PRELIMINARY AS BUILT
MICRO STORM WATER DRAINAGE STUDY

For:
DOUGLAS STATION COMMERCIAL PARK
LOTS 1 THRU 10 & TRACT "A"
Lee's Summit, Jackson County, Missouri

Water Sheds:
Little Cedar Creek Water shed

July 15, 2021

PREPARED BY:

Quist Engineering Inc.
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Lee's Summit, MO 64063
Phone: (816) 550-5675

STATE OF MISSOURI
ROBERT A. WALQUIST
NUMBER E-2001018825
7/15/21
REGISTERED PROFESSIONAL ENGINEER

Robert Walquist, PE

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3. GENERAL INFORMATION AND SITE CONDITIONS.

This study is to evaluate the existing regional basin for the "Douglas Station Commercial Park" Subdivision in Lee's Summit, Jackson County, Missouri. The total site area = 25.03 acres

The site is currently fully developed commercial land less lot 10. The site drains northwest into the existing regional basin. The existing regional basin is located on Tract A and is owned by "Douglas Station LLC" believed to be the original developer or owners association. All flow to the existing basin is from underground conveyance system that enters the basin from the north east corner of the basin from a 54" pipe.

The original design of the basin shows 24.5 acres of the development flowing into the basin. We feel that existing contours and conveyance systems does route 24.5ac to the existing basin. The original design shows an additional 27ac off site area flows thru the site into the basin from the south across lot 10. We found that this is accurate. The off site area flowing onto lot 10 is the out fall from a detention basin from a commercial development to the south of lot 10.

The current condition of the basin is poor with lots of trees and vegetation. The contours of the basin do not match the original design. (See the Storm Drainage Plan)

4. OVERVIEW OF THE PROPOSED DESIGN

The storm drainage study was preformed to evaluate the original design and as built performance of the existing regional basin. The original design was to restrict the runoff from the developed site to the pre development conditions for the 25 yr storm event

Current APWA standards. The following max runoff rate; the 2yr less than or equal to 0.5 cfs/acre, the 10yr less than or equal to 2.0 cfs/acre, and the 100yr less than or equal to 3.0 cfs/acre.

5. METHODOLOGY & EVALUATION OF EXISTING DETENTION DESIGN

Currently there is 24.5 acres of onsite developed area flowing to the existing basin along with 27aces of offsite area. Total flow to basin is 24.5 onsite area and 27ac off site area. (See The Drainage area map.)

The current basin outfall structure is a 48" cmp pipe with no structure of restrictive plate.

All calculation for the detention basin was done using the Software Hydra flow. This program utilized the SCS Method to model the different storm events. The following "CN" values where used:

On Site	CN
Pre Development	74
Post Development	88

General Modeling Information

Hyd #	Description
1	Pre development runoff from the site (Area 24ac CN= 74)
2	Total on site area draining into Exiting Basin (Area 24ac CN= 88)
3	Total off site area draining into Existing Basin (Area =27ac CN=78)
4	Total combined runoff of hyd #2 and #23that will flow into Existing Basin
5	Total flow out of the Existing Basin

Required Pre-Development Flow Rates
The following are the runoff rate for the different storm events for the pre development 25 ac site:

Storm Event	Runoff (cfs) (HYD #1)
2yr	9.68
10yr	46.72
25yr	79.85
50yr	103.52
100yr	130.54

The following are the required Current APWA maximum runoff rate for the different storm events for the post development 25 ac site:

Storm Event	max rates	Runoff (cfs)
2yr	0.5 x 25	12.5
10yr	2.0 x 25	50
100yr	3.0 x 25	75

Per & Post-Development Flow Rates for the Development
The following is the summery of the modal (See Hydrologic Modal for additional calculations)

As Designed

Storm Event	Total On Site running into Basin (cfs) (HYD # 2)	Total Off Site running into Basin (cfs) (HYD # 3)	Total combined runoff into Basin (cfs) (HYD #4)	Total runoff form the Basin cfs) (HYD #5)	Total site Runoff (cfs) (HYD #5 - #3)	Max Elevation
2yr	30.45	13.11	41.07	31.50	18.39 > 9.68	974.80
10yr	79.87	49.70	122.39	97.89	48.19 > 46.72	977.80
25yr	117.21	81.52	187.07	136.19	54.67< 79.85	979.76
50yr	103.83	103.83	231.51	155.07	52.85 < 103.52	981.26
100yr	170.41	129.07	281.32	-	- > 130.54	over weir

As Built

Storm Event	Total On Site running into Basin (cfs) (HYD # 2)	Total Off Site running into Basin (cfs) (HYD # 3)	Total combined runoff into Basin (cfs) (HYD #4)	Total runoff form the Basin cfs) (HYD #5)	Total site Runoff (cfs) (HYD #5 - #3)	Max Elevation
2yr	30.45	13.11	41.07	38.69	25.58 > 9.68	975.23
10yr	79.87	49.70	122.39	105.75	56.05 > 46.72	978.08
25yr	117.21	81.52	187.07	---	---> 79.85	over weir
50yr	103.83	103.83	231.51	---	---> 103.52	over weir
100yr	170.41	129.07	281.32	---	---> 130.54	over weir

7. Conclusion & Recommendations

We feel that the Existing basin is in disrepair and needs to be cleaned out of all vegetation and regarded to original design. It is worthy to note that the outfall pipe from the existing basin is within 500 feet of a designated 100yr flood plan. We feel that after the recommended maintenance of the original basin it will operate as desiged.

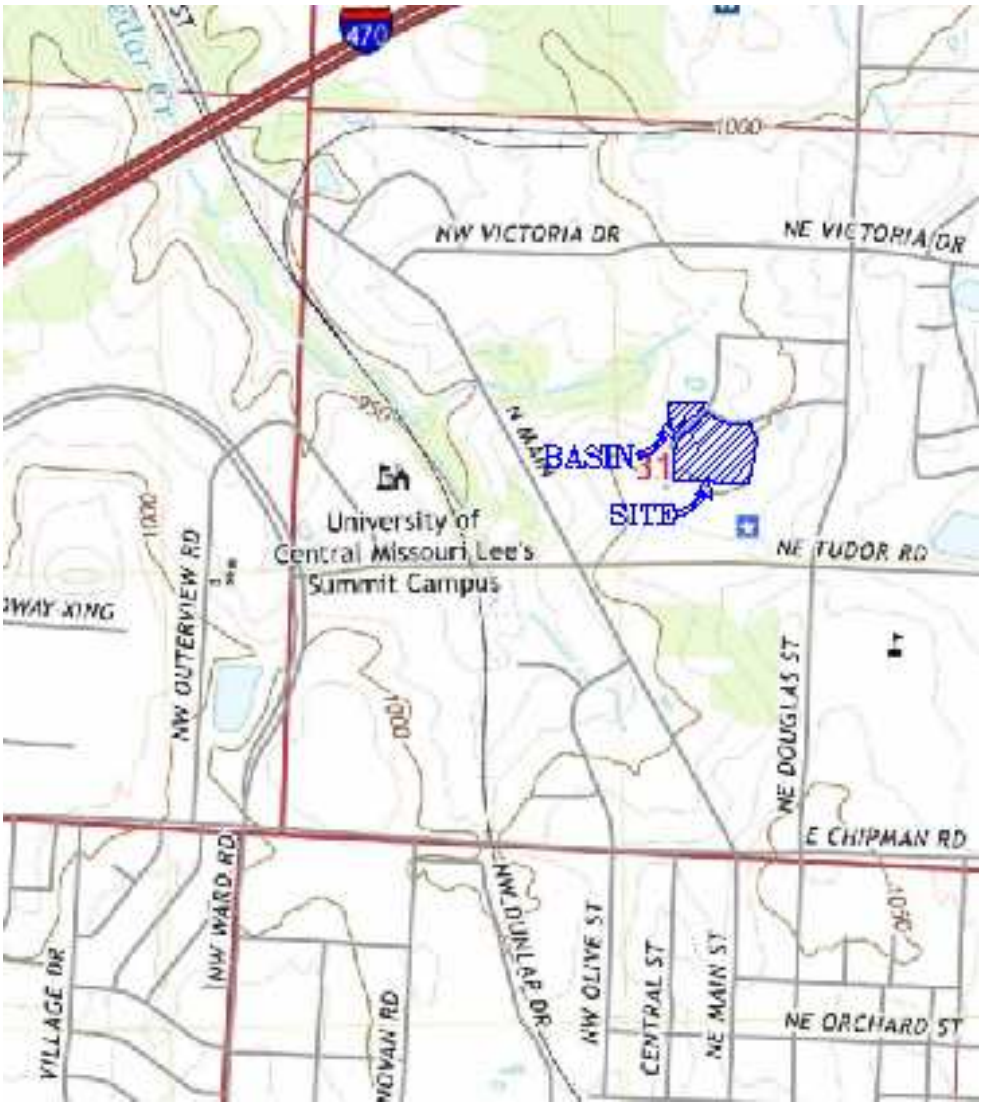
8. Exhibits:

- **SITE LOCATION MAP**
- **USGS MAP**
- **AERIAL VIEW**
- **FIRMET MAP**
- **CITY OUFALL MAP**
- **STORM DRAINAGE MAP**
- **HYDROLOGIC MODEL**

SITE LOCATION MAP

Culver's
B&B Theatres
Lee's Summit 16
Panera Bread
Ginger Sue's
Starbucks
Missouri
Innovation Campus
SITE
Schlotzsky's
NE Tudor Rd
Walmart Supercenter
Pheasant Run
Apartment Homes
QuikTrip
Genesis Health Clubs
- Lee's Summit
Once Upon A Child
Lee's Summit
North High School
Summit Ridge
Apartments
Jack in the Box
PetSmart
Sprouts
Xtreme Gymnastics
Post Coffee Company
NW Chipman Rd
Lea McKeighan
Park - South
Andy's Frozen Custard

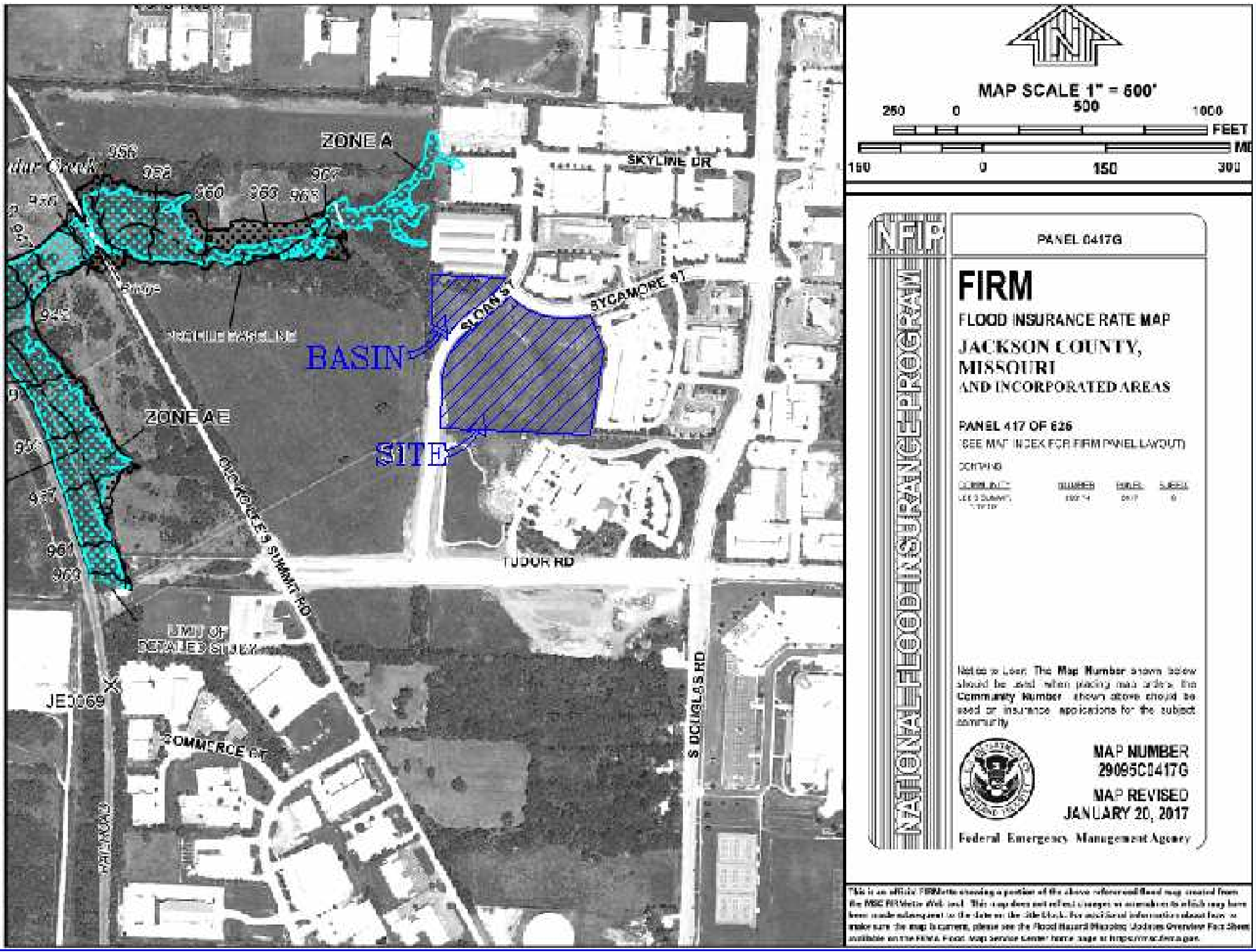
USGS MAP


470
1000
NW VICTORIA DR
NE VICTORIA DR
950
N MAIN
BASIN 11
SITE
University of
Central Missouri Lee's
Summit Campus
NE TUDOR RD
NW OUTERVIEW RD
1000
1000
NE DOUGLAS ST
E CHIPMAN RD
NW WARD RD
NW DUNLAP DR
NW OLIVE ST
CENTRAL ST
NE MAIN ST
NE ORCHARD ST
VILLAGE DR

AERIAL VIEW

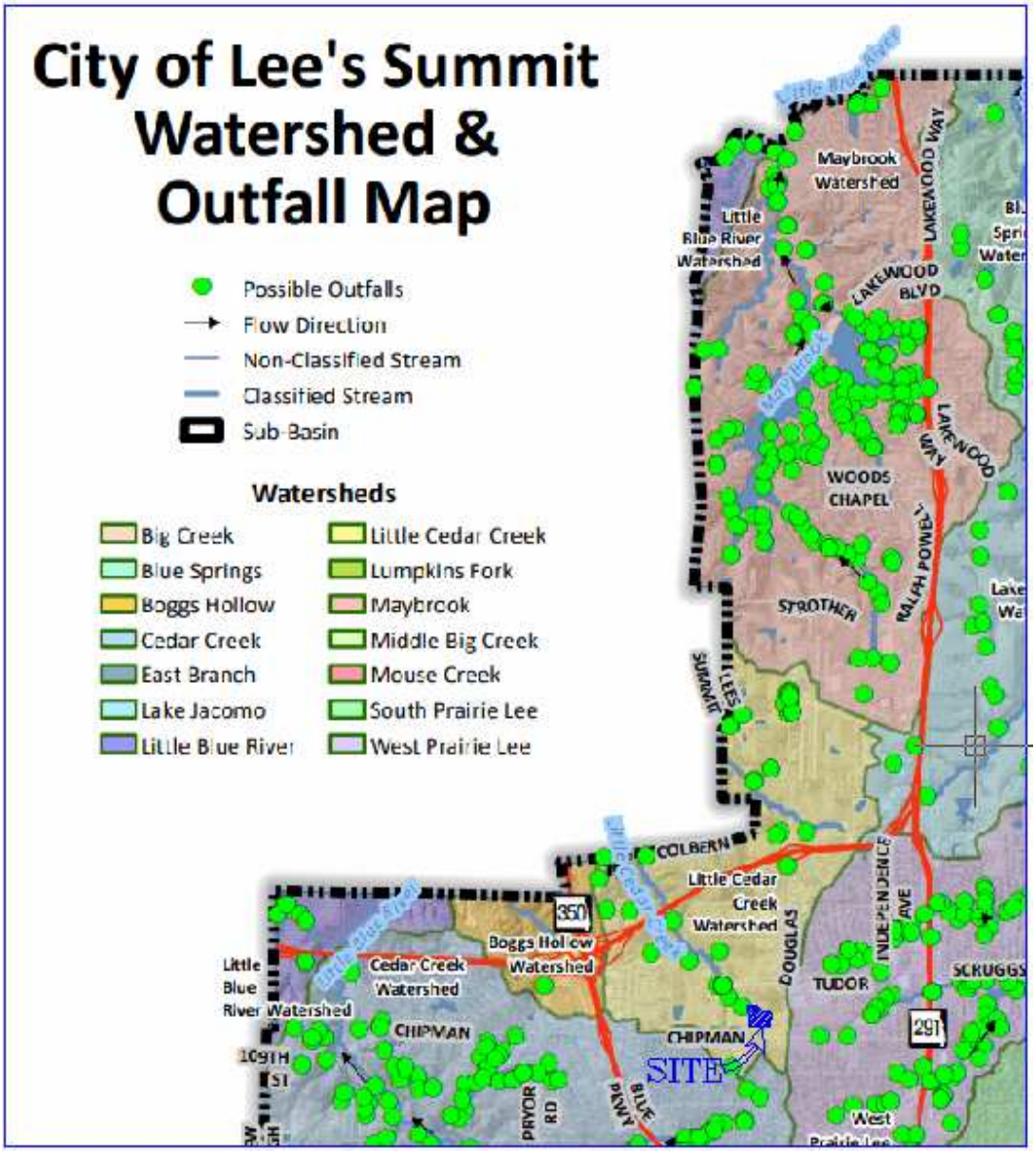

BASIN
SITE

FIRMET MAP

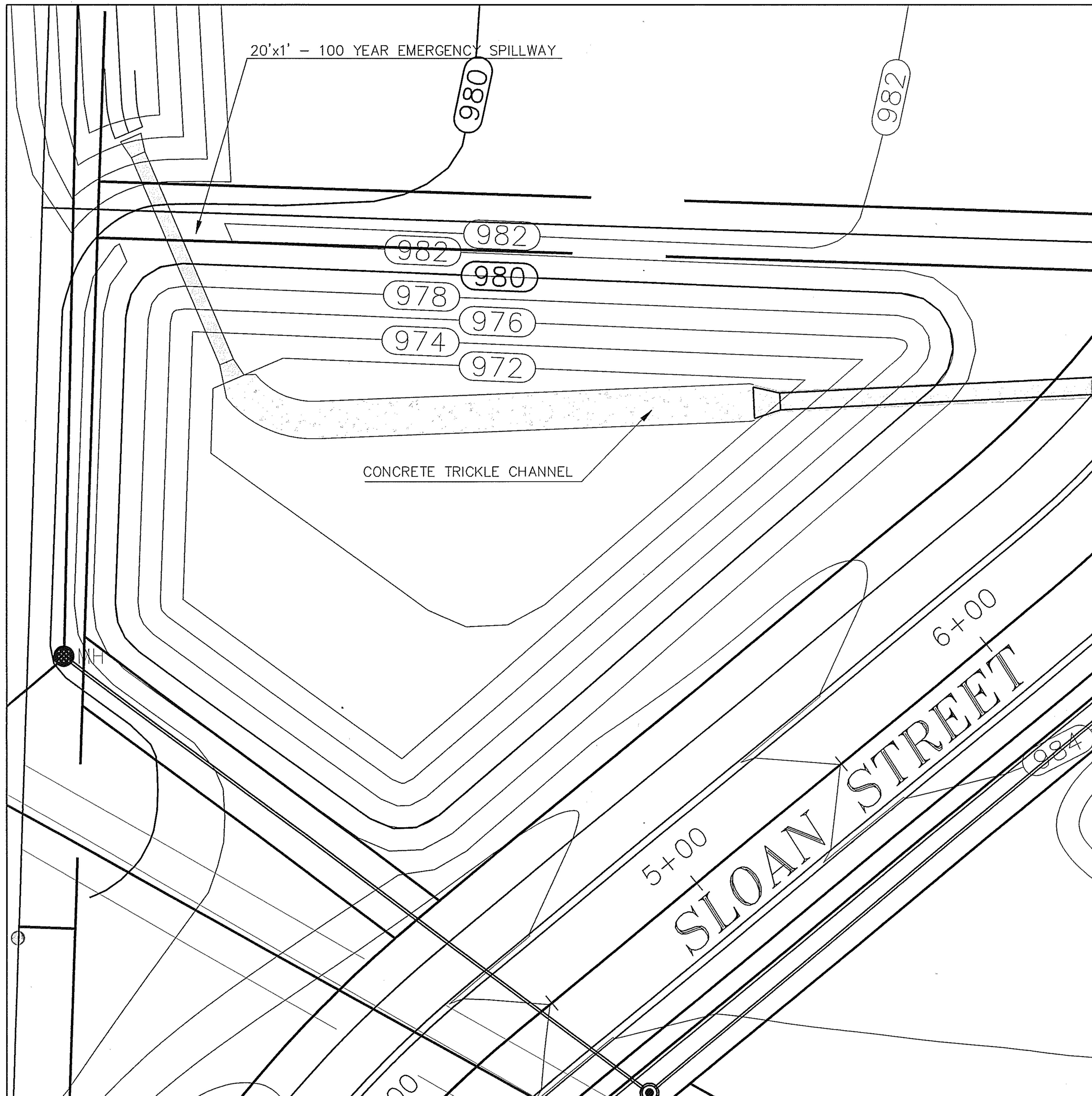


MAP SCALE 1" = 500'
250
0
500
1000
FEET
150
0
150
300
ZONE A
ZONE AE
SKYLINE DR
SYCAMORE ST
SLOAN ST
BASIN
SITE
TUDOR RD
S DOUGLAS RD
COMMERCE CT
JE0069
LIMIT OF DETAILED STUDY
PANEL 0417G
FIRM
FLOOD INSURANCE RATE MAP
JACKSON COUNTY, MISSOURI
AND INCORPORATED AREAS
PANEL 417 OF 626
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
NATIONAL FLOOD INSURANCE PROGRAM
NFIP
MAP NUMBER
29095C0417G
MAP REVISED
JANUARY 20, 2017
Federal Emergency Management Agency

CITY OUTFALL MAP


City of Lee's Summit Watershed & Outfall Map
Possible Outfalls
Flow Direction
Non-Classified Stream
Classified Stream
Sub-Basin
Watersheds
Big Creek
Blue Springs
Boggs Hollow
Cedar Creek
East Branch
Lake Jacomo
Little Blue River
Little Cedar Creek
Lumpkins Fork
Maybrook
Middle Big Creek
Mouse Creek
South Prairie Lee
West Prairie Lee
Maybrook Watershed
Little Blue River Watershed
LAKEWOOD WAY
LAKEWOOD BLVD
WOODS CHAPEL
STROTHER
RALPH POWELL
COLBERN
Little Cedar Creek Watershed
Boggs Hollow Watershed
Cedar Creek Watershed
Little Blue River Watershed
CHIPMAN
SITE
DOUGLAS
INDEPENDENCE AVE
TUDOR
SCRUGGS
PRYOR RD
BLUE
West
350
291

DESIGN DRAINAGE MAP

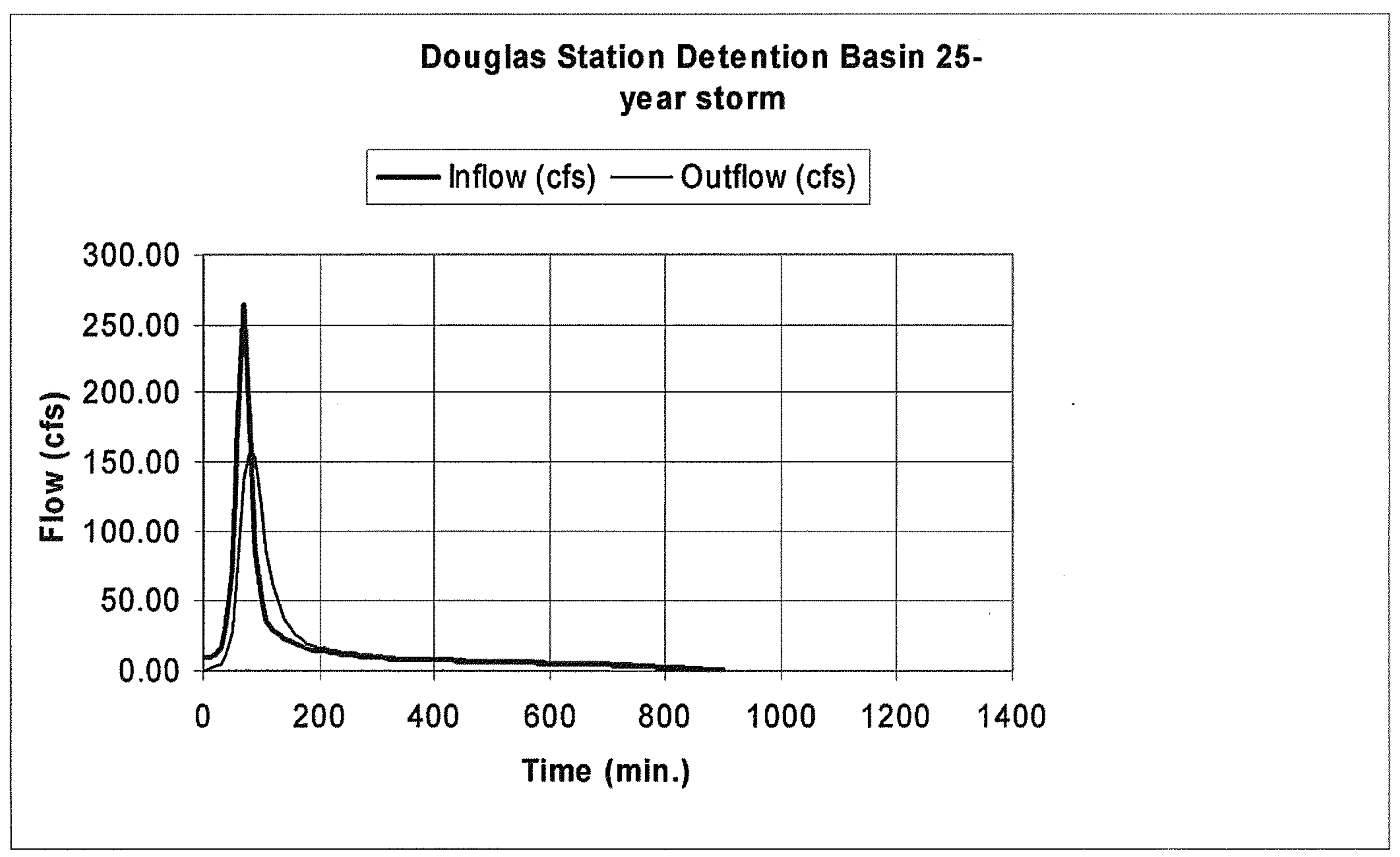


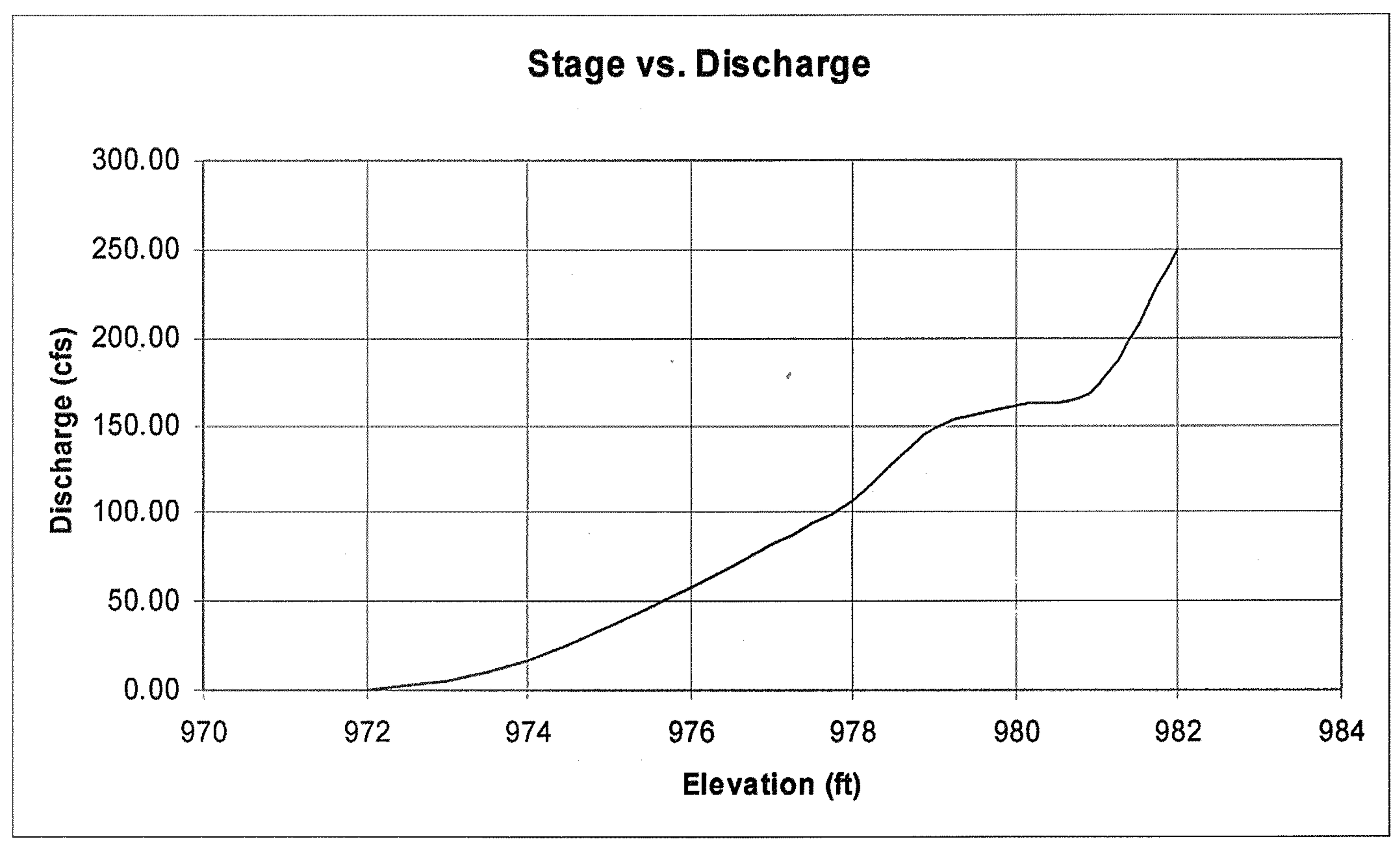
Stage vs. Storage Data

Elevation (ft.)	Total Storage (cu. ft.)
972.00	0
973.00	7716
974.00	16648
975.00	26882
976.00	38507
977.00	51611
978.00	66282
979.00	82605
980.00	100653
981.00	120489
982.00	142169

Stage vs. Discharge Data

Elevation (ft.)	Head (ft.)	Orifice Flow (cfs)	Control
972.00	0.00		
973.00	1.00	4.56	Energy Equation
974.00	0.83	17.07	Energy Equation
975.00	1.83	35.70	Energy Equation
976.00	2.83	58.31	Energy Equation
977.00	3.83	82.73	Energy Equation
978.00	4.83	106.85	Orifice Control
979.00	5.83	148.57	Orifice Control
980.00	6.83	160.80	Orifice Control
981.00	7.83	172.17	Orifice Control
982.00	8.83	250.17	Additional Weir Flow





CONFORMS TO CONSTRUCTION DOCUMENTS
DATE: 9/2/03

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ARCHITECTURE
ENGINEERING
PLANNING
INTERIORS
CONSULTING
PROGRAMMING
DESIGN / BUILD

PUBLIC IMPROVMENT PLANS

DOUGLAS STATION

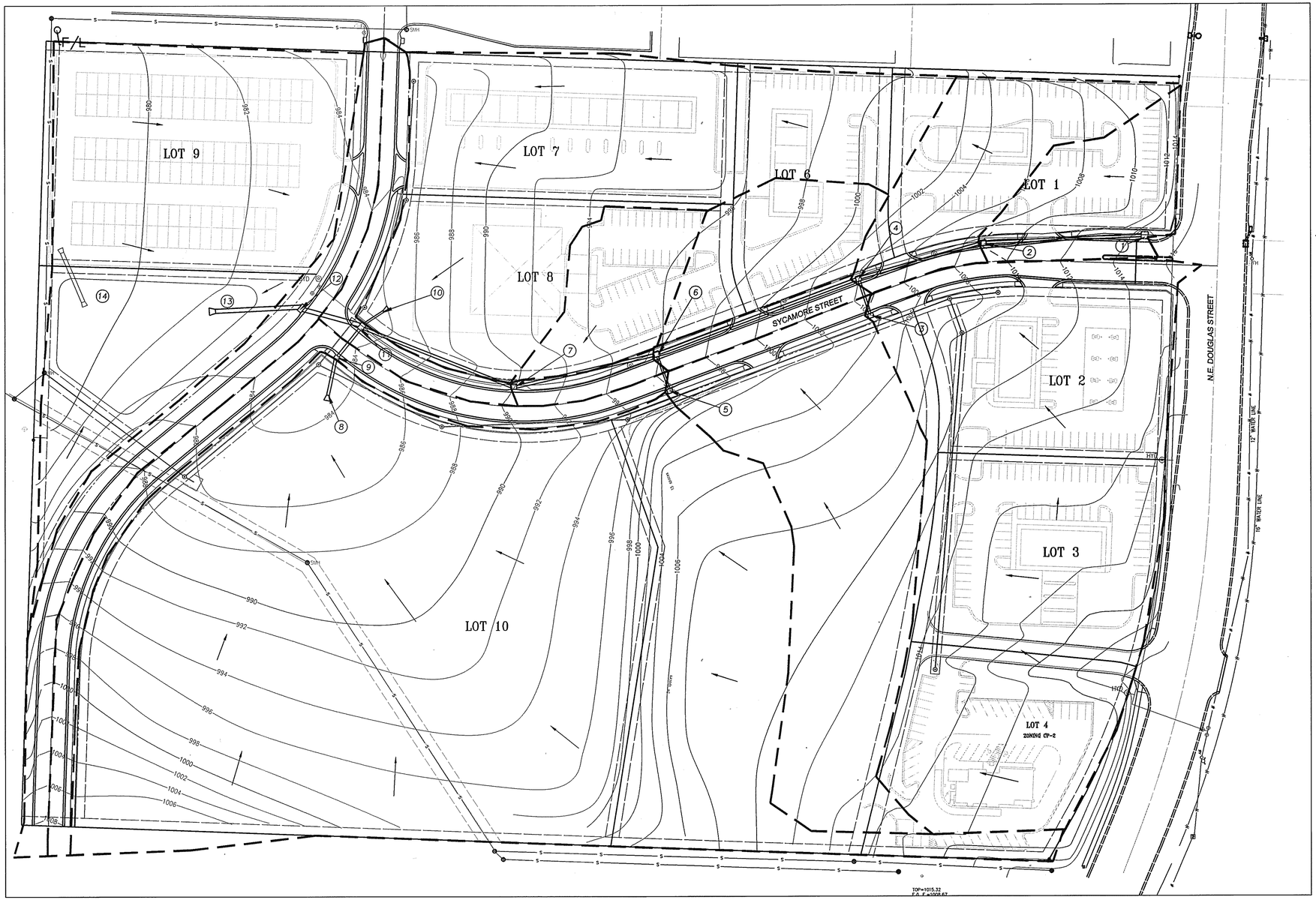
DOUGLAS ROAD & STATION DRIVE
LEE'S SUMMIT, MISSOURI

DATE 4-17-02
DRAWN BY LTB
CHECKED BY DDG
REVISIONS

6-13-02	1

SHEET NUMBER
C-10

DRAWING TYPE PERMIT
CAD FILE 01030 DET
PROJECT NUMBER 01030



THE ENTIRE PROJECT LIES OUTSIDE THE LIMITS OF THE 100-YEAR FLOOD PLAIN AS DEPICTED ON FEMA FLOOD RATE INSURANCE MAP (FIRM) FOR THE CITY OF LEE'S SUMMIT, MISSOURI, COMMUNITY PANEL NUMBER 290174 0009C. EFFECTIVE DATE AUGUST 3, 1989

1 DRAINAGE MAP
SCALE: 1" = 60'

NORTH

NOTE: DRAINAGE PATTERNS ARE BASED ON PROPOSED FINISH GRADES.

CONFORMS TO CONSTRUCTION DOCUMENTS
DATE: 9/2/03

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LUMBER
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REGISTERED PROFESSIONAL ENGINEER
4/2/02

ARCHITECTURE
ENGINEERING
PLANNING
INTERIORS
CONSULTING
PROGRAMMING
DESIGN / BUILD

NEW PROPOSED DOUGLAS STATION
DOUGLAS ROAD & STATION DRIVE
LEE'S SUMMIT, MISSOURI

DATE
4/2/02
DRAWN BY
PDR
CHECKED BY
LTB
REVISIONS

6-18-02	1

SHEET NUMBER
C-6
DRAWING TYPE
PERMIT
CAD FILE
01080 DS1
PROJECT NUMBER
01080

STORM DRAINAGE CALCULATIONS
STORM FREQUENCY = 10 YR.

	POINT NO.	DIST. (FEET)	GRADE (%)	SIZE (IN.)	F/L	"n"	CAPACITY (CFS)	FULL VELOCITY (FPS)	ACTUAL VEL (FPS)	TIME OF CONC.	TRAVEL TIME (MIN.)	RUNOFF COEFF.	"K"	INCR. AREA (ACRES)	ACRES x "C" x "K"	ACRES x "C" x "K"	INCR. RUNOFF (CFS)	CUM. AREA x "C" x "K" (ACRES)	RAINFALL (IN/HR)	CUM. RUNOFF (CFS)	% CAPACITY	DEPTH (ft.)	HGL	STRUCTURE TOP	TOP-HGL	NOTES
LINE # 1	1	174.72	3.18%	36	1008.43	0.013	119.26	16.87	7.93	15.00	0.37	0.4	1.0	27.00	10.80	10.80	55.42	10.80	5.13	55.42	46%	1.41	1009.84	1015.98	6.14	OFFSITE DRAINAGE AREA TO THE EAST
	2	140.17	2.93%	36	1002.67	0.013	114.48	16.20	8.10	15.37	0.29	0.75	1.0	0.61	0.46	0.46	2.33	11.26	5.09	57.27	50%	1.50	1004.17	1009.32	5.15	
	3	38.00	2.50%	24	998.95	0.013	35.87	11.42	6.39	5.00	0.10	0.75	1.0	3.94	2.96	2.96	21.73	2.96	7.35	21.73	61%	1.12	1000.07	1004.53	4.46	
	4	235.36	3.79%	36	998.36	0.013	130.20	18.42	9.95	15.66	0.39	0.75	1.0	0.85	0.64	0.64	3.22	14.85	5.05	75.03	58%	1.62	999.98	1004.57	4.59	
	5	38.00	2.50%	18	991.93	0.013	16.65	9.42	5.75	5.00	0.11	0.75	1.0	2.10	1.58	1.58	11.58	1.58	7.35	11.58	70%	0.92	992.85	996.45	3.61	
	6	158.75	2.97%	36	988.95	0.013	115.26	16.31	10.27	16.05	0.26	0.75	1.0	0.77	0.58	0.58	2.89	17.00	5.01	85.11	74%	1.89	990.84	996.45	5.61	
	7	177.54	4.24%	36	983.57	0.013	137.71	19.48	11.10	16.31	0.27	0.75	1.0	0.64	0.48	0.48	2.39	17.48	4.98	86.99	63%	1.71	985.28	990.57	5.29	
	8	41.00	2.65%	36	977.87	0.013	108.87	15.40	11.71	5.00	0.06	0.75	1.0	18.51	13.88	13.88	102.08	13.88	7.35	102.08	94%	2.28	980.15	981.34	1.19	INCLUDES 10 Ac. FROM AREA SOUTH OF SITE.
	9	38.00	1.40%	42	976.76	0.013	119.36	12.41	9.06	5.06	0.07	0.75	1.0	0.67	0.50	0.50	3.69	14.39	7.33	105.51	88%	2.56	979.32	986.45	7.14	
	10	26.00	2.65%	18	978.34	0.013	17.15	9.70	7.28	5.00	0.06	0.75	1.0	2.87	2.15	2.15	15.83	2.15	7.35	15.83	92%	1.13	979.47	980.34	0.88	END SECTION
	11	66.14	1.11%	54	975.78	0.013	207.74	13.06	8.88	16.57	0.12	0.75	1.0	0.36	0.27	0.27	1.34	34.29	4.95	169.57	82%	3.06	978.84	986.45	7.61	
	12	94.44	1.11%	54	974.85	0.013	207.74	13.06	9.01	16.70	0.17	0.75	1.0	0.81	0.61	0.61	3.00	34.90	4.93	172.08	83%	3.11	977.96	983.21	5.26	
	13	SURFACE FLOW TO DETENTION BASIN								5		0.75	1.0	2.88	2.16	2.16	15.88	37.06	7.35	272.48						
	14	DISCHARGE PIPE FOR DETENTION BASIN																								
LINE # 2	8	41.00	2.65%	36.00	977.87	0.013	108.87	15.40	11.71	5.00	0.06	0.75	1.0	18.51	13.88	13.88	102.08	13.88	7.35	102.08	94%	2.28	980.15	981.34	1.19	END SECTION
	9	38.00	1.40%	42.00	976.76	0.013	119.36	12.41	9.06	5.06	0.07	0.75	1.0	0.67	0.50	0.50	3.69	14.39	7.33	105.51	88%	2.56	979.32	986.45	7.14	
	10	26.00	2.65%	18.00	978.34	0.013	17.15	9.70	7.28	5.00	0.06	0.75	1.0	2.87	2.15	2.15	15.83	2.15	7.35	15.83	92%	1.13	979.47	980.34	0.88	
	11	66.14	1.11%	54.00	975.78	0.013	207.74	13.06	8.88	16.57	0.12	0.75	1.0	0.36	0.27	0.27	1.34	34.29	4.95	169.57	82%	3.06	978.84	986.45	7.61	
LINE # 3	5	38.00	2.50%	18.00	991.93	0.013	16.65	9.42	5.75	5.00	0.11	0.75	1.0	2.10	1.58	1.58	11.58	1.58	7.35	11.58	70%	0.92	992.85	996.45	3.61	
	6	158.75	2.97%	36.00	988.95	0.013	115.26	16.31	10.27	16.05	0.26	0.75	1.0	0.77	0.58	0.58	2.89	17.00	5.01	85.11	74%	1.89	990.84	996.45	5.61	
LINE # 4	3	38.00	2.50%	24.00	998.95	0.013	35.87	11.42	6.39	5.00	0.10	0.75	1.0	3.94	2.96	2.96	21.73	2.96	7.35	21.73	61%	1.12	1000.07	1004.53	4.46	
	4	235.36	3.79%	36.00	998.36	0.013	130.20	18.42	9.95	15.66	0.39	0.75	1.0	0.85	0.64	0.64	3.22	14.85	5.05	75.03	58%	1.62	999.98	1004.57	4.59	
LINE # 5	14	57.00	1.00%	48.00	972.63	0.013	108.87	15.40	11.71																	SEE DETETNION BASIN SHEET FOR INROMATION

STORM DRAINAGE CALCULATIONS
STORM FREQUENCY = 100 YR.

	POINT NO.	DIST. (FEET)	GRADE (%)	SIZE (IN.)	F/L	"n"	CAPACITY (CFS)	FULL VELOCITY (FPS)	ACTUAL VEL (FPS)	TIME OF CONC.	TRAVEL TIME (MIN.)	RUNOFF COEFF.	"K"	INCR. AREA (ACRES)	ACRES x "C" x "K"	ACRES x "C" x "K"	INCR. RUNOFF (CFS)	CUM. AREA x "C" x "K" (ACRES)	RAINFALL (IN/HR)	CUM. RUNOFF (CFS)	% CAPACITY	DEPTH (ft.)	HGL	STRUCTURE TOP	TOP-HGL	NOTES
LINE # 1	1	174.72	3.18%	36	1008.43	0.013	119.26	16.87	9.11	15.00	0.32	0.4	1.25	27.00	13.50	13.50	69.28	13.50	5.13	69.28	58%	1.62	1010.05	1015.98	5.93	OFFSITE DRAINAGE AREA TO THE EAST
	2	140.17	2.93%	36	1002.67	0.013	114.48	16.20	9.23	15.32	0.25	0.75	1.25	0.61	0.57	0.57	2.91	14.07	5.09	71.67	63%	1.71	1004.38	1009.32	4.94	
	3	38.00	2.50%	24	998.95	0.013	35.87	11.42	7.42	5.00	0.09	0.75	1.25	3.94	3.69	3.69	27.16	3.69	7.35	27.16	76%	1.30	1000.25	1004.53	4.28	
	4	235.36	3.79%	36	998.36	0.013	130.20	18.42	11.42	15.57	0.34	0.75	1.25	0.85	0.80	0.80	4.03	18.56	5.06	93.97	72%	1.86	1000.22	1004.57	4.35	
	5	38.00	2.50%	18	991.93	0.013	16.65	9.42	6.79	5.00	0.09	0.75	1.25	2.10	1.97	1.97	14.48	1.97	7.35	14.48	87%	1.08	993.01	996.45	3.44	
	6	158.75	2.97%	36	988.95	0.013	115.26	16.31	12.39	15.92	0.21	0.75	1.25	0.77	0.72	0.72	3.62	21.25	5.02	106.72	93%	2.28	991.23	996.45	5.22	
	7	177.54	4.24%	36	983.57	0.013	137.71	19.48	13.05	16.13	0.23	0.75	1.25	0.64	0.60	0.60	3.00	21.85	5.00	109.19	79%	2.01	985.58	990.57	4.99	
	8	41.00	2.65%	36	977.87	0.013	108.87	15.40	14.48	5.00	0.05	0.75	1.25	18.51	17.35	17.35	127.60	17.35	7.35	127.60	FULL FLOW	2.82	FULL FLOW	FULL FLOW	FULL FLOW	INCLUDES 10 Ac. FROM AREA SOUTH OF SITE.
	9	38.00	1.40%	42	976.76	0.013	119.36	12.41	11.66	5.05	0.05	0.75	1.25	0.67	0.63	0.63	4.61	17.98	7.34	131.95		3.29				
	10	26.00	2.65%	18	978.34	0.013	17.15	9.70	9.12	5.00	0.05	0.75	1.25	2.87	2.69	2.69	19.78	2.69	7.35	19.78		1.41				END SECTION
	11	66.14	1.11%	54	975.78	0.013	207.74	13.06	10.97	16.36	0.10	0.75	1.25	0.36	0.34	0.34	1.68	42.86	4.97	213.04		3.78				
	12	94.44	1.11%	54	974.85	0.013	207.74	13.06	11.23	16.46	0.14	0.75	1.25	0.81	0.76	0.76	3.77	43.62	4.96	216.31		3.87				
	13	SURFACE FLOW TO DETENTION BASIN								5		0.75	1.25	2.88	2.70	2.70	19.85	46.32	7.35	340.60						
	14	DISCHARGE PIPE FOR DETENTION BASIN																								
LINE # 2	8	41.00	0.03	36.00	977.87	0.013	108.87	15.40	14.48	5.00	0.05	0.75	1.25	18.51	17.35	17.35	127.60	17.35	7.35	127.60	FULL FLOW	2.82	FULL FLOW	FULL FLOW	FULL FLOW	END SECTION
	9	38.00	0.01	42.00	976.76	0.013	119.36	12.41	11.66	5.05	0.05	0.75	1.25	0.67	0.63	0.63	4.61	17.98	7.34	131.95		3.29				
	10	26.00	0.03	18.00	978.34	0.013	17.15	9.70	9.12	5.00	0.05	0.75	1.25	2.87	2.69	2.69	19.78	2.69	7.35	19.78		1.41				
	11	66.14	0.01	54.00	975.78	0.013	207.74	13.06	10.97	16.36	0.10	0.75	1.25	0.36	0.34	0.34	1.68	42.86	4.97	213.04		3.78				
LINE # 3	5	38.00	0.03	18.00	991.93	0.013	16.65	9.42	6.79	5.00	0.09	0.75	1.25	2.10	1.97	1.97	14.48	1.97	7.35	14.48	87%	1.08	993.01	996.45	3.44	
	6	158.75	0.03	36.00	988.95	0.013	115.26	16.31	12.39	15.92	0.21	0.75	1.25	0.77	0.72	0.72	3.62	21.25	5.02	106.72	93%	2.28	991.23	996.45	5.22	
LINE # 4	3	38.00	0.03	24.00	998.95	0.013	35.87	11.42	7.42	5.00	0.09	0.75	1.25	3.94	3.69	3.69	27.16	3.69	7.35	27.16	76%	1.30	1000.25	1004.53	4.28	
	4	235.36	0.04	36.00	998.36	0.013	130.20	18.42	11.42	15.57	0.34	0.75	1.25	0.85	0.80	0.80	4.03	18.56	5.06	93.97	72%	1.86	1000.22	1004.57	4.35	
LINE # 5	14	57.00	1.00%	48.00	972.63	0.013	108.87	15.40	14.48																	SEE DETETNION BASIN SHEET FOR INROMATION

CONFORMS TO CONSTRUCTION DOCUMENTS
DATE: 9/2/03

DAVIDSON DESIGN GROUP
11301 STRANG LINE ROAD
LENEXA, KANSAS 66215
P: 913.451.9390
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STATE OF MISSOURI
DAVID L. DAVIDSON
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9/2/03
REGISTERED PROFESSIONAL ENGINEER

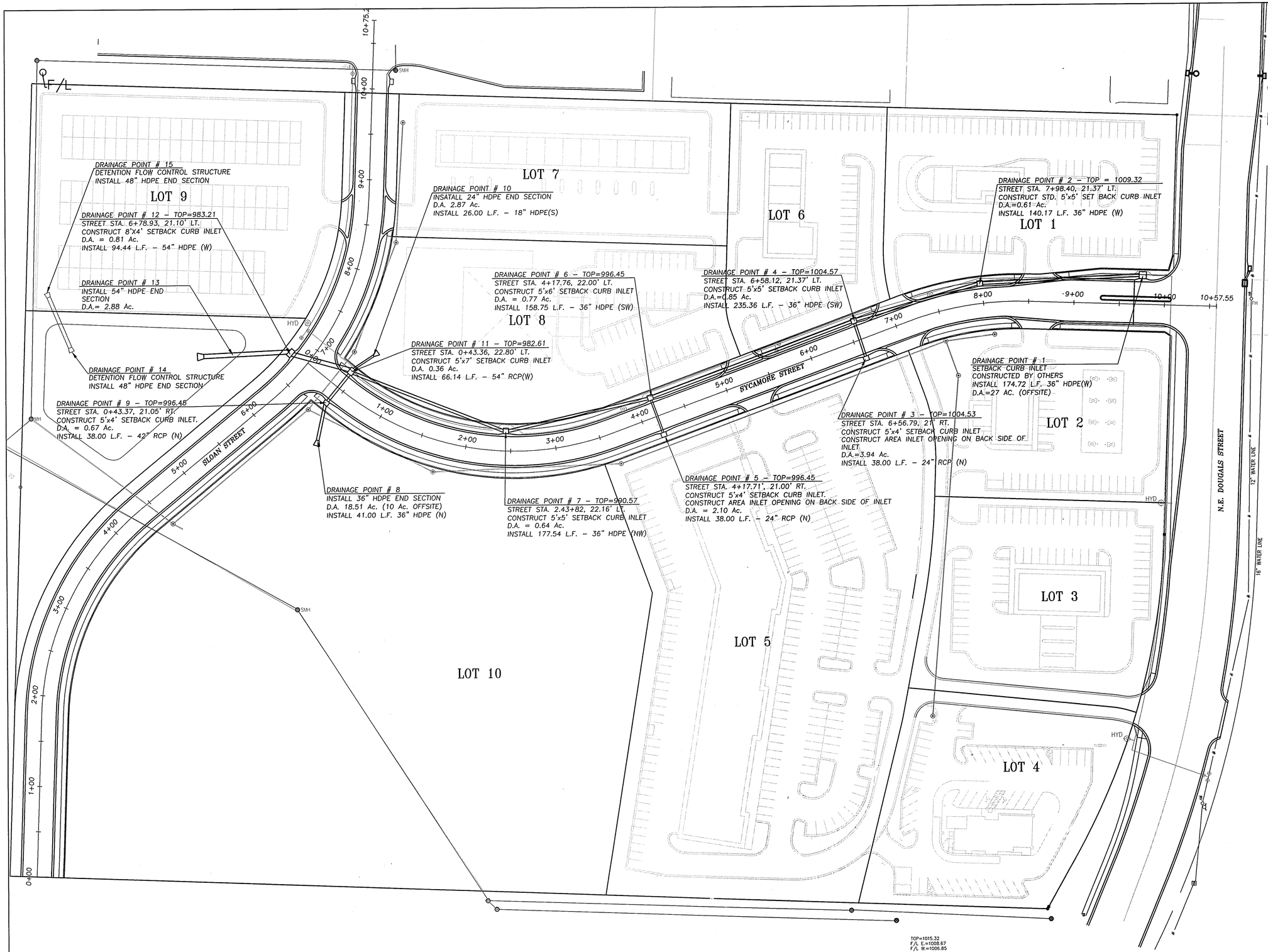
ARCHITECTURE
ENGINEERING
PLANNING
INTERIORS
CONSULTING
PROGRAMMING
DESIGN / BUILD

PUBLIC IMPROVMENT PLANS
DOUGLAS STATION
DOUGLAS ROAD & STATION DRIVE
LEE'S SUMMIT, MISSOURI

DATE
6-14-02
DRAWN BY
LTB
CHECKED BY
DDG
REVISIONS

6-18-02	1

SHEET NUMBER
C-7
DRAWING TYPE
PERMIT
CAD FILE
01030 D Table
PROJECT NUMBER
01030



CONFORMS TO CONSTRUCTION DOCUMENTS
DATE: 9/2/03

1 STORM SEWER PLANS
SCALE: 1" = 50

NORTH

DAVIDSON DESIGN GROUP
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STATE OF MISSOURI
NUMBER E-29962
REGISTERED PROFESSIONAL ENGINEER
9/2/03

ARCHITECTURE
ENGINEERING
PLANNING
INTERIORS
CONSULTING
PROGRAMMING
DESIGN / BUILD

NEW PROPOSED DOUGLAS STATION
DOUGLAS ROAD & STATION DRIVE
LEE'S SUMMIT, MISSOURI

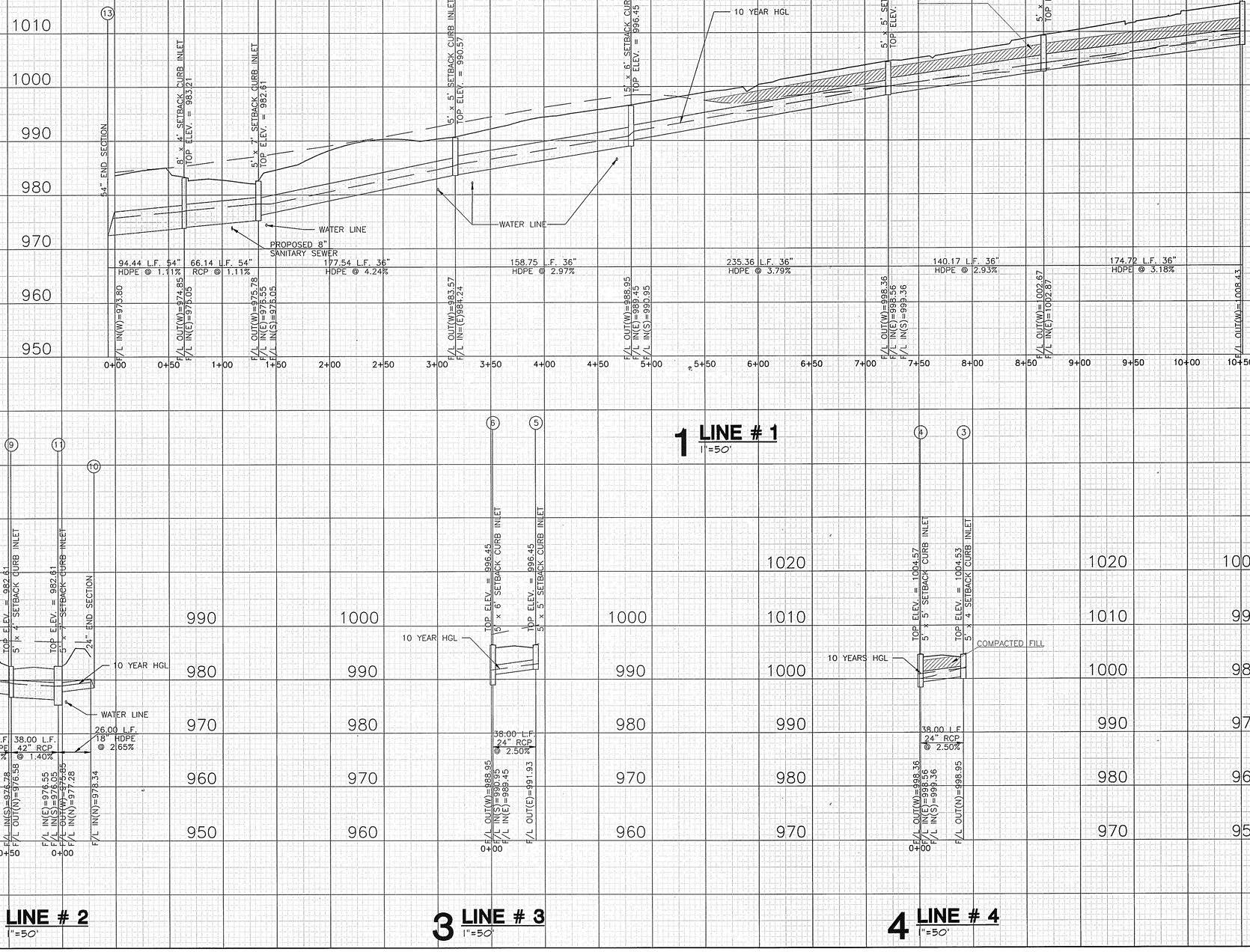
DATE
4/9/02
DRAWN BY
PDR
CHECKED BY
LTB
REVISIONS

6-18-02	1
10-10-02	2

SHEET NUMBER
C-8
DRAWING TYPE
PERMIT
CAD FILE
01080 STORM SEWER
PROJECT NUMBER
01080

CONFORMS TO CONSTRUCTION DOCUMENTS

DATE: 9/2/03

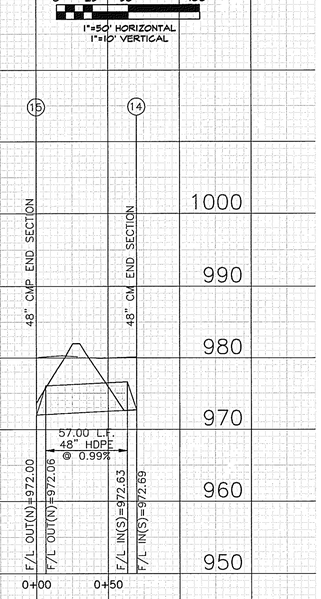


1 LINE # 1
1"=50'

2 LINE # 2
1"=50'

3 LINE # 3
1"=50'

4 LINE # 4
1"=50'



5 LINE # 5
1"=50'

COMPACED FILL NOTE

AREAS WITH LESS THAN 4' OF DEPTH FROM EXISTING GRADE TO PROPOSED TOP OF PIPE SHALL BE FILLED TO AN ELEVATION OF 4' ABOVE THE PROPOSED TOP OF PIPE, COMPACTED TO 95% DENSITY, THEN TRENCHED FOR PIPE INSTALLATION. SAID AREAS ARE DESIGNATED AS "CONTROLLED FILL".

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9/2/03

ARCHITECTURE
ENGINEERING
PLANNING
INTERIORS
CONSULTING
PROGRAMMING
DESIGN / BUILD

NEW CONSTRUCTION

DOUGLAS STATION

NE DOUGLAS STREET & STATION STREET
LEE'S SUMMIT, MISSOURI

DATE
4/4/02
DRAWN BY
DDG
CHECKED BY
DDG
REVISIONS

6-18-02	1
10-10-02	2

SHEET NUMBER
C-9
DRAWING TYPE
PERMIT
CAD FILE
STORM PROFILES
PROJECT NUMBER
01080

HYDROLOGIC MODEL

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	SCS Runoff	-------	-------	9.68	-------	-------	46.72	79.85	103.52	-------	PRE DEVELOPMENT RUNOFF
2	SCS Runoff	-------	-------	30.45	-------	-------	79.87	117.21	142.41	-------	TOTAL ONSITE INTO BASIN
3	SCS Runoff	-------	-------	13.11	-------	-------	49.70	81.52	103.83	-------	TOTAL OFF SITE INTO BASIN
4	Combine	2, 3	-------	41.07	-------	-------	122.39	187.07	231.51	-------	TOTAL FLOW TO BASIN
5	Reservoir	4	-------	31.50	-------	-------	97.89	136.19	155.07	-------	DESIGN REGIONAL BASIN

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 5

DESIGN REGIONAL BASIN

Hydrograph type	= Reservoir	Peak discharge	= 31.50 cfs
Storm frequency	= 2 yrs	Time interval	= 6 min
Inflow hyd. No.	= 4	Reservoir name	= DESIGN REGIONAL B
Max. Elevation	= 974.84 ft	Max. Storage	= 30,291 cuft

Storage Indication method used.

Outflow hydrograph volume = 147,055 cuft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
11.90	24.32	973.55	6.34	-----	-----	-----	-----	-----	-----	-----	-----	6.34
12.00	39.13	974.17	17.56	-----	-----	-----	-----	-----	-----	-----	-----	17.56
12.10	41.07 <<	974.66	27.97	-----	-----	-----	-----	-----	-----	-----	-----	27.97
12.20	31.71	974.84 <<	31.50	-----	-----	-----	-----	-----	-----	-----	-----	31.50 <<
12.30	21.15	974.73	29.38	-----	-----	-----	-----	-----	-----	-----	-----	29.38
12.40	14.79	974.48	24.52	-----	-----	-----	-----	-----	-----	-----	-----	24.52
12.50	11.62	974.24	19.08	-----	-----	-----	-----	-----	-----	-----	-----	19.08
12.60	8.60	974.05	14.89	-----	-----	-----	-----	-----	-----	-----	-----	14.89
12.70	6.71	973.87	11.51	-----	-----	-----	-----	-----	-----	-----	-----	11.51
12.80	5.95	973.74	9.21	-----	-----	-----	-----	-----	-----	-----	-----	9.21
12.90	5.41	973.65	7.75	-----	-----	-----	-----	-----	-----	-----	-----	7.75
13.00	4.99	973.58	6.75	-----	-----	-----	-----	-----	-----	-----	-----	6.75
13.10	4.64	973.53	6.02	-----	-----	-----	-----	-----	-----	-----	-----	6.02
13.20	4.35	973.49	5.46	-----	-----	-----	-----	-----	-----	-----	-----	5.46
13.30	4.11	973.46	5.04	-----	-----	-----	-----	-----	-----	-----	-----	5.04
13.40	3.90	973.43	4.68	-----	-----	-----	-----	-----	-----	-----	-----	4.68
13.50	3.71	973.40	4.38	-----	-----	-----	-----	-----	-----	-----	-----	4.38
13.60	3.53	973.38	4.14	-----	-----	-----	-----	-----	-----	-----	-----	4.14
13.70	3.36	973.36	3.93	-----	-----	-----	-----	-----	-----	-----	-----	3.93
13.80	3.21	973.35	3.73	-----	-----	-----	-----	-----	-----	-----	-----	3.73
13.90	3.07	973.33	3.55	-----	-----	-----	-----	-----	-----	-----	-----	3.55
14.00	2.93	973.31	3.38	-----	-----	-----	-----	-----	-----	-----	-----	3.38
14.10	2.81	973.30	3.23	-----	-----	-----	-----	-----	-----	-----	-----	3.23
14.20	2.70	973.29	3.10	-----	-----	-----	-----	-----	-----	-----	-----	3.10
14.30	2.62	973.27	2.98	-----	-----	-----	-----	-----	-----	-----	-----	2.98
14.40	2.56	973.26	2.88	-----	-----	-----	-----	-----	-----	-----	-----	2.88
14.50	2.50	973.25	2.78	-----	-----	-----	-----	-----	-----	-----	-----	2.78
14.60	2.46	973.25	2.70	-----	-----	-----	-----	-----	-----	-----	-----	2.70
14.70	2.41	973.24	2.63	-----	-----	-----	-----	-----	-----	-----	-----	2.63
14.80	2.37	973.23	2.56	-----	-----	-----	-----	-----	-----	-----	-----	2.56
14.90	2.32	973.22	2.51	-----	-----	-----	-----	-----	-----	-----	-----	2.51
15.00	2.28	973.22	2.45	-----	-----	-----	-----	-----	-----	-----	-----	2.45
15.10	2.23	973.21	2.40	-----	-----	-----	-----	-----	-----	-----	-----	2.40
15.20	2.18	973.21	2.35	-----	-----	-----	-----	-----	-----	-----	-----	2.35
15.30	2.14	973.20	2.30	-----	-----	-----	-----	-----	-----	-----	-----	2.30
15.40	2.09	973.20	2.25	-----	-----	-----	-----	-----	-----	-----	-----	2.25
15.50	2.04	973.19	2.21	-----	-----	-----	-----	-----	-----	-----	-----	2.21
15.60	2.00	973.19	2.17	-----	-----	-----	-----	-----	-----	-----	-----	2.17

Continues on next page...

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
15.70	1.95	973.18	2.12	-----	-----	-----	-----	-----	-----	-----	-----	2.12
15.80	1.90	973.18	2.08	-----	-----	-----	-----	-----	-----	-----	-----	2.08
15.90	1.85	973.17	2.03	-----	-----	-----	-----	-----	-----	-----	-----	2.03
16.00	1.81	973.16	1.99	-----	-----	-----	-----	-----	-----	-----	-----	1.99
16.10	1.76	973.16	1.94	-----	-----	-----	-----	-----	-----	-----	-----	1.94
16.20	1.72	973.15	1.89	-----	-----	-----	-----	-----	-----	-----	-----	1.89
16.30	1.69	973.15	1.85	-----	-----	-----	-----	-----	-----	-----	-----	1.85
16.40	1.67	973.14	1.81	-----	-----	-----	-----	-----	-----	-----	-----	1.81
16.50	1.65	973.14	1.78	-----	-----	-----	-----	-----	-----	-----	-----	1.78
16.60	1.63	973.13	1.74	-----	-----	-----	-----	-----	-----	-----	-----	1.74
16.70	1.61	973.13	1.72	-----	-----	-----	-----	-----	-----	-----	-----	1.72
16.80	1.60	973.13	1.69	-----	-----	-----	-----	-----	-----	-----	-----	1.69
16.90	1.58	973.12	1.67	-----	-----	-----	-----	-----	-----	-----	-----	1.67
17.00	1.56	973.12	1.65	-----	-----	-----	-----	-----	-----	-----	-----	1.65
17.10	1.55	973.12	1.63	-----	-----	-----	-----	-----	-----	-----	-----	1.63
17.20	1.53	973.12	1.61	-----	-----	-----	-----	-----	-----	-----	-----	1.61
17.30	1.51	973.11	1.59	-----	-----	-----	-----	-----	-----	-----	-----	1.59

...End

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	9.68	2	728	41,328	----	------	------	PRE DEVELOPMENT RUNOFF
2	SCS Runoff	30.45	6	720	94,105	----	------	------	TOTAL ONSITE INTO BASIN
3	SCS Runoff	13.11	6	732	58,857	----	------	------	TOTAL OFF SITE INTO BASIN
4	Combine	41.07	6	726	152,962	2, 3	------	------	TOTAL FLOW TO BASIN
5	Reservoir	31.50	6	732	147,055	4	974.84	30,291	DESIGN REGIONAL BASIN

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 1

PRE DEVELOPMENT RUNOFF

Hydrograph type	= SCS Runoff	Peak discharge	= 9.68 cfs
Storm frequency	= 2 yrs	Time interval	= 2 min
Drainage area	= 25.00 ac	Curve number	= 74
Basin Slope	= 8.0 %	Hydraulic length	= 2000 ft
Tc method	= LAG	Time of conc. (Tc)	= 23.4 min
Total precip.	= 2.20 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 41,328 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.83	0.68	12.97	1.66	14.10	0.95	15.23	0.75
11.87	1.22	13.00	1.62	14.13	0.94	15.27	0.74
11.90	2.07	13.03	1.59	14.17	0.93	15.30	0.74
11.93	3.22	13.07	1.55	14.20	0.92	15.33	0.73
11.97	4.57	13.10	1.52	14.23	0.90	15.37	0.73
12.00	5.97	13.13	1.49	14.27	0.90	15.40	0.72
12.03	7.28	13.17	1.46	14.30	0.89	15.43	0.72
12.07	8.42	13.20	1.44	14.33	0.88	15.47	0.71
12.10	9.27	13.23	1.41	14.37	0.87	15.50	0.71
12.13	9.68 <<	13.27	1.38	14.40	0.87	15.53	0.70
12.17	9.61	13.30	1.36	14.43	0.86	15.57	0.70
12.20	9.20	13.33	1.34	14.47	0.85	15.60	0.69
12.23	8.65	13.37	1.31	14.50	0.85	15.63	0.69
12.27	8.05	13.40	1.29	14.53	0.84	15.67	0.68
12.30	7.41	13.43	1.27	14.57	0.84	15.70	0.68
12.33	6.74	13.47	1.25	14.60	0.84	15.73	0.67
12.37	6.04	13.50	1.23	14.63	0.83	15.77	0.67
12.40	5.33	13.53	1.22	14.67	0.83	15.80	0.66
12.43	4.63	13.57	1.20	14.70	0.82	15.83	0.66
12.47	3.97	13.60	1.18	14.73	0.82	15.87	0.65
12.50	3.40	13.63	1.16	14.77	0.81	15.90	0.65
12.53	2.97	13.67	1.15	14.80	0.81	15.93	0.64
12.57	2.70	13.70	1.13	14.83	0.80	15.97	0.64
12.60	2.54	13.73	1.11	14.87	0.80	16.00	0.63
12.63	2.42	13.77	1.10	14.90	0.80	16.03	0.63
12.67	2.31	13.80	1.08	14.93	0.79	16.07	0.62
12.70	2.20	13.83	1.06	14.97	0.79	16.10	0.62
12.73	2.10	13.87	1.05	15.00	0.78	16.13	0.61
12.77	2.02	13.90	1.03	15.03	0.78	16.17	0.61
12.80	1.94	13.93	1.02	15.07	0.77	16.20	0.60
12.83	1.87	13.97	1.01	15.10	0.77	16.23	0.60
12.87	1.81	14.00	0.99	15.13	0.76	16.27	0.59
12.90	1.75	14.03	0.98	15.17	0.76	16.30	0.59
12.93	1.71	14.07	0.96	15.20	0.75	16.33	0.59

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Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
16.37	0.58	18.07	0.49
16.40	0.58	18.10	0.49
16.43	0.58	18.13	0.49
16.47	0.58	18.17	0.49
16.50	0.58	18.20	0.48
16.53	0.57		
16.57	0.57		
16.60	0.57	*...End*	
16.63	0.57		
16.67	0.57		
16.70	0.57		
16.73	0.56		
16.77	0.56		
16.80	0.56		
16.83	0.56		
16.87	0.56		
16.90	0.56		
16.93	0.55		
16.97	0.55		
17.00	0.55		
17.03	0.55		
17.07	0.55		
17.10	0.54		
17.13	0.54		
17.17	0.54		
17.20	0.54		
17.23	0.54		
17.27	0.54		
17.30	0.53		
17.33	0.53		
17.37	0.53		
17.40	0.53		
17.43	0.53		
17.47	0.53		
17.50	0.52		
17.53	0.52		
17.57	0.52		
17.60	0.52		
17.63	0.52		
17.67	0.51		
17.70	0.51		
17.73	0.51		
17.77	0.51		
17.80	0.51		
17.83	0.50		
17.87	0.50		
17.90	0.50		
17.93	0.50		
17.97	0.50		
18.00	0.50		
18.03	0.49		

Hydrograph Report

Hyd. No. 2

TOTAL ONSITE INTO BASIN

Hydrograph type	= SCS Runoff	Peak discharge	= 30.45 cfs
Storm frequency	= 2 yrs	Time interval	= 6 min
Drainage area	= 24.50 ac	Curve number	= 88
Basin Slope	= 5.0 %	Hydraulic length	= 2000 ft
Tc method	= LAG	Time of conc. (Tc)	= 18.8 min
Total precip.	= 2.20 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 94,105 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
11.50	1.73
11.60	2.50
11.70	4.86
11.80	9.80
11.90	19.97
12.00	30.45 <<
12.10	28.77
12.20	18.60
12.30	9.85
12.40	5.64
12.50	4.83
12.60	4.07
12.70	3.50
12.80	3.14
12.90	2.91
13.00	2.72
13.10	2.53
13.20	2.38
13.30	2.25
13.40	2.14
13.50	2.04
13.60	1.94
13.70	1.84
13.80	1.76
13.90	1.68
14.00	1.61
14.10	1.54

...End

Hydrograph Report

Hyd. No. 3

TOTAL OFF SITE INTO BASIN

Hydrograph type	= SCS Runoff	Peak discharge	= 13.11 cfs
Storm frequency	= 2 yrs	Time interval	= 6 min
Drainage area	= 27.00 ac	Curve number	= 78
Basin Slope	= 4.0 %	Hydraulic length	= 2000 ft
Tc method	= LAG	Time of conc. (Tc)	= 29.4 min
Total precip.	= 2.20 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 58,857 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.80	1.46	15.20	0.98
11.90	4.35	15.30	0.96
12.00	8.68	15.40	0.94
12.10	12.31	15.50	0.92
12.20	13.11 <<	15.60	0.90
12.30	11.30	15.70	0.88
12.40	9.15	15.80	0.86
12.50	6.79	15.90	0.84
12.60	4.53	16.00	0.82
12.70	3.21	16.10	0.80
12.80	2.81	16.20	0.78
12.90	2.51	16.30	0.77
13.00	2.28	16.40	0.75
13.10	2.10	16.50	0.74
13.20	1.97	16.60	0.74
13.30	1.86	16.70	0.73
13.40	1.76	16.80	0.72
13.50	1.67	16.90	0.71
13.60	1.59	17.00	0.71
13.70	1.52	17.10	0.70
13.80	1.45	17.20	0.69
13.90	1.39	17.30	0.69
14.00	1.33	17.40	0.68
14.10	1.27	17.50	0.67
14.20	1.22	17.60	0.66
14.30	1.18	17.70	0.66
14.40	1.15		
14.50	1.12		
14.60	1.10	*...End*	
14.70	1.08		
14.80	1.06		
14.90	1.04		
15.00	1.02		
15.10	1.00		

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 4

TOTAL FLOW TO BASIN

Hydrograph type	= Combine	Peak discharge	= 41.07 cfs
Storm frequency	= 2 yrs	Time interval	= 6 min
Inflow hyds.	= 2, 3		

Hydrograph Volume = 152,962 cuft

Hydrograph Discharge Table

Time (hrs)	Hyd. 2 + (cfs)	Hyd. 3 = (cfs)	Outflow (cfs)
11.60	2.50	0.13	2.63
11.70	4.86	0.46	5.32
11.80	9.80	1.46	11.26
11.90	19.97	4.35	24.32
12.00	30.45 <<	8.68	39.13
12.10	28.77	12.31	41.07 <<
12.20	18.60	13.11 <<	31.71
12.30	9.85	11.30	21.15
12.40	5.64	9.15	14.79
12.50	4.83	6.79	11.62
12.60	4.07	4.53	8.60
12.70	3.50	3.21	6.71
12.80	3.14	2.81	5.95
12.90	2.91	2.51	5.41
13.00	2.72	2.28	4.99
13.10	2.53	2.10	4.64
13.20	2.38	1.97	4.35
13.30	2.25	1.86	4.11
13.40	2.14	1.76	3.90
13.50	2.04	1.67	3.71
13.60	1.94	1.59	3.53
13.70	1.84	1.52	3.36
13.80	1.76	1.45	3.21
13.90	1.68	1.39	3.07
14.00	1.61	1.33	2.93
14.10	1.54	1.27	2.81
14.20	1.48	1.22	2.70
14.30	1.44	1.18	2.62
14.40	1.41	1.15	2.56
14.50	1.39	1.12	2.50
14.60	1.36	1.10	2.46
14.70	1.33	1.08	2.41
14.80	1.31	1.06	2.37
14.90	1.28	1.04	2.32
15.00	1.25	1.02	2.28
15.10	1.23	1.00	2.23
15.20	1.20	0.98	2.18
15.30	1.17	0.96	2.14

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Hydrograph Discharge Table

Time (hrs)	Hyd. 2 + (cfs)	Hyd. 3 = (cfs)	Outflow (cfs)
15.40	1.15	0.94	2.09

...End

Reservoir Report

Hydraflow Hydrographs by Intelisolve

Reservoir No. 1 - DESIGN REGIONAL BASIN

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	972.00	6,876	0	0
1.00	973.00	10,000	8,438	8,438
2.00	974.00	12,061	11,031	19,469
3.00	975.00	13,551	12,806	32,275
4.00	976.00	15,216	14,384	46,658
5.00	977.00	16,826	16,021	62,679
6.00	978.00	18,558	17,692	80,371
7.00	979.00	20,304	19,431	99,802
8.00	980.00	22,106	21,205	121,007
9.00	981.00	23,965	23,036	144,043
10.00	982.00	25,880	24,923	168,965

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 48.0	0.0	0.0	0.0
Span in	= 48.0	0.0	0.0	0.0
No. Barrels	= 1	0	0	0
Invert El. ft	= 972.69	0.00	0.00	0.00
Length ft	= 57.0	0.0	0.0	0.0
Slope %	= 1.00	0.00	0.00	0.00
N-Value	= .013	.000	.000	.000
Orif. Coeff.	= 0.60	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 0.00	0.00	0.00	0.00
Crest El. ft	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	0.00	0.00	0.00
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfiltration Rate = 0.00 in/hr/sqft Tailwater Elev. = 0.00 ft

Note: All outflows have been analyzed under inlet and outlet control.

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0	972.00	0.00	---	---	---	---	---	---	---	---	0.00
0.10	844	972.10	0.00	---	---	---	---	---	---	---	---	0.00
0.20	1,688	972.20	0.00	---	---	---	---	---	---	---	---	0.00
0.30	2,531	972.30	0.00	---	---	---	---	---	---	---	---	0.00
0.40	3,375	972.40	0.00	---	---	---	---	---	---	---	---	0.00
0.50	4,219	972.50	0.00	---	---	---	---	---	---	---	---	0.00
0.60	5,063	972.60	0.00	---	---	---	---	---	---	---	---	0.00
0.70	5,907	972.70	0.00	---	---	---	---	---	---	---	---	0.00
0.80	6,750	972.80	0.11	---	---	---	---	---	---	---	---	0.11
0.90	7,594	972.90	0.40	---	---	---	---	---	---	---	---	0.40
1.00	8,438	973.00	0.86	---	---	---	---	---	---	---	---	0.86
1.10	9,541	973.10	1.48	---	---	---	---	---	---	---	---	1.48
1.20	10,644	973.20	2.27	---	---	---	---	---	---	---	---	2.27
1.30	11,747	973.30	3.22	---	---	---	---	---	---	---	---	3.22
1.40	12,850	973.40	4.33	---	---	---	---	---	---	---	---	4.33
1.50	13,953	973.50	5.60	---	---	---	---	---	---	---	---	5.60
1.60	15,056	973.60	7.01	---	---	---	---	---	---	---	---	7.01
1.70	16,159	973.70	8.55	---	---	---	---	---	---	---	---	8.55
1.80	17,262	973.80	10.22	---	---	---	---	---	---	---	---	10.22
1.90	18,365	973.90	12.03	---	---	---	---	---	---	---	---	12.03
2.00	19,469	974.00	13.96	---	---	---	---	---	---	---	---	13.96
2.10	20,749	974.10	16.03	---	---	---	---	---	---	---	---	16.03
2.20	22,030	974.20	18.20	---	---	---	---	---	---	---	---	18.20
2.30	23,310	974.30	20.50	---	---	---	---	---	---	---	---	20.50
2.40	24,591	974.40	22.86	---	---	---	---	---	---	---	---	22.86
2.50	25,872	974.50	24.95	---	---	---	---	---	---	---	---	24.95
2.60	27,152	974.60	26.86	---	---	---	---	---	---	---	---	26.86

Continues on next page...

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
2.70	28,433	974.70	28.78	---	---	---	---	---	---	---	---	28.78
2.80	29,713	974.80	30.64	---	---	---	---	---	---	---	---	30.64
2.90	30,994	974.90	32.55	---	---	---	---	---	---	---	---	32.55
3.00	32,275	975.00	34.49	---	---	---	---	---	---	---	---	34.49
3.10	33,713	975.10	36.35	---	---	---	---	---	---	---	---	36.35
3.20	35,151	975.20	38.22	---	---	---	---	---	---	---	---	38.22
3.30	36,590	975.30	40.03	---	---	---	---	---	---	---	---	40.03
3.40	38,028	975.40	41.84	---	---	---	---	---	---	---	---	41.84
3.50	39,466	975.50	43.57	---	---	---	---	---	---	---	---	43.57
3.60	40,905	975.60	45.26	---	---	---	---	---	---	---	---	45.26
3.70	42,343	975.70	46.90	---	---	---	---	---	---	---	---	46.90
3.80	43,781	975.80	48.51	---	---	---	---	---	---	---	---	48.51
3.90	45,220	975.90	50.02	---	---	---	---	---	---	---	---	50.02
4.00	46,658	976.00	51.45	---	---	---	---	---	---	---	---	51.45
4.10	48,260	976.10	52.81	---	---	---	---	---	---	---	---	52.81
4.20	49,862	976.20	54.02	---	---	---	---	---	---	---	---	54.02
4.30	51,464	976.30	55.12	---	---	---	---	---	---	---	---	55.12
4.40	53,066	976.40	56.07	---	---	---	---	---	---	---	---	56.07
4.50	54,669	976.50	56.82	---	---	---	---	---	---	---	---	56.82
4.60	56,271	976.60	57.29	---	---	---	---	---	---	---	---	57.29
4.70	57,873	976.70	57.56	---	---	---	---	---	---	---	---	57.56
4.80	59,475	976.80	62.32	---	---	---	---	---	---	---	---	62.32
4.90	61,077	976.90	66.75	---	---	---	---	---	---	---	---	66.75
5.00	62,679	977.00	70.91	---	---	---	---	---	---	---	---	70.91
5.10	64,448	977.10	74.83	---	---	---	---	---	---	---	---	74.83
5.20	66,217	977.20	78.55	---	---	---	---	---	---	---	---	78.55
5.30	67,987	977.30	82.11	---	---	---	---	---	---	---	---	82.11
5.40	69,756	977.40	85.52	---	---	---	---	---	---	---	---	85.52
5.50	71,525	977.50	88.79	---	---	---	---	---	---	---	---	88.79
5.60	73,294	977.60	91.95	---	---	---	---	---	---	---	---	91.95
5.70	75,063	977.70	95.01	---	---	---	---	---	---	---	---	95.01
5.80	76,833	977.80	97.97	---	---	---	---	---	---	---	---	97.97
5.90	78,602	977.90	100.84	---	---	---	---	---	---	---	---	100.84
6.00	80,371	978.00	103.64	---	---	---	---	---	---	---	---	103.64
6.10	82,314	978.10	106.36	---	---	---	---	---	---	---	---	106.36
6.20	84,257	978.20	109.02	---	---	---	---	---	---	---	---	109.02
6.30	86,200	978.30	111.60	---	---	---	---	---	---	---	---	111.60
6.40	88,143	978.40	114.14	---	---	---	---	---	---	---	---	114.14
6.50	90,087	978.50	116.61	---	---	---	---	---	---	---	---	116.61
6.60	92,030	978.60	119.04	---	---	---	---	---	---	---	---	119.04
6.70	93,973	978.70	121.15	---	---	---	---	---	---	---	---	121.15
6.80	95,916	978.80	122.65	---	---	---	---	---	---	---	---	122.65
6.90	97,859	978.90	124.13	---	---	---	---	---	---	---	---	124.13
7.00	99,802	979.00	125.60	---	---	---	---	---	---	---	---	125.60
7.10	101,923	979.10	127.05	---	---	---	---	---	---	---	---	127.05
7.20	104,043	979.20	128.48	---	---	---	---	---	---	---	---	128.48
7.30	106,164	979.30	129.90	---	---	---	---	---	---	---	---	129.90
7.40	108,284	979.40	131.30	---	---	---	---	---	---	---	---	131.30
7.50	110,405	979.50	132.68	---	---	---	---	---	---	---	---	132.68
7.60	112,525	979.60	134.06	---	---	---	---	---	---	---	---	134.06
7.70	114,646	979.70	135.41	---	---	---	---	---	---	---	---	135.41
7.80	116,766	979.80	136.76	---	---	---	---	---	---	---	---	136.76
7.90	118,887	979.90	138.09	---	---	---	---	---	---	---	---	138.09
8.00	121,007	980.00	139.41	---	---	---	---	---	---	---	---	139.41
8.10	123,311	980.10	140.72	---	---	---	---	---	---	---	---	140.72
8.20	125,614	980.20	142.01	---	---	---	---	---	---	---	---	142.01
8.30	127,918	980.30	143.29	---	---	---	---	---	---	---	---	143.29
8.40	130,221	980.40	144.57	---	---	---	---	---	---	---	---	144.57
8.50	132,525	980.50	145.83	---	---	---	---	---	---	---	---	145.83
8.60	134,828	980.60	147.07	---	---	---	---	---	---	---	---	147.07
8.70	137,132	980.70	148.31	---	---	---	---	---	---	---	---	148.31
8.80	139,435	980.80	149.54	---	---	---	---	---	---	---	---	149.54
8.90	141,739	980.90	150.76	---	---	---	---	---	---	---	---	150.76
9.00	144,043	981.00	151.97	---	---	---	---	---	---	---	---	151.97
9.10	146,535	981.10	153.17	---	---	---	---	---	---	---	---	153.17
9.20	149,027	981.20	154.36	---	---	---	---	---	---	---	---	154.36
9.30	151,519	981.30	155.54	---	---	---	---	---	---	---	---	155.54
9.40	154,012	981.40	156.71	---	---	---	---	---	---	---	---	156.71
9.50	156,504	981.50	157.88	---	---	---	---	---	---	---	---	157.88
9.60	158,996	981.60	159.03	---	---	---	---	---	---	---	---	159.03

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Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
9.70	161,488	981.70	160.18	---	---	---	---	---	---	---	---	160.18
9.80	163,981	981.80	161.32	---	---	---	---	---	---	---	---	161.32
9.90	166,473	981.90	162.45	---	---	---	---	---	---	---	---	162.45
10.00	168,965	982.00	163.57	---	---	---	---	---	---	---	---	163.57

...End

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	46.72	2	728	164,617	----	------	------	PRE DEVELOPMENT RUNOFF
2	SCS Runoff	79.87	6	720	246,945	----	------	------	TOTAL ONSITE INTO BASIN
3	SCS Runoff	49.70	6	726	204,652	----	------	------	TOTAL OFF SITE INTO BASIN
4	Combine	122.39	6	726	451,596	2, 3	------	------	TOTAL FLOW TO BASIN
5	Reservoir	97.89	6	732	445,689	4	977.80	76,787	DESIGN REGIONAL BASIN

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 1

PRE DEVELOPMENT RUNOFF

Hydrograph type	= SCS Runoff	Peak discharge	= 46.72 cfs
Storm frequency	= 10 yrs	Time interval	= 2 min
Drainage area	= 25.00 ac	Curve number	= 74
Basin Slope	= 8.0 %	Hydraulic length	= 2000 ft
Tc method	= LAG	Time of conc. (Tc)	= 23.4 min
Total precip.	= 4.25 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 164,617 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.60	2.55	12.73	7.18	13.87	3.36	15.00	2.43
11.63	2.98	12.77	6.86	13.90	3.31	15.03	2.41
11.67	3.59	12.80	6.57	13.93	3.26	15.07	2.40
11.70	4.44	12.83	6.32	13.97	3.21	15.10	2.38
11.73	5.60	12.87	6.09	14.00	3.17	15.13	2.37
11.77	7.10	12.90	5.90	14.03	3.12	15.17	2.35
11.80	9.09	12.93	5.72	14.07	3.07		
11.83	11.73	12.97	5.56	14.10	3.03		
11.87	15.18	13.00	5.42	14.13	2.98	*...End*	
11.90	19.65	13.03	5.29	14.17	2.94		
11.93	25.02	13.07	5.17	14.20	2.90		
11.97	30.75	13.10	5.05	14.23	2.87		
12.00	36.23	13.13	4.94	14.27	2.84		
12.03	40.95	13.17	4.84	14.30	2.81		
12.07	44.54	13.20	4.73	14.33	2.78		
12.10	46.62	13.23	4.64	14.37	2.75		
12.13	46.72 <<	13.27	4.54	14.40	2.73		
12.17	44.90	13.30	4.46	14.43	2.71		
12.20	41.85	13.33	4.37	14.47	2.69		
12.23	38.32	13.37	4.30	14.50	2.67		
12.27	34.74	13.40	4.22	14.53	2.66		
12.30	31.13	13.43	4.15	14.57	2.64		
12.33	27.54	13.47	4.08	14.60	2.62		
12.37	24.00	13.50	4.01	14.63	2.61		
12.40	20.58	13.53	3.95	14.67	2.59		
12.43	17.37	13.57	3.88	14.70	2.58		
12.47	14.51	13.60	3.82	14.73	2.56		
12.50	12.15	13.63	3.76	14.77	2.54		
12.53	10.45	13.67	3.70	14.80	2.53		
12.57	9.42	13.70	3.64	14.83	2.51		
12.60	8.81	13.73	3.58	14.87	2.50		
12.63	8.36	13.77	3.52	14.90	2.48		
12.67	7.94	13.80	3.47	14.93	2.46		
12.70	7.54	13.83	3.41	14.97	2.45		

Hydrograph Report

Hyd. No. 2

TOTAL ONSITE INTO BASIN

Hydrograph type	= SCS Runoff	Peak discharge	= 79.87 cfs
Storm frequency	= 10 yrs	Time interval	= 6 min
Drainage area	= 24.50 ac	Curve number	= 88
Basin Slope	= 5.0 %	Hydraulic length	= 2000 ft
Tc method	= LAG	Time of conc. (Tc)	= 18.8 min
Total precip.	= 4.25 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 246,945 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
11.20	4.06
11.30	4.70
11.40	5.44
11.50	6.23
11.60	8.61
11.70	15.81
11.80	29.74
11.90	55.68
12.00	79.87 <<
12.10	72.69
12.20	45.80
12.30	23.51
12.40	13.23
12.50	11.29
12.60	9.47
12.70	8.11
12.80	7.25
12.90	6.70
13.00	6.25
13.10	5.82
13.20	5.45
13.30	5.15
13.40	4.89
13.50	4.65
13.60	4.41
13.70	4.19
13.80	4.00

...End

Hydrograph Report

Hyd. No. 3

TOTAL OFF SITE INTO BASIN

Hydrograph type	= SCS Runoff	Peak discharge	= 49.70 cfs
Storm frequency	= 10 yrs	Time interval	= 6 min
Drainage area	= 27.00 ac	Curve number	= 78
Basin Slope	= 4.0 %	Hydraulic length	= 2000 ft
Tc method	= LAG	Time of conc. (Tc)	= 29.4 min
Total precip.	= 4.25 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 204,652 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.50	2.90	14.90	2.92
11.60	3.84	15.00	2.86
11.70	6.23	15.10	2.80
11.80	11.69	15.20	2.74
11.90	23.61	15.30	2.68
12.00	38.78	15.40	2.62
12.10	49.70 <<	15.50	2.56
12.20	49.61	15.60	2.51
12.30	40.96		
12.40	31.63		
12.50	22.28	*...End*	
12.60	14.08		
12.70	9.72		
12.80	8.44		
12.90	7.46		
13.00	6.73		
13.10	6.18		
13.20	5.76		
13.30	5.41		
13.40	5.11		
13.50	4.84		
13.60	4.59		
13.70	4.37		
13.80	4.16		
13.90	3.97		
14.00	3.79		
14.10	3.62		
14.20	3.47		
14.30	3.34		
14.40	3.24		
14.50	3.16		
14.60	3.09		
14.70	3.03		
14.80	2.97		

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 4

TOTAL FLOW TO BASIN

Hydrograph type	= Combine	Peak discharge	= 122.39 cfs
Storm frequency	= 10 yrs	Time interval	= 6 min
Inflow hyds.	= 2, 3		

Hydrograph Volume = 451,596 cuft

Hydrograph Discharge Table

Time (hrs)	Hyd. 2 + (cfs)	Hyd. 3 = (cfs)	Outflow (cfs)
11.30	4.70	2.09	6.79
11.40	5.44	2.46	7.90
11.50	6.23	2.90	9.13
11.60	8.61	3.84	12.45
11.70	15.81	6.23	22.04
11.80	29.74	11.69	41.43
11.90	55.68	23.61	79.29
12.00	79.87 <<	38.78	118.65
12.10	72.69	49.70 <<	122.39 <<
12.20	45.80	49.61	95.40
12.30	23.51	40.96	64.47
12.40	13.23	31.63	44.86
12.50	11.29	22.28	33.57
12.60	9.47	14.08	23.55
12.70	8.11	9.72	17.82
12.80	7.25	8.44	15.69
12.90	6.70	7.46	14.16
13.00	6.25	6.73	12.98
13.10	5.82	6.18	12.00
13.20	5.45	5.76	11.21
13.30	5.15	5.41	10.56
13.40	4.89	5.11	10.00
13.50	4.65	4.84	9.49
13.60	4.41	4.59	9.00
13.70	4.19	4.37	8.56
13.80	4.00	4.16	8.16
13.90	3.82	3.97	7.79
14.00	3.64	3.79	7.43
14.10	3.48	3.62	7.10
14.20	3.35	3.47	6.82
14.30	3.26	3.34	6.60
14.40	3.19	3.24	6.43
14.50	3.13	3.16	6.28
14.60	3.06	3.09	6.16

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 5

DESIGN REGIONAL BASIN

Hydrograph type	= Reservoir	Peak discharge	= 97.89 cfs
Storm frequency	= 10 yrs	Time interval	= 6 min
Inflow hyd. No.	= 4	Reservoir name	= DESIGN REGIONAL B
Max. Elevation	= 977.80 ft	Max. Storage	= 76,787 cuft

Storage Indication method used.

Outflow hydrograph volume = 445,689 cuft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
11.30	6.79	973.47	5.26	-----	-----	-----	-----	-----	-----	-----	-----	5.26
11.40	7.90	973.53	6.01	-----	-----	-----	-----	-----	-----	-----	-----	6.01
11.50	9.13	973.60	6.95	-----	-----	-----	-----	-----	-----	-----	-----	6.95
11.60	12.45	973.70	8.48	-----	-----	-----	-----	-----	-----	-----	-----	8.48
11.70	22.04	973.92	12.38	-----	-----	-----	-----	-----	-----	-----	-----	12.38
11.80	41.43	974.34	21.55	-----	-----	-----	-----	-----	-----	-----	-----	21.55
11.90	79.29	975.18	37.90	-----	-----	-----	-----	-----	-----	-----	-----	37.90
12.00	118.65	976.43	56.31	-----	-----	-----	-----	-----	-----	-----	-----	56.31
12.10	122.39 <<	977.47	87.86	-----	-----	-----	-----	-----	-----	-----	-----	87.86
12.20	95.40	977.80 <<	97.89	-----	-----	-----	-----	-----	-----	-----	-----	97.89 <<
12.30	64.47	977.52	89.38	-----	-----	-----	-----	-----	-----	-----	-----	89.38
12.40	44.86	977.00	70.91	-----	-----	-----	-----	-----	-----	-----	-----	70.91
12.50	33.57	976.45	56.45	-----	-----	-----	-----	-----	-----	-----	-----	56.45
12.60	23.55	975.89	49.82	-----	-----	-----	-----	-----	-----	-----	-----	49.82
12.70	17.82	975.28	39.74	-----	-----	-----	-----	-----	-----	-----	-----	39.74
12.80	15.69	974.80	30.64	-----	-----	-----	-----	-----	-----	-----	-----	30.64
12.90	14.16	974.45	23.95	-----	-----	-----	-----	-----	-----	-----	-----	23.96
13.00	12.98	974.23	18.92	-----	-----	-----	-----	-----	-----	-----	-----	18.92
13.10	12.00	974.09	15.89	-----	-----	-----	-----	-----	-----	-----	-----	15.89
13.20	11.21	974.00	13.96	-----	-----	-----	-----	-----	-----	-----	-----	13.96
13.30	10.56	973.92	12.49	-----	-----	-----	-----	-----	-----	-----	-----	12.49
13.40	10.00	973.87	11.46	-----	-----	-----	-----	-----	-----	-----	-----	11.46
13.50	9.49	973.83	10.68	-----	-----	-----	-----	-----	-----	-----	-----	10.68
13.60	9.00	973.79	10.04	-----	-----	-----	-----	-----	-----	-----	-----	10.04
13.70	8.56	973.76	9.50	-----	-----	-----	-----	-----	-----	-----	-----	9.50
13.80	8.16	973.73	9.01	-----	-----	-----	-----	-----	-----	-----	-----	9.01
13.90	7.79	973.70	8.56	-----	-----	-----	-----	-----	-----	-----	-----	8.56
14.00	7.43	973.68	8.18	-----	-----	-----	-----	-----	-----	-----	-----	8.18
14.10	7.10	973.65	7.81	-----	-----	-----	-----	-----	-----	-----	-----	7.81
14.20	6.82	973.63	7.47	-----	-----	-----	-----	-----	-----	-----	-----	7.47
14.30	6.60	973.61	7.16	-----	-----	-----	-----	-----	-----	-----	-----	7.16
14.40	6.43	973.59	6.91	-----	-----	-----	-----	-----	-----	-----	-----	6.91
14.50	6.28	973.58	6.70	-----	-----	-----	-----	-----	-----	-----	-----	6.70
14.60	6.16	973.57	6.52	-----	-----	-----	-----	-----	-----	-----	-----	6.52
14.70	6.03	973.55	6.36	-----	-----	-----	-----	-----	-----	-----	-----	6.36
14.80	5.92	973.54	6.22	-----	-----	-----	-----	-----	-----	-----	-----	6.22
14.90	5.80	973.53	6.08	-----	-----	-----	-----	-----	-----	-----	-----	6.08
15.00	5.68	973.53	5.95	-----	-----	-----	-----	-----	-----	-----	-----	5.95

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
15.10	5.56	973.52	5.83	-----	-----	-----	-----	-----	-----	-----	-----	5.83
15.20	5.44	973.51	5.70	-----	-----	-----	-----	-----	-----	-----	-----	5.70
15.30	5.32	973.50	5.58	-----	-----	-----	-----	-----	-----	-----	-----	5.58
15.40	5.20	973.49	5.47	-----	-----	-----	-----	-----	-----	-----	-----	5.47
15.50	5.07	973.48	5.36	-----	-----	-----	-----	-----	-----	-----	-----	5.36
15.60	4.95	973.47	5.24	-----	-----	-----	-----	-----	-----	-----	-----	5.24
15.70	4.83	973.46	5.12	-----	-----	-----	-----	-----	-----	-----	-----	5.12
15.80	4.71	973.45	5.00	-----	-----	-----	-----	-----	-----	-----	-----	5.00

...End

Reservoir Report

Hydraflow Hydrographs by Intelisolve

Reservoir No. 1 - DESIGN REGIONAL BASIN

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	972.00	6,876	0	0
1.00	973.00	10,000	8,438	8,438
2.00	974.00	12,061	11,031	19,469
3.00	975.00	13,551	12,806	32,275
4.00	976.00	15,216	14,384	46,658
5.00	977.00	16,826	16,021	62,679
6.00	978.00	18,558	17,692	80,371
7.00	979.00	20,304	19,431	99,802
8.00	980.00	22,106	21,205	121,007
9.00	981.00	23,965	23,036	144,043
10.00	982.00	25,880	24,923	168,965

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 48.0	0.0	0.0	0.0
Span in	= 48.0	0.0	0.0	0.0
No. Barrels	= 1	0	0	0
Invert El. ft	= 972.69	0.00	0.00	0.00
Length ft	= 57.0	0.0	0.0	0.0
Slope %	= 1.00	0.00	0.00	0.00
N-Value	= .013	.000	.000	.000
Orif. Coeff.	= 0.60	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 0.00	0.00	0.00	0.00
Crest El. ft	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	0.00	0.00	0.00
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfiltration Rate = 0.00 in/hr/sqft Tailwater Elev. = 0.00 ft

Note: All outflows have been analyzed under inlet and outlet control.

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0	972.00	0.00	---	---	---	---	---	---	---	---	0.00
0.10	844	972.10	0.00	---	---	---	---	---	---	---	---	0.00
0.20	1,688	972.20	0.00	---	---	---	---	---	---	---	---	0.00
0.30	2,531	972.30	0.00	---	---	---	---	---	---	---	---	0.00
0.40	3,375	972.40	0.00	---	---	---	---	---	---	---	---	0.00
0.50	4,219	972.50	0.00	---	---	---	---	---	---	---	---	0.00
0.60	5,063	972.60	0.00	---	---	---	---	---	---	---	---	0.00
0.70	5,907	972.70	0.00	---	---	---	---	---	---	---	---	0.00
0.80	6,750	972.80	0.11	---	---	---	---	---	---	---	---	0.11
0.90	7,594	972.90	0.40	---	---	---	---	---	---	---	---	0.40
1.00	8,438	973.00	0.86	---	---	---	---	---	---	---	---	0.86
1.10	9,541	973.10	1.48	---	---	---	---	---	---	---	---	1.48
1.20	10,644	973.20	2.27	---	---	---	---	---	---	---	---	2.27
1.30	11,747	973.30	3.22	---	---	---	---	---	---	---	---	3.22
1.40	12,850	973.40	4.33	---	---	---	---	---	---	---	---	4.33
1.50	13,953	973.50	5.60	---	---	---	---	---	---	---	---	5.60
1.60	15,056	973.60	7.01	---	---	---	---	---	---	---	---	7.01
1.70	16,159	973.70	8.55	---	---	---	---	---	---	---	---	8.55
1.80	17,262	973.80	10.22	---	---	---	---	---	---	---	---	10.22
1.90	18,365	973.90	12.03	---	---	---	---	---	---	---	---	12.03
2.00	19,469	974.00	13.96	---	---	---	---	---	---	---	---	13.96
2.10	20,749	974.10	16.03	---	---	---	---	---	---	---	---	16.03
2.20	22,030	974.20	18.20	---	---	---	---	---	---	---	---	18.20
2.30	23,310	974.30	20.50	---	---	---	---	---	---	---	---	20.50
2.40	24,591	974.40	22.86	---	---	---	---	---	---	---	---	22.86
2.50	25,872	974.50	24.95	---	---	---	---	---	---	---	---	24.95
2.60	27,152	974.60	26.86	---	---	---	---	---	---	---	---	26.86

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Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
2.70	28,433	974.70	28.78	---	---	---	---	---	---	---	---	28.78
2.80	29,713	974.80	30.64	---	---	---	---	---	---	---	---	30.64
2.90	30,994	974.90	32.55	---	---	---	---	---	---	---	---	32.55
3.00	32,275	975.00	34.49	---	---	---	---	---	---	---	---	34.49
3.10	33,713	975.10	36.35	---	---	---	---	---	---	---	---	36.35
3.20	35,151	975.20	38.22	---	---	---	---	---	---	---	---	38.22
3.30	36,590	975.30	40.03	---	---	---	---	---	---	---	---	40.03
3.40	38,028	975.40	41.84	---	---	---	---	---	---	---	---	41.84
3.50	39,466	975.50	43.57	---	---	---	---	---	---	---	---	43.57
3.60	40,905	975.60	45.26	---	---	---	---	---	---	---	---	45.26
3.70	42,343	975.70	46.90	---	---	---	---	---	---	---	---	46.90
3.80	43,781	975.80	48.51	---	---	---	---	---	---	---	---	48.51
3.90	45,220	975.90	50.02	---	---	---	---	---	---	---	---	50.02
4.00	46,658	976.00	51.45	---	---	---	---	---	---	---	---	51.45
4.10	48,260	976.10	52.81	---	---	---	---	---	---	---	---	52.81
4.20	49,862	976.20	54.02	---	---	---	---	---	---	---	---	54.02
4.30	51,464	976.30	55.12	---	---	---	---	---	---	---	---	55.12
4.40	53,066	976.40	56.07	---	---	---	---	---	---	---	---	56.07
4.50	54,669	976.50	56.82	---	---	---	---	---	---	---	---	56.82
4.60	56,271	976.60	57.29	---	---	---	---	---	---	---	---	57.29
4.70	57,873	976.70	57.56	---	---	---	---	---	---	---	---	57.56
4.80	59,475	976.80	62.32	---	---	---	---	---	---	---	---	62.32
4.90	61,077	976.90	66.75	---	---	---	---	---	---	---	---	66.75
5.00	62,679	977.00	70.91	---	---	---	---	---	---	---	---	70.91
5.10	64,448	977.10	74.83	---	---	---	---	---	---	---	---	74.83
5.20	66,217	977.20	78.55	---	---	---	---	---	---	---	---	78.55
5.30	67,987	977.30	82.11	---	---	---	---	---	---	---	---	82.11
5.40	69,756	977.40	85.52	---	---	---	---	---	---	---	---	85.52
5.50	71,525	977.50	88.79	---	---	---	---	---	---	---	---	88.79
5.60	73,294	977.60	91.95	---	---	---	---	---	---	---	---	91.95
5.70	75,063	977.70	95.01	---	---	---	---	---	---	---	---	95.01
5.80	76,833	977.80	97.97	---	---	---	---	---	---	---	---	97.97
5.90	78,602	977.90	100.84	---	---	---	---	---	---	---	---	100.84
6.00	80,371	978.00	103.64	---	---	---	---	---	---	---	---	103.64
6.10	82,314	978.10	106.36	---	---	---	---	---	---	---	---	106.36
6.20	84,257	978.20	109.02	---	---	---	---	---	---	---	---	109.02
6.30	86,200	978.30	111.60	---	---	---	---	---	---	---	---	111.60
6.40	88,143	978.40	114.14	---	---	---	---	---	---	---	---	114.14
6.50	90,087	978.50	116.61	---	---	---	---	---	---	---	---	116.61
6.60	92,030	978.60	119.04	---	---	---	---	---	---	---	---	119.04
6.70	93,973	978.70	121.15	---	---	---	---	---	---	---	---	121.15
6.80	95,916	978.80	122.65	---	---	---	---	---	---	---	---	122.65
6.90	97,859	978.90	124.13	---	---	---	---	---	---	---	---	124.13
7.00	99,802	979.00	125.60	---	---	---	---	---	---	---	---	125.60
7.10	101,923	979.10	127.05	---	---	---	---	---	---	---	---	127.05
7.20	104,043	979.20	128.48	---	---	---	---	---	---	---	---	128.48
7.30	106,164	979.30	129.90	---	---	---	---	---	---	---	---	129.90
7.40	108,284	979.40	131.30	---	---	---	---	---	---	---	---	131.30
7.50	110,405	979.50	132.68	---	---	---	---	---	---	---	---	132.68
7.60	112,525	979.60	134.06	---	---	---	---	---	---	---	---	134.06
7.70	114,646	979.70	135.41	---	---	---	---	---	---	---	---	135.41
7.80	116,766	979.80	136.76	---	---	---	---	---	---	---	---	136.76
7.90	118,887	979.90	138.09	---	---	---	---	---	---	---	---	138.09
8.00	121,007	980.00	139.41	---	---	---	---	---	---	---	---	139.41
8.10	123,311	980.10	140.72	---	---	---	---	---	---	---	---	140.72
8.20	125,614	980.20	142.01	---	---	---	---	---	---	---	---	142.01
8.30	127,918	980.30	143.29	---	---	---	---	---	---	---	---	143.29
8.40	130,221	980.40	144.57	---	---	---	---	---	---	---	---	144.57
8.50	132,525	980.50	145.83	---	---	---	---	---	---	---	---	145.83
8.60	134,828	980.60	147.07	---	---	---	---	---	---	---	---	147.07
8.70	137,132	980.70	148.31	---	---	---	---	---	---	---	---	148.31
8.80	139,435	980.80	149.54	---	---	---	---	---	---	---	---	149.54
8.90	141,739	980.90	150.76	---	---	---	---	---	---	---	---	150.76
9.00	144,043	981.00	151.97	---	---	---	---	---	---	---	---	151.97
9.10	146,535	981.10	153.17	---	---	---	---	---	---	---	---	153.17
9.20	149,027	981.20	154.36	---	---	---	---	---	---	---	---	154.36
9.30	151,519	981.30	155.54	---	---	---	---	---	---	---	---	155.54
9.40	154,012	981.40	156.71	---	---	---	---	---	---	---	---	156.71
9.50	156,504	981.50	157.88	---	---	---	---	---	---	---	---	157.88
9.60	158,996	981.60	159.03	---	---	---	---	---	---	---	---	159.03

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Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
9.70	161,488	981.70	160.18	---	---	---	---	---	---	---	---	160.18
9.80	163,981	981.80	161.32	---	---	---	---	---	---	---	---	161.32
9.90	166,473	981.90	162.45	---	---	---	---	---	---	---	---	162.45
10.00	168,965	982.00	163.57	---	---	---	---	---	---	---	---	163.57

...End

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	SCS Runoff	-------	-------	9.68	-------	-------	46.72	79.85	-------	-------	PRE DEVELOPMENT RUNOFF
2	SCS Runoff	-------	-------	30.45	-------	-------	79.87	117.21	-------	-------	TOTAL ONSITE INTO BASIN
3	SCS Runoff	-------	-------	13.11	-------	-------	49.70	81.52	-------	-------	TOTAL OFF SITE INTO BASIN
4	Combine	2, 3	-------	41.07	-------	-------	122.39	187.07	-------	-------	TOTAL FLOW TO BASIN
5	Reservoir	4	-------	38.69	-------	-------	105.75	0.00	-------	-------	DESIGN REGIONAL BASIN

Hydrograph Report

Hyd. No. 5

DESIGN REGIONAL BASIN

Hydrograph type	= Reservoir	Peak discharge	= 38.69 cfs
Storm frequency	= 2 yrs	Time interval	= 6 min
Inflow hyd. No.	= 4	Reservoir name	= AS BUILT BASIN
Max. Elevation	= 975.23 ft	Max. Storage	= 4,198 cuft

Storage Indication method used.

Outflow hydrograph volume = 152,840 cuft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
11.60	2.63	973.22	2.42	-----	-----	-----	-----	-----	-----	-----	-----	2.42
11.70	5.32	973.44	4.85	-----	-----	-----	-----	-----	-----	-----	-----	4.85
11.80	11.26	973.82	10.59	-----	-----	-----	-----	-----	-----	-----	-----	10.59
11.90	24.32	974.31	20.67	-----	-----	-----	-----	-----	-----	-----	-----	20.67
12.00	39.13	974.99	34.36	-----	-----	-----	-----	-----	-----	-----	-----	34.36
12.10	41.07 <<	975.23 <<	38.69	-----	-----	-----	-----	-----	-----	-----	-----	38.69 <<
12.20	31.71	975.13	36.98	-----	-----	-----	-----	-----	-----	-----	-----	36.98
12.30	21.15	974.54	25.71	-----	-----	-----	-----	-----	-----	-----	-----	25.71
12.40	14.79	974.09	15.77	-----	-----	-----	-----	-----	-----	-----	-----	15.77
12.50	11.62	973.90	12.02	-----	-----	-----	-----	-----	-----	-----	-----	12.02
12.60	8.60	973.71	8.77	-----	-----	-----	-----	-----	-----	-----	-----	8.77
12.70	6.71	973.59	6.91	-----	-----	-----	-----	-----	-----	-----	-----	6.91
12.80	5.95	973.53	5.96	-----	-----	-----	-----	-----	-----	-----	-----	5.96
12.90	5.41	973.49	5.51	-----	-----	-----	-----	-----	-----	-----	-----	5.51
13.00	4.99	973.45	5.02	-----	-----	-----	-----	-----	-----	-----	-----	5.02
13.10	4.64	973.43	4.69	-----	-----	-----	-----	-----	-----	-----	-----	4.69
13.20	4.35	973.40	4.37	-----	-----	-----	-----	-----	-----	-----	-----	4.37
13.30	4.11	973.38	4.14	-----	-----	-----	-----	-----	-----	-----	-----	4.14
13.40	3.90	973.36	3.92	-----	-----	-----	-----	-----	-----	-----	-----	3.92
13.50	3.71	973.35	3.74	-----	-----	-----	-----	-----	-----	-----	-----	3.74
13.60	3.53	973.33	3.55	-----	-----	-----	-----	-----	-----	-----	-----	3.55
13.70	3.36	973.31	3.38	-----	-----	-----	-----	-----	-----	-----	-----	3.38
13.80	3.21	973.30	3.23	-----	-----	-----	-----	-----	-----	-----	-----	3.23
13.90	3.07	973.29	3.09	-----	-----	-----	-----	-----	-----	-----	-----	3.09
14.00	2.93	973.27	2.95	-----	-----	-----	-----	-----	-----	-----	-----	2.95
14.10	2.81	973.26	2.83	-----	-----	-----	-----	-----	-----	-----	-----	2.83
14.20	2.70	973.25	2.72	-----	-----	-----	-----	-----	-----	-----	-----	2.72
14.30	2.62	973.24	2.63	-----	-----	-----	-----	-----	-----	-----	-----	2.63
14.40	2.56	973.23	2.57	-----	-----	-----	-----	-----	-----	-----	-----	2.57
14.50	2.50	973.23	2.51	-----	-----	-----	-----	-----	-----	-----	-----	2.51
14.60	2.46	973.22	2.46	-----	-----	-----	-----	-----	-----	-----	-----	2.46
14.70	2.41	973.22	2.42	-----	-----	-----	-----	-----	-----	-----	-----	2.42
14.80	2.37	973.21	2.37	-----	-----	-----	-----	-----	-----	-----	-----	2.37
14.90	2.32	973.21	2.33	-----	-----	-----	-----	-----	-----	-----	-----	2.33
15.00	2.28	973.20	2.28	-----	-----	-----	-----	-----	-----	-----	-----	2.28
15.10	2.23	973.20	2.24	-----	-----	-----	-----	-----	-----	-----	-----	2.24
15.20	2.18	973.19	2.19	-----	-----	-----	-----	-----	-----	-----	-----	2.19
15.30	2.14	973.18	2.15	-----	-----	-----	-----	-----	-----	-----	-----	2.15

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
15.40	2.09	973.18	2.10	-----	-----	-----	-----	-----	-----	-----	-----	2.10
15.50	2.04	973.17	2.05	-----	-----	-----	-----	-----	-----	-----	-----	2.05
15.60	2.00	973.17	2.01	-----	-----	-----	-----	-----	-----	-----	-----	2.01
15.70	1.95	973.16	1.96	-----	-----	-----	-----	-----	-----	-----	-----	1.96

...End

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	9.68	2	728	41,328	----	------	------	PRE DEVELOPMENT RUNOFF
2	SCS Runoff	30.45	6	720	94,105	----	------	------	TOTAL ONSITE INTO BASIN
3	SCS Runoff	13.11	6	732	58,857	----	------	------	TOTAL OFF SITE INTO BASIN
4	Combine	41.07	6	726	152,962	2, 3	------	------	TOTAL FLOW TO BASIN
5	Reservoir	38.69	6	726	152,840	4	975.23	4,198	DESIGN REGIONAL BASIN

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	79.85	2	726	276,413	----	------	------	PRE DEVELOPMENT RUNOFF
2	SCS Runoff	117.21	6	720	367,246	----	------	------	TOTAL ONSITE INTO BASIN
3	SCS Runoff	81.52	6	726	330,933	----	------	------	TOTAL OFF SITE INTO BASIN
4	Combine	187.07	6	726	698,179	2, 3	------	------	TOTAL FLOW TO BASIN
5	Reservoir	0.00	6	0	0	4	0.00	0	DESIGN REGIONAL BASIN

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 1

PRE DEVELOPMENT RUNOFF

Hydrograph type	= SCS Runoff	Peak discharge	= 9.68 cfs
Storm frequency	= 2 yrs	Time interval	= 2 min
Drainage area	= 25.00 ac	Curve number	= 74
Basin Slope	= 8.0 %	Hydraulic length	= 2000 ft
Tc method	= LAG	Time of conc. (Tc)	= 23.4 min
Total precip.	= 2.20 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 41,328 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.83	0.68	12.97	1.66	14.10	0.95	15.23	0.75
11.87	1.22	13.00	1.62	14.13	0.94	15.27	0.74
11.90	2.07	13.03	1.59	14.17	0.93	15.30	0.74
11.93	3.22	13.07	1.55	14.20	0.92	15.33	0.73
11.97	4.57	13.10	1.52	14.23	0.90	15.37	0.73
12.00	5.97	13.13	1.49	14.27	0.90	15.40	0.72
12.03	7.28	13.17	1.46	14.30	0.89	15.43	0.72
12.07	8.42	13.20	1.44	14.33	0.88	15.47	0.71
12.10	9.27	13.23	1.41	14.37	0.87	15.50	0.71
12.13	9.68 <<	13.27	1.38	14.40	0.87	15.53	0.70
12.17	9.61	13.30	1.36	14.43	0.86	15.57	0.70
12.20	9.20	13.33	1.34	14.47	0.85	15.60	0.69
12.23	8.65	13.37	1.31	14.50	0.85	15.63	0.69
12.27	8.05	13.40	1.29	14.53	0.84	15.67	0.68
12.30	7.41	13.43	1.27	14.57	0.84	15.70	0.68
12.33	6.74	13.47	1.25	14.60	0.84	15.73	0.67
12.37	6.04	13.50	1.23	14.63	0.83	15.77	0.67
12.40	5.33	13.53	1.22	14.67	0.83	15.80	0.66
12.43	4.63	13.57	1.20	14.70	0.82	15.83	0.66
12.47	3.97	13.60	1.18	14.73	0.82	15.87	0.65
12.50	3.40	13.63	1.16	14.77	0.81	15.90	0.65
12.53	2.97	13.67	1.15	14.80	0.81	15.93	0.64
12.57	2.70	13.70	1.13	14.83	0.80	15.97	0.64
12.60	2.54	13.73	1.11	14.87	0.80	16.00	0.63
12.63	2.42	13.77	1.10	14.90	0.80	16.03	0.63
12.67	2.31	13.80	1.08	14.93	0.79	16.07	0.62
12.70	2.20	13.83	1.06	14.97	0.79	16.10	0.62
12.73	2.10	13.87	1.05	15.00	0.78	16.13	0.61
12.77	2.02	13.90	1.03	15.03	0.78	16.17	0.61
12.80	1.94	13.93	1.02	15.07	0.77	16.20	0.60
12.83	1.87	13.97	1.01	15.10	0.77	16.23	0.60
12.87	1.81	14.00	0.99	15.13	0.76	16.27	0.59
12.90	1.75	14.03	0.98	15.17	0.76	16.30	0.59
12.93	1.71	14.07	0.96	15.20	0.75	16.33	0.59

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Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
16.37	0.58	18.07	0.49
16.40	0.58	18.10	0.49
16.43	0.58	18.13	0.49
16.47	0.58	18.17	0.49
16.50	0.58	18.20	0.48
16.53	0.57		
16.57	0.57		
16.60	0.57	*...End*	
16.63	0.57		
16.67	0.57		
16.70	0.57		
16.73	0.56		
16.77	0.56		
16.80	0.56		
16.83	0.56		
16.87	0.56		
16.90	0.56		
16.93	0.55		
16.97	0.55		
17.00	0.55		
17.03	0.55		
17.07	0.55		
17.10	0.54		
17.13	0.54		
17.17	0.54		
17.20	0.54		
17.23	0.54		
17.27	0.54		
17.30	0.53		
17.33	0.53		
17.37	0.53		
17.40	0.53		
17.43	0.53		
17.47	0.53		
17.50	0.52		
17.53	0.52		
17.57	0.52		
17.60	0.52		
17.63	0.52		
17.67	0.51		
17.70	0.51		
17.73	0.51		
17.77	0.51		
17.80	0.51		
17.83	0.50		
17.87	0.50		
17.90	0.50		
17.93	0.50		
17.97	0.50		
18.00	0.50		
18.03	0.49		

Hydrograph Report

Hyd. No. 2

TOTAL ONSITE INTO BASIN

Hydrograph type	= SCS Runoff	Peak discharge	= 30.45 cfs
Storm frequency	= 2 yrs	Time interval	= 6 min
Drainage area	= 24.50 ac	Curve number	= 88
Basin Slope	= 5.0 %	Hydraulic length	= 2000 ft
Tc method	= LAG	Time of conc. (Tc)	= 18.8 min
Total precip.	= 2.20 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 94,105 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
11.50	1.73
11.60	2.50
11.70	4.86
11.80	9.80
11.90	19.97
12.00	30.45 <<
12.10	28.77
12.20	18.60
12.30	9.85
12.40	5.64
12.50	4.83
12.60	4.07
12.70	3.50
12.80	3.14
12.90	2.91
13.00	2.72
13.10	2.53
13.20	2.38
13.30	2.25
13.40	2.14
13.50	2.04
13.60	1.94
13.70	1.84
13.80	1.76
13.90	1.68
14.00	1.61
14.10	1.54

...End

Hydrograph Report

Hyd. No. 3

TOTAL OFF SITE INTO BASIN

Hydrograph type	= SCS Runoff	Peak discharge	= 13.11 cfs
Storm frequency	= 2 yrs	Time interval	= 6 min
Drainage area	= 27.00 ac	Curve number	= 78
Basin Slope	= 4.0 %	Hydraulic length	= 2000 ft
Tc method	= LAG	Time of conc. (Tc)	= 29.4 min
Total precip.	= 2.20 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 58,857 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.80	1.46	15.20	0.98
11.90	4.35	15.30	0.96
12.00	8.68	15.40	0.94
12.10	12.31	15.50	0.92
12.20	13.11 <<	15.60	0.90
12.30	11.30	15.70	0.88
12.40	9.15	15.80	0.86
12.50	6.79	15.90	0.84
12.60	4.53	16.00	0.82
12.70	3.21	16.10	0.80
12.80	2.81	16.20	0.78
12.90	2.51	16.30	0.77
13.00	2.28	16.40	0.75
13.10	2.10	16.50	0.74
13.20	1.97	16.60	0.74
13.30	1.86	16.70	0.73
13.40	1.76	16.80	0.72
13.50	1.67	16.90	0.71
13.60	1.59	17.00	0.71
13.70	1.52	17.10	0.70
13.80	1.45	17.20	0.69
13.90	1.39	17.30	0.69
14.00	1.33	17.40	0.68
14.10	1.27	17.50	0.67
14.20	1.22	17.60	0.66
14.30	1.18	17.70	0.66
14.40	1.15		
14.50	1.12		
14.60	1.10	*...End*	
14.70	1.08		
14.80	1.06		
14.90	1.04		
15.00	1.02		
15.10	1.00		

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 4

TOTAL FLOW TO BASIN

Hydrograph type	= Combine	Peak discharge	= 41.07 cfs
Storm frequency	= 2 yrs	Time interval	= 6 min
Inflow hyds.	= 2, 3		

Hydrograph Volume = 152,962 cuft

Hydrograph Discharge Table

Time (hrs)	Hyd. 2 + (cfs)	Hyd. 3 = (cfs)	Outflow (cfs)
11.60	2.50	0.13	2.63
11.70	4.86	0.46	5.32
11.80	9.80	1.46	11.26
11.90	19.97	4.35	24.32
12.00	30.45 <<	8.68	39.13
12.10	28.77	12.31	41.07 <<
12.20	18.60	13.11 <<	31.71
12.30	9.85	11.30	21.15
12.40	5.64	9.15	14.79
12.50	4.83	6.79	11.62
12.60	4.07	4.53	8.60
12.70	3.50	3.21	6.71
12.80	3.14	2.81	5.95
12.90	2.91	2.51	5.41
13.00	2.72	2.28	4.99
13.10	2.53	2.10	4.64
13.20	2.38	1.97	4.35
13.30	2.25	1.86	4.11
13.40	2.14	1.76	3.90
13.50	2.04	1.67	3.71
13.60	1.94	1.59	3.53
13.70	1.84	1.52	3.36
13.80	1.76	1.45	3.21
13.90	1.68	1.39	3.07
14.00	1.61	1.33	2.93
14.10	1.54	1.27	2.81
14.20	1.48	1.22	2.70
14.30	1.44	1.18	2.62
14.40	1.41	1.15	2.56
14.50	1.39	1.12	2.50
14.60	1.36	1.10	2.46
14.70	1.33	1.08	2.41
14.80	1.31	1.06	2.37
14.90	1.28	1.04	2.32
15.00	1.25	1.02	2.28
15.10	1.23	1.00	2.23
15.20	1.20	0.98	2.18
15.30	1.17	0.96	2.14

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Hydrograph Discharge Table

Time (hrs)	Hyd. 2 + (cfs)	Hyd. 3 = (cfs)	Outflow (cfs)
15.40	1.15	0.94	2.09

...End

Reservoir Report

Reservoir No. 2 - AS BUILT BASIN

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	972.00	50	0	0
1.00	973.00	300	175	175
2.00	974.00	782	541	716
3.00	975.00	3,636	2,209	2,925
4.00	976.00	7,638	5,637	8,562
5.00	977.00	12,526	10,082	18,644
6.00	978.00	15,172	13,849	32,493
7.00	979.00	17,067	16,120	48,613
8.00	980.00	19,354	18,211	66,823

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 48.0	0.0	0.0	0.0
Span in	= 48.0	0.0	0.0	0.0
No. Barrels	= 1	0	0	0
Invert El. ft	= 972.69	0.00	0.00	0.00
Length ft	= 57.0	0.0	0.0	0.0
Slope %	= 1.00	0.00	0.00	0.00
N-Value	= .013	.000	.000	.000
Orif. Coeff.	= 0.60	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 0.00	0.00	0.00	0.00
Crest El. ft	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	0.00	0.00	0.00
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfiltration Rate = 0.00 in/hr/sqft Tailwater Elev. = 0.00 ft

Note: All outflows have been analyzed under inlet and outlet control.

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0	972.00	0.00	---	---	---	---	---	---	---	---	0.00
0.10	18	972.10	0.00	---	---	---	---	---	---	---	---	0.00
0.20	35	972.20	0.00	---	---	---	---	---	---	---	---	0.00
0.30	53	972.30	0.00	---	---	---	---	---	---	---	---	0.00
0.40	70	972.40	0.00	---	---	---	---	---	---	---	---	0.00
0.50	88	972.50	0.00	---	---	---	---	---	---	---	---	0.00
0.60	105	972.60	0.00	---	---	---	---	---	---	---	---	0.00
0.70	123	972.70	0.00	---	---	---	---	---	---	---	---	0.00
0.80	140	972.80	0.11	---	---	---	---	---	---	---	---	0.11
0.90	158	972.90	0.40	---	---	---	---	---	---	---	---	0.40
1.00	175	973.00	0.86	---	---	---	---	---	---	---	---	0.86
1.10	229	973.10	1.48	---	---	---	---	---	---	---	---	1.48
1.20	283	973.20	2.27	---	---	---	---	---	---	---	---	2.27
1.30	337	973.30	3.22	---	---	---	---	---	---	---	---	3.22
1.40	391	973.40	4.33	---	---	---	---	---	---	---	---	4.33
1.50	446	973.50	5.60	---	---	---	---	---	---	---	---	5.60
1.60	500	973.60	7.01	---	---	---	---	---	---	---	---	7.01
1.70	554	973.70	8.55	---	---	---	---	---	---	---	---	8.55
1.80	608	973.80	10.22	---	---	---	---	---	---	---	---	10.22
1.90	662	973.90	12.03	---	---	---	---	---	---	---	---	12.03
2.00	716	974.00	13.96	---	---	---	---	---	---	---	---	13.96
2.10	937	974.10	16.03	---	---	---	---	---	---	---	---	16.03
2.20	1,158	974.20	18.20	---	---	---	---	---	---	---	---	18.20
2.30	1,379	974.30	20.50	---	---	---	---	---	---	---	---	20.50
2.40	1,600	974.40	22.86	---	---	---	---	---	---	---	---	22.86
2.50	1,821	974.50	24.95	---	---	---	---	---	---	---	---	24.95
2.60	2,041	974.60	26.86	---	---	---	---	---	---	---	---	26.86
2.70	2,262	974.70	28.78	---	---	---	---	---	---	---	---	28.78
2.80	2,483	974.80	30.64	---	---	---	---	---	---	---	---	30.64

Continues on next page...

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
2.90	2,704	974.90	32.55	---	---	---	---	---	---	---	---	32.55
3.00	2,925	975.00	34.49	---	---	---	---	---	---	---	---	34.49
3.10	3,489	975.10	36.35	---	---	---	---	---	---	---	---	36.35
3.20	4,052	975.20	38.22	---	---	---	---	---	---	---	---	38.22
3.30	4,616	975.30	40.03	---	---	---	---	---	---	---	---	40.03
3.40	5,180	975.40	41.84	---	---	---	---	---	---	---	---	41.84
3.50	5,744	975.50	43.57	---	---	---	---	---	---	---	---	43.57
3.60	6,307	975.60	45.26	---	---	---	---	---	---	---	---	45.26
3.70	6,871	975.70	46.90	---	---	---	---	---	---	---	---	46.90
3.80	7,435	975.80	48.51	---	---	---	---	---	---	---	---	48.51
3.90	7,998	975.90	50.02	---	---	---	---	---	---	---	---	50.02
4.00	8,562	976.00	51.45	---	---	---	---	---	---	---	---	51.45
4.10	9,570	976.10	52.81	---	---	---	---	---	---	---	---	52.81
4.20	10,578	976.20	54.02	---	---	---	---	---	---	---	---	54.02
4.30	11,587	976.30	55.12	---	---	---	---	---	---	---	---	55.12
4.40	12,595	976.40	56.07	---	---	---	---	---	---	---	---	56.07
4.50	13,603	976.50	56.82	---	---	---	---	---	---	---	---	56.82
4.60	14,611	976.60	57.29	---	---	---	---	---	---	---	---	57.29
4.70	15,619	976.70	57.56	---	---	---	---	---	---	---	---	57.56
4.80	16,628	976.80	62.32	---	---	---	---	---	---	---	---	62.32
4.90	17,636	976.90	66.75	---	---	---	---	---	---	---	---	66.75
5.00	18,644	977.00	70.91	---	---	---	---	---	---	---	---	70.91
5.10	20,029	977.10	74.83	---	---	---	---	---	---	---	---	74.83
5.20	21,414	977.20	78.55	---	---	---	---	---	---	---	---	78.55
5.30	22,799	977.30	82.11	---	---	---	---	---	---	---	---	82.11
5.40	24,184	977.40	85.52	---	---	---	---	---	---	---	---	85.52
5.50	25,569	977.50	88.79	---	---	---	---	---	---	---	---	88.79
5.60	26,953	977.60	91.95	---	---	---	---	---	---	---	---	91.95
5.70	28,338	977.70	95.01	---	---	---	---	---	---	---	---	95.01
5.80	29,723	977.80	97.97	---	---	---	---	---	---	---	---	97.97
5.90	31,108	977.90	100.84	---	---	---	---	---	---	---	---	100.84
6.00	32,493	978.00	103.64	---	---	---	---	---	---	---	---	103.64
6.10	34,105	978.10	106.36	---	---	---	---	---	---	---	---	106.36
6.20	35,717	978.20	109.02	---	---	---	---	---	---	---	---	109.02
6.30	37,329	978.30	111.60	---	---	---	---	---	---	---	---	111.60
6.40	38,941	978.40	114.14	---	---	---	---	---	---	---	---	114.14
6.50	40,553	978.50	116.61	---	---	---	---	---	---	---	---	116.61
6.60	42,165	978.60	119.04	---	---	---	---	---	---	---	---	119.04
6.70	43,777	978.70	121.15	---	---	---	---	---	---	---	---	121.15
6.80	45,389	978.80	122.65	---	---	---	---	---	---	---	---	122.65
6.90	47,001	978.90	124.13	---	---	---	---	---	---	---	---	124.13
7.00	48,613	979.00	125.60	---	---	---	---	---	---	---	---	125.60
7.10	50,434	979.10	127.05	---	---	---	---	---	---	---	---	127.05
7.20	52,255	979.20	128.48	---	---	---	---	---	---	---	---	128.48
7.30	54,076	979.30	129.90	---	---	---	---	---	---	---	---	129.90
7.40	55,897	979.40	131.30	---	---	---	---	---	---	---	---	131.30
7.50	57,718	979.50	132.68	---	---	---	---	---	---	---	---	132.68
7.60	59,539	979.60	134.06	---	---	---	---	---	---	---	---	134.06
7.70	61,360	979.70	135.41	---	---	---	---	---	---	---	---	135.41
7.80	63,181	979.80	136.76	---	---	---	---	---	---	---	---	136.76
7.90	65,002	979.90	138.09	---	---	---	---	---	---	---	---	138.09
8.00	66,823	980.00	139.41	---	---	---	---	---	---	---	---	139.41

...End

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	46.72	2	728	164,617	----	------	------	PRE DEVELOPMENT RUNOFF
2	SCS Runoff	79.87	6	720	246,945	----	------	------	TOTAL ONSITE INTO BASIN
3	SCS Runoff	49.70	6	726	204,652	----	------	------	TOTAL OFF SITE INTO BASIN
4	Combine	122.39	6	726	451,596	2, 3	------	------	TOTAL FLOW TO BASIN
5	Reservoir	105.75	6	732	451,474	4	978.08	33,741	DESIGN REGIONAL BASIN

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 1

PRE DEVELOPMENT RUNOFF

Hydrograph type	= SCS Runoff	Peak discharge	= 46.72 cfs
Storm frequency	= 10 yrs	Time interval	= 2 min
Drainage area	= 25.00 ac	Curve number	= 74
Basin Slope	= 8.0 %	Hydraulic length	= 2000 ft
Tc method	= LAG	Time of conc. (Tc)	= 23.4 min
Total precip.	= 4.25 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 164,617 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.60	2.55	12.73	7.18	13.87	3.36	15.00	2.43
11.63	2.98	12.77	6.86	13.90	3.31	15.03	2.41
11.67	3.59	12.80	6.57	13.93	3.26	15.07	2.40
11.70	4.44	12.83	6.32	13.97	3.21	15.10	2.38
11.73	5.60	12.87	6.09	14.00	3.17	15.13	2.37
11.77	7.10	12.90	5.90	14.03	3.12	15.17	2.35
11.80	9.09	12.93	5.72	14.07	3.07		
11.83	11.73	12.97	5.56	14.10	3.03		
11.87	15.18	13.00	5.42	14.13	2.98	*...End*	
11.90	19.65	13.03	5.29	14.17	2.94		
11.93	25.02	13.07	5.17	14.20	2.90		
11.97	30.75	13.10	5.05	14.23	2.87		
12.00	36.23	13.13	4.94	14.27	2.84		
12.03	40.95	13.17	4.84	14.30	2.81		
12.07	44.54	13.20	4.73	14.33	2.78		
12.10	46.62	13.23	4.64	14.37	2.75		
12.13	46.72 <<	13.27	4.54	14.40	2.73		
12.17	44.90	13.30	4.46	14.43	2.71		
12.20	41.85	13.33	4.37	14.47	2.69		
12.23	38.32	13.37	4.30	14.50	2.67		
12.27	34.74	13.40	4.22	14.53	2.66		
12.30	31.13	13.43	4.15	14.57	2.64		
12.33	27.54	13.47	4.08	14.60	2.62		
12.37	24.00	13.50	4.01	14.63	2.61		
12.40	20.58	13.53	3.95	14.67	2.59		
12.43	17.37	13.57	3.88	14.70	2.58		
12.47	14.51	13.60	3.82	14.73	2.56		
12.50	12.15	13.63	3.76	14.77	2.54		
12.53	10.45	13.67	3.70	14.80	2.53		
12.57	9.42	13.70	3.64	14.83	2.51		
12.60	8.81	13.73	3.58	14.87	2.50		
12.63	8.36	13.77	3.52	14.90	2.48		
12.67	7.94	13.80	3.47	14.93	2.46		
12.70	7.54	13.83	3.41	14.97	2.45		

Hydrograph Report

Hyd. No. 2

TOTAL ONSITE INTO BASIN

Hydrograph type	= SCS Runoff	Peak discharge	= 79.87 cfs
Storm frequency	= 10 yrs	Time interval	= 6 min
Drainage area	= 24.50 ac	Curve number	= 88
Basin Slope	= 5.0 %	Hydraulic length	= 2000 ft
Tc method	= LAG	Time of conc. (Tc)	= 18.8 min
Total precip.	= 4.25 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 246,945 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
11.20	4.06
11.30	4.70
11.40	5.44
11.50	6.23
11.60	8.61
11.70	15.81
11.80	29.74
11.90	55.68
12.00	79.87 <<
12.10	72.69
12.20	45.80
12.30	23.51
12.40	13.23
12.50	11.29
12.60	9.47
12.70	8.11
12.80	7.25
12.90	6.70
13.00	6.25
13.10	5.82
13.20	5.45
13.30	5.15
13.40	4.89
13.50	4.65
13.60	4.41
13.70	4.19
13.80	4.00

...End

Hydrograph Report

Hyd. No. 3

TOTAL OFF SITE INTO BASIN

Hydrograph type	= SCS Runoff	Peak discharge	= 49.70 cfs
Storm frequency	= 10 yrs	Time interval	= 6 min
Drainage area	= 27.00 ac	Curve number	= 78
Basin Slope	= 4.0 %	Hydraulic length	= 2000 ft
Tc method	= LAG	Time of conc. (Tc)	= 29.4 min
Total precip.	= 4.25 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 204,652 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.50	2.90	14.90	2.92
11.60	3.84	15.00	2.86
11.70	6.23	15.10	2.80
11.80	11.69	15.20	2.74
11.90	23.61	15.30	2.68
12.00	38.78	15.40	2.62
12.10	49.70 <<	15.50	2.56
12.20	49.61	15.60	2.51
12.30	40.96		
12.40	31.63		
12.50	22.28	*...End*	
12.60	14.08		
12.70	9.72		
12.80	8.44		
12.90	7.46		
13.00	6.73		
13.10	6.18		
13.20	5.76		
13.30	5.41		
13.40	5.11		
13.50	4.84		
13.60	4.59		
13.70	4.37		
13.80	4.16		
13.90	3.97		
14.00	3.79		
14.10	3.62		
14.20	3.47		
14.30	3.34		
14.40	3.24		
14.50	3.16		
14.60	3.09		
14.70	3.03		
14.80	2.97		

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 4

TOTAL FLOW TO BASIN

Hydrograph type	= Combine	Peak discharge	= 122.39 cfs
Storm frequency	= 10 yrs	Time interval	= 6 min
Inflow hyds.	= 2, 3		

Hydrograph Volume = 451,596 cuft

Hydrograph Discharge Table

Time (hrs)	Hyd. 2 + (cfs)	Hyd. 3 = (cfs)	Outflow (cfs)
11.30	4.70	2.09	6.79
11.40	5.44	2.46	7.90
11.50	6.23	2.90	9.13
11.60	8.61	3.84	12.45
11.70	15.81	6.23	22.04
11.80	29.74	11.69	41.43
11.90	55.68	23.61	79.29
12.00	79.87 <<	38.78	118.65
12.10	72.69	49.70 <<	122.39 <<
12.20	45.80	49.61	95.40
12.30	23.51	40.96	64.47
12.40	13.23	31.63	44.86
12.50	11.29	22.28	33.57
12.60	9.47	14.08	23.55
12.70	8.11	9.72	17.82
12.80	7.25	8.44	15.69
12.90	6.70	7.46	14.16
13.00	6.25	6.73	12.98
13.10	5.82	6.18	12.00
13.20	5.45	5.76	11.21
13.30	5.15	5.41	10.56
13.40	4.89	5.11	10.00
13.50	4.65	4.84	9.49
13.60	4.41	4.59	9.00
13.70	4.19	4.37	8.56
13.80	4.00	4.16	8.16
13.90	3.82	3.97	7.79
14.00	3.64	3.79	7.43
14.10	3.48	3.62	7.10
14.20	3.35	3.47	6.82
14.30	3.26	3.34	6.60
14.40	3.19	3.24	6.43
14.50	3.13	3.16	6.28
14.60	3.06	3.09	6.16

...End

Hydrograph Report

Hydraflow Hydrographs by Intelisolve

Hyd. No. 5

DESIGN REGIONAL BASIN

Hydrograph type	= Reservoir	Peak discharge	= 105.75 cfs
Storm frequency	= 10 yrs	Time interval	= 6 min
Inflow hyd. No.	= 4	Reservoir name	= AS BUILT BASIN
Max. Elevation	= 978.08 ft	Max. Storage	= 33,741 cuft

Storage Indication method used.

Outflow hydrograph volume = 451,474 cuft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
11.10	5.35	973.48	5.30	-----	-----	-----	-----	-----	-----	-----	-----	5.30
11.20	5.88	973.51	5.81	-----	-----	-----	-----	-----	-----	-----	-----	5.81
11.30	6.79	973.58	6.68	-----	-----	-----	-----	-----	-----	-----	-----	6.68
11.40	7.90	973.65	7.79	-----	-----	-----	-----	-----	-----	-----	-----	7.79
11.50	9.13	973.73	9.01	-----	-----	-----	-----	-----	-----	-----	-----	9.01
11.60	12.45	973.90	12.05	-----	-----	-----	-----	-----	-----	-----	-----	12.05
11.70	22.04	974.24	19.17	-----	-----	-----	-----	-----	-----	-----	-----	19.17
11.80	41.43	975.01	34.68	-----	-----	-----	-----	-----	-----	-----	-----	34.68
11.90	79.29	976.05	52.15	-----	-----	-----	-----	-----	-----	-----	-----	52.15
12.00	118.65	977.19	78.14	-----	-----	-----	-----	-----	-----	-----	-----	78.14
12.10	122.39 <<	977.97	102.80	-----	-----	-----	-----	-----	-----	-----	-----	102.80
12.20	95.40	978.08 <<	105.75	-----	-----	-----	-----	-----	-----	-----	-----	105.75 <<
12.30	64.47	977.60	91.92	-----	-----	-----	-----	-----	-----	-----	-----	91.92
12.40	44.86	976.92	67.75	-----	-----	-----	-----	-----	-----	-----	-----	67.75
12.50	33.57	976.16	53.52	-----	-----	-----	-----	-----	-----	-----	-----	53.52
12.60	23.55	975.19	37.97	-----	-----	-----	-----	-----	-----	-----	-----	37.97
12.70	17.82	974.22	18.77	-----	-----	-----	-----	-----	-----	-----	-----	18.77
12.80	15.69	974.11	16.19	-----	-----	-----	-----	-----	-----	-----	-----	16.19
12.90	14.16	974.03	14.60	-----	-----	-----	-----	-----	-----	-----	-----	14.60
13.00	12.98	973.95	13.06	-----	-----	-----	-----	-----	-----	-----	-----	13.07
13.10	12.00	973.90	12.07	-----	-----	-----	-----	-----	-----	-----	-----	12.07
13.20	11.21	973.86	11.27	-----	-----	-----	-----	-----	-----	-----	-----	11.27
13.30	10.56	973.82	10.61	-----	-----	-----	-----	-----	-----	-----	-----	10.61
13.40	10.00	973.79	10.05	-----	-----	-----	-----	-----	-----	-----	-----	10.05
13.50	9.49	973.76	9.53	-----	-----	-----	-----	-----	-----	-----	-----	9.53
13.60	9.00	973.73	9.04	-----	-----	-----	-----	-----	-----	-----	-----	9.04
13.70	8.56	973.70	8.60	-----	-----	-----	-----	-----	-----	-----	-----	8.60
13.80	8.16	973.68	8.20	-----	-----	-----	-----	-----	-----	-----	-----	8.20
13.90	7.79	973.65	7.82	-----	-----	-----	-----	-----	-----	-----	-----	7.82
14.00	7.43	973.63	7.47	-----	-----	-----	-----	-----	-----	-----	-----	7.47
14.10	7.10	973.61	7.13	-----	-----	-----	-----	-----	-----	-----	-----	7.13
14.20	6.82	973.59	6.84	-----	-----	-----	-----	-----	-----	-----	-----	6.84
14.30	6.60	973.57	6.62	-----	-----	-----	-----	-----	-----	-----	-----	6.62
14.40	6.43	973.56	6.44	-----	-----	-----	-----	-----	-----	-----	-----	6.44
14.50	6.28	973.55	6.30	-----	-----	-----	-----	-----	-----	-----	-----	6.30
14.60	6.16	973.54	6.17	-----	-----	-----	-----	-----	-----	-----	-----	6.17
14.70	6.03	973.53	6.05	-----	-----	-----	-----	-----	-----	-----	-----	6.05
14.80	5.92	973.52	5.93	-----	-----	-----	-----	-----	-----	-----	-----	5.93

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
14.90	5.80	973.51	5.81	-----	-----	-----	-----	-----	-----	-----	-----	5.81
15.00	5.68	973.51	5.69	-----	-----	-----	-----	-----	-----	-----	-----	5.69
15.10	5.56	973.50	5.57	-----	-----	-----	-----	-----	-----	-----	-----	5.57
15.20	5.44	973.49	5.45	-----	-----	-----	-----	-----	-----	-----	-----	5.45
15.30	5.32	973.48	5.33	-----	-----	-----	-----	-----	-----	-----	-----	5.33

...End

Reservoir Report

Reservoir No. 2 - AS BUILT BASIN

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	972.00	50	0	0
1.00	973.00	300	175	175
2.00	974.00	782	541	716
3.00	975.00	3,636	2,209	2,925
4.00	976.00	7,638	5,637	8,562
5.00	977.00	12,526	10,082	18,644
6.00	978.00	15,172	13,849	32,493
7.00	979.00	17,067	16,120	48,613
8.00	980.00	19,354	18,211	66,823

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 48.0	0.0	0.0	0.0
Span in	= 48.0	0.0	0.0	0.0
No. Barrels	= 1	0	0	0
Invert El. ft	= 972.69	0.00	0.00	0.00
Length ft	= 57.0	0.0	0.0	0.0
Slope %	= 1.00	0.00	0.00	0.00
N-Value	= .013	.000	.000	.000
Orif. Coeff.	= 0.60	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 0.00	0.00	0.00	0.00
Crest El. ft	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	0.00	0.00	0.00
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfiltration Rate = 0.00 in/hr/sqft Tailwater Elev. = 0.00 ft

Note: All outflows have been analyzed under inlet and outlet control.

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0	972.00	0.00	---	---	---	---	---	---	---	---	0.00
0.10	18	972.10	0.00	---	---	---	---	---	---	---	---	0.00
0.20	35	972.20	0.00	---	---	---	---	---	---	---	---	0.00
0.30	53	972.30	0.00	---	---	---	---	---	---	---	---	0.00
0.40	70	972.40	0.00	---	---	---	---	---	---	---	---	0.00
0.50	88	972.50	0.00	---	---	---	---	---	---	---	---	0.00
0.60	105	972.60	0.00	---	---	---	---	---	---	---	---	0.00
0.70	123	972.70	0.00	---	---	---	---	---	---	---	---	0.00
0.80	140	972.80	0.11	---	---	---	---	---	---	---	---	0.11
0.90	158	972.90	0.40	---	---	---	---	---	---	---	---	0.40
1.00	175	973.00	0.86	---	---	---	---	---	---	---	---	0.86
1.10	229	973.10	1.48	---	---	---	---	---	---	---	---	1.48
1.20	283	973.20	2.27	---	---	---	---	---	---	---	---	2.27
1.30	337	973.30	3.22	---	---	---	---	---	---	---	---	3.22
1.40	391	973.40	4.33	---	---	---	---	---	---	---	---	4.33
1.50	446	973.50	5.60	---	---	---	---	---	---	---	---	5.60
1.60	500	973.60	7.01	---	---	---	---	---	---	---	---	7.01
1.70	554	973.70	8.55	---	---	---	---	---	---	---	---	8.55
1.80	608	973.80	10.22	---	---	---	---	---	---	---	---	10.22
1.90	662	973.90	12.03	---	---	---	---	---	---	---	---	12.03
2.00	716	974.00	13.96	---	---	---	---	---	---	---	---	13.96
2.10	937	974.10	16.03	---	---	---	---	---	---	---	---	16.03
2.20	1,158	974.20	18.20	---	---	---	---	---	---	---	---	18.20
2.30	1,379	974.30	20.50	---	---	---	---	---	---	---	---	20.50
2.40	1,600	974.40	22.86	---	---	---	---	---	---	---	---	22.86
2.50	1,821	974.50	24.95	---	---	---	---	---	---	---	---	24.95
2.60	2,041	974.60	26.86	---	---	---	---	---	---	---	---	26.86
2.70	2,262	974.70	28.78	---	---	---	---	---	---	---	---	28.78
2.80	2,483	974.80	30.64	---	---	---	---	---	---	---	---	30.64

Continues on next page...

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
2.90	2,704	974.90	32.55	---	---	---	---	---	---	---	---	32.55
3.00	2,925	975.00	34.49	---	---	---	---	---	---	---	---	34.49
3.10	3,489	975.10	36.35	---	---	---	---	---	---	---	---	36.35
3.20	4,052	975.20	38.22	---	---	---	---	---	---	---	---	38.22
3.30	4,616	975.30	40.03	---	---	---	---	---	---	---	---	40.03
3.40	5,180	975.40	41.84	---	---	---	---	---	---	---	---	41.84
3.50	5,744	975.50	43.57	---	---	---	---	---	---	---	---	43.57
3.60	6,307	975.60	45.26	---	---	---	---	---	---	---	---	45.26
3.70	6,871	975.70	46.90	---	---	---	---	---	---	---	---	46.90
3.80	7,435	975.80	48.51	---	---	---	---	---	---	---	---	48.51
3.90	7,998	975.90	50.02	---	---	---	---	---	---	---	---	50.02
4.00	8,562	976.00	51.45	---	---	---	---	---	---	---	---	51.45
4.10	9,570	976.10	52.81	---	---	---	---	---	---	---	---	52.81
4.20	10,578	976.20	54.02	---	---	---	---	---	---	---	---	54.02
4.30	11,587	976.30	55.12	---	---	---	---	---	---	---	---	55.12
4.40	12,595	976.40	56.07	---	---	---	---	---	---	---	---	56.07
4.50	13,603	976.50	56.82	---	---	---	---	---	---	---	---	56.82
4.60	14,611	976.60	57.29	---	---	---	---	---	---	---	---	57.29
4.70	15,619	976.70	57.56	---	---	---	---	---	---	---	---	57.56
4.80	16,628	976.80	62.32	---	---	---	---	---	---	---	---	62.32
4.90	17,636	976.90	66.75	---	---	---	---	---	---	---	---	66.75
5.00	18,644	977.00	70.91	---	---	---	---	---	---	---	---	70.91
5.10	20,029	977.10	74.83	---	---	---	---	---	---	---	---	74.83
5.20	21,414	977.20	78.55	---	---	---	---	---	---	---	---	78.55
5.30	22,799	977.30	82.11	---	---	---	---	---	---	---	---	82.11
5.40	24,184	977.40	85.52	---	---	---	---	---	---	---	---	85.52
5.50	25,569	977.50	88.79	---	---	---	---	---	---	---	---	88.79
5.60	26,953	977.60	91.95	---	---	---	---	---	---	---	---	91.95
5.70	28,338	977.70	95.01	---	---	---	---	---	---	---	---	95.01
5.80	29,723	977.80	97.97	---	---	---	---	---	---	---	---	97.97
5.90	31,108	977.90	100.84	---	---	---	---	---	---	---	---	100.84
6.00	32,493	978.00	103.64	---	---	---	---	---	---	---	---	103.64
6.10	34,105	978.10	106.36	---	---	---	---	---	---	---	---	106.36
6.20	35,717	978.20	109.02	---	---	---	---	---	---	---	---	109.02
6.30	37,329	978.30	111.60	---	---	---	---	---	---	---	---	111.60
6.40	38,941	978.40	114.14	---	---	---	---	---	---	---	---	114.14
6.50	40,553	978.50	116.61	---	---	---	---	---	---	---	---	116.61
6.60	42,165	978.60	119.04	---	---	---	---	---	---	---	---	119.04
6.70	43,777	978.70	121.15	---	---	---	---	---	---	---	---	121.15
6.80	45,389	978.80	122.65	---	---	---	---	---	---	---	---	122.65
6.90	47,001	978.90	124.13	---	---	---	---	---	---	---	---	124.13
7.00	48,613	979.00	125.60	---	---	---	---	---	---	---	---	125.60
7.10	50,434	979.10	127.05	---	---	---	---	---	---	---	---	127.05
7.20	52,255	979.20	128.48	---	---	---	---	---	---	---	---	128.48
7.30	54,076	979.30	129.90	---	---	---	---	---	---	---	---	129.90
7.40	55,897	979.40	131.30	---	---	---	---	---	---	---	---	131.30
7.50	57,718	979.50	132.68	---	---	---	---	---	---	---	---	132.68
7.60	59,539	979.60	134.06	---	---	---	---	---	---	---	---	134.06
7.70	61,360	979.70	135.41	---	---	---	---	---	---	---	---	135.41
7.80	63,181	979.80	136.76	---	---	---	---	---	---	---	---	136.76
7.90	65,002	979.90	138.09	---	---	---	---	---	---	---	---	138.09
8.00	66,823	980.00	139.41	---	---	---	---	---	---	---	---	139.41

...End

Hydrograph Report

Hyd. No. 1

PRE DEVELOPMENT RUNOFF

Hydrograph type	= SCS Runoff	Peak discharge	= 79.85 cfs
Storm frequency	= 25 yrs	Time interval	= 2 min
Drainage area	= 25.00 ac	Curve number	= 74
Basin Slope	= 8.0 %	Hydraulic length	= 2000 ft
Tc method	= LAG	Time of conc. (Tc)	= 23.4 min
Total precip.	= 5.77 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 276,413 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.43	4.04	12.57	14.91	13.70	5.64
11.47	4.27	12.60	13.93	13.73	5.55
11.50	4.50	12.63	13.20	13.77	5.46
11.53	4.80	12.67	12.52	13.80	5.37
11.57	5.22	12.70	11.88	13.83	5.29
11.60	5.81	12.73	11.31	13.87	5.21
11.63	6.67	12.77	10.79	13.90	5.13
11.67	7.87	12.80	10.33	13.93	5.05
11.70	9.52	12.83	9.92	13.97	4.97
11.73	11.75	12.87	9.56	14.00	4.90
11.77	14.58	12.90	9.25	14.03	4.82
11.80	18.25	12.93	8.96	14.07	4.75
11.83	22.99	12.97	8.71	14.10	4.68
11.87	29.05	13.00	8.48	14.13	4.61
11.90	36.71	13.03	8.27	14.17	4.55
11.93	45.71	13.07	8.08	14.20	4.48
11.97	55.14	13.10	7.89	14.23	4.43
12.00	64.03	13.13	7.72	14.27	4.38
12.03	71.50	13.17	7.55	14.30	4.33
12.07	76.98	13.20	7.39	14.33	4.29
12.10	79.85 <<	13.23	7.23	14.37	4.25
12.13	79.42	13.27	7.08	14.40	4.21
12.17	75.86	13.30	6.95	14.43	4.18
12.20	70.32	13.33	6.81	14.47	4.15
12.23	64.06	13.37	6.69	14.50	4.12
12.27	57.76	13.40	6.57	14.53	4.09
12.30	51.46	13.43	6.46	14.57	4.07
12.33	45.25	13.47	6.35	14.60	4.04
12.37	39.19	13.50	6.24	14.63	4.02
12.40	33.38	13.53	6.13		
12.43	27.99	13.57	6.03		
12.47	23.23	13.60	5.93	*...End*	
12.50	19.34	13.63	5.83		
12.53	16.58	13.67	5.74		

Hydrograph Report

Hyd. No. 2

TOTAL ONSITE INTO BASIN

Hydrograph type	= SCS Runoff	Peak discharge	= 117.21 cfs
Storm frequency	= 25 yrs	Time interval	= 6 min
Drainage area	= 24.50 ac	Curve number	= 88
Basin Slope	= 5.0 %	Hydraulic length	= 2000 ft
Tc method	= LAG	Time of conc. (Tc)	= 18.8 min
Total precip.	= 5.77 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 367,246 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)
11.10	6.12
11.20	6.61
11.30	7.60
11.40	8.73
11.50	9.94
11.60	13.59
11.70	24.59
11.80	45.42
11.90	83.12
12.00	117.21 <<
12.10	105.55
12.20	66.01
12.30	33.59
12.40	18.82
12.50	16.03
12.60	13.44
12.70	11.49
12.80	10.27
12.90	9.48
13.00	8.84
13.10	8.23
13.20	7.70
13.30	7.27
13.40	6.91
13.50	6.56
13.60	6.22
13.70	5.91

...End

Hydrograph Report

Hyd. No. 3

TOTAL OFF SITE INTO BASIN

Hydrograph type	= SCS Runoff	Peak discharge	= 81.52 cfs
Storm frequency	= 25 yrs	Time interval	= 6 min
Drainage area	= 27.00 ac	Curve number	= 78
Basin Slope	= 4.0 %	Hydraulic length	= 2000 ft
Tc method	= LAG	Time of conc. (Tc)	= 29.4 min
Total precip.	= 5.77 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 330,933 cuft

Hydrograph Discharge Table

Time (hrs)	Outflow (cfs)	Time (hrs)	Outflow (cfs)
11.30	4.43	14.70	4.53
11.40	5.11	14.80	4.44
11.50	5.90	14.90	4.36
11.60	7.59	15.00	4.27
11.70	11.87	15.10	4.18
11.80	21.32	15.20	4.09
11.90	40.94		
12.00	64.97		
12.10	81.52 <<	*...End*	
12.20	80.18		
12.30	65.54		
12.40	50.00		
12.50	34.75		
12.60	21.63		
12.70	14.82		
12.80	12.84		
12.90	11.34		
13.00	10.21		
13.10	9.36		
13.20	8.71		
13.30	8.17		
13.40	7.71		
13.50	7.29		
13.60	6.91		
13.70	6.57		
13.80	6.26		
13.90	5.96		
14.00	5.69		
14.10	5.43		
14.20	5.20		
14.30	5.01		
14.40	4.85		
14.50	4.73		
14.60	4.62		

Hydrograph Report

Hyd. No. 4

TOTAL FLOW TO BASIN

Hydrograph type	= Combine	Peak discharge	= 187.07 cfs
Storm frequency	= 25 yrs	Time interval	= 6 min
Inflow hyds.	= 2, 3		

Hydrograph Volume = 698,179 cuft

Hydrograph Discharge Table

Time (hrs)	Hyd. 2 + (cfs)	Hyd. 3 = (cfs)	Outflow (cfs)
11.10	6.12	3.58	9.70
11.20	6.61	3.95	10.56
11.30	7.60	4.43	12.03
11.40	8.73	5.11	13.84
11.50	9.94	5.90	15.84
11.60	13.59	7.59	21.18
11.70	24.59	11.87	36.45
11.80	45.42	21.32	66.75
11.90	83.12	40.94	124.06
12.00	117.21 <<	64.97	182.18
12.10	105.55	81.52 <<	187.07 <<
12.20	66.01	80.18	146.19
12.30	33.59	65.54	99.13
12.40	18.82	50.00	68.82
12.50	16.03	34.75	50.77
12.60	13.44	21.63	35.07
12.70	11.49	14.82	26.31
12.80	10.27	12.84	23.11
12.90	9.48	11.34	20.82
13.00	8.84	10.21	19.05
13.10	8.23	9.36	17.58
13.20	7.70	8.71	16.41
13.30	7.27	8.17	15.45
13.40	6.91	7.71	14.61
13.50	6.56	7.29	13.85
13.60	6.22	6.91	13.14
13.70	5.91	6.57	12.48
13.80	5.64	6.26	11.89
13.90	5.38	5.96	11.34
14.00	5.13	5.69	10.82
14.10	4.90	5.43	10.33
14.20	4.71	5.20	9.91
14.30	4.58	5.01	9.59

...End

Hydrograph Report

Hyd. No. 5

DESIGN REGIONAL BASIN

Hydrograph type	= Reservoir	Peak discharge	= 0.00 cfs
Storm frequency	= 25 yrs	Time interval	= 6 min
Inflow hyd. No.	= 4	Reservoir name	= AS BUILT BASIN
Max. Elevation	= 0.00 ft	Max. Storage	= 0 cuft

Storage Indication method used.

Outflow hydrograph volume = 0 cuft

...End

Reservoir Report

Reservoir No. 2 - AS BUILT BASIN

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	972.00	50	0	0
1.00	973.00	300	175	175
2.00	974.00	782	541	716
3.00	975.00	3,636	2,209	2,925
4.00	976.00	7,638	5,637	8,562
5.00	977.00	12,526	10,082	18,644
6.00	978.00	15,172	13,849	32,493
7.00	979.00	17,067	16,120	48,613
8.00	980.00	19,354	18,211	66,823

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 48.0	0.0	0.0	0.0
Span in	= 48.0	0.0	0.0	0.0
No. Barrels	= 1	0	0	0
Invert El. ft	= 972.69	0.00	0.00	0.00
Length ft	= 57.0	0.0	0.0	0.0
Slope %	= 1.00	0.00	0.00	0.00
N-Value	= .013	.000	.000	.000
Orif. Coeff.	= 0.60	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 0.00	0.00	0.00	0.00
Crest El. ft	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	0.00	0.00	0.00
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfiltration Rate = 0.00 in/hr/sqft Tailwater Elev. = 0.00 ft

Note: All outflows have been analyzed under inlet and outlet control.

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0	972.00	0.00	---	---	---	---	---	---	---	---	0.00
0.10	18	972.10	0.00	---	---	---	---	---	---	---	---	0.00
0.20	35	972.20	0.00	---	---	---	---	---	---	---	---	0.00
0.30	53	972.30	0.00	---	---	---	---	---	---	---	---	0.00
0.40	70	972.40	0.00	---	---	---	---	---	---	---	---	0.00
0.50	88	972.50	0.00	---	---	---	---	---	---	---	---	0.00
0.60	105	972.60	0.00	---	---	---	---	---	---	---	---	0.00
0.70	123	972.70	0.00	---	---	---	---	---	---	---	---	0.00
0.80	140	972.80	0.11	---	---	---	---	---	---	---	---	0.11
0.90	158	972.90	0.40	---	---	---	---	---	---	---	---	0.40
1.00	175	973.00	0.86	---	---	---	---	---	---	---	---	0.86
1.10	229	973.10	1.48	---	---	---	---	---	---	---	---	1.48
1.20	283	973.20	2.27	---	---	---	---	---	---	---	---	2.27
1.30	337	973.30	3.22	---	---	---	---	---	---	---	---	3.22
1.40	391	973.40	4.33	---	---	---	---	---	---	---	---	4.33
1.50	446	973.50	5.60	---	---	---	---	---	---	---	---	5.60
1.60	500	973.60	7.01	---	---	---	---	---	---	---	---	7.01
1.70	554	973.70	8.55	---	---	---	---	---	---	---	---	8.55
1.80	608	973.80	10.22	---	---	---	---	---	---	---	---	10.22
1.90	662	973.90	12.03	---	---	---	---	---	---	---	---	12.03
2.00	716	974.00	13.96	---	---	---	---	---	---	---	---	13.96
2.10	937	974.10	16.03	---	---	---	---	---	---	---	---	16.03
2.20	1,158	974.20	18.20	---	---	---	---	---	---	---	---	18.20
2.30	1,379	974.30	20.50	---	---	---	---	---	---	---	---	20.50
2.40	1,600	974.40	22.86	---	---	---	---	---	---	---	---	22.86
2.50	1,821	974.50	24.95	---	---	---	---	---	---	---	---	24.95
2.60	2,041	974.60	26.86	---	---	---	---	---	---	---	---	26.86
2.70	2,262	974.70	28.78	---	---	---	---	---	---	---	---	28.78
2.80	2,483	974.80	30.64	---	---	---	---	---	---	---	---	30.64

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Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
2.90	2,704	974.90	32.55	---	---	---	---	---	---	---	---	32.55
3.00	2,925	975.00	34.49	---	---	---	---	---	---	---	---	34.49
3.10	3,489	975.10	36.35	---	---	---	---	---	---	---	---	36.35
3.20	4,052	975.20	38.22	---	---	---	---	---	---	---	---	38.22
3.30	4,616	975.30	40.03	---	---	---	---	---	---	---	---	40.03
3.40	5,180	975.40	41.84	---	---	---	---	---	---	---	---	41.84
3.50	5,744	975.50	43.57	---	---	---	---	---	---	---	---	43.57
3.60	6,307	975.60	45.26	---	---	---	---	---	---	---	---	45.26
3.70	6,871	975.70	46.90	---	---	---	---	---	---	---	---	46.90
3.80	7,435	975.80	48.51	---	---	---	---	---	---	---	---	48.51
3.90	7,998	975.90	50.02	---	---	---	---	---	---	---	---	50.02
4.00	8,562	976.00	51.45	---	---	---	---	---	---	---	---	51.45
4.10	9,570	976.10	52.81	---	---	---	---	---	---	---	---	52.81
4.20	10,578	976.20	54.02	---	---	---	---	---	---	---	---	54.02
4.30	11,587	976.30	55.12	---	---	---	---	---	---	---	---	55.12
4.40	12,595	976.40	56.07	---	---	---	---	---	---	---	---	56.07
4.50	13,603	976.50	56.82	---	---	---	---	---	---	---	---	56.82
4.60	14,611	976.60	57.29	---	---	---	---	---	---	---	---	57.29
4.70	15,619	976.70	57.56	---	---	---	---	---	---	---	---	57.56
4.80	16,628	976.80	62.32	---	---	---	---	---	---	---	---	62.32
4.90	17,636	976.90	66.75	---	---	---	---	---	---	---	---	66.75
5.00	18,644	977.00	70.91	---	---	---	---	---	---	---	---	70.91
5.10	20,029	977.10	74.83	---	---	---	---	---	---	---	---	74.83
5.20	21,414	977.20	78.55	---	---	---	---	---	---	---	---	78.55
5.30	22,799	977.30	82.11	---	---	---	---	---	---	---	---	82.11
5.40	24,184	977.40	85.52	---	---	---	---	---	---	---	---	85.52
5.50	25,569	977.50	88.79	---	---	---	---	---	---	---	---	88.79
5.60	26,953	977.60	91.95	---	---	---	---	---	---	---	---	91.95
5.70	28,338	977.70	95.01	---	---	---	---	---	---	---	---	95.01
5.80	29,723	977.80	97.97	---	---	---	---	---	---	---	---	97.97
5.90	31,108	977.90	100.84	---	---	---	---	---	---	---	---	100.84
6.00	32,493	978.00	103.64	---	---	---	---	---	---	---	---	103.64
6.10	34,105	978.10	106.36	---	---	---	---	---	---	---	---	106.36
6.20	35,717	978.20	109.02	---	---	---	---	---	---	---	---	109.02
6.30	37,329	978.30	111.60	---	---	---	---	---	---	---	---	111.60
6.40	38,941	978.40	114.14	---	---	---	---	---	---	---	---	114.14
6.50	40,553	978.50	116.61	---	---	---	---	---	---	---	---	116.61
6.60	42,165	978.60	119.04	---	---	---	---	---	---	---	---	119.04
6.70	43,777	978.70	121.15	---	---	---	---	---	---	---	---	121.15
6.80	45,389	978.80	122.65	---	---	---	---	---	---	---	---	122.65
6.90	47,001	978.90	124.13	---	---	---	---	---	---	---	---	124.13
7.00	48,613	979.00	125.60	---	---	---	---	---	---	---	---	125.60
7.10	50,434	979.10	127.05	---	---	---	---	---	---	---	---	127.05
7.20	52,255	979.20	128.48	---	---	---	---	---	---	---	---	128.48
7.30	54,076	979.30	129.90	---	---	---	---	---	---	---	---	129.90
7.40	55,897	979.40	131.30	---	---	---	---	---	---	---	---	131.30
7.50	57,718	979.50	132.68	---	---	---	---	---	---	---	---	132.68
7.60	59,539	979.60	134.06	---	---	---	---	---	---	---	---	134.06
7.70	61,360	979.70	135.41	---	---	---	---	---	---	---	---	135.41
7.80	63,181	979.80	136.76	---	---	---	---	---	---	---	---	136.76
7.90	65,002	979.90	138.09	---	---	---	---	---	---	---	---	138.09
8.00	66,823	980.00	139.41	---	---	---	---	---	---	---	---	139.41

...End