*****	*****
ALTERNATE 13		*****	*****	435	624	*****
ALTERNATE 14		*****	*****	*****	*****	710
XSECTION 70	1.24					
ALTERNATE 11		1050	*****	*****	*****	*****
ALTERNATE 12		*****	1449	*****	*****	*****
ALTERNATE 13		*****	*****	1713	2316	*****
ALTERNATE 14		*****	*****	*****	*****	2592

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	1.24	
ALTERNATE 15		1515

STRUCTURE 10 .52

ALTERNATE 15

1224

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 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 51	.08	

ALTERNATE 15		305
XSECTION 52	.07	

ALTERNATE 15		226
XSECTION 54	.15	

ALTERNATE 15		526
XSECTION 55	.16	

ALTERNATE 15		478
XSECTION 59	.31	

ALTERNATE 15		972
XSECTION 60	.87	

ALTERNATE 15		2247

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 61	.03	
-----	-----	-----
ALTERNATE 15		135
XSECTION 62	.89	
-----	-----	-----
ALTERNATE 15		2306
XSECTION 65	.35	
-----	-----	-----
ALTERNATE 15		874
XSECTION 70	1.24	
-----	-----	-----
ALTERNATE 15		3093

TR20 ----- SCS -
PRE-PROJECT - EAST BRANCH GYPSUM CREEK 2/14/06 ADD BASIN 052 VERSION
10/19/** 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 = wtrftpp4.t20 , GIVEN DATA FILE
OUTPUT = wtrftpp4.OUT , DATED 10/19/**,14:25:21

FILES GENERATED - DATED 10/19/**,14:25:21

NONE!

TOTAL NUMBER OF WARNINGS = 2, 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	2-Year	5-Year	10-Year	2-Year	5-Year	10-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

SCS Runoff Curve Number Calculations

3/23/2006 4:05 PM

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 treatment	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	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
Residential - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residential - 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

SCS Runoff Curve Number Calculations

3/23/2006 4:05 PM

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 treatment	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	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
Residential - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residential - 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

SCS Runoff Curve Number Calculations

3/23/2006 4:05 PM

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 treatment	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	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
Residential - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residential - 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

SCS Runoff Curve Number Calculations

3/23/2006 4:05 PM

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 treatment	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	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
Residential - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residential - 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

SCS Runoff Curve Number Calculations

3/23/2006 4:05 PM

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 treatment	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	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
Residential - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residential - 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

SCS Runoff Curve Number Calculations

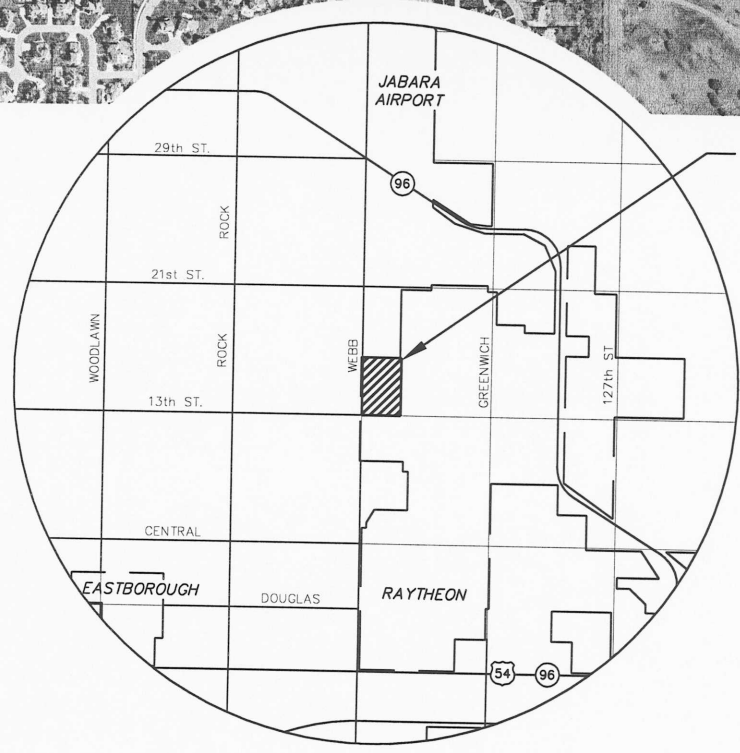
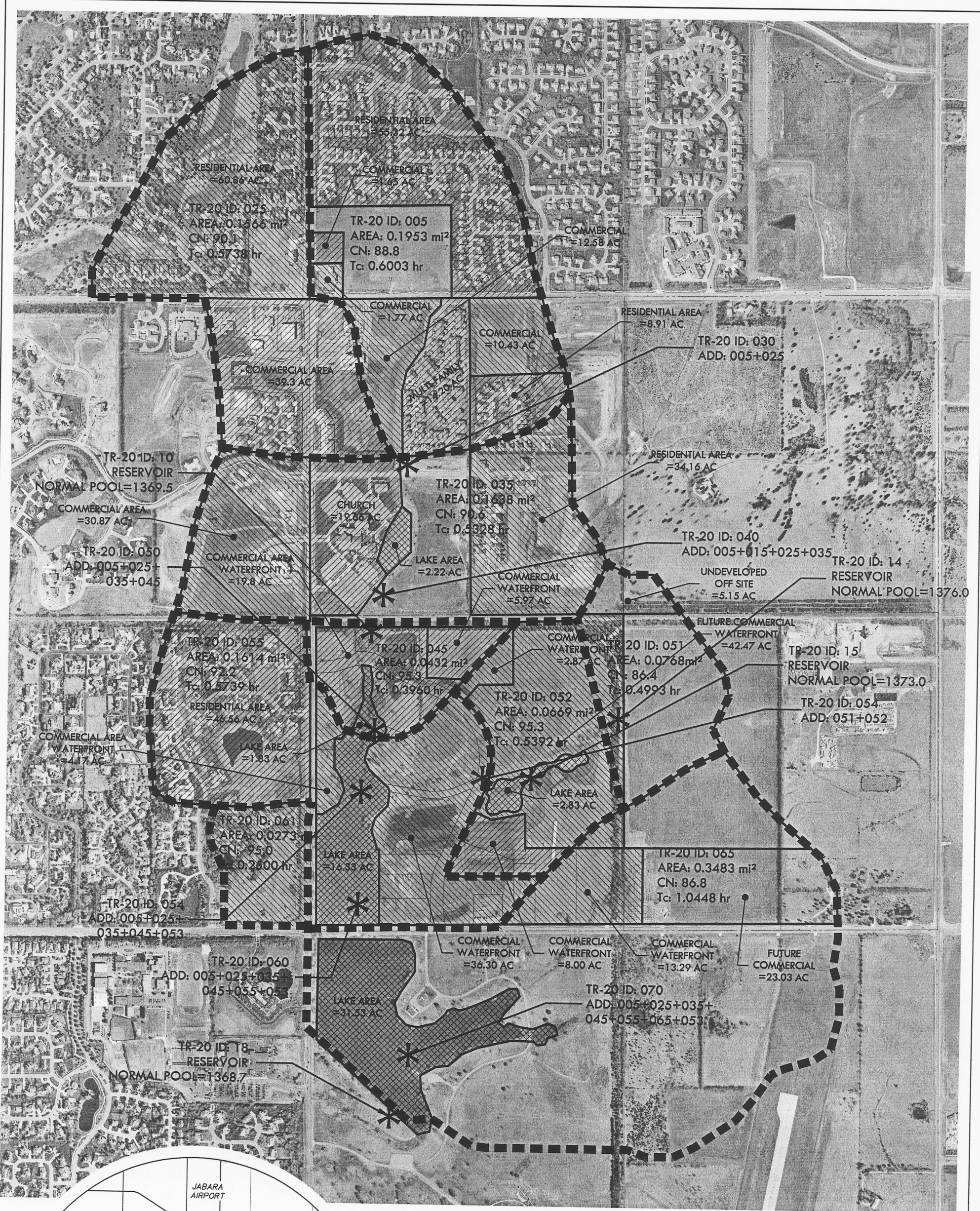
3/23/2006 4:05 PM

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 treatment	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	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
Residential - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residential - 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

Appendix G
Future TR-20 Key Map



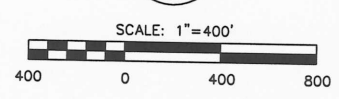
SITE LOCATION

LEGEND

- POLE - POLE
- HLP - HIGH LINE POLE
- WATERSHED BOUNDARIES
- PK - 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. 1/4 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



REVISED: 10/20/06
2003 AERIAL

WATERFRONT ADDITION
PROJECT NAME

FUTURE CONDITIONS
TR-20 KEY MAP
DESIGN TITLE

KLA JFL/KWS
DESIGN DRAWN BY

GJA AUG. 2006
CHECKED BY DATE

02014 1 / 1
JOB NO. SHEET/OF

MKEC
ENGINEERING
CONSULTANTS, INC.

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

H:\CVL\02014\DWG\Draw\Tr-20\Tr-20_KEY_Future.dwg 08/16/2006 08:04:53 AM CST

Appendix H
Future TR-20 Output

*****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	14						HOTEL
8			1376.0	0.0	0.0			UPPER
8			1377.0	0.1	1.984			POND
8			1378.0	44.956	4.059			
8			1379.0	64.723	6.224			
8			1380.0	79.756	8.481			
8			1381.0	92.204	10.832			
8			1382.0	103.193	13.278			
9	ENDTBL							
3	STRUCT	15						HOTEL
8			1373.0	0.0	0.0			POND
8			1374.0	6.549	1.978			LOWER &
8			1375.0	15.593	4.757			MIDDLE
8			1376.0	84.154	8.364			
8			1377.0	249.377	12.150			
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	63.13			LAKE
8			1371.0	490.0	113.94			

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

8			1372.0	1160.0	167.75			
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
6	ADDHYD	4	050	1	2	4		1
6	RUNOFF	1	051	3	0.0786	86.4	0.4993	1 TO UPEND
6	RESVOR	2	14	3	5	1376.0		1 UPPEREND
6	RUNOFF	1	052	1	0.0669	95.3	0.5392	1 EWTRFT
6	ADDHYD	4	053	5	1	6		1 TOLWRPND
6	RESVOR	2	15	6	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	061	2	0.0273	95.0	0.2500	1
6	ADDHYD	4	062	2	1	4		1
6	RUNOFF	1	065	3	0.3483	86.8	1.0448	1
6	ADDHYD	4	070	4	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*****

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

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

TR20 ----- SCS -
 WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
 10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
 14:25:02 PASS 1 JOB NO. 1 PAGE 3

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

TR20 ----- SCS -
 WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
 10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 2.47 WATERSHED INCHES; 890 CFS-HRS; 73.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 51
 OUTPUT HYDROGRAPH = 3 AREA = .08 SQ MI
 INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = .50 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0666 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.18 89.9 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.13 WATERSHED INCHES; 108 CFS-HRS; 8.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 14
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 5
SURFACE ELEVATION = 1376.00

*** MESSAGE - STRUCTURE 14, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE
STARTS 1.00 FEET BELOW ASSUMED CREST ELEVATION AT 1377.00.

THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME. ***

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.57	37.9	1377.84

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.69 WATERSHED INCHES; 86 CFS-HRS; 7.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 52
OUTPUT HYDROGRAPH = 1 AREA = .07 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .54 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0719 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.19	98.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.97 WATERSHED INCHES; 128 CFS-HRS; 10.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 53
INPUT HYDROGRAPHS 5,1 OUTPUT HYDROGRAPH 6

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.26	116.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 2.27 WATERSHED INCHES; 214 CFS-HRS; 17.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
 INPUT HYDROGRAPH 6 OUTPUT HYDROGRAPH 2
 SURFACE ELEVATION = 1373.00

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.98	47.8	1375.47

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 2.27 WATERSHED INCHES; 213 CFS-HRS; 17.6 ACRE-FEET.

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

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.36	568.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 2.43 WATERSHED INCHES; 1103 CFS-HRS; 91.2 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	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	758.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 2.47 WATERSHED INCHES; 1380 CFS-HRS; 114.0 ACRE-FEET.

TR20 ----- SCS -
 WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
 10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
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OPERATION RUNOFF XSECTION 61
 OUTPUT HYDROGRAPH = 2 AREA = .03 SQ MI
 INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .25 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0333 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.03	58.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 2.94 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 62
 INPUT HYDROGRAPHS 2,1 OUTPUT HYDROGRAPH 4

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.30	775.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 2.48 WATERSHED INCHES; 1431 CFS-HRS; 118.3 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)
12.52	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 4,3 OUTPUT HYDROGRAPH 2

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.34	998.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 2.39 WATERSHED INCHES; 1918 CFS-HRS; 158.5 ACRE-FEET.

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

1

TR20 ----- SCS -
 WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
 10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
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PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
13.58	217.8	1370.12

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 2.39 WATERSHED INCHES; 1917 CFS-HRS; 158.4 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 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.

TR20 ----- SCS -
 WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
 10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
 14:25:02 PASS 2 JOB NO. 1 PAGE 10

OPERATION RUNOFF XSECTION 51
 OUTPUT HYDROGRAPH = 3 AREA = .08 SQ MI
 INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = .50 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0666 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	129.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 3.08 WATERSHED INCHES; 156 CFS-HRS; 12.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 14
 INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 5
 SURFACE ELEVATION = 1376.00

*** MESSAGE - STRUCTURE 14, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE
 STARTS 1.00 FEET BELOW ASSUMED CREST ELEVATION AT 1377.00.
 THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME. ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.56	55.0	1378.51

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 2.65 WATERSHED INCHES; 134 CFS-HRS; 11.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 52
 OUTPUT HYDROGRAPH = 1 AREA = .07 SQ MI
 INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .54 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0719 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	129.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 4.00 WATERSHED INCHES; 173 CFS-HRS; 14.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 53
 INPUT HYDROGRAPHS 5,1 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	173.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 3.27 WATERSHED INCHES; 307 CFS-HRS; 25.3 ACRE-FEET.

TR20 ----- SCS -
 WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
 10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
 14:25:02 PASS 2 JOB NO. 1 PAGE 11

OPERATION RESVOR STRUCTURE 15
 INPUT HYDROGRAPH 6 OUTPUT HYDROGRAPH 2
 SURFACE ELEVATION = 1373.00

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.85	80.8	1375.95

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 3.26 WATERSHED INCHES; 306 CFS-HRS; 25.3 ACRE-FEET.

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

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.40	777.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 3.42 WATERSHED INCHES; 1555 CFS-HRS; 128.5 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	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

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.31	1028.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 3.47 WATERSHED INCHES; 1937 CFS-HRS; 160.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 61
 OUTPUT HYDROGRAPH = 2 AREA = .03 SQ MI
 INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .25 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0333 HOURS

TR20 ----- SCS -
 WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
 10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
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PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.03 77.3 (RUNOFF)
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 3.97 WATERSHED INCHES; 70 CFS-HRS; 5.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 62
 INPUT HYDROGRAPHS 2,1 OUTPUT HYDROGRAPH 4

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.29 1051.9 (NULL)
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 3.48 WATERSHED INCHES; 2007 CFS-HRS; 165.9 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)
 12.51 364.7 (RUNOFF)
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 3.12 WATERSHED INCHES; 702 CFS-HRS; 58.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
 INPUT HYDROGRAPHS 4,3 OUTPUT HYDROGRAPH 2

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.35 1373.8 (NULL)
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 3.38 WATERSHED INCHES; 2709 CFS-HRS; 223.9 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)
 13.37 383.2 1370.66

TR20 ----- SCS -
WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.38 WATERSHED INCHES; 2709 CFS-HRS; 223.9 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2

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)

TR20 ----- SCS -
 WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
 10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
 14:25:02 PASS 3 JOB NO. 1 PAGE 15

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.

TR20 ----- SCS -
WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
14:25:02 PASS 3 JOB NO. 1 PAGE 16

OPERATION RUNOFF XSECTION 51
OUTPUT HYDROGRAPH = 3 AREA = .08 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = .50 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0666 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	157.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.74 WATERSHED INCHES; 190 CFS-HRS; 15.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 14
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 5
SURFACE ELEVATION = 1376.00

*** MESSAGE - STRUCTURE 14, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE
STARTS 1.00 FEET BELOW ASSUMED CREST ELEVATION AT 1377.00.
THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME. ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.57	64.8	1379.00

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.30 WATERSHED INCHES; 167 CFS-HRS; 13.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 52
OUTPUT HYDROGRAPH = 1 AREA = .07 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .54 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0719 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	151.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.70 WATERSHED INCHES; 203 CFS-HRS; 16.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 53
INPUT HYDROGRAPHS 5,1 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	203.7	(NULL)

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

TR20 ----- SCS -
WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
14:25:02 PASS 3 JOB NO. 1 PAGE 17

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 6 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.71	112.0	1376.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.93 WATERSHED INCHES; 369 CFS-HRS; 30.5 ACRE-FEET.

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

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.42	906.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.09 WATERSHED INCHES; 1861 CFS-HRS; 153.8 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

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.31	1200.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.14 WATERSHED INCHES; 2314 CFS-HRS; 191.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 61
OUTPUT HYDROGRAPH = 2 AREA = .03 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .25 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0333 HOURS

TR20 ----- SCS -
 WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
 10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
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PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.02 90.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 4.66 WATERSHED INCHES; 82 CFS-HRS; 6.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 62
 INPUT HYDROGRAPHS 2,1 OUTPUT HYDROGRAPH 4

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.30 1226.9 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 4.16 WATERSHED INCHES; 2397 CFS-HRS; 198.0 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)
 12.51 441.7 (RUNOFF)

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

OPERATION ADDHYD XSECTION 70
 INPUT HYDROGRAPHS 4,3 OUTPUT HYDROGRAPH 2

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.35 1617.5 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 4.05 WATERSHED INCHES; 3247 CFS-HRS; 268.3 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)
 13.30 496.7 1371.01

TR20 ----- SCS -
WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.05 WATERSHED INCHES; 3247 CFS-HRS; 268.3 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 3

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)

TR20 ----- SCS -
WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
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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 51
 OUTPUT HYDROGRAPH = 3 AREA = .08 SQ MI
 INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = .50 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0666 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	222.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 5.39 WATERSHED INCHES; 273 CFS-HRS; 22.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 14
 INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 5
 SURFACE ELEVATION = 1376.00

*** MESSAGE - STRUCTURE 14, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE
 STARTS 1.00 FEET BELOW ASSUMED CREST ELEVATION AT 1377.00.
 THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME. ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.61	82.0	1380.18

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 4.94 WATERSHED INCHES; 251 CFS-HRS; 20.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 52
 OUTPUT HYDROGRAPH = 1 AREA = .07 SQ MI
 INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .54 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0719 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	202.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 6.41 WATERSHED INCHES; 277 CFS-HRS; 22.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 53
 INPUT HYDROGRAPHS 5,1 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	270.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 5.62 WATERSHED INCHES; 528 CFS-HRS; 43.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
 INPUT HYDROGRAPH 6 OUTPUT HYDROGRAPH 2

SURFACE ELEVATION = 1373.00

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.54	183.5	1376.60

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
5.61 WATERSHED INCHES;	527 CFS-HRS;	43.5 ACRE-FEET.

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

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.43	1218.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
5.78 WATERSHED INCHES;	2627 CFS-HRS;	217.1 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	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

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.32	1606.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
5.83 WATERSHED INCHES;	3257 CFS-HRS;	269.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 61
 OUTPUT HYDROGRAPH = 2 AREA = .03 SQ MI
 INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .25 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0333 HOURS

TR20 ----- SCS -
 WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
 10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
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PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.02 121.1 (RUNOFF)
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 6.38 WATERSHED INCHES; 112 CFS-HRS; 9.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 62
 INPUT HYDROGRAPHS 2,1 OUTPUT HYDROGRAPH 4

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.31 1639.3 (NULL)
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 5.85 WATERSHED INCHES; 3370 CFS-HRS; 278.5 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)
 12.50 628.6 (RUNOFF)
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 5.43 WATERSHED INCHES; 1221 CFS-HRS; 100.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 70
 INPUT HYDROGRAPHS 4,3 OUTPUT HYDROGRAPH 2

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.37 2210.3 (NULL)
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 5.73 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)
 13.13 956.0 1371.70

TR20 ----- SCS -
WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.73 WATERSHED INCHES; 4590 CFS-HRS; 379.3 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 4

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.

TR20 ----- SCS -
WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
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OPERATION RUNOFF XSECTION 51
OUTPUT HYDROGRAPH = 3 AREA = .08 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = .50 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0666 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	255.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.18 WATERSHED INCHES; 313 CFS-HRS; 25.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 14
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 5
SURFACE ELEVATION = 1376.00

*** MESSAGE - STRUCTURE 14, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE
STARTS 1.00 FEET BELOW ASSUMED CREST ELEVATION AT 1377.00.
THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME. ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.62	88.7	1380.72

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.74 WATERSHED INCHES; 291 CFS-HRS; 24.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 52
OUTPUT HYDROGRAPH = 1 AREA = .07 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .54 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0719 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	227.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.23 WATERSHED INCHES; 312 CFS-HRS; 25.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 53
INPUT HYDROGRAPHS 5,1 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	299.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.42 WATERSHED INCHES; 603 CFS-HRS; 49.8 ACRE-FEET.

TR20 ----- SCS -
WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
14:25:02 PASS 5 JOB NO. 1 PAGE 29

OPERATION RESVOR STRUCTURE 15
INPUT HYDROGRAPH 6 OUTPUT HYDROGRAPH 2
SURFACE ELEVATION = 1373.00

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.51	213.5	1376.78

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.42 WATERSHED INCHES; 602 CFS-HRS; 49.8 ACRE-FEET.

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

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.43	1348.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.58 WATERSHED INCHES; 2992 CFS-HRS; 247.3 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	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

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.32	1786.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.63 WATERSHED INCHES; 3707 CFS-HRS; 306.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 61
OUTPUT HYDROGRAPH = 2 AREA = .03 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .25 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0333 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.02 135.9 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 7.19 WATERSHED INCHES; 127 CFS-HRS; 10.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 62
 INPUT HYDROGRAPHS 2,1 OUTPUT HYDROGRAPH 4

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.30 1825.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 6.65 WATERSHED INCHES; 3834 CFS-HRS; 316.8 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 4,3 OUTPUT HYDROGRAPH 2

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
 12.37 2473.1 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 6.53 WATERSHED INCHES; 5233 CFS-HRS; 432.5 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)
 13.13 1155.6 1371.99

TR20 ----- SCS -
WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
14:25:02 PASS 5 JOB NO. 1 PAGE 31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.53 WATERSHED INCHES; 5232 CFS-HRS; 432.4 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 5

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)

TR20 ----- SCS -
WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
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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.

TR20 ----- SCS -
WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
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OPERATION RUNOFF XSECTION 51
OUTPUT HYDROGRAPH = 3 AREA = .08 SQ MI
INPUT RUNOFF CURVE = 86. TIME OF CONCENTRATION = .50 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0666 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	312.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.69 WATERSHED INCHES; 390 CFS-HRS; 32.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 14
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 5
SURFACE ELEVATION = 1376.00

*** MESSAGE - STRUCTURE 14, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE
STARTS 1.00 FEET BELOW ASSUMED CREST ELEVATION AT 1377.00.
THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME. ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.65	100.2	1381.72

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.24 WATERSHED INCHES; 367 CFS-HRS; 30.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 52
OUTPUT HYDROGRAPH = 1 AREA = .07 SQ MI
INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .54 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0719 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	275.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.78 WATERSHED INCHES; 379 CFS-HRS; 31.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 53
INPUT HYDROGRAPHS 5,1 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	357.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.95 WATERSHED INCHES; 746 CFS-HRS; 61.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 15
 INPUT HYDROGRAPH 6 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)
12.46	266.2	1377.10

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 7.94 WATERSHED INCHES; 745 CFS-HRS; 61.6 ACRE-FEET.

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

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.43	1566.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 8.11 WATERSHED INCHES; 3686 CFS-HRS; 304.6 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	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	2106.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
 8.16 WATERSHED INCHES; 4561 CFS-HRS; 376.9 ACRE-FEET.

TR20 ----- SCS -
 WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
 10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
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OPERATION RUNOFF XSECTION 61
 OUTPUT HYDROGRAPH = 2 AREA = .03 SQ MI
 INPUT RUNOFF CURVE = 95. TIME OF CONCENTRATION = .25 HOURS
 COMPUTED INTERNAL TIME INCREMENT = .0333 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.02	163.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
8.74 WATERSHED INCHES;	154 CFS-HRS;	12.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 62
 INPUT HYDROGRAPHS 2,1 OUTPUT HYDROGRAPH 4

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.28	2156.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
8.18 WATERSHED INCHES;	4715 CFS-HRS;	389.6 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 4,3 OUTPUT HYDROGRAPH 2

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.36	2944.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)		
8.06 WATERSHED INCHES;	6454 CFS-HRS;	533.3 ACRE-FEET.

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

TR20 ----- SCS -
WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
10/19/** TE.T20 50%(2) 20%(5) 10%(10) 5%(50) 1%(100) & .2%(500) ANNUAL 2.04TEST
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*** WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 18,
VALUE EXTRAPOLATED. ***

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
13.11	1510.7	1372.52

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.06 WATERSHED INCHES; 6453 CFS-HRS; 533.3 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 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)	TIME (HR)	RATE (CFS)	RATE (CSM)

RAINFALL OF 3.50 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.
 RAINFALL 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 51	RUNOFF	.08	2.13	---	12.18	90	1125.0
STRUCTURE 14	RESVOR	.08	1.69	1377.84	12.57	38	475.0
XSECTION 52	RUNOFF	.07	2.97	---	12.19	98	1400.0
XSECTION 53	ADDHYD	.15	2.27	---	12.26	117	780.0
STRUCTURE 15	RESVOR	.15	2.27	1375.47	12.98	48	320.0
XSECTION 54	ADDHYD	.70	2.43	---	12.36	569	812.9
XSECTION 55	RUNOFF	.16	2.65	---	12.22	209	1306.3
XSECTION 60	ADDHYD	.87	2.47	---	12.31	759	872.4
XSECTION 61	RUNOFF	.03	2.94	---	12.03	58	1933.3
XSECTION 62	ADDHYD	.89	2.48	---	12.30	776	871.9
XSECTION 65	RUNOFF	.35	2.16	---	12.52	254	725.7
XSECTION 70	ADDHYD	1.24	2.39	---	12.34	999	805.6

STRUCTURE 18 RESVOR 1.24 2.39 1370.12 13.58 218 175.8

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

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 12 STORM 2		-----						
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	
XSECTION 50	ADDHYD	.56	3.46	---	12.35	725	1294.6	
XSECTION 51	RUNOFF	.08	3.08	---	12.18	130	1625.0	
STRUCTURE 14	RESVOR	.08	2.65	1378.51	12.56	55	687.5	
XSECTION 52	RUNOFF	.07	4.00	---	12.19	129	1842.9	
XSECTION 53	ADDHYD	.15	3.27	---	12.23	174	1160.0	
STRUCTURE 15	RESVOR	.15	3.26	1375.95	12.85	81	540.0	
XSECTION 54	ADDHYD	.70	3.42	---	12.40	778	1111.4	
XSECTION 55	RUNOFF	.16	3.67	---	12.22	285	1781.3	
XSECTION 60	ADDHYD	.87	3.47	---	12.31	1029	1182.8	
XSECTION 61	RUNOFF	.03	3.97	---	12.03	77	2566.7	
XSECTION 62	ADDHYD	.89	3.48	---	12.29	1052	1182.0	
XSECTION 65	RUNOFF	.35	3.12	---	12.51	365	1042.9	
XSECTION 70	ADDHYD	1.24	3.38	---	12.35	1374	1108.1	
STRUCTURE 18	RESVOR	1.24	3.38	1370.66	13.37	383	308.9	

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	4.70	---	12.11	117	2925.0	

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)	TIME (HR)	RATE (CFS)	RATE (CSM)

ALTERNATE 13 STORM 3

XSECTION 50	ADDHYD	.56	4.14	---	12.36	829	1480.4
XSECTION 51	RUNOFF	.08	3.74	---	12.18	157	1962.5
STRUCTURE 14	RESVOR	.08	3.30	1379.00	12.57	65	812.5
XSECTION 52	RUNOFF	.07	4.70	---	12.19	152	2171.4
XSECTION 53	ADDHYD	.15	3.94	---	12.22	204	1360.0
STRUCTURE 15	RESVOR	.15	3.93	1376.17	12.71	112	746.7
XSECTION 54	ADDHYD	.70	4.09	---	12.42	906	1294.3
XSECTION 55	RUNOFF	.16	4.35	---	12.21	336	2100.0
XSECTION 60	ADDHYD	.87	4.14	---	12.31	1201	1380.5
XSECTION 61	RUNOFF	.03	4.66	---	12.02	90	3000.0
XSECTION 62	ADDHYD	.89	4.16	---	12.30	1227	1378.7
XSECTION 65	RUNOFF	.35	3.78	---	12.51	442	1262.9
XSECTION 70	ADDHYD	1.24	4.05	---	12.35	1617	1304.0
STRUCTURE 18	RESVOR	1.24	4.05	1371.01	13.30	497	400.8

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 51	RUNOFF	.08	5.39	---	12.17	222	2775.0
STRUCTURE 14	RESVOR	.08	4.94	1380.18	12.61	82	1025.0
XSECTION 52	RUNOFF	.07	6.41	---	12.19	203	2900.0
XSECTION 53	ADDHYD	.15	5.62	---	12.22	270	1800.0

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)	TIME (HR)	RATE (CFS)	RATE (CSM)

ALTERNATE 13 STORM 4

STRUCTURE 15	RESVOR	.15	5.61	1376.60	12.54	183	1220.0
XSECTION 54	ADDHYD	.70	5.78	---	12.43	1218	1740.0
XSECTION 55	RUNOFF	.16	6.06	---	12.21	462	2887.5
XSECTION 60	ADDHYD	.87	5.83	---	12.32	1606	1846.0
XSECTION 61	RUNOFF	.03	6.38	---	12.02	121	4033.3
XSECTION 62	ADDHYD	.89	5.85	---	12.31	1639	1841.6
XSECTION 65	RUNOFF	.35	5.43	---	12.50	629	1797.1
XSECTION 70	ADDHYD	1.24	5.73	---	12.37	2210	1782.3
STRUCTURE 18	RESVOR	1.24	5.73	1371.70	13.13	956	771.0

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
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 51	RUNOFF	.08	6.18	---	12.17	255	3187.5
STRUCTURE 14	RESVOR	.08	5.74	1380.72	12.62	89	1112.5
XSECTION 52	RUNOFF	.07	7.23	---	12.19	227	3242.9
XSECTION 53	ADDHYD	.15	6.42	---	12.21	299	1993.3
STRUCTURE 15	RESVOR	.15	6.42	1376.78	12.51	213	1420.0
XSECTION 54	ADDHYD	.70	6.58	---	12.43	1349	1927.1
XSECTION 55	RUNOFF	.16	6.86	---	12.21	518	3237.5
XSECTION 60	ADDHYD	.87	6.63	---	12.32	1787	2054.0
XSECTION 61	RUNOFF	.03	7.19	---	12.02	136	4533.3

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)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE 14 STORM 5		-----					
XSECTION 62	ADDHYD	.89	6.65	---	12.30	1825	2050.6
XSECTION 65	RUNOFF	.35	6.22	---	12.50	715	2042.9
XSECTION 70	ADDHYD	1.24	6.53	---	12.37	2473	1994.4
STRUCTURE 18	RESVOR	1.24	6.53	1371.99	13.13	1156	932.3
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 51	RUNOFF	.08	7.69	---	12.17	312	3900.0
STRUCTURE 14	RESVOR	.08	7.24	1381.72	12.65	100	1250.0
XSECTION 52	RUNOFF	.07	8.78	---	12.19	276	3942.9
XSECTION 53	ADDHYD	.15	7.95	---	12.21	357	2380.0
STRUCTURE 15	RESVOR	.15	7.94	1377.10	12.46	266	1773.3
XSECTION 54	ADDHYD	.70	8.11	---	12.43	1566	2237.1
XSECTION 55	RUNOFF	.16	8.40	---	12.21	626	3912.5
XSECTION 60	ADDHYD	.87	8.16	---	12.31	2107	2421.8
XSECTION 61	RUNOFF	.03	8.74	---	12.02	164	5466.7
XSECTION 62	ADDHYD	.89	8.18	---	12.28	2156	2422.5
XSECTION 65	RUNOFF	.35	7.74	---	12.50	879	2511.4
XSECTION 70	ADDHYD	1.24	8.06	---	12.36	2945	2375.0
STRUCTURE 18	RESVOR	1.24	8.06	1372.52	13.11	1511	1218.5

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	1.24					
ALTERNATE 11		218	*****	*****	*****	*****
ALTERNATE 12		*****	383	*****	*****	*****
ALTERNATE 13		*****	*****	497	956	*****
ALTERNATE 14		*****	*****	*****	*****	1156
STRUCTURE 15	.15					
ALTERNATE 11		48	*****	*****	*****	*****
ALTERNATE 12		*****	81	*****	*****	*****
ALTERNATE 13		*****	*****	112	183	*****
ALTERNATE 14		*****	*****	*****	*****	213
STRUCTURE 14	.08					
ALTERNATE 11		38	*****	*****	*****	*****
ALTERNATE 12		*****	55	*****	*****	*****
ALTERNATE 13		*****	*****	65	82	*****
ALTERNATE 14		*****	*****	*****	*****	89
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	*****

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 30	.35					
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	*****
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 51	.08					
ALTERNATE 11		90	*****	*****	*****	*****
ALTERNATE 12		*****	130	*****	*****	*****
ALTERNATE 13		*****	*****	157	222	*****
ALTERNATE 14		*****	*****	*****	*****	255
XSECTION 52	.07					
ALTERNATE 11		98	*****	*****	*****	*****
ALTERNATE 12		*****	129	*****	*****	*****
ALTERNATE 13		*****	*****	152	203	*****
ALTERNATE 14		*****	*****	*****	*****	227
XSECTION 53	.15					
ALTERNATE 11		117	*****	*****	*****	*****

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 53	.15					

ALTERNATE 12		*****	174	*****	*****	*****
ALTERNATE 13		*****	*****	204	270	*****
ALTERNATE 14		*****	*****	*****	*****	299
XSECTION 54	.70					

ALTERNATE 11		569	*****	*****	*****	*****
ALTERNATE 12		*****	778	*****	*****	*****
ALTERNATE 13		*****	*****	906	1218	*****
ALTERNATE 14		*****	*****	*****	*****	1349
XSECTION 55	.16					

ALTERNATE 11		209	*****	*****	*****	*****
ALTERNATE 12		*****	285	*****	*****	*****
ALTERNATE 13		*****	*****	336	462	*****
ALTERNATE 14		*****	*****	*****	*****	518
XSECTION 60	.87					

ALTERNATE 11		759	*****	*****	*****	*****
ALTERNATE 12		*****	1029	*****	*****	*****
ALTERNATE 13		*****	*****	1201	1606	*****
ALTERNATE 14		*****	*****	*****	*****	1787
XSECTION 61	.03					

ALTERNATE 11		58	*****	*****	*****	*****
ALTERNATE 12		*****	77	*****	*****	*****
ALTERNATE 13		*****	*****	90	121	*****
ALTERNATE 14		*****	*****	*****	*****	136
XSECTION 62	.89					

ALTERNATE 11		776	*****	*****	*****	*****
ALTERNATE 12		*****	1052	*****	*****	*****
ALTERNATE 13		*****	*****	1227	1639	*****
ALTERNATE 14		*****	*****	*****	*****	1825
XSECTION 65	.35					

ALTERNATE 11		254	*****	*****	*****	*****
ALTERNATE 12		*****	365	*****	*****	*****
ALTERNATE 13		*****	*****	442	629	*****
ALTERNATE 14		*****	*****	*****	*****	715

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 70	1.24					
ALTERNATE 11		999	*****	*****	*****	*****
ALTERNATE 12		*****	1374	*****	*****	*****
ALTERNATE 13		*****	*****	1617	2210	*****
ALTERNATE 14		*****	*****	*****	*****	2473

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	1.24	
ALTERNATE 15		1511
STRUCTURE 15	.15	
ALTERNATE 15		266
STRUCTURE 14	.08	
ALTERNATE 15		100
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	211
XSECTION	50	.56

ALTERNATE	15	1300

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 51	.08	
-----	-----	-----
ALTERNATE 15		312
XSECTION 52	.07	
-----	-----	-----
ALTERNATE 15		276
XSECTION 53	.15	
-----	-----	-----
ALTERNATE 15		357
XSECTION 54	.70	
-----	-----	-----
ALTERNATE 15		1566
XSECTION 55	.16	
-----	-----	-----
ALTERNATE 15		626
XSECTION 60	.87	
-----	-----	-----
ALTERNATE 15		2107
XSECTION 61	.03	
-----	-----	-----
ALTERNATE 15		164
XSECTION 62	.89	
-----	-----	-----
ALTERNATE 15		2156
XSECTION 65	.35	
-----	-----	-----
ALTERNATE 15		879
XSECTION 70	1.24	
-----	-----	-----
ALTERNATE 15		2945

TR20 ----- SCS -
WATERFRONT CURRENT EAST BRANCH GYPSUM CREEK 2/06 VERSION
10/19/** TE.T20 5%(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 = wtrftc4.t20 , GIVEN DATA FILE
OUTPUT = wtrftc4.OUT , DATED 10/19/**,14:25:02

FILES GENERATED - DATED 10/19/**,14:25:02

NONE!

TOTAL NUMBER OF WARNINGS = 2, MESSAGES = 6

*** 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 - Post-Project Conditions 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	2-Year	5-Year	10-Year	2-Year	5-Year	10-Year		
005	Business - Neighborhood	D	1405.0	1375.0	3800	0.68	0.69	0.80	50.4	49.2	44.4	0.8404	0.8204	0.7403	0.6003	88.8
025	Business - Neighborhood	D	1405.0	1375.0	3600	0.68	0.69	0.80	48.2	47.1	42.5	0.8034	0.7842	0.7077	0.5738	90.1
035	Business - Neighborhood	D	1390.0	1370.0	2800	0.68	0.69	0.80	44.8	43.7	39.4	0.7459	0.7281	0.6571	0.5328	90.6
045	Business - Neighborhood	D	1390.0	1369.0	2000	0.68	0.69	0.80	33.3	32.5	29.3	0.5544	0.5412	0.4884	0.3960	95.3
051	Undeveloped Urban	D	1390.0	1376.0	1500	0.52	0.54	0.68	41.4	39.9	36.4	0.6896	0.6658	0.6064	0.4993	86.4
052	Business - Neighborhood	D	1380.0	1373.0	1500	0.68	0.69	0.74	37.7	36.8	33.3	0.6291	0.6141	0.5542	0.5392	95.3
055	Business - Neighborhood	B	1385.0	1369.0	2800	0.68	0.69	0.80	48.2	47.1	42.5	0.8034	0.7843	0.7078	0.5739	92.2
065	Undeveloped Urban	D	1400.0	1369.0	5000	0.52	0.54	0.68	86.6	83.6	76.1	1.4429	1.3931	1.2687	1.0448	87.0

SCS Runoff Curve Number Calculations

10/23/2006 11:29 AM

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 treatment	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	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
Residential - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residential - 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

SCS Runoff Curve Number Calculations

10/23/2006 11:29 AM

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 treatment	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	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
Residential - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residential - 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

SCS Runoff Curve Number Calculations

10/23/2006 11:29 AM

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 treatment	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	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
Residential - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residential - 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

SCS Runoff Curve Number Calculations

10/23/2006 11:29 AM

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 treatment	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	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
Residential - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residential - 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

SCS Runoff Curve Number Calculations

10/23/2006 11:29 AM

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

Total Area = 50.3 Acres
Total Area = 0.0786 sq. mi.
Composite Curve Number = 86.43

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 treatment	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	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
Residential - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residential - 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

SCS Runoff Curve Number Calculations

10/23/2006 11:29 AM

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

Total Area = 42.8 Acres
Total Area = 0.0669 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 treatment	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	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
Residential - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residential - 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

SCS Runoff Curve Number Calculations

10/23/2006 11:29 AM

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 treatment	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	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
Residential - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residential - 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

SCS Runoff Curve Number Calculations

10/23/2006 11:29 AM

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 = 87.00

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 treatment	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	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
Residential - 1/3 acre	30	57	72	81	86
Residential - 1/2 acre	25	54	70	80	85
Residential - 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