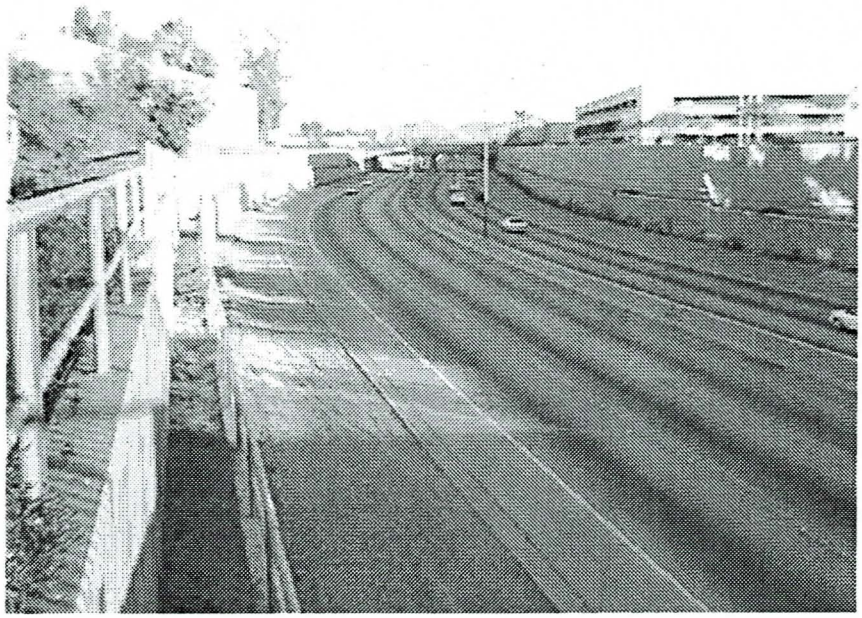
SR 51 DRAINAGE ASSESSMENT

INDIAN SCHOOL ROAD
TO BETHANY HOME ROAD

DRAFT INITIAL DRAINAGE REPORT

TECHNICAL APPENDIX

June 4, 1998



Submitted to:

ARIZONA DEPARTMENT OF TRANSPORTATION

Submitted by:

PB PARSONS BRINCKERHOFF

PREMIER ENGINEERING CORPORATION

Transmittal

Parsons Brinckerhoff
1501 West Fountainhead Parkway
Suite 400
Tempe, Arizona 85282
602-966-8295
Fax: 602-966-9234

to Mr. Amir Motamedi
Hydrology Branch
Flood Control District of Maricopa County

from Alan Humphrey

date 9/3/98

project SR51 Drainage Assessment

project number 11045S, Task 11

via:
- ☐ mail
- X messenger
- ☐ fedex

for your:
- ☐ information/use
- ☐ approval
- X review/comment

the following:
- ☐ shop drawings
- ☐ copy of letter
- ☐ prints
- ☐ change order
- ☐ plans
- ☐ samples
- ☐ specifications
- X report

drawing	rev. no.	description	copies	date
		State Route 51- Squaw Peak Parkway		
		Draft Initial Drainage Report	1	6/4/98

Talked to RUM, suggested that since FCD will NOT participate in the project, should not send response back.

If enclosures are not as noted, kindly notify us at once.

Comments Please return comments to Vince Li at ADOT. See the attached comment sheet.

Alan Humphrey

cc: Cathy Hollow, Vince Li

signature

Over a Century of Engineering Excellence

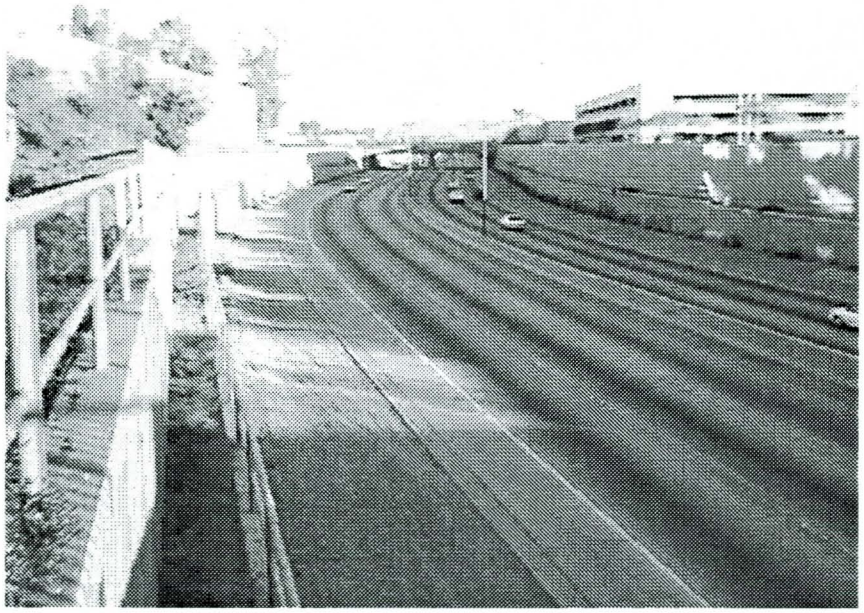
SR 51 DRAINAGE ASSESSMENT

INDIAN SCHOOL ROAD
TO BETHANY HOME ROAD

DRAFT INITIAL DRAINAGE REPORT

TECHNICAL APPENDIX

June 4, 1998



Submitted to:

ARIZONA DEPARTMENT OF TRANSPORTATION

Submitted by:

PB PARSONS BRINCKERHOFF

PREMIER ENGINEERING CORPORATION

APPENDIX
Table of Contents

SECTION 2.2: EXISTING CONDITIONS
OFF-SITE DRAINAGE

18th Street Trunk Line
- Node Diagrams for Main Line and Laterals
- Winstorm Models- North and South Trunk Line
  - (Includes Winstorm Output Interpretation Guide)
- Lateral Inlet Calculations

Siphons
- Maryland Avenue
- Rose Lane Capacity Calculations
- Bethany Home Road Capacity Calculations
- Colter Street Inlet Calculations
- Camelback Road Capacity Calculations

Colter Street Junction Structure
- Colter Street Detention Basin Stage/Storage Calculations
- Inflow Curves
- Lateral Conveyance Calculations
- Lateral and Pump Station Inflow Hydrographs
- Routing Calculations

SECTION 2.3: EXISTING CONDITIONS
ON-SITE DRAINAGE

On-Site Storm Drain
- Node Diagram (See Node Diagram In Appendix Section 2.2)

Winstorm Models- 10, 25 and 50-Year Storms
- Inlet Calculations- 10-Year and 50- Year Storms

SECTION 4.1: METHODS OF ANALYSIS
OFF-SITE DRAINAGE

Hydrology
- HEC-1 Models, 50-Year Storm
  - Existing Condition
  - Design Condition

SECTION 4.2: METHODS OF ANALYSIS
ON-SITE DRAINAGE

Rainfall
- D-D-F Worksheets
- I-D-F

Highland Avenue Pump Station
- On-Site HEC-1 Model
- Stage/Storage Calculations for Ponding in Roadway
- Pump Curve With Superimposed System Curves

SECTION 5.2: ON-SITE PROBLEMS IDENTIFIED

Highland Avenue Pump Station
- Pump Station Routing-

10–Year Existing Condition

SECTION 6.1: OFF-SITE SOLUTIONS/ALTERNATIVES

Alternatives 1A and 1B
18th Street 50-year Detention Basins
- Model Verification
- Basin Volume Calculations

Alternatives 2A and 2B
Walled Basin on Highland Avenue
- Frequency Determination
- Basin Volume Calculations

Alternative 4
- Junction Structure Restriction Plate
- Flow Calculations

SECTION 6.2: ON-SITE SOLUTIONS/ALTERNATIVES

Alternatives 5A and 5B
Pump Station Detention Basin
- Runoff Volume Calculations
- Detention Capacity Calculations

Alternative 6
On-Site Detention Vaults
- Storm Hydrograph

Pump Station Routing-
HOV Lanes and 25-Year Detention Vaults

Alternatives 8 and 9
Optimize Pump On/Off Settings &
Increase Size of Nuisance Pump
Pump Station Routing-
2–Year Existing Condition
- 10, 25 and 50-Year HOV Condition

Worst Case Cycling

Alternatives 10A and 10B
- Inlet Calculations
- Before and After Winstorm Models, 10-Year Storm

SECTION 7.1: HOV OVERVIEW

Proposed HOV Lane Configurations

SECTION 7.2: HOV IMPACT ON ON-SITE STORM DRAIN

On-Site Storm Drain
- Winstorm Models- 10, 25 and 50-Year Storms
- Inlet Calculations- 10-Year and 50- Year Storms

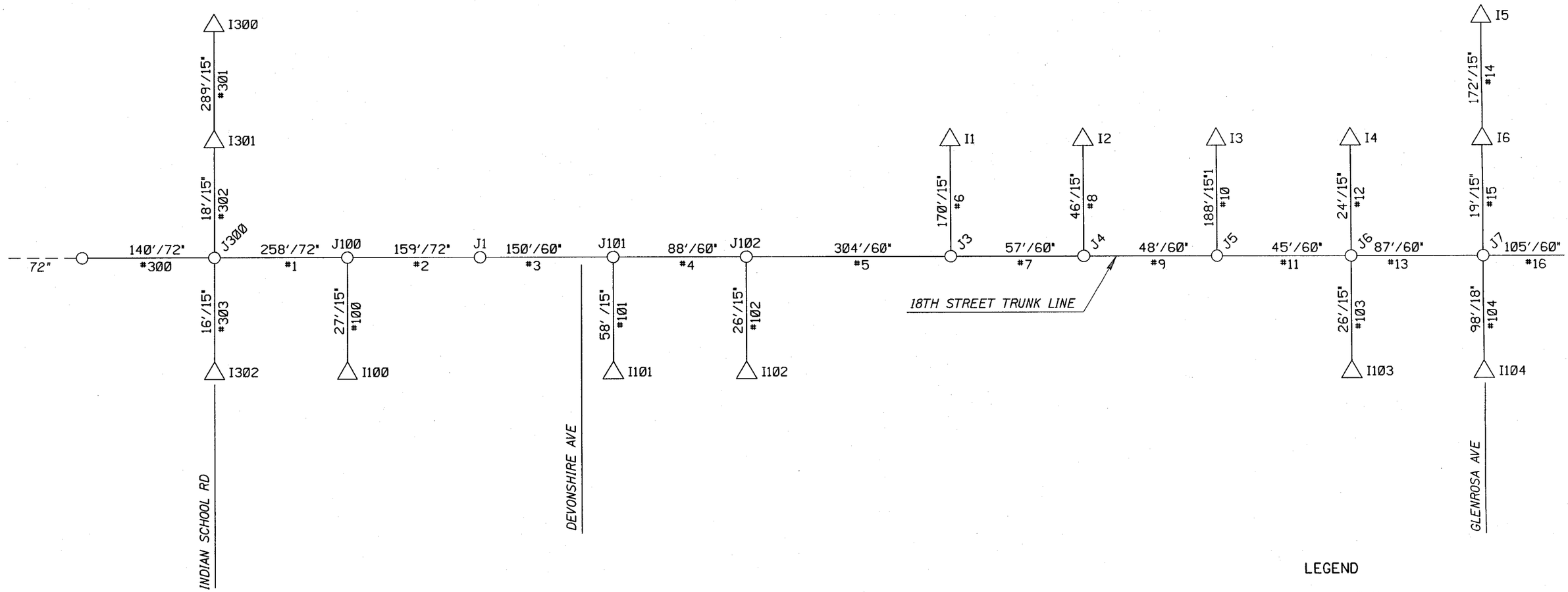
SECTION 2.2 EXISTING CONDITIONS OFF-SITE DRAINAGE

18th Street Trunk Line
- **Node Diagrams for Main Line and Laterals**
- **Winstorm Models- North and South Trunk Line**
  - **(Includes Winstorm Output Interpretation Guide)**
- **Lateral Inlet Calculations**

Siphons
- **Maryland Avenue**
- **Rose Lane Capacity Calculations**
- **Bethany Home Road Capacity Calculations**
- **Colter Street Inlet Calculations**
- **Camelback Road Capacity Calculations**

Colter Street Junction Structure
- **Colter Street Detention Basin Stage/Storage Calculations**
- **Inflow Curves**
- **Lateral Conveyance Calculations**
- **Lateral and Pump Station Inflow Hydrographs**
- **Routing Calculations**

18th Street Trunk Line



LEGEND

J300 ○ - *JUNCTION*

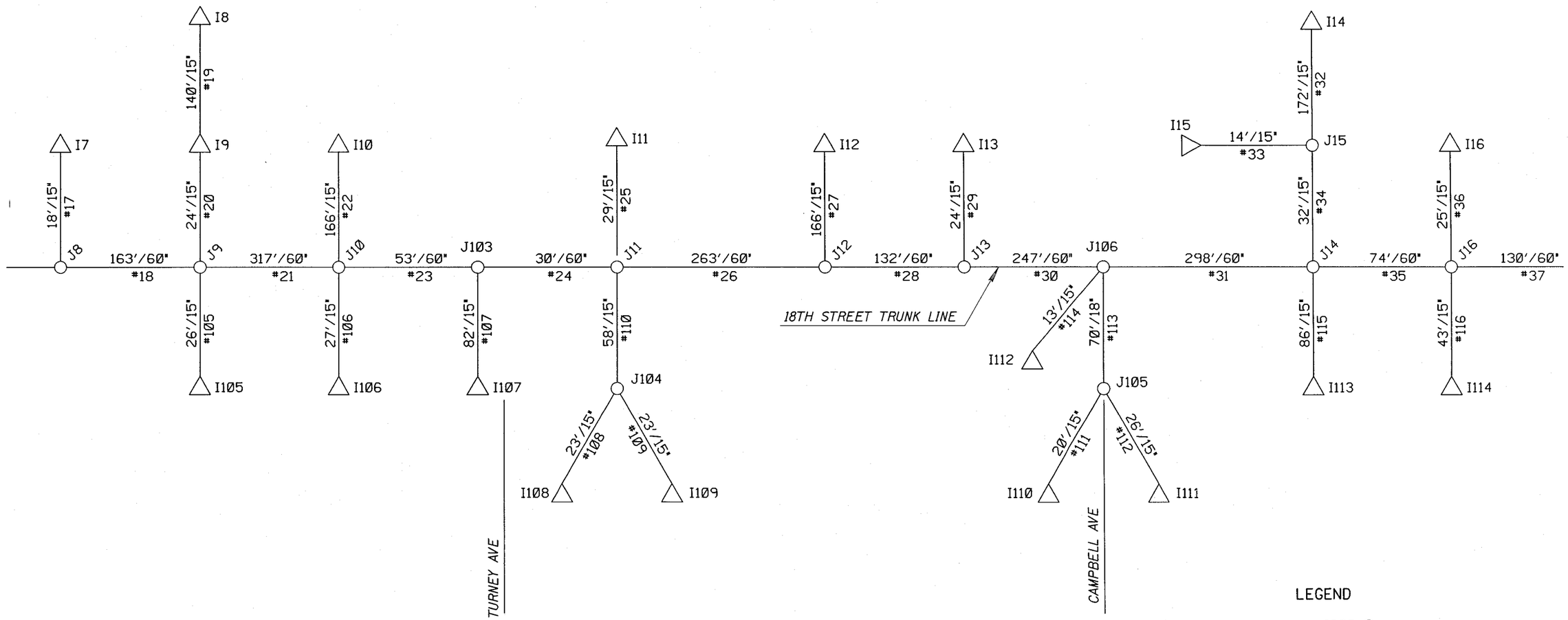
I300 △ - *INLET*

LENGTH / DIAMETER - *PIPE*
 # PIPE NO.

18TH STREET TRUNK LINE/
ON-SITE STORM DRAIN

PB PARSONS BRINCKERHOFF

SR51 - DRAINAGE ASSESSMENT
NODE DIAGRAM 1 OF 6



LEGEND

J300 ○ - *JUNCTION*

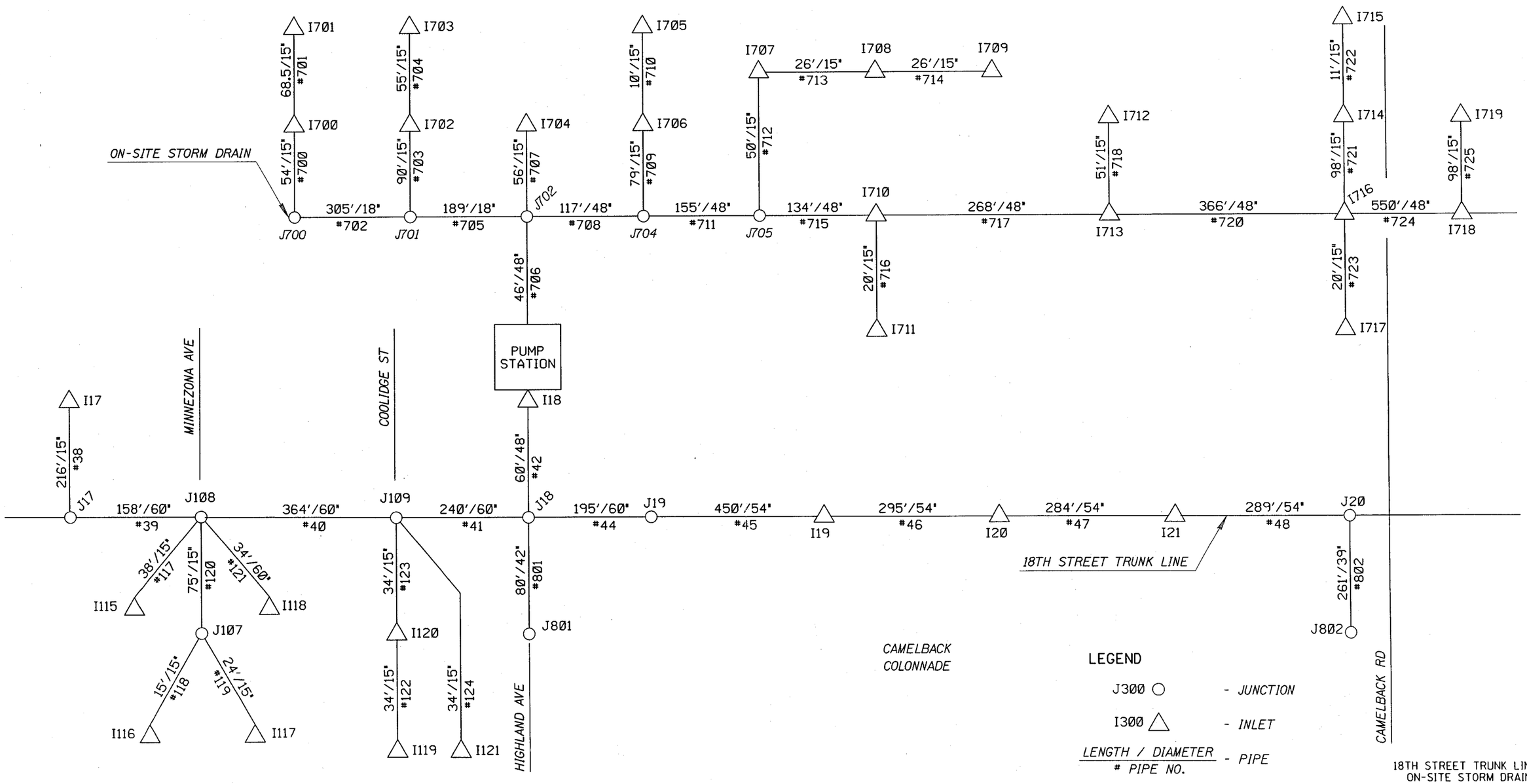
I300 △ - *INLET*

LENGTH / DIAMETER - *PIPE*
 # PIPE NO.

18TH STREET TRUNK LINE/
ON-SITE STORM DRAIN

PARSONS BRINCKERHOFF

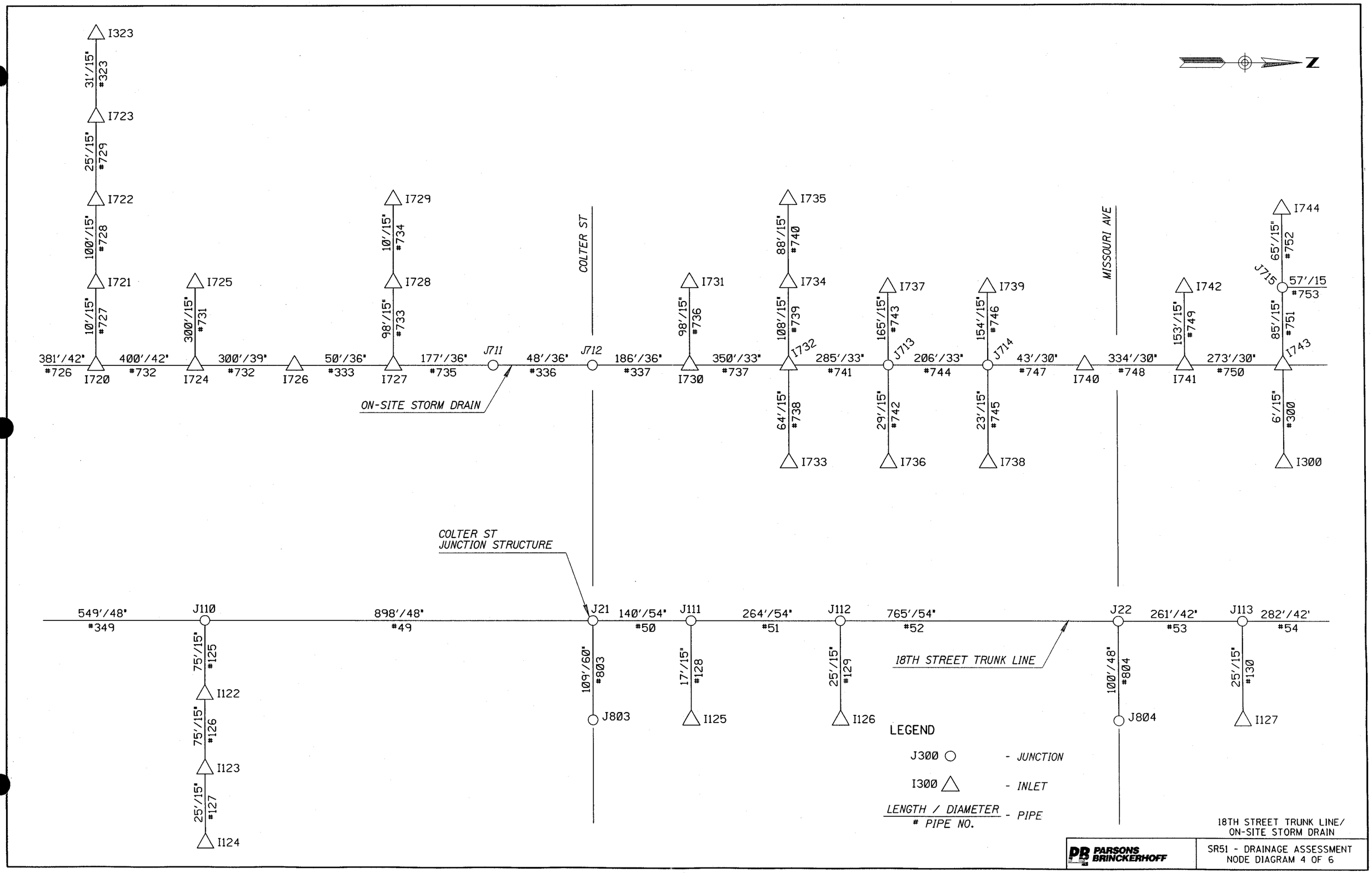
SR51 - DRAINAGE ASSESSMENT
NODE DIAGRAM 2 OF 6

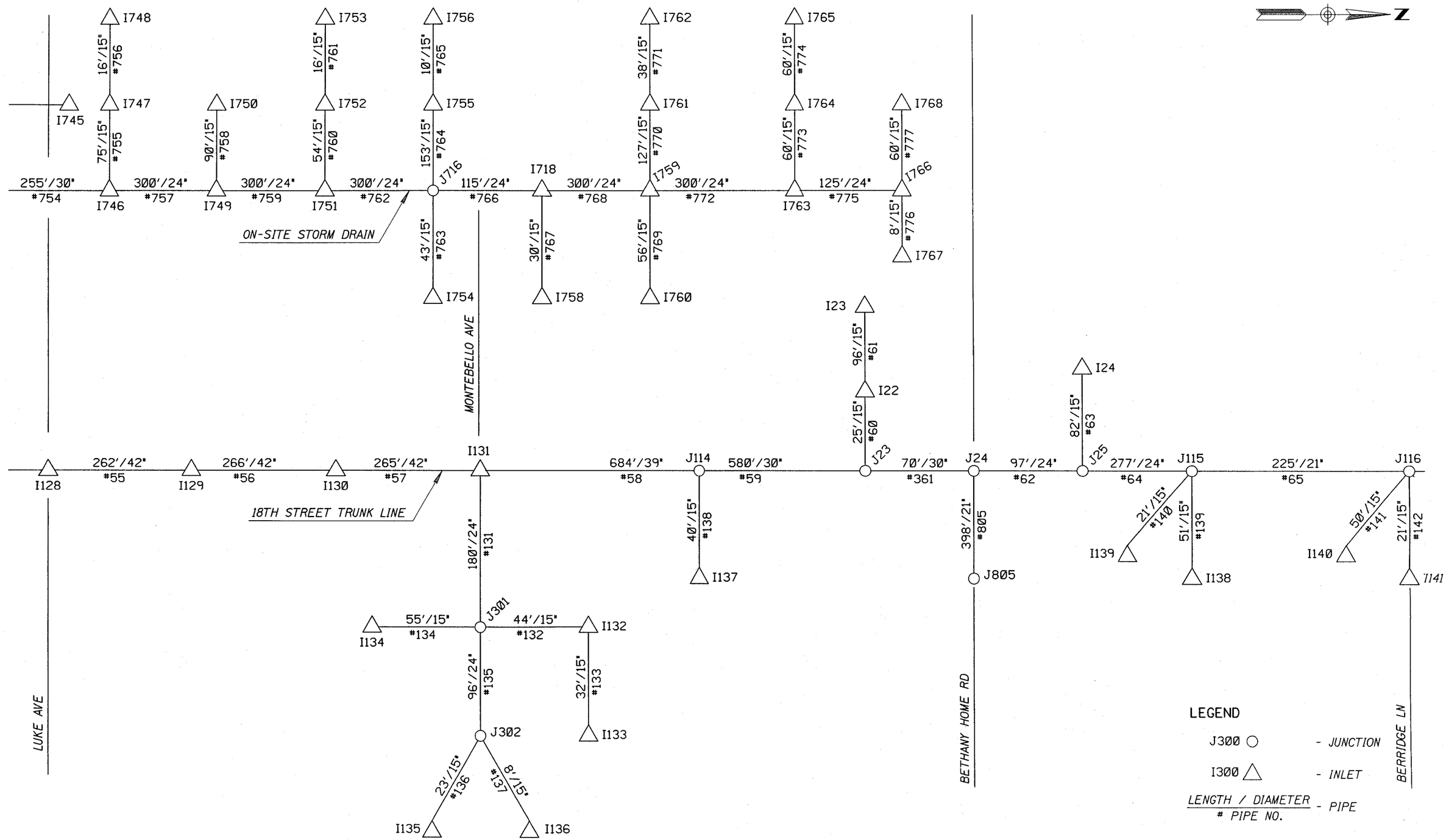


18TH STREET TRUNK LINE/
ON-SITE STORM DRAIN

PARSONS BRINCKERHOFF

SR51 - DRAINAGE ASSESSMENT
NODE DIAGRAM 3 OF 6

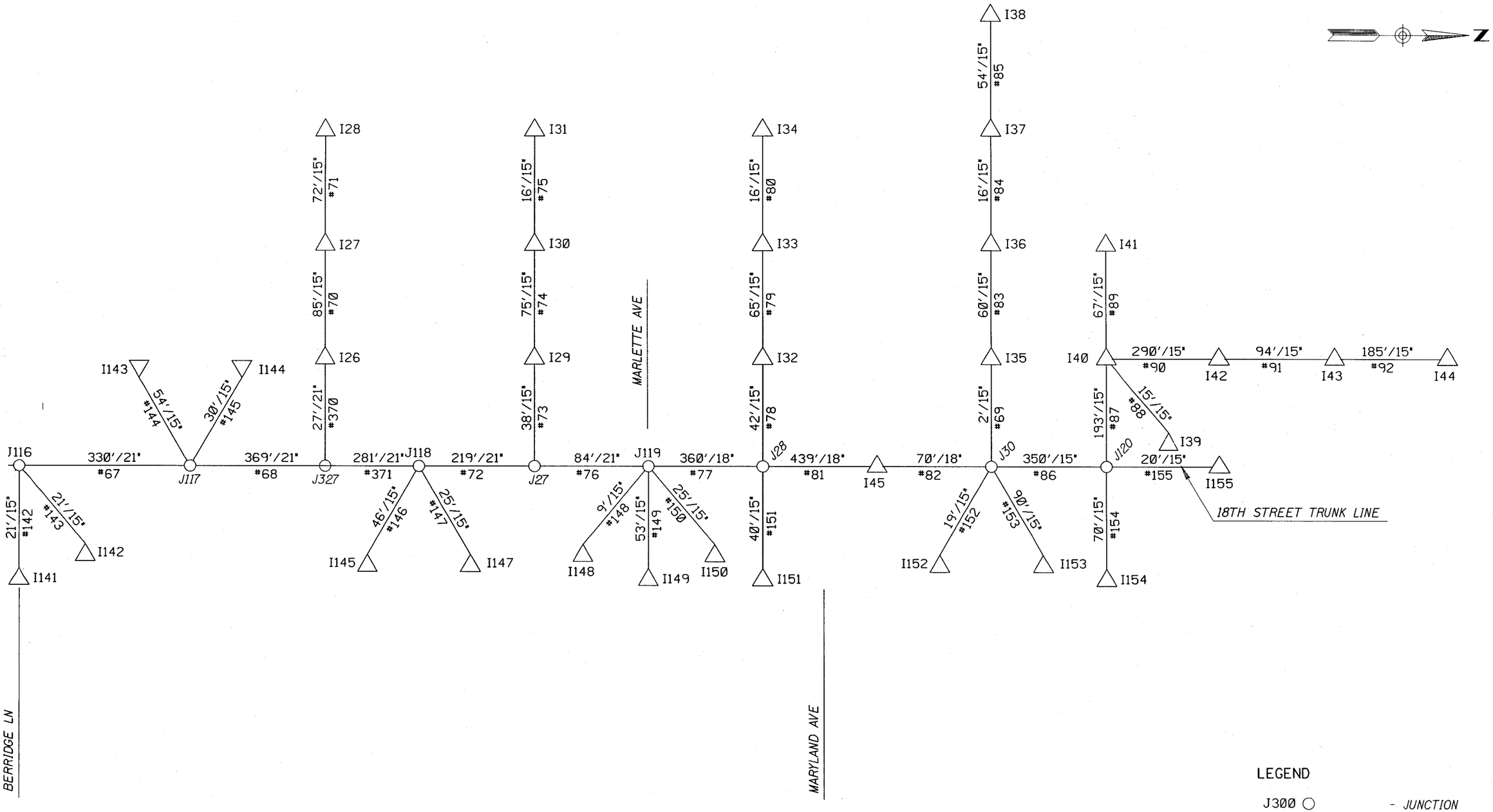

N
I323
31'/15" #323
I723
25'/15" #729
I722
100'/15" #728
I721
10'/15" #727
381'/42" #726
I720
400'/42" #732
I725
300'/39" #732
I724
I726
50'/36" #333
I729
10'/15" #734
I728
98'/15" #733
I727
177'/36" #735
J711
48'/36" #336
ON-SITE STORM DRAIN
J712
COLTER ST
186'/36" #337
I731
98'/15" #736
I730
350'/33" #737
I735
88'/15" #740
I734
108'/15" #739
I732
285'/33" #741
I737
165'/15" #743
J713
206'/33" #744
I739
154'/15" #746
J714
43'/30" #747
MISSOURI AVE
I740
334'/30" #748
I742
153'/15" #749
I741
273'/30" #750
I744
65'/15" #752
J715
57'/15" #753
85'/15" #751
I743
6'/15" #300
I300
64'/15" #738
I733
29'/15" #742
I736
23'/15" #745
I738
COLTER ST JUNCTION STRUCTURE
549'/48" #349
J110
75'/15" #125
I122
75'/15" #126
I123
25'/15" #127
I124
898'/48" #49
J21
109'/60" #803
J803
140'/54" #50
J111
17'/15" #128
I125
264'/54" #51
J112
25'/15" #129
I126
765'/54" #52
18TH STREET TRUNK LINE
J22
100'/48" #804
J804
261'/42" #53
J113
25'/15" #130
I127
282'/42' #54
LEGEND
J300 - JUNCTION
I300 - INLET
LENGTH / DIAMETER
PIPE NO.
- PIPE
18TH STREET TRUNK LINE/
ON-SITE STORM DRAIN
PARSONS BRINCKERHOFF
SR51 - DRAINAGE ASSESSMENT
NODE DIAGRAM 4 OF 6



18TH STREET TRUNK LINE/
ON-SITE STORM DRAIN

PARSONS BRINCKERHOFF

SR51 - DRAINAGE ASSESSMENT
NODE DIAGRAM 5 OF 6



LEGEND

J300 ○ - *JUNCTION*

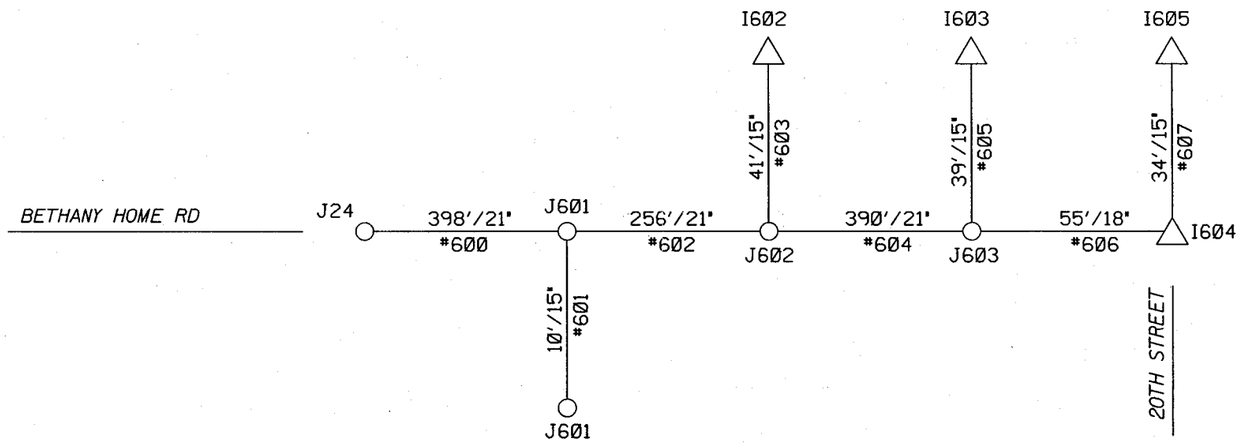
I300 △ - *INLET*

LENGTH / DIAMETER - *PIPE*
 # PIPE NO.

18TH STREET TRUNK LINE/
ON-SITE STORM DRAIN

PARSONS BRINCKERHOFF

SR51 - DRAINAGE ASSESSMENT
NODE DIAGRAM 6 OF 6



LEGEND

J300 ○ - *JUNCTION*

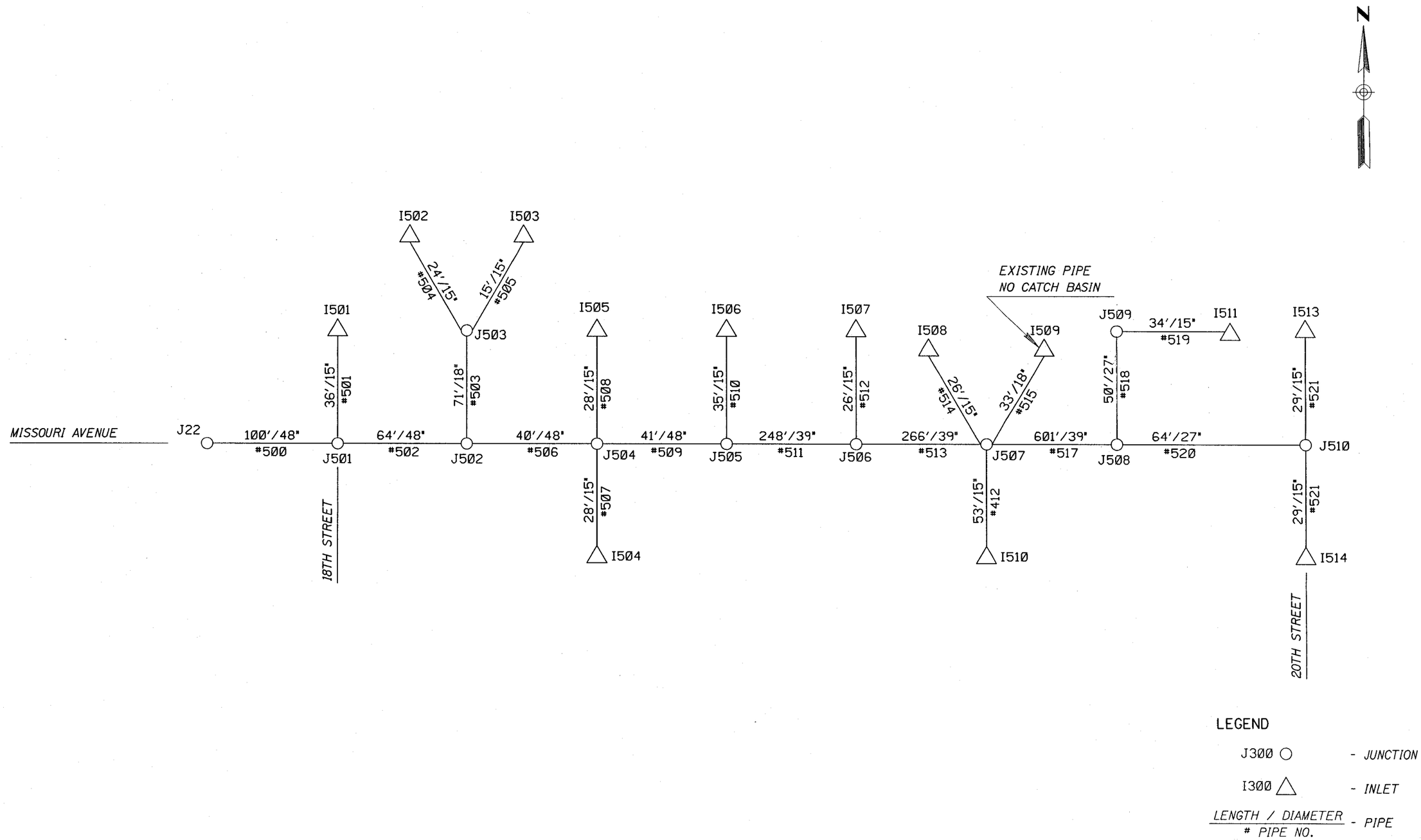
I300 △ - *INLET*

LENGTH / DIAMETER - *PIPE*
 # PIPE NO.

BETHANY HOME ROAD LATERAL

PARSONS BRINCKERHOFF

SR51 - DRAINAGE ASSESSMENT
NODE DIAGRAM



LEGEND

J300 ○ - *JUNCTION*

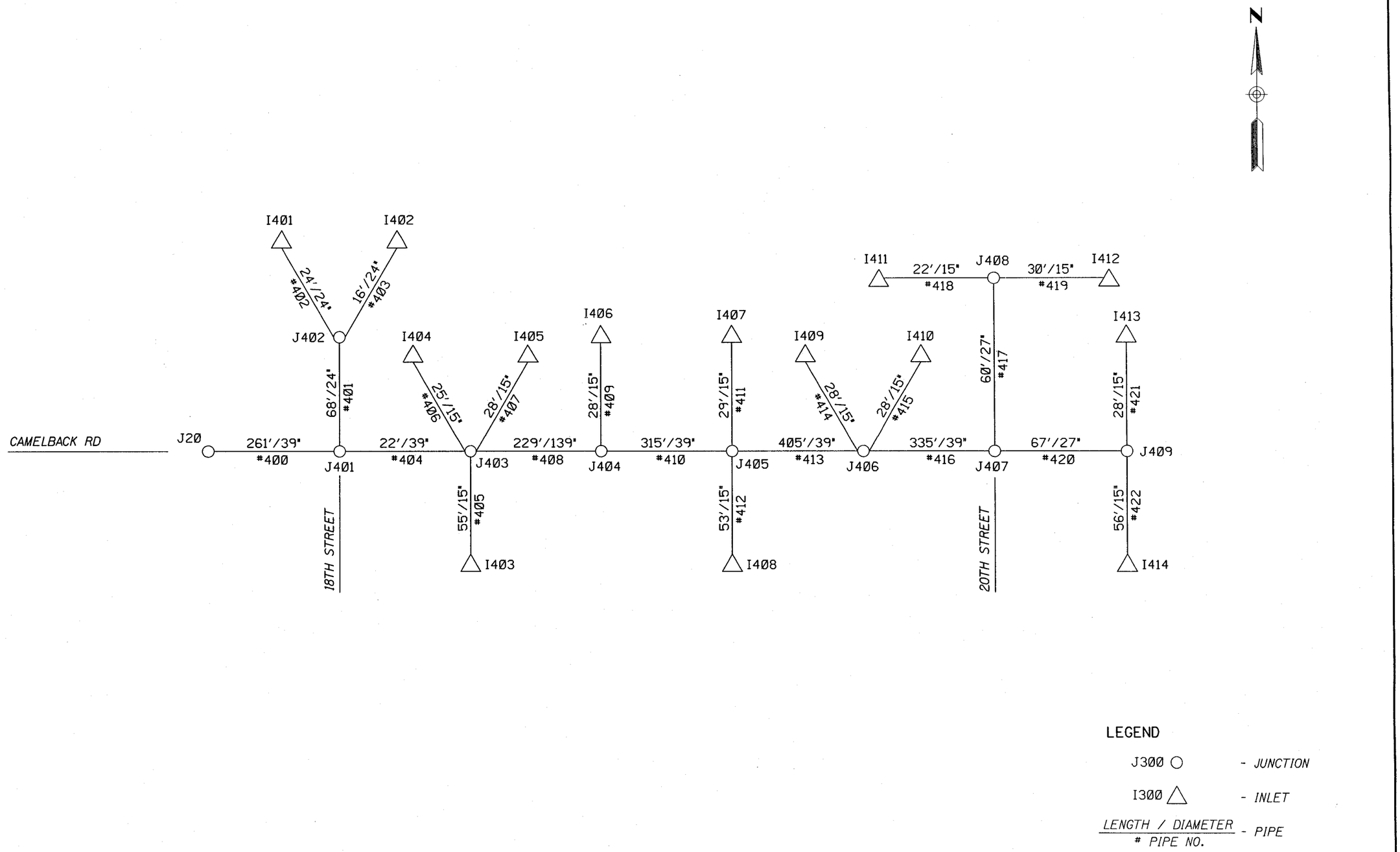
I300 △ - *INLET*

LENGTH / DIAMETER - *PIPE*
 # PIPE NO.

MISSOURI AVENUE LATERAL

PARSONS BRINCKERHOFF

SR51 - DRAINAGE ASSESSMENT
NODE DIAGRAM



LEGEND

J300 ○ - *JUNCTION*

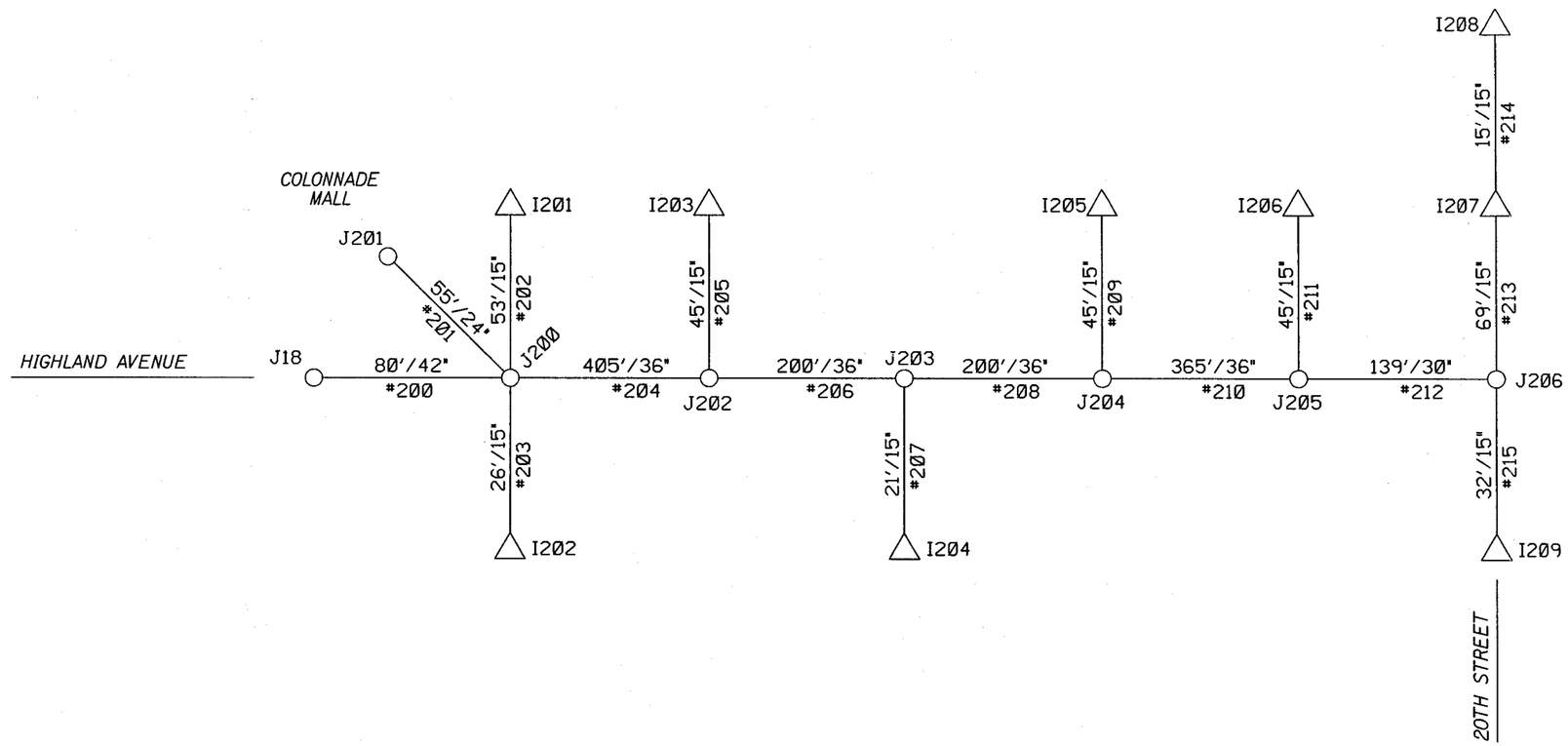
I300 △ - *INLET*

LENGTH / DIAMETER / *# PIPE NO.* - *PIPE*

CAMELBACK ROAD LATERAL

PARSONS BRINCKERHOFF

SR51 - DRAINAGE ASSESSMENT
NODE DIAGRAM



LEGEND

J300 ○ - *JUNCTION*

I300 △ - *INLET*

LENGTH / DIAMETER / *# PIPE NO.* - *PIPE*

HIGHLAND AVENUE LATERAL

PARSONS BRINCKERHOFF

SR51 - DRAINAGE ASSESSMENT NODE DIAGRAM

Winstorm Output Interpretation Guide

1. Headers have been added to the output to explain purpose of analysis, location and storm event.

2. Title block printed by program contains project description (Squaw Peak Parkway) and analysis frequency. Analysis frequency is only applicable if program is computing Rational Method peak flows. If peak flows are input as predetermined flows, the analysis frequency in the title block does not affect calculations.

3. First Section- Runoff Computations

   Lists runoff computations for each inlet or junction. Inlet identification is in first column. C values and areas are in the next 2 columns. C is typically set as 0.99 and the area is actually the subbasin CA. This was done to calibrate the model. Setting the C at 0.99 also allowed the inflow to be reduced at an inlet by a known percentage without altering the true CA. When ever C is set at less than 0.99, the inlet interception is being artificially reduced.

   Tc is computed by Winstorm and the corresponding rainfall intensity is used in the Rational Method calculation. The intensities used are from the site-specific IDF curves developed for the project.

   Supply Q is a set Q input by the operator. A Supply Q will override the Rational Calculation.

4. Second Section- Cumulative Junction Discharge Computations

   Sums the flow at each node based on the inflow at the node and the cumulative CA from upstream nodes. Third column is the sum of CA's upstream from the node. The program calculates a time of concentration and rainfall intensity at each node based on pipe flow time (and minimum Tc). This is shown in the 4th and 5th columns.

5. Third Section- Conveyance Configuration Data

   The physical connectivity information for the system. This information corresponds to the node diagrams.

6. Forth Section- Conveyance Hydraulic Computations

   Results of hydraulic calculations. Gives upstream (US) and downstream (DS) hydraulic grade line elevations, uniform flow depth and velocity, actual flow depth and velocity, Q in pipe and the capacity of the pipe. Capacity is calculated as pipe flowing full capacity in an open channel condition (Manning's Equation). The junction loss is based on a K value input by the operator. The K values are not echoed in the output. The K values are based on the momentum equation. Flows were estimated at each junction and a K value calculated at the junction.

7. Fifth Section- Computation Messages

   Shows error messages. Some common messages are:
   Message-
   Warning: Run- XXX- Upstream Hydraulic Gradeline = XXX – Exceeds Critical Elevation = XXX
   Meaning-
   Gradeline calculations indicate that the hydraulic gradeline has exceeded an elevation input by the operator. In these models, the elevation input is a point 6 inches below the gutter at the inlet. CAUTION- The model assumes the error is cumulative. It adds up junction and friction losses along the system and keeps raising the HGL as it moves upstream. It does not assume relief to the system from water flowing out of the inlets. As a result, the models are extremely sensitive. Depending on the model, a reduction in flow of 5 cfs can change a hydraulic gradeline elevation at the top of the system by 5 to 10 feet. Experience with the models shows that elevations exceeded by 1 to 2 feet are probably operating just over maximum capacity.

   Message-
   Pipe Flowing Full

   Meaning-
   Pipe is flowing full to top of soffit. Very typical for these models.

Message-
Insufficient Capacity

Meaning-
Pipe is operating in a surcharged condition. Flow in pipe exceeds the flowing full capacity of the pipe as determined by Manning's equation.

N. TRUNK LINE
Capacity Calculations
Berridge Still a Bottle Neck

10-YR Storm

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 1
Tue Nov 25 14:40:15 1997

JOB CONTROL : CONT
JOB SECTION : SEC
JOB NUMBER : JOB
PROJECT DESCRIPTION : SQUAW PEAK PARKWAY
ANALYSYS FREQUENCY : 50 Year
MEASUREMENT UNITS: Input ENGLISH Output ENGLISH

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 22	0.990	0.249	10.00	10.00	2.948	0.000	0.727
I 23	0.990	0.249	10.00	10.00	2.948	0.000	0.727
I 24	0.990	0.960	10.00	10.00	2.948	0.000	2.801
I 26	0.700	0.740	10.00	10.00	2.948	0.000	1.527
I 27	0.700	0.230	10.00	10.00	2.948	0.000	0.475
I 28	0.700	0.652	10.00	10.00	2.948	0.000	1.345
I 29	0.700	0.685	10.00	10.00	2.948	0.000	1.413
I 30	0.700	0.230	10.00	10.00	2.948	0.000	0.475
I 31	0.700	0.830	10.00	10.00	2.948	0.000	1.713
I 32	0.700	0.747	10.00	10.00	2.948	0.000	1.541
I 33	0.700	0.276	10.00	10.00	2.948	0.000	0.569
I 34	0.700	0.566	10.00	10.00	2.948	0.000	1.168
I 35	0.700	0.489	10.00	10.00	2.948	0.000	1.009
I 36	0.700	0.243	10.00	10.00	2.948	0.000	0.501
I 37	0.990	0.489	10.00	10.00	2.948	0.000	1.427
I 38	0.700	0.295	10.00	10.00	2.948	0.000	0.609
I 39	0.700	0.374	10.00	10.00	2.948	0.000	0.772
I 40	0.700	0.164	10.00	10.00	2.948	0.000	0.338
I 41	0.700	0.393	10.00	10.00	2.948	0.000	0.811
I 42	0.700	0.622	10.00	10.00	2.948	0.000	1.283
I 43	0.700	0.653	10.00	10.00	2.948	0.000	1.347
I 44	0.700	0.506	10.00	10.00	2.948	0.000	1.044
I 45	0.700	0.617	10.00	10.00	2.948	0.000	1.273
I 125	0.990	1.288	13.00	13.00	2.568	0.000	3.274
I 126	0.990	1.242	12.00	12.00	2.681	0.000	3.297
I 127	0.990	1.288	13.00	13.00	2.568	0.000	3.274
I 128	0.990	1.242	12.00	12.00	2.681	0.000	3.297
I 129	0.990	0.884	10.00	10.00	2.948	0.000	2.580
I 130	0.990	1.410	10.00	10.00	2.948	0.000	4.115
I 131	0.990	0.685	12.00	12.00	2.681	0.000	1.818
I 132	0.990	0.685	12.00	12.00	2.681	0.000	1.818
I 133	0.990	0.685	12.00	12.00	2.681	0.000	1.818
I 134	0.990	0.685	12.00	12.00	2.681	0.000	1.818
I 135	0.990	0.685	12.00	12.00	2.681	0.000	1.818
I 136	0.990	0.685	12.00	12.00	2.681	0.000	1.818
I 137	0.990	0.429	10.00	10.00	2.948	0.000	1.252
I 138	0.990	0.782	11.00	11.00	2.807	0.000	2.173
I 139	0.990	0.646	11.00	11.00	2.807	0.000	1.795
I 140	0.700	0.463	10.00	10.00	2.948	0.000	0.955
I 141	0.700	0.604	10.00	10.00	2.948	0.000	1.246
I 142	0.700	0.557	10.00	10.00	2.948	0.000	1.149
I 143	0.700	0.945	10.00	10.00	2.948	0.000	1.950
I 144	0.700	0.818	10.00	10.00	2.948	0.000	1.688
I 145	0.700	0.639	11.00	11.00	2.807	0.000	1.256
I 147	0.800	0.572	10.00	10.00	2.948	0.000	1.349
I 148	0.700	0.358	10.00	10.00	2.948	0.000	0.739
I 149	0.700	0.501	10.00	10.00	2.948	0.000	1.034
I 150	0.700	0.497	10.00	10.00	2.948	0.000	1.026
I 151	0.800	0.572	10.00	10.00	2.948	0.000	1.349
I 152	0.700	0.171	7.00	10.00	2.948	0.000	0.353
I 153	0.700	0.210	6.00	10.00	2.948	0.000	0.433

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 154	0.700	0.276	6.00	10.00	2.948	0.000	0.569
I 155	0.700	0.098	4.00	10.00	2.948	0.000	0.202
J 803	0.990	9.203	16.00	16.00	2.284	0.000	20.807
J 804	0.990	9.200	32.00	32.00	1.480	0.000	13.478
J 805	0.990	2.700	12.00	12.00	2.681	0.000	7.168

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
J21	0.901	52.964	34.25	1.414	0.000	67.507
I22	0.990	0.498	10.45	2.883	0.000	1.421
J22	0.876	41.231	32.39	1.468	0.000	53.018
I23	0.990	0.249	10.00	2.948	0.000	0.727
J23	0.783	22.668	18.64	2.086	0.000	37.022
I24	0.990	0.960	10.00	2.948	0.000	2.801
J24	0.778	22.170	18.51	2.095	0.000	36.140
J25	0.749	19.470	18.35	2.106	0.000	30.701
I26	0.700	1.622	10.69	2.849	0.000	3.234
I27	0.700	0.882	10.34	2.899	0.000	1.790
J27	0.718	10.862	15.62	2.315	0.000	18.066
I28	0.700	0.652	10.00	2.948	0.000	1.345
J28	0.726	7.761	14.80	2.388	0.000	13.449
I29	0.700	1.745	10.29	2.906	0.000	3.549
I30	0.700	1.060	10.03	2.943	0.000	2.184
J30	0.728	4.983	13.77	2.487	0.000	9.028
I31	0.700	0.830	10.00	2.948	0.000	1.713
I32	0.700	1.589	10.21	2.918	0.000	3.245
I33	0.700	0.842	10.03	2.944	0.000	1.735
I34	0.700	0.566	10.00	2.948	0.000	1.168
I35	0.794	1.516	10.40	2.889	0.000	3.476
I36	0.838	1.027	10.25	2.911	0.000	2.506
I37	0.881	0.784	10.21	2.917	0.000	2.015
I38	0.700	0.295	10.00	2.948	0.000	0.609
I39	0.700	0.374	10.00	2.948	0.000	0.772
I40	0.700	2.712	12.59	2.613	0.000	4.961
I41	0.700	0.393	10.00	2.948	0.000	0.811
I42	0.700	1.781	11.42	2.752	0.000	3.432
I43	0.700	1.159	11.01	2.806	0.000	2.276
I44	0.700	0.506	10.00	2.948	0.000	1.044
I45	0.725	5.600	13.86	2.478	0.000	10.067
J111	0.883	43.761	34.00	1.421	0.000	54.888
J112	0.879	42.473	33.59	1.433	0.000	53.513
J113	0.843	32.031	22.61	1.853	0.000	50.047
J114	0.787	23.097	18.64	2.086	0.000	37.908
J115	0.736	18.510	17.87	2.140	0.000	29.163
J116	0.715	17.082	17.54	2.164	0.000	26.431
J117	0.717	15.458	17.01	2.204	0.000	24.408
J118	0.721	12.073	15.95	2.288	0.000	19.921
J119	0.722	9.117	15.48	2.328	0.000	15.320
J120	0.700	3.086	13.14	2.552	0.000	5.513
I125	0.990	1.288	13.00	2.568	0.000	3.274
I126	0.990	1.242	12.00	2.681	0.000	3.297
I127	0.990	1.288	13.00	2.568	0.000	3.274
I128	0.837	30.743	22.06	1.882	0.000	48.428
I129	0.831	29.501	21.77	1.897	0.000	46.499
I130	0.826	28.617	21.34	1.921	0.000	45.402
I131	0.817	27.207	20.91	1.945	0.000	43.261
I132	0.990	1.370	12.05	2.675	0.000	3.628
I133	0.990	0.685	12.00	2.681	0.000	1.818
I134	0.990	0.685	12.00	2.681	0.000	1.818

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I135	0.990	0.685	12.00	2.681	0.000	1.818
I136	0.990	0.685	12.00	2.681	0.000	1.818
I137	0.990	0.429	10.00	2.948	0.000	1.252
I138	0.990	0.782	11.00	2.807	0.000	2.173
I139	0.990	0.646	11.00	2.807	0.000	1.795
I140	0.700	0.463	10.00	2.948	0.000	0.955
I141	0.700	0.604	10.00	2.948	0.000	1.246
I142	0.700	0.557	10.00	2.948	0.000	1.149
I143	0.700	0.945	10.00	2.948	0.000	1.950
I144	0.700	0.818	10.00	2.948	0.000	1.688
I145	0.700	0.639	11.00	2.807	0.000	1.256
I147	0.800	0.572	10.00	2.948	0.000	1.349
I148	0.700	0.358	10.00	2.948	0.000	0.739
I149	0.700	0.501	10.00	2.948	0.000	1.034
I150	0.700	0.497	10.00	2.948	0.000	1.026
I151	0.800	0.572	10.00	2.948	0.000	1.349
I152	0.700	0.171	10.00	2.948	0.000	0.353
I153	0.700	0.210	10.00	2.948	0.000	0.433
I154	0.700	0.276	10.00	2.948	0.000	0.569
I155	0.700	0.098	10.00	2.948	0.000	0.202
J301	0.990	3.425	12.40	2.635	0.000	8.934
J302	0.990	1.370	12.02	2.679	0.000	3.633
J327	0.719	13.695	16.36	2.254	0.000	22.190
J803	0.990	9.203	16.00	2.284	0.000	20.807
J804	0.990	9.200	32.00	1.480	0.000	13.478
J805	0.990	2.700	12.00	2.681	0.000	7.168

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
1	J21	O1	1136.380	1136.280	Circ	1	n/a	5.000	2.00	5.006	0.012
50	J111	J21	1137.760	1136.880	Circ	1	n/a	4.500	140.00	0.629	0.012
51	J112	J111	1140.460	1138.150	Circ	1	n/a	4.500	264.00	0.875	0.012
52	J22	J112	1147.290	1140.460	Circ	1	n/a	4.500	765.00	0.893	0.012
53	J113	J22	1150.870	1148.820	Circ	1	n/a	3.500	261.00	0.785	0.012
54	I128	J113	1153.320	1151.870	Circ	1	n/a	3.500	282.00	0.514	0.012
55	I129	I128	1156.600	1150.320	Circ	1	n/a	3.500	262.00	2.398	0.012
56	I130	I129	1157.900	1155.600	Circ	1	n/a	3.500	266.00	0.865	0.012
57	I131	I130	1160.270	1157.900	Circ	1	n/a	3.500	265.00	0.894	0.012
58	J114	I131	1166.410	1161.020	Circ	1	n/a	2.750	684.00	0.788	0.012
59	J23	J114	1171.280	1166.660	Circ	1	n/a	2.500	580.00	0.797	0.012
60	I22	J23	1180.000	1171.910	Circ	1	n/a	1.250	25.00	34.200	0.012
61	I23	I22	1181.390	1180.500	Circ	1	n/a	1.250	96.00	0.927	0.012
62	J25	J24	1173.230	1172.350	Circ	1	n/a	2.000	97.00	0.907	0.012
63	I24	J25	1182.290	1173.730	Circ	1	n/a	1.250	82.00	10.496	0.012
64	J115	J25	1175.920	1173.230	Circ	1	n/a	2.000	277.00	0.971	0.012
58	J116	J115	1179.730	1176.170	Circ	1	n/a	1.750	225.00	1.582	0.012
67	J117	J116	1183.300	1179.730	Circ	1	n/a	1.750	330.00	1.082	0.012
68	J327	J117	1186.650	1182.800	Circ	1	n/a	1.750	369.00	1.043	0.012
69	I35	J30	1123.320	1123.280	Circ	1	n/a	1.250	2.00	2.000	0.012
70	I27	I26	1193.370	1192.860	Circ	1	n/a	1.250	85.00	0.600	0.012
71	I28	I27	1193.770	1193.370	Circ	1	n/a	1.250	72.00	0.556	0.012
72	J27	J118	1198.070	1193.570	Circ	1	n/a	1.750	219.00	2.055	0.012
73	I29	J27	1202.110	1198.410	Circ	1	n/a	1.250	38.00	9.783	0.012
74	I30	I29	1202.880	1202.210	Circ	1	n/a	1.250	75.00	0.893	0.012
75	I31	I30	1204.050	1202.980	Circ	1	n/a	1.250	16.00	6.703	0.012
65	J119	J27	1199.360	1198.070	Circ	1	n/a	1.750	84.00	1.536	0.012
77	J28	J119	1204.920	1199.610	Circ	1	n/a	1.500	360.00	1.475	0.012
78	I32	J28	1208.320	1205.020	Circ	1	n/a	1.250	42.00	7.882	0.012
79	I33	I32	1209.710	1208.420	Circ	1	n/a	1.250	65.00	1.985	0.012
80	I34	I33	1211.720	1209.810	Circ	1	n/a	1.250	16.00	12.023	0.012
81	I45	J28	1209.990	1204.920	Circ	1	n/a	1.500	439.00	1.155	0.012
68	J30	I45	1213.680	1210.030	Circ	1	n/a	1.500	70.00	5.221	0.012
83	I36	I35	1224.520	1223.420	Circ	1	n/a	1.250	60.00	1.834	0.012
84	I37	I36	1224.910	1224.620	Circ	1	n/a	1.250	16.00	1.813	0.012
85	I38	I37	1226.000	1225.010	Circ	1	n/a	1.250	54.00	1.834	0.012
86	J120	J30	1223.410	1213.930	Circ	1	n/a	1.250	350.00	2.710	0.012
87	I40	J120	1225.050	1223.410	Circ	1	n/a	1.250	193.00	0.850	0.012
88	I39	I40	1241.510	1239.470	Circ	1	n/a	1.250	15.00	13.728	0.012
89	I41	I40	1239.730	1239.470	Circ	1	n/a	1.250	67.00	0.388	0.012
90	I42	I40	1226.430	1225.150	Circ	1	n/a	1.250	290.00	0.441	0.012
91	I43	I42	1226.950	1226.530	Circ	1	n/a	1.250	94.00	0.447	0.012
92	I44	I43	1227.860	1227.050	Circ	1	n/a	1.250	185.00	0.438	0.012
128	I125	J111	1153.660	1139.780	Circ	1	n/a	1.250	17.00	141.408	
0.012											
129	I126	J112	1154.090	1142.090	Circ	1	n/a	1.250	25.00	54.715	0.012
130	I127	J113	1162.680	1152.000	Circ	1	n/a	1.250	25.00	47.248	0.012
131	J301	I131	1164.150	1161.770	Circ	1	n/a	2.000	180.00	1.322	0.012
132	I132	J301	1169.850	1164.530	Circ	1	n/a	1.250	44.00	12.180	0.012
133	I133	I132	1172.930	1170.350	Circ	1	n/a	1.250	32.00	8.089	0.012
134	I134	J301	1171.590	1165.060	Circ	1	n/a	1.250	55.00	11.957	0.012
135	J302	J301	1164.610	1164.150	Circ	1	n/a	2.000	96.00	0.479	0.012

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
136	I135	J302	1172.060	1165.740	Circ	1	n/a	1.250	23.00	28.578	0.012
137	I136	J302	1168.440	1165.740	Circ	1	n/a	1.250	8.00	35.854	0.012
138	I137	J114	1174.500	1167.910	Circ	1	n/a	1.250	40.00	16.703	0.012
139	I138	J115	1186.510	1176.800	Circ	1	n/a	1.250	51.00	19.394	0.012
140	I139	J115	1185.490	1176.590	Circ	1	n/a	1.250	21.00	46.791	0.012
141	I140	J116	1190.680	1179.980	Circ	1	n/a	1.250	50.00	21.908	0.012
142	I141	J116	1188.000	1180.830	Circ	1	n/a	1.250	21.00	36.326	0.012
143	I142	J116	1189.830	1181.550	Circ	1	n/a	1.250	11.00	114.338	0.012
144	I143	J117	1194.160	1183.550	Circ	1	n/a	1.250	54.00	20.039	0.012
145	I144	J117	1190.700	1184.350	Circ	1	n/a	1.250	30.00	21.657	0.012
146	I145	J118	1201.870	1194.320	Circ	1	n/a	1.250	46.00	16.639	0.012
147	I147	J118	1198.890	1196.130	Circ	1	n/a	1.250	25.00	11.108	0.012
148	I148	J119	1204.850	1199.410	Circ	1	n/a	1.250	9.00	75.874	0.012
149	I149	J119	1206.840	1200.060	Circ	1	n/a	1.250	53.00	12.898	0.012
150	I150	J119	1204.160	1201.170	Circ	1	n/a	1.250	25.00	12.046	0.012
151	I151	J28	1210.810	1205.170	Circ	1	n/a	1.250	40.00	14.242	0.012
152	I152	J30	1220.600	1220.400	Circ	1	n/a	1.250	19.00	1.053	0.012
153	I153	J30	1222.000	1216.490	Circ	1	n/a	1.250	90.00	6.134	0.012
154	I154	J120	1229.000	1223.410	Circ	1	n/a	1.250	70.00	8.011	0.012
155	I155	J120	1235.000	1223.840	Circ	1	n/a	1.250	20.00	67.242	0.012
361	J24	J23	1171.850	1171.280	Circ	1	n/a	2.500	70.00	0.814	0.012
370	I26	J327	1192.780	1187.150	Circ	1	n/a	1.250	27.00	21.321	0.012
371	J118	J327	1193.570	1186.650	Circ	1	n/a	1.750	281.00	2.463	0.013
803	J803	J21	1142.840	1136.850	Circ	1	n/a	5.000	109.00	5.504	0.012
804	J804	J22	1147.740	1147.540	Circ	1	n/a	4.000	100.00	0.200	0.012
805	J805	J24	1180.010	1172.600	Circ	1	n/a	1.750	398.00	1.862	0.012

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	1152.093	1152.000	0.06	1.104	5.000	20.97	3.44	67.507	631.293	0.092
50	1152.204	1152.093	0.07	1.765	4.500	9.49	3.45	54.888	168.902	0.019
51	1152.389	1152.204	0.06	1.591	4.500	10.64	3.36	53.513	199.281	0.018
52	1152.983	1152.389	0.06	1.575	4.500	10.69	3.33	53.018	201.299	0.121
53	1153.618	1152.983	0.21	1.783	3.500	10.16	5.20	50.047	96.597	0.084
54	1155.434	1153.618	0.20	2.001	2.001	8.52	8.52	48.428	78.156	0.113
55	1157.893	1155.434	0.18	1.257	3.500	14.96	4.83	46.499	168.769	0.036
56	1159.614	1157.893	0.17	1.642	2.293	10.24	6.80	45.402	101.352	0.072
57	1162.246	1159.614	0.16	1.578	1.714	10.28	9.24	43.261	103.077	0.398
58	1169.000	1162.246	0.44	1.774	1.774	9.36	9.36	37.908	50.861	0.817
59	1173.652	1169.000	0.69	1.906	2.340	9.22	7.75	37.022	39.659	0.467
60	1180.176	1173.652	0.04	0.160	1.250	15.62	1.16	1.421	40.926	0.017
61	1181.767	1180.176	0.01	0.277	0.277	3.59	3.59	0.727	6.738	0.100
62	1177.081	1174.816	1.57	2.000	2.000	10.04	9.77	30.701	23.343	0.742
63	1182.628	1177.081	0.16	0.297	1.250	12.57	2.28	2.801	22.673	0.040
64	1182.074	1177.081	1.42	2.000	2.000	9.53	9.28	29.163	24.152	1.071
58	1188.911	1182.074	2.37	1.750	1.750	11.28	10.99	26.431	21.593	1.501
67	1196.544	1188.911	2.02	1.750	1.750	10.42	10.15	24.408	17.854	0.960
68	1203.107	1196.544	1.67	1.750	1.750	9.47	9.23	22.190	17.534	0.397
69	1223.394	1223.289	0.25	0.511	1.250	7.37	2.83	3.476	9.898	0.100
70	1203.259	1203.186	0.07	0.495	1.250	3.96	1.46	1.790	5.421	0.017
71	1203.295	1203.259	0.04	0.433	1.250	3.57	1.10	1.345	5.216	0.009
72	1211.385	1208.082	1.11	1.116	1.750	11.16	7.51	18.066	24.609	0.877
73	1211.586	1211.385	0.26	0.341	1.250	13.13	2.89	3.549	21.889	0.104
74	1211.699	1211.586	0.10	0.495	1.250	4.83	1.78	2.184	6.614	0.039
75	1211.724	1211.699	0.06	0.259	1.250	9.27	1.40	1.713	18.118	0.015
65	1212.999	1211.385	0.80	1.100	1.750	9.62	6.37	15.320	21.273	0.946
77	1218.928	1212.999	1.40	1.198	1.500	8.89	7.61	13.449	13.821	0.900
78	1219.105	1218.928	0.22	0.344	1.250	11.84	2.64	3.245	19.647	0.087
79	1219.170	1219.105	0.06	0.355	1.250	6.05	1.41	1.735	9.860	0.025
80	1219.182	1219.170	0.03	0.186	1.250	10.18	0.95	1.168	24.266	0.007
81	1222.767	1218.928	0.78	1.033	1.500	7.75	5.70	10.067	12.230	0.403
68	1223.289	1222.767	0.63	0.610	1.500	13.37	5.11	9.028	26.003	0.081
83	1225.488	1223.394	0.13	0.439	0.439	6.52	6.52	2.506	9.476	0.529
84	1225.562	1225.488	0.08	0.393	0.868	6.10	2.22	2.015	9.422	0.061
85	1226.225	1225.562	0.01	0.215	0.552	4.35	1.17	0.609	9.476	0.011
86	1225.776	1223.289	0.62	0.609	1.250	9.28	4.49	5.513	11.519	0.314
87	1227.000	1225.776	0.50	0.825	1.250	5.78	4.04	4.961	6.451	0.254
88	1242.346	1227.000	0.01	0.148	0.148	9.46	9.41	0.772	25.928	0.687
89	1240.153	1227.000	0.01	0.366	0.366	2.70	2.70	0.811	4.359	0.057
90	1227.792	1227.000	0.24	0.797	1.250	4.15	2.80	3.432	4.649	0.097
91	1227.895	1227.792	0.11	0.614	1.250	3.80	1.86	2.276	4.678	0.043
92	1228.274	1227.895	0.02	0.403	0.845	3.05	1.18	1.044	4.631	0.011
128	1153.884	1152.204	0.22	0.169	1.250	33.17	2.67	3.274	83.218	0.055
129	1154.360	1152.389	0.22	0.214	1.250	23.57	2.69	3.297	51.765	0.056
130	1162.956	1153.618	0.22	0.220	1.250	22.36	2.67	3.274	48.103	0.055
131	1165.811	1162.246	0.13	0.773	0.773	7.97	7.97	8.934	28.182	0.888
132	1170.284	1165.811	0.27	0.326	1.250	14.23	2.96	3.628	24.424	0.109
133	1173.982	1170.284	0.07	0.255	0.255	10.09	10.13	1.818	19.903	0.797
134	1171.865	1165.811	0.07	0.232	0.751	11.55	2.36	1.818	24.199	0.043
135	1165.853	1165.811	0.02	0.630	1.661	4.28	1.30	3.633	16.965	0.021

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
136	1174.183	1165.853	0.07	0.187	0.187	15.85	15.78	1.818	37.411	1.936
137	1170.899	1165.853	0.07	0.177	0.177	17.06	17.14	1.818	41.903	2.282
138	1174.715	1169.000	0.03	0.178	1.090	11.74	1.10	1.252	28.601	0.009
139	1186.759	1182.074	0.10	0.225	1.250	14.41	1.77	2.173	30.819	0.024
140	1185.707	1182.074	0.07	0.165	1.250	18.56	1.46	1.795	47.870	0.017
141	1190.893	1188.911	0.02	0.147	1.250	11.71	0.78	0.955	32.755	0.005
142	1188.925	1188.911	0.03	0.147	1.250	15.28	1.02	1.246	42.178	0.008
143	1190.044	1188.911	0.03	0.108	1.250	22.07	0.94	1.149	74.830	0.007
144	1196.605	1196.544	0.08	0.211	1.250	14.16	1.59	1.950	31.327	0.020
145	1196.576	1196.544	0.06	0.193	1.250	13.97	1.38	1.688	32.567	0.015
146	1208.105	1208.082	0.03	0.179	1.250	11.67	1.02	1.256	28.546	0.008
147	1208.101	1208.082	0.04	0.204	1.250	10.27	1.10	1.349	23.324	0.009
148	1213.003	1212.999	0.01	0.097	1.250	16.71	0.60	0.739	60.957	0.003
149	1213.016	1212.999	0.02	0.173	1.250	10.07	0.84	1.034	25.133	0.006
150	1213.010	1212.999	0.02	0.175	1.250	9.80	0.84	1.026	24.289	0.005
151	1218.952	1218.928	0.04	0.192	1.250	11.35	1.10	1.349	26.410	0.009
152	1223.290	1223.289	0.00	0.188	1.250	3.02	0.29	0.353	7.180	0.001
153	1223.294	1223.289	0.00	0.136	1.250	5.98	0.35	0.433	17.332	0.001
154	1229.212	1225.776	0.01	0.146	1.250	7.14	0.46	0.569	19.808	0.002
155	1235.210	1225.776	0.00	0.054	1.250	11.01	0.16	0.202	57.385	0.000
361	1174.816	1173.652	0.66	1.851	2.372	9.28	7.51	36.140	40.098	0.701
370	1203.186	1203.107	0.21	0.267	1.250	16.87	2.64	3.234	32.313	0.022
371	1208.082	1203.107	1.58	1.186	1.750	11.48	8.28	19.921	24.869	0.533
803	1152.101	1152.093	0.01	0.608	5.000	15.29	1.06	20.807	661.916	0.002
804	1152.990	1152.983	0.01	1.202	4.000	4.24	1.07	13.478	69.593	0.002
805	1180.688	1174.816	0.17	0.664	1.750	8.57	2.98	7.168	23.424	0.014

Computation Messages

---

*Warning: Discharge decreased downstream Junction J114 - previous intensity used
*Warning: Run - 81 - Upstream Hydraulic Gradeline = 1222.77 - Exceeds Critical Elevation = 1211.00
*Warning: Run - 146 - Upstream Hydraulic Gradeline = 1208.10 - Exceeds Critical Elevation = 1204.87
*Warning: Run - 150 - Upstream Hydraulic Gradeline = 1213.01 - Exceeds Critical Elevation = 1211.00
*Computation: Run = 1 - Pipe Flowing Full
*Computation: Run = 50 - Pipe Flowing Full
*Computation: Run = 51 - Pipe Flowing Full
*Computation: Run = 52 - Pipe Flowing Full
*Computation: Run = 53 - Pipe Flowing Full
*Computation: Run = 55 - Pipe Flowing Full
*Computation: Run = 60 - Pipe Flowing Full
*Computation: Run = 62 - Insufficient Capacity
*Computation: Run = 63 - Pipe Flowing Full
*Computation: Run = 64 - Insufficient Capacity
*Computation: Run = 58 - Insufficient Capacity
*Computation: Run = 67 - Insufficient Capacity
*Computation: Run = 68 - Insufficient Capacity
*Computation: Run = 69 - Pipe Flowing Full
*Computation: Run = 70 - Pipe Flowing Full
*Computation: Run = 71 - Pipe Flowing Full
*Computation: Run = 72 - Pipe Flowing Full
*Computation: Run = 73 - Pipe Flowing Full
*Computation: Run = 74 - Pipe Flowing Full
*Computation: Run = 75 - Pipe Flowing Full
*Computation: Run = 65 - Pipe Flowing Full
*Computation: Run = 77 - Pipe Flowing Full
*Computation: Run = 78 - Pipe Flowing Full
*Computation: Run = 79 - Pipe Flowing Full
*Computation: Run = 80 - Pipe Flowing Full
*Computation: Run = 81 - Pipe Flowing Full
*Computation: Run = 68 - Pipe Flowing Full
*Computation: Run = 86 - Pipe Flowing Full
*Computation: Run = 87 - Pipe Flowing Full
*Computation: Run = 90 - Pipe Flowing Full
*Computation: Run = 91 - Pipe Flowing Full
*Computation: Run = 128 - Pipe Flowing Full
*Computation: Run = 129 - Pipe Flowing Full
*Computation: Run = 130 - Pipe Flowing Full
*Computation: Run = 132 - Pipe Flowing Full
*Computation: Run = 138 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 139 - Pipe Flowing Full
*Computation: Run = 140 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 141 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 142 - Pipe Flowing Full
*Computation: Run = 143 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 144 - Pipe Flowing Full
*Computation: Run = 145 - Pipe Flowing Full
*Computation: Run = 146 - Pipe Flowing Full
*Computation: Run = 147 - Pipe Flowing Full
*Computation: Run = 148 - Pipe Flowing Full
*Computation: Run = 149 - Pipe Flowing Full
*Computation: Run = 150 - Pipe Flowing Full

```
*Computation: Run = 151 - Pipe Flowing Full
*Computation: Run = 152 - Pipe Flowing Full
*Computation: Run = 153 - Pipe Flowing Full
*Computation: Run = 154 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 155 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 370 - Pipe Flowing Full
*Computation: Run = 371 - Pipe Flowing Full
*Computation: Run = 803 - Pipe Flowing Full
*Computation: Run = 804 - Pipe Flowing Full
*Computation: Run = 805 - Pipe Flowing Full


NORMAL Completion of WinStorm.
```

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 1
Thu Apr 09 09:16:05 1998

JOB CONTROL : CONT
JOB SECTION : SEC
JOB NUMBER : JOB
PROJECT DESCRIPTION : SQUAW PEAK PARKWAY
ANALYSYS FREQUENCY : 50 Year
MEASUREMENT UNITS: Input ENGLISH Output ENGLISH

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 22	0.990	0.249	10.00	10.00	6.059	0.000	1.494
I 23	0.990	0.249	10.00	10.00	6.059	0.000	1.494
I 24	0.990	0.960	10.00	10.00	6.059	0.000	5.759
I 26	0.990	0.746	10.00	10.00	6.059	0.000	4.475
I 27	0.990	0.265	10.00	10.00	6.059	0.000	1.590
I 28	0.990	0.668	10.00	10.00	6.059	0.000	4.007
I 29	0.990	0.100	10.00	10.00	6.059	0.000	0.600
I 30	0.990	0.100	10.00	10.00	6.059	0.000	0.600
I 31	0.990	0.100	10.00	10.00	6.059	0.000	0.600
I 32	0.990	0.080	10.00	10.00	6.059	0.000	0.480
I 33	0.990	0.080	10.00	10.00	6.059	0.000	0.480
I 34	0.990	0.080	10.00	10.00	6.059	0.000	0.480
I 35	0.990	0.080	10.00	10.00	6.059	0.000	0.480
I 36	0.990	0.080	10.00	10.00	6.059	0.000	0.480
I 37	0.990	0.080	10.00	10.00	6.059	0.000	0.480
I 38	0.990	0.080	10.00	10.00	6.059	0.000	0.480
I 39	0.990	0.080	10.00	10.00	6.059	0.000	0.480
I 40	0.990	0.080	10.00	10.00	6.059	0.000	0.480
I 41	0.990	0.080	10.00	10.00	6.059	0.000	0.480
I 42	0.990	0.080	10.00	10.00	6.059	0.000	0.480
I 43	0.990	0.080	10.00	10.00	6.059	0.000	0.480
I 44	0.990	0.080	10.00	10.00	6.059	0.000	0.480
I 45	0.990	0.080	10.00	10.00	6.059	0.000	0.480
I 125	0.990	1.288	13.00	13.00	5.407	0.000	6.895
I 126	0.990	1.242	12.00	12.00	5.606	0.000	6.893
I 127	0.990	1.288	13.00	13.00	5.407	0.000	6.895
I 128	0.990	1.242	12.00	12.00	5.606	0.000	6.893
I 129	0.990	0.884	10.00	10.00	6.059	0.000	5.303
I 130	0.990	1.410	10.00	10.00	6.059	0.000	8.458
I 131	0.990	1.055	12.00	12.00	5.606	0.000	5.856
I 132	0.990	0.957	12.00	12.00	5.606	0.000	5.312
I 133	0.990	0.685	12.00	12.00	5.606	0.000	3.802
I 134	0.990	0.685	12.00	12.00	5.606	0.000	3.802
I 135	0.990	0.685	12.00	12.00	5.606	0.000	3.802
I 136	0.990	0.685	12.00	12.00	5.606	0.000	3.802
I 137	0.990	0.429	10.00	10.00	6.059	0.000	2.574
I 138	0.990	0.782	11.00	11.00	5.823	0.000	4.508
I 139	0.990	0.646	11.00	11.00	5.823	0.000	3.724
I 140	0.990	0.463	10.00	10.00	6.059	0.000	2.777
I 141	0.990	0.604	10.00	10.00	6.059	0.000	3.623
I 142	0.990	0.557	10.00	10.00	6.059	0.000	3.341
I 143	0.990	0.100	10.00	10.00	6.059	0.000	0.600
I 144	0.990	0.100	10.00	10.00	6.059	0.000	0.600
I 145	0.990	0.100	11.00	11.00	5.823	0.000	0.576
I 147	0.990	0.100	10.00	10.00	6.059	0.000	0.600
I 148	0.990	0.100	10.00	10.00	6.059	0.000	0.600
I 149	0.990	0.100	10.00	10.00	6.059	0.000	0.600
I 150	0.990	0.100	10.00	10.00	6.059	0.000	0.600
I 151	0.990	0.080	10.00	10.00	6.059	0.000	0.480
I 152	0.990	0.080	7.00	10.00	6.059	0.000	0.480
I 153	0.990	0.080	6.00	10.00	6.059	0.000	0.480

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 2
Thu Apr 09 09:16:05 1998

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 154	0.990	0.080	6.00	10.00	6.059	0.000	0.480
I 155	0.990	0.080	4.00	10.00	6.059	0.000	0.480
J 803	0.000	0.000	0.00	0.00	0.000	35.000	35.000
J 804	0.000	0.000	0.00	0.00	0.000	24.000	24.000
J 805	0.990	3.900	14.20	14.20	5.188	0.000	20.030

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
J21	0.990	25.144	25.46	3.805	59.000	153.725
I22	0.990	0.498	10.36	5.971	0.000	2.944
J22	0.990	22.614	23.93	3.943	24.000	112.284
I23	0.990	0.249	10.00	6.059	0.000	1.494
J23	0.990	12.609	19.98	4.360	0.000	54.423
I24	0.990	0.960	10.00	6.059	0.000	5.759
J24	0.990	12.111	19.87	4.372	0.000	52.424
J25	0.990	8.211	19.73	4.389	0.000	35.677
I26	0.990	1.679	10.54	5.930	0.000	9.857
I27	0.990	0.933	10.26	5.997	0.000	5.539
J27	0.990	2.120	16.70	4.789	0.000	10.051
I28	0.990	0.668	10.00	6.059	0.000	4.007
J28	0.990	1.520	15.78	4.927	0.000	7.414
I29	0.990	0.300	10.34	5.976	0.000	1.775
I30	0.990	0.200	10.04	6.050	0.000	1.198
J30	0.990	1.120	14.62	5.115	0.000	5.672
I31	0.990	0.100	10.00	6.059	0.000	0.600
I32	0.990	0.240	10.25	5.999	0.000	1.425
I33	0.990	0.160	10.03	6.051	0.000	0.958
I34	0.990	0.080	10.00	6.059	0.000	0.480
I35	0.990	0.320	10.46	5.949	0.000	1.885
I36	0.990	0.240	10.28	5.992	0.000	1.424
I37	0.990	0.160	10.22	6.005	0.000	0.951
I38	0.990	0.080	10.00	6.059	0.000	0.480
I39	0.990	0.080	10.00	6.059	0.000	0.480
I40	0.990	0.480	13.25	5.359	0.000	2.547
I41	0.990	0.080	10.00	6.059	0.000	0.480
I42	0.990	0.240	11.79	5.651	0.000	1.343
I43	0.990	0.160	11.25	5.766	0.000	0.913
I44	0.990	0.080	10.00	6.059	0.000	0.480
I45	0.990	1.200	14.72	5.099	0.000	6.057
J111	0.990	25.144	25.26	3.823	24.000	119.168
J112	0.990	23.856	24.92	3.853	24.000	115.003
J113	0.990	22.614	23.55	3.980	0.000	89.094
J114	0.990	13.038	20.83	4.262	0.000	55.014
J115	0.990	7.251	19.29	4.443	0.000	31.891
J116	0.990	5.823	18.95	4.485	0.000	25.854
J117	0.990	4.199	18.29	4.569	0.000	18.994
J118	0.990	2.320	17.08	4.735	0.000	10.875
J119	0.990	1.820	16.54	4.813	0.000	8.673
J120	0.990	0.640	13.90	5.240	0.000	3.320
I125	0.990	1.288	13.00	5.407	0.000	6.895
I126	0.990	1.242	12.00	5.606	0.000	6.893
I127	0.990	1.288	13.00	5.407	0.000	6.895
I128	0.990	21.326	23.03	4.030	0.000	85.084
I129	0.990	20.084	22.78	4.055	0.000	80.627
I130	0.990	19.200	22.40	4.094	0.000	77.812
I131	0.990	17.790	22.02	4.133	0.000	72.790
I132	0.990	1.642	12.04	5.597	0.000	9.099
I133	0.990	0.685	12.00	5.606	0.000	3.802
I134	0.990	0.685	12.00	5.606	0.000	3.802

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I135	0.990	0.685	12.00	5.606	0.000	3.802
I136	0.990	0.685	12.00	5.606	0.000	3.802
I137	0.990	0.429	10.00	6.059	0.000	2.574
I138	0.990	0.782	11.00	5.823	0.000	4.508
I139	0.990	0.646	11.00	5.823	0.000	3.724
I140	0.990	0.463	10.00	6.059	0.000	2.777
I141	0.990	0.604	10.00	6.059	0.000	3.623
I142	0.990	0.557	10.00	6.059	0.000	3.341
I143	0.990	0.100	10.00	6.059	0.000	0.600
I144	0.990	0.100	10.00	6.059	0.000	0.600
I145	0.990	0.100	11.00	5.823	0.000	0.576
I147	0.990	0.100	10.00	6.059	0.000	0.600
I148	0.990	0.100	10.00	6.059	0.000	0.600
I149	0.990	0.100	10.00	6.059	0.000	0.600
I150	0.990	0.100	10.00	6.059	0.000	0.600
I151	0.990	0.080	10.00	6.059	0.000	0.480
I152	0.990	0.080	10.00	6.059	0.000	0.480
I153	0.990	0.080	10.00	6.059	0.000	0.480
I154	0.990	0.080	10.00	6.059	0.000	0.480
I155	0.990	0.080	10.00	6.059	0.000	0.480
J301	0.990	3.697	12.32	5.540	0.000	20.276
J302	0.990	1.370	12.02	5.602	0.000	7.598
J327	0.990	3.999	17.55	4.669	0.000	18.486
J803	0.000	0.000	0.00	0.000	35.000	35.000
J804	0.000	0.000	0.00	0.000	24.000	24.000
J805	0.990	3.900	14.20	5.188	0.000	20.030

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
1	J21	O1	1136.880	1136.780	Circ	1	n/a	4.500	2.00	5.006	0.012
50	J111	J21	1137.760	1136.880	Circ	1	n/a	4.500	140.00	0.629	0.012
51	J112	J111	1140.460	1138.150	Circ	1	n/a	4.500	264.00	0.875	0.012
52	J22	J112	1147.290	1140.460	Circ	1	n/a	4.500	765.00	0.893	0.012
53	J113	J22	1150.870	1148.820	Circ	1	n/a	3.500	261.00	0.785	0.012
54	I128	J113	1153.320	1151.870	Circ	1	n/a	3.500	282.00	0.514	0.012
55	I129	I128	1156.600	1150.320	Circ	1	n/a	3.500	262.00	2.398	0.012
56	I130	I129	1157.900	1155.600	Circ	1	n/a	3.500	266.00	0.865	0.012
57	I131	I130	1160.270	1157.900	Circ	1	n/a	3.500	265.00	0.894	0.012
58	J114	I131	1166.410	1161.020	Circ	1	n/a	2.750	684.00	0.788	0.012
59	J23	J114	1171.280	1166.660	Circ	1	n/a	2.500	580.00	0.797	0.012
60	I22	J23	1180.000	1171.910	Circ	1	n/a	1.250	25.00	34.200	0.012
61	I23	I22	1181.390	1180.500	Circ	1	n/a	1.250	96.00	0.927	0.012
62	J25	J24	1173.230	1172.350	Circ	1	n/a	2.000	97.00	0.907	0.012
63	I24	J25	1182.290	1173.730	Circ	1	n/a	1.250	82.00	10.496	0.012
64	J115	J25	1175.920	1173.230	Circ	1	n/a	2.000	277.00	0.971	0.012
58	J116	J115	1179.730	1176.170	Circ	1	n/a	1.750	225.00	1.582	0.012
67	J117	J116	1183.300	1179.730	Circ	1	n/a	1.750	330.00	1.082	0.012
68	J327	J117	1186.650	1182.800	Circ	1	n/a	1.750	369.00	1.043	0.012
69	I35	J30	1123.320	1123.280	Circ	1	n/a	1.250	2.00	2.000	0.012
70	I27	I26	1193.370	1192.860	Circ	1	n/a	1.250	85.00	0.600	0.012
71	I28	I27	1193.770	1193.370	Circ	1	n/a	1.250	72.00	0.556	0.012
72	J27	J118	1198.070	1193.570	Circ	1	n/a	1.750	219.00	2.055	0.012
73	I29	J27	1202.110	1198.410	Circ	1	n/a	1.250	38.00	9.783	0.012
74	I30	I29	1202.880	1202.210	Circ	1	n/a	1.250	75.00	0.893	0.012
75	I31	I30	1204.050	1202.980	Circ	1	n/a	1.250	16.00	6.703	0.012
65	J119	J27	1199.360	1198.070	Circ	1	n/a	1.750	84.00	1.536	0.012
77	J28	J119	1204.920	1199.610	Circ	1	n/a	1.500	360.00	1.475	0.012
78	I32	J28	1208.320	1205.020	Circ	1	n/a	1.250	42.00	7.882	0.012
79	I33	I32	1209.710	1208.420	Circ	1	n/a	1.250	65.00	1.985	0.012
80	I34	I33	1211.720	1209.810	Circ	1	n/a	1.250	16.00	12.023	0.012
81	I45	J28	1209.990	1204.920	Circ	1	n/a	1.500	439.00	1.155	0.012
68	J30	I45	1213.680	1210.030	Circ	1	n/a	1.500	70.00	5.221	0.012
83	I36	I35	1224.520	1223.420	Circ	1	n/a	1.250	60.00	1.834	0.012
84	I37	I36	1224.910	1224.620	Circ	1	n/a	1.250	16.00	1.813	0.012
85	I38	I37	1226.000	1225.010	Circ	1	n/a	1.250	54.00	1.834	0.012
86	J120	J30	1223.410	1213.930	Circ	1	n/a	1.250	350.00	2.710	0.012
87	I40	J120	1225.050	1223.410	Circ	1	n/a	1.250	193.00	0.850	0.012
88	I39	I40	1241.510	1239.470	Circ	1	n/a	1.250	15.00	13.728	0.012
89	I41	I40	1239.730	1239.470	Circ	1	n/a	1.250	67.00	0.388	0.012
90	I42	I40	1226.430	1225.150	Circ	1	n/a	1.250	290.00	0.441	0.012
91	I43	I42	1226.950	1226.530	Circ	1	n/a	1.250	94.00	0.447	0.012
92	I44	I43	1227.860	1227.050	Circ	1	n/a	1.250	185.00	0.438	0.012
128	I125	J111	1153.660	1139.780	Circ	1	n/a	1.250	17.00	141.408	0.012
129	I126	J112	1154.090	1142.090	Circ	1	n/a	1.250	25.00	54.715	0.012
130	I127	J113	1162.680	1152.000	Circ	1	n/a	1.250	25.00	47.248	0.012
131	J301	I131	1164.150	1161.770	Circ	1	n/a	2.000	180.00	1.322	0.012
132	I132	J301	1169.850	1164.530	Circ	1	n/a	1.250	44.00	12.180	0.012
133	I133	I132	1172.930	1170.350	Circ	1	n/a	1.250	32.00	8.089	0.012
134	I134	J301	1171.590	1165.060	Circ	1	n/a	1.250	55.00	11.957	0.012
135	J302	J301	1164.610	1164.150	Circ	1	n/a	2.000	96.00	0.479	0.012

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
136	I135	J302	1172.060	1165.740	Circ	1	n/a	1.250	23.00	28.578	0.012
137	I136	J302	1168.440	1165.740	Circ	1	n/a	1.250	8.00	35.854	0.012
138	I137	J114	1174.500	1167.910	Circ	1	n/a	1.250	40.00	16.703	0.012
139	I138	J115	1186.510	1176.800	Circ	1	n/a	1.250	51.00	19.394	0.012
140	I139	J115	1185.490	1176.590	Circ	1	n/a	1.250	21.00	46.791	0.012
141	I140	J116	1190.680	1179.980	Circ	1	n/a	1.250	50.00	21.908	0.012
142	I141	J116	1188.000	1180.830	Circ	1	n/a	1.250	21.00	36.326	0.012
143	I142	J116	1189.830	1181.550	Circ	1	n/a	1.250	11.00	14.338	0.012
144	I143	J117	1194.160	1183.550	Circ	1	n/a	1.250	54.00	20.039	0.012
145	I144	J117	1190.700	1184.350	Circ	1	n/a	1.250	30.00	21.657	0.012
146	I145	J118	1201.870	1194.320	Circ	1	n/a	1.250	46.00	16.639	0.012
147	I147	J118	1198.890	1196.130	Circ	1	n/a	1.250	25.00	11.108	0.012
148	I148	J119	1204.850	1199.410	Circ	1	n/a	1.250	9.00	75.874	0.012
149	I149	J119	1206.840	1200.060	Circ	1	n/a	1.250	53.00	12.898	0.012
150	I150	J119	1204.160	1201.170	Circ	1	n/a	1.250	25.00	12.046	0.012
151	I151	J28	1210.810	1205.170	Circ	1	n/a	1.250	40.00	14.242	0.012
152	I152	J30	1220.600	1220.400	Circ	1	n/a	1.250	19.00	1.053	0.012
153	I153	J30	1222.000	1216.490	Circ	1	n/a	1.250	90.00	6.134	0.012
154	I154	J120	1229.000	1223.410	Circ	1	n/a	1.250	70.00	8.011	0.012
155	I155	J120	1235.000	1223.840	Circ	1	n/a	1.250	20.00	67.242	0.012
361	J24	J23	1171.850	1171.280	Circ	1	n/a	2.500	70.00	0.814	0.012
370	I26	J327	1192.780	1187.150	Circ	1	n/a	1.250	27.00	21.321	0.012
371	J118	J327	1193.570	1186.650	Circ	1	n/a	1.750	281.00	2.463	0.013
803	J803	J21	1142.840	1136.850	Circ	1	n/a	5.000	109.00	5.504	0.012
804	J804	J22	1147.740	1147.540	Circ	1	n/a	4.000	100.00	0.200	0.012
805	J805	J24	1180.010	1172.600	Circ	1	n/a	1.750	398.00	1.862	0.012

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 7
Thu Apr 09 09:16:06 1998

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	Hydraulic Gradeline DS Elev	Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (fps)	Velocity Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	1153.736	1153.000	0.52	1.757	4.500	26.72	9.67	153.725	476.662	0.726
50	1154.262	1153.736	0.31	2.804	4.500	11.44	7.49	119.168	168.902	0.087
51	1155.112	1154.262	0.29	2.457	4.500	12.95	7.23	115.003	199.281	0.081
52	1157.780	1155.112	0.28	2.408	4.500	12.96	7.06	112.284	201.299	0.542
53	1159.791	1157.780	0.67	2.642	3.500	11.43	9.26	89.094	96.597	0.267
54	1161.631	1159.791	0.61	3.500	3.500	9.08	8.84	85.084	78.156	0.122
55	1163.174	1161.631	0.55	1.706	3.500	17.32	8.38	80.627	168.769	0.109
56	1164.631	1163.174	0.51	2.296	3.500	11.63	8.09	77.812	101.352	0.102
57	1166.080	1164.631	0.45	2.168	3.500	11.63	7.57	72.790	103.077	0.267
58	1173.187	1166.080	0.92	2.560	2.750	9.55	9.26	55.014	50.861	0.800
59	1182.843	1173.187	1.50	2.500	2.500	11.38	11.09	54.423	39.659	0.955
60	1182.959	1182.843	0.18	0.227	1.250	19.24	2.40	2.944	40.926	0.072
61	1183.014	1182.959	0.05	0.401	1.250	4.40	1.22	1.494	6.738	0.012
62	1188.293	1185.235	2.12	2.000	2.000	11.66	11.36	35.677	23.343	1.002
63	1189.020	1188.293	0.68	0.429	1.250	15.43	4.69	5.759	22.673	0.171
64	1194.265	1188.293	1.69	2.000	2.000	10.42	10.15	31.891	24.152	1.281
58	1200.807	1194.265	2.27	1.750	1.750	11.04	10.75	25.854	21.593	1.436
67	1205.429	1200.807	1.22	1.565	1.750	8.37	7.90	18.994	17.854	0.581
68	1209.984	1205.429	1.16	1.539	1.750	8.25	7.69	18.486	17.534	0.275
69	1216.435	1216.404	0.07	0.370	1.250	6.20	1.54	1.885	9.898	0.029
70	1211.411	1210.720	0.63	1.044	1.250	5.06	4.51	5.539	5.421	0.158
71	1211.729	1211.411	0.33	0.825	1.250	4.67	3.27	4.007	5.216	0.083
72	1212.489	1211.467	0.34	0.779	1.750	9.71	4.18	10.051	24.609	0.271
73	1212.540	1212.489	0.06	0.241	1.250	10.66	1.45	1.775	21.889	0.026
74	1212.573	1212.540	0.03	0.360	1.250	4.10	0.98	1.198	6.614	0.012
75	1212.576	1212.573	0.01	0.156	1.250	6.73	0.49	0.600	18.118	0.002
65	1213.007	1212.489	0.26	0.779	1.750	8.38	3.61	8.673	21.273	0.303
77	1214.809	1213.007	0.42	0.781	1.500	7.98	4.20	7.414	13.821	0.274
78	1214.843	1214.809	0.04	0.228	1.250	9.32	1.16	1.425	19.647	0.017
79	1214.863	1214.843	0.02	0.263	1.250	5.09	0.78	0.958	9.860	0.008
80	1214.865	1214.863	0.00	0.122	1.250	7.74	0.39	0.480	24.266	0.001
81	1216.199	1214.809	0.28	0.748	1.500	6.88	3.43	6.057	12.230	0.146
68	1216.404	1216.199	0.25	0.476	1.500	11.74	3.21	5.672	26.003	0.032
83	1225.231	1216.435	0.04	0.328	0.328	5.55	5.55	1.424	9.476	0.384
84	1225.266	1225.231	0.02	0.268	0.611	4.93	1.60	0.951	9.422	0.032
85	1226.246	1225.266	0.00	0.191	0.256	4.04	2.66	0.480	9.476	0.055
86	1223.983	1216.404	0.23	0.459	1.250	8.12	2.71	3.320	11.519	0.114
87	1225.930	1223.983	0.13	0.545	0.573	4.95	4.64	2.547	6.451	0.335
88	1242.141	1225.930	0.00	0.119	0.119	8.18	8.12	0.480	25.928	0.513
89	1240.052	1225.930	0.00	0.279	0.279	2.34	2.34	0.480	4.359	0.043
90	1226.923	1225.930	0.04	0.458	0.780	3.30	1.67	1.343	4.649	0.035
91	1227.421	1226.923	0.02	0.376	0.393	2.94	2.77	0.913	4.678	0.095
92	1228.150	1227.421	0.00	0.270	0.371	2.46	1.57	0.480	4.631	0.019
128	1154.672	1154.262	0.97	0.243	1.250	40.87	5.62	6.895	83.218	0.245
129	1155.600	1155.112	0.97	0.309	1.250	29.32	5.62	6.893	51.765	0.245
130	1163.245	1159.791	0.97	0.320	1.250	27.85	5.62	6.895	48.103	0.245
131	1167.895	1166.080	0.68	1.253	2.000	9.79	6.45	20.276	28.182	0.583
132	1171.062	1167.895	1.69	0.529	1.250	18.47	7.41	9.099	24.424	0.684
133	1173.516	1171.062	0.30	0.370	0.712	12.51	5.27	3.802	19.903	0.215
134	1172.000	1167.895	0.30	0.335	1.250	14.34	3.10	3.802	24.199	0.075
135	1168.060	1167.895	0.10	0.938	2.000	5.25	2.42	7.598	16.965	0.073

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 8
Thu Apr 09 09:16:06 1998

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
136	1172.404	1168.060	0.30	0.269	1.250	19.59	3.10	3.802	37.411	0.075
137	1168.769	1168.060	0.30	0.255	1.250	21.11	3.10	3.802	41.903	0.075
138	1174.788	1173.187	0.14	0.254	1.250	14.47	2.10	2.574	28.601	0.034
139	1194.582	1194.265	0.42	0.324	1.250	17.85	3.67	4.508	30.819	0.105
140	1194.397	1194.265	0.28	0.235	1.250	23.32	3.03	3.724	47.870	0.072
141	1200.925	1200.807	0.16	0.246	1.250	16.25	2.26	2.777	32.755	0.040
142	1200.931	1200.807	0.27	0.248	1.250	20.91	2.95	3.623	42.178	0.068
143	1200.889	1200.807	0.23	0.180	1.250	30.76	2.72	3.341	74.830	0.058
144	1205.435	1205.429	0.01	0.120	1.250	9.94	0.49	0.600	31.327	0.002
145	1205.433	1205.429	0.01	0.117	1.250	10.23	0.49	0.600	32.567	0.002
146	1211.472	1211.467	0.01	0.123	1.250	9.29	0.47	0.576	28.546	0.002
147	1211.471	1211.467	0.01	0.138	1.250	8.08	0.49	0.600	23.324	0.002
148	1213.009	1213.007	0.01	0.088	1.250	15.70	0.49	0.600	60.957	0.002
149	1213.012	1213.007	0.01	0.133	1.250	8.48	0.49	0.600	25.133	0.002
150	1213.010	1213.007	0.01	0.136	1.250	8.27	0.49	0.600	24.289	0.002
151	1214.812	1214.809	0.00	0.117	1.250	8.18	0.39	0.480	26.410	0.001
152	1220.905	1216.404	0.00	0.219	0.219	3.33	3.33	0.480	7.180	0.086
153	1222.441	1216.404	0.00	0.143	0.143	6.16	6.20	0.480	17.332	0.298
154	1229.211	1223.983	0.00	0.135	0.573	6.79	0.87	0.480	19.808	0.006
155	1235.377	1223.983	0.00	0.081	0.143	14.16	6.17	0.480	57.385	0.296
361	1185.235	1182.843	1.39	2.500	2.500	10.96	10.68	52.424	40.098	1.418
370	1210.720	1209.984	1.98	0.474	1.250	23.17	8.03	9.857	32.313	0.201
371	1211.467	1209.984	0.47	0.810	1.750	9.99	4.52	10.875	24.869	0.159
803	1153.758	1153.736	0.02	0.781	5.000	17.87	1.78	35.000	661.916	0.005
804	1157.806	1157.780	0.02	1.642	4.000	4.94	1.91	24.000	69.593	0.006
805	1190.763	1185.235	1.36	1.244	1.750	10.95	8.33	20.030	23.424	0.108

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 9
Thu Apr 09 09:16:06 1998

Computation Messages

---

*Warning: Decreasing Conduit Size - Downstream Run 1 was adjusted.
*Warning: Run - 141 - Upstream Hydraulic Gradeline = 1200.93 - Exceeds Critical Elevation = 1193.68
*Warning: Run - 81 - Upstream Hydraulic Gradeline = 1216.20 - Exceeds Critical Elevation = 1211.00
*Warning: Run - 146 - Upstream Hydraulic Gradeline = 1211.47 - Exceeds Critical Elevation = 1204.87
*Computation: Run = 1 - Pipe Flowing Full
*Computation: Run = 50 - Pipe Flowing Full
*Computation: Run = 51 - Pipe Flowing Full
*Computation: Run = 52 - Pipe Flowing Full
*Computation: Run = 53 - Pipe Flowing Full
*Computation: Run = 54 - Insufficient Capacity
*Computation: Run = 55 - Pipe Flowing Full
*Computation: Run = 56 - Pipe Flowing Full
*Computation: Run = 57 - Pipe Flowing Full
*Computation: Run = 58 - Insufficient Capacity
*Computation: Run = 59 - Insufficient Capacity
*Computation: Run = 60 - Pipe Flowing Full
*Computation: Run = 61 - Pipe Flowing Full
*Computation: Run = 62 - Insufficient Capacity
*Computation: Run = 63 - Pipe Flowing Full
*Computation: Run = 64 - Insufficient Capacity
*Computation: Run = 58 - Insufficient Capacity
*Computation: Run = 67 - Insufficient Capacity
*Computation: Run = 68 - Insufficient Capacity
*Computation: Run = 69 - Pipe Flowing Full
*Computation: Run = 70 - Insufficient Capacity
*Computation: Run = 71 - Pipe Flowing Full
*Computation: Run = 72 - Pipe Flowing Full
*Computation: Run = 73 - Pipe Flowing Full
*Computation: Run = 74 - Pipe Flowing Full
*Computation: Run = 75 - Pipe Flowing Full
*Computation: Run = 65 - Pipe Flowing Full
*Computation: Run = 77 - Pipe Flowing Full
*Computation: Run = 78 - Pipe Flowing Full
*Computation: Run = 79 - Pipe Flowing Full
*Computation: Run = 80 - Pipe Flowing Full
*Computation: Run = 81 - Pipe Flowing Full
*Computation: Run = 68 - Pipe Flowing Full
*Computation: Run = 86 - Pipe Flowing Full
*Computation: Run = 128 - Pipe Flowing Full
*Computation: Run = 129 - Pipe Flowing Full
*Computation: Run = 130 - Pipe Flowing Full
*Computation: Run = 131 - Pipe Flowing Full
*Computation: Run = 132 - Pipe Flowing Full
*Computation: Run = 134 - Pipe Flowing Full
*Computation: Run = 135 - Pipe Flowing Full
*Computation: Run = 136 - Pipe Flowing Full
*Computation: Run = 137 - Pipe Flowing Full
*Computation: Run = 138 - Pipe Flowing Full
*Computation: Run = 139 - Pipe Flowing Full
*Computation: Run = 140 - Pipe Flowing Full
*Computation: Run = 141 - Pipe Flowing Full
*Computation: Run = 142 - Pipe Flowing Full
*Computation: Run = 143 - Pipe Flowing Full
*Computation: Run = 144 - Pipe Flowing Full
*Computation: Run = 145 - Pipe Flowing Full
*Computation: Run = 146 - Pipe Flowing Full
*Computation: Run = 147 - Pipe Flowing Full
*Computation: Run = 148 - Pipe Flowing Full
*Computation: Run = 149 - Pipe Flowing Full
*Computation: Run = 150 - Pipe Flowing Full
*Computation: Run = 151 - Pipe Flowing Full
*Computation: Run = 154 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 361 - Insufficient Capacity
*Computation: Run = 370 - Pipe Flowing Full
*Computation: Run = 371 - Pipe Flowing Full
*Computation: Run = 803 - Pipe Flowing Full
*Computation: Run = 804 - Pipe Flowing Full
*Computation: Run = 805 - Pipe Flowing Full

NORMAL Completion of WinStorm.

STRNKCAP.OUT
Indian School HGL @ 1124.25

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 1
Tue Nov 25 09:47:29 1997

JOB CONTROL : CONT
JOB SECTION : SEC
JOB NUMBER : JOB
PROJECT DESCRIPTION : SQUAW PEAK PARKWAY
ANALYSYS FREQUENCY : 10 Year
MEASUREMENT UNITS: Input ENGLISH Output ENGLISH

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 1	0.010	1.874	10.00	10.00	4.556	0.000	0.085
I 2	0.010	1.634	5.00	10.00	4.556	0.000	0.074
I 3	0.010	0.459	5.00	10.00	4.556	0.000	0.021
I 4	0.010	0.246	5.00	10.00	4.556	0.000	0.011
I 5	0.010	0.810	5.00	10.00	4.556	0.000	0.037
I 6	0.010	0.573	5.00	10.00	4.556	0.000	0.026
I 7	0.010	0.106	5.00	10.00	4.556	0.000	0.005
I 8	0.010	0.644	5.00	10.00	4.556	0.000	0.029
I 9	0.010	0.753	5.00	10.00	4.556	0.000	0.034
I 10	0.010	0.644	5.00	10.00	4.556	0.000	0.029
I 11	0.010	1.048	5.00	10.00	4.556	0.000	0.048
I 12	0.010	0.629	5.00	10.00	4.556	0.000	0.029
I 13	0.010	0.115	5.00	10.00	4.556	0.000	0.005
I 14	0.010	0.136	5.00	10.00	4.556	0.000	0.006
I 15	0.010	0.745	5.00	10.00	4.556	0.000	0.034
I 16	0.010	0.640	5.00	10.00	4.556	0.000	0.029
I 17	0.010	1.737	5.00	10.00	4.556	0.000	0.079
I 18	0.000	0.000	0.00	0.00	0.000	98.000	98.000
I 19	0.010	0.960	5.00	10.00	4.556	0.000	0.044
I 20	0.010	0.960	5.00	10.00	4.556	0.000	0.044
I 21	0.010	0.960	5.00	10.00	4.556	0.000	0.044
J 21	0.000	0.000	0.00	0.00	0.000	20.000	20.000
I 100	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 101	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 102	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 103	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 104	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 105	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 106	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 107	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 108	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 109	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 110	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 111	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 112	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 113	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 114	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 115	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 116	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 117	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 118	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 119	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 120	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 121	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 122	0.000	0.000	0.00	0.00	0.000	1.110	1.110
I 123	0.000	0.000	0.00	0.00	0.000	1.110	1.110
I 124	0.000	0.000	0.00	0.00	0.000	1.110	1.110
I 300	0.010	1.495	10.00	10.00	4.556	0.000	0.068
I 301	0.010	1.056	10.00	10.00	4.556	0.000	0.048
I 302	0.000	0.000	0.00	0.00	0.000	0.010	0.010
J 801	0.000	0.000	0.00	0.00	0.000	20.000	20.000

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
J 802	0.000	0.000	0.00	0.00	0.000	40.000	40.000

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I1	0.010	1.874	10.00	4.556	0.000	0.085
J1	0.010	15.673	12.61	4.087	181.540	182.181
I2	0.010	1.634	10.00	4.556	0.000	0.074
I3	0.010	0.459	10.00	4.556	0.000	0.021
J3	0.010	15.673	12.61	4.087	181.520	182.161
I4	0.010	0.246	10.00	4.556	0.000	0.011
J4	0.010	13.799	12.51	4.103	181.520	182.086
I5	0.010	0.810	10.00	4.556	0.000	0.037
J5	0.010	12.165	12.43	4.117	181.520	182.021
I6	0.010	1.383	10.00	4.556	0.000	0.063
J6	0.010	11.706	12.35	4.130	181.520	182.003
I7	0.010	0.106	10.00	4.556	0.000	0.005
J7	0.010	11.460	12.20	4.155	181.510	181.986
I8	0.010	0.644	10.00	4.556	0.000	0.029
J8	0.010	10.077	11.73	4.233	181.500	181.927
I9	0.010	1.397	10.00	4.556	0.000	0.064
J9	0.010	9.971	11.73	4.233	181.500	181.922
I10	0.010	0.644	10.00	4.556	0.000	0.029
J10	0.010	8.574	11.17	4.331	181.490	181.861
I11	0.010	1.048	10.00	4.556	0.000	0.048
J11	0.010	7.930	11.03	4.358	181.470	181.816
I12	0.010	0.629	10.00	4.556	0.000	0.029
J12	0.010	6.882	10.68	4.423	181.450	181.754
I13	0.010	0.115	10.00	4.556	0.000	0.005
J13	0.010	6.253	10.01	4.553	181.450	181.735
I14	0.010	0.136	10.00	4.556	0.000	0.006
J14	0.010	6.138	10.00	4.556	181.420	181.700
I15	0.010	0.745	10.00	4.556	0.000	0.034
J15	0.010	0.881	10.00	4.556	0.000	0.040
I16	0.010	0.640	10.00	4.556	0.000	0.029
J16	0.010	5.257	10.00	4.556	181.410	181.649
I17	0.010	1.737	10.00	4.556	0.000	0.079
J17	0.010	4.617	10.00	4.556	181.400	181.610
I18	0.000	0.000	0.00	0.000	98.000	98.000
J18	0.010	2.880	10.00	4.556	181.330	181.461
I19	0.010	2.880	10.00	4.556	63.330	63.461
J19	0.010	2.880	10.00	4.556	63.330	63.461
I20	0.010	1.920	10.00	4.556	63.330	63.417
J20	0.000	0.000	10.00	4.556	63.330	63.330
I21	0.010	0.960	10.00	4.556	63.330	63.374
J21	0.000	0.000	0.00	0.000	20.000	20.000
I100	0.000	0.000	0.00	0.000	0.010	0.010
J100	0.010	15.673	12.61	4.087	181.550	182.191
I101	0.000	0.000	0.00	0.000	0.010	0.010
J101	0.010	15.673	12.61	4.087	181.540	182.181
I102	0.000	0.000	0.00	0.000	0.010	0.010
J102	0.010	15.673	12.61	4.087	181.530	182.171
I103	0.000	0.000	0.00	0.000	0.010	0.010
J103	0.010	7.930	11.08	4.348	181.480	181.825
I104	0.000	0.000	0.00	0.000	0.010	0.010
J104	0.000	0.000	10.00	4.556	0.020	0.020

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I105	0.000	0.000	0.00	0.000	0.010	0.010
J105	0.000	0.000	10.00	4.556	0.020	0.020
I106	0.000	0.000	0.00	0.000	0.010	0.010
J106	0.010	6.138	10.01	4.553	181.450	181.729
I107	0.000	0.000	0.00	0.000	0.010	0.010
J107	0.000	0.000	10.00	4.556	0.020	0.020
I108	0.000	0.000	0.00	0.000	0.010	0.010
J108	0.010	2.880	10.00	4.556	181.400	181.531
I109	0.000	0.000	0.00	0.000	0.010	0.010
J109	0.010	2.880	10.00	4.556	181.360	181.491
I110	0.000	0.000	0.00	0.000	0.010	0.010
J110	0.000	0.000	10.00	4.556	23.330	23.330
I111	0.000	0.000	0.00	0.000	0.010	0.010
I112	0.000	0.000	0.00	0.000	0.010	0.010
I113	0.000	0.000	0.00	0.000	0.010	0.010
I114	0.000	0.000	0.00	0.000	0.010	0.010
I115	0.000	0.000	0.00	0.000	0.010	0.010
I116	0.000	0.000	0.00	0.000	0.010	0.010
I117	0.000	0.000	0.00	0.000	0.010	0.010
I118	0.000	0.000	0.00	0.000	0.010	0.010
I119	0.000	0.000	0.00	0.000	0.010	0.010
I120	0.000	0.000	10.00	4.556	0.020	0.020
I121	0.000	0.000	0.00	0.000	0.010	0.010
I122	0.000	0.000	10.00	4.556	3.330	3.330
I123	0.000	0.000	10.00	4.556	2.220	2.220
I124	0.000	0.000	0.00	0.000	1.110	1.110
I300	0.010	1.495	10.00	4.556	0.000	0.068
J300	0.010	18.224	14.32	3.836	181.560	182.259
I301	0.010	2.551	11.73	4.233	0.000	0.108
I302	0.000	0.000	0.00	0.000	0.010	0.010
J801	0.000	0.000	0.00	0.000	20.000	20.000
J802	0.000	0.000	0.00	0.000	40.000	40.000

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
1	J100	J300	1116.740	1116.050	Circ	1	n/a	6.000	258.00	0.267	0.012
2	J1	J100	1117.170	1116.740	Circ	1	n/a	6.000	159.00	0.270	0.012
3	J101	J1	1118.530	1118.170	Circ	1	n/a	5.000	150.00	0.240	0.012
4	J102	J101	1118.740	1118.530	Circ	1	n/a	5.000	88.00	0.239	0.012
5	J3	J102	1119.410	1118.740	Circ	1	n/a	5.000	304.00	0.220	0.012
6	I1	J3	1134.620	1121.420	Circ	1	n/a	1.250	170.00	7.788	0.012
7	J4	J3	1119.520	1119.410	Circ	1	n/a	5.000	57.00	0.193	0.012
8	I2	J4	1133.910	1121.160	Circ	1	n/a	1.250	46.00	28.848	0.012
9	J5	J4	1119.660	1119.520	Circ	1	n/a	5.000	48.00	0.292	0.012
10	I3	J5	1132.780	1121.620	Circ	1	n/a	1.250	188.00	5.947	0.012
11	J6	J5	1119.780	1119.660	Circ	1	n/a	5.000	45.00	0.267	0.012
12	I4	J6	1132.350	1123.020	Circ	1	n/a	1.250	24.00	42.194	0.012
13	J7	J6	1119.990	1119.780	Circ	1	n/a	5.000	87.00	0.241	0.012
14	I5	I6	1132.280	1123.140	Circ	1	n/a	1.250	172.00	5.321	0.012
15	I6	J7	1123.140	1121.880	Circ	1	n/a	1.250	19.00	6.646	0.012
16	J8	J7	1120.240	1119.990	Circ	1	n/a	5.000	105.00	0.238	0.012
17	I7	J8	1131.700	1123.860	Circ	1	n/a	1.250	18.00	48.386	0.012
18	J9	J8	1120.670	1120.240	Circ	1	n/a	5.000	163.00	0.264	0.012
19	I8	I9	1133.020	1124.160	Circ	1	n/a	1.250	140.00	6.341	0.012
20	I9	J9	1124.160	1122.660	Circ	1	n/a	1.250	24.00	6.262	0.012
21	J10	J9	1121.430	1120.670	Circ	1	n/a	5.000	317.00	0.240	0.012
22	I10	J10	1134.050	1123.480	Circ	1	n/a	1.250	166.00	6.380	0.012
23	J103	J10	1121.560	1121.430	Circ	1	n/a	5.000	53.00	0.245	0.012
24	J11	J103	1121.630	1121.560	Circ	1	n/a	5.000	30.00	0.233	0.012
25	I11	J11	1134.690	1125.180	Circ	1	n/a	1.250	29.00	34.713	0.012
26	J12	J11	1122.270	1120.630	Circ	1	n/a	5.000	263.00	0.624	0.012
27	I12	J12	1135.080	1124.270	Circ	1	n/a	1.250	166.00	6.526	0.012
28	J13	J12	1122.570	1122.270	Circ	1	n/a	5.000	132.00	0.227	0.012
29	I13	J13	1135.130	1125.700	Circ	1	n/a	1.250	24.00	42.728	0.012
30	J106	J13	1123.190	1122.570	Circ	1	n/a	5.000	247.00	0.251	0.012
31	J14	J106	1123.910	1123.190	Circ	1	n/a	5.000	298.00	0.242	0.012
32	I14	J15	1133.650	1126.740	Circ	1	n/a	1.250	172.00	4.021	0.012
33	I15	J15	1133.940	1126.740	Circ	1	n/a	1.250	14.00	59.967	0.012
34	J15	J14	1126.740	1125.850	Circ	1	n/a	1.250	32.00	2.782	0.012
35	J16	J14	1124.080	1123.910	Circ	1	n/a	5.000	74.00	0.230	0.012
36	I16	J16	1133.520	1126.700	Circ	1	n/a	1.250	25.00	28.356	0.012
37	J17	J16	1124.380	1124.080	Circ	1	n/a	5.000	130.00	0.231	0.012
38	I17	J17	1132.540	1126.260	Circ	1	n/a	1.250	216.00	2.909	0.012
69	J108	J17	1124.760	1124.380	Circ	1	n/a	5.000	158.00	0.241	0.012
40	J109	J108	1125.630	1124.760	Circ	1	n/a	5.000	364.00	0.239	0.012
41	J18	J109	1126.960	1125.630	Circ	1	n/a	5.000	240.00	0.554	0.012
42	I18	J18	1137.000	1127.960	Circ	1	n/a	4.000	60.00	15.241	0.012
44	J19	J18	1126.670	1126.460	Circ	1	n/a	5.000	195.00	0.108	0.012
45	I19	J19	1128.610	1127.170	Circ	1	n/a	4.500	450.00	0.320	0.012
46	I20	I19	1129.530	1128.610	Circ	1	n/a	4.500	295.00	0.312	0.012
47	I21	I20	1130.440	1129.530	Circ	1	n/a	4.500	284.00	0.320	0.012
48	J20	I21	1131.390	1130.440	Circ	1	n/a	4.500	289.00	0.329	0.012
49	J21	J110	1136.330	1133.520	Circ	1	n/a	4.000	898.00	0.313	0.012
100	I100	J100	1131.610	1120.700	Circ	1	n/a	1.250	27.00	44.174	0.012
101	I101	J101	1133.380	1121.500	Circ	1	n/a	1.250	58.00	20.926	0.012
102	I102	J102	1132.440	1122.080	Circ	1	n/a	1.250	26.00	43.444	0.012

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
103	I103	J6	1133.260	1123.040	Circ	1	n/a	1.250	26.00	42.749	0.012
104	I104	J7	1135.230	1121.850	Circ	1	n/a	1.500	98.00	13.782	0.012
105	I105	J9	1133.860	1123.820	Circ	1	n/a	1.250	26.00	41.862	0.012
106	I106	J10	1135.510	1124.570	Circ	1	n/a	1.250	27.00	44.320	0.012
107	I107	J103	1137.480	1123.520	Circ	1	n/a	1.250	82.00	17.277	0.012
108	I108	J104	1137.010	1133.170	Circ	1	n/a	1.250	23.00	16.933	0.012
109	I109	J104	1137.590	1133.170	Circ	1	n/a	1.250	23.00	19.582	0.012
110	J104	J11	1133.170	1123.860	Circ	1	n/a	1.250	58.00	16.263	0.012
111	I110	J105	1139.380	1132.660	Circ	1	n/a	1.250	20.00	35.674	0.012
112	I111	J105	1138.620	1134.220	Circ	1	n/a	1.250	26.00	17.171	0.012
113	J105	J106	1132.660	1125.170	Circ	1	n/a	1.500	70.00	10.762	0.012
114	I112	J106	1136.200	1127.200	Circ	1	n/a	1.250	13.00	95.940	0.012
115	I113	J14	1140.210	1126.940	Circ	1	n/a	1.250	86.00	15.617	0.012
116	I114	J16	1137.890	1126.520	Circ	1	n/a	1.250	43.00	27.418	0.012
117	I115	J108	1138.520	1128.510	Circ	1	n/a	1.250	38.00	27.307	0.012
118	I116	J107	1140.620	1138.470	Circ	1	n/a	1.250	15.00	14.483	0.012
119	I117	J107	1141.280	1138.750	Circ	1	n/a	1.250	24.00	10.601	0.012
120	J107	J108	1137.500	1126.800	Circ	1	n/a	1.500	75.00	14.414	0.012
121	I118	J108	1138.850	1127.570	Circ	1	n/a	1.250	34.00	35.168	0.012
122	I119	I120	1141.450	1140.900	Circ	1	n/a	1.250	34.00	1.618	0.012
123	I120	J109	1140.650	1127.980	Circ	1	n/a	1.250	56.00	23.227	0.012
124	I121	J109	1139.810	1128.470	Circ	1	n/a	1.250	34.00	35.379	0.012
125	I122	J110	1146.860	1134.900	Circ	1	n/a	1.250	75.00	16.153	0.012
126	I123	I122	1146.860	1139.900	Circ	1	n/a	1.250	75.00	9.320	0.012
127	I124	I123	1146.060	1144.400	Circ	1	n/a	1.250	25.00	6.655	0.012
300	J300	O1	1116.050	1115.680	Circ	1	n/a	6.000	140.00	0.264	0.012
301	I300	I301	1128.990	1118.980	Circ	1	n/a	1.250	289.00	3.466	0.012
302	I301	J300	1118.980	1118.560	Circ	1	n/a	1.250	18.00	2.334	0.012
303	I302	J300	1130.450	1120.800	Circ	1	n/a	1.250	16.00	75.613	0.012
349	J110	J20	1133.520	1131.890	Circ	1	n/a	4.000	549.00	0.297	0.012
801	J801	J18	1127.250	1126.960	Circ	1	n/a	3.500	80.00	0.363	0.012
802	J802	J20	1136.660	1132.090	Circ	1	n/a	3.250	261.00	1.751	0.012

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	1125.004	1124.535	0.16	3.958	6.000	9.21	6.44	182.191	237.268	0.065
2	1125.319	1125.004	0.16	3.958	6.000	9.21	6.44	182.181	238.595	0.065
3	1126.078	1125.319	0.42	5.000	5.000	9.52	9.28	182.181	138.223	0.134
4	1126.579	1126.078	0.42	5.000	5.000	9.52	9.28	182.171	137.830	0.134
5	1127.980	1126.579	0.42	5.000	5.000	9.52	9.28	182.161	132.457	0.134
6	1134.830	1127.980	0.00	0.060	1.250	3.89	0.07	0.085	19.530	0.000
7	1128.351	1127.980	0.42	5.000	5.000	9.52	9.27	182.086	123.946	0.134
8	1134.120	1128.351	0.00	0.042	1.250	5.78	0.06	0.074	37.587	0.000
9	1128.684	1128.351	0.42	5.000	5.000	9.52	9.27	182.021	152.377	0.134
10	1132.989	1128.684	0.00	0.033	1.250	2.34	0.02	0.021	17.065	0.000
11	1129.005	1128.684	0.42	5.000	5.000	9.51	9.27	182.003	145.700	0.134
12	1132.559	1129.005	0.00	0.015	1.250	4.15	0.01	0.011	45.457	0.000
13	1129.500	1129.005	0.42	5.000	5.000	9.51	9.27	181.986	138.620	0.134
14	1132.489	1129.500	0.00	0.044	1.250	2.65	0.03	0.037	16.143	0.000
15	1129.500	1129.500	0.00	0.054	1.250	3.43	0.05	0.063	18.041	0.000
16	1130.070	1129.500	0.42	5.000	5.000	9.51	9.27	181.927	137.673	0.133
17	1131.909	1130.070	0.00	0.010	1.250	3.10	0.00	0.005	48.679	0.000
18	1130.881	1130.070	0.42	5.000	5.000	9.51	9.27	181.922	144.916	0.133
19	1133.229	1130.881	0.00	0.038	1.250	2.70	0.02	0.029	17.623	0.000
20	1130.881	1130.881	0.00	0.054	1.250	3.46	0.05	0.064	17.512	0.000
21	1132.332	1130.881	0.42	5.000	5.000	9.51	9.26	181.861	138.150	0.133
22	1134.259	1132.332	0.00	0.038	1.250	2.70	0.02	0.029	17.677	0.000
23	1132.685	1132.332	0.42	5.000	5.000	9.50	9.26	181.825	139.736	0.133
24	1133.076	1132.685	0.42	5.000	5.000	9.50	9.26	181.816	136.290	0.267
25	1134.899	1133.076	0.00	0.033	1.250	5.33	0.04	0.048	41.231	0.000
26	1134.301	1133.076	0.42	3.445	5.000	12.60	9.26	181.754	222.804	0.133
27	1135.289	1134.301	0.00	0.037	1.250	2.64	0.02	0.029	17.877	0.000
28	1134.982	1134.301	0.41	5.000	5.000	9.50	9.26	181.735	134.508	0.133
29	1135.339	1134.982	0.00	0.011	1.250	3.37	0.00	0.005	45.744	0.000
30	1136.273	1134.982	0.41	5.000	5.000	9.50	9.26	181.729	141.359	0.266
31	1137.642	1136.273	0.41	5.000	5.000	9.50	9.25	181.700	138.686	0.133
32	1137.642	1137.642	0.00	0.020	1.250	1.54	0.01	0.006	14.032	0.000
33	1137.642	1137.642	0.00	0.025	1.250	6.14	0.03	0.034	54.192	0.000
34	1137.642	1137.642	0.00	0.053	1.250	2.18	0.03	0.040	11.673	0.000
35	1138.082	1137.642	0.41	5.000	5.000	9.50	9.25	181.649	135.233	0.133
36	1138.082	1138.082	0.00	0.027	1.250	4.60	0.02	0.029	37.265	0.000
37	1138.753	1138.082	0.41	5.000	5.000	9.49	9.25	181.610	135.539	0.133
38	1138.754	1138.753	0.00	0.073	1.250	2.79	0.06	0.079	11.935	0.000
69	1139.806	1138.753	0.41	5.000	5.000	9.49	9.25	181.531	138.369	0.399
40	1141.578	1139.806	0.41	5.000	5.000	9.49	9.24	181.491	137.938	0.266
41	1144.163	1141.578	0.41	3.591	5.000	12.02	9.24	181.461	210.038	1.593
42	1144.496	1144.163	0.40	1.086	4.000	35.50	7.80	98.000	607.504	0.095
44	1144.266	1144.163	0.05	3.078	5.000	5.00	3.23	63.461	92.591	0.008
45	1144.686	1144.266	0.09	2.309	4.500	7.72	3.99	63.461	120.512	0.025
46	1144.971	1144.686	0.09	2.342	4.500	7.58	3.99	63.417	118.970	0.025
47	1145.246	1144.971	0.09	2.309	4.500	7.71	3.98	63.374	120.592	0.025
48	1145.624	1145.246	0.09	2.309	4.500	7.71	3.98	63.330	122.143	0.123
49	1145.918	1145.749	0.02	1.305	4.000	5.62	1.59	20.000	87.049	0.020
100	1131.819	1125.004	0.00	0.014	1.250	3.71	0.01	0.010	46.512	0.000
101	1133.589	1126.078	0.00	0.018	1.250	2.99	0.01	0.010	32.013	0.000
102	1132.649	1126.579	0.00	0.014	1.250	3.71	0.01	0.010	46.126	0.000

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
103	1133.469	1129.005	0.00	0.014	1.250	3.71	0.01	0.010	45.755	0.000
104	1135.481	1129.500	0.00	0.019	1.500	2.57	0.01	0.010	42.246	0.000
105	1134.069	1130.881	0.00	0.015	1.250	3.71	0.01	0.010	45.279	0.000
106	1135.719	1132.332	0.00	0.014	1.250	3.71	0.01	0.010	46.589	0.000
107	1137.689	1132.685	0.00	0.018	1.250	2.99	0.01	0.010	29.088	0.000
108	1137.219	1133.196	0.00	0.019	0.026	2.48	1.63	0.010	28.797	0.021
109	1137.799	1133.196	0.00	0.018	0.026	2.99	1.63	0.010	30.968	0.021
110	1133.196	1133.076	0.00	0.026	1.250	3.16	0.02	0.020	28.221	0.000
111	1139.589	1136.273	0.00	0.015	1.250	3.71	0.01	0.010	41.798	0.000
112	1138.829	1136.273	0.00	0.019	1.250	2.48	0.01	0.010	28.998	0.000
113	1136.273	1136.273	0.00	0.027	1.500	2.92	0.01	0.020	37.331	0.000
114	1136.409	1136.273	0.00	0.012	1.250	4.76	0.01	0.010	68.546	0.000
115	1140.419	1137.642	0.00	0.019	1.250	2.48	0.01	0.010	27.656	0.000
116	1138.099	1138.082	0.00	0.017	1.250	2.99	0.01	0.010	36.643	0.000
117	1139.806	1139.806	0.00	0.017	1.250	2.99	0.01	0.010	36.569	0.000
118	1140.829	1139.806	0.00	0.019	1.250	2.48	0.01	0.010	26.632	0.000
119	1141.489	1139.806	0.00	0.020	1.056	2.48	0.01	0.010	22.785	0.000
120	1139.806	1139.806	0.00	0.025	1.500	2.92	0.01	0.020	43.204	0.000
121	1139.806	1139.806	0.00	0.015	1.250	3.71	0.01	0.010	41.501	0.000
122	1141.659	1141.578	0.00	0.031	0.678	1.24	0.01	0.010	8.901	0.000
123	1141.578	1141.578	0.00	0.023	1.250	3.62	0.02	0.020	33.727	0.000
124	1141.578	1141.578	0.00	0.015	1.250	3.71	0.01	0.010	41.625	0.000
125	1147.242	1145.749	0.23	0.290	1.250	15.45	2.71	3.330	28.126	0.092
126	1147.358	1147.242	0.10	0.272	1.250	11.30	1.81	2.220	21.365	0.041
127	1147.371	1147.358	0.03	0.210	1.250	8.19	0.90	1.110	18.053	0.006
300	1124.535	1124.250	0.16	3.958	6.000	9.21	6.45	182.259	235.864	0.065
301	1129.200	1124.535	0.00	0.065	1.250	2.78	0.06	0.068	13.028	0.000
302	1124.535	1124.535	0.00	0.089	1.250	2.83	0.09	0.108	10.691	0.000
303	1130.659	1124.535	0.00	0.013	1.250	4.76	0.01	0.010	60.853	0.000
349	1145.749	1145.624	0.02	1.437	4.000	5.75	1.86	23.330	84.792	0.005
801	1144.204	1144.163	0.03	1.334	3.500	5.94	2.08	20.000	65.623	0.013
802	1146.182	1145.624	0.20	1.301	3.250	12.89	4.82	40.000	118.372	0.036

Computation Messages

---

*Warning: Discharge decreased downstream Junction J13 - previous intensity used
*Warning: Discharge decreased downstream Junction J8 - previous intensity used
*Warning: Discharge decreased downstream Junction J102 - previous intensity used
*Warning: Discharge decreased downstream Junction J101 - previous intensity used
*Warning: Discharge decreased downstream Junction J1 - previous intensity used
*Warning: Discharge decreased downstream Junction J100 - previous intensity used
*Warning: Run - 36 - Upstream Hydraulic Gradeline = 1138.08 - Exceeds Critical Elevation = 1137.02
*Warning: Run - 37 - Upstream Hydraulic Gradeline = 1138.75 - Exceeds Critical Elevation = 1130.00
*Warning: Run - 38 - Upstream Hydraulic Gradeline = 1138.75 - Exceeds Critical Elevation = 1136.04
*Warning: Run - 33 - Upstream Hydraulic Gradeline = 1137.64 - Exceeds Critical Elevation = 1137.44
*Computation: Run = 1 - Pipe Flowing Full
*Computation: Run = 2 - Pipe Flowing Full
*Computation: Run = 3 - Insufficient Capacity
*Computation: Run = 4 - Insufficient Capacity
*Computation: Run = 5 - Insufficient Capacity
*Computation: Run = 6 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 7 - Insufficient Capacity
*Computation: Run = 8 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 9 - Insufficient Capacity
*Computation: Run = 10 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 11 - Insufficient Capacity
*Computation: Run = 12 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 13 - Insufficient Capacity
*Computation: Run = 14 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 15 - Pipe Flowing Full
*Computation: Run = 16 - Insufficient Capacity
*Computation: Run = 17 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 18 - Insufficient Capacity
*Computation: Run = 19 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 20 - Pipe Flowing Full
*Computation: Run = 21 - Insufficient Capacity
*Computation: Run = 22 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 23 - Insufficient Capacity
*Computation: Run = 24 - Insufficient Capacity
*Computation: Run = 25 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 26 - Pipe Flowing Full
*Computation: Run = 27 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 28 - Insufficient Capacity
*Computation: Run = 29 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 30 - Insufficient Capacity
*Computation: Run = 31 - Insufficient Capacity

```
*Computation: Run = 32 - Pipe Flowing Full
*Computation: Run = 33 - Pipe Flowing Full
*Computation: Run = 34 - Pipe Flowing Full
*Computation: Run = 35 - Insufficient Capacity
*Computation: Run = 36 - Pipe Flowing Full
*Computation: Run = 37 - Insufficient Capacity
*Computation: Run = 38 - Pipe Flowing Full
*Computation: Run = 69 - Insufficient Capacity
*Computation: Run = 40 - Insufficient Capacity
*Computation: Run = 41 - Pipe Flowing Full
*Computation: Run = 42 - Pipe Flowing Full
*Computation: Run = 44 - Pipe Flowing Full
*Computation: Run = 45 - Pipe Flowing Full
*Computation: Run = 46 - Pipe Flowing Full
*Computation: Run = 47 - Pipe Flowing Full
*Computation: Run = 48 - Pipe Flowing Full
*Computation: Run = 49 - Pipe Flowing Full
*Computation: Run = 100 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 101 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 102 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 103 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 104 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 105 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 106 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 107 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 108 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 109 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 110 - Pipe Flowing Full
*Computation: Run = 111 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 112 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 113 - Pipe Flowing Full
*Computation: Run = 114 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 115 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 116 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 117 - Pipe Flowing Full
*Computation: Run = 118 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 119 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 120 - Pipe Flowing Full
*Computation: Run = 121 - Pipe Flowing Full
*Computation: Run = 122 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 123 - Pipe Flowing Full
*Computation: Run = 124 - Pipe Flowing Full
*Computation: Run = 125 - Pipe Flowing Full
*Computation: Run = 126 - Pipe Flowing Full
*Computation: Run = 127 - Pipe Flowing Full
*Computation: Run = 300 - Pipe Flowing Full
*Computation: Run = 301 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 302 - Pipe Flowing Full
```

```
*Computation: Run = 303 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 349 - Pipe Flowing Full
*Computation: Run = 801 - Pipe Flowing Full
*Computation: Run = 802 - Pipe Flowing Full


NORMAL Completion of WinStorm.
```

2-year Check of South Trunk Line
Catch Basin Input Based on HEC-1
Pump Station Output is Conservative

JOB CONTROL : CONT
JOB SECTION : SEC
JOB NUMBER : JOB
PROJECT DESCRIPTION : SQUAW PEAK PARKWAY
ANALYSYS FREQUENCY : 2 Year
MEASUREMENT UNITS: Input ENGLISH Output ENGLISH

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 1	0.990	1.784	10.00	10.00	2.948	0.000	5.206
I 2	0.990	1.582	5.00	10.00	2.948	0.000	4.617
I 3	0.990	0.425	5.00	10.00	2.948	0.000	1.240
I 4	0.990	0.235	5.00	10.00	2.948	0.000	0.686
I 5	0.990	0.774	5.00	10.00	2.948	0.000	2.259
I 6	0.000	0.000	0.00	0.00	0.000	19.600	19.600
I 7	0.990	0.343	5.00	10.00	2.948	0.000	1.001
I 8	0.990	0.616	5.00	10.00	2.948	0.000	1.798
I 9	0.990	2.543	5.00	10.00	2.948	0.000	7.421
I 10	0.990	0.616	5.00	10.00	2.948	0.000	1.798
I 11	0.000	0.000	0.00	0.00	0.000	18.300	18.300
I 12	0.990	0.603	5.00	10.00	2.948	0.000	1.760
I 13	0.990	0.115	5.00	10.00	2.948	0.000	0.336
I 14	0.990	0.118	5.00	10.00	2.948	0.000	0.344
I 15	0.990	0.715	5.00	10.00	2.948	0.000	2.087
I 16	0.000	0.000	0.00	0.00	0.000	9.100	9.100
I 17	0.990	0.974	5.00	10.00	2.948	0.000	2.842
I 18	0.000	0.000	0.00	0.00	0.000	57.000	57.000
I 19	0.990	0.960	5.00	10.00	2.948	0.000	2.801
I 20	0.990	0.960	5.00	10.00	2.948	0.000	2.801
I 21	0.990	0.960	5.00	10.00	2.948	0.000	2.801
J 21	0.000	0.000	0.00	0.00	0.000	0.100	0.100
I 100	0.000	0.000	0.00	0.00	0.000	5.600	5.600
I 101	0.000	0.000	0.00	0.00	0.000	4.400	4.400
I 102	0.000	0.000	0.00	0.00	0.000	1.600	1.600
I 103	0.000	0.000	0.00	0.00	0.000	10.300	10.300
I 104	0.000	0.000	0.00	0.00	0.000	7.200	7.200
I 105	0.000	0.000	0.00	0.00	0.000	2.700	2.700
I 106	0.000	0.000	0.00	0.00	0.000	2.900	2.900
I 107	0.000	0.000	0.00	0.00	0.000	4.800	4.800
I 108	0.000	0.000	0.00	0.00	0.000	6.700	6.700
I 109	0.000	0.000	0.00	0.00	0.000	0.600	0.600
I 110	0.000	0.000	0.00	0.00	0.000	0.400	0.400
I 111	0.000	0.000	0.00	0.00	0.000	0.400	0.400
I 112	0.000	0.000	0.00	0.00	0.000	5.300	5.300
I 113	0.000	0.000	0.00	0.00	0.000	1.200	1.200
I 114	0.000	0.000	0.00	0.00	0.000	3.500	3.500
I 115	0.000	0.000	0.00	0.00	0.000	2.300	2.300
I 116	0.000	0.000	0.00	0.00	0.000	2.300	2.300
I 117	0.000	0.000	0.00	0.00	0.000	2.300	2.300
I 118	0.000	0.000	0.00	0.00	0.000	2.500	2.500
I 119	0.000	0.000	0.00	0.00	0.000	1.700	1.700
I 120	0.000	0.000	0.00	0.00	0.000	2.300	2.300
I 121	0.000	0.000	0.00	0.00	0.000	1.900	1.900
I 122	0.000	0.000	0.00	0.00	0.000	2.000	2.000
I 123	0.000	0.000	0.00	0.00	0.000	2.000	2.000
I 124	0.000	0.000	0.00	0.00	0.000	2.000	2.000
I 300	0.990	1.495	10.00	10.00	2.948	0.000	4.363
I 301	0.990	1.056	10.00	10.00	2.948	0.000	3.082
I 302	0.000	0.000	0.00	0.00	0.000	1.110	1.110
J 801	0.000	0.000	0.00	0.00	0.000	10.000	10.000

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
J 802	0.000	0.000	0.00	0.00	0.000	20.000	20.000

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I1	0.990	1.784	10.00	2.948	0.000	5.206
J1	0.990	14.323	25.42	1.720	207.400	231.791
I2	0.990	1.582	10.00	2.948	0.000	4.617
I3	0.990	0.425	10.00	2.948	0.000	1.240
J3	0.990	14.323	24.87	1.744	201.400	226.136
I4	0.990	0.235	10.00	2.948	0.000	0.686
J4	0.990	12.539	24.79	1.748	201.400	223.101
I5	0.990	0.774	10.00	2.948	0.000	2.259
J5	0.990	10.957	24.72	1.751	201.400	220.397
I6	0.990	0.774	10.00	2.948	19.600	21.859
J6	0.990	10.532	24.65	1.754	201.400	219.691
I7	0.990	0.343	10.00	2.948	0.000	1.001
J7	0.990	10.297	24.52	1.760	191.100	209.044
I8	0.990	0.616	10.00	2.948	0.000	1.798
J8	0.990	9.523	24.33	1.769	164.300	180.976
I9	0.990	3.159	10.00	2.948	0.000	9.219
J9	0.990	9.180	24.05	1.782	164.300	180.497
I10	0.990	0.616	10.00	2.948	0.000	1.798
J10	0.990	6.021	23.46	1.810	161.600	172.391
I11	0.000	0.000	0.00	0.000	18.300	18.300
J11	0.990	5.405	23.30	1.818	153.900	163.628
I12	0.990	0.603	10.00	2.948	0.000	1.760
J12	0.990	5.405	22.93	1.836	128.300	138.127
I13	0.990	0.115	10.00	2.948	0.000	0.336
J13	0.990	4.802	22.66	1.850	128.300	137.097
I14	0.990	0.118	10.00	2.948	0.000	0.344
J14	0.990	4.687	21.55	1.909	122.200	131.060
I15	0.990	0.715	10.00	2.948	0.000	2.087
J15	0.990	0.833	10.00	2.948	0.000	2.431
I16	0.000	0.000	0.00	0.000	9.100	9.100
J16	0.990	3.854	21.39	1.918	121.000	128.318
I17	0.990	0.974	10.00	2.948	0.000	2.842
J17	0.990	3.854	21.12	1.933	108.400	115.777
I18	0.000	0.000	0.00	0.000	57.000	57.000
J18	0.990	2.880	19.63	2.022	93.100	98.866
I19	0.990	2.880	17.70	2.152	26.100	32.237
J19	0.990	2.880	17.70	2.152	26.100	32.237
I20	0.990	1.920	16.91	2.211	26.100	30.303
J20	0.000	0.000	15.35	2.339	26.100	26.100
I21	0.990	0.960	16.14	2.272	26.100	28.259
J21	0.000	0.000	0.00	0.000	0.100	0.100
I100	0.000	0.000	0.00	0.000	5.600	5.600
J100	0.990	14.323	25.90	1.700	213.000	237.099
I101	0.000	0.000	0.00	0.000	4.400	4.400
J101	0.990	14.323	25.42	1.720	207.400	231.791
I102	0.000	0.000	0.00	0.000	1.600	1.600
J102	0.990	14.323	25.30	1.726	203.000	227.467
I103	0.000	0.000	0.00	0.000	10.300	10.300
J103	0.990	5.405	23.36	1.815	158.700	168.413
I104	0.000	0.000	0.00	0.000	7.200	7.200
J104	0.000	0.000	10.00	2.948	7.300	7.300

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I105	0.000	0.000	0.00	0.000	2.700	2.700
J105	0.000	0.000	10.00	2.948	0.800	0.800
I106	0.000	0.000	0.00	0.000	2.900	2.900
J106	0.990	4.687	22.15	1.877	128.300	137.008
I107	0.000	0.000	0.00	0.000	4.800	4.800
J107	0.000	0.000	10.00	2.948	4.600	4.600
I108	0.000	0.000	0.00	0.000	6.700	6.700
J108	0.990	2.880	20.78	1.953	108.400	113.967
I109	0.000	0.000	0.00	0.000	0.600	0.600
J109	0.990	2.880	20.01	1.999	99.000	104.699
I110	0.000	0.000	0.00	0.000	0.400	0.400
J110	0.000	0.000	13.02	2.566	6.100	6.100
I111	0.000	0.000	0.00	0.000	0.400	0.400
I112	0.000	0.000	0.00	0.000	5.300	5.300
I113	0.000	0.000	0.00	0.000	1.200	1.200
I114	0.000	0.000	0.00	0.000	3.500	3.500
I115	0.000	0.000	0.00	0.000	2.300	2.300
I116	0.000	0.000	0.00	0.000	2.300	2.300
I117	0.000	0.000	0.00	0.000	2.300	2.300
I118	0.000	0.000	0.00	0.000	2.500	2.500
I119	0.000	0.000	0.00	0.000	1.700	1.700
I120	0.000	0.000	10.00	2.948	4.000	4.000
I121	0.000	0.000	0.00	0.000	1.900	1.900
I122	0.000	0.000	10.00	2.948	6.000	6.000
I123	0.000	0.000	10.00	2.948	4.000	4.000
I124	0.000	0.000	0.00	0.000	2.000	2.000
I300	0.990	1.495	10.00	2.948	0.000	4.363
J300	0.990	16.874	26.35	1.681	214.110	242.188
I301	0.990	2.551	10.50	2.875	0.000	7.261
I302	0.000	0.000	0.00	0.000	1.110	1.110
J801	0.000	0.000	0.00	0.000	10.000	10.000
J802	0.000	0.000	0.00	0.000	20.000	20.000

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
1	J100	J300	1116.740	1116.050	Circ	1	n/a	6.000	258.00	0.267	0.012
2	J1	J100	1117.170	1116.740	Circ	1	n/a	6.000	159.00	0.270	0.012
3	J101	J1	1118.530	1118.170	Circ	1	n/a	5.000	150.00	0.240	0.012
4	J102	J101	1118.740	1118.530	Circ	1	n/a	5.000	88.00	0.239	0.012
5	J3	J102	1119.410	1118.740	Circ	1	n/a	5.000	304.00	0.220	0.012
6	I1	J3	1134.620	1121.420	Circ	1	n/a	1.250	170.00	7.788	0.012
7	J4	J3	1119.520	1119.410	Circ	1	n/a	5.000	57.00	0.193	0.012
8	I2	J4	1133.910	1121.160	Circ	1	n/a	1.250	46.00	28.848	0.012
9	J5	J4	1119.660	1119.520	Circ	1	n/a	5.000	48.00	0.292	0.012
10	I3	J5	1132.780	1121.620	Circ	1	n/a	1.250	188.00	5.947	0.012
11	J6	J5	1119.780	1119.660	Circ	1	n/a	5.000	45.00	0.267	0.012
12	I4	J6	1132.350	1123.020	Circ	1	n/a	1.250	24.00	42.194	0.012
13	J7	J6	1119.990	1119.780	Circ	1	n/a	5.000	87.00	0.241	0.012
14	I5	I6	1132.280	1123.140	Circ	1	n/a	1.250	172.00	5.321	0.012
15	I6	J7	1123.140	1121.880	Circ	1	n/a	1.250	19.00	6.646	0.012
16	J8	J7	1120.240	1119.990	Circ	1	n/a	5.000	105.00	0.238	0.012
17	I7	J8	1131.700	1123.860	Circ	1	n/a	1.250	18.00	48.386	0.012
18	J9	J8	1120.670	1120.240	Circ	1	n/a	5.000	163.00	0.264	0.012
19	I8	I9	1133.020	1124.160	Circ	1	n/a	1.250	140.00	6.341	0.012
20	I9	J9	1124.160	1122.660	Circ	1	n/a	1.250	24.00	6.262	0.012
21	J10	J9	1121.430	1120.670	Circ	1	n/a	5.000	317.00	0.240	0.012
22	I10	J10	1134.050	1123.480	Circ	1	n/a	1.250	166.00	6.380	0.012
23	J103	J10	1121.560	1121.430	Circ	1	n/a	5.000	53.00	0.245	0.012
24	J11	J103	1121.630	1121.560	Circ	1	n/a	5.000	30.00	0.233	0.012
25	I11	J11	1134.690	1125.180	Circ	1	n/a	1.250	29.00	34.713	0.012
26	J12	J11	1122.270	1120.630	Circ	1	n/a	5.000	263.00	0.624	0.012
27	I12	J12	1135.080	1124.270	Circ	1	n/a	1.250	166.00	6.526	0.012
28	J13	J12	1122.570	1122.270	Circ	1	n/a	5.000	132.00	0.227	0.012
29	I13	J13	1135.130	1125.700	Circ	1	n/a	1.250	24.00	42.728	0.012
30	J106	J13	1123.190	1122.570	Circ	1	n/a	5.000	247.00	0.251	0.012
31	J14	J106	1123.910	1123.190	Circ	1	n/a	5.000	298.00	0.242	0.012
32	I14	J15	1133.650	1126.740	Circ	1	n/a	1.250	172.00	4.021	0.012
33	I15	J15	1133.940	1126.740	Circ	1	n/a	1.250	14.00	59.967	0.012
34	J15	J14	1126.740	1125.850	Circ	1	n/a	1.250	32.00	2.782	0.012
35	J16	J14	1124.080	1123.910	Circ	1	n/a	5.000	74.00	0.230	0.012
36	I16	J16	1133.520	1126.700	Circ	1	n/a	1.250	25.00	28.356	0.012
37	J17	J16	1124.380	1124.080	Circ	1	n/a	5.000	130.00	0.231	0.012
38	I17	J17	1132.540	1126.260	Circ	1	n/a	1.250	216.00	2.909	0.012
69	J108	J17	1124.760	1124.380	Circ	1	n/a	5.000	158.00	0.241	0.012
40	J109	J108	1125.630	1124.760	Circ	1	n/a	5.000	364.00	0.239	0.012
41	J18	J109	1126.960	1125.630	Circ	1	n/a	5.000	240.00	0.554	0.012
42	I18	J18	1137.000	1127.960	Circ	1	n/a	4.000	60.00	15.241	0.012
44	J19	J18	1126.670	1126.460	Circ	1	n/a	5.000	195.00	0.108	0.012
45	I19	J19	1128.610	1127.170	Circ	1	n/a	4.500	450.00	0.320	0.012
46	I20	I19	1129.530	1128.610	Circ	1	n/a	4.500	295.00	0.312	0.012
47	I21	I20	1130.440	1129.530	Circ	1	n/a	4.500	284.00	0.320	0.012
48	J20	I21	1131.390	1130.440	Circ	1	n/a	4.500	289.00	0.329	0.012
49	J21	J110	1136.330	1133.520	Circ	1	n/a	4.000	898.00	0.313	0.012
100	I100	J100	1131.610	1120.700	Circ	1	n/a	1.250	27.00	44.174	0.012
101	I101	J101	1133.380	1121.500	Circ	1	n/a	1.250	58.00	20.926	0.012
102	I102	J102	1132.440	1122.080	Circ	1	n/a	1.250	26.00	43.444	0.012

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
103	I103	J6	1133.260	1123.040	Circ	1	n/a	1.250	26.00	42.749	0.012
104	I104	J7	1135.230	1121.850	Circ	1	n/a	1.500	98.00	13.782	0.012
105	I105	J9	1133.860	1123.820	Circ	1	n/a	1.250	26.00	41.862	0.012
106	I106	J10	1135.510	1124.570	Circ	1	n/a	1.250	27.00	44.320	0.012
107	I107	J103	1137.480	1123.520	Circ	1	n/a	1.250	82.00	17.277	0.012
108	I108	J104	1137.010	1133.170	Circ	1	n/a	1.250	23.00	16.933	0.012
109	I109	J104	1137.590	1133.170	Circ	1	n/a	1.250	23.00	19.582	0.012
110	J104	J11	1133.170	1123.860	Circ	1	n/a	1.250	58.00	16.263	0.012
111	I110	J105	1139.380	1132.660	Circ	1	n/a	1.250	20.00	35.674	0.012
112	I111	J105	1138.620	1134.220	Circ	1	n/a	1.250	26.00	17.171	0.012
113	J105	J106	1132.660	1125.170	Circ	1	n/a	1.500	70.00	10.762	0.012
114	I112	J106	1136.200	1127.200	Circ	1	n/a	1.250	13.00	95.940	0.012
115	I113	J14	1140.210	1126.940	Circ	1	n/a	1.250	86.00	15.617	0.012
116	I114	J16	1137.890	1126.520	Circ	1	n/a	1.250	43.00	27.418	0.012
117	I115	J108	1138.520	1128.510	Circ	1	n/a	1.250	38.00	27.307	0.012
118	I116	J107	1140.620	1138.470	Circ	1	n/a	1.250	15.00	14.483	0.012
119	I117	J107	1141.280	1138.750	Circ	1	n/a	1.250	24.00	10.601	0.012
120	J107	J108	1137.500	1126.800	Circ	1	n/a	1.500	75.00	14.414	0.012
121	I118	J108	1138.850	1127.570	Circ	1	n/a	1.250	34.00	35.168	0.012
122	I119	I120	1141.450	1140.900	Circ	1	n/a	1.250	34.00	1.618	0.012
123	I120	J109	1140.650	1127.980	Circ	1	n/a	1.250	56.00	23.227	0.012
124	I121	J109	1139.810	1128.470	Circ	1	n/a	1.250	34.00	35.379	0.012
125	I122	J110	1146.860	1134.900	Circ	1	n/a	1.250	75.00	16.153	0.012
126	I123	I122	1146.860	1139.900	Circ	1	n/a	1.250	75.00	9.320	0.012
127	I124	I123	1146.060	1144.400	Circ	1	n/a	1.250	25.00	6.655	0.012
300	J300	O1	1116.050	1115.680	Circ	1	n/a	6.000	140.00	0.264	0.012
301	I300	I301	1128.990	1118.980	Circ	1	n/a	1.250	289.00	3.466	0.012
302	I301	J300	1118.980	1118.560	Circ	1	n/a	1.250	18.00	2.334	0.012
303	I302	J300	1130.450	1120.800	Circ	1	n/a	1.250	16.00	75.613	0.012
349	J110	J20	1133.520	1131.890	Circ	1	n/a	4.000	549.00	0.297	0.012
801	J801	J18	1127.250	1126.960	Circ	1	n/a	3.500	80.00	0.363	0.012
802	J802	J20	1136.660	1132.090	Circ	1	n/a	3.250	261.00	1.751	0.012

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	1125.548	1124.754	0.27	4.925	6.000	9.55	8.39	237.099	237.268	0.109
2	1126.058	1125.548	0.26	4.750	6.000	9.66	8.20	231.791	238.595	0.104
3	1127.287	1126.058	0.67	5.000	5.000	12.12	11.81	231.791	138.223	0.217
4	1128.067	1127.287	0.65	5.000	5.000	11.89	11.58	227.467	137.830	0.209
5	1130.227	1128.067	0.64	5.000	5.000	11.82	11.52	226.136	132.457	0.206
6	1135.200	1130.227	0.55	0.440	1.250	13.46	4.24	5.206	19.530	0.140
7	1130.784	1130.227	0.63	5.000	5.000	11.66	11.36	223.101	123.946	0.201
8	1134.316	1130.784	0.44	0.296	1.250	20.71	3.76	4.617	37.587	0.110
9	1131.272	1130.784	0.61	5.000	5.000	11.52	11.22	220.397	152.377	0.196
10	1133.016	1131.272	0.03	0.228	1.250	8.11	1.01	1.240	17.065	0.008
11	1131.740	1131.272	0.61	5.000	5.000	11.48	11.19	219.691	145.700	0.195
12	1132.562	1131.740	0.01	0.107	1.250	13.59	0.56	0.686	45.457	0.002
13	1132.394	1131.740	0.55	5.000	5.000	10.93	10.65	209.044	138.620	0.176
14	1138.397	1138.192	0.10	0.316	1.250	9.31	1.84	2.259	16.143	0.026
15	1138.192	1132.394	9.76	1.250	1.250	18.29	17.81	21.859	18.041	3.944
16	1132.958	1132.394	0.41	5.000	5.000	9.46	9.22	180.976	137.673	0.132
17	1132.967	1132.958	0.02	0.124	1.250	15.70	0.82	1.001	48.679	0.005
18	1133.756	1132.958	0.41	5.000	5.000	9.44	9.19	180.497	144.916	0.131
19	1134.983	1134.874	0.07	0.270	1.250	9.26	1.46	1.798	17.623	0.017
20	1134.874	1133.756	1.74	0.644	1.250	14.44	7.51	9.219	17.512	0.702
21	1135.059	1133.756	0.37	5.000	5.000	9.01	8.78	172.391	138.150	0.120
22	1135.186	1135.059	0.07	0.269	1.250	9.26	1.46	1.798	17.677	0.017
23	1135.363	1135.059	0.36	5.000	5.000	8.80	8.58	168.413	139.736	0.114
24	1135.679	1135.363	0.34	5.000	5.000	8.55	8.33	163.628	136.290	0.216
25	1139.391	1135.679	6.84	0.583	1.250	32.62	14.91	18.300	41.231	1.728
26	1136.387	1135.679	0.24	2.859	5.000	11.90	7.03	138.127	222.804	0.077
27	1136.508	1136.387	0.06	0.265	1.250	9.29	1.43	1.760	17.877	0.016
28	1136.774	1136.387	0.24	4.105	5.000	7.95	6.98	137.097	134.508	0.076
29	1136.775	1136.774	0.00	0.076	1.250	10.79	0.27	0.336	45.744	0.001
30	1137.505	1136.774	0.24	3.958	5.000	8.22	6.98	137.008	141.359	0.151
31	1138.215	1137.505	0.22	3.811	5.000	8.16	6.67	131.060	138.686	0.069
32	1138.307	1138.302	0.00	0.135	1.250	4.87	0.28	0.344	14.032	0.001
33	1138.337	1138.302	0.09	0.168	1.250	21.14	1.70	2.087	54.192	0.022
34	1138.302	1138.215	0.12	0.387	1.250	7.51	1.98	2.431	11.673	0.049
35	1138.431	1138.215	0.21	3.811	5.000	7.99	6.54	128.318	135.233	0.066
36	1139.281	1138.431	1.69	0.421	1.250	25.11	7.42	9.100	37.265	0.427
37	1138.700	1138.431	0.17	3.518	5.000	7.84	5.90	115.777	135.539	0.054
38	1139.098	1138.700	0.16	0.415	1.250	7.96	2.32	2.842	11.935	0.042
69	1139.112	1138.700	0.16	3.445	5.000	7.90	5.80	113.967	138.369	0.157
40	1139.701	1139.112	0.14	3.225	5.000	7.82	5.33	104.699	137.938	0.088
41	1140.468	1139.701	0.12	2.419	5.000	10.51	5.04	98.866	210.038	0.473
42	1140.581	1140.468	0.13	0.827	4.000	30.41	4.54	57.000	607.504	0.032
44	1140.495	1140.468	0.01	2.052	5.000	4.25	1.64	32.237	92.591	0.002
45	1140.605	1140.495	0.02	1.583	4.500	6.45	2.03	32.237	120.512	0.006
46	1140.670	1140.605	0.02	1.550	4.500	6.24	1.91	30.303	118.970	0.006
47	1140.725	1140.670	0.02	1.484	4.500	6.18	1.78	28.259	120.592	0.005
48	1140.789	1140.725	0.02	1.418	4.500	6.07	1.64	26.100	122.143	0.021
49	1140.794	1140.794	0.00	0.103	4.000	1.15	0.01	0.100	87.049	0.000
100	1132.064	1125.548	0.64	0.293	1.250	25.69	4.56	5.600	46.512	0.162
101	1133.793	1127.287	0.40	0.313	1.250	18.33	3.59	4.400	32.013	0.100
102	1132.656	1128.067	0.05	0.160	1.250	17.59	1.30	1.600	46.126	0.013

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
103	1134.211	1131.740	2.17	0.404	1.250	29.98	8.39	10.300	45.755	0.547
104	1135.777	1132.394	0.40	0.418	1.500	17.83	4.07	7.200	42.246	0.129
105	1134.104	1133.756	0.15	0.207	1.250	20.23	2.20	2.700	45.279	0.038
106	1135.765	1135.059	0.17	0.211	1.250	21.05	2.36	2.900	46.589	0.043
107	1137.942	1135.363	0.47	0.343	1.250	17.59	3.91	4.800	29.088	0.119
108	1137.652	1136.750	0.92	0.411	1.250	19.06	5.46	6.700	28.797	0.232
109	1137.802	1136.750	0.01	0.121	1.250	9.94	0.49	0.600	30.968	0.002
110	1136.750	1135.679	1.09	0.433	1.250	19.28	5.95	7.300	28.221	0.440
111	1139.591	1137.511	0.00	0.086	1.250	10.89	0.33	0.400	41.798	0.001
112	1138.831	1137.511	0.00	0.102	1.250	8.46	0.33	0.400	28.998	0.001
113	1137.511	1137.505	0.00	0.152	1.500	8.49	0.45	0.800	37.331	0.003
114	1137.725	1137.505	0.57	0.235	1.250	33.19	4.32	5.300	68.546	0.145
115	1140.424	1138.215	0.03	0.177	1.250	11.26	0.98	1.200	27.656	0.007
116	1138.602	1138.431	0.25	0.261	1.250	18.94	2.85	3.500	36.643	0.063
117	1139.180	1139.112	0.11	0.212	1.250	16.70	1.87	2.300	36.569	0.027
118	1140.920	1139.319	0.11	0.248	0.849	13.28	2.59	2.300	26.632	0.052
119	1141.688	1139.319	0.11	0.269	0.569	11.85	4.23	2.300	22.785	0.139
120	1139.319	1139.112	0.16	0.331	1.500	15.88	2.60	4.600	43.204	0.084
121	1139.188	1139.112	0.13	0.208	1.250	18.73	2.04	2.500	41.501	0.032
122	1142.063	1141.072	0.06	0.370	0.370	5.60	5.60	1.700	8.901	0.243
123	1141.072	1139.701	0.33	0.290	1.250	18.55	3.26	4.000	33.727	0.132
124	1140.027	1139.701	0.07	0.182	1.250	17.17	1.55	1.900	41.625	0.019
125	1147.549	1140.794	0.74	0.392	1.250	18.17	4.89	6.000	28.126	0.297
126	1147.927	1147.549	0.33	0.366	1.250	13.34	3.26	4.000	21.365	0.132
127	1147.968	1147.927	0.08	0.281	1.250	9.71	1.63	2.000	18.053	0.021
300	1124.754	1124.250	0.28	5.101	6.000	9.45	8.57	242.188	235.864	0.114
301	1129.586	1125.383	0.39	0.498	1.250	9.56	3.56	4.363	13.028	0.098
302	1125.383	1124.754	1.08	0.756	1.250	9.36	5.92	7.261	10.691	0.435
303	1130.664	1124.754	0.03	0.117	1.250	18.92	0.90	1.110	60.853	0.006
349	1140.794	1140.789	0.00	0.726	4.000	3.92	0.49	6.100	84.792	0.000
801	1140.478	1140.468	0.01	0.924	3.500	4.93	1.04	10.000	65.623	0.003
802	1140.929	1140.789	0.05	0.904	3.250	10.62	2.41	20.000	118.372	0.009

Computation Messages

---

*Warning: Discharge decreased downstream Junction J19 - previous intensity used
*Warning: Discharge decreased downstream Junction J1 - previous intensity used
*Warning: Run - 15 - Upstream Hydraulic Gradeline = 1138.19 - Exceeds Critical Elevation = 1135.55
*Warning: Run - 25 - Upstream Hydraulic Gradeline = 1139.39 - Exceeds Critical Elevation = 1137.69
*Warning: Run - 36 - Upstream Hydraulic Gradeline = 1139.28 - Exceeds Critical Elevation = 1137.02
*Warning: Run - 37 - Upstream Hydraulic Gradeline = 1138.70 - Exceeds Critical Elevation = 1130.00
*Warning: Run - 38 - Upstream Hydraulic Gradeline = 1139.10 - Exceeds Critical Elevation = 1136.04
*Warning: Run - 33 - Upstream Hydraulic Gradeline = 1138.34 - Exceeds Critical Elevation = 1137.44
*Computation: Run = 1 - Pipe Flowing Full
*Computation: Run = 2 - Pipe Flowing Full
*Computation: Run = 3 - Insufficient Capacity
*Computation: Run = 4 - Insufficient Capacity
*Computation: Run = 5 - Insufficient Capacity
*Computation: Run = 6 - Pipe Flowing Full
*Computation: Run = 7 - Insufficient Capacity
*Computation: Run = 8 - Pipe Flowing Full
*Computation: Run = 9 - Insufficient Capacity
*Computation: Run = 10 - Pipe Flowing Full
*Computation: Run = 11 - Insufficient Capacity
*Computation: Run = 12 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 13 - Insufficient Capacity
*Computation: Run = 14 - Pipe Flowing Full
*Computation: Run = 15 - Insufficient Capacity
*Computation: Run = 16 - Insufficient Capacity
*Computation: Run = 17 - Pipe Flowing Full
*Computation: Run = 18 - Insufficient Capacity
*Computation: Run = 19 - Pipe Flowing Full
*Computation: Run = 20 - Pipe Flowing Full
*Computation: Run = 21 - Insufficient Capacity
*Computation: Run = 22 - Pipe Flowing Full
*Computation: Run = 23 - Insufficient Capacity
*Computation: Run = 24 - Insufficient Capacity
*Computation: Run = 25 - Pipe Flowing Full
*Computation: Run = 26 - Pipe Flowing Full
*Computation: Run = 27 - Pipe Flowing Full
*Computation: Run = 28 - Insufficient Capacity
*Computation: Run = 29 - Pipe Flowing Full
*Computation: Run = 30 - Pipe Flowing Full
*Computation: Run = 31 - Pipe Flowing Full
*Computation: Run = 32 - Pipe Flowing Full
*Computation: Run = 33 - Pipe Flowing Full
*Computation: Run = 34 - Pipe Flowing Full
*Computation: Run = 35 - Pipe Flowing Full
*Computation: Run = 36 - Pipe Flowing Full
*Computation: Run = 37 - Pipe Flowing Full
*Computation: Run = 38 - Pipe Flowing Full
*Computation: Run = 69 - Pipe Flowing Full
*Computation: Run = 40 - Pipe Flowing Full
*Computation: Run = 41 - Pipe Flowing Full
*Computation: Run = 42 - Pipe Flowing Full
*Computation: Run = 44 - Pipe Flowing Full
*Computation: Run = 45 - Pipe Flowing Full

```
*Computation: Run = 46 - Pipe Flowing Full
*Computation: Run = 47 - Pipe Flowing Full
*Computation: Run = 48 - Pipe Flowing Full
*Computation: Run = 49 - Pipe Flowing Full
*Computation: Run = 100 - Pipe Flowing Full
*Computation: Run = 101 - Pipe Flowing Full
*Computation: Run = 102 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 103 - Pipe Flowing Full
*Computation: Run = 104 - Pipe Flowing Full
*Computation: Run = 105 - Pipe Flowing Full
*Computation: Run = 106 - Pipe Flowing Full
*Computation: Run = 107 - Pipe Flowing Full
*Computation: Run = 108 - Pipe Flowing Full
*Computation: Run = 109 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 110 - Pipe Flowing Full
*Computation: Run = 111 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 112 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 113 - Pipe Flowing Full
*Computation: Run = 114 - Pipe Flowing Full
*Computation: Run = 115 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 116 - Pipe Flowing Full
*Computation: Run = 117 - Pipe Flowing Full
*Computation: Run = 120 - Pipe Flowing Full
*Computation: Run = 121 - Pipe Flowing Full
*Computation: Run = 123 - Pipe Flowing Full
*Computation: Run = 124 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 125 - Pipe Flowing Full
*Computation: Run = 126 - Pipe Flowing Full
*Computation: Run = 127 - Pipe Flowing Full
*Computation: Run = 300 - Insufficient Capacity
*Computation: Run = 301 - Pipe Flowing Full
*Computation: Run = 302 - Pipe Flowing Full
*Computation: Run = 303 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 349 - Pipe Flowing Full
*Computation: Run = 801 - Pipe Flowing Full
*Computation: Run = 802 - Pipe Flowing Full


NORMAL Completion of WinStorm.
```

STRNKCAP.OUT
Indian School HGL @ 1133.5

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 1
Tue Nov 25 15:40:17 1997

JOB CONTROL : CONT
JOB SECTION : SEC
JOB NUMBER : JOB
PROJECT DESCRIPTION : SQUAW PEAK PARKWAY
ANALYSYS FREQUENCY : 10 Year
MEASUREMENT UNITS: Input ENGLISH Output ENGLISH

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 1	0.010	1.874	10.00	10.00	4.556	0.000	0.085
I 2	0.010	1.634	5.00	10.00	4.556	0.000	0.074
I 3	0.010	0.459	5.00	10.00	4.556	0.000	0.021
I 4	0.010	0.246	5.00	10.00	4.556	0.000	0.011
I 5	0.010	0.810	5.00	10.00	4.556	0.000	0.037
I 6	0.010	0.573	5.00	10.00	4.556	0.000	0.026
I 7	0.010	0.106	5.00	10.00	4.556	0.000	0.005
I 8	0.010	0.644	5.00	10.00	4.556	0.000	0.029
I 9	0.010	0.753	5.00	10.00	4.556	0.000	0.034
I 10	0.010	0.644	5.00	10.00	4.556	0.000	0.029
I 11	0.010	1.048	5.00	10.00	4.556	0.000	0.048
I 12	0.010	0.629	5.00	10.00	4.556	0.000	0.029
I 13	0.010	0.115	5.00	10.00	4.556	0.000	0.005
I 14	0.010	0.136	5.00	10.00	4.556	0.000	0.006
I 15	0.010	0.745	5.00	10.00	4.556	0.000	0.034
I 16	0.010	0.640	5.00	10.00	4.556	0.000	0.029
I 17	0.010	1.737	5.00	10.00	4.556	0.000	0.079
I 18	0.000	0.000	0.00	0.00	0.000	57.000	57.000
I 19	0.010	0.960	5.00	10.00	4.556	0.000	0.044
I 20	0.010	0.960	5.00	10.00	4.556	0.000	0.044
I 21	0.010	0.960	5.00	10.00	4.556	0.000	0.044
J 21	0.000	0.000	0.00	0.00	0.000	10.000	10.000
I 100	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 101	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 102	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 103	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 104	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 105	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 106	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 107	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 108	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 109	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 110	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 111	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 112	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 113	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 114	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 115	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 116	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 117	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 118	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 119	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 120	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 121	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 122	0.000	0.000	0.00	0.00	0.000	1.110	1.110
I 123	0.000	0.000	0.00	0.00	0.000	1.110	1.110
I 124	0.000	0.000	0.00	0.00	0.000	1.110	1.110
I 300	0.010	1.495	10.00	10.00	4.556	0.000	0.068
I 301	0.010	1.056	10.00	10.00	4.556	0.000	0.048
I 302	0.000	0.000	0.00	0.00	0.000	0.010	0.010
J 801	0.000	0.000	0.00	0.00	0.000	15.000	15.000

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
J 802	0.000	0.000	0.00	0.00	0.000	40.000	40.000

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I1	0.010	1.874	10.00	4.556	0.000	0.085
J1	0.010	15.673	14.32	3.835	125.540	126.141
I2	0.010	1.634	10.00	4.556	0.000	0.074
I3	0.010	0.459	10.00	4.556	0.000	0.021
J3	0.010	15.673	14.32	3.835	125.520	126.121
I4	0.010	0.246	10.00	4.556	0.000	0.011
J4	0.010	13.799	14.19	3.853	125.520	126.052
I5	0.010	0.810	10.00	4.556	0.000	0.037
J5	0.010	12.165	14.10	3.866	125.520	125.990
I6	0.010	1.383	10.00	4.556	0.000	0.063
J6	0.010	11.706	14.01	3.879	125.520	125.974
I7	0.010	0.106	10.00	4.556	0.000	0.005
J7	0.010	11.460	13.83	3.905	125.510	125.957
I8	0.010	0.644	10.00	4.556	0.000	0.029
J8	0.010	10.077	13.28	3.985	125.500	125.902
I9	0.010	1.397	10.00	4.556	0.000	0.064
J9	0.010	9.971	13.28	3.985	125.500	125.897
I10	0.010	0.644	10.00	4.556	0.000	0.029
J10	0.010	8.574	12.60	4.089	125.490	125.841
I11	0.010	1.048	10.00	4.556	0.000	0.048
J11	0.010	7.930	12.43	4.116	125.470	125.796
I12	0.010	0.629	10.00	4.556	0.000	0.029
J12	0.010	6.882	12.06	4.178	125.450	125.737
I13	0.010	0.115	10.00	4.556	0.000	0.005
J13	0.010	6.253	11.27	4.313	125.450	125.720
I14	0.010	0.136	10.00	4.556	0.000	0.006
J14	0.010	6.138	10.65	4.428	125.420	125.692
I15	0.010	0.745	10.00	4.556	0.000	0.034
J15	0.010	0.881	10.00	4.556	0.000	0.040
I16	0.010	0.640	10.00	4.556	0.000	0.029
J16	0.010	5.257	10.49	4.458	125.410	125.644
I17	0.010	1.737	10.00	4.556	0.000	0.079
J17	0.010	4.617	10.22	4.512	125.400	125.608
I18	0.000	0.000	0.00	0.000	57.000	57.000
J18	0.010	2.880	10.00	4.556	125.330	125.461
I19	0.010	2.880	10.00	4.556	53.330	53.461
J19	0.010	2.880	10.00	4.556	53.330	53.461
I20	0.010	1.920	10.00	4.556	53.330	53.417
J20	0.000	0.000	10.00	4.556	53.330	53.330
I21	0.010	0.960	10.00	4.556	53.330	53.374
J21	0.000	0.000	0.00	0.000	10.000	10.000
I100	0.000	0.000	0.00	0.000	0.010	0.010
J100	0.010	15.673	14.32	3.835	125.550	126.151
I101	0.000	0.000	0.00	0.000	0.010	0.010
J101	0.010	15.673	14.32	3.835	125.540	126.141
I102	0.000	0.000	0.00	0.000	0.010	0.010
J102	0.010	15.673	14.32	3.835	125.530	126.131
I103	0.000	0.000	0.00	0.000	0.010	0.010
J103	0.010	7.930	12.50	4.106	125.480	125.806
I104	0.000	0.000	0.00	0.000	0.010	0.010
J104	0.000	0.000	10.00	4.556	0.020	0.020

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I105	0.000	0.000	0.00	0.000	0.010	0.010
J105	0.000	0.000	10.00	4.556	0.020	0.020
I106	0.000	0.000	0.00	0.000	0.010	0.010
J106	0.010	6.138	11.27	4.313	125.450	125.715
I107	0.000	0.000	0.00	0.000	0.010	0.010
J107	0.000	0.000	10.00	4.556	0.020	0.020
I108	0.000	0.000	0.00	0.000	0.010	0.010
J108	0.010	2.880	10.00	4.556	125.400	125.531
I109	0.000	0.000	0.00	0.000	0.010	0.010
J109	0.010	2.880	10.00	4.556	125.360	125.491
I110	0.000	0.000	0.00	0.000	0.010	0.010
J110	0.000	0.000	10.00	4.556	13.330	13.330
I111	0.000	0.000	0.00	0.000	0.010	0.010
I112	0.000	0.000	0.00	0.000	0.010	0.010
I113	0.000	0.000	0.00	0.000	0.010	0.010
I114	0.000	0.000	0.00	0.000	0.010	0.010
I115	0.000	0.000	0.00	0.000	0.010	0.010
I116	0.000	0.000	0.00	0.000	0.010	0.010
I117	0.000	0.000	0.00	0.000	0.010	0.010
I118	0.000	0.000	0.00	0.000	0.010	0.010
I119	0.000	0.000	0.00	0.000	0.010	0.010
I120	0.000	0.000	10.00	4.556	0.020	0.020
I121	0.000	0.000	0.00	0.000	0.010	0.010
I122	0.000	0.000	10.00	4.556	3.330	3.330
I123	0.000	0.000	10.00	4.556	2.220	2.220
I124	0.000	0.000	0.00	0.000	1.110	1.110
I300	0.010	1.495	10.00	4.556	0.000	0.068
J300	0.010	18.224	16.30	3.583	125.560	126.213
I301	0.010	2.551	11.73	4.233	0.000	0.108
I302	0.000	0.000	0.00	0.000	0.010	0.010
J801	0.000	0.000	0.00	0.000	15.000	15.000
J802	0.000	0.000	0.00	0.000	40.000	40.000

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
1	J100	J300	1116.740	1116.050	Circ	1	n/a	6.000	258.00	0.267	0.012
2	J1	J100	1117.170	1116.740	Circ	1	n/a	6.000	159.00	0.270	0.012
3	J101	J1	1118.530	1118.170	Circ	1	n/a	5.000	150.00	0.240	0.012
4	J102	J101	1118.740	1118.530	Circ	1	n/a	5.000	88.00	0.239	0.012
5	J3	J102	1119.410	1118.740	Circ	1	n/a	5.000	304.00	0.220	0.012
6	I1	J3	1134.620	1121.420	Circ	1	n/a	1.250	170.00	7.788	0.012
7	J4	J3	1119.520	1119.410	Circ	1	n/a	5.000	57.00	0.193	0.012
8	I2	J4	1133.910	1121.160	Circ	1	n/a	1.250	46.00	28.848	0.012
9	J5	J4	1119.660	1119.520	Circ	1	n/a	5.000	48.00	0.292	0.012
10	I3	J5	1132.780	1121.620	Circ	1	n/a	1.250	188.00	5.947	0.012
11	J6	J5	1119.780	1119.660	Circ	1	n/a	5.000	45.00	0.267	0.012
12	I4	J6	1132.350	1123.020	Circ	1	n/a	1.250	24.00	42.194	0.012
13	J7	J6	1119.990	1119.780	Circ	1	n/a	5.000	87.00	0.241	0.012
14	I5	I6	1132.280	1123.140	Circ	1	n/a	1.250	172.00	5.321	0.012
15	I6	J7	1123.140	1121.880	Circ	1	n/a	1.250	19.00	6.646	0.012
16	J8	J7	1120.240	1119.990	Circ	1	n/a	5.000	105.00	0.238	0.012
17	I7	J8	1131.700	1123.860	Circ	1	n/a	1.250	18.00	48.386	0.012
18	J9	J8	1120.670	1120.240	Circ	1	n/a	5.000	163.00	0.264	0.012
19	I8	I9	1133.020	1124.160	Circ	1	n/a	1.250	140.00	6.341	0.012
20	I9	J9	1124.160	1122.660	Circ	1	n/a	1.250	24.00	6.262	0.012
21	J10	J9	1121.430	1120.670	Circ	1	n/a	5.000	317.00	0.240	0.012
22	I10	J10	1134.050	1123.480	Circ	1	n/a	1.250	166.00	6.380	0.012
23	J103	J10	1121.560	1121.430	Circ	1	n/a	5.000	53.00	0.245	0.012
24	J11	J103	1121.630	1121.560	Circ	1	n/a	5.000	30.00	0.233	0.012
25	I11	J11	1134.690	1125.180	Circ	1	n/a	1.250	29.00	34.713	0.012
26	J12	J11	1122.270	1120.630	Circ	1	n/a	5.000	263.00	0.624	0.012
27	I12	J12	1135.080	1124.270	Circ	1	n/a	1.250	166.00	6.526	0.012
28	J13	J12	1122.570	1122.270	Circ	1	n/a	5.000	132.00	0.227	0.012
29	I13	J13	1135.130	1125.700	Circ	1	n/a	1.250	24.00	42.728	0.012
30	J106	J13	1123.190	1122.570	Circ	1	n/a	5.000	247.00	0.251	0.012
31	J14	J106	1123.910	1123.190	Circ	1	n/a	5.000	298.00	0.242	0.012
32	I14	J15	1133.650	1126.740	Circ	1	n/a	1.250	172.00	4.021	0.012
33	I15	J15	1133.940	1126.740	Circ	1	n/a	1.250	14.00	59.967	0.012
34	J15	J14	1126.740	1125.850	Circ	1	n/a	1.250	32.00	2.782	0.012
35	J16	J14	1124.080	1123.910	Circ	1	n/a	5.000	74.00	0.230	0.012
36	I16	J16	1133.520	1126.700	Circ	1	n/a	1.250	25.00	28.356	0.012
37	J17	J16	1124.380	1124.080	Circ	1	n/a	5.000	130.00	0.231	0.012
38	I17	J17	1132.540	1126.260	Circ	1	n/a	1.250	216.00	2.909	0.012
69	J108	J17	1124.760	1124.380	Circ	1	n/a	5.000	158.00	0.241	0.012
40	J109	J108	1125.630	1124.760	Circ	1	n/a	5.000	364.00	0.239	0.012
41	J18	J109	1126.960	1125.630	Circ	1	n/a	5.000	240.00	0.554	0.012
42	I18	J18	1137.000	1127.960	Circ	1	n/a	4.000	60.00	15.241	0.012
44	J19	J18	1126.670	1126.460	Circ	1	n/a	5.000	195.00	0.108	0.012
45	I19	J19	1128.610	1127.170	Circ	1	n/a	4.500	450.00	0.320	0.012
46	I20	I19	1129.530	1128.610	Circ	1	n/a	4.500	295.00	0.312	0.012
47	I21	I20	1130.440	1129.530	Circ	1	n/a	4.500	284.00	0.320	0.012
48	J20	I21	1131.390	1130.440	Circ	1	n/a	4.500	289.00	0.329	0.012
49	J21	J110	1136.330	1133.520	Circ	1	n/a	4.000	898.00	0.313	0.012
100	I100	J100	1131.610	1120.700	Circ	1	n/a	1.250	27.00	44.174	0.012
101	I101	J101	1133.380	1121.500	Circ	1	n/a	1.250	58.00	20.926	0.012
102	I102	J102	1132.440	1122.080	Circ	1	n/a	1.250	26.00	43.444	0.012

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
103	I103	J6	1133.260	1123.040	Circ	1	n/a	1.250	26.00	42.749	0.012
104	I104	J7	1135.230	1121.850	Circ	1	n/a	1.500	98.00	13.782	0.012
105	I105	J9	1133.860	1123.820	Circ	1	n/a	1.250	26.00	41.862	0.012
106	I106	J10	1135.510	1124.570	Circ	1	n/a	1.250	27.00	44.320	0.012
107	I107	J103	1137.480	1123.520	Circ	1	n/a	1.250	82.00	17.277	0.012
108	I108	J104	1137.010	1133.170	Circ	1	n/a	1.250	23.00	16.933	0.012
109	I109	J104	1137.590	1133.170	Circ	1	n/a	1.250	23.00	19.582	0.012
110	J104	J11	1133.170	1123.860	Circ	1	n/a	1.250	58.00	16.263	0.012
111	I110	J105	1139.380	1132.660	Circ	1	n/a	1.250	20.00	35.674	0.012
112	I111	J105	1138.620	1134.220	Circ	1	n/a	1.250	26.00	17.171	0.012
113	J105	J106	1132.660	1125.170	Circ	1	n/a	1.500	70.00	10.762	0.012
114	I112	J106	1136.200	1127.200	Circ	1	n/a	1.250	13.00	95.940	0.012
115	I113	J14	1140.210	1126.940	Circ	1	n/a	1.250	86.00	15.617	0.012
116	I114	J16	1137.890	1126.520	Circ	1	n/a	1.250	43.00	27.418	0.012
117	I115	J108	1138.520	1128.510	Circ	1	n/a	1.250	38.00	27.307	0.012
118	I116	J107	1140.620	1138.470	Circ	1	n/a	1.250	15.00	14.483	0.012
119	I117	J107	1141.280	1138.750	Circ	1	n/a	1.250	24.00	10.601	0.012
120	J107	J108	1137.500	1126.800	Circ	1	n/a	1.500	75.00	14.414	0.012
121	I118	J108	1138.850	1127.570	Circ	1	n/a	1.250	34.00	35.168	0.012
122	I119	I120	1141.450	1140.900	Circ	1	n/a	1.250	34.00	1.618	0.012
123	I120	J109	1140.650	1127.980	Circ	1	n/a	1.250	56.00	23.227	0.012
124	I121	J109	1139.810	1128.470	Circ	1	n/a	1.250	34.00	35.379	0.012
125	I122	J110	1146.860	1134.900	Circ	1	n/a	1.250	75.00	16.153	0.012
126	I123	I122	1146.860	1139.900	Circ	1	n/a	1.250	75.00	9.320	0.012
127	I124	I123	1146.060	1144.400	Circ	1	n/a	1.250	25.00	6.655	0.012
300	J300	O1	1116.050	1115.680	Circ	1	n/a	6.000	140.00	0.264	0.012
301	I300	I301	1128.990	1118.980	Circ	1	n/a	1.250	289.00	3.466	0.012
302	I301	J300	1118.980	1118.560	Circ	1	n/a	1.250	18.00	2.334	0.012
303	I302	J300	1130.450	1120.800	Circ	1	n/a	1.250	16.00	75.613	0.012
349	J110	J20	1133.520	1131.890	Circ	1	n/a	4.000	549.00	0.297	0.012
801	J801	J18	1127.250	1126.960	Circ	1	n/a	3.500	80.00	0.363	0.012
802	J802	J20	1136.660	1132.090	Circ	1	n/a	3.250	261.00	1.751	0.012

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	Hydraulic Gradeline DS Elev	Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (fps)	Velocity Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	1133.862	1133.636	0.08	3.078	6.000	8.64	4.46	126.151	237.268	0.031
2	1134.013	1133.862	0.08	3.078	6.000	8.64	4.46	126.141	238.595	0.031
3	1134.372	1134.013	0.20	3.811	5.000	7.85	6.42	126.141	138.223	0.064
4	1134.611	1134.372	0.20	3.811	5.000	7.85	6.42	126.131	137.830	0.064
5	1135.280	1134.611	0.20	3.958	5.000	7.57	6.42	126.121	132.457	0.064
6	1135.281	1135.280	0.00	0.060	1.250	3.89	0.07	0.085	19.530	0.000
7	1135.458	1135.280	0.20	4.105	5.000	7.31	6.42	126.052	123.946	0.064
8	1135.458	1135.458	0.00	0.042	1.250	5.78	0.06	0.074	37.587	0.000
9	1135.617	1135.458	0.20	3.445	5.000	8.73	6.42	125.990	152.377	0.064
10	1135.617	1135.617	0.00	0.033	1.250	2.34	0.02	0.021	17.065	0.000
11	1135.766	1135.617	0.20	3.591	5.000	8.34	6.42	125.974	145.700	0.064
12	1135.766	1135.766	0.00	0.015	1.250	4.15	0.01	0.011	45.457	0.000
13	1136.000	1135.766	0.20	3.738	5.000	8.00	6.41	125.957	138.620	0.064
14	1136.000	1136.000	0.00	0.044	1.250	2.65	0.03	0.037	16.143	0.000
15	1136.000	1136.000	0.00	0.054	1.250	3.43	0.05	0.063	18.041	0.000
16	1136.269	1136.000	0.20	3.811	5.000	7.84	6.41	125.902	137.673	0.064
17	1136.269	1136.269	0.00	0.010	1.250	3.10	0.00	0.005	48.679	0.000
18	1136.653	1136.269	0.20	3.591	5.000	8.34	6.41	125.897	144.916	0.064
19	1136.653	1136.653	0.00	0.038	1.250	2.70	0.02	0.029	17.623	0.000
20	1136.653	1136.653	0.00	0.054	1.250	3.46	0.05	0.064	17.512	0.000
21	1137.347	1136.653	0.20	3.811	5.000	7.84	6.41	125.841	138.150	0.064
22	1137.347	1137.347	0.00	0.038	1.250	2.70	0.02	0.029	17.677	0.000
23	1137.515	1137.347	0.20	3.665	5.000	8.16	6.41	125.806	139.736	0.064
24	1137.698	1137.515	0.20	3.811	5.000	7.83	6.41	125.796	136.290	0.128
25	1137.698	1137.698	0.00	0.033	1.250	5.33	0.04	0.048	41.231	0.000
26	1138.284	1137.698	0.20	2.675	5.000	11.76	6.40	125.737	222.804	0.064
27	1138.284	1138.284	0.00	0.037	1.250	2.64	0.02	0.029	17.877	0.000
28	1138.608	1138.284	0.20	3.811	5.000	7.83	6.40	125.720	134.508	0.064
29	1138.608	1138.608	0.00	0.011	1.250	3.37	0.00	0.005	45.744	0.000
30	1139.225	1138.608	0.20	3.665	5.000	8.15	6.40	125.715	141.359	0.127
31	1139.879	1139.225	0.20	3.738	5.000	7.98	6.40	125.692	138.686	0.064
32	1139.879	1139.879	0.00	0.020	1.250	1.54	0.01	0.006	14.032	0.000
33	1139.879	1139.879	0.00	0.025	1.250	6.14	0.03	0.034	54.192	0.000
34	1139.879	1139.879	0.00	0.053	1.250	2.18	0.03	0.040	11.673	0.000
35	1140.087	1139.879	0.20	3.811	5.000	7.82	6.40	125.644	135.233	0.064
36	1140.087	1140.087	0.00	0.027	1.250	4.60	0.02	0.029	37.265	0.000
37	1140.406	1140.087	0.20	3.811	5.000	7.82	6.40	125.608	135.539	0.064
38	1140.406	1140.406	0.00	0.073	1.250	2.79	0.06	0.079	11.935	0.000
69	1140.907	1140.406	0.20	3.738	5.000	7.97	6.39	125.531	138.369	0.191
40	1141.754	1140.907	0.20	3.811	5.000	7.81	6.39	125.491	137.938	0.127
41	1142.990	1141.754	0.20	2.785	5.000	11.16	6.39	125.461	210.038	0.761
42	1143.102	1142.990	0.13	0.827	4.000	30.41	4.54	57.000	607.504	0.032
44	1143.065	1142.990	0.04	2.785	5.000	4.76	2.72	53.461	92.591	0.006
45	1143.366	1143.065	0.06	2.111	4.500	7.30	3.36	53.461	120.512	0.018
46	1143.569	1143.366	0.06	2.111	4.500	7.29	3.36	53.417	118.970	0.018
47	1143.765	1143.569	0.06	2.111	4.500	7.28	3.36	53.374	120.592	0.018
48	1144.034	1143.765	0.06	2.078	4.500	7.43	3.35	53.330	122.143	0.087
49	1144.117	1144.075	0.00	0.909	4.000	4.66	0.80	10.000	87.049	0.005
100	1133.862	1133.862	0.00	0.014	1.250	3.71	0.01	0.010	46.512	0.000
101	1134.372	1134.372	0.00	0.018	1.250	2.99	0.01	0.010	32.013	0.000
102	1134.611	1134.611	0.00	0.014	1.250	3.71	0.01	0.010	46.126	0.000

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
103	1135.766	1135.766	0.00	0.014	1.250	3.71	0.01	0.010	45.755	0.000
104	1136.000	1136.000	0.00	0.019	1.500	2.57	0.01	0.010	42.246	0.000
105	1136.653	1136.653	0.00	0.015	1.250	3.71	0.01	0.010	45.279	0.000
106	1137.347	1137.347	0.00	0.014	1.250	3.71	0.01	0.010	46.589	0.000
107	1137.689	1137.515	0.00	0.018	1.250	2.99	0.01	0.010	29.088	0.000
108	1137.698	1137.698	0.00	0.019	1.250	2.48	0.01	0.010	28.797	0.000
109	1137.799	1137.698	0.00	0.018	1.250	2.99	0.01	0.010	30.968	0.000
110	1137.698	1137.698	0.00	0.026	1.250	3.16	0.02	0.020	28.221	0.000
111	1139.589	1139.225	0.00	0.015	1.250	3.71	0.01	0.010	41.798	0.000
112	1139.225	1139.225	0.00	0.019	1.250	2.48	0.01	0.010	28.998	0.000
113	1139.225	1139.225	0.00	0.027	1.500	2.92	0.01	0.020	37.331	0.000
114	1139.225	1139.225	0.00	0.012	1.250	4.76	0.01	0.010	68.546	0.000
115	1140.419	1139.879	0.00	0.019	1.250	2.48	0.01	0.010	27.656	0.000
116	1140.087	1140.087	0.00	0.017	1.250	2.99	0.01	0.010	36.643	0.000
117	1140.907	1140.907	0.00	0.017	1.250	2.99	0.01	0.010	36.569	0.000
118	1140.907	1140.907	0.00	0.019	1.250	2.48	0.01	0.010	26.632	0.000
119	1141.489	1140.907	0.00	0.020	1.250	2.48	0.01	0.010	22.785	0.000
120	1140.907	1140.907	0.00	0.025	1.500	2.92	0.01	0.020	43.204	0.000
121	1140.907	1140.907	0.00	0.015	1.250	3.71	0.01	0.010	41.501	0.000
122	1141.754	1141.754	0.00	0.031	0.854	1.24	0.01	0.010	8.901	0.000
123	1141.754	1141.754	0.00	0.023	1.250	3.62	0.02	0.020	33.727	0.000
124	1141.754	1141.754	0.00	0.015	1.250	3.71	0.01	0.010	41.625	0.000
125	1147.242	1144.075	0.23	0.290	1.250	15.45	2.71	3.330	28.126	0.092
126	1147.358	1147.242	0.10	0.272	1.250	11.30	1.81	2.220	21.365	0.041
127	1147.371	1147.358	0.03	0.210	1.250	8.19	0.90	1.110	18.053	0.006
300	1133.636	1133.500	0.08	3.122	6.000	8.49	4.46	126.213	235.864	0.031
301	1133.636	1133.636	0.00	0.065	1.250	2.78	0.06	0.068	13.028	0.000
302	1133.636	1133.636	0.00	0.089	1.250	2.83	0.09	0.108	10.691	0.000
303	1133.636	1133.636	0.00	0.013	1.250	4.76	0.01	0.010	60.853	0.000
349	1144.075	1144.034	0.01	1.070	4.000	4.93	1.06	13.330	84.792	0.002
801	1143.012	1142.990	0.02	1.142	3.500	5.51	1.56	15.000	65.623	0.008
802	1144.592	1144.034	0.20	1.301	3.250	12.89	4.82	40.000	118.372	0.036

Computation Messages

---

*Warning: Discharge decreased downstream Junction J13 - previous intensity used
*Warning: Discharge decreased downstream Junction J8 - previous intensity used
*Warning: Discharge decreased downstream Junction J102 - previous intensity used
*Warning: Discharge decreased downstream Junction J101 - previous intensity used
*Warning: Discharge decreased downstream Junction J1 - previous intensity used
*Warning: Discharge decreased downstream Junction J100 - previous intensity used
*Warning: Run - 302 - Upstream Hydraulic Gradeline = 1133.64 - Exceeds Critical Elevation = 1132.99
*Warning: Run - 12 - Upstream Hydraulic Gradeline = 1135.77 - Exceeds Critical Elevation = 1135.68
*Warning: Run - 15 - Upstream Hydraulic Gradeline = 1136.00 - Exceeds Critical Elevation = 1135.55
*Warning: Run - 20 - Upstream Hydraulic Gradeline = 1136.65 - Exceeds Critical Elevation = 1136.35
*Warning: Run - 25 - Upstream Hydraulic Gradeline = 1137.70 - Exceeds Critical Elevation = 1137.69
*Warning: Run - 36 - Upstream Hydraulic Gradeline = 1140.09 - Exceeds Critical Elevation = 1137.02
*Warning: Run - 37 - Upstream Hydraulic Gradeline = 1140.41 - Exceeds Critical Elevation = 1130.00
*Warning: Run - 38 - Upstream Hydraulic Gradeline = 1140.41 - Exceeds Critical Elevation = 1136.04
*Warning: Run - 103 - Upstream Hydraulic Gradeline = 1135.77 - Exceeds Critical Elevation = 1135.46
*Warning: Run - 33 - Upstream Hydraulic Gradeline = 1139.88 - Exceeds Critical Elevation = 1137.44
*Computation: Run = 1 - Pipe Flowing Full
*Computation: Run = 2 - Pipe Flowing Full
*Computation: Run = 3 - Pipe Flowing Full
*Computation: Run = 4 - Pipe Flowing Full
*Computation: Run = 5 - Pipe Flowing Full
*Computation: Run = 6 - Pipe Flowing Full
*Computation: Run = 7 - Insufficient Capacity
*Computation: Run = 8 - Pipe Flowing Full
*Computation: Run = 9 - Pipe Flowing Full
*Computation: Run = 10 - Pipe Flowing Full
*Computation: Run = 11 - Pipe Flowing Full
*Computation: Run = 12 - Pipe Flowing Full
*Computation: Run = 13 - Pipe Flowing Full
*Computation: Run = 14 - Pipe Flowing Full
*Computation: Run = 15 - Pipe Flowing Full
*Computation: Run = 16 - Pipe Flowing Full
*Computation: Run = 17 - Pipe Flowing Full
*Computation: Run = 18 - Pipe Flowing Full
*Computation: Run = 19 - Pipe Flowing Full
*Computation: Run = 20 - Pipe Flowing Full
*Computation: Run = 21 - Pipe Flowing Full
*Computation: Run = 22 - Pipe Flowing Full
*Computation: Run = 23 - Pipe Flowing Full
*Computation: Run = 24 - Pipe Flowing Full
*Computation: Run = 25 - Pipe Flowing Full
*Computation: Run = 26 - Pipe Flowing Full
*Computation: Run = 27 - Pipe Flowing Full
*Computation: Run = 28 - Pipe Flowing Full
*Computation: Run = 29 - Pipe Flowing Full
*Computation: Run = 30 - Pipe Flowing Full

```
*Computation: Run = 31 - Pipe Flowing Full
*Computation: Run = 32 - Pipe Flowing Full
*Computation: Run = 33 - Pipe Flowing Full
*Computation: Run = 34 - Pipe Flowing Full
*Computation: Run = 35 - Pipe Flowing Full
*Computation: Run = 36 - Pipe Flowing Full
*Computation: Run = 37 - Pipe Flowing Full
*Computation: Run = 38 - Pipe Flowing Full
*Computation: Run = 69 - Pipe Flowing Full
*Computation: Run = 40 - Pipe Flowing Full
*Computation: Run = 41 - Pipe Flowing Full
*Computation: Run = 42 - Pipe Flowing Full
*Computation: Run = 44 - Pipe Flowing Full
*Computation: Run = 45 - Pipe Flowing Full
*Computation: Run = 46 - Pipe Flowing Full
*Computation: Run = 47 - Pipe Flowing Full
*Computation: Run = 48 - Pipe Flowing Full
*Computation: Run = 49 - Pipe Flowing Full
*Computation: Run = 100 - Pipe Flowing Full
*Computation: Run = 101 - Pipe Flowing Full
*Computation: Run = 102 - Pipe Flowing Full
*Computation: Run = 103 - Pipe Flowing Full
*Computation: Run = 104 - Pipe Flowing Full
*Computation: Run = 105 - Pipe Flowing Full
*Computation: Run = 106 - Pipe Flowing Full
*Computation: Run = 107 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 108 - Pipe Flowing Full
*Computation: Run = 109 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 110 - Pipe Flowing Full
*Computation: Run = 111 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 112 - Pipe Flowing Full
*Computation: Run = 113 - Pipe Flowing Full
*Computation: Run = 114 - Pipe Flowing Full
*Computation: Run = 115 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 116 - Pipe Flowing Full
*Computation: Run = 117 - Pipe Flowing Full
*Computation: Run = 118 - Pipe Flowing Full
*Computation: Run = 119 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 120 - Pipe Flowing Full
*Computation: Run = 121 - Pipe Flowing Full
*Computation: Run = 123 - Pipe Flowing Full
*Computation: Run = 124 - Pipe Flowing Full
*Computation: Run = 125 - Pipe Flowing Full
*Computation: Run = 126 - Pipe Flowing Full
*Computation: Run = 127 - Pipe Flowing Full
*Computation: Run = 300 - Pipe Flowing Full
*Computation: Run = 301 - Pipe Flowing Full
```

```
*Computation: Run = 302 - Pipe Flowing Full
*Computation: Run = 303 - Pipe Flowing Full
*Computation: Run = 349 - Pipe Flowing Full
*Computation: Run = 801 - Pipe Flowing Full
*Computation: Run = 802 - Pipe Flowing Full
```

NORMAL Completion of WinStorm.

ADOT / HEC-12

Maximum Inlet Capacity at Cross Street Laterals

JOB: SR51 DRAINAGE ASSESSMENT

FILE: LATERAL.XLS

	HIGHLAND AVENUE						Capture ratios:	80%	50%	CAMELBACK ROAD					
Inlet number:	**I201**	**I202**	**I203**	**I204**	**I205**	**I206**	**I207**	**I208**	**I209**	**I401**	**I402**	**I403**	**I404**	**I405**	**I406**
Gutter Q (cfs):	**30**	**18**	**19**	**15**	**30**	**16**	**16**	**30**	**24**	**13**	**9**	**18**	**9**	**9**	**18**
Gutter flow shown is based on depth equal 6". Flow used to estimate maximum inlet capacity.															
SHOULDER AND GUTTER CONFIGURATION:															
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0052	0.0064	0.0052	0.0050	0.0150	0.0047	0.0030	0.0048	0.0032	0.0030	0.0030	0.0040	0.0040	0.0040	0.0040
Inlet type (1=grate, 2=side opening or slotted):	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Longitudinal profile (1=on-grade, 2=sag):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gutter Configuration (1=freeway, 2=vertical):	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Inlet description:	M	M	M	M	M	M	L	M	M	M	M	M	M	M	M
Grate width:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grate length:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pavement cross-slope (Sx):	0.014	0.024	0.021	0.027	0.022	0.025	0.020	0.013	0.014	0.024	0.034	0.020	0.040	0.040	0.020
Width of gutter from flowline (ft):	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (S'w=Sw-Sx)	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059
Flooded Width from flowline (ft): before inlet	**37.10**	**20.56**	**23.72**	**18.53**	**22.41**	**20.36**	**25.42**	**38.43**	**36.91**	**21.09**	**14.81**	**25.17**	**12.59**	**12.59**	**25.17**
Depth at flowline (ft): before inlet	0.57	0.54	0.55	0.55	0.55	0.56	0.56	0.57	0.57	0.55	0.53	0.56	0.53	0.53	0.56
Water cross-area (sq.ft): before inlet	9.34	5.11	5.94	4.73	5.56	5.22	6.50	9.72	9.45	5.33	3.71	6.38	3.19	3.19	6.38
Velocity V for total discharge (fps): before inlet	3.21	3.53	3.20	3.17	5.39	3.07	2.46	3.09	2.54	2.44	2.43	2.82	2.82	2.82	2.82
Ratio of gutter depression flow to total Q (Eod):	10.9%	18.6%	16.4%	20.3%	17.3%	18.7%	15.4%	10.5%	10.9%	18.2%	24.7%	15.5%	28.3%	28.3%	15.5%
Equivalent cross-slope (Se):	0.018	0.030	0.027	0.034	0.028	0.031	0.026	0.018	0.019	0.030	0.040	0.026	0.045	0.045	0.026
GRATE INLETS ON-GRADE:															
Ratio of grate frontal flow to total flow:	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Inlet frontal flow in cfs (Qw):	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Fraction of frontal flow intercepted (Rf):	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Side flow in cfs (Qs):	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Effective grate length w/clogging:	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Fraction of side flow interception (Rs):	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Grate Efficiency (E):	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Total flow intercepted (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grate flow-by (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:															
Length required for total interception (ft): w/o clogging	68.0	43.1	44.4	34.8	72.0	36.7	36.0	67.4	53.0	30.1	21.9	41.2	22.1	22.1	41.2
Length of inlet provided L (ft):	8	9	6	6	9	9	8	13	9	20	20	8	8	13	26
Interception for length L (cfs):	**4.89**	**5.05**	**3.54**	**3.52**	**5.18**	**5.20**	**4.75**	**7.81**	**5.55**	**9.67**	**8.16**	**4.72**	**4.14**	**6.14**	**12.93**
Efficiency for length L:	16.3%	28.0%	18.6%	23.4%	17.3%	32.5%	29.7%	26.0%	23.1%	74.4%	90.6%	26.2%	46.0%	68.3%	71.8%
Slotted drain or side opening flow-by (cfs):	**25.11**	**12.95**	**15.46**	**11.48**	**24.82**	**10.80**	**11.25**	**22.19**	**18.45**	**3.33**	**0.84**	**13.28**	**4.86**	**2.86**	**5.07**
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:															
Head available for weir flow at sag (ft):															
Capacity of grate in a sag (3-sided weir) in cfs:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Capacity of grate in a sag (4-sided weir):	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Length provided of curb-opening inlet at sag:															
Capacity of curb-opening inlet in a sag (weir) in cfs:	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
INFLOW Q FOR CATCH BASIN	**4.89**	**5.05**	**3.54**	**3.52**	**5.18**	**5.20**	**4.75**	**7.81**	**5.55**	**9.67**	**8.16**	**4.72**	**4.14**	**6.14**	**12.93**

Design by: AJH

ADOT / HEC-12

JOB: SR51 DRAINAGE ASSESSMENT

									MISSOURI AVENUE					
Inlet number:	**I407**	**I408**	**I409**	**I410**	**I411**	**I412**	**I413**	**I414**	**I501**	**I502**	**I503**	**I504**	**I505**	**I506**
Gutter Q (cfs):	**20**	**20**	**20**	**20**	**40.00**	**40.00**	**40.00**	**40.00**	**13**	**13**	**13**	**13**	**13**	**13**
Gutter flow shown is based on depth equal 6". Flow used to estimate maximum inlet capacity.														
SHOULDER AND GUTTER CONFIGURATION:														
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0048	0.0048	0.0052	0.0052	0.0030	0.0030	0.0052	0.0052	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Inlet type (1=grate, 2=side opening or slotted):	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Longitudinal profile (1=on-grade, 2=sag):	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gutter Configuration (1=freeway, 2=vertical):	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Inlet description:	M	M	M	M	M	M	M	M	M	M	Q (tpl)	M	N(sgl)	M
Grate width:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Grate length:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Pavement cross-slope (Sx):	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Width of gutter from flowline (ft):	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (S'w=Sw-Sx)	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059
Flooded Width from flowline (ft): before inlet	**25.31**	**25.31**	**24.93**	**24.93**	**35.94**	**35.94**	**32.40**	**32.40**	**25.38**	**25.38**	**25.38**	**25.38**	**25.38**	**25.38**
Depth at flowline (ft): before inlet	0.56	0.56	0.55	0.55	0.77	0.77	0.70	0.70	0.56	0.56	0.56	0.56	0.56	0.56
Water cross-area (sq.ft): before inlet	6.44	6.44	6.25	6.25	12.95	12.95	10.53	10.53	6.48	6.48	6.48	6.48	6.48	6.48
Velocity V for total discharge (fps): before inlet	3.10	3.10	3.20	3.20	3.09	3.09	3.80	3.80	2.01	2.01	2.01	2.01	2.01	2.01
Ratio of gutter depression flow to total Q (Eod):	15.4%	15.4%	15.7%	15.7%	10.8%	10.8%	12.0%	12.0%	15.4%	15.4%	15.4%	15.4%	15.4%	15.4%
Equivalent cross-slope (Se):	0.026	0.026	0.026	0.026	0.024	0.024	0.025	0.025	0.026	0.026	0.026	0.026	0.026	0.026
GRATE INLETS ON-GRADE:														
Ratio of grate frontal flow to total flow:	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Inlet frontal flow in cfs (Qw):	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Fraction of frontal flow intercepted (Rf):	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Side flow in cfs (Qs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Effective grate length w/clogging:	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Fraction of side flow interception (Rs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grate Efficiency (E):	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total flow intercepted (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grate flow-by (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:														
Length required for total interception (ft): w/o clogging	45.5	45.5	46.5	46.5	55.2	55.2	64.3	64.3	29.2	29.2	29.2	29.2	—	29.2
Length of inlet provided L (ft):	30	23	20	37	20	9	20	20	37	37	27	9		30
Interception for length L (cfs):	**14.82**	**12.13**	**10.64**	**16.77**	**18.41**	**8.90**	**16.10**	**16.10**	**13.00**	**13.00**	**12.88**	**5.19**	—	**12.42**
Efficiency for length L:	74.1%	60.7%	53.2%	83.8%	46.0%	22.3%	40.2%	40.2%	100.0%	100.0%	99.0%	39.9%	—	95.5%
Slotted drain or side opening flow-by (cfs):	**5.18**	**7.87**	**9.36**	**3.23**	**21.59**	**31.10**	**23.90**	**23.90**	**0.00**	**0.00**	**0.12**	**7.81**	—	**0.58**
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:														
Head available for weir flow at sag (ft):														
Capacity of grate in a sag (3-sided weir) in cfs:	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Capacity of grate in a sag (4-sided weir):	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Length provided of curb-opening inlet at sag:														
Capacity of curb-opening inlet in a sag (weir) in cfs:	—	—	—	—	—	—	—	—	—	—	—	—	—	—
INFLOW Q FOR CATCH BASIN	**14.82**	**12.13**	**10.64**	**16.77**	**18.41**	**8.90**	**16.10**	**16.10**	**13.00**	**13.00**	**12.88**	**5.19**	**0.00**	**12.42**

Design by: AJH

ADOT / HEC-12

JOB: SR51 DRAINAGE ASSESSMENT

Inlet number:	I507	I508	I509	I510	I511	I512	I513
Gutter Q (cfs):	**13**	**13**	**13**	**13**	**13**	**13**	**13**
Gutter flow shown is based on depth equal 6". Flow used to estimate maximum inlet capacity.							
SHOULDER AND GUTTER CONFIGURATION:							
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Inlet type (1=grate, 2=side opening or slotted):	2	2	2	2	2	2	2
Longitudinal profile (1=on-grade, 2=sag):	1	1	1	1	1	1	1
Gutter Configuration (1=freeway, 2=vertical):	2	2	2	2	2	2	2
Inlet description:	M	M	M	M	M	M	M
Grate width:	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grate length:	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pavement cross-slope (Sx):	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Width of gutter from flowline (ft):	1.42	1.42	1.42	1.42	1.42	1.42	1.42
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (S'w=Sw-Sx)	0.059	0.059	0.059	0.059	0.059	0.059	0.059
Flooded Width from flowline (ft): before inlet	**25.38**	**25.38**	**25.38**	**25.38**	**25.38**	**25.38**	**25.38**
Depth at flowline (ft): before inlet	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Water cross-area (sq.ft): before inlet	6.48	6.48	6.48	6.48	6.48	6.48	6.48
Velocity V for total discharge (fps): before inlet	2.01	2.01	2.01	2.01	2.01	2.01	2.01
Ratio of gutter depression flow to total Q (Eod):	15.4%	15.4%	15.4%	15.4%	15.4%	15.4%	15.4%
Equivalent cross-slope (Se):	0.026	0.026	0.026	0.026	0.026	0.026	0.026
GRATE INLETS ON-GRADE:							
Ratio of grate frontal flow to total flow:	----	----	----	----	----	----	----
Inlet frontal flow in cfs (Qw):	----	----	----	----	----	----	----
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	----	----	----	----	----	----	----
Fraction of frontal flow intercepted (Rf):	----	----	----	----	----	----	----
Side flow in cfs (Qs):	----	----	----	----	----	----	----
Effective grate length w/clogging:	----	----	----	----	----	----	----
Fraction of side flow interception (Rs):	----	----	----	----	----	----	----
Grate Efficiency (E):	----	----	----	----	----	----	----
Total flow intercepted (cfs):	**---**	**---**	**---**	**---**	**---**	**---**	**---**
Grate flow-by (cfs):	**---**	**---**	**---**	**---**	**---**	**---**	**---**
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:							
Length required for total interception (ft): w/o clogging	29.2	29.2	----	29.2	29.2	29.2	29.2
Length of inlet provided L (ft):	13	20		9	9	20	13
Interception for length L (cfs):	**7.12**	**9.89**	**---**	**5.19**	**6.30**	**9.89**	**7.12**
Efficiency for length L:	54.7%	76.1%	----	39.9%	48.5%	76.1%	54.7%
Slotted drain or side opening flow-by (cfs):	**5.88**	**3.11**	**---**	**7.81**	**6.70**	**3.11**	**5.88**
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:							
Head available for weir flow at sag (ft):							
Capacity of grate in a sag (3-sided weir) in cfs:	**---**	**---**	**---**	**---**	**---**	**---**	**---**
Capacity of grate in a sag (4-sided weir):	----	----	----	----	----	----	----
Length provided of curb-opening inlet at sag:							
Capacity of curb-opening inlet in a sag (weir) in cfs:	----	----	----	----	----	----	----
INFLOW Q FOR CATCH BASIN	**7.12**	**9.89**	**0.00**	**5.19**	**6.30**	**9.89**	**7.12**

Design by: AJH

ADOT / HEC-12

JOB: SR51 DRAINAGE ASSESSMENT

	BETHANY HOME ROAD					COLTER STREET SIPHON			
Inlet number:	**I601**	**I602**	**I603**	**I604**	**I605**	**I801**	**I802**	**I803**	**I804**
Gutter Q (cfs):	**5**	**5**	**5**	**10**	**10**	**13**	**13**	**13**	**13**
Gutter flow shown is based on depth equal 6".	**No curb on Bethany Home Road east of 18th Street**								
Flow used to estimate maximum inlet capacity:	**Maximum flow in 50-yr storm is about 20 cfs**								
SHOULDER AND GUTTER CONFIGURATION:									
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.002	0.002	0.002	0.002
Inlet type (1=grate, 2=side opening or slotted):	1	1	1	1	1	2	2	2	2
Longitudinal profile (1=on-grade, 2=sag):	2	2	2	2	2	1	1	1	1
Gutter Configuration (1=freeway, 2=vertical):	1	1	1	1	1	2	2	2	2
Inlet description:	N(sgl)	N(tpl)	N(tpl)	N(dbl)	N(tpl)	Q (tpl)	Q (tpl)	Q (tpl)	Q (tpl)
Grate width:	2.0	2.0	2.0	2.0	2.0	0	0	0	0
Grate length:	3.0	9.0	9.0	6.0	9.0	0.0	0.0	0.0	0.0
Pavement cross-slope (Sx):	0.000	0.000	0.000	0.000	0.000	0.020	0.020	0.020	0.020
Width of gutter from flowline (ft):	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.042	0.042	0.042	0.042
Gutter cross-slope Sw: (S'w=Sw-Sx)	0.059	0.059	0.059	0.059	0.059	0.030	0.030	0.030	0.030
Flooded Width from flowline (ft): before inlet	**NA**	**NA**	**NA**	**NA**	**NA**	**25.47**	**25.47**	**25.47**	**25.47**
Depth at flowline (ft): before inlet	0.00	0.00	0.00	0.00	0.00	0.52	0.52	0.52	0.52
Water cross-area (sq.ft): before inlet	0.00	0.00	0.00	0.00	0.00	6.50	6.50	6.50	6.50
Velocity V for total discharge (fps): before inlet	0.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00
Ratio of gutter depression flow to total Q (Eod):	100.0%	100.0%	100.0%	100.0%	100.0%	14.5%	14.5%	14.5%	14.5%
Equivalent cross-slope (Se):	0.059	0.059	0.059	0.059	0.059	0.021	0.021	0.021	0.021
GRATE INLETS ON-GRADE:									
Ratio of grate frontal flow to total flow:	—	—	—	—	—	—	—	—	—
Inlet frontal flow in cfs (Qw):	—	—	—	—	—	—	—	—	—
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	—	—	—	—	—	—	—	—	—
Fraction of frontal flow intercepted (Rf):	—	—	—	—	—	—	—	—	—
Side flow in cfs (Qs):	—	—	—	—	—	—	—	—	—
Effective grate length w/clogging:	—	—	—	—	—	—	—	—	—
Fraction of side flow interception (Rs):	—	—	—	—	—	—	—	—	—
Grate Efficiency (E):	—	—	—	—	—	—	—	—	—
Total flow intercepted (cfs):	—	—	—	—	—	—	—	—	—
Grate flow-by (cfs):	—	—	—	—	—	—	—	—	—
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:									
Length required for total interception (ft): w/o clogging	—	—	—	—	—	32.8	32.8	32.8	32.8
Length of inlet provided L (ft):						9	9	9	9
Interception for length L (cfs):	—	—	—	—	—	**5.70**	**5.70**	**5.70**	**5.70**
Efficiency for length L:	—	—	—	—	—	43.9%	43.9%	43.9%	43.9%
Slotted drain or side opening flow-by (cfs):	—	—	—	—	—	**7.30**	**7.30**	**7.30**	**7.30**
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:									
Head available for weir flow at sag (ft):	0.5	0.5	0.5	0.5	0.5				
Capacity of grate in a sag (3-sided weir) in cfs:	—	—	—	—	—	—	—	—	—
Capacity of grate in a sag (4-sided weir):	5.00	5.00	5.00	8.49	10.00	—	—	—	—
Length provided of curb-opening inlet at sag:									
Capacity of curb-opening inlet in a sag (weir) in cfs:	Grate	Grate	Grate	Grate	Grate	—	—	—	—
INFLOW Q FOR CATCH BASIN	**5.00**	**5.00**	**5.00**	**8.49**	**10.00**	**5.70**	**5.70**	**5.70**	**5.70**

Design by: AJH

Siphons

PREMIER
ENGINEERING CORPORATION

SHEET NO 1 OF 4
JOB NUMBER 9714

TITLE SR-51

SUBJECT Maryland Siphon Capacity

MADE BY GH DATE 10/20/97 CHECKED BY _____ DATE _____

TASK : DETERMINE CAPACITY OF THE MARYLAND SIPHON

GIVEN : CITY OF PHOENIX PLANS

ASSUME : CURB FULL FLOW AS INITIAL TAILWATER ELEVATION

OUTLET CATCH BASINS (NO. 11 & 12)

NORTHSIDE (NO. 11)

$6' \times 5'' = 2.50\ ft^2$

Q	V	$1.5\ V^2/2g$
2	0.80	0.02
4	1.60	0.06
6	2.40	0.13
8	3.20	0.24

15" PIPE L = 21' TO MANHOLE # 3

$A = 1.22\ ft^2$

Q	V	$V^2/2g$
2	1.63	0.04
4	3.26	0.17
6	4.89	0.37
8	6.52	0.66

$$h_f = \frac{29.15\ n^2 L}{R^{4/3}} \frac{V^2}{2g}$$

$$h_f = \frac{29.15(0.012)^2(21)}{(0.31)^{4/3}} \frac{V^2}{2g}$$

$$h_f = 0.416 \frac{V^2}{2g}$$

HGL @ MH # 3

Q	TW	OUTLET	$2V^2/2g$ (BENDS)	h_f (FRICTION)	EGL
2	1219.0	0.02	0.08	0.02	1219.12
4	1219.0	0.06	0.34	0.07	1219.47
6	1219.0	0.13	0.74	0.15	1220.02
8	1219.0	0.24	1.32	0.27	1220.83

PREMIER
ENGINEERING CORPORATION

SHEET NO 2 OF 4
JOB NUMBER 9714

TITLE SR-51

SUBJECT Maryland Siphon Capacity

MADE BY JH DATE 10/20/97 CHECKED BY _____ DATE _____

SOUTHSIDE CB (NO. 12)

A = 17' x 5" = 7.08 ft²

Q	V	$1.5 V^2/2g$
5	0.71	0.01
10	1.41	0.05
15	2.12	0.10
20	2.82	0.19

27" PIPE L = 23' TO MANHOLE #3 A = 3.97 ft²

Q	V	$V^2/2g$
5	1.26	0.02
10	2.52	0.10
15	3.78	0.22
20	5.04	0.39

$$h_f = \frac{29.15\, n^2 L}{R^{4/3}} \frac{V^2}{2g}$$

$$h_f = 0.208 \frac{V^2}{2g}$$

HGL @ MANHOLE #3

Q	TW	OUTLET	$2V^2/2g$ BENDS	h_f	EGL
5	1219.0	0.01	0.04	0.004	1219.05
10	1219.0	0.05	0.20	0.02	1219.27
15	1219.0	0.10	0.44	0.05	1219.59
20	1219.0	0.19	0.78	0.08	1220.05

COMBINED Q (NORTH & SOUTH)

Q	ELEV
0	1219.0
12.7	1219.25
17.6	1219.50
21.8	1219.75
26	1220.0

PREMIER
ENGINEERING CORPORATION

SHEET NO 3 OF 4
JOB NUMBER 9714

TITLE SR-51

SUBJECT Maryland Siphon Capacity

MADE BY GH DATE 10/20/97 CHECKED BY _____ DATE _____

MH # 3 TO MH # 4

27" PIPE L = 215'
A = 3.97 ft²

$h_F = 1.94 \frac{V^2}{2g}$

MANHOLE # 4 LOSS

$h_L = 0.05 \frac{V^2}{2g} + 0.1 \left(\frac{V_2^2}{2g} - \frac{V_1^2}{2g} \right)$

MANHOLE # 4 TO PRE FAB 'T'

36" PIPE L = 140'
A = 7.07 ft²

(DETERMINE LOSSES TO MIDDLE CB
ASSUME THE OUTSIDE CB WILL AVERAGE OUT)

$h_F = 0.862 \frac{V^2}{2g}$

Q	TW	V_{27}	V_{36}	h_f	h_{MH}	EGL
0						
12.7	1219.25	3.20	1.79	0.31 + 0.04	0.02	1219.62
17.6	1219.50	4.43	2.49	0.59 + 0.08	0.04	1220.21
21.8	1219.75	5.49	3.08	0.91 + 0.13	0.06	1220.85
26	1220.00	6.55	3.68	1.29 + 0.18	0.08	1221.55

PRE FAB "T" TO CB # 14

21" PIPE L = 24'
A = 2.41 ft²

ASSUME FLOWS DIVIDED INTO THIRDS BETWEEN CATCH BASINS

$h_L = 0.303 \frac{V^2}{2g} + 2 \frac{V^2}{2g}$ (BEND LOSSES)

Q	V	$V^2/2g$	$2.303\ V^2/2g$	EGL
4.2	1.75	0.05	0.12	1219.74
5.9	2.45	0.09	0.21	1220.42
7.3	3.03	0.14	0.32	1221.17
8.7	3.62	0.20	0.46	1222.01

PREMIER
ENGINEERING CORPORATION

SHEET NO 4 OF 4
JOB NUMBER 9714

TITLE SR-51

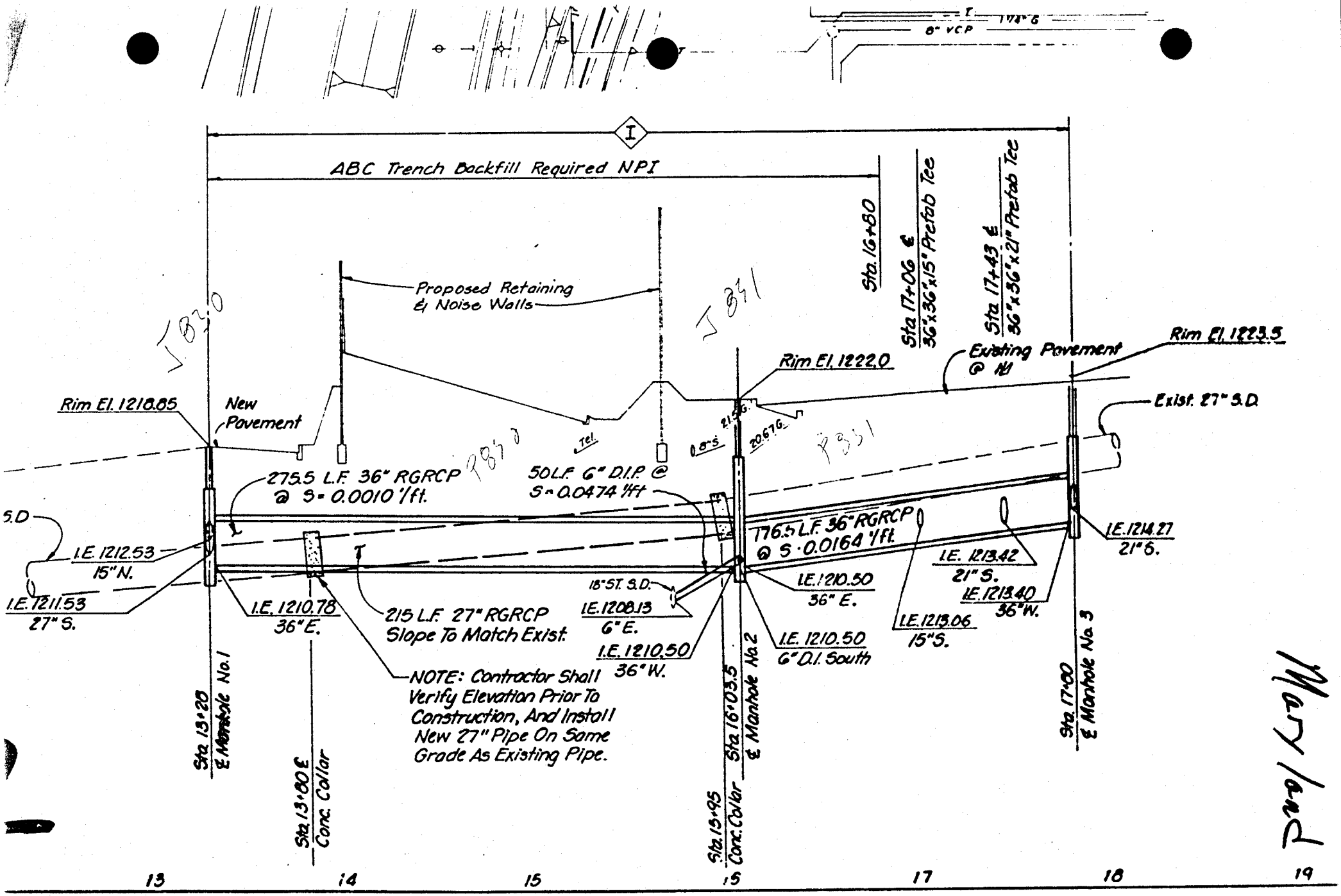
SUBJECT Maryland Siphon Capacity

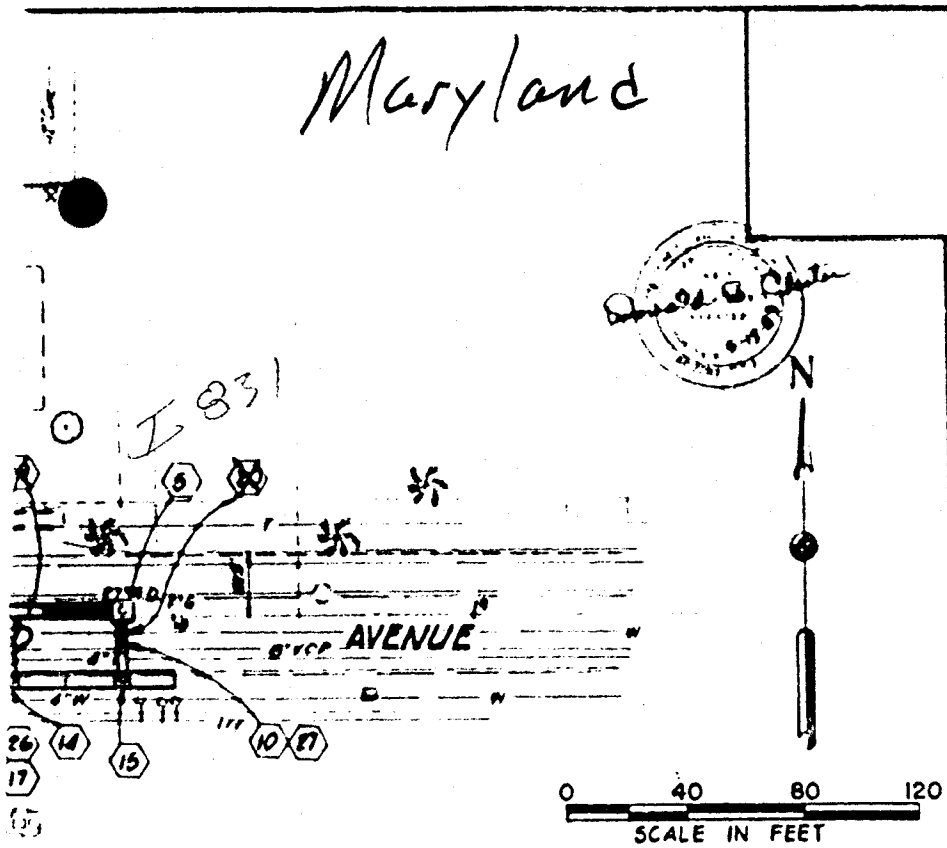
MADE BY gH DATE 10/20/97 CHECKED BY _____ DATE _____

Maryland siphon can pass the entire design event

Q_{50} = 22.6 cfs <

HEC-1 model should show the area north of Maryland as an independent basin — not hydraulically connected to the remaining model


8" VCP
ABC Trench Backfill Required NPI
Proposed Retaining & Noise Walls
Sta. 16+80
Sta 17+06 ℄ 36"x36"x15" Prefab Tee
Sta 17+43 ℄ 36"x36"x21" Prefab Tee
Rim El. 1222.0
Existing Pavement @ ℄
Rim El. 1223.5
Exist. 27" S.D.
Rim El. 1218.85
New Pavement
275.5 L.F. 36" RGRCP @ S = 0.0010 '/ft.
50 L.F. 6" D.I.P. @ S = 0.0474 '/ft
176.5 L.F. 36" RGRCP @ S = 0.0164 '/ft.
S.D.
I.E. 1212.53 15" N.
I.E. 1211.53 27" S.
I.E. 1210.78 36" E.
215 L.F. 27" RGRCP Slope To Match Exist.
18" ST. S.D.
I.E. 1208.13 6" E.
I.E. 1210.50 36" W.
I.E. 1210.50 36" E.
I.E. 1210.50 6" D.I. South
I.E. 1213.42 21" S.
I.E. 1213.40 36" W.
I.E. 1213.06 15" S.
I.E. 1214.27 21" S.
NOTE: Contractor Shall Verify Elevation Prior To Construction, And Install New 27" Pipe On Same Grade As Existing Pipe.
Sta. 13+20 ℄ Manhole No. 1
Sta. 13+80 ℄ Conc. Collar
Sta. 13+95 Conc. Collar
Sta. 16+03.5 ℄ Manhole No. 2
Sta. 17+00 ℄ Manhole No. 3
13
14
15
16
17
18
19



P-285376

BURGESS & NIPLE, INC.

REJ BKR DBC

STORM SEWER PIPE

No.	Sta	to Sta	Size	L.F.
2A	13+80	15+95	27"	215
1	13+20	16+03.5	36"	276
2	16+03.5	17+80	36"	177

STORM SEWER MANHOLE

No.	Sta	& Loc	Detail(s)	Each
3	13+20	2' N.	P-1520 & 522	1
4	16+03.50	2' N.	P-1520 & 522	1
5	17+80	2' N.	P-1520 & 522	1

CONNECTOR PIPE

No.	Sta. & Loc.	Sht. Ref.	Conn.	Size	L.F.
6	13+20, North	D-33	MH	15"	21'
7	13+20, South	D-33	MH	27"	23'
8	17+06 South	D-33	TEE	15"	~~22'~~ 24
9	17+43, South	D-33	TEE	21"	~~22'~~ 24
10	17+80, South	D-33	MH	21"	~~22'~~ 26

CATCH BASIN DET. P-1569

No.	Sta.	Sht. Ref.	Type	L	V	Each
11	13+20, N.	D-33	M-1	6	4.0'	1
12	13+20, S.	D-33	M-1	17'	5.5'	1
13	17+06, S.	D-33	M-2	17'	4.0'	1
14	17+43, S.	D-33	M-2	17'	4.0'	1
15	17+80, S.	D-33	M-2	17'	4.0'	1

CONCRETE PIPE COLLAR-20" & LARGER

No.	Sta	& Loc.	Detail	Size	Each
28	13+80	8' N.	505	27"	1
29	15+95	8' N.	505	27"	1

PREFABRICATED TEE

No.	Sta. & Loc	Size	Each
16	17+06, S.	36"x36"x15"	1
17	17+43; S.	36"x36"x21"	1

VERT. REALIGNMENT OF WATER MAIN

Not Needed

No.	Sta. & Loc.	Detail	Size	Each
18	13+20; 3' S.	370	12"	1
19	17+43; 3' S.	370	12"	1
20	17+80; 3' S.	370	12"	1

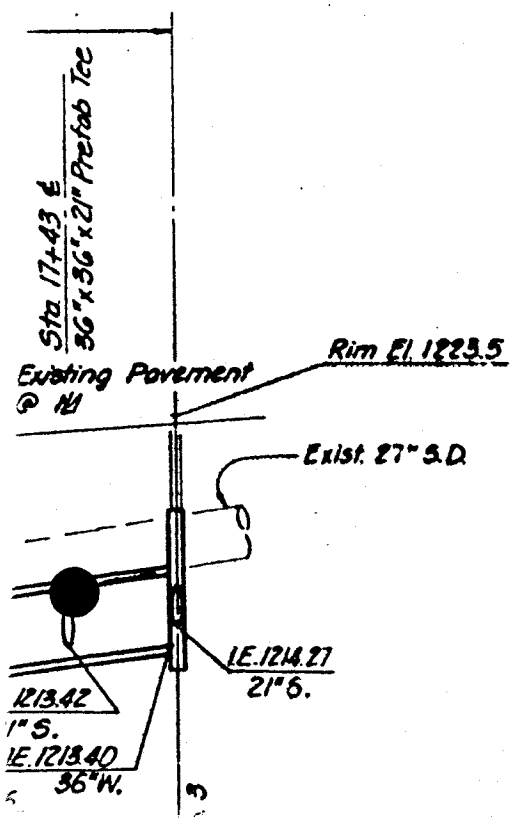
M.J. DUCTILE IRON DRAIN PIPE-CL 52*

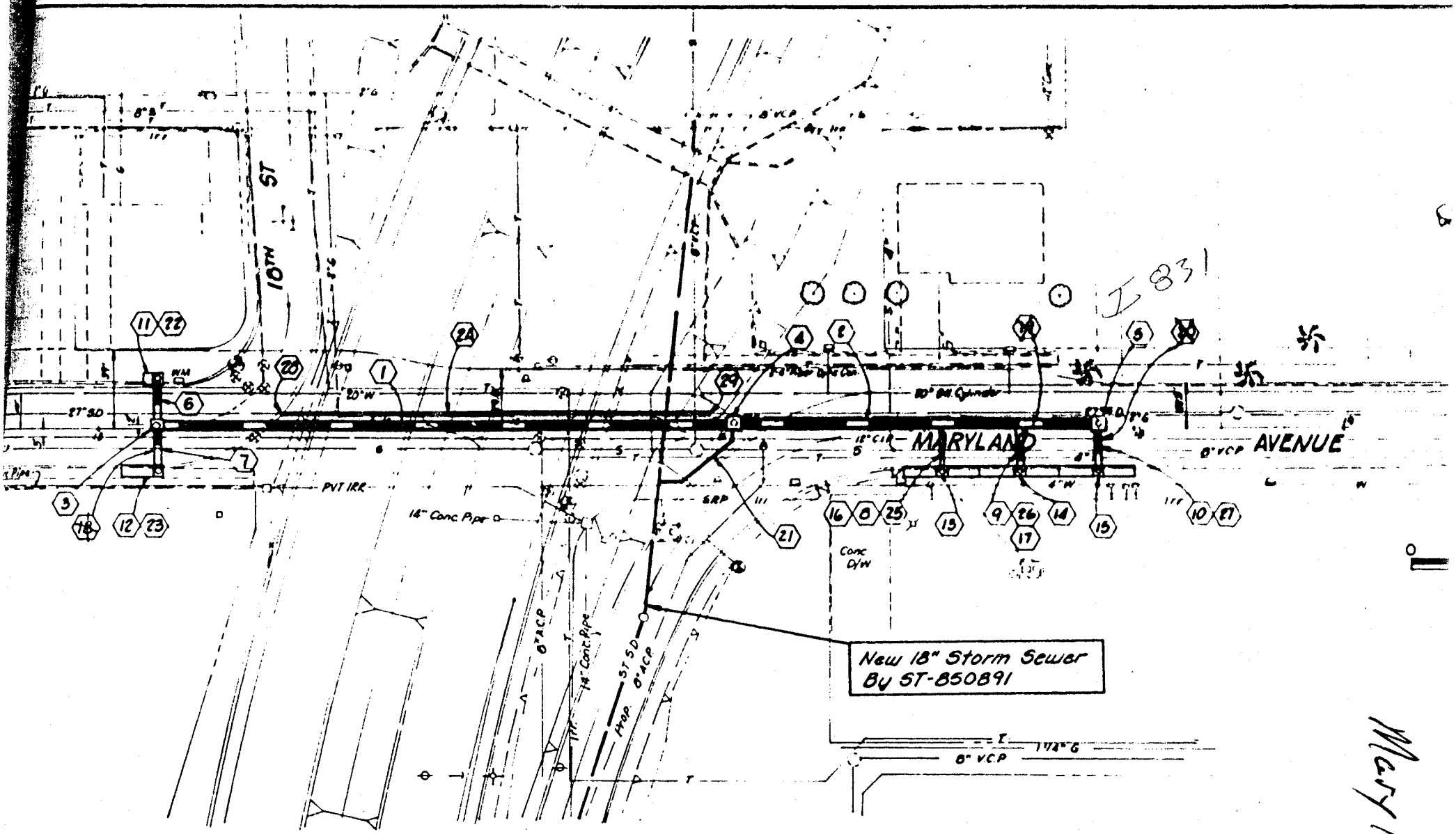
No.	Sta. & Loc.	Conn	Size	L.F.
21	16+03.5; South	Tee	6"	50*

*Includes 2-45° M.J. Elbows And Ferrco Bell Donut Adapter-Conc To Ductile Iron

PAVEMENT REPLACEMENT

No.	Sta. & Loc	Detail	Type	S.Y.
22	13+20 N.	200	B	8
23	13+20 S.	200	B	13
24	16+94 to 17+83	200	B	60
25	17+06 S.	200	B	8
26	17+43 S.	200	B	10
27	17+80 S.	200	B	10





ABC Trench Backfill Required NPI

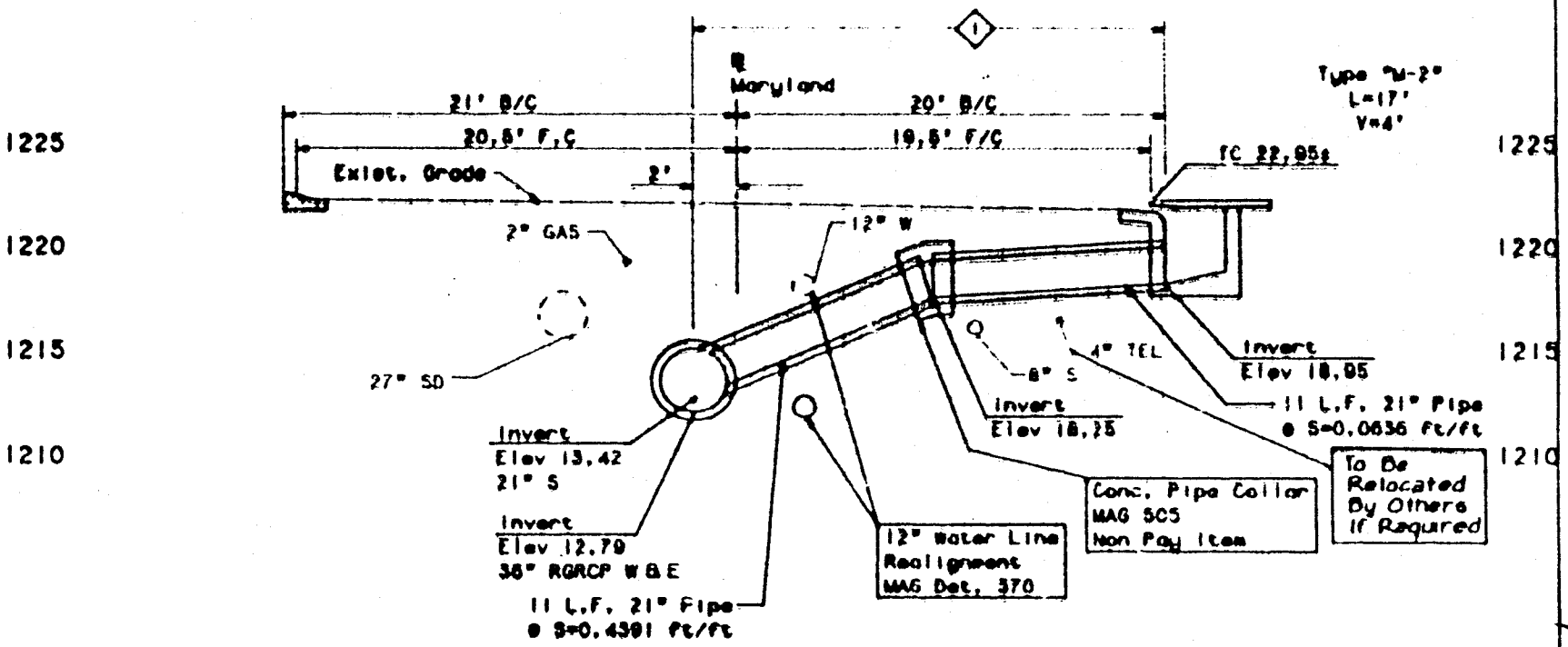
16+80

Prefab Tee

43 ℄

x 21" Prefab Tee

Maryland

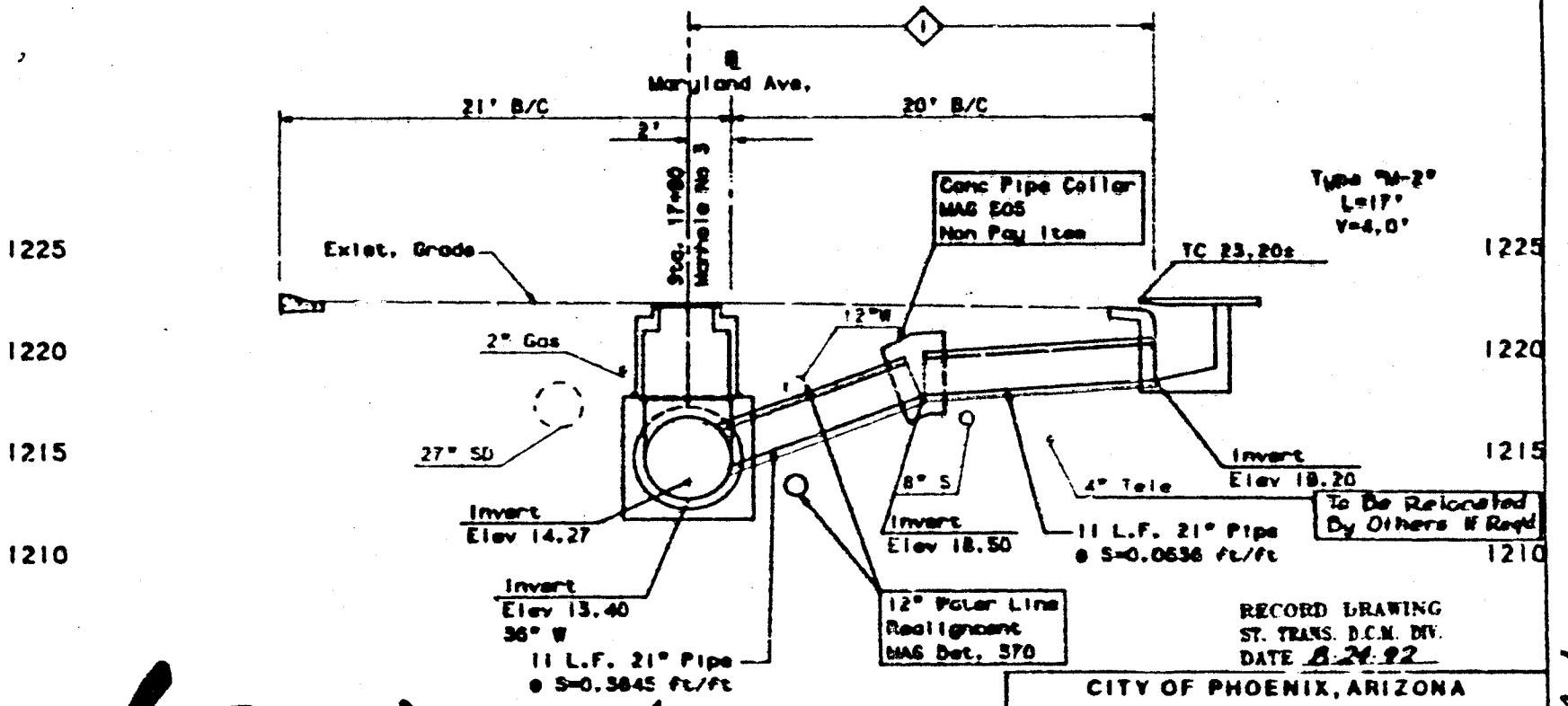


STA. 17+43, MARYLAND AVENUE
Looking East

Maryland

@ S=0.4391 ft/ft

STA. 17+43, MARYLAND AVENUE
Looking East



RECORD DRAWING
ST. TRANS. D.C.M. DIV.
DATE 8-24-92

CITY OF PHOENIX, ARIZONA
ENGINEERING DEPARTMENT

SQUAW PEAK PARKWAY
BETHANY HOME RD. INTERCHANGE
LUNE AVENUE TO ARIZONA CANAL
P-885376 124798

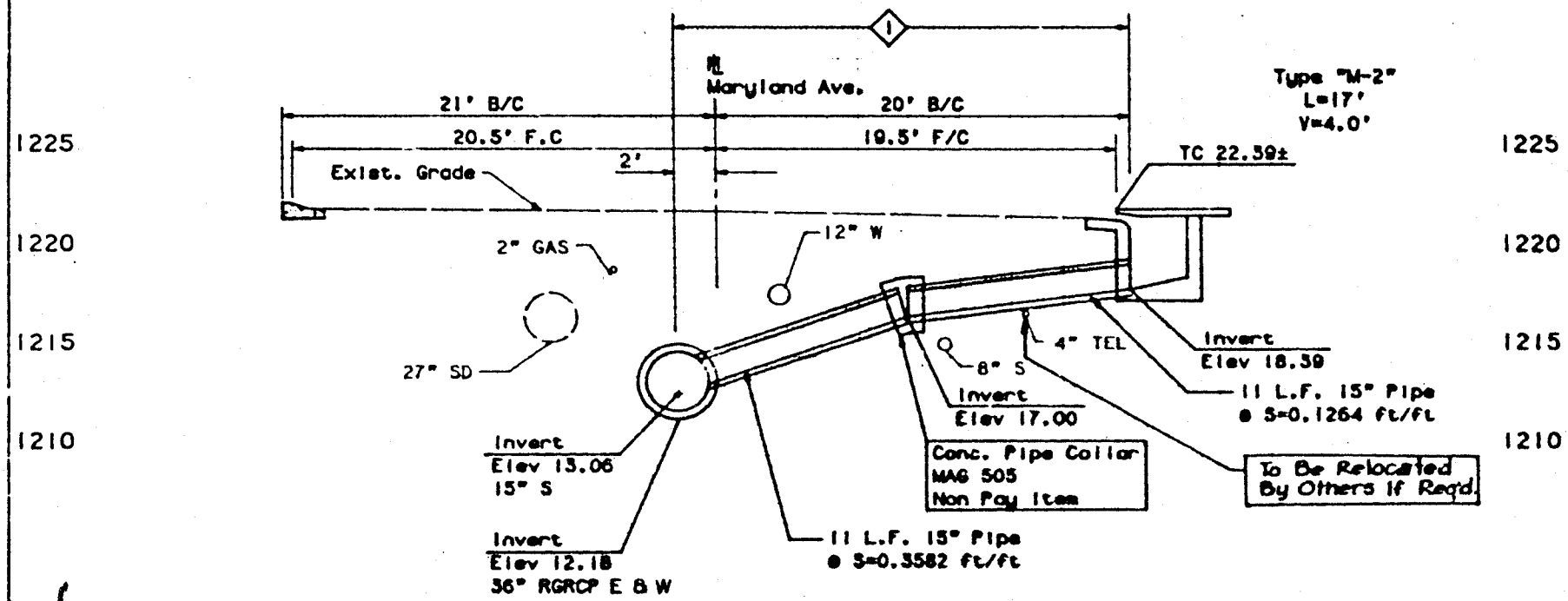
DR. PJG DATE 4/89	DES. REV DATE 4/89	D. DRC DATE 4/89	SHEET NO.	TOTAL SHEETS	AS BUILT
SCALE: 1" = 5' HORIZONTAL, 5' VERTICAL			D-33	36	

STA. 17+80, MARYLAND AVENUE
Looking East

12 (22)

Maryland

STA. 13+28, MARYLAND AVENUE
Looking East

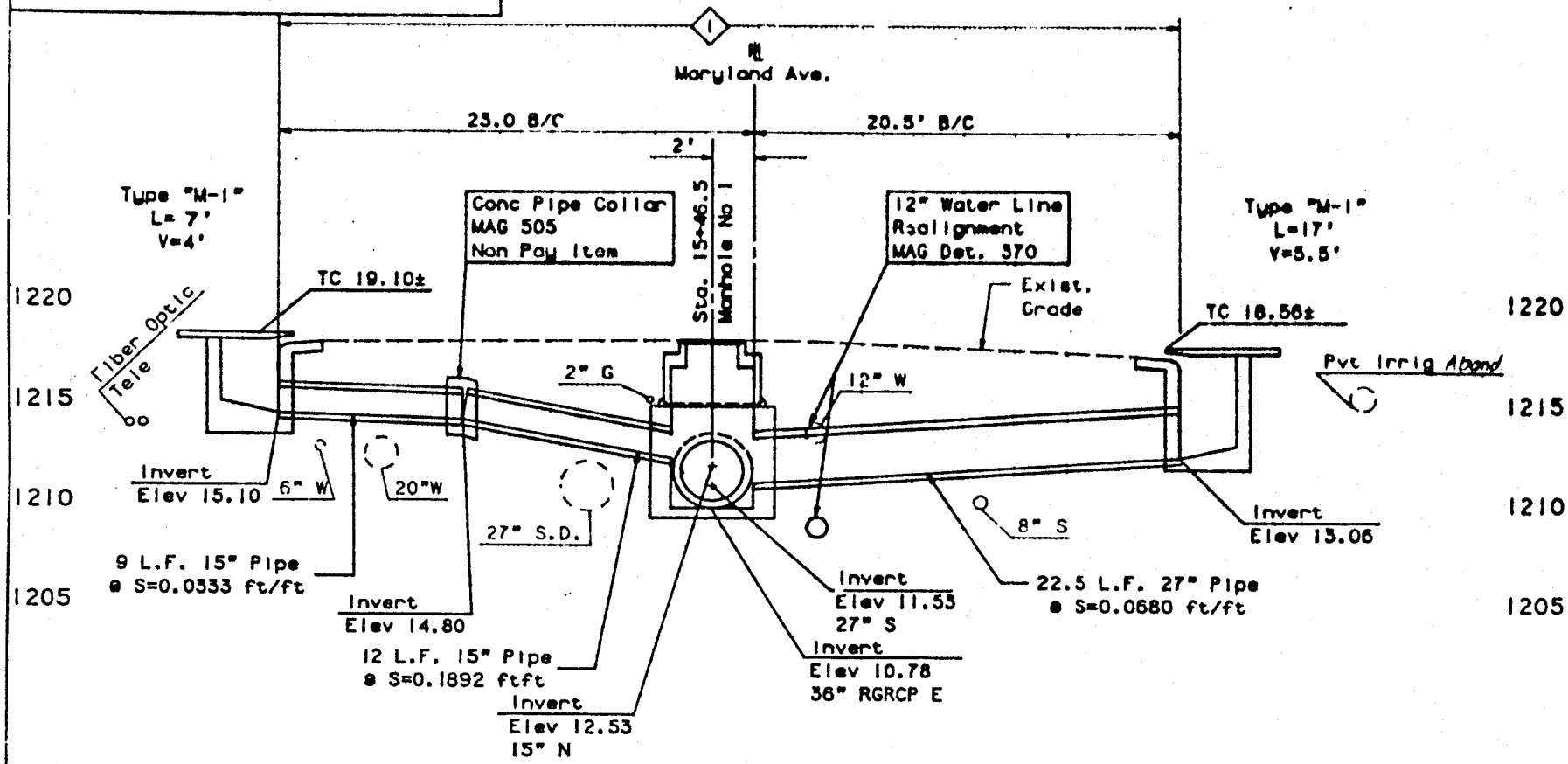


STA. 17+06, MARYLAND AVENUE
Looking East

Maryland

15-94

SQUAW PEAK PARKWAY
PHOENIX STREETS-MARICOPA CO.
LUKE AVENUE TO ARIZONA CANAL



STA. 13+28, MARYLAND AVENUE
Looking East

Maryland

PREMIER
ENGINEERING CORPORATION

SHEET NO _____ OF 3
JOB NUMBER 9714

TITLE SH. 3

SUBJECT ROSE SIPHON SCOPING

MADE BY [illegible] DATE [illegible] CHECKED BY _____ DATE _____

TASK: DETERMINE CAPACITY OF THE ROSE SIPHON
[illegible] PHOENIX PLANT
[illegible] TAILWATER ELEVATION

[illegible] (NOS. 11 & 12)
[illegible] → TE 98.74
[illegible] → TE 98.05

[illegible]
ORIFICE 12" x 5" = 7.07 [illegible]

Q	V	$1.5V^2/2g$
5	0.706	0.01
10	1.412	0.05
15	2.119	0.10
20	2.825	0.19

18" PIPE L = 12' TO [illegible] 5
A = 1.76 [illegible]

Q	V	$V^2/2g$
5	2.84	0.12
10	5.68	0.50
15	8.52	1.13
20	11.36	2.00

$h_f = \frac{29.15\, n^2 L}{R^{4/3}} \frac{V^2}{2g}$

$h_f = [illegible] \frac{V^2}{2g}$

EQ. @ [illegible] = 3

Q	TW	ORIFICE	(BENDS) $2V^2/2g$	h_f	[illegible]
5	98.74	0.01	0.74	0.03	[illegible]
10	98.74	0.05	1.00	[illegible]	[illegible]
15	98.74	0.10	2.26	0.52	[illegible]
20	98.74	0.19	4.00	1.12	104.05

PREMIER
ENGINEERING CORPORATION

SHEET NO 2 OF 3
JOB NUMBER [illegible]

TITLE SB-51

SUBJECT [illegible]

MADE BY [illegible] DATE [illegible] CHECKED BY _____ DATE _____

SOUTH [illegible] (12) [illegible]
[illegible]
TW: 98.03

ORIFICE [illegible] 7.08 FT²

Q	V	V²/2g
5	0.706	[illegible]
10	1.42	[illegible]
15	2.13	0.10
20	2.85	0.13

15" PIPE 28' LENGTH TO [illegible] #3
A = 1.26 FT²

Q	V	V²/2g
5	2.84	0.12
10	5.68	0.50
15	8.52	1.13
20	11.36	2.00

$h_f = \frac{(29.15)(0.013)^2(28)}{(1.25)^{4/3}} \frac{V^2}{2g}$

$h_f = 3.485 \frac{V^2}{2g}$

EGL @ MH #3

Q	TW	ORIFICE	V²/2g	hf	EGL
5	98.03	0.01	0.24	0.05	98.33
10	98.03	0.05	1.00	0.26	99.30
15	98.03	0.10	2.26	0.49	100.88
20	98.03	0.17	4.00	0.87	103.07

PREMIER
ENGINEERING CORPORATION

SHEET NO 3 OF 3

JOB NUMBER 9714

TITLE [illegible]

SUBJECT [illegible]

MADE BY [illegible] DATE [illegible] CHECKED BY _____ DATE _____

ADD Q'S AT OUTLET [illegible] TO DETERMINE [illegible]

Q	m³/s ELEV
12.5	99.0
18.3	99.5
22.5	100.0
25.7	100.5

[illegible] TO [illegible] 4 [illegible] PIPE [illegible]

212

461' OF 21" [illegible] h_f 5.83 $\frac{V^2}{2g}$

[illegible] 4 LOSS 0.05 $\frac{V^2}{2g}$ →

[illegible] 1.0 $\frac{V^2}{2g}$ → h_L 6.88 $\frac{V^2}{2g}$

Q	TW	V	$V^2/2g$	$6.88 \frac{V^2}{2g}$	[illegible]
12.5	99.0	5.61	0.49	3.37	102.37
18.3	[illegible]	7.59	0.89	6.12	105.62
22.5	[illegible]	9.22	1.35	9.28	119.3
25.7	[illegible]	10.36	1.77	12.18	112.88

ROSE LANE

250.74

Sta 12+48.52

PT IRR

IRR. VALVES

Sta 15+00.00 Rose Lane

ROSE

New 21" S
By ST-8

8" VCP

PT IRR

ABC Trench Backfill
Required - NPI

Sta 12+48

ABC Trench Backfill
Required - NPI

℄ 18th St

℄ Squaw Peak Parkway

J 820

J 821

Rim El. 1200.44

Rim El. 1201.30±

Rim El. 1202.0±

1198.23±

℄ Existing Pavement

405 L.F. 18" RGRCP
S=0.01067

Proposed Retaining Walls

I.E. 1195.03
15" N. & S.

I.E. 1194.93
18" W.

39
"RGRCP

849 L.F. 21" RGRCP S=0.00259%

212.50 L.F. 21" RGRCP S=0.00259%

I.E. 1191.14
21" E.

I.E. 1190.50
21" E. & W.

I.E. 1189.95
21" W.

I.E. 1190.42
15" E.

I.E. 1189.95
6" Drain South

I.E. 1189.95
21" W.

NOISE WALL

I.E. 1189.95
6" D.I. Drain To
ST-850891

I.E. 1190.43
15" E.

I.E. 1190.05
21" W.

Sta 10+46.00
℄ Manhole A

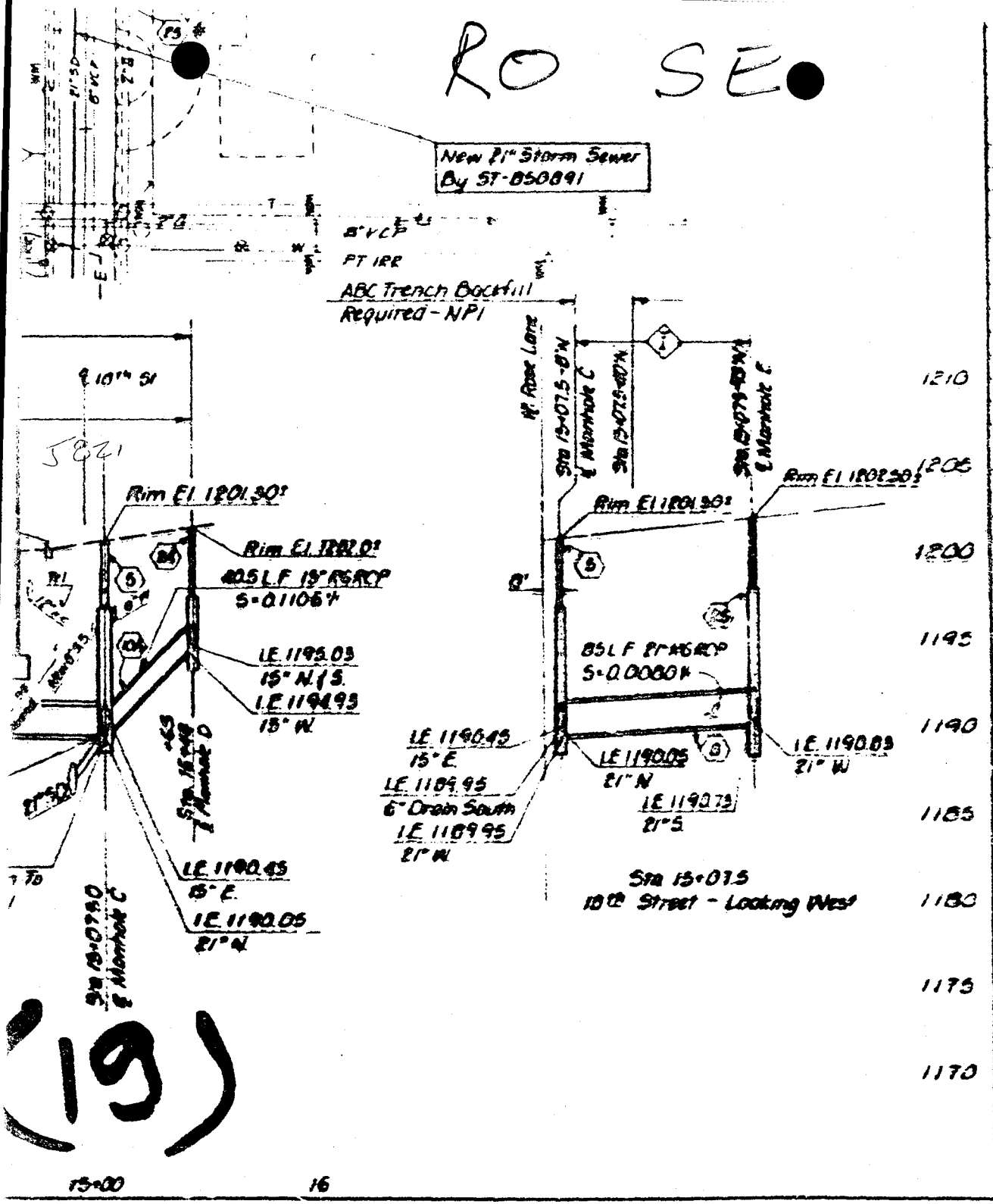
Sta 12+98.00
℄ Manhole B

Sta 15+00.00
℄ Manhole C

Sta 15+00
℄ Manhole D

CONCRETE PIPE

RO SE



No	Sta	Std Ref	Type	V	L	Each
11	10+46	D-31	M-1	4'	17'	1
12	10+46	D-31	M-1	4'	17'	
13	14+84	D-31	M-1	5'	17'	1
14	VOID					
15	15+48	D-31	M-1	4'	17'	1
16	15+25±63	D-31	M-1	4'	17'	1

PAVEMENT REPLACEMENT

No	Sta	to Sta	Detail	Type	SY
17	10+46	N	200	B	5
18	10+46	S	200	B	11
19	10+48	15+48 S2	200	B	81
20	15+48	N	200	B	2
21	15+48	S	200	B	10
22	15+07.5	15+48	200	B	16

M.J. DUCTILE IRON DRAIN PIPE - CL 53 *

No	Sta	℄ Loc	Conn	Size	LF
23	15+07.5	N	Tee	6"	25 *

* Includes 2-45° M.J. Elbows and Fernco Dell Donut Adapter - Concrete To Ductile Iron

STORM SEWER MANHOLE

No	Sta	℄ Loc	Detail	Each
24	15+48	65' 8' N	P-1820 / 522	1
25	15+07.5	95 N	P-1820 / 522	1

WATERLINE RE/LIGNMENT

No	Sta	℄ Loc	Det	Size	Each
26	10+46	6' S	370	6"	1

RECORD DRAWING
ST. FRANS DEL. DR.
DATE 8-24-92

CITY OF PHOENIX, ARIZONA
ENGINEERING DEPARTMENT

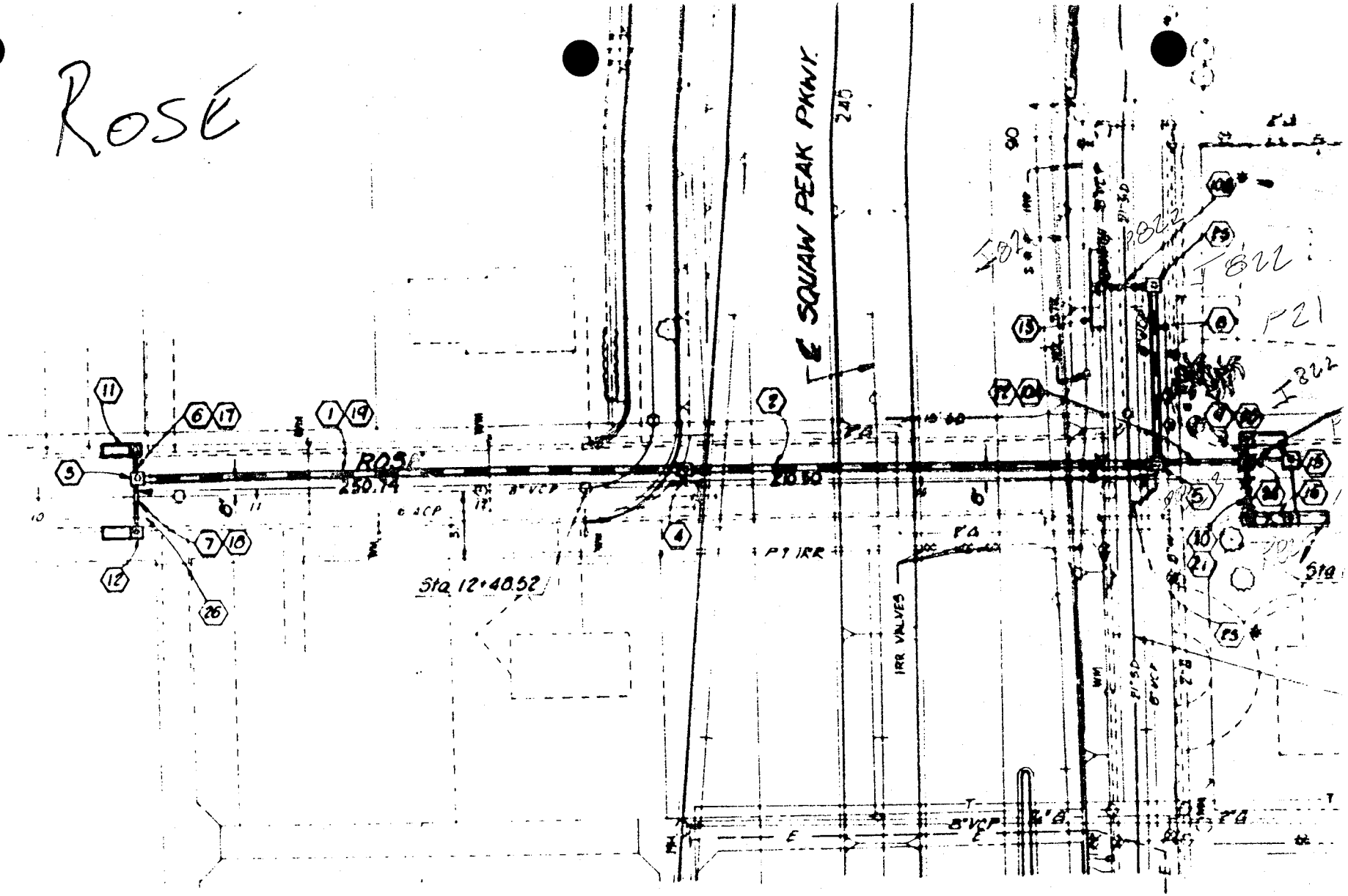
SOUTH PEAK PARKWAY
BETHANY HOME RD. INTERCHANGE
LUKE AVENUE TO ARIZONA CANAL
P-885376 124796

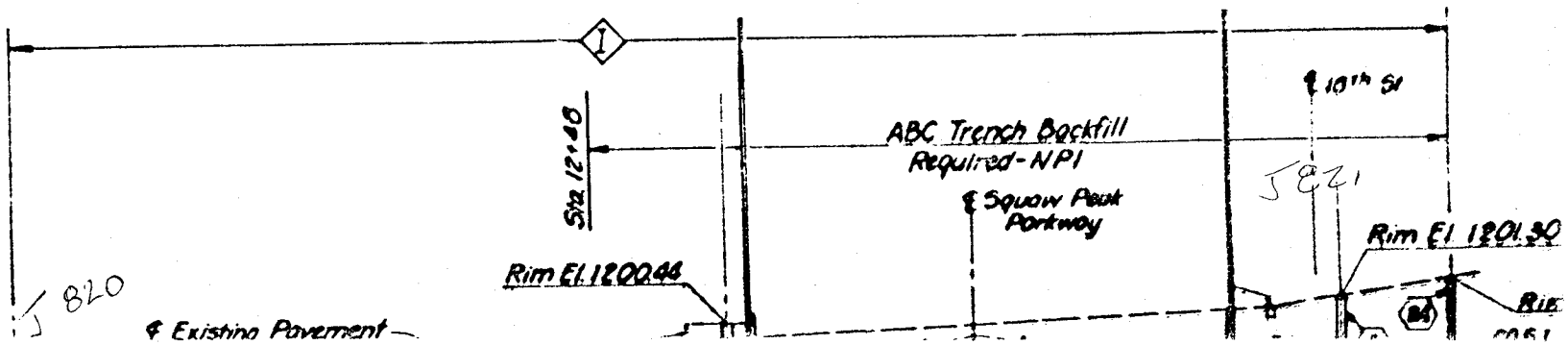
DRR	REV	DRC	SHEET NO.	TOTAL SHEETS
20 HORIZONTAL 5' VERTICAL			D-30	36

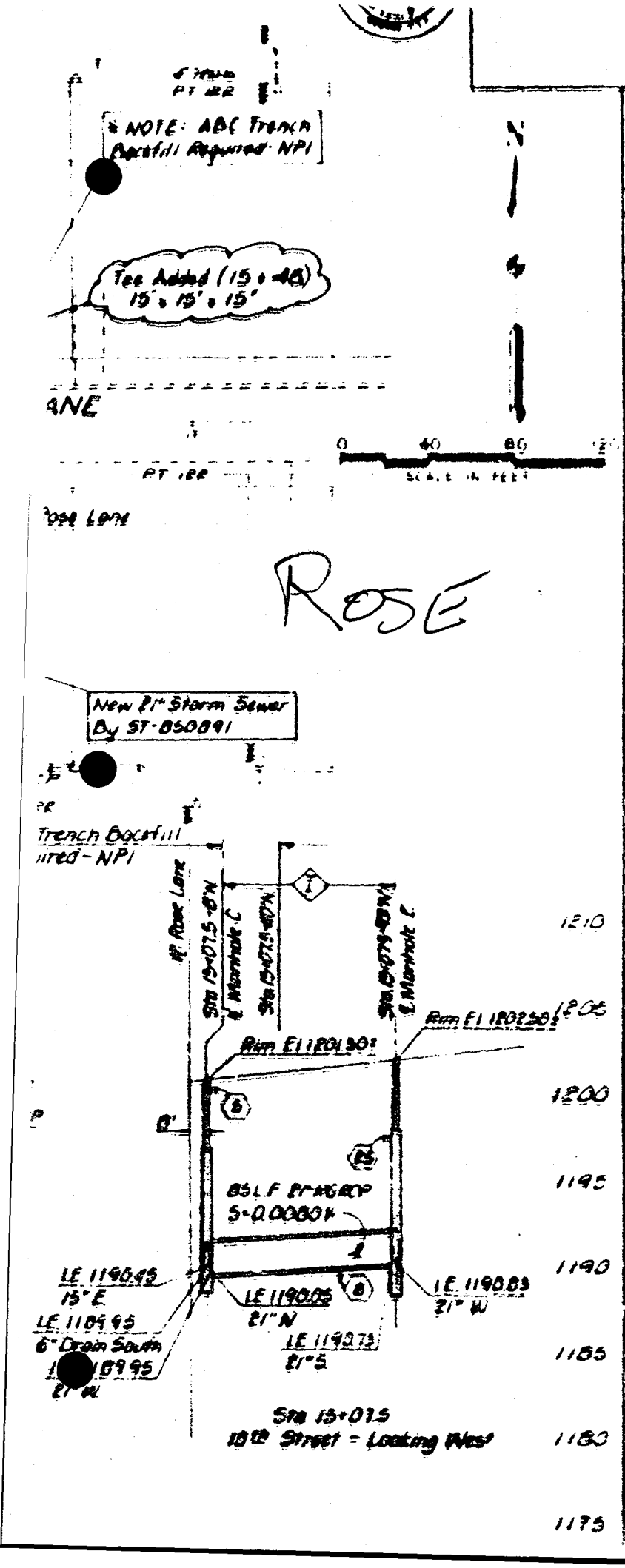
(19)

ICOPA CO.
CANAL

Rose







STORM SEWER PIPE

No	Sta	To Sta	Size	LF
1	10+46	15+95	21"	84
2	15+95	15+07.5	21"	40.5
				212.6

STORM SEWER MANHOLE

No	Sta	℄ Loc	Detail	Each
3	10+46	0 N	P-1570 / STD	1
4	15+95	0 N	P-1570 / STD	1
5	15+07.5	0 N	P-1570 / STD	1

CONNECTOR PIPE

No	Sta	℄ Loc	Std Ref	Conn	Size	LF
6	10+46	N	D-31	MH	18"	12
7	10+46	S	D-31	MH	18"	28
8	15+07.5	N	D-31	MH	21"	88
9	15+48	N	D-31	MH	15"	10
10	15+48	S	D-31	MH	15"	26
10A	15+07.5	N	D-31	MH	15"	41.37
10B	14+84 To	15+07.5	D-31	MH	21"	24

CATCH BASIN DET P-1569

No	Sta	Std Ref	Type	W	L	Each
11	10+46	D-31	M-1	4'	17'	1
12	10+46	D-31	M-1	4'	17'	1
13	14+84	D-31	M-2	5'	17'	1
14	VOID					
15	15+48	D-31	M-1	4'	17'	1
16	15+48 +45	D-31	M-1	4'	17'	1

PAVEMENT REPLACEMENT

No	Sta	To Sta	Detail	Type	SY
17	10+46	N	P00	B	5
18	10+46	S	P00	B	11
19	10+48	15+48 SB	P00	1	84
20	15+46	N	P00	B	2
21	15+48	S	P00	B	10
22	15+07.5	15+48	P00	B	16

M.J. DUCTILE IRON DRAIN PIPE - CL 52 *

No	Sta	℄ Loc	Conn	Size	LF
23	15+07.5	N	Tee	6"	25 ±

* Includes 2-45° M.J. Elbows And Ferrico Bell Donut Adapter - Concrete To Ductile Iron

STORM SEWER MANHOLE

No	Sta	℄ Loc	Detail	Each
24	15+48 +65	0 N	P-1570 / STD	1
25	15+07.5	95 N	P-1570 / STD	1

WATERLINE RE-ALIGNMENT

No	Sta	℄ Loc	Det	Size	Each
26	10+46	6' S	370	6"	1

RECORD DRAWING
ST. FRANS. D.E.M. DR.
DATE 8-24-92

CITY OF PHOENIX, ARIZONA

18" N.

STA. 0+46 ROSE LANE
Looking East

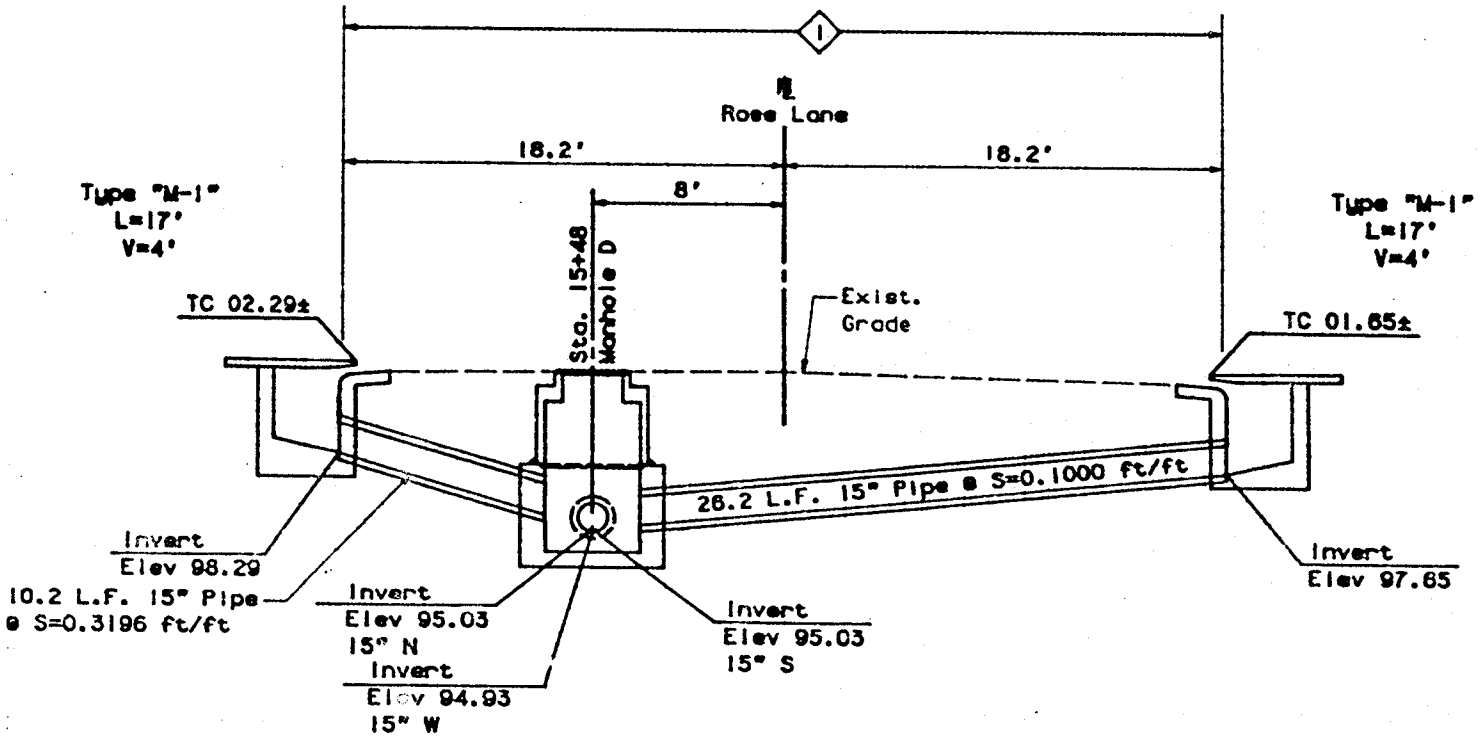
ROSE

REVISIONS BY CITY OF PHOENIX

NO.	DESCRIPTION	REV. BY	CPD BY

REVISIONS BY CITY OF PHOENIX

NO.	DESCRIPTION	EV. BY	CPD BY	DATE



STA. 15+48 ROSE LANE
Looking East

15-94-12

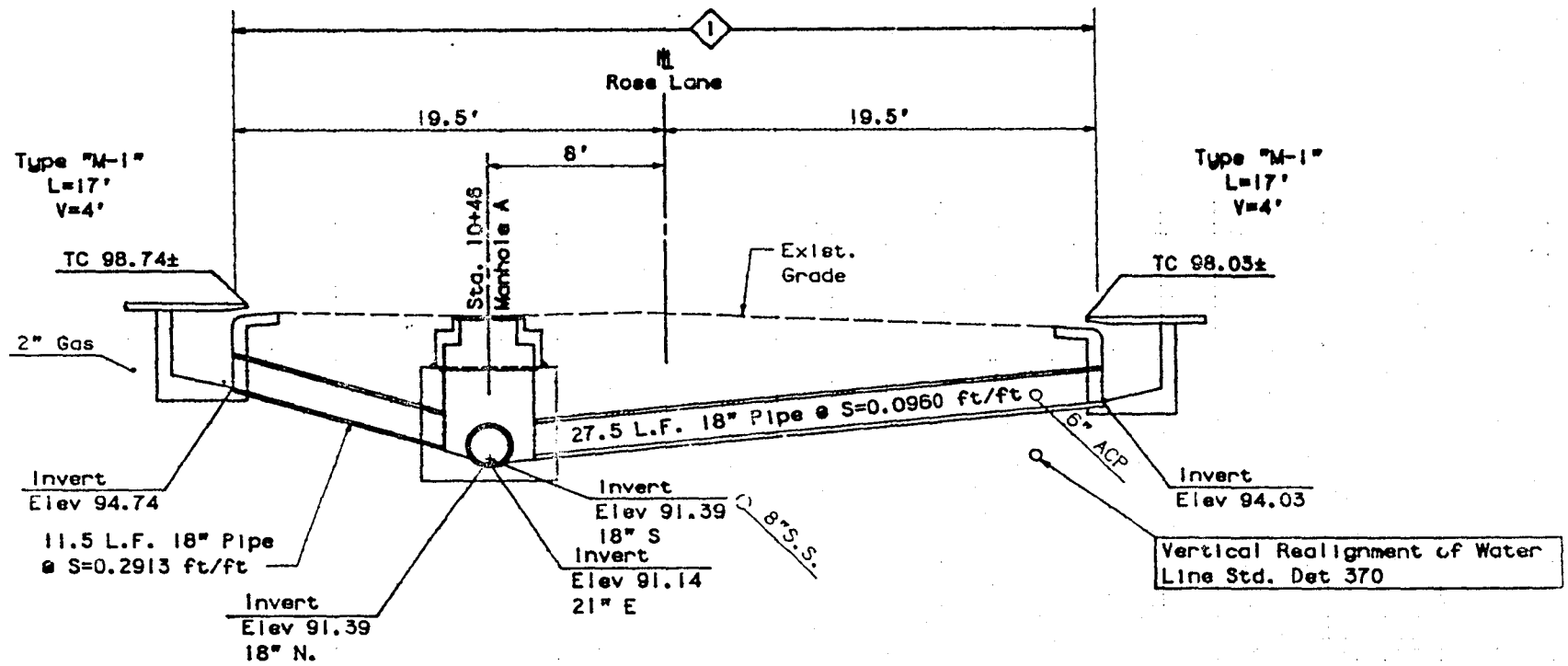
(21)

ROSE

SQUAW PEAK PARKWAY
PHOENIX STREETS-MARICOPA CO.
LUKE AVENUE TO ARIZONA CANAL

REVISIONS BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



STA. 10+46 ROSE LANE
Looking East

ORS BY CITY OF PHOENIX

DESCRIPTION	REV BY	CKD BY	DATE

ROSE

BURGESS & N

M.A.G.

CINTB

ce "M-1"
L=17'
V=4'

05±

1200 1205

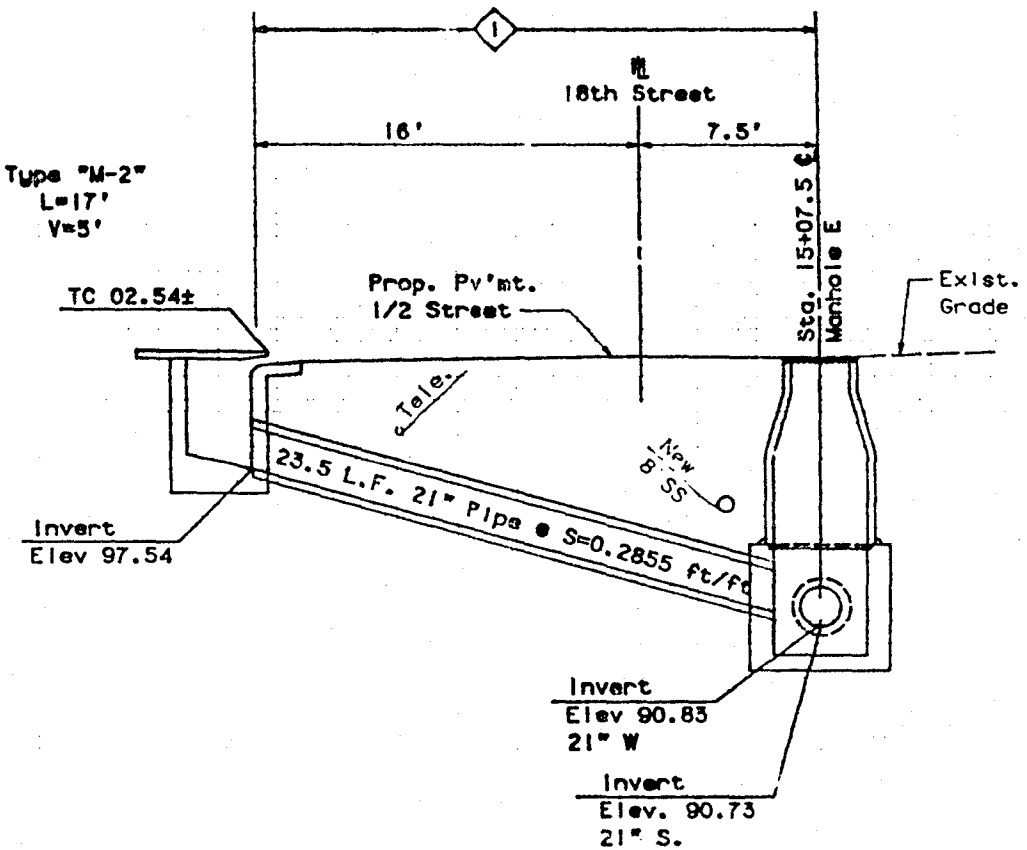
1195 1200

rt
94.03

1190 1195

cal Realignment of Water
Std. Det 370

1190



STA. 15+07.5 - 93' NORTH

××× TRANSMISSION REPORT ×××

OCT-20-97 11:19 ID:6029669234

START TIME	OCT-20-97 11:10
TELEPHONE NUMBER	6049502
NAME(ID NUMBER)	602 604 9502
TRANSMISSION MODE	G3
RESOLUTION	STD
PAGES TRANSMITTED	15
MAILBOX	OFF
SECURITY	OFF
INFORMATION CODE	OK
REDIALING TIMES	00
MACHINE ENGAGED	08'35

Subject SR-51
DRAINAGE ASSESSMENT
BETHANY SIPHON

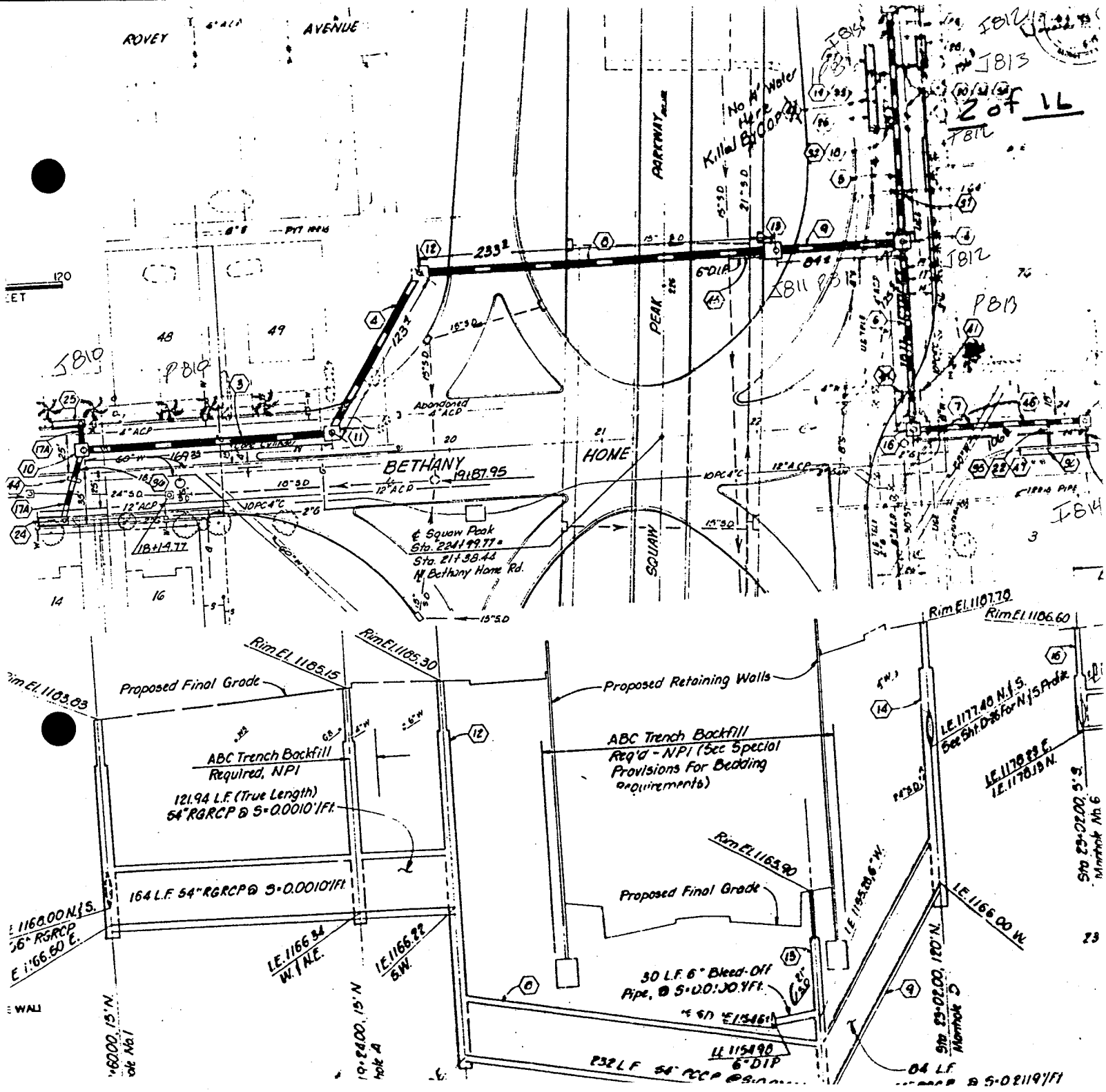
SIPHON CAPACITY IS CONTROLLED BY 33" COLLECTOR @ 18th STREET INLETS & BY LATERALS @ BETHANY INLETS

COMPUTED CAPACITY ≈ 60 cfs

METHOD OF ANALYSIS

LATERAL CAPACITY BY ADOT PIPE PROGRAMS (USING AS BUILTS)

SIPHON & COLLECTOR CAPACITY — TRIAL & ERROR USING ENERGY EQN (USING AS BUILTS)


ROVEY AVENUE
PARKWAY
PEAK
SQUAW
BETHANY HOME
Abandoned 4" ACP
℄ Squaw Peak
Sta. 22+99.77
Sta. 21+38.44
Mt Bethany Home Rd.
Rim El. 1107.70
Rim El. 1106.60
Rim El. 1105.30
Rim El. 1105.15
Rim El. 1103.83
Proposed Final Grade
Proposed Retaining Walls
ABC Trench Backfill Required, NPI
121.94 L.F. (True Length) 54" RGRCP @ S=0.0010'/Ft.
164 L.F. 54" RGRCP @ S=0.0010'/Ft.
ABC Trench Backfill Req'd - NPI (See Special Provisions For Bedding Requirements)
Rim El. 1165.90
Proposed Final Grade
30 L.F. 6" Bleed-Off Pipe, @ S=0.0:30.4'/Ft.
6" DIP
232 L.F. 54" RCCP
84 L.F.
I.E. 1166.34 W. / N.E.
I.E. 1166.22 S.W.
I.E. 1177.40 N./S.
I.E. 1166.00 W.
Sta. 23+02.00, 5'S.
Sta. 23+02.00, 120'N.
Manhole No. 6
Manhole No. 1
Manhole A
Killed By Coop
No H2O Water Here
2 of 16

Subject SR-51
DRAINAGE ASSESSMENT
BETHANY SIPHON

ENERGY EQUATION FOR SIPHON CAPACITY CHECK

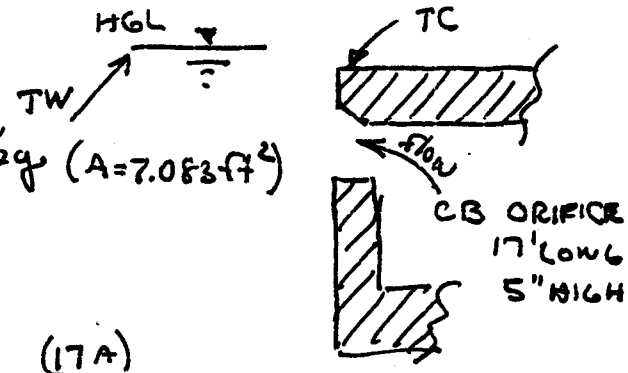
NORTHSIDE "CB OUTLET"

TC = 84.16) ASBUILTS

(ASSUME) TW = 84.26 = HGL @ CB

CB OUTLET = SINGLE 17'

CURB OPENING (ORIFICE) = 17' x 5"
= .7.083 ft²



ASSUME HEADLOSS THRU (ORIFICE) OPENING = $1.5V^2/2g$ (A=7.083 ft²)

Q	V	$1.5V^2/2g$
0	0	0
10	1.415	.047
20	2.830	.186
30	4.240	.419

(17A)

PIPE FROM CB to Jct. #10

ASBUILTS (36" RCP L=16' n=.012
A = 7.068 ft²

$h_f = \frac{29.15 n^2 L}{R^{4/3}} V^2/2g$) HECS P35 EQN 4-6

HYD RADIUS

ASSUME BENDS
AT CB & JCT 90° & LOSS = $2.0V^2/2g$

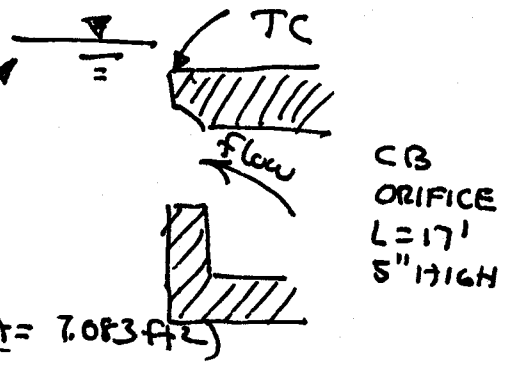
NORTHSIDE CB INLET to Jct #10 = $.0986 V^2/2g$

Q	TW	$1.5V^2/2g$ ORIFICE	$2.0V^2/2g$ BENDS	h_f	HGL
0	84.26	0	0	0	84.26
10	84.26	.047	.062	.003	84.372
20	84.26	.186	~~.124~~ .248	.012	84.706
30	84.26	.419	.560	.027	85.266

SOUTH SIDE "CB-OUTLET"

CB OUTLET = SINGLE 17'

CURB OPENING (ORIFICE) = 17' x 5"



TC = 83.29) ASBUILTS

ASSUME TW = 83.39 = HGL @ CB

ASSUME HEADLOSS THRU (ORIFICE) OPENING = $1.5V^2/2g$ (A= 7.083 ft²)

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page 4 of 16
Made by RCJ
Date 14 Oct 97
Checked by
Date

Subject SR 51
DRAINAGE - ASSESSMENT
BETHANY SIPHON

Q	V	$1.5 V^2/2g$
0	0	0
10	1.412	.046
20	2.824	.186
40	5.648	.752

ASBUILTS PIPE FROM CB to Jct. 10
(36" RCP L = 48' n = .012
A = 7.068 ft²

$$h_f = \frac{29.15 n^2 L}{R^{4/3}} V^2/2g$$
$$= .2957 V^2/2g$$

HECS p35 EQN 4-b

(SOUTH SIDE)
CB to Jct. # 10

ASBEFORE

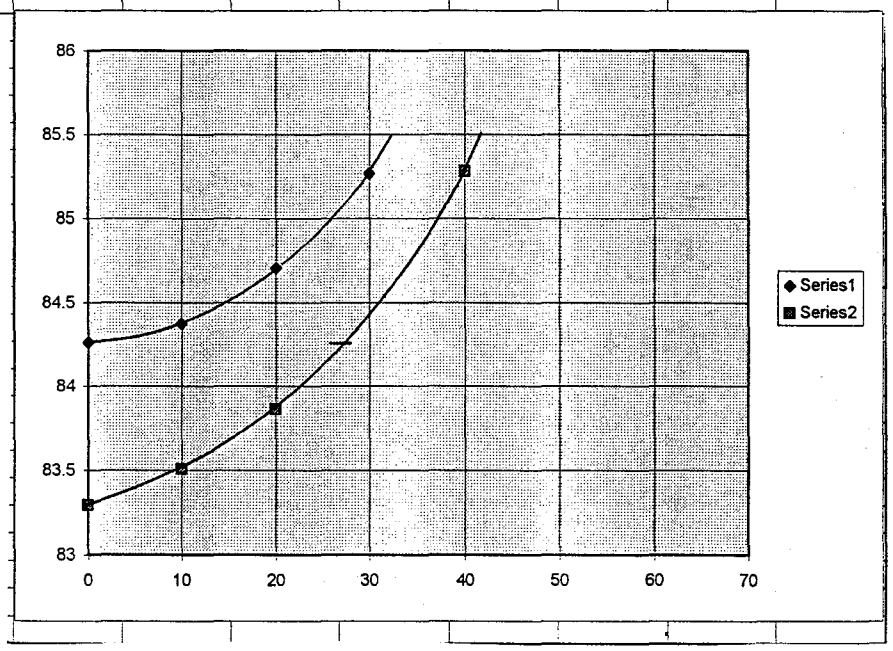
Q	TW	ORIFICE	BENDS $2.0 V^2/2g$	h_f	HGL
0	83.39	—	—	—	83.390
10	83.39	.046	.062	.009	83.508
20	83.39	.186	.248	.037	83.861
40	83.39	.752	.992	.144	85.278

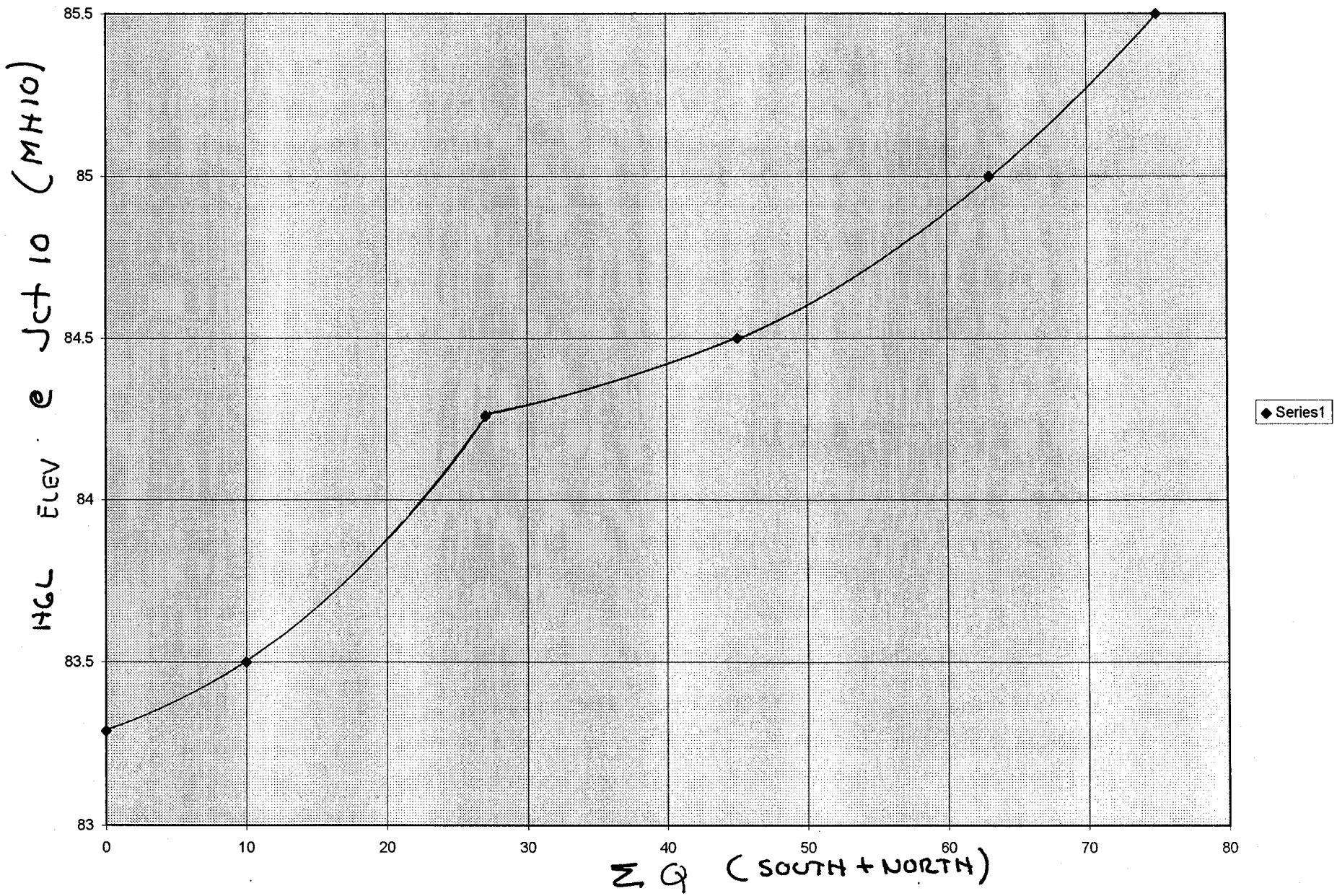
PLOT N. & S SIDES & ADD WITH EXCEL

North Q	Elev	South Elev
0	84.26	83.29
10	84.372	83.508
20	84.706	83.86
30	85.266	
40		85.278

ΣQ	ELEV
0	83.39
27	84.26
45	84.50
63	85.00
75	85.50

SEE EXCEL PLOT p5




85.5
85
84.5
84
83.5
83
0
10
20
30
40
50
60
70
80
HGL ELEV @ JCT 10 (MH10)
Σ Q (SOUTH + NORTH)
Series1

5 of 16

Subject SR-51
DRAINAGE ASSESSMENT
BETHANY SIPHON

MH # 10 to MH # 14 54" RCP $A = 15.904 ft^2$
FROM ASBUILTS $n = .012$

Line	Length
3	164
4	123
8	233
9	84
	584'

ALL 54"

$$h_f = \underbrace{\frac{29.15\, n^2 L}{R^{4/3}}}_{\text{HEC5 p35 EQN 4-b}} L \, V^2/2g$$

$= 2.0951 \, V^2/2g$

Jct Losses

Jct (MH) #	∠	K (APPLIED to $V^2/2g$)
11	50° ±	.766
12	40° ± + VERT	1.643
13	0°	0
		2.409 $V^2/2g$

FROM p 5. (EXCEL PLOT) Σ Loss = $4.5042 V^2/2g$

Q	TW	V	$V^2/2g$	$4.5042 V^2/2g$	HGL
0	83.39	—	—	—	83.39
27	84.26	1.700	.0448	.202	84.462
40	84.40	2.515	.0982	.442	84.842
75	85.50	4.716	.3453	1.568	87.07

Inlets ARE IN TWO SECTIONS

1. MH # 14 to 18th ST CB's
2. MH # 14 to BETHANY HOME Rd CB's

ASSUME 3/4 18th, 1/4 BETHANY

DUE TO LOW ELEV OF BETHANY INLETS

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page 7 of 16

Made by RCJ

Date 15 Oct 97

Checked by

Date

Subject SR-51
DRAINAGE ASSESSMENT
BETHANY SIPHON

MH #14 to 18th ST. CB's (IE WHERE CB LATERAL CONNECT, from AsBuilts) 33" RCL ZL = 159
n = .012 A = 5.94 ft²

TOTAL $h_L = h_b + h_f$

$$h_f = \frac{29.15\, n^2 L}{R^{4/3}} \; V^2/2g$$

HECS p35 EQN 4-b

90° BEND $h_b = 1.0\, V^2/2g$

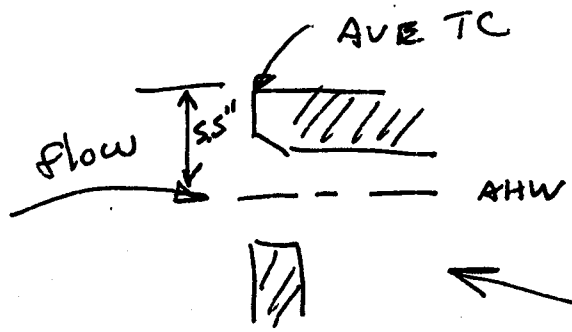
AVE L = 100'
AS Pipes Inflow @ 4 pts ALONG 33"

$h_L = 1.6918\, V^2/2g$

$h_f = .6918\, V^2/2g$

75%

Q	TW	V	$V^2/2g$	$1.6918 V^2/2g$	HGL
0	83.39	—	—	—	83.39
20.25	84.462	3.409	.1805	.305	84.767
33.75	84.842	5.682	.5013	.848	85.69
60.00	87.07	16.101	1.584	2.680	89.75



TC's
88.34
88.72
89.06
89.58

AVE ~ 88.93
.46
88.47

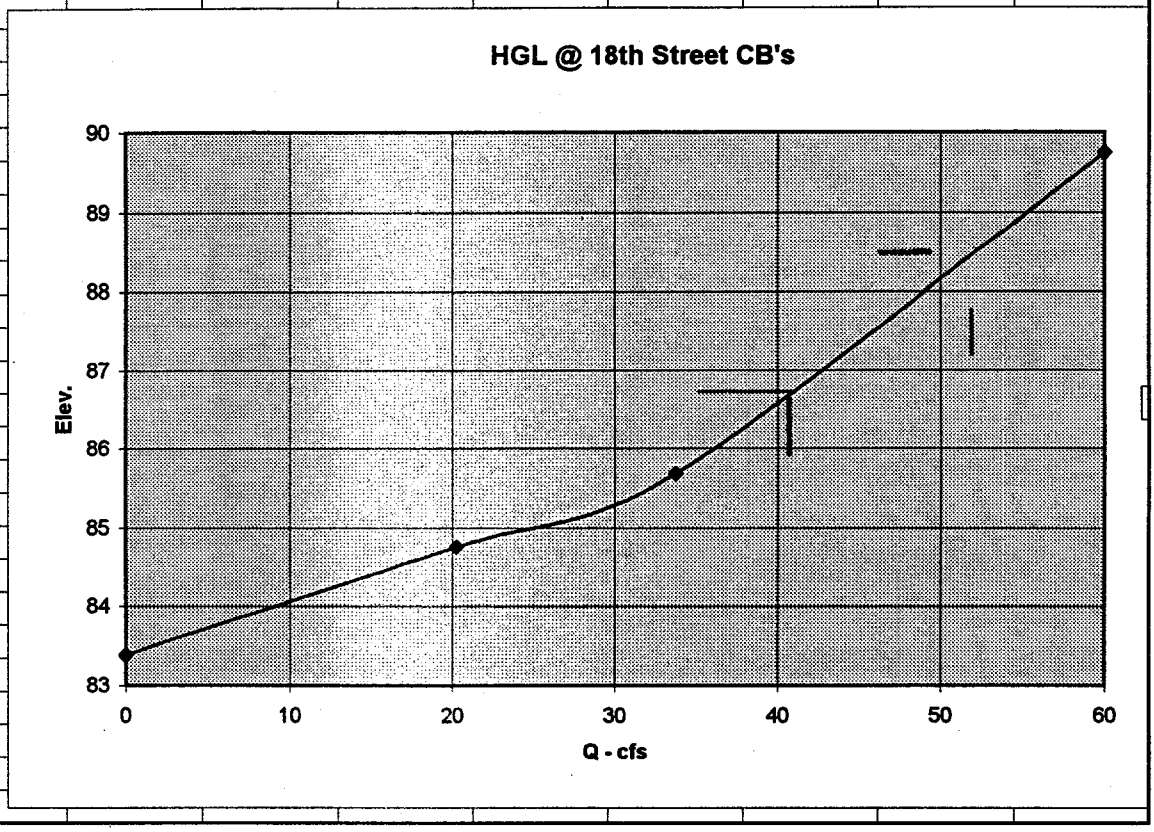
EFFECTS INLETS on 18th
AS HW > 88.47 ±

PLOT Q VS HGL
W/ EXCEL

AS HW > 86.6 ±
EFFECTS INLETS
ON BETHANY

HGL @ 18th Street CB,s

Q	HGL
0	83.39
20.25	84.767
33.75	85.69
60	89.75



ALLOWABLE 75% Q (IE HW = 88.47) @ 18th
~ 52 cfs

~ 41 cfs (HW=86.6 @ BETHANY)

the 4 18" LATERALS
HAVE THE CAPACITY
TO DELIVER
12.5 @ HW = 87.92
9.2 @ HW = 87.30
15.4 @ HW = 88.64
17.2 @ HW = 89.17
54.3 cfs
If TW = 86.6
SEE ADOT PIPE SHEETS

CAP IS BETWEEN 52 & 41

SAY 46.5 cfs

WOULD CAUSE BACK FLOW @ BETHANY ?

LATERALS DO NOT CONTROL

```
*********************
*  CULVERT PROGRAM  *
*********************
```

18th ST LATERAL

ARIZONA DEPT. OF TRANSPORTATION ..... STRUCTURES SECTION

PROJECT NO. : DATE : 10-15-1997 TIME : 09:47:07
PROJECT NAME :
COMPUTED BY : CHK BY :

****

HYDRAULIC ANALYSIS OF 1 - 1.5 FT. X 14.00 FT. P.C.
n = 0.0120

OUTLET CONTROL GOVERNS

HEADWATER COMPUTATION

	INLET CONT.				OUTLET CONTROL HW = H+ho-LSo					
Q	HW/D	HW	Ke	H	Dc	(Dc+D)/2	TW	ho	LSo	HW
12.50	1.96	2.94	0.50	1.33	1.33	1.42	2.26	2.26	0.03	3.57

CONTROL HW= 3.57 OUTLET VEL= 7.07 DHW= 87.91 AHW= 87.92 DN= 1.50

18" L= 14' INLET @ 84.34

AHW = GUTTER + .25
= 87.67 + .25 = 87.92

```
*********************
*  CULVERT PROGRAM  *
*********************
```

18th ST LATERAL

ARIZONA DEPT. OF TRANSPORTATION ..... STRUCTURES SECTION

PROJECT NO. : DATE : 10-15-1997 TIME : 09:33:10
PROJECT NAME :
COMPUTED BY : CHK BY :

****

HYDRAULIC ANALYSIS OF 1 - 1.5 FT. X 14.00 FT. P.C.
n = 0.0120

OUTLET CONTROL GOVERNS

HEADWATER COMPUTATION

	INLET CONT.				OUTLET CONTROL HW = H+ho-LSo					
Q	HW/D	HW	Ke	H	Dc	(Dc+D)/2	TW	ho	LSo	HW
9.20	1.38	2.07	0.50	0.72	1.17	1.34	1.88	1.88	0.03	2.57

CONTROL HW= 2.57 OUTLET VEL= 5.21 DHW= 87.29 AHW= 87.30 DN= 1.50

18" LATERAL, L=14', Inlet @ 84.72

AHW = GUTTER + .25
= 87.05 + .25
= 87.30

18th ST LATERAL

```
*********************
*  CULVERT PROGRAM  *
*********************
```

ARIZONA DEPT. OF TRANSPORTATION ..... STRUCTURES SECTION

PROJECT NO. : DATE : 10-15-1997 TIME : 09:41:59
PROJECT NAME :
COMPUTED BY : CHK BY :

****

HYDRAULIC ANALYSIS OF 1 - 1.5 FT. X 18.00 FT. P.C.
n = 0.0120

OUTLET CONTROL GOVERNS

HEADWATER COMPUTATION

	INLET CONT.				OUTLET CONTROL HW = H+ho-LSo					
Q	HW/D	HW	Ke	H	Dc	(Dc+D)/2	TW	ho	LSo	HW
15.40	2.62	3.93	0.50	2.10	1.41	1.46	3.04	3.04	0.04	5.10

CONTROL HW= 5.10 OUTLET VEL= 8.71 DHW= 88.66 AHW= 88.64 DN= 1.50

18" LATERAL, L=180', Inlet @ 83.56

AHW = GUTTER +.25
= 88.39 +.25 = 88.64

18th ST LATERAL

```
*********************
*  CULVERT PROGRAM  *
*********************
```

ARIZONA DEPT. OF TRANSPORTATION ..... STRUCTURES SECTION

PROJECT NO. : DATE : 10-15-1997 TIME : 09:45:05
PROJECT NAME :
COMPUTED BY : CHK BY :

****

HYDRAULIC ANALYSIS OF 1 - 1.5 FT. X 18.00 FT. P.C.
n = 0.0120

OUTLET CONTROL GOVERNS

HEADWATER COMPUTATION

	INLET CONT.				OUTLET CONTROL HW = H+ho-LSo					
Q	HW/D	HW	Ke	H	Dc	(Dc+D)/2	TW	ho	LSo	HW
17.20	3.11	4.66	0.50	2.62	1.44	1.47	3.02	3.02	0.04	5.60

CONTROL HW= 5.60 OUTLET VEL= 9.73 DHW= 89.18 AHW= 89.17 DN= 1.50

18" LATERAL, L=18', Inlet @ 83.58

AHW = GUTTER + .25

= 88.92 + .25 = 89.17

Made by RCJ

Date 15 Oct 97

Checked by

Date

Subject SR-51

DRAINAGE ASSESSMENT

BETHANY SIPHON

MH # 14 to BETHANY CB'S (IE WHERE LATERALS CONNECT)

from ASBUILTS

TOTAL $H_L = h_b + h_f$

$h_b = 2.0\, V^2/2g$

2-90° bends

$H_L = 3.384\, V^2/2g$

33" RCP L = 234'

n = .012 A = 5.94 ft²

$h_f = \frac{29.15\, n^2 L}{R^{4/3}}\, V^2/2g$

HEC 5 p35 EQN 4-6

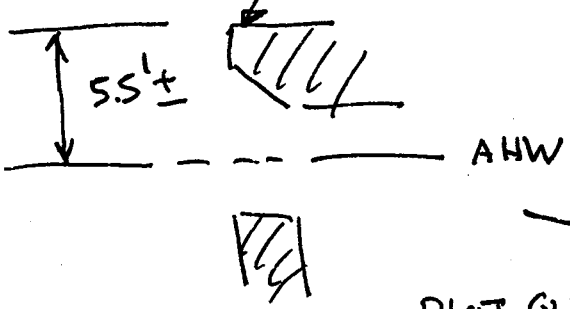
AVE L ≈ 200'

as Pipes connect @ 2 pts along 33"

$h_f = 1.384\, V^2/2g$

25% Q	TW	V	$V^2/2g$	$3.384\, V^2/2g$	HGL
0	83.39	0	0	0	83.39
6.75	84.462	1.1364	.0201	.068	84.53
11.25	84.842	1.894	.0556	.188	85.03
18.75	87.070	3.157	.1547	.524	87.59

TC ~ 87.17



TC @ BETHANY

87.08

87.25

AVE 87.17

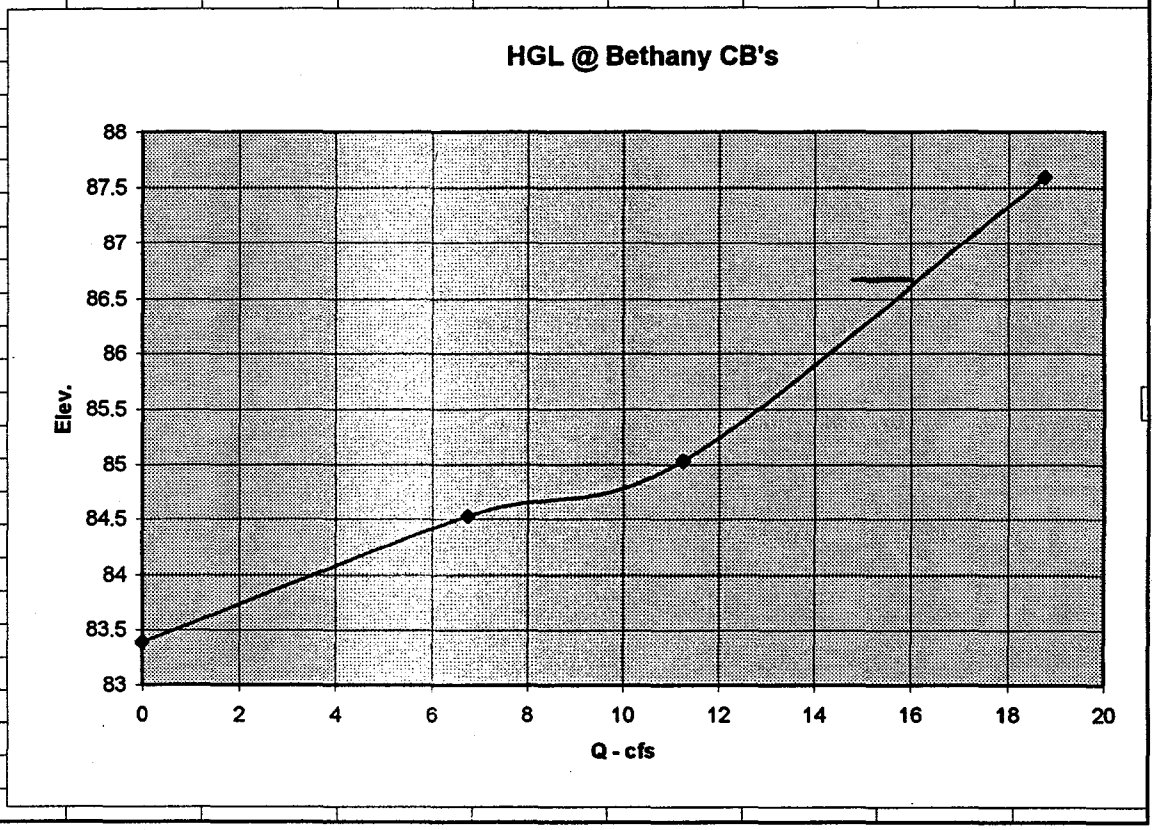
− .46

86.71

PLOT Q VS HGL W/EXCEL

HGL @ Bethany CB's

Q	HGL
0	83.39
6.75	84.53
11.25	85.03
18.75	87.59



ALLOWABLE 25% Q (HW = 86.71) = 16.1 cfs

The 2 BETHANY LATERALS
HAVE THE CAPACITY TO
DELIVER (W/TW = 86.6)

24", 6.5 cfs @ HW = 86.68
18", 7.3 cfs @ HW = 86.83
13.8 cfs

LATERALS Control

$\boxed{Q = 13.8 \text{ cfs}}$
= CAPACITY of
BETHANY CB'S

SEE ABOVE CALC SHEETS

BETHANY LATERAL

```
*********************
*  CULVERT PROGRAM  *
*********************
```

ARIZONA DEPT. OF TRANSPORTATION ..... STRUCTURES SECTION

PROJECT NO. : DATE : 10-15-1997 TIME : 09:20:57
PROJECT NAME :
COMPUTED BY : CHK BY :

****

HYDRAULIC ANALYSIS OF 1 - 2.0 FT. X 17.00 FT. P.C.
n = 0.0120

OUTLET CONTROL GOVERNS

HEADWATER COMPUTATION

	INLET CONT.				OUTLET CONTROL HW = H+ho-LSo					
Q	HW/D	HW	Ke	H	Dc	(Dc+D)/2	TW	ho	LSo	HW
6.50	0.64	1.29	0.50	0.11	0.90	1.45	4.02	4.02	0.03	4.10

CONTROL HW= 4.10 OUTLET VEL= 2.07 DHW= 86.68 AHW= 86.68 DN= 1.10

24" LATERAL, L=17', INLET @ 82.58

AHW = GUTTER +.25
= 86.41 + 2.5 = 86.66

BETHANY LATERALS

```
*********************
*  CULVERT PROGRAM  *
*********************
```

ARIZONA DEPT. OF TRANSPORTATION ..... STRUCTURES SECTION

PROJECT NO. : DATE : 10-15-1997 TIME : 09:24:09
PROJECT NAME :
COMPUTED BY : CHK BY :

****

HYDRAULIC ANALYSIS OF 1 - 1.5 FT. X 17.00 FT. P.C.
n = 0.0120

OUTLET CONTROL GOVERNS

HEADWATER COMPUTATION

	INLET CONT.				OUTLET CONTROL HW = H+ho-LSo					
Q	HW/D	HW	Ke	H	Dc	(Dc+D)/2	TW	ho	LSo	HW
7.30	1.12	1.68	0.50	0.47	1.05	1.27	3.15	3.15	0.03	3.58

CONTROL HW= 3.58 OUTLET VEL= 4.13 DHW= 86.83 AHW= 86.83 DN= 1.50

18" LATERAL, L=17', INLET @ 83.25

AHW = GUTTER + .25
= 86.58 + .25
= 86.83

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page 16 of 16

Made by RCJ

Date 15 Oct 97

Checked by

Date

Subject SR-51
DRAINAGE ASSESSMENT
BETHANY SIPHON

CAPACITY OF 18th ST. SYSTEM 46.5
CAPACITY OF BETHANY SYSTEM 13.8
60.3 cfs

BY INSPECTION, INLETS ARE LARGE AND DO NOT CONTROLL

SPLIT ASSUMED WAS 75% — 25%
ACTUAL SPLIT 77% — 23%
CLOSE ENOUGH

THANK GOD!

∴ CALC'S ARE OK

CONCLUSION CAPACITY OF SYSTEM ≈ 60 cfs

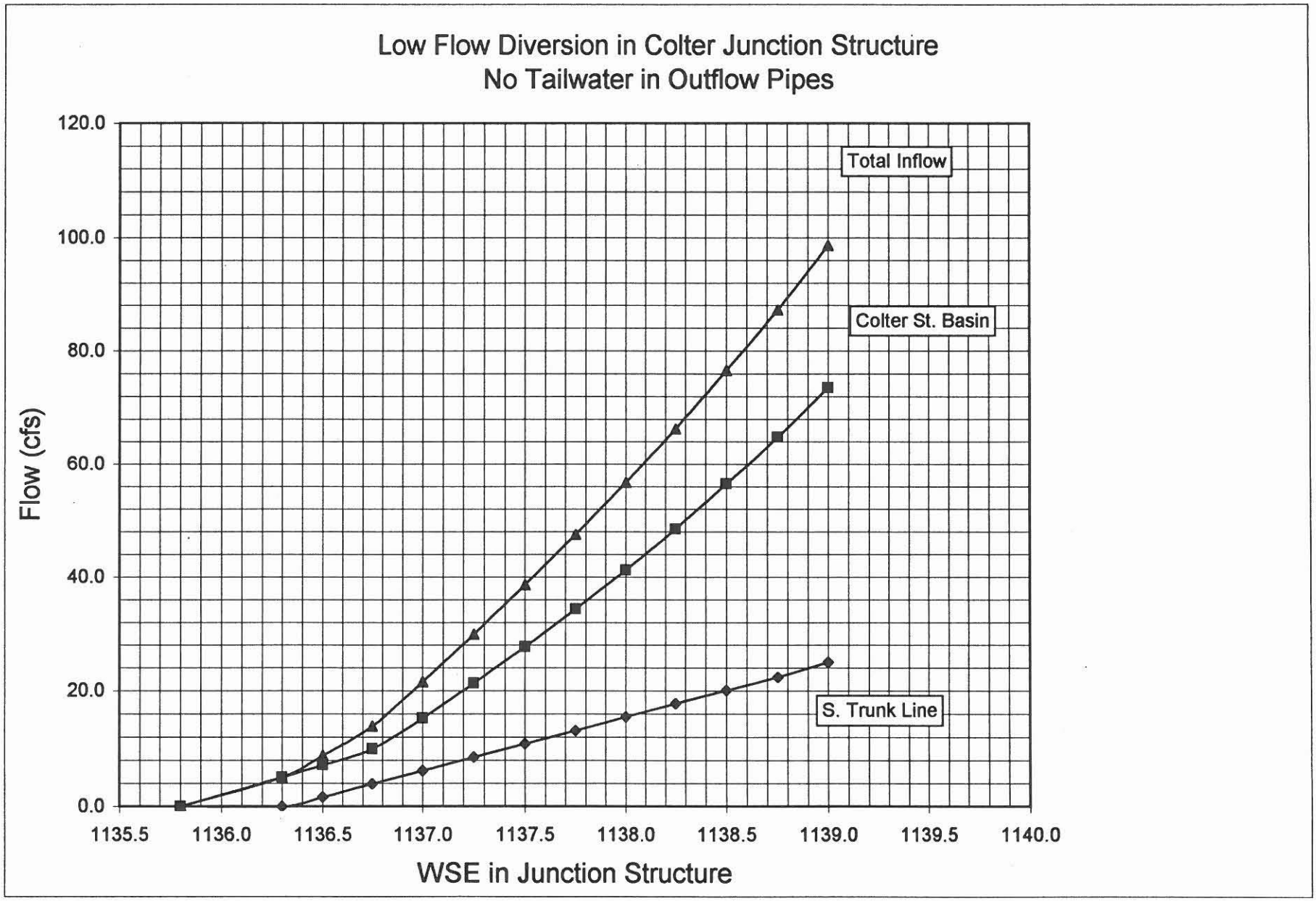
ADOT / HEC-12 — Capacity Calculations for Colter Street Siphon

JOB: SR51 DRAINAGE ASSESSMENT — FILE: COLTERSI.XLS — Capture ratios: 80% 50%

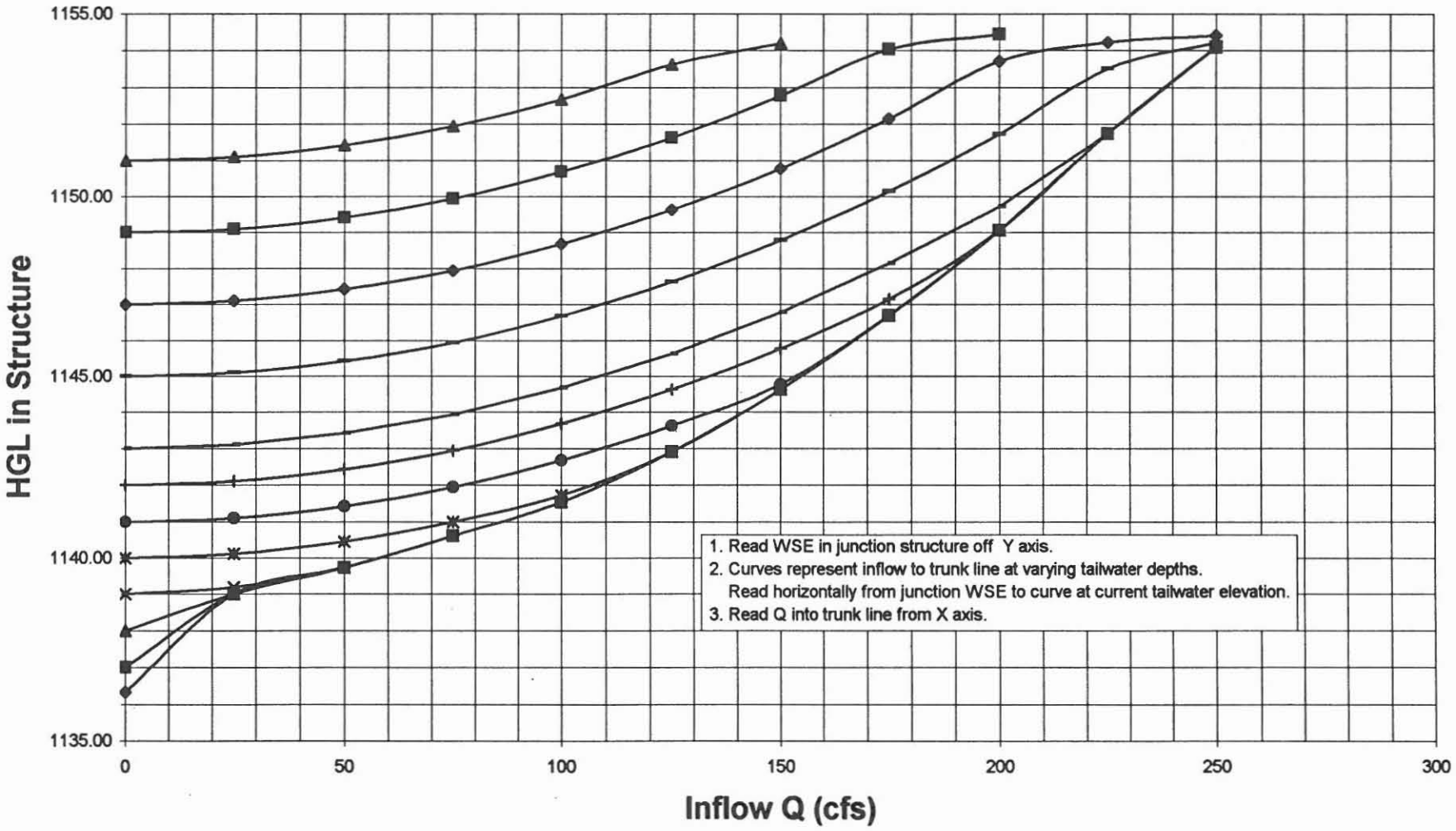
COLTER STREET

Inlet number:	I801	I801(2)	I802	I802(2)	I803	I803(2)	I804	I801(3)
HYDROLOGY COMPUTATION:								
Structure location station:	18TH ST NW	18TH ST NW	18TH ST NE	18TH ST NE	COLTER NE	COLTER NE	COLTER SE	COLTER SE
Total discharge Q (cfs) for 50-Year Storm:	28.00	11.68	28.00	11.68	28.00	11.68	28.00	11.68
SHOULDER AND GUTTER CONFIGURATION:								
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030
Inlet type (1=grate, 2=side opening or slotted):	2	2	2	2	2	2	2	2
Longitudinal profile (1=on-grade, 2=sag):	1	1	1	1	1	1	1	1
Gutter Configuration (1=freeway, 2=vertical):	2	2	2	2	2	2	2	2
Inlet description:	2, Q(tpl)	2, Q(tpl)	2, Q(tpl)	2, Q(tpl)	2, Q(tpl)	2, Q(tpl)	2, Q(tpl)	2, Q(tpl)
Grate width:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grate length:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pavement cross-slope (Sx):	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
Width of gutter from flowline (ft):	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (S'w=Sw-Sx)	0.059	0.059	0.059	0.059	0.059	0.059	0.059	0.059
Flooded Width from flowline (ft): before inlet	31.41	22.56	31.41	22.56	31.41	22.56	31.41	22.56
Depth at flowline (ft): before inlet	0.68	0.51	0.68	0.51	0.68	0.51	0.68	0.51
Water cross-area (sq.ft): before inlet	9.91	5.13	9.91	5.13	9.91	5.13	9.91	5.13
Velocity V for total discharge (fps): before inlet	2.83	2.28	2.83	2.28	2.83	2.28	2.83	2.28
Ratio of gutter depression flow to total Q (Eod):	12.4%	17.3%	12.4%	17.3%	12.4%	17.3%	12.4%	17.3%
Equivalent cross-slope (Se):	0.025	0.027	0.025	0.027	0.025	0.027	0.025	0.027
GRATE INLETS ON-GRADE:								
Ratio of grate frontal flow to total flow:	—	—	—	—	—	—	—	—
Inlet frontal flow in cfs (Qw):	—	—	—	—	—	—	—	—
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	—	—	—	—	—	—	—	—
Fraction of frontal flow intercepted (Rf):	—	—	—	—	—	—	—	—
Side flow in cfs (Qs):	—	—	—	—	—	—	—	—
Effective grate length w/clogging:	—	—	—	—	—	—	—	—
Fraction of side flow interception (Rs):	—	—	—	—	—	—	—	—
Grate Efficiency (E):	—	—	—	—	—	—	—	—
Total flow intercepted (cfs):	—	—	—	—	—	—	—	—
Grate flow-by (cfs):	—	—	—	—	—	—	—	—
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:								
Length required for total interception (ft): w/o clogging	46.8	31.0	46.8	31.0	46.8	31.0	46.8	31.0
Length of inlet provided L (ft):	18	18	18	18	18	18	18	18
Interception for length L (cfs):	16.32	9.24	16.32	9.24	16.32	9.24	16.32	9.24
Efficiency for length L:	58.3%	79.1%	58.3%	79.1%	58.3%	79.1%	58.3%	79.1%
Slotted drain or side opening flow-by (cfs):	11.68	2.44	11.68	2.44	11.68	2.44	11.68	2.44
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:								
Head available for weir flow at sag (ft):								
Capacity of grate in a sag (3-sided weir) in cfs:	—	—	—	—	—	—	—	—
Capacity of grate in a sag (4-sided weir):	—	—	—	—	—	—	—	—
Length provided of curb-opening inlet at sag:								
Capacity of curb-opening inlet in a sag (weir) in cfs:	—	—	—	—	—	—	—	—
Length of the vertical curve (ft x 100):								
approach grade #1 (%):								
approach grade #2 (%):								
ABS (algebraic diff. in approach grades) (%):	—	—	—	—	—	—	—	—
K = Min(Lc/A,167) (Table 5, HEC-12):	—	—	—	—	—	—	—	—
Flanking inlets maximum distance (ft):	—	—	—	—	—	—	—	—
TRIANGULAR MEDIAN HYDRAULICS:								
Manning's n for median finish:								
Cross-slope of median sides:								
Depth of flow at center of median (ft):	—	—	—	—	—	—	—	—
Flooded width in the median (ft):	—	—	—	—	—	—	—	—
Water velocity in the median (fps):	—	—	—	—	—	—	—	—

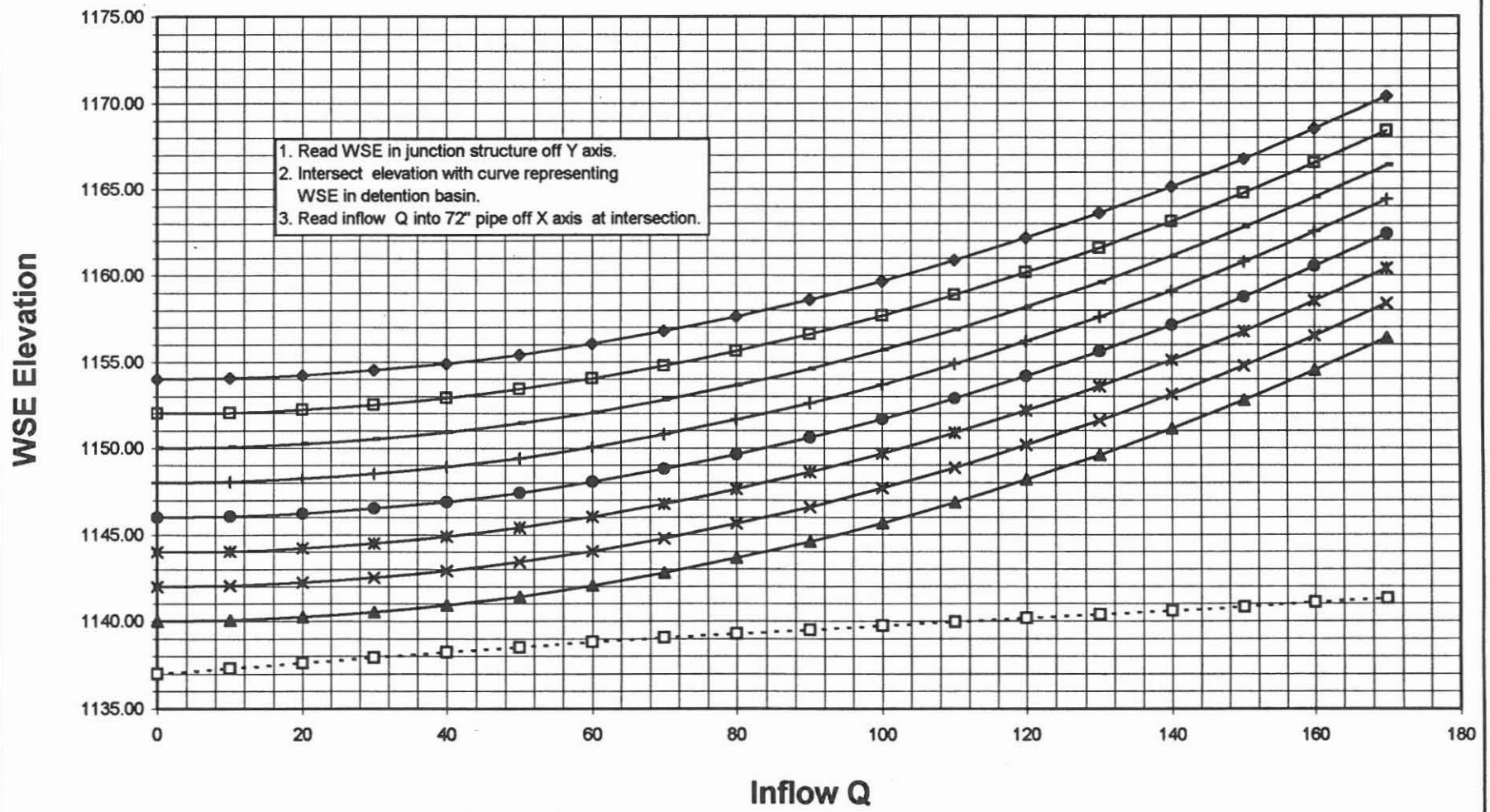
Total = 102.2


Low Flow Diversion in Colter Junction Structure
No Tailwater in Outflow Pipes
Total Inflow
Colter St. Basin
S. Trunk Line
Flow (cfs)
120.0
100.0
80.0
60.0
40.0
20.0
0.0
1135.5
1136.0
1136.5
1137.0
1137.5
1138.0
1138.5
1139.0
1139.5
1140.0
WSE in Junction Structure

Trunk Line Inflow
From Colter Junction Structure



Colter St. Detention Basin
Inflow Rating Curves



Subject SR-51
DRAINAGE ASSESSMENT
CAMELBACK SIPHON

SUMMARY OF CALCULATIONS

MAX. CAP. of SIPHON = ~~93~~ 65 cfs

MAX CAP. of 37' CURB INLET (IF ON GRADE) = 50 cfs

~~MAX CAP. of 37' CURB INLET (IF IN SUMP) = 93 cfs~~

INLETS ARE ON GRADE

∴ MAX CAP IS CONTROLLED BY INLET CAPACITY AND IS ABOUT 50 cfs

METHOD OF ANALYSIS

INLET CAPACITY BY ADOT CB PROGRAMS

SIPHON CAPACITY TRIAL & ERROR USING ENERGY EQUATION & ASBUILT PLANS

ARIZONA DEPARTMENT OF TRANSPORTATION
DRAINAGE DESIGN SECTION

10-22-1997

PROJECT NAME- _____ TRACS NO.- _____
HIGHWAY NAME- SR-51 DESIGNER - RCJ
LOCATION - DRAINAGE ASSESSMENT CHECKER - _____ PAGE 3 of 9
Ver 3.40: December 1995

CURB OPENING INLET -- ON GRADE

GUTTER FLOW HYDRAULICS
GUTTER DESCRIPTION

Roadway Grade-% Per cent--G	=	0.300
Roadway Cross-Slope-Ft./Ft.--Sx	=	0.020
Shoulder Width-Ft.--	=	10.000
Shoulder Slope-Ft./Ft.--Ss	=	0.020
Gutter Width-Ft.--W	=	1.417
Gutter Slope-Ft./Ft.--Sw	=	0.059
Gutter Depression-Inches--	=	1.000
Manning's 'N	=	0.016
Flow-CFS--Q	=	28.007
SPREAD-Ft.--T	=	31.416
Average Velocity-V-fps	=	2.826
FLOW in Gutter-CFS--Q	=	3.461
% Flow in Gutter-CFS	=	12.356
Velocity of Flow in Gutter-fps	=	3.806
Depth at Curb Line-Inches--d	=	8.200

CURB OPENING--ADOT STD. C-15.20

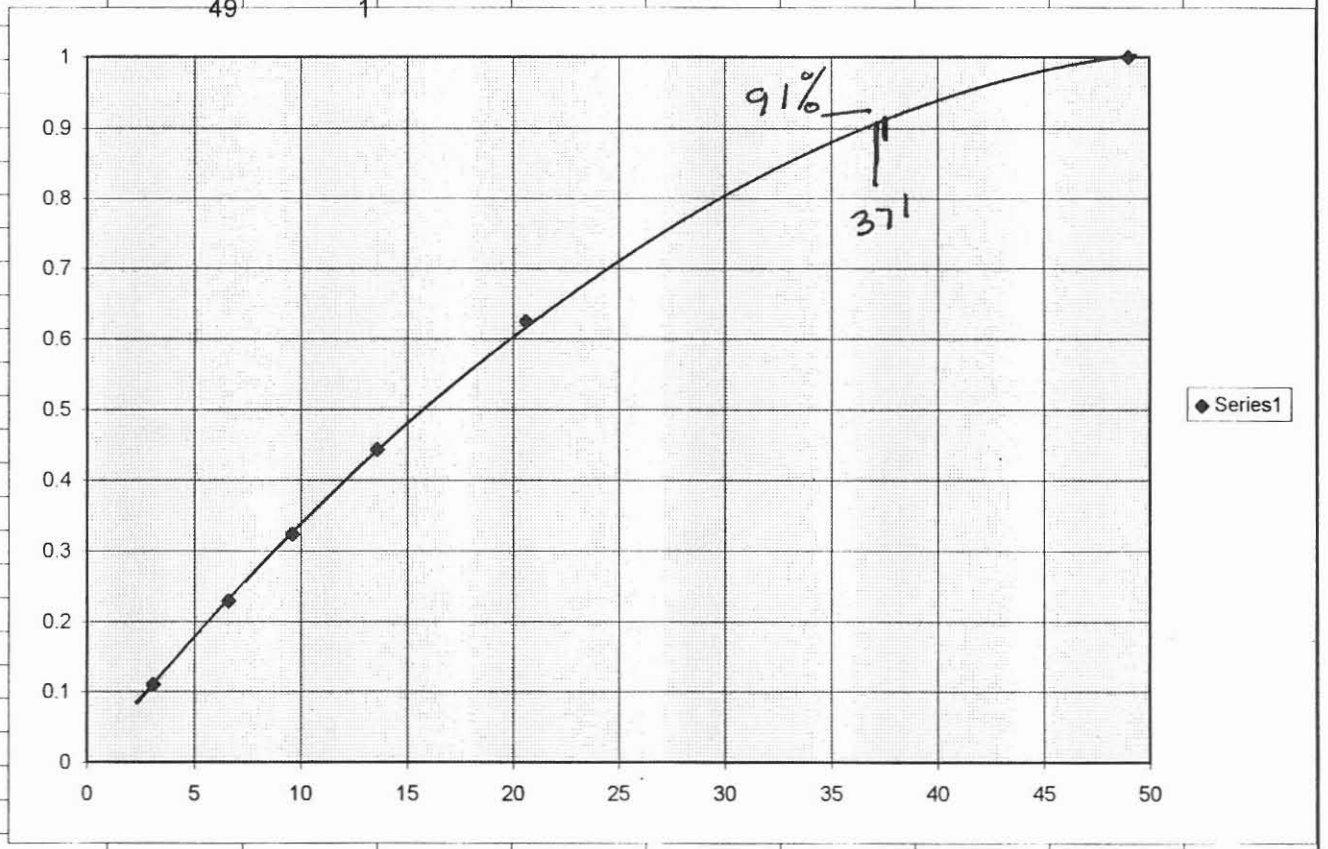
Flow-CFS--Q	=	28.007
Gutter Velocity at INLET-fps	=	3.964
GUTTER FLOW at INLET-CFS--Q	=	3.819
Depth at INLET Curb Line-Inches--d	=	9.160
Local Gutter Depression-Inches	=	1.000
Length of opening: TOTAL Intercept--Ft.	=	48.978
Capture Ratio -- CURB OPENING	=	0.800

LENGTH	Efficiency	Q(Captured)	Q(By-Pass)
3.083	0.110	3.093	24.914
6.583	0.229	6.408	21.599
9.583	0.324	9.081	18.926
13.583	0.443	12.399	15.608
20.583	0.625	17.509	10.498

SR-51
DRAINAGE ASSESSMENT
CAMELBACK SIPHON

% INTERCEPTION VS. LENGTH
INLET CB'S

Length	%
3.1	0.11
6.6	0.229
9.6	0.324
13.6	0.443
20.6	0.625
49	1



INLET INTERCEPTION

FROM GRAPH OF % INTERCEPTION VS LENGTH
BASED UPON ADOT PROGRAM

$$Q_i = (2)(28.07)(.91)$$

BOTH SIDES

SINGLE GUTTER CAPACITY

% INTERCEPTION

$= 51$ cfs

$\boxed{\text{SAY 50 cfs}}$

ENERGY EQUATION FOR SIPHON CAPACITY CHECK

SOUTHSIDE "CB OUTLET" TC = 47.63) ASBUILTS

ASSUME TW = 47.73 = HGL @ CB

CB OUTLET = DOUBLE 17' WING + 3' SUMP

CURB OPENING (ORIFICE) = 37' x 5" = 15.42 ft²

CB ORIFICE 37' LONG 5" HIGH

ASSUME HEAD LOSS THRU CURB OPENING ORIFICE $= 1.5\, V^2/2g$ (A = 15.42 ft²)

Q	V	$1.5\, V^2/2g$
10	.6485	.010
20	1.2970	.039
40	2.5940	.157

ASBUILTS (60" RCP A = 19.63 ft² L = 80.5 ft n = .012

$h_f = \frac{29.15\, n^2 L}{R^{4/3}} V^2/2g = .2509\, V^2/2g$)

From HEC 5 P35 EQN 46

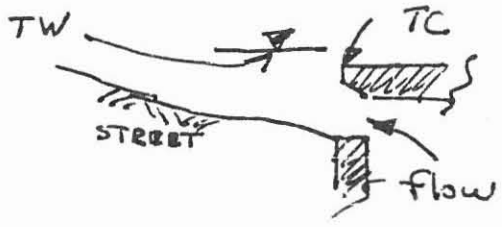
CB NO. 12 (SOUTHSIDE "CB OUTLET") to MH "A"

Q	TW	$1.5\, V^2/2g$ (CURB OPENING) ORIFICE	$2\, V^2/2g$ BENDS (UP MH'S) + BEND	h_f ← 60" RCP ABOVE	HGL @ MH "A"
0	47.73	0	0	0	47.73
10	47.73	.010	.608	.001	47.749
20	47.73	.039	.032	.004	47.805
40	47.73	.157	.129	.016	48.032

SEE P 8 of for plot

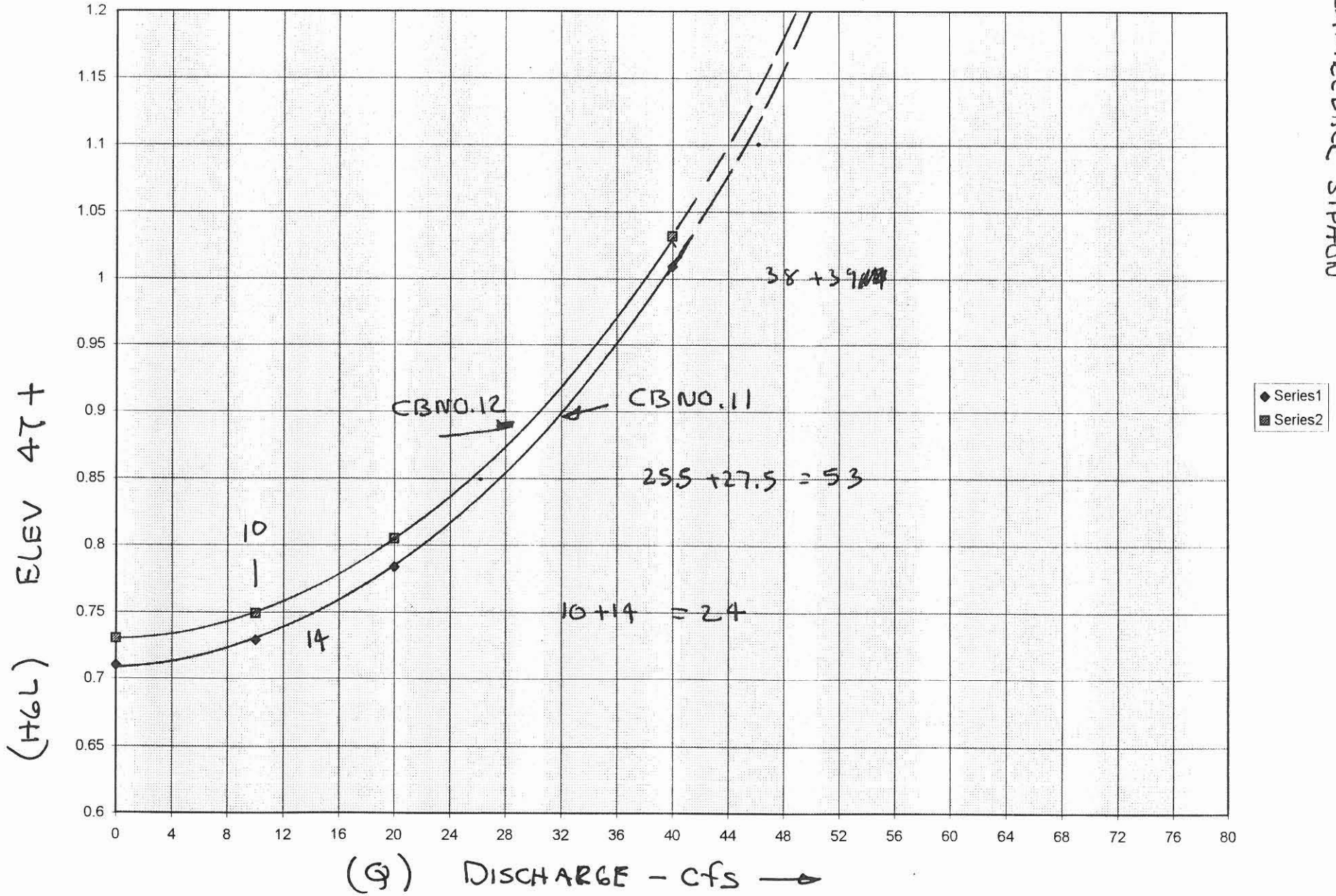
NORTHSIDE "CB OUTLET" TC = 47.61) ASBUILTS

ASSUME TW = 47.71 = HGL @ CB



CB - ORIFICE 37' LONG 5" HIGH

HGL VS Q @ MH A



SR-51
DRAINAGE ASSESSMENT
CAMELBACK SIPHON

8 of 9

PARSONS BRINCKERHOFF COMPUTATION SHEET

Made by RCJ

Date 20 Oct 97

Checked by

Date

Subject SR-51
DRAINAGE ASSESSMENT
CAMELBACK SIPHON

SOUTH SIDE "CB-INLET"
DOUBLE 17' WING + 3' SUMP

TC = 49.19
ASSUME AHW = 49.29

LOW TC -4"
49.19
-.33
48.86

60" RCP L = 115

A = 19.63 ft²

$h_f = \frac{29.15\, n^2 L}{R^{4/3}} V^2/2g$

= .359 $V^2/2g$
.77 $V^2/2g$ 2-22½° BENDS
1.5 $V^2/2g$ Inlet loss
2.629 = Σ LOSSES

ALLOWABLE TW = 48.86
(TO ALLOW CURB OPENING TO FUNCTION ~~AS~~ FREE OF BACKWATER EFFECTS

Assume ⅔ - ⅓ split
(IE ⅓ South SIDE)

South side
MH "C" to Inlet CB

@ Inlet CB

Q	TW	V	$V^2/2g$	$2.629\, V^2/2g$	HGL
0	47.71	—	—	—	47.71
8 22.2	47.851	.4075	.0026	.007	47.921
23	48.86	1.717	.0213	.056	48.916

48.86

NORTHSIDE

60" RCP
A = 19.63 ft²

$h_f = \frac{29.15\, n^2 L}{R^{4/3}} V^2/2g$

L = 65 n = .012
= .203
+ Inlet 1.5
1.703 $V^2/2g$

MH "C" to Inlet CB

Q	TW	V	$V^2/2g$	$1.70\, V^2/2g$	HGL
0	47.71	—	—	—	47.71
16 42.4	47.80	.815	.0103	.018	47.818
44.4	48.86	2.262	.0794	.085	48.945

48.86

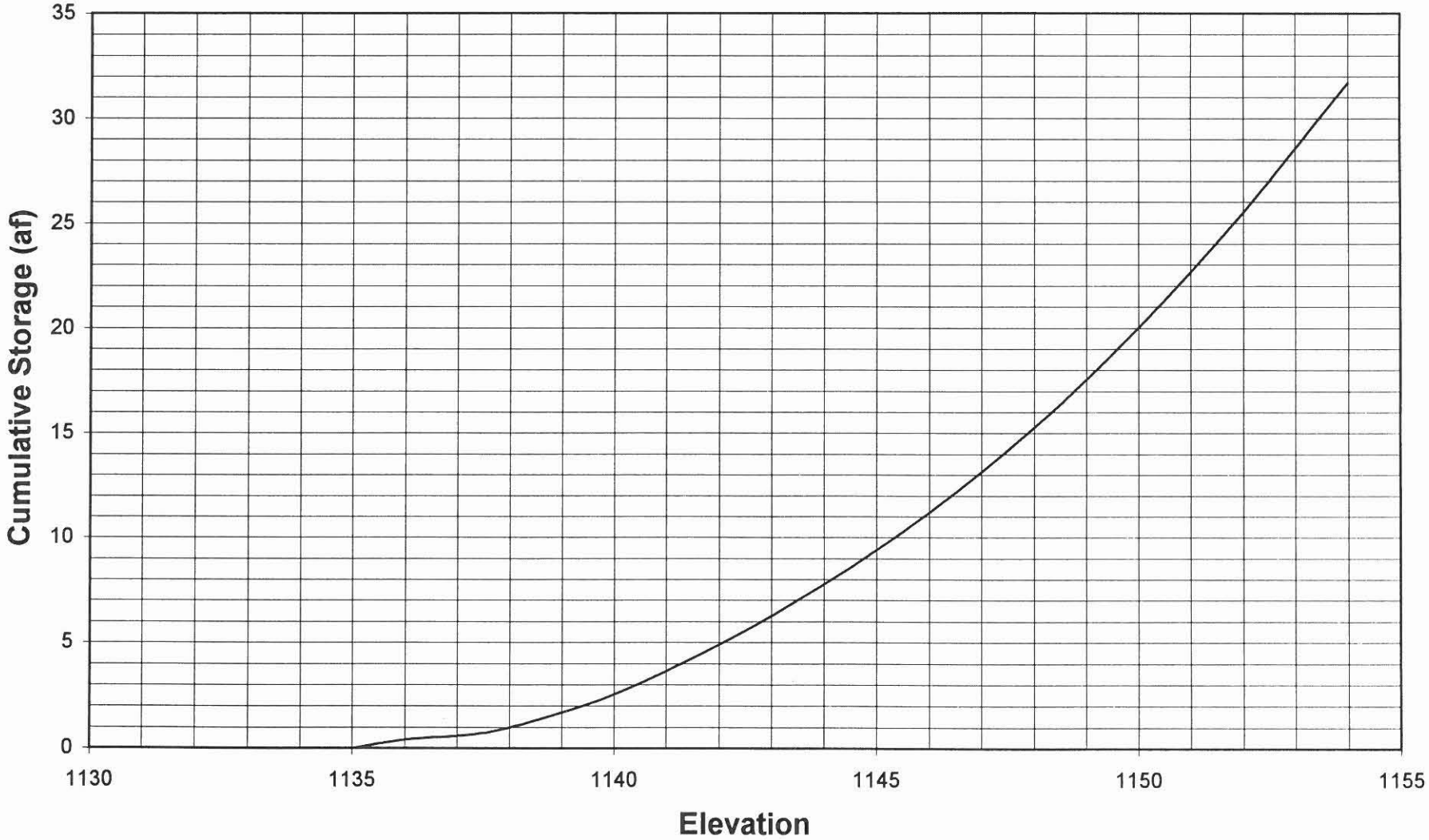
CLOSE ENOUGH

Q = 42.4
22.2
64.6

SAY 65 cfs

Colter Street Junction Structure

Colter Street Detention Basin
Cumulative Stage/Storage Curve



Capacity of Camelback Road Lateral
WSE at 18th Street Trunk Line = 1143
Approx. Gutter Elev. = 1148.8

JOB CONTROL : CONT
JOB SECTION : SEC
JOB NUMBER : JOB
PROJECT DESCRIPTION : SQUAW PEAK PARKWAY
ANALYSYS FREQUENCY : 50 Year
MEASUREMENT UNITS: Input ENGLISH Output ENGLISH

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 401	0.000	0.000	0.00	0.00	0.000	7.000	7.000
I 402	0.000	0.000	0.00	0.00	0.000	7.000	7.000
I 403	0.000	0.000	0.00	0.00	0.000	7.000	7.000
I 404	0.000	0.000	0.00	0.00	0.000	7.000	7.000
I 405	0.000	0.000	0.00	0.00	0.000	7.000	7.000
I 406	0.000	0.000	0.00	0.00	0.000	7.000	7.000
I 407	0.000	0.000	0.00	0.00	0.000	7.000	7.000
I 408	0.000	0.000	0.00	0.00	0.000	7.000	7.000
I 409	0.000	0.000	0.00	0.00	0.000	7.000	7.000
I 410	0.000	0.000	0.00	0.00	0.000	7.000	7.000
I 411	0.000	0.000	0.00	0.00	0.000	7.000	7.000
I 412	0.000	0.000	0.00	0.00	0.000	7.000	7.000
I 413	0.000	0.000	0.00	0.00	0.000	7.000	7.000
I 414	0.000	0.000	0.00	0.00	0.000	7.000	7.000

Capacity of Camelback Road Lateral
WSE at 18th Street Trunk Line = 1143
Approx. Gutter Elev. = 1148.8

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I401	0.000	0.000	0.00	0.000	7.000	7.000
J401	0.000	0.000	10.00	10.484	98.000	98.000
I402	0.000	0.000	0.00	0.000	7.000	7.000
J402	0.000	0.000	10.00	10.484	14.000	14.000
I403	0.000	0.000	0.00	0.000	7.000	7.000
J403	0.000	0.000	10.00	10.484	84.000	84.000
I404	0.000	0.000	0.00	0.000	7.000	7.000
J404	0.000	0.000	10.00	10.484	63.000	63.000
I405	0.000	0.000	0.00	0.000	7.000	7.000
J405	0.000	0.000	10.00	10.484	56.000	56.000
I406	0.000	0.000	0.00	0.000	7.000	7.000
J406	0.000	0.000	10.00	10.484	42.000	42.000
I407	0.000	0.000	0.00	0.000	7.000	7.000
J407	0.000	0.000	10.00	10.484	28.000	28.000
I408	0.000	0.000	0.00	0.000	7.000	7.000
J408	0.000	0.000	10.00	10.484	14.000	14.000
I409	0.000	0.000	0.00	0.000	7.000	7.000
J409	0.000	0.000	10.00	10.484	14.000	14.000
I410	0.000	0.000	0.00	0.000	7.000	7.000
I411	0.000	0.000	0.00	0.000	7.000	7.000
I412	0.000	0.000	0.00	0.000	7.000	7.000
I413	0.000	0.000	0.00	0.000	7.000	7.000
I414	0.000	0.000	0.00	0.000	7.000	7.000

Capacity of Camelback Road Lateral
WSE at 18th Street Trunk Line = 1143
Approx. Gutter Elev. = 1148.8

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
400	J401	J20	1136.660	1132.090	Circ	1	n/a	3.250	261.00	1.751	0.013
401	J402	J401	1140.400	1137.910	Circ	1	n/a	2.000	68.00	3.664	0.013
402	I401	J402	1144.900	1140.500	Circ	1	n/a	2.000	24.00	18.649	0.013
403	I402	J402	1144.800	1140.500	Circ	1	n/a	2.000	16.00	27.901	0.013
8	J403	J401	1136.760	1136.660	Circ	1	n/a	3.250	22.00	0.455	0.013
405	I403	J403	1145.610	1137.760	Circ	1	n/a	1.250	55.00	14.420	0.013
406	I404	J403	1144.500	1137.820	Circ	1	n/a	1.250	25.00	27.728	0.013
407	I405	J403	1143.440	1138.020	Circ	1	n/a	1.250	28.00	19.730	0.013
408	J404	J403	1137.840	1137.020	Circ	1	n/a	3.250	369.00	0.222	0.013
409	I406	J404	1145.130	1138.840	Circ	1	n/a	1.250	28.00	23.054	0.013
410	J405	J404	1139.320	1137.840	Circ	1	n/a	3.250	315.00	0.470	0.013
411	I407	J405	1147.410	1140.320	Circ	1	n/a	1.250	29.00	25.213	0.013
412	I408	J405	1147.880	1140.560	Circ	1	n/a	1.250	53.00	13.945	0.013
413	J406	J405	1141.220	1139.320	Circ	1	n/a	3.250	405.00	0.469	0.013
414	I409	J406	1148.350	1142.220	Circ	1	n/a	1.250	28.00	22.437	0.013
415	I410	J406	1149.180	1142.690	Circ	1	n/a	1.250	28.00	23.827	0.013
416	J407	J406	1142.790	1141.220	Circ	1	n/a	3.250	335.00	0.469	0.013
417	J408	J407	1148.280	1143.790	Circ	1	n/a	2.250	60.00	7.504	0.013
418	I411	J408	1150.180	1149.100	Circ	1	n/a	1.250	22.00	4.915	0.013
419	I412	J408	1151.970	1149.100	Circ	1	n/a	1.250	30.00	9.611	0.013
420	J409	J407	1147.750	1143.790	Circ	1	n/a	2.250	67.00	5.921	0.013
421	I413	J409	1150.780	1148.250	Circ	1	n/a	1.250	28.00	9.073	0.013
422	I414	J409	1152.600	1148.300	Circ	1	n/a	1.250	56.00	7.701	0.013

Capacity of Camelback Road Lateral
WSE at 18th Street Trunk Line = 1143
Approx. Gutter Elev. = 1148.8

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
400	1147.111	1143.000	1.41	2.406	3.250	14.88	11.81	98.000	109.266	0.434
401	1147.433	1147.111	0.38	0.782	2.000	12.29	4.46	14.000	43.304	0.062
402	1147.471	1147.433	0.10	0.362	2.000	18.13	2.23	7.000	97.695	0.015
403	1147.464	1147.433	0.10	0.329	2.000	20.82	2.23	7.000	119.496	0.015
8	1147.657	1147.111	1.04	3.250	3.250	10.39	10.13	84.000	55.668	0.319
405	1148.404	1147.657	1.17	0.457	1.250	17.24	5.70	7.000	24.531	0.101
406	1148.052	1147.657	1.17	0.384	1.250	21.90	5.70	7.000	34.016	0.101
407	1148.087	1147.657	1.17	0.421	1.250	19.32	5.70	7.000	28.694	0.101
408	1150.074	1147.657	0.58	3.250	3.250	7.80	7.59	63.000	38.923	0.269
409	1150.504	1150.074	1.17	0.404	1.250	20.38	5.70	7.000	31.016	0.101
410	1151.661	1150.074	0.46	2.620	3.250	7.81	6.75	56.000	56.597	0.142
411	1152.103	1151.661	1.17	0.395	1.250	21.03	5.70	7.000	32.437	0.101
412	1152.385	1151.661	1.17	0.461	1.250	17.01	5.70	7.000	24.123	0.101
413	1152.786	1151.661	0.26	2.096	3.250	7.42	5.06	42.000	56.554	0.080
414	1153.216	1152.786	1.17	0.407	1.250	20.22	5.70	7.000	30.599	0.101
415	1153.216	1152.786	1.17	0.400	1.250	20.70	5.70	7.000	31.532	0.101
416	1153.206	1152.786	0.12	1.620	3.250	6.78	3.38	28.000	56.525	0.035
417	1153.368	1153.206	0.20	0.618	2.250	15.80	3.52	14.000	84.840	0.039
418	1153.727	1153.368	1.17	0.617	1.250	11.59	5.70	7.000	14.321	0.101
419	1153.821	1153.368	1.17	0.510	1.250	14.89	5.70	7.000	20.026	0.101
420	1153.382	1153.206	0.20	0.657	2.250	14.50	3.52	14.000	75.359	0.039
421	1153.812	1153.382	1.17	0.518	1.250	14.54	5.70	7.000	19.458	0.101
422	1154.141	1153.382	1.17	0.542	1.250	13.73	5.70	7.000	17.927	0.101

Capacity of Camelback Road Lateral
WSE at 18th Street Trunk Line = 1143
Approx. Gutter Elev. = 1148.8

Computation Messages

---

*Warning: Run - 409 - Upstream Hydraulic Gradeline = 1150.50 - Exceeds Critical Elevation = 1149.63
*Warning: Run - 412 - Upstream Hydraulic Gradeline = 1152.38 - Exceeds Critical Elevation = 1150.88
*Computation: Run = 400 - Pipe Flowing Full
*Computation: Run = 401 - Pipe Flowing Full
*Computation: Run = 402 - Pipe Flowing Full
*Computation: Run = 403 - Pipe Flowing Full
*Computation: Run = 8 - Insufficient Capacity
*Computation: Run = 405 - Pipe Flowing Full
*Computation: Run = 406 - Pipe Flowing Full
*Computation: Run = 407 - Pipe Flowing Full
*Computation: Run = 408 - Insufficient Capacity
*Computation: Run = 409 - Pipe Flowing Full
*Computation: Run = 410 - Pipe Flowing Full
*Computation: Run = 411 - Pipe Flowing Full
*Computation: Run = 412 - Pipe Flowing Full
*Computation: Run = 413 - Pipe Flowing Full
*Computation: Run = 414 - Pipe Flowing Full
*Computation: Run = 415 - Pipe Flowing Full
*Computation: Run = 416 - Pipe Flowing Full
*Computation: Run = 417 - Pipe Flowing Full
*Computation: Run = 418 - Pipe Flowing Full
*Computation: Run = 419 - Pipe Flowing Full
*Computation: Run = 420 - Pipe Flowing Full
*Computation: Run = 421 - Pipe Flowing Full
*Computation: Run = 422 - Pipe Flowing Full

NORMAL Completion of WinStorm.

Capacity of Highland Avenue Lateral
WSE at 18th Street Trunk line = 1143
Approx. Gutter Elev. = 1142
Inlet Capacity Limited to Approx. 40 cfs

JOB CONTROL : CONT
JOB SECTION : SEC
JOB NUMBER : JOB
PROJECT DESCRIPTION : PROJECT
ANALYSYS FREQUENCY : 10 Year
MEASUREMENT UNITS: Input ENGLISH Output ENGLISH

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 201	0.000	0.000	0.00	0.00	0.000	9.000	9.000
J 201	0.000	0.000	0.00	0.00	0.000	9.000	9.000
I 202	0.000	0.000	0.00	0.00	0.000	9.000	9.000
I 203	0.000	0.000	0.00	0.00	0.000	9.000	9.000
I 204	0.000	0.000	0.00	0.00	0.000	9.000	9.000
I 205	0.000	0.000	0.00	0.00	0.000	8.000	8.000
I 206	0.000	0.000	0.00	0.00	0.000	8.000	8.000
I 207	0.000	0.000	0.00	0.00	0.000	8.000	8.000
I 208	0.000	0.000	0.00	0.00	0.000	8.000	8.000
I 209	0.000	0.000	0.00	0.00	0.000	8.000	8.000

Capacity of Highland Avenue Lateral
WSE at 18th Street Trunk line = 1143
Approx. Gutter Elev. = 1142
Inlet Capacity Limited to Approx. 40 cfs

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
J200	0.000	0.000	10.00	8.316	85.000	85.000
I201	0.000	0.000	0.00	0.000	9.000	9.000
J201	0.000	0.000	0.00	0.000	9.000	9.000
I202	0.000	0.000	0.00	0.000	9.000	9.000
J202	0.000	0.000	10.00	8.316	58.000	58.000
I203	0.000	0.000	0.00	0.000	9.000	9.000
J203	0.000	0.000	10.00	8.316	49.000	49.000
I204	0.000	0.000	0.00	0.000	9.000	9.000
J204	0.000	0.000	10.00	8.316	40.000	40.000
I205	0.000	0.000	0.00	0.000	8.000	8.000
J205	0.000	0.000	10.00	8.316	32.000	32.000
I206	0.000	0.000	0.00	0.000	8.000	8.000
J206	0.000	0.000	10.00	8.316	24.000	24.000
I207	0.000	0.000	10.00	8.316	16.000	16.000
I208	0.000	0.000	0.00	0.000	8.000	8.000
I209	0.000	0.000	0.00	0.000	8.000	8.000

Capacity of Highland Avenue Lateral
WSE at 18th Street Trunk line = 1143
Approx. Gutter Elev. = 1142
Inlet Capacity Limited to Approx. 40 cfs

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
4	J200	J18	1127.250	1126.960	Circ	1	n/a	3.500	80.00	0.363	0.013
201	J201	J200	1141.950	1128.600	Circ	1	n/a	2.000	55.00	25.021	0.013
202	I201	J200	1140.100	1129.140	Circ	1	n/a	1.250	53.00	21.136	0.013
203	I202	J200	1141.110	1129.540	Circ	1	n/a	1.250	26.00	49.691	0.013
204	J202	J200	1129.300	1127.750	Circ	1	n/a	3.000	405.00	0.383	0.013
205	I203	J202	1144.690	1130.570	Circ	1	n/a	1.250	45.00	33.047	0.013
206	J203	J202	1130.020	1129.300	Circ	1	n/a	3.000	200.00	0.360	0.013
207	I204	J203	1143.720	1132.000	Circ	1	n/a	1.250	21.00	67.258	0.013
208	J204	J203	1130.740	1130.020	Circ	1	n/a	3.000	200.00	0.360	0.013
209	I205	J204	1144.820	1132.080	Circ	1	n/a	1.250	45.00	29.519	0.013
210	J205	J204	1132.060	1130.740	Circ	1	n/a	3.000	365.00	0.362	0.013
211	I206	J205	1148.280	1133.370	Circ	1	n/a	1.250	45.00	35.117	0.013
212	J206	J205	1135.020	1132.560	Circ	1	n/a	2.500	139.00	1.770	0.013
213	I207	J206	1148.830	1135.780	Circ	1	n/a	1.250	69.00	19.261	0.013
214	I208	I207	1149.080	1142.830	Circ	1	n/a	1.250	15.00	45.835	0.013
215	I209	J206	1149.170	1138.300	Circ	1	n/a	1.250	32.00	36.116	0.013

Capacity of Highland Avenue Lateral
WSE at 18th Street Trunk line = 1143
Approx. Gutter Elev. = 1142
Inlet Capacity Limited to Approx. 40 cfs

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
4	1143.814	1143.000	0.71	3.500	3.500	9.07	8.83	85.000	60.575	0.243
201	1143.926	1143.814	0.16	0.382	2.000	21.42	2.86	9.000	113.159	0.026
202	1145.010	1143.814	1.94	0.472	1.250	21.15	7.33	9.000	29.698	0.167
203	1144.486	1143.814	1.94	0.377	1.250	28.88	7.33	9.000	45.536	0.167
204	1147.086	1143.814	0.76	3.000	3.000	8.42	8.21	58.000	41.262	0.209
205	1148.126	1147.086	1.94	0.419	1.250	25.02	7.33	9.000	37.135	0.167
206	1148.240	1147.086	0.54	3.000	3.000	7.12	6.93	49.000	40.019	0.075
207	1148.815	1148.240	1.94	0.349	1.250	32.09	7.33	9.000	52.978	0.167
208	1149.054	1148.240	0.36	2.463	3.000	6.44	5.66	40.000	40.019	0.100
209	1149.877	1149.054	1.53	0.406	1.250	23.11	6.52	8.000	35.097	0.132
210	1149.958	1149.054	0.23	2.023	3.000	6.31	4.53	32.000	40.110	0.064
211	1150.780	1149.958	1.53	0.388	1.250	24.62	6.52	8.000	38.280	0.132
212	1150.434	1149.958	0.34	1.159	2.500	10.78	4.89	24.000	54.571	0.000
213	1155.196	1150.434	6.14	0.672	1.250	23.79	13.04	16.000	28.350	0.528
214	1155.558	1155.196	1.53	0.362	1.250	27.03	6.52	8.000	43.734	0.132
215	1151.057	1150.434	1.53	0.385	1.250	24.83	6.52	8.000	38.821	0.132

Capacity of Highland Avenue Lateral
WSE at 18th Street Trunk line = 1143
Approx. Gutter Elev. = 1142
Inlet Capacity Limited to Approx. 40 cfs

Computation Messages

---

*Warning: Run - 205 - Upstream Hydraulic Gradeline = 1148.13 - Exceeds Critical Elevation = 1147.19
*Warning: Run - 209 - Upstream Hydraulic Gradeline = 1149.88 - Exceeds Critical Elevation = 1149.16
*Warning: Run - 211 - Upstream Hydraulic Gradeline = 1150.78 - Exceeds Critical Elevation = 1150.78
*Warning: Run - 213 - Upstream Hydraulic Gradeline = 1155.20 - Exceeds Critical Elevation = 1151.83
*Computation: Run = 4 - Insufficient Capacity
*Computation: Run = 201 - Pipe Flowing Full
*Computation: Run = 202 - Pipe Flowing Full
*Computation: Run = 203 - Pipe Flowing Full
*Computation: Run = 204 - Insufficient Capacity
*Computation: Run = 205 - Pipe Flowing Full
*Computation: Run = 206 - Insufficient Capacity
*Computation: Run = 207 - Pipe Flowing Full
*Computation: Run = 208 - Pipe Flowing Full
*Computation: Run = 209 - Pipe Flowing Full
*Computation: Run = 210 - Pipe Flowing Full
*Computation: Run = 211 - Pipe Flowing Full
*Computation: Run = 212 - Pipe Flowing Full
*Computation: Run = 213 - Pipe Flowing Full
*Computation: Run = 214 - Pipe Flowing Full
*Computation: Run = 215 - Pipe Flowing Full

NORMAL Completion of WinStorm.

*** ***

HYDROGRAPH AT COLTER STREET JUNCTION STRUCTURE
50-YEAR STORM
EXISTING CONDITION

```
            **************
            *            *
293 KK      *     CP9A   *
            *            *
            **************

295 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          1  PRINT CONTROL
                     IPLOT          2  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

296 HC          HYDROGRAPH COMBINATION
                     ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***
```

****

HYDROGRAPH AT STATION CP9A
SUM OF 3 HYDROGRAPHS

****

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0820	251	1.	1		1640	501	11.	2		0100	751	0.
1		0002	2	0.	1		0822	252	1.	1		1642	502	11.	2		0102	752	0.
1		0004	3	0.	1		0824	253	1.	1		1644	503	11.	2		0104	753	0.
1		0006	4	0.	1		0826	254	2.	1		1646	504	11.	2		0106	754	0.
1		0008	5	0.	1		0828	255	2.	1		1648	505	10.	2		0108	755	0.
1		0010	6	0.	1		0830	256	2.	1		1650	506	10.	2		0110	756	0.
1		0012	7	0.	1		0832	257	2.	1		1652	507	10.	2		0112	757	0.
1		0014	8	0.	1		0834	258	2.	1		1654	508	10.	2		0114	758	0.
1		0016	9	0.	1		0836	259	2.	1		1656	509	10.	2		0116	759	0.
1		0018	10	0.	1		0838	260	2.	1		1658	510	10.	2		0118	760	0.
1		0020	11	0.	1		0840	261	2.	1		1700	511	10.	2		0120	761	0.
1		0022	12	0.	1		0842	262	2.	1		1702	512	10.	2		0122	762	0.
1		0024	13	0.	1		0844	263	2.	1		1704	513	10.	2		0124	763	0.
1		0026	14	0.	1		0846	264	2.	1		1706	514	10.	2		0126	764	0.
1		0028	15	0.	1		0848	265	2.	1		1708	515	10.	2		0128	765	0.
1		0030	16	0.	1		0850	266	2.	1		1710	516	10.	2		0130	766	0.
1		0032	17	0.	1		0852	267	2.	1		1712	517	10.	2		0132	767	0.
1		0034	18	0.	1		0854	268	2.	1		1714	518	10.	2		0134	768	0.
1		0036	19	0.	1		0856	269	2.	1		1716	519	10.	2		0136	769	0.
1		0038	20	0.	1		0858	270	2.	1		1718	520	10.	2		0138	770	0.
1		0040	21	0.	1		0900	271	2.	1		1720	521	10.	2		0140	771	0.
1		0042	22	0.	1		0902	272	2.	1		1722	522	10.	2		0142	772	0.
1		0044	23	0.	1		0904	273	2.	1		1724	523	9.	2		0144	773	0.
1		0046	24	0.	1		0906	274	2.	1		1726	524	9.	2		0146	774	0.
1		0048	25	0.	1		0908	275	2.	1		1728	525	9.	2		0148	775	0.
1		0050	26	0.	1		0910	276	2.	1		1730	526	9.	2		0150	776	0.
1		0052	27	0.	1		0912	277	2.	1		1732	527	9.	2		0152	777	0.
1		0054	28	0.	1		0914	278	2.	1		1734	528	9.	2		0154	778	0.
1		0056	29	0.	1		0916	279	2.	1		1736	529	9.	2		0156	779	0.
1		0058	30	0.	1		0918	280	2.	1		1738	530	9.	2		0158	780	0.
1		0100	31	0.	1		0920	281	3.	1		1740	531	9.	2		0200	781	0.
1		0102	32	0.	1		0922	282	3.	1		1742	532	9.	2		0202	782	0.
1		0104	33	0.	1		0924	283	3.	1		1744	533	9.	2		0204	783	0.
1		0106	34	0.	1		0926	284	3.	1		1746	534	9.	2		0206	784	0.
1		0108	35	0.	1		0928	285	3.	1		1748	535	9.	2		0208	785	0.
1		0110	36	0.	1		0930	286	3.	1		1750	536	9.	2		0210	786	0.
1		0112	37	0.	1		0932	287	3.	1		1752	537	9.	2		0212	787	0.
1		0114	38	0.	1		0934	288	3.	1		1754	538	9.	2		0214	788	0.
1		0116	39	0.	1		0936	289	3.	1		1756	539	9.	2		0216	789	0.
1		0118	40	0.	1		0938	290	3.	1		1758	540	9.	2		0218	790	0.
1		0120	41	0.	1		0940	291	3.	1		1800	541	9.	2		0220	791	0.
1		0122	42	0.	1		0942	292	3.	1		1802	542	9.	2		0222	792	0.
1		0124	43	0.	1		0944	293	3.	1		1804	543	9.	2		0224	793	0.
1		0126	44	0.	1		0946	294	3.	1		1806	544	9.	2		0226	794	0.
1		0128	45	0.	1		0948	295	3.	1		1808	545	9.	2		0228	795	0.
1		0130	46	0.	1		0950	296	3.	1		1810	546	8.	2		0230	796	0.
1		0132	47	0.	1		0952	297	3.	1		1812	547	8.	2		0232	797	0.
1		0134	48	0.	1		0954	298	4.	1		1814	548	8.	2		0234	798	0.
1		0136	49	0.	1		0956	299	4.	1		1816	549	8.	2		0236	799	0.
1		0138	50	0.	1		0958	300	4.	1		1818	550	8.	2		0238	800	0.
1		0140	51	0.	1		1000	301	4.	1		1820	551	8.	2		0240	801	0.
1		0142	52	0.	1		1002	302	4.	1		1822	552	8.	2		0242	802	0.
1		0144	53	0.	1		1004	303	4.	1		1824	553	8.	2		0244	803	0.
1		0146	54	0.	1		1006	304	4.	1		1826	554	8.	2		0246	804	0.

1	0148	55	0.	*	1	1008	305	4.	*	1	1828	555	8.	*	2	0248	805	0.
1	0150	56	0.	*	1	1010	306	4.	*	1	1830	556	8.	*	2	0250	806	0.
1	0152	57	0.	*	1	1012	307	4.	*	1	1832	557	8.	*	2	0252	807	0.
1	0154	58	0.	*	1	1014	308	4.	*	1	1834	558	8.	*	2	0254	808	0.
1	0156	59	0.	*	1	1016	309	4.	*	1	1836	559	8.	*	2	0256	809	0.
1	0158	60	0.	*	1	1018	310	5.	*	1	1838	560	8.	*	2	0258	810	0.
1	0200	61	0.	*	1	1020	311	5.	*	1	1840	561	8.	*	2	0300	811	0.
1	0202	62	0.	*	1	1022	312	5.	*	1	1842	562	8.	*	2	0302	812	0.
1	0204	63	0.	*	1	1024	313	5.	*	1	1844	563	8.	*	2	0304	813	0.
1	0206	64	0.	*	1	1026	314	5.	*	1	1846	564	8.	*	2	0306	814	0.
1	0208	65	0.	*	1	1028	315	5.	*	1	1848	565	8.	*	2	0308	815	0.
1	0210	66	0.	*	1	1030	316	5.	*	1	1850	566	8.	*	2	0310	816	0.
1	0212	67	0.	*	1	1032	317	6.	*	1	1852	567	8.	*	2	0312	817	0.
1	0214	68	0.	*	1	1034	318	6.	*	1	1854	568	8.	*	2	0314	818	0.
1	0216	69	0.	*	1	1036	319	6.	*	1	1856	569	8.	*	2	0316	819	0.
1	0218	70	0.	*	1	1038	320	6.	*	1	1858	570	8.	*	2	0318	820	0.
1	0220	71	0.	*	1	1040	321	6.	*	1	1900	571	8.	*	2	0320	821	0.
1	0222	72	0.	*	1	1042	322	7.	*	1	1902	572	8.	*	2	0322	822	0.
1	0224	73	0.	*	1	1044	323	7.	*	1	1904	573	8.	*	2	0324	823	0.
1	0226	74	0.	*	1	1046	324	7.	*	1	1906	574	8.	*	2	0326	824	0.
1	0228	75	0.	*	1	1048	325	8.	*	1	1908	575	8.	*	2	0328	825	0.
1	0230	76	0.	*	1	1050	326	8.	*	1	1910	576	8.	*	2	0330	826	0.
1	0232	77	0.	*	1	1052	327	8.	*	1	1912	577	8.	*	2	0332	827	0.
1	0234	78	0.	*	1	1054	328	8.	*	1	1914	578	8.	*	2	0334	828	0.
1	0236	79	0.	*	1	1056	329	9.	*	1	1916	579	8.	*	2	0336	829	0.
1	0238	80	0.	*	1	1058	330	9.	*	1	1918	580	8.	*	2	0338	830	0.
1	0240	81	0.	*	1	1100	331	10.	*	1	1920	581	8.	*	2	0340	831	0.
1	0242	82	0.	*	1	1102	332	10.	*	1	1922	582	8.	*	2	0342	832	0.
1	0244	83	0.	*	1	1104	333	10.	*	1	1924	583	8.	*	2	0344	833	0.
1	0246	84	0.	*	1	1106	334	11.	*	1	1926	584	8.	*	2	0346	834	0.
1	0248	85	0.	*	1	1108	335	11.	*	1	1928	585	8.	*	2	0348	835	0.
1	0250	86	0.	*	1	1110	336	11.	*	1	1930	586	8.	*	2	0350	836	0.
1	0252	87	0.	*	1	1112	337	12.	*	1	1932	587	8.	*	2	0352	837	0.
1	0254	88	0.	*	1	1114	338	12.	*	1	1934	588	8.	*	2	0354	838	0.
1	0256	89	0.	*	1	1116	339	13.	*	1	1936	589	8.	*	2	0356	839	0.
1	0258	90	0.	*	1	1118	340	13.	*	1	1938	590	8.	*	2	0358	840	0.
1	0300	91	0.	*	1	1120	341	14.	*	1	1940	591	8.	*	2	0400	841	0.
1	0302	92	0.	*	1	1122	342	14.	*	1	1942	592	8.	*	2	0402	842	0.
1	0304	93	0.	*	1	1124	343	15.	*	1	1944	593	8.	*	2	0404	843	0.
1	0306	94	0.	*	1	1126	344	15.	*	1	1946	594	8.	*	2	0406	844	0.
1	0308	95	0.	*	1	1128	345	16.	*	1	1948	595	8.	*	2	0408	845	0.
1	0310	96	0.	*	1	1130	346	17.	*	1	1950	596	8.	*	2	0410	846	0.
1	0312	97	0.	*	1	1132	347	18.	*	1	1952	597	7.	*	2	0412	847	0.
1	0314	98	0.	*	1	1134	348	19.	*	1	1954	598	7.	*	2	0414	848	0.
1	0316	99	0.	*	1	1136	349	20.	*	1	1956	599	7.	*	2	0416	849	0.
1	0318	100	0.	*	1	1138	350	23.	*	1	1958	600	7.	*	2	0418	850	0.
1	0320	101	0.	*	1	1140	351	28.	*	1	2000	601	7.	*	2	0420	851	0.
1	0322	102	0.	*	1	1142	352	36.	*	1	2002	602	7.	*	2	0422	852	0.
1	0324	103	0.	*	1	1144	353	44.	*	1	2004	603	7.	*	2	0424	853	0.
1	0326	104	0.	*	1	1146	354	53.	*	1	2006	604	7.	*	2	0426	854	0.
1	0328	105	0.	*	1	1148	355	62.	*	1	2008	605	7.	*	2	0428	855	0.
1	0330	106	0.	*	1	1150	356	72.	*	1	2010	606	7.	*	2	0430	856	0.
1	0332	107	0.	*	1	1152	357	86.	*	1	2012	607	7.	*	2	0432	857	0.
1	0334	108	0.	*	1	1154	358	101.	*	1	2014	608	7.	*	2	0434	858	0.
1	0336	109	0.	*	1	1156	359	117.	*	1	2016	609	6.	*	2	0436	859	0.
1	0338	110	0.	*	1	1158	360	129.	*	1	2018	610	6.	*	2	0438	860	0.
1	0340	111	0.	*	1	1200	361	141.	*	1	2020	611	6.	*	2	0440	861	0.
1	0342	112	0.	*	1	1202	362	155.	*	1	2022	612	6.	*	2	0442	862	0.
1	0344	113	0.	*	1	1204	363	172.	*	1	2024	613	6.	*	2	0444	863	0.
1	0346	114	0.	*	1	1206	364	195.	*	1	2026	614	6.	*	2	0446	864	0.
1	0348	115	0.	*	1	1208	365	216.	*	1	2028	615	6.	*	2	0448	865	0.
1	0350	116	0.	*	1	1210	366	227.	*	1	2030	616	6.	*	2	0450	866	0.
1	0352	117	0.	*	1	1212	367	229.	*	1	2032	617	6.	*	2	0452	867	0.
1	0354	118	0.	*	1	1214	368	227.	*	1	2034	618	6.	*	2	0454	868	0.
1	0356	119	0.	*	1	1216	369	220.	*	1	2036	619	6.	*	2	0456	869	0.
1	0358	120	0.	*	1	1218	370	209.	*	1	2038	620	6.	*	2	0458	870	0.
1	0400	121	0.	*	1	1220	371	194.	*	1	2040	621	6.	*	2	0500	871	0.
1	0402	122	0.	*	1	1222	372	177.	*	1	2042	622	6.	*	2	0502	872	0.
1	0404	123	0.	*	1	1224	373	160.	*	1	2044	623	6.	*	2	0504	873	0.
1	0406	124	0.	*	1	1226	374	145.	*	1	2046	624	6.	*	2	0506	874	0.
1	0408	125	0.	*	1	1228	375	131.	*	1	2048	625	6.	*	2	0508	875	0.
1	0410	126	0.	*	1	1230	376	116.	*	1	2050	626	6.	*	2	0510	876	0.
1	0412	127	0.	*	1	1232	377	104.	*	1	2052	627	6.	*	2	0512	877	0.
1	0414	128	0.	*	1	1234	378	96.	*	1	2054	628	6.	*	2	0514	878	0.
1	0416	129	0.	*	1	1236	379	89.	*	1	2056	629	6.	*	2	0516	879	0.
1	0418	130	0.	*	1	1238	380	83.	*	1	2058	630	6.	*	2	0518	880	0.
1	0420	131	0.	*	1	1240	381	77.	*	1	2100	631	6.	*	2	0520	881	0.
1	0422	132	0.	*	1	1242	382	72.	*	1	2102	632	6.	*	2	0522	882	0.
1	0424	133	0.	*	1	1244	383	67.	*	1	2104	633	6.	*	2	0524	883	0.
1	0426	134	0.	*	1	1246	384	62.	*	1	2106	634	6.	*	2	0526	884	0.
1	0428	135	0.	*	1	1248	385	58.	*	1	2108	635	6.	*	2	0528	885	0.
1	0430	136	0.	*	1	1250	386	55.	*	1	2110	636	6.	*	2	0530	886	0.
1	0432	137	0.	*	1	1252	387	52.	*	1	2112	637	6.	*	2	0532	887	0.
1	0434	138	0.	*	1	1254	388	49.	*	1	2114	638	6.	*	2	0534	888	0.

1	0436	139	0.	*	1	1256	389	47.	*	1	2116	639	6.	*	2	0536	889	0.
1	0438	140	0.	*	1	1258	390	45.	*	1	2118	640	6.	*	2	0538	890	0.
1	0440	141	0.	*	1	1300	391	43.	*	1	2120	641	6.	*	2	0540	891	0.
1	0442	142	0.	*	1	1302	392	41.	*	1	2122	642	6.	*	2	0542	892	0.
1	0444	143	0.	*	1	1304	393	40.	*	1	2124	643	6.	*	2	0544	893	0.
1	0446	144	0.	*	1	1306	394	38.	*	1	2126	644	6.	*	2	0546	894	0.
1	0448	145	0.	*	1	1308	395	37.	*	1	2128	645	6.	*	2	0548	895	0.
1	0450	146	0.	*	1	1310	396	36.	*	1	2130	646	6.	*	2	0550	896	0.
1	0452	147	0.	*	1	1312	397	35.	*	1	2132	647	6.	*	2	0552	897	0.
1	0454	148	0.	*	1	1314	398	34.	*	1	2134	648	6.	*	2	0554	898	0.
1	0456	149	0.	*	1	1316	399	33.	*	1	2136	649	6.	*	2	0556	899	0.
1	0458	150	0.	*	1	1318	400	32.	*	1	2138	650	6.	*	2	0558	900	0.
1	0500	151	0.	*	1	1320	401	31.	*	1	2140	651	6.	*	2	0600	901	0.
1	0502	152	0.	*	1	1322	402	31.	*	1	2142	652	6.	*	2	0602	902	0.
1	0504	153	0.	*	1	1324	403	30.	*	1	2144	653	6.	*	2	0604	903	0.
1	0506	154	0.	*	1	1326	404	29.	*	1	2146	654	6.	*	2	0606	904	0.
1	0508	155	0.	*	1	1328	405	28.	*	1	2148	655	6.	*	2	0608	905	0.
1	0510	156	0.	*	1	1330	406	28.	*	1	2150	656	6.	*	2	0610	906	0.
1	0512	157	0.	*	1	1332	407	27.	*	1	2152	657	6.	*	2	0612	907	0.
1	0514	158	0.	*	1	1334	408	27.	*	1	2154	658	6.	*	2	0614	908	0.
1	0516	159	0.	*	1	1336	409	26.	*	1	2156	659	6.	*	2	0616	909	0.
1	0518	160	0.	*	1	1338	410	26.	*	1	2158	660	6.	*	2	0618	910	0.
1	0520	161	0.	*	1	1340	411	25.	*	1	2200	661	6.	*	2	0620	911	0.
1	0522	162	0.	*	1	1342	412	25.	*	1	2202	662	6.	*	2	0622	912	0.
1	0524	163	0.	*	1	1344	413	24.	*	1	2204	663	6.	*	2	0624	913	0.
1	0526	164	0.	*	1	1346	414	24.	*	1	2206	664	6.	*	2	0626	914	0.
1	0528	165	0.	*	1	1348	415	23.	*	1	2208	665	6.	*	2	0628	915	0.
1	0530	166	0.	*	1	1350	416	23.	*	1	2210	666	6.	*	2	0630	916	0.
1	0532	167	0.	*	1	1352	417	22.	*	1	2212	667	6.	*	2	0632	917	0.
1	0534	168	0.	*	1	1354	418	22.	*	1	2214	668	6.	*	2	0634	918	0.
1	0536	169	0.	*	1	1356	419	21.	*	1	2216	669	6.	*	2	0636	919	0.
1	0538	170	0.	*	1	1358	420	21.	*	1	2218	670	6.	*	2	0638	920	0.
1	0540	171	0.	*	1	1400	421	21.	*	1	2220	671	6.	*	2	0640	921	0.
1	0542	172	0.	*	1	1402	422	20.	*	1	2222	672	6.	*	2	0642	922	0.
1	0544	173	0.	*	1	1404	423	20.	*	1	2224	673	6.	*	2	0644	923	0.
1	0546	174	0.	*	1	1406	424	20.	*	1	2226	674	6.	*	2	0646	924	0.
1	0548	175	0.	*	1	1408	425	19.	*	1	2228	675	6.	*	2	0648	925	0.
1	0550	176	0.	*	1	1410	426	19.	*	1	2230	676	6.	*	2	0650	926	0.
1	0552	177	0.	*	1	1412	427	19.	*	1	2232	677	6.	*	2	0652	927	0.
1	0554	178	0.	*	1	1414	428	19.	*	1	2234	678	6.	*	2	0654	928	0.
1	0556	179	0.	*	1	1416	429	18.	*	1	2236	679	6.	*	2	0656	929	0.
1	0558	180	0.	*	1	1418	430	18.	*	1	2238	680	6.	*	2	0658	930	0.
1	0600	181	0.	*	1	1420	431	18.	*	1	2240	681	6.	*	2	0700	931	0.
1	0602	182	0.	*	1	1422	432	18.	*	1	2242	682	6.	*	2	0702	932	0.
1	0604	183	0.	*	1	1424	433	17.	*	1	2244	683	6.	*	2	0704	933	0.
1	0606	184	0.	*	1	1426	434	17.	*	1	2246	684	6.	*	2	0706	934	0.
1	0608	185	0.	*	1	1428	435	17.	*	1	2248	685	6.	*	2	0708	935	0.
1	0610	186	0.	*	1	1430	436	17.	*	1	2250	686	6.	*	2	0710	936	0.
1	0612	187	0.	*	1	1432	437	16.	*	1	2252	687	6.	*	2	0712	937	0.
1	0614	188	0.	*	1	1434	438	16.	*	1	2254	688	6.	*	2	0714	938	0.
1	0616	189	1.	*	1	1436	439	16.	*	1	2256	689	6.	*	2	0716	939	0.
1	0618	190	1.	*	1	1438	440	16.	*	1	2258	690	6.	*	2	0718	940	0.
1	0620	191	1.	*	1	1440	441	15.	*	1	2300	691	6.	*	2	0720	941	0.
1	0622	192	1.	*	1	1442	442	15.	*	1	2302	692	6.	*	2	0722	942	0.
1	0624	193	1.	*	1	1444	443	15.	*	1	2304	693	6.	*	2	0724	943	0.
1	0626	194	1.	*	1	1446	444	15.	*	1	2306	694	6.	*	2	0726	944	0.
1	0628	195	1.	*	1	1448	445	15.	*	1	2308	695	6.	*	2	0728	945	0.
1	0630	196	1.	*	1	1450	446	14.	*	1	2310	696	6.	*	2	0730	946	0.
1	0632	197	1.	*	1	1452	447	14.	*	1	2312	697	6.	*	2	0732	947	0.
1	0634	198	1.	*	1	1454	448	14.	*	1	2314	698	6.	*	2	0734	948	0.
1	0636	199	1.	*	1	1456	449	14.	*	1	2316	699	6.	*	2	0736	949	0.
1	0638	200	1.	*	1	1458	450	14.	*	1	2318	700	6.	*	2	0738	950	0.
1	0640	201	1.	*	1	1500	451	14.	*	1	2320	701	6.	*	2	0740	951	0.
1	0642	202	1.	*	1	1502	452	14.	*	1	2322	702	6.	*	2	0742	952	0.
1	0644	203	1.	*	1	1504	453	13.	*	1	2324	703	6.	*	2	0744	953	0.
1	0646	204	1.	*	1	1506	454	13.	*	1	2326	704	6.	*	2	0746	954	0.
1	0648	205	1.	*	1	1508	455	13.	*	1	2328	705	6.	*	2	0748	955	0.
1	0650	206	1.	*	1	1510	456	13.	*	1	2330	706	6.	*	2	0750	956	0.
1	0652	207	1.	*	1	1512	457	13.	*	1	2332	707	6.	*	2	0752	957	0.
1	0654	208	1.	*	1	1514	458	13.	*	1	2334	708	6.	*	2	0754	958	0.
1	0656	209	1.	*	1	1516	459	13.	*	1	2336	709	6.	*	2	0756	959	0.
1	0658	210	1.	*	1	1518	460	13.	*	1	2338	710	6.	*	2	0758	960	0.
1	0700	211	1.	*	1	1520	461	13.	*	1	2340	711	6.	*	2	0800	961	0.
1	0702	212	1.	*	1	1522	462	13.	*	1	2342	712	6.	*	2	0802	962	0.
1	0704	213	1.	*	1	1524	463	13.	*	1	2344	713	6.	*	2	0804	963	0.
1	0706	214	1.	*	1	1526	464	13.	*	1	2346	714	6.	*	2	0806	964	0.
1	0708	215	1.	*	1	1528	465	13.	*	1	2348	715	6.	*	2	0808	965	0.
1	0710	216	1.	*	1	1530	466	12.	*	1	2350	716	6.	*	2	0810	966	0.
1	0712	217	1.	*	1	1532	467	12.	*	1	2352	717	6.	*	2	0812	967	0.
1	0714	218	1.	*	1	1534	468	12.	*	1	2354	718	6.	*	2	0814	968	0.
1	0716	219	1.	*	1	1536	469	12.	*	1	2356	719	6.	*	2	0816	969	0.
1	0718	220	1.	*	1	1538	470	12.	*	1	2358	720	5.	*	2	0818	970	0.
1	0720	221	1.	*	1	1540	471	12.	*	2	0000	721	5.	*	2	0820	971	0.
1	0722	222	1.	*	1	1542	472	12.	*	2	0002	722	5.	*	2	0822	972	0.

1	0724	223	1.	*	1	1544	473	12.	*	2	0004	723	5.	*	2	0824	973	0.
1	0726	224	1.	*	1	1546	474	12.	*	2	0006	724	5.	*	2	0826	974	0.
1	0728	225	1.	*	1	1548	475	12.	*	2	0008	725	5.	*	2	0828	975	0.
1	0730	226	1.	*	1	1550	476	11.	*	2	0010	726	5.	*	2	0830	976	0.
1	0732	227	1.	*	1	1552	477	11.	*	2	0012	727	4.	*	2	0832	977	0.
1	0734	228	1.	*	1	1554	478	11.	*	2	0014	728	4.	*	2	0834	978	0.
1	0736	229	1.	*	1	1556	479	11.	*	2	0016	729	4.	*	2	0836	979	0.
1	0738	230	1.	*	1	1558	480	11.	*	2	0018	730	3.	*	2	0838	980	0.
1	0740	231	1.	*	1	1600	481	11.	*	2	0020	731	3.	*	2	0840	981	0.
1	0742	232	1.	*	1	1602	482	11.	*	2	0022	732	3.	*	2	0842	982	0.
1	0744	233	1.	*	1	1604	483	11.	*	2	0024	733	3.	*	2	0844	983	0.
1	0746	234	1.	*	1	1606	484	11.	*	2	0026	734	3.	*	2	0846	984	0.
1	0748	235	1.	*	1	1608	485	11.	*	2	0028	735	2.	*	2	0848	985	0.
1	0750	236	1.	*	1	1610	486	11.	*	2	0030	736	2.	*	2	0850	986	0.
1	0752	237	1.	*	1	1612	487	11.	*	2	0032	737	2.	*	2	0852	987	0.
1	0754	238	1.	*	1	1614	488	11.	*	2	0034	738	2.	*	2	0854	988	0.
1	0756	239	1.	*	1	1616	489	11.	*	2	0036	739	2.	*	2	0856	989	0.
1	0758	240	1.	*	1	1618	490	11.	*	2	0038	740	2.	*	2	0858	990	0.
1	0800	241	1.	*	1	1620	491	11.	*	2	0040	741	1.	*	2	0900	991	0.
1	0802	242	1.	*	1	1622	492	11.	*	2	0042	742	1.	*	2	0902	992	0.
1	0804	243	1.	*	1	1624	493	11.	*	2	0044	743	1.	*	2	0904	993	0.
1	0806	244	1.	*	1	1626	494	11.	*	2	0046	744	1.	*	2	0906	994	0.
1	0808	245	1.	*	1	1628	495	11.	*	2	0048	745	1.	*	2	0908	995	0.
1	0810	246	1.	*	1	1630	496	11.	*	2	0050	746	1.	*	2	0910	996	0.
1	0812	247	1.	*	1	1632	497	11.	*	2	0052	747	1.	*	2	0912	997	0.
1	0814	248	1.	*	1	1634	498	11.	*	2	0054	748	1.	*	2	0914	998	0.
1	0816	249	1.	*	1	1636	499	11.	*	2	0056	749	0.	*	2	0916	999	0.
1	0818	250	1.	*	1	1638	500	11.	*	2	0058	750	0.	*	2	0918	1000	0.
				*					*					*				

****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)					
		(CFS)				
+ 229.	12.20		39.	12.	9.	9.
		(INCHES)	0.896	1.139	1.139	1.139
		(AC-FT)	19.	24.	24.	24.

CUMULATIVE AREA = 0.40 SQ MI

*** ***

HYDROGRAPH OF FLOWS IN CAMELBACK ROAD LATERAL
50-YEAR STORM
EXISTING CONDITION

```
            **************
            *            *
670 KK      *    18DIV   *
            *            *
            **************

672 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          1  PRINT CONTROL
                     IPLOT          2  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

    DT          DIVERSION
                     ISTAD     18SPIP  DIVERSION HYDROGRAPH IDENTIFICATION

    DI              INFLOW      0.00    100.00    200.00    300.00    400.00    500.00   1000.00

    DQ       DIVERTED FLOW      0.00    100.00    125.00    125.00    125.00    125.00    125.00
                                                              ***
```

****

DIVERSION HYDROGRAPH 18SPIP

****

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0820	251	0.	1		1640	501	9.	2		0100	751	1.
1		0002	2	0.	1		0822	252	0.	1		1642	502	9.	2		0102	752	1.
1		0004	3	0.	1		0824	253	0.	1		1644	503	9.	2		0104	753	0.
1		0006	4	0.	1		0826	254	0.	1		1646	504	8.	2		0106	754	0.
1		0008	5	0.	1		0828	255	0.	1		1648	505	8.	2		0108	755	0.
1		0010	6	0.	1		0830	256	0.	1		1650	506	8.	2		0110	756	0.
1		0012	7	0.	1		0832	257	0.	1		1652	507	8.	2		0112	757	0.
1		0014	8	0.	1		0834	258	0.	1		1654	508	8.	2		0114	758	0.
1		0016	9	0.	1		0836	259	0.	1		1656	509	8.	2		0116	759	0.
1		0018	10	0.	1		0838	260	0.	1		1658	510	8.	2		0118	760	0.
1		0020	11	0.	1		0840	261	0.	1		1700	511	8.	2		0120	761	0.
1		0022	12	0.	1		0842	262	0.	1		1702	512	8.	2		0122	762	0.
1		0024	13	0.	1		0844	263	0.	1		1704	513	8.	2		0124	763	0.
1		0026	14	0.	1		0846	264	1.	1		1706	514	8.	2		0126	764	0.
1		0028	15	0.	1		0848	265	1.	1		1708	515	8.	2		0128	765	0.
1		0030	16	0.	1		0850	266	1.	1		1710	516	8.	2		0130	766	0.
1		0032	17	0.	1		0852	267	1.	1		1712	517	8.	2		0132	767	0.
1		0034	18	0.	1		0854	268	1.	1		1714	518	8.	2		0134	768	0.
1		0036	19	0.	1		0856	269	1.	1		1716	519	8.	2		0136	769	0.
1		0038	20	0.	1		0858	270	1.	1		1718	520	8.	2		0138	770	0.
1		0040	21	0.	1		0900	271	1.	1		1720	521	8.	2		0140	771	0.
1		0042	22	0.	1		0902	272	1.	1		1722	522	8.	2		0142	772	0.
1		0044	23	0.	1		0904	273	1.	1		1724	523	8.	2		0144	773	0.
1		0046	24	0.	1		0906	274	1.	1		1726	524	8.	2		0146	774	0.
1		0048	25	0.	1		0908	275	1.	1		1728	525	8.	2		0148	775	0.
1		0050	26	0.	1		0910	276	1.	1		1730	526	8.	2		0150	776	0.
1		0052	27	0.	1		0912	277	1.	1		1732	527	8.	2		0152	777	0.
1		0054	28	0.	1		0914	278	1.	1		1734	528	8.	2		0154	778	0.
1		0056	29	0.	1		0916	279	1.	1		1736	529	8.	2		0156	779	0.
1		0058	30	0.	1		0918	280	1.	1		1738	530	8.	2		0158	780	0.
1		0100	31	0.	1		0920	281	1.	1		1740	531	8.	2		0200	781	0.
1		0102	32	0.	1		0922	282	1.	1		1742	532	8.	2		0202	782	0.
1		0104	33	0.	1		0924	283	1.	1		1744	533	7.	2		0204	783	0.
1		0106	34	0.	1		0926	284	1.	1		1746	534	7.	2		0206	784	0.
1		0108	35	0.	1		0928	285	1.	1		1748	535	7.	2		0208	785	0.
1		0110	36	0.	1		0930	286	1.	1		1750	536	7.	2		0210	786	0.
1		0112	37	0.	1		0932	287	1.	1		1752	537	7.	2		0212	787	0.
1		0114	38	0.	1		0934	288	1.	1		1754	538	7.	2		0214	788	0.
1		0116	39	0.	1		0936	289	1.	1		1756	539	7.	2		0216	789	0.
1		0118	40	0.	1		0938	290	1.	1		1758	540	7.	2		0218	790	0.
1		0120	41	0.	1		0940	291	1.	1		1800	541	7.	2		0220	791	0.
1		0122	42	0.	1		0942	292	1.	1		1802	542	7.	2		0222	792	0.
1		0124	43	0.	1		0944	293	1.	1		1804	543	7.	2		0224	793	0.
1		0126	44	0.	1		0946	294	1.	1		1806	544	7.	2		0226	794	0.
1		0128	45	0.	1		0948	295	1.	1		1808	545	7.	2		0228	795	0.
1		0130	46	0.	1		0950	296	1.	1		1810	546	7.	2		0230	796	0.
1		0132	47	0.	1		0952	297	1.	1		1812	547	7.	2		0232	797	0.
1		0134	48	0.	1		0954	298	1.	1		1814	548	7.	2		0234	798	0.
1		0136	49	0.	1		0956	299	1.	1		1816	549	7.	2		0236	799	0.
1		0138	50	0.	1		0958	300	1.	1		1818	550	7.	2		0238	800	0.
1		0140	51	0.	1		1000	301	1.	1		1820	551	7.	2		0240	801	0.

1	0430	136	0.	*	1	1250	386	71.	*	1	2110	636	5.	*	2	0530	886	0.
1	0432	137	0.	*	1	1252	387	67.	*	1	2112	637	5.	*	2	0532	887	0.
1	0434	138	0.	*	1	1254	388	64.	*	1	2114	638	5.	*	2	0534	888	0.
1	0436	139	0.	*	1	1256	389	60.	*	1	2116	639	5.	*	2	0536	889	0.
1	0438	140	0.	*	1	1258	390	57.	*	1	2118	640	5.	*	2	0538	890	0.
1	0440	141	0.	*	1	1300	391	54.	*	1	2120	641	5.	*	2	0540	891	0.
1	0442	142	0.	*	1	1302	392	50.	*	1	2122	642	5.	*	2	0542	892	0.
1	0444	143	0.	*	1	1304	393	47.	*	1	2124	643	5.	*	2	0544	893	0.
1	0446	144	0.	*	1	1306	394	44.	*	1	2126	644	5.	*	2	0546	894	0.
1	0448	145	0.	*	1	1308	395	42.	*	1	2128	645	5.	*	2	0548	895	0.
1	0450	146	0.	*	1	1310	396	40.	*	1	2130	646	5.	*	2	0550	896	0.
1	0452	147	0.	*	1	1312	397	38.	*	1	2132	647	5.	*	2	0552	897	0.
1	0454	148	0.	*	1	1314	398	37.	*	1	2134	648	5.	*	2	0554	898	0.
1	0456	149	0.	*	1	1316	399	36.	*	1	2136	649	5.	*	2	0556	899	0.
1	0458	150	0.	*	1	1318	400	35.	*	1	2138	650	5.	*	2	0558	900	0.
1	0500	151	0.	*	1	1320	401	34.	*	1	2140	651	5.	*	2	0600	901	0.
1	0502	152	0.	*	1	1322	402	33.	*	1	2142	652	5.	*	2	0602	902	0.
1	0504	153	0.	*	1	1324	403	32.	*	1	2144	653	5.	*	2	0604	903	0.
1	0506	154	0.	*	1	1326	404	31.	*	1	2146	654	5.	*	2	0606	904	0.
1	0508	155	0.	*	1	1328	405	30.	*	1	2148	655	5.	*	2	0608	905	0.
1	0510	156	0.	*	1	1330	406	30.	*	1	2150	656	5.	*	2	0610	906	0.
1	0512	157	0.	*	1	1332	407	29.	*	1	2152	657	5.	*	2	0612	907	0.
1	0514	158	0.	*	1	1334	408	28.	*	1	2154	658	5.	*	2	0614	908	0.
1	0516	159	0.	*	1	1336	409	27.	*	1	2156	659	5.	*	2	0616	909	0.
1	0518	160	0.	*	1	1338	410	26.	*	1	2158	660	5.	*	2	0618	910	0.
1	0520	161	0.	*	1	1340	411	25.	*	1	2200	661	5.	*	2	0620	911	0.
1	0522	162	0.	*	1	1342	412	24.	*	1	2202	662	5.	*	2	0622	912	0.
1	0524	163	0.	*	1	1344	413	23.	*	1	2204	663	5.	*	2	0624	913	0.
1	0526	164	0.	*	1	1346	414	23.	*	1	2206	664	5.	*	2	0626	914	0.
1	0528	165	0.	*	1	1348	415	22.	*	1	2208	665	5.	*	2	0628	915	0.
1	0530	166	0.	*	1	1350	416	21.	*	1	2210	666	5.	*	2	0630	916	0.
1	0532	167	0.	*	1	1352	417	21.	*	1	2212	667	5.	*	2	0632	917	0.
1	0534	168	0.	*	1	1354	418	20.	*	1	2214	668	5.	*	2	0634	918	0.
1	0536	169	0.	*	1	1356	419	20.	*	1	2216	669	5.	*	2	0636	919	0.
1	0538	170	0.	*	1	1358	420	20.	*	1	2218	670	5.	*	2	0638	920	0.
1	0540	171	0.	*	1	1400	421	19.	*	1	2220	671	5.	*	2	0640	921	0.
1	0542	172	0.	*	1	1402	422	19.	*	1	2222	672	5.	*	2	0642	922	0.
1	0544	173	0.	*	1	1404	423	19.	*	1	2224	673	5.	*	2	0644	923	0.
1	0546	174	0.	*	1	1406	424	19.	*	1	2226	674	5.	*	2	0646	924	0.
1	0548	175	0.	*	1	1408	425	18.	*	1	2228	675	5.	*	2	0648	925	0.
1	0550	176	0.	*	1	1410	426	18.	*	1	2230	676	5.	*	2	0650	926	0.
1	0552	177	0.	*	1	1412	427	18.	*	1	2232	677	5.	*	2	0652	927	0.
1	0554	178	0.	*	1	1414	428	17.	*	1	2234	678	5.	*	2	0654	928	0.
1	0556	179	0.	*	1	1416	429	17.	*	1	2236	679	5.	*	2	0656	929	0.
1	0558	180	0.	*	1	1418	430	17.	*	1	2238	680	5.	*	2	0658	930	0.
1	0600	181	0.	*	1	1420	431	16.	*	1	2240	681	5.	*	2	0700	931	0.
1	0602	182	0.	*	1	1422	432	16.	*	1	2242	682	5.	*	2	0702	932	0.
1	0604	183	0.	*	1	1424	433	16.	*	1	2244	683	5.	*	2	0704	933	0.
1	0606	184	0.	*	1	1426	434	15.	*	1	2246	684	5.	*	2	0706	934	0.
1	0608	185	0.	*	1	1428	435	15.	*	1	2248	685	5.	*	2	0708	935	0.
1	0610	186	0.	*	1	1430	436	15.	*	1	2250	686	5.	*	2	0710	936	0.
1	0612	187	0.	*	1	1432	437	14.	*	1	2252	687	5.	*	2	0712	937	0.
1	0614	188	0.	*	1	1434	438	14.	*	1	2254	688	5.	*	2	0714	938	0.
1	0616	189	0.	*	1	1436	439	14.	*	1	2256	689	5.	*	2	0716	939	0.
1	0618	190	0.	*	1	1438	440	14.	*	1	2258	690	5.	*	2	0718	940	0.
1	0620	191	0.	*	1	1440	441	13.	*	1	2300	691	5.	*	2	0720	941	0.
1	0622	192	0.	*	1	1442	442	13.	*	1	2302	692	5.	*	2	0722	942	0.
1	0624	193	0.	*	1	1444	443	13.	*	1	2304	693	5.	*	2	0724	943	0.
1	0626	194	0.	*	1	1446	444	13.	*	1	2306	694	5.	*	2	0726	944	0.
1	0628	195	0.	*	1	1448	445	12.	*	1	2308	695	5.	*	2	0728	945	0.
1	0630	196	0.	*	1	1450	446	12.	*	1	2310	696	5.	*	2	0730	946	0.
1	0632	197	0.	*	1	1452	447	12.	*	1	2312	697	5.	*	2	0732	947	0.
1	0634	198	0.	*	1	1454	448	12.	*	1	2314	698	5.	*	2	0734	948	0.
1	0636	199	0.	*	1	1456	449	12.	*	1	2316	699	5.	*	2	0736	949	0.
1	0638	200	0.	*	1	1458	450	12.	*	1	2318	700	5.	*	2	0738	950	0.
1	0640	201	0.	*	1	1500	451	12.	*	1	2320	701	5.	*	2	0740	951	0.
1	0642	202	0.	*	1	1502	452	11.	*	1	2322	702	5.	*	2	0742	952	0.
1	0644	203	0.	*	1	1504	453	11.	*	1	2324	703	5.	*	2	0744	953	0.
1	0646	204	0.	*	1	1506	454	11.	*	1	2326	704	5.	*	2	0746	954	0.
1	0648	205	0.	*	1	1508	455	11.	*	1	2328	705	5.	*	2	0748	955	0.
1	0650	206	0.	*	1	1510	456	11.	*	1	2330	706	5.	*	2	0750	956	0.
1	0652	207	0.	*	1	1512	457	11.	*	1	2332	707	5.	*	2	0752	957	0.
1	0654	208	0.	*	1	1514	458	11.	*	1	2334	708	5.	*	2	0754	958	0.
1	0656	209	0.	*	1	1516	459	11.	*	1	2336	709	5.	*	2	0756	959	0.
1	0658	210	0.	*	1	1518	460	11.	*	1	2338	710	5.	*	2	0758	960	0.
1	0700	211	0.	*	1	1520	461	11.	*	1	2340	711	5.	*	2	0800	961	0.
1	0702	212	0.	*	1	1522	462	11.	*	1	2342	712	5.	*	2	0802	962	0.
1	0704	213	0.	*	1	1524	463	11.	*	1	2344	713	5.	*	2	0804	963	0.
1	0706	214	0.	*	1	1526	464	10.	*	1	2346	714	5.	*	2	0806	964	0.
1	0708	215	0.	*	1	1528	465	10.	*	1	2348	715	5.	*	2	0808	965	0.
1	0710	216	0.	*	1	1530	466	10.	*	1	2350	716	5.	*	2	0810	966	0.
1	0712	217	0.	*	1	1532	467	10.	*	1	2352	717	5.	*	2	0812	967	0.
1	0714	218	0.	*	1	1534	468	10.	*	1	2354	718	4.	*	2	0814	968	0.
1	0716	219	0.	*	1	1536	469	10.	*	1	2356	719	4.	*	2	0816	969	0.

1	0718	220	0.	*	1	1538	470	10.	*	1	2358	720	4.	*	2	0818	970	0.
1	0720	221	0.	*	1	1540	471	10.	*	2	0000	721	4.	*	2	0820	971	0.
1	0722	222	0.	*	1	1542	472	10.	*	2	0002	722	4.	*	2	0822	972	0.
1	0724	223	0.	*	1	1544	473	9.	*	2	0004	723	4.	*	2	0824	973	0.
1	0726	224	0.	*	1	1546	474	9.	*	2	0006	724	4.	*	2	0826	974	0.
1	0728	225	0.	*	1	1548	475	9.	*	2	0008	725	4.	*	2	0828	975	0.
1	0730	226	0.	*	1	1550	476	9.	*	2	0010	726	4.	*	2	0830	976	0.
1	0732	227	0.	*	1	1552	477	9.	*	2	0012	727	3.	*	2	0832	977	0.
1	0734	228	0.	*	1	1554	478	9.	*	2	0014	728	3.	*	2	0834	978	0.
1	0736	229	0.	*	1	1556	479	9.	*	2	0016	729	3.	*	2	0836	979	0.
1	0738	230	0.	*	1	1558	480	9.	*	2	0018	730	3.	*	2	0838	980	0.
1	0740	231	0.	*	1	1600	481	9.	*	2	0020	731	3.	*	2	0840	981	0.
1	0742	232	0.	*	1	1602	482	9.	*	2	0022	732	2.	*	2	0842	982	0.
1	0744	233	0.	*	1	1604	483	9.	*	2	0024	733	2.	*	2	0844	983	0.
1	0746	234	0.	*	1	1606	484	9.	*	2	0026	734	2.	*	2	0846	984	0.
1	0748	235	0.	*	1	1608	485	9.	*	2	0028	735	2.	*	2	0848	985	0.
1	0750	236	0.	*	1	1610	486	9.	*	2	0030	736	2.	*	2	0850	986	0.
1	0752	237	0.	*	1	1612	487	9.	*	2	0032	737	2.	*	2	0852	987	0.
1	0754	238	0.	*	1	1614	488	9.	*	2	0034	738	2.	*	2	0854	988	0.
1	0756	239	0.	*	1	1616	489	9.	*	2	0036	739	2.	*	2	0856	989	0.
1	0758	240	0.	*	1	1618	490	9.	*	2	0038	740	1.	*	2	0858	990	0.
1	0800	241	0.	*	1	1620	491	9.	*	2	0040	741	1.	*	2	0900	991	0.
1	0802	242	0.	*	1	1622	492	9.	*	2	0042	742	1.	*	2	0902	992	0.
1	0804	243	0.	*	1	1624	493	9.	*	2	0044	743	1.	*	2	0904	993	0.
1	0806	244	0.	*	1	1626	494	9.	*	2	0046	744	1.	*	2	0906	994	0.
1	0808	245	0.	*	1	1628	495	9.	*	2	0048	745	1.	*	2	0908	995	0.
1	0810	246	0.	*	1	1630	496	9.	*	2	0050	746	1.	*	2	0910	996	0.
1	0812	247	0.	*	1	1632	497	9.	*	2	0052	747	1.	*	2	0912	997	0.
1	0814	248	0.	*	1	1634	498	9.	*	2	0054	748	1.	*	2	0914	998	0.
1	0816	249	0.	*	1	1636	499	9.	*	2	0056	749	1.	*	2	0916	999	0.
1	0818	250	0.	*	1	1638	500	9.	*	2	0058	750	1.	*	2	0918	1000	0.
				*					*					*				

****

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	33.30-HR
+	(CFS)	(HR)					
			(CFS)				
+	125.	12.13		31.	10.	7.	7.
			(INCHES)	0.109	0.135	0.135	0.135
			(AC-FT)	15.	19.	19.	19.

CUMULATIVE AREA = 2.66 SQ MI

****

*** ***

HYDROGRAPH OF FLOW IN HIGHLAND AVENUE LATERAL
50-YEAR STORM
EXISTING CONDITION

```
            **************
            *            *
1124 KK     *   CPHI18   *
            *            *
            **************

1126 KD          OUTPUT CONTROL VARIABLES
                      IPRNT          1  PRINT CONTROL
                      IPLOT          2  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                      ISTAD     HIWEST  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW       0.00     30.00     60.00    120.00    240.00    480.00    960.00

     DQ       DIVERTED FLOW      0.00     30.00     30.00     30.00     30.00     30.00     30.00
                                                                  ***
```

****

DIVERSION HYDROGRAPH HIWEST

****

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0820	251	1.	1		1640	501	14.	2		0100	751	1.
1		0002	2	0.	1		0822	252	1.	1		1642	502	14.	2		0102	752	1.
1		0004	3	0.	1		0824	253	1.	1		1644	503	14.	2		0104	753	1.
1		0006	4	0.	1		0826	254	1.	1		1646	504	14.	2		0106	754	1.
1		0008	5	0.	1		0828	255	1.	1		1648	505	14.	2		0108	755	1.
1		0010	6	0.	1		0830	256	1.	1		1650	506	14.	2		0110	756	1.
1		0012	7	0.	1		0832	257	1.	1		1652	507	13.	2		0112	757	1.
1		0014	8	0.	1		0834	258	1.	1		1654	508	13.	2		0114	758	1.
1		0016	9	0.	1		0836	259	1.	1		1656	509	13.	2		0116	759	1.
1		0018	10	0.	1		0838	260	1.	1		1658	510	13.	2		0118	760	1.
1		0020	11	0.	1		0840	261	1.	1		1700	511	13.	2		0120	761	1.
1		0022	12	0.	1		0842	262	1.	1		1702	512	13.	2		0122	762	0.
1		0024	13	0.	1		0844	263	1.	1		1704	513	13.	2		0124	763	0.
1		0026	14	0.	1		0846	264	1.	1		1706	514	13.	2		0126	764	0.
1		0028	15	0.	1		0848	265	1.	1		1708	515	13.	2		0128	765	0.
1		0030	16	0.	1		0850	266	1.	1		1710	516	13.	2		0130	766	0.
1		0032	17	0.	1		0852	267	1.	1		1712	517	13.	2		0132	767	0.
1		0034	18	0.	1		0854	268	1.	1		1714	518	13.	2		0134	768	0.
1		0036	19	0.	1		0856	269	1.	1		1716	519	13.	2		0136	769	0.
1		0038	20	0.	1		0858	270	1.	1		1718	520	13.	2		0138	770	0.
1		0040	21	0.	1		0900	271	1.	1		1720	521	12.	2		0140	771	0.
1		0042	22	0.	1		0902	272	1.	1		1722	522	12.	2		0142	772	0.
1		0044	23	0.	1		0904	273	1.	1		1724	523	12.	2		0144	773	0.
1		0046	24	0.	1		0906	274	1.	1		1726	524	12.	2		0146	774	0.
1		0048	25	0.	1		0908	275	1.	1		1728	525	12.	2		0148	775	0.
1		0050	26	0.	1		0910	276	1.	1		1730	526	12.	2		0150	776	0.
1		0052	27	0.	1		0912	277	1.	1		1732	527	12.	2		0152	777	0.
1		0054	28	0.	1		0914	278	1.	1		1734	528	12.	2		0154	778	0.
1		0056	29	0.	1		0916	279	1.	1		1736	529	12.	2		0156	779	0.
1		0058	30	0.	1		0918	280	1.	1		1738	530	12.	2		0158	780	0.
1		0100	31	0.	1		0920	281	1.	1		1740	531	12.	2		0200	781	0.
1		0102	32	0.	1		0922	282	1.	1		1742	532	12.	2		0202	782	0.
1		0104	33	0.	1		0924	283	1.	1		1744	533	12.	2		0204	783	0.
1		0106	34	0.	1		0926	284	2.	1		1746	534	12.	2		0206	784	0.
1		0108	35	0.	1		0928	285	2.	1		1748	535	12.	2		0208	785	0.
1		0110	36	0.	1		0930	286	2.	1		1750	536	12.	2		0210	786	0.
1		0112	37	0.	1		0932	287	2.	1		1752	537	12.	2		0212	787	0.
1		0114	38	0.	1		0934	288	2.	1		1754	538	12.	2		0214	788	0.
1		0116	39	0.	1		0936	289	2.	1		1756	539	12.	2		0216	789	0.
1		0118	40	0.	1		0938	290	2.	1		1758	540	12.	2		0218	790	0.
1		0120	41	0.	1		0940	291	2.	1		1800	541	12.	2		0220	791	0.
1		0122	42	0.	1		0942	292	2.	1		1802	542	12.	2		0222	792	0.
1		0124	43	0.	1		0944	293	2.	1		1804	543	11.	2		0224	793	0.
1		0126	44	0.	1		0946	294	2.	1		1806	544	11.	2		0226	794	0.
1		0128	45	0.	1		0948	295	2.	1		1808	545	11.	2		0228	795	0.
1		0130	46	0.	1		0950	296	2.	1		1810	546	11.	2		0230	796	0.
1		0132	47	0.	1		0952	297	2.	1		1812	547	11.	2		0232	797	0.
1		0134	48	0.	1		0954	298	2.	1		1814	548	11.	2		0234	798	0.
1		0136	49	0.	1		0956	299	2.	1		1816	549	11.	2		0236	799	0.
1		0138	50	0.	1		0958	300	3.	1		1818	550	11.	2		0238	800	0.
1		0140	51	0.	1		1000	301	3.	1		1820	551	11.	2		0240	801	0.

1	0142	52	0.	*	1	1002	302	3.	*	1	1822	552	11.	*	2	0242	802	0.
1	0144	53	0.	*	1	1004	303	3.	*	1	1824	553	11.	*	2	0244	803	0.
1	0146	54	0.	*	1	1006	304	3.	*	1	1826	554	10.	*	2	0246	804	0.
1	0148	55	0.	*	1	1008	305	3.	*	1	1828	555	10.	*	2	0248	805	0.
1	0150	56	0.	*	1	1010	306	3.	*	1	1830	556	10.	*	2	0250	806	0.
1	0152	57	0.	*	1	1012	307	3.	*	1	1832	557	10.	*	2	0252	807	0.
1	0154	58	0.	*	1	1014	308	3.	*	1	1834	558	10.	*	2	0254	808	0.
1	0156	59	0.	*	1	1016	309	3.	*	1	1836	559	10.	*	2	0256	809	0.
1	0158	60	0.	*	1	1018	310	3.	*	1	1838	560	10.	*	2	0258	810	0.
1	0200	61	0.	*	1	1020	311	3.	*	1	1840	561	10.	*	2	0300	811	0.
1	0202	62	0.	*	1	1022	312	4.	*	1	1842	562	10.	*	2	0302	812	0.
1	0204	63	0.	*	1	1024	313	4.	*	1	1844	563	10.	*	2	0304	813	0.
1	0206	64	0.	*	1	1026	314	4.	*	1	1846	564	10.	*	2	0306	814	0.
1	0208	65	0.	*	1	1028	315	4.	*	1	1848	565	10.	*	2	0308	815	0.
1	0210	66	0.	*	1	1030	316	4.	*	1	1850	566	10.	*	2	0310	816	0.
1	0212	67	0.	*	1	1032	317	4.	*	1	1852	567	10.	*	2	0312	817	0.
1	0214	68	0.	*	1	1034	318	4.	*	1	1854	568	10.	*	2	0314	818	0.
1	0216	69	0.	*	1	1036	319	5.	*	1	1856	569	10.	*	2	0316	819	0.
1	0218	70	0.	*	1	1038	320	5.	*	1	1858	570	10.	*	2	0318	820	0.
1	0220	71	0.	*	1	1040	321	5.	*	1	1900	571	10.	*	2	0320	821	0.
1	0222	72	0.	*	1	1042	322	5.	*	1	1902	572	10.	*	2	0322	822	0.
1	0224	73	0.	*	1	1044	323	5.	*	1	1904	573	10.	*	2	0324	823	0.
1	0226	74	0.	*	1	1046	324	6.	*	1	1906	574	10.	*	2	0326	824	0.
1	0228	75	0.	*	1	1048	325	6.	*	1	1908	575	10.	*	2	0328	825	0.
1	0230	76	0.	*	1	1050	326	6.	*	1	1910	576	10.	*	2	0330	826	0.
1	0232	77	0.	*	1	1052	327	6.	*	1	1912	577	10.	*	2	0332	827	0.
1	0234	78	0.	*	1	1054	328	7.	*	1	1914	578	10.	*	2	0334	828	0.
1	0236	79	0.	*	1	1056	329	7.	*	1	1916	579	10.	*	2	0336	829	0.
1	0238	80	0.	*	1	1058	330	7.	*	1	1918	580	10.	*	2	0338	830	0.
1	0240	81	0.	*	1	1100	331	8.	*	1	1920	581	10.	*	2	0340	831	0.
1	0242	82	0.	*	1	1102	332	8.	*	1	1922	582	10.	*	2	0342	832	0.
1	0244	83	0.	*	1	1104	333	8.	*	1	1924	583	10.	*	2	0344	833	0.
1	0246	84	0.	*	1	1106	334	9.	*	1	1926	584	10.	*	2	0346	834	0.
1	0248	85	0.	*	1	1108	335	9.	*	1	1928	585	10.	*	2	0348	835	0.
1	0250	86	0.	*	1	1110	336	9.	*	1	1930	586	10.	*	2	0350	836	0.
1	0252	87	0.	*	1	1112	337	10.	*	1	1932	587	10.	*	2	0352	837	0.
1	0254	88	0.	*	1	1114	338	10.	*	1	1934	588	10.	*	2	0354	838	0.
1	0256	89	0.	*	1	1116	339	11.	*	1	1936	589	10.	*	2	0356	839	0.
1	0258	90	0.	*	1	1118	340	11.	*	1	1938	590	10.	*	2	0358	840	0.
1	0300	91	0.	*	1	1120	341	12.	*	1	1940	591	10.	*	2	0400	841	0.
1	0302	92	0.	*	1	1122	342	12.	*	1	1942	592	10.	*	2	0402	842	0.
1	0304	93	0.	*	1	1124	343	13.	*	1	1944	593	10.	*	2	0404	843	0.
1	0306	94	0.	*	1	1126	344	13.	*	1	1946	594	10.	*	2	0406	844	0.
1	0308	95	0.	*	1	1128	345	14.	*	1	1948	595	10.	*	2	0408	845	0.
1	0310	96	0.	*	1	1130	346	14.	*	1	1950	596	10.	*	2	0410	846	0.
1	0312	97	0.	*	1	1132	347	15.	*	1	1952	597	10.	*	2	0412	847	0.
1	0314	98	0.	*	1	1134	348	16.	*	1	1954	598	10.	*	2	0414	848	0.
1	0316	99	0.	*	1	1136	349	17.	*	1	1956	599	10.	*	2	0416	849	0.
1	0318	100	0.	*	1	1138	350	19.	*	1	1958	600	9.	*	2	0418	850	0.
1	0320	101	0.	*	1	1140	351	21.	*	1	2000	601	9.	*	2	0420	851	0.
1	0322	102	0.	*	1	1142	352	24.	*	1	2002	602	9.	*	2	0422	852	0.
1	0324	103	0.	*	1	1144	353	27.	*	1	2004	603	9.	*	2	0424	853	0.
1	0326	104	0.	*	1	1146	354	30.	*	1	2006	604	9.	*	2	0426	854	0.
1	0328	105	0.	*	1	1148	355	30.	*	1	2008	605	9.	*	2	0428	855	0.
1	0330	106	0.	*	1	1150	356	30.	*	1	2010	606	9.	*	2	0430	856	0.
1	0332	107	0.	*	1	1152	357	30.	*	1	2012	607	9.	*	2	0432	857	0.
1	0334	108	0.	*	1	1154	358	30.	*	1	2014	608	9.	*	2	0434	858	0.
1	0336	109	0.	*	1	1156	359	30.	*	1	2016	609	8.	*	2	0436	859	0.
1	0338	110	0.	*	1	1158	360	30.	*	1	2018	610	8.	*	2	0438	860	0.
1	0340	111	0.	*	1	1200	361	30.	*	1	2020	611	8.	*	2	0440	861	0.
1	0342	112	0.	*	1	1202	362	30.	*	1	2022	612	8.	*	2	0442	862	0.
1	0344	113	0.	*	1	1204	363	30.	*	1	2024	613	8.	*	2	0444	863	0.
1	0346	114	0.	*	1	1206	364	30.	*	1	2026	614	8.	*	2	0446	864	0.
1	0348	115	0.	*	1	1208	365	30.	*	1	2028	615	8.	*	2	0448	865	0.
1	0350	116	0.	*	1	1210	366	30.	*	1	2030	616	8.	*	2	0450	866	0.
1	0352	117	0.	*	1	1212	367	30.	*	1	2032	617	8.	*	2	0452	867	0.
1	0354	118	0.	*	1	1214	368	30.	*	1	2034	618	8.	*	2	0454	868	0.
1	0356	119	0.	*	1	1216	369	30.	*	1	2036	619	8.	*	2	0456	869	0.
1	0358	120	0.	*	1	1218	370	30.	*	1	2038	620	8.	*	2	0458	870	0.
1	0400	121	0.	*	1	1220	371	30.	*	1	2040	621	8.	*	2	0500	871	0.
1	0402	122	0.	*	1	1222	372	30.	*	1	2042	622	8.	*	2	0502	872	0.
1	0404	123	0.	*	1	1224	373	30.	*	1	2044	623	8.	*	2	0504	873	0.
1	0406	124	0.	*	1	1226	374	30.	*	1	2046	624	8.	*	2	0506	874	0.
1	0408	125	0.	*	1	1228	375	30.	*	1	2048	625	8.	*	2	0508	875	0.
1	0410	126	0.	*	1	1230	376	30.	*	1	2050	626	8.	*	2	0510	876	0.
1	0412	127	0.	*	1	1232	377	30.	*	1	2052	627	8.	*	2	0512	877	0.
1	0414	128	0.	*	1	1234	378	30.	*	1	2054	628	8.	*	2	0514	878	0.
1	0416	129	0.	*	1	1236	379	30.	*	1	2056	629	8.	*	2	0516	879	0.
1	0418	130	0.	*	1	1238	380	30.	*	1	2058	630	8.	*	2	0518	880	0.
1	0420	131	0.	*	1	1240	381	30.	*	1	2100	631	8.	*	2	0520	881	0.
1	0422	132	0.	*	1	1242	382	30.	*	1	2102	632	8.	*	2	0522	882	0.
1	0424	133	0.	*	1	1244	383	30.	*	1	2104	633	7.	*	2	0524	883	0.
1	0426	134	0.	*	1	1246	384	30.	*	1	2106	634	7.	*	2	0526	884	0.
1	0428	135	0.	*	1	1248	385	30.	*	1	2108	635	7.	*	2	0528	885	0.

1	0430	136	0.	*	1	1250	386	30.	*	1	2110	636	7.	*	2	0530	886	0.
1	0432	137	0.	*	1	1252	387	30.	*	1	2112	637	7.	*	2	0532	887	0.
1	0434	138	0.	*	1	1254	388	30.	*	1	2114	638	7.	*	2	0534	888	0.
1	0436	139	0.	*	1	1256	389	30.	*	1	2116	639	7.	*	2	0536	889	0.
1	0438	140	0.	*	1	1258	390	30.	*	1	2118	640	7.	*	2	0538	890	0.
1	0440	141	0.	*	1	1300	391	30.	*	1	2120	641	7.	*	2	0540	891	0.
1	0442	142	0.	*	1	1302	392	30.	*	1	2122	642	7.	*	2	0542	892	0.
1	0444	143	0.	*	1	1304	393	30.	*	1	2124	643	7.	*	2	0544	893	0.
1	0446	144	0.	*	1	1306	394	30.	*	1	2126	644	7.	*	2	0546	894	0.
1	0448	145	0.	*	1	1308	395	30.	*	1	2128	645	7.	*	2	0548	895	0.
1	0450	146	0.	*	1	1310	396	30.	*	1	2130	646	7.	*	2	0550	896	0.
1	0452	147	0.	*	1	1312	397	30.	*	1	2132	647	7.	*	2	0552	897	0.
1	0454	148	0.	*	1	1314	398	30.	*	1	2134	648	7.	*	2	0554	898	0.
1	0456	149	0.	*	1	1316	399	30.	*	1	2136	649	7.	*	2	0556	899	0.
1	0458	150	0.	*	1	1318	400	30.	*	1	2138	650	7.	*	2	0558	900	0.
1	0500	151	0.	*	1	1320	401	30.	*	1	2140	651	7.	*	2	0600	901	0.
1	0502	152	0.	*	1	1322	402	30.	*	1	2142	652	7.	*	2	0602	902	0.
1	0504	153	0.	*	1	1324	403	30.	*	1	2144	653	7.	*	2	0604	903	0.
1	0506	154	0.	*	1	1326	404	30.	*	1	2146	654	7.	*	2	0606	904	0.
1	0508	155	0.	*	1	1328	405	30.	*	1	2148	655	7.	*	2	0608	905	0.
1	0510	156	0.	*	1	1330	406	30.	*	1	2150	656	7.	*	2	0610	906	0.
1	0512	157	0.	*	1	1332	407	30.	*	1	2152	657	7.	*	2	0612	907	0.
1	0514	158	0.	*	1	1334	408	30.	*	1	2154	658	7.	*	2	0614	908	0.
1	0516	159	0.	*	1	1336	409	30.	*	1	2156	659	7.	*	2	0616	909	0.
1	0518	160	0.	*	1	1338	410	30.	*	1	2158	660	7.	*	2	0618	910	0.
1	0520	161	0.	*	1	1340	411	30.	*	1	2200	661	7.	*	2	0620	911	0.
1	0522	162	0.	*	1	1342	412	30.	*	1	2202	662	7.	*	2	0622	912	0.
1	0524	163	0.	*	1	1344	413	30.	*	1	2204	663	7.	*	2	0624	913	0.
1	0526	164	0.	*	1	1346	414	30.	*	1	2206	664	7.	*	2	0626	914	0.
1	0528	165	0.	*	1	1348	415	30.	*	1	2208	665	7.	*	2	0628	915	0.
1	0530	166	0.	*	1	1350	416	30.	*	1	2210	666	7.	*	2	0630	916	0.
1	0532	167	0.	*	1	1352	417	30.	*	1	2212	667	7.	*	2	0632	917	0.
1	0534	168	0.	*	1	1354	418	30.	*	1	2214	668	7.	*	2	0634	918	0.
1	0536	169	0.	*	1	1356	419	30.	*	1	2216	669	7.	*	2	0636	919	0.
1	0538	170	0.	*	1	1358	420	30.	*	1	2218	670	7.	*	2	0638	920	0.
1	0540	171	0.	*	1	1400	421	30.	*	1	2220	671	7.	*	2	0640	921	0.
1	0542	172	0.	*	1	1402	422	30.	*	1	2222	672	7.	*	2	0642	922	0.
1	0544	173	0.	*	1	1404	423	30.	*	1	2224	673	7.	*	2	0644	923	0.
1	0546	174	0.	*	1	1406	424	30.	*	1	2226	674	7.	*	2	0646	924	0.
1	0548	175	0.	*	1	1408	425	30.	*	1	2228	675	7.	*	2	0648	925	0.
1	0550	176	0.	*	1	1410	426	30.	*	1	2230	676	7.	*	2	0650	926	0.
1	0552	177	0.	*	1	1412	427	29.	*	1	2232	677	7.	*	2	0652	927	0.
1	0554	178	0.	*	1	1414	428	29.	*	1	2234	678	7.	*	2	0654	928	0.
1	0556	179	0.	*	1	1416	429	28.	*	1	2236	679	7.	*	2	0656	929	0.
1	0558	180	0.	*	1	1418	430	27.	*	1	2238	680	7.	*	2	0658	930	0.
1	0600	181	0.	*	1	1420	431	27.	*	1	2240	681	7.	*	2	0700	931	0.
1	0602	182	0.	*	1	1422	432	26.	*	1	2242	682	7.	*	2	0702	932	0.
1	0604	183	0.	*	1	1424	433	26.	*	1	2244	683	7.	*	2	0704	933	0.
1	0606	184	0.	*	1	1426	434	25.	*	1	2246	684	7.	*	2	0706	934	0.
1	0608	185	0.	*	1	1428	435	25.	*	1	2248	685	7.	*	2	0708	935	0.
1	0610	186	0.	*	1	1430	436	24.	*	1	2250	686	7.	*	2	0710	936	0.
1	0612	187	0.	*	1	1432	437	24.	*	1	2252	687	7.	*	2	0712	937	0.
1	0614	188	0.	*	1	1434	438	24.	*	1	2254	688	7.	*	2	0714	938	0.
1	0616	189	0.	*	1	1436	439	23.	*	1	2256	689	7.	*	2	0716	939	0.
1	0618	190	0.	*	1	1438	440	23.	*	1	2258	690	7.	*	2	0718	940	0.
1	0620	191	0.	*	1	1440	441	22.	*	1	2300	691	7.	*	2	0720	941	0.
1	0622	192	0.	*	1	1442	442	22.	*	1	2302	692	7.	*	2	0722	942	0.
1	0624	193	0.	*	1	1444	443	22.	*	1	2304	693	7.	*	2	0724	943	0.
1	0626	194	0.	*	1	1446	444	21.	*	1	2306	694	7.	*	2	0726	944	0.
1	0628	195	0.	*	1	1448	445	21.	*	1	2308	695	7.	*	2	0728	945	0.
1	0630	196	0.	*	1	1450	446	20.	*	1	2310	696	7.	*	2	0730	946	0.
1	0632	197	0.	*	1	1452	447	20.	*	1	2312	697	7.	*	2	0732	947	0.
1	0634	198	0.	*	1	1454	448	20.	*	1	2314	698	7.	*	2	0734	948	0.
1	0636	199	0.	*	1	1456	449	20.	*	1	2316	699	7.	*	2	0736	949	0.
1	0638	200	0.	*	1	1458	450	19.	*	1	2318	700	7.	*	2	0738	950	0.
1	0640	201	0.	*	1	1500	451	19.	*	1	2320	701	7.	*	2	0740	951	0.
1	0642	202	0.	*	1	1502	452	19.	*	1	2322	702	7.	*	2	0742	952	0.
1	0644	203	0.	*	1	1504	453	19.	*	1	2324	703	7.	*	2	0744	953	0.
1	0646	204	0.	*	1	1506	454	18.	*	1	2326	704	7.	*	2	0746	954	0.
1	0648	205	0.	*	1	1508	455	18.	*	1	2328	705	7.	*	2	0748	955	0.
1	0650	206	0.	*	1	1510	456	18.	*	1	2330	706	7.	*	2	0750	956	0.
1	0652	207	0.	*	1	1512	457	18.	*	1	2332	707	7.	*	2	0752	957	0.
1	0654	208	0.	*	1	1514	458	18.	*	1	2334	708	7.	*	2	0754	958	0.
1	0656	209	0.	*	1	1516	459	18.	*	1	2336	709	7.	*	2	0756	959	0.
1	0658	210	0.	*	1	1518	460	18.	*	1	2338	710	7.	*	2	0758	960	0.
1	0700	211	0.	*	1	1520	461	17.	*	1	2340	711	7.	*	2	0800	961	0.
1	0702	212	0.	*	1	1522	462	17.	*	1	2342	712	7.	*	2	0802	962	0.
1	0704	213	0.	*	1	1524	463	17.	*	1	2344	713	7.	*	2	0804	963	0.
1	0706	214	0.	*	1	1526	464	17.	*	1	2346	714	7.	*	2	0806	964	0.
1	0708	215	0.	*	1	1528	465	17.	*	1	2348	715	7.	*	2	0808	965	0.
1	0710	216	0.	*	1	1530	466	17.	*	1	2350	716	7.	*	2	0810	966	0.
1	0712	217	0.	*	1	1532	467	17.	*	1	2352	717	7.	*	2	0812	967	0.
1	0714	218	0.	*	1	1534	468	16.	*	1	2354	718	7.	*	2	0814	968	0.
1	0716	219	0.	*	1	1536	469	16.	*	1	2356	719	7.	*	2	0816	969	0.

1	0718	220	0.	*	1	1538	470	16.	*	1	2358	720	7.	*	2	0818	970	0.
1	0720	221	0.	*	1	1540	471	16.	*	2	0000	721	7.	*	2	0820	971	0.
1	0722	222	1.	*	1	1542	472	16.	*	2	0002	722	7.	*	2	0822	972	0.
1	0724	223	1.	*	1	1544	473	16.	*	2	0004	723	7.	*	2	0824	973	0.
1	0726	224	1.	*	1	1546	474	15.	*	2	0006	724	7.	*	2	0826	974	0.
1	0728	225	1.	*	1	1548	475	15.	*	2	0008	725	6.	*	2	0828	975	0.
1	0730	226	1.	*	1	1550	476	15.	*	2	0010	726	6.	*	2	0830	976	0.
1	0732	227	1.	*	1	1552	477	15.	*	2	0012	727	6.	*	2	0832	977	0.
1	0734	228	1.	*	1	1554	478	15.	*	2	0014	728	6.	*	2	0834	978	0.
1	0736	229	1.	*	1	1556	479	15.	*	2	0016	729	5.	*	2	0836	979	0.
1	0738	230	1.	*	1	1558	480	15.	*	2	0018	730	5.	*	2	0838	980	0.
1	0740	231	1.	*	1	1600	481	15.	*	2	0020	731	5.	*	2	0840	981	0.
1	0742	232	1.	*	1	1602	482	15.	*	2	0022	732	4.	*	2	0842	982	0.
1	0744	233	1.	*	1	1604	483	15.	*	2	0024	733	4.	*	2	0844	983	0.
1	0746	234	1.	*	1	1606	484	15.	*	2	0026	734	4.	*	2	0846	984	0.
1	0748	235	1.	*	1	1608	485	15.	*	2	0028	735	4.	*	2	0848	985	0.
1	0750	236	1.	*	1	1610	486	15.	*	2	0030	736	3.	*	2	0850	986	0.
1	0752	237	1.	*	1	1612	487	15.	*	2	0032	737	3.	*	2	0852	987	0.
1	0754	238	1.	*	1	1614	488	15.	*	2	0034	738	3.	*	2	0854	988	0.
1	0756	239	1.	*	1	1616	489	14.	*	2	0036	739	3.	*	2	0856	989	0.
1	0758	240	1.	*	1	1618	490	14.	*	2	0038	740	3.	*	2	0858	990	0.
1	0800	241	1.	*	1	1620	491	14.	*	2	0040	741	3.	*	2	0900	991	0.
1	0802	242	1.	*	1	1622	492	14.	*	2	0042	742	2.	*	2	0902	992	0.
1	0804	243	1.	*	1	1624	493	14.	*	2	0044	743	2.	*	2	0904	993	0.
1	0806	244	1.	*	1	1626	494	14.	*	2	0046	744	2.	*	2	0906	994	0.
1	0808	245	1.	*	1	1628	495	14.	*	2	0048	745	2.	*	2	0908	995	0.
1	0810	246	1.	*	1	1630	496	14.	*	2	0050	746	2.	*	2	0910	996	0.
1	0812	247	1.	*	1	1632	497	14.	*	2	0052	747	2.	*	2	0912	997	0.
1	0814	248	1.	*	1	1634	498	14.	*	2	0054	748	2.	*	2	0914	998	0.
1	0816	249	1.	*	1	1636	499	14.	*	2	0056	749	1.	*	2	0916	999	0.
1	0818	250	1.	*	1	1638	500	14.	*	2	0058	750	1.	*	2	0918	1000	0.
				*					*					*				

****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	33.30-HR
+ (CFS)	(HR)					
		(CFS)				
+ 30.	11.77		22.	9.	6.	6.
		(INCHES)	0.034	0.053	0.053	0.053
		(AC-FT)	11.	17.	17.	17.

CUMULATIVE AREA = 6.06 SQ MI

****

PROGRAM INPUT DATA

SR-51 Drainage Assessment
Indian School Road to
Bethany Home Road

Pump Station Routing
Delta T = .002 Hrs.
FILE 50YHVPSN.OUT

FREQUENCY	50

~~Exist~~	HOV

INFLOW HYDROGRAPH

Hec1 Time	Time	Q (cfs)
2:00	0	6
2:30	.5	9
2:42	.7	21
3:00	1.0	71
3:06	1.1	146
3:10	1.167	176
3:14	1.233	158
3:26	1.433	65
3:44	1.733	18
4:00	2.0	8
4:30	2.5	5

STAGE - STORAGE/DISCHARGE RELATIONSHIP

Elev	Storage CuFt	Q cfs
97.5	0	12
106	7548	17.83
111	11988	22.95
113.5	14208	25.85
116	16428	28.07
120	19980	30.75
122	38056	32.09
124	141432	33.42
127	455796	34.98

1st GEN SET ON 1106
2nd GEN SET ON 1108

PUMP	ON	OFF
1	108	106
2	110	108
3	112	110
4	114	112

FILE CONVENTION:

50YR HV PSN.OUT

50YR FREQUENCY

WITH HOV LANES

HIGHLAND PUMP STATION

NEW ON/OFF SETTINGS

3-30-98

SR-51 Drainage Assessment
Indian School Rd. to Bethany Home Rd.

Pump Station Routing
Highland Pump Station

50 Year Inflow Hydrograph (W/HOV)
Using HEC1 Files pump2.dat & pump2.out

50YHVPSN.out, 03-30-98
PB Phx., BY R.JORDAN

****

UT DATA FOR PUMP STATION ROUTING

Delta Time (routing interval) = .002 Hrs.(.12 min or 7.2 sec)

Frequency 50 Year w/HOV & NEW pump on/off settings

INFLOW HYDROGRAPH

hec1 time	time	Q (cfs)
0200	0.0	6
0230	0.5	9
0242	0.6	21
0300	1.0	71
0306	1.1	146
0310	1.167	176
0314	1.233	158
0326	1.433	65
0344	1.733	18
0400	2.000	8
0430	2.5	5

STAGE-STORAGE/DISCHARGE CURVE

Elev.	Storage CuFt	Outflow cfs
97.5	0	12
106	7548	17.83
111	11988	22.95
113.5	14208	25.85
116	16428	28.07
120	19980	30.75
122	38056	32.09
124	141432	33.42
127	455796	34.98

PUMP	ON	OFF
1	108	106
2	110	108
3	112	110
4	114	112

Gen Set	On
1	106
2	108

****

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.00	6.00	0.00	0.00	0.00	0.00	0.01	0.00
0.00	6.01	43.24	0.00	0.00	0.00	43.25	97.55
0.00	6.02	86.57	0.00	0.00	0.00	86.58	97.60
0.01	6.04	129.99	0.00	0.00	0.00	130.00	97.65
0.01	6.05	173.49	0.00	0.00	0.00	173.50	97.70
0.01	6.06	217.08	0.00	0.00	0.00	217.09	97.74
[illegible]	6.07	260.76	0.00	0.00	0.00	260.77	97.79
[illegible]	6.08	304.52	0.00	0.00	0.00	304.53	97.84
0.02	6.10	348.36	0.00	0.00	0.00	348.37	97.89
0.02	6.11	392.30	0.00	0.00	0.00	392.31	97.94
0.02	6.12	436.32	0.00	0.00	0.00	436.33	97.99
0.02	6.13	480.43	0.00	0.00	0.00	480.44	98.04
0.02	6.14	524.62	0.00	0.00	0.00	524.63	98.09
0.03	6.16	568.90	0.00	0.00	0.00	568.91	98.14
0.03	6.17	613.27	0.00	0.00	0.00	613.28	98.19
0.03	6.18	657.72	0.00	0.00	0.00	657.73	98.24
0.03	6.19	702.26	0.00	0.00	0.00	702.27	98.29
0.03	6.20	746.88	0.00	0.00	0.00	746.89	98.34
0.04	6.22	791.60	0.00	0.00	0.00	791.61	98.39
0.04	6.23	836.40	0.00	0.00	0.00	836.41	98.44
0.04	6.24	881.28	0.00	0.00	0.00	881.29	98.49
0.04	6.25	926.25	0.00	0.00	0.00	926.26	98.54
0.04	6.26	971.31	0.00	0.00	0.00	971.32	98.59
0.05	6.28	1016.45	0.00	0.00	0.00	1016.46	98.64
0.05	6.29	1061.68	0.00	0.00	0.00	1061.69	98.70
0.05	6.30	1107.00	0.00	0.00	0.00	1107.01	98.75
0.05	6.31	1152.40	0.00	0.00	0.00	1152.41	98.80
0.05	6.32	1197.89	0.00	0.00	0.00	1197.90	98.85
0.06	6.34	1243.47	0.00	0.00	0.00	1243.48	98.90
0.06	6.35	1289.13	0.00	0.00	0.00	1289.14	98.95
0.06	6.36	1334.88	0.00	0.00	0.00	1334.89	99.00
0.06	6.37	1380.72	0.00	0.00	0.00	1380.73	99.05
0.06	6.38	1426.64	0.00	0.00	0.00	1426.65	99.11
0.07	6.40	1472.64	0.00	0.00	0.00	1472.65	99.16
0.07	6.41	1518.74	0.00	0.00	0.00	1518.75	99.21
0.07	6.42	1564.92	0.00	0.00	0.00	1564.93	99.26
0.07	6.43	1611.19	0.00	0.00	0.00	1611.20	99.31
0.07	6.44	1657.54	0.00	0.00	0.00	1657.55	99.37
0.08	6.46	1703.98	0.00	0.00	0.00	1703.99	99.42
0.08	6.47	1750.51	0.00	0.00	0.00	1750.52	99.47
0.08	6.48	1797.12	0.00	0.00	0.00	1797.13	99.52
0.08	6.49	1843.82	0.00	0.00	0.00	1843.83	99.58
0.08	6.50	1890.61	0.00	0.00	0.00	1890.62	99.63
0.09	6.52	1937.48	0.00	0.00	0.00	1937.49	99.68
0.09	6.53	1984.44	0.00	0.00	0.00	1984.45	99.73
0.09	6.54	2031.48	0.00	0.00	0.00	2031.49	99.79
0.09	6.55	2078.61	0.00	0.00	0.00	2078.62	99.84
0.09	6.56	2125.83	0.00	0.00	0.00	2125.84	99.89
[illegible]10	6.58	2173.13	0.00	0.00	0.00	2173.14	99.95
[illegible]10	6.59	2220.52	0.00	0.00	0.00	2220.53	100.00
0.10	6.60	2268.00	0.00	0.00	0.00	2268.01	100.05
0.10	6.61	2315.56	0.00	0.00	0.00	2315.57	100.11
0.10	6.62	2363.21	0.00	0.00	0.00	2363.22	100.16

0.55	11.76	15218.93	0.00	0.00	6828.46	8390.48	106.95
0.55	11.88	15304.03	0.00	0.00	6828.46	8475.58	107.04
0.55	12.00	15390.00	0.00	0.00	6828.46	8561.55	107.14
0.55	12.12	15476.83	0.00	0.00	6828.46	8648.38	107.24
0.55	12.24	15564.53	0.00	0.00	6828.46	8736.08	107.34
0.56	12.36	15653.09	0.00	0.00	6828.46	8824.64	107.44
0.56	12.48	15742.51	0.00	0.00	6828.46	8914.06	107.54
0.56	12.60	15832.80	0.00	0.00	6828.46	9004.35	107.64
[illegible]6	12.72	15923.95	0.00	0.00	6828.46	9095.50	107.74
[illegible]6	12.84	16015.97	0.00	0.00	6828.46	9187.52	107.85
0.57	12.96	16108.85	0.00	0.00	6828.46	9280.40	107.95
0.57	13.08	16202.59	1.00	19.94	6900.23	9266.49	108.06
0.57	13.20	16297.20	1.00	19.76	7043.12	9254.09	107.88
0.57	13.32	16392.67	1.00	19.74	7185.31	9207.37	107.87
0.57	13.44	16489.01	1.00	19.69	7327.28	9161.74	107.82
0.58	13.56	16586.21	1.00	19.64	7468.86	9117.35	107.77
0.58	13.68	16684.27	1.00	19.59	7610.09	9074.19	107.72
0.58	13.80	16783.20	1.00	19.54	7750.96	9032.25	107.67
0.58	13.92	16882.99	1.00	19.49	7891.49	8991.52	107.63
0.58	14.04	16983.65	1.00	19.45	8031.68	8951.98	107.58
0.59	14.16	17085.17	1.00	19.40	8171.55	8913.63	107.54
0.59	14.28	17187.55	1.00	19.36	8311.11	8876.45	107.50
0.59	14.40	17290.80	1.00	19.32	8450.36	8840.45	107.46
0.59	14.52	17394.91	1.00	19.28	8589.32	8805.60	107.42
0.59	14.64	17499.89	1.00	19.24	8728.00	8771.90	107.38
0.60	14.76	17605.73	1.00	19.20	8866.40	8739.34	107.34
0.60	14.88	17712.43	1.00	19.17	9004.53	8707.91	107.31
0.60	15.00	17820.00	1.00	19.13	9142.41	8677.60	107.27
0.60	15.12	17928.43	1.00	19.10	9280.04	8648.40	107.24
0.60	15.24	18037.73	1.00	19.07	9417.44	8620.30	107.21
0.61	15.36	18147.89	1.00	19.04	9554.60	8593.30	107.18
0.61	15.48	18258.91	1.00	19.01	9691.55	8567.38	107.15
0.61	15.60	18370.80	1.00	18.98	9828.28	8542.53	107.12
0.61	15.72	18483.55	1.00	18.95	9964.81	8518.75	107.09
0.61	15.84	18597.17	1.00	18.92	10101.15	8496.03	107.07
0.62	15.96	18711.65	1.00	18.90	10237.31	8474.35	107.04
0.62	16.08	18826.99	1.00	18.87	10373.29	8453.72	107.02
0.62	16.20	18943.20	1.00	18.85	10509.10	8434.11	107.00
0.62	16.32	19060.27	1.00	18.83	10644.75	8415.53	106.98
0.62	16.44	19178.21	1.00	18.81	10780.26	8397.96	106.96
0.63	16.56	19297.01	1.00	18.79	10915.62	8381.40	106.94
0.63	16.68	19416.67	1.00	18.77	11050.85	8365.84	106.92
0.63	16.80	19537.20	1.00	18.76	11185.95	8351.26	106.90
0.63	16.92	19658.59	1.00	18.74	11320.94	8337.67	106.89
0.63	17.04	19780.85	1.00	18.73	11455.82	8325.05	106.87
0.64	17.16	19903.97	1.00	18.71	11590.59	8313.39	106.86
0.64	17.28	20027.95	1.00	18.70	11725.28	8302.69	106.85
0.64	17.40	20152.80	1.00	18.69	11859.88	8292.94	106.84
0.64	17.52	20278.51	1.00	18.68	11994.40	8284.13	106.83
[illegible]4	17.64	20405.09	1.00	18.67	12128.85	8276.25	106.82
[illegible]5	17.76	20532.53	1.00	18.66	12263.24	8269.30	106.81
0.65	17.88	20660.83	1.00	18.65	12397.58	8263.26	106.81
0.65	18.00	20790.00	1.00	18.65	12531.87	8258.14	106.80
0.65	18.12	20920.03	1.00	18.64	12666.12	8253.92	106.79
0.65	18.24	21050.93	1.00	18.64	12800.34	8250.60	106.79

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.66	18.36	21182.69	1.00	18.64	12934.54	8248.16	106.79
0.66	18.48	21315.31	1.00	18.64	13068.72	8246.60	106.79
0.66	18.60	21448.80	1.00	18.63	13202.89	8245.92	106.79
0.66	18.72	21583.15	1.00	18.63	13337.06	8246.10	106.79
0.66	18.84	21718.37	1.00	18.64	13471.24	8247.14	106.79
0.67	18.96	21854.45	1.00	18.64	13605.42	8249.04	106.79
0.67	19.08	21991.39	1.00	18.64	13739.63	8251.78	106.79
0.67	19.20	22129.20	1.00	18.65	13873.86	8255.35	106.80
0.67	19.32	22267.87	1.00	18.65	14008.12	8259.76	106.80
0.67	19.44	22407.41	1.00	18.66	14142.43	8264.99	106.81
0.68	19.56	22547.81	1.00	18.66	14276.78	8271.04	106.81
0.68	19.68	22689.07	1.00	18.67	14411.19	8277.90	106.82
0.68	19.80	22831.20	1.00	18.68	14545.65	8285.56	106.83
0.68	19.92	22974.19	1.00	18.69	14680.18	8294.02	106.84
0.68	20.04	23118.05	1.00	18.70	14814.79	8303.27	106.85
0.69	20.16	23262.77	1.00	18.71	14949.48	8313.30	106.86
0.69	20.28	23408.35	1.00	18.72	15084.25	8324.12	106.87
0.69	20.40	23554.80	1.00	18.74	15219.11	8335.70	106.89
0.69	20.52	23702.11	1.00	18.75	15354.08	8348.05	106.90
0.69	20.64	23850.29	1.00	18.77	15489.15	8361.15	106.92
0.70	20.76	23999.33	1.00	18.78	15624.33	8375.01	106.93
0.70	20.88	24149.23	1.00	18.80	15759.63	8389.61	106.95
0.70	21.00	24300.00	1.00	18.82	15895.06	8404.95	106.96
0.70	21.33	24452.40	1.00	18.84	16030.62	8421.80	106.98
0.70	21.67	24607.20	1.00	18.86	16166.32	8440.89	107.01
0.71	22.00	24764.40	1.00	18.88	16302.20	8462.21	107.03
0.71	22.33	24924.00	1.00	18.91	16438.26	8485.75	107.06
0.71	22.67	25086.00	1.00	18.94	16574.53	8511.48	107.08
0.71	23.00	25250.40	1.00	18.97	16711.02	8539.39	107.12
0.71	23.33	25417.20	1.00	19.01	16847.75	8569.47	107.15
0.72	23.67	25586.40	1.00	19.04	16984.74	8601.68	107.19
0.72	24.00	25758.00	1.00	19.08	17122.00	8636.01	107.22
[illegible]72	24.33	25932.00	1.00	19.13	17259.56	8672.45	107.27
[illegible]72	24.67	26108.40	1.00	19.17	17397.43	8710.98	107.31
0.72	25.00	26287.20	1.00	19.22	17535.62	8751.59	107.36
0.73	25.33	26468.40	1.00	19.27	17674.17	8794.24	107.40
0.73	25.67	26652.00	1.00	19.32	17813.07	8838.94	107.45
0.73	26.00	26838.00	1.00	19.37	17952.36	8885.65	107.51
0.73	26.33	27026.40	1.00	19.43	18092.04	8934.37	107.56
0.73	26.67	27217.20	1.00	19.49	18232.13	8985.08	107.62
0.74	27.00	27410.40	1.00	19.55	18372.66	9037.75	107.68

0.74	27.33	27606.00	1.00	19.61	18513.63	9092.39	107.74
0.74	27.67	27804.00	1.00	19.68	18655.06	9148.95	107.80
0.74	28.00	28004.40	1.00	19.74	18796.97	9207.45	107.87
0.74	28.33	28207.20	1.00	19.81	18939.37	9267.84	107.94
0.75	28.67	28412.40	1.00	19.88	19082.28	9330.13	108.01
0.75	29.00	28620.00	1.00	19.96	19225.72	9394.30	108.08
0.75	29.33	28830.00	1.00	20.03	19369.69	9460.32	108.15
0.75	29.67	29042.40	1.00	20.11	19514.23	9528.19	108.23
[illegible]	30.00	29257.20	1.00	20.19	19659.33	9597.88	108.31
[illegible]	30.33	29474.40	1.00	20.28	19805.02	9669.39	108.39
0.76	30.67	29694.00	1.00	20.36	19951.31	9742.70	108.47
0.76	31.00	29916.00	1.00	20.45	20098.22	9817.80	108.56
0.76	31.33	30140.40	1.00	20.54	20245.75	9894.66	108.64
0.76	31.67	30367.20	1.00	20.63	20393.94	9973.28	108.73
0.77	32.00	30596.40	1.00	20.72	20542.78	10053.63	108.82
0.77	32.33	30828.00	1.00	20.81	20692.30	10135.71	108.91
0.77	32.67	31062.00	1.00	20.91	20842.50	10219.51	109.01
0.77	33.00	31298.40	1.00	21.01	20993.41	10305.00	109.10
0.77	33.33	31537.20	1.00	21.11	21145.04	10392.17	109.20
0.78	33.67	31778.40	1.00	21.21	21297.40	10481.02	109.30
0.78	34.00	32022.00	1.00	21.32	21450.50	10571.51	109.40
0.78	34.33	32268.00	1.00	21.42	21604.36	10663.65	109.51
0.78	34.67	32516.40	1.00	21.53	21758.99	10757.42	109.61
0.78	35.00	32767.20	1.00	21.64	21914.40	10852.81	109.72
0.79	35.33	33020.40	1.00	21.75	22070.62	10949.80	109.83
0.79	35.67	33276.01	2.00	43.73	22306.36	10890.94	109.94
0.79	36.00	33534.01	2.00	43.24	22619.46	10914.55	109.70
0.79	36.33	33794.40	2.00	43.30	22931.02	10863.39	109.73
0.79	36.67	34057.20	2.00	43.19	23242.41	10814.81	109.68
0.80	37.00	34322.40	2.00	43.09	23553.01	10769.40	109.63
0.80	37.33	34590.01	2.00	42.99	23862.88	10727.13	109.58
0.80	37.67	34860.01	2.00	42.90	24172.08	10687.94	109.53
0.80	38.00	35132.40	2.00	42.82	24480.65	10651.77	109.49
0.80	38.33	35407.20	2.00	42.74	24788.64	10618.57	109.46

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.81	38.67	35684.40	2.00	42.67	25096.11	10588.31	109.42
0.81	39.00	35964.01	2.00	42.61	25403.10	10560.92	109.39
0.81	39.33	36246.01	2.00	42.55	25709.66	10536.36	109.36
0.81	39.67	36530.40	2.00	42.50	26015.83	10514.58	109.34
0.81	40.00	36817.20	2.00	42.46	26321.66	10495.55	109.32
0.82	40.33	37106.40	2.00	42.42	26627.20	10479.21	109.30
0.82	40.67	37398.01	2.00	42.39	26932.50	10465.52	109.28
0.82	41.00	37692.01	2.00	42.36	27237.58	10454.43	109.27
0.82	41.33	37988.40	2.00	42.34	27542.50	10445.91	109.26
0.82	41.67	38287.20	2.00	42.33	27847.31	10439.91	109.26
0.83	42.00	38588.40	2.00	42.32	28152.03	10436.39	109.25
[illegible]	42.33	38892.01	2.00	42.32	28456.71	10435.30	109.25
[illegible]	42.67	39198.01	2.00	42.32	28761.40	10436.61	109.25
0.83	43.00	39506.40	2.00	42.33	29066.13	10440.28	109.26
0.83	43.33	39817.20	2.00	42.34	29370.94	10446.28	109.26
0.84	43.67	40130.40	2.00	42.36	29675.86	10454.55	109.27
0.84	44.00	40446.01	2.00	42.38	29980.95	10465.07	109.28
0.84	44.33	40764.01	2.00	42.41	30286.22	10477.79	109.30
0.84	44.67	41084.40	2.00	42.45	30591.73	10492.69	109.31
0.84	45.00	41407.20	2.00	42.49	30897.50	10509.72	109.33
0.85	45.33	41732.40	2.00	42.53	31203.57	10528.85	109.36
0.85	45.67	42060.01	2.00	42.58	31509.97	10550.04	109.38
0.85	46.00	42390.01	2.00	42.63	31816.75	10573.27	109.41
0.85	46.33	42722.40	2.00	42.69	32123.92	10598.49	109.43
0.85	46.67	43057.21	2.00	42.76	32431.53	10625.68	109.46
0.86	47.00	43394.40	2.00	42.82	32739.61	10654.80	109.50
0.86	47.33	43734.01	2.00	42.89	33048.19	10685.83	109.53
0.86	47.67	44076.01	2.00	42.97	33357.30	10718.72	109.57
0.86	48.00	44420.40	2.00	43.05	33666.97	10753.44	109.61
0.86	48.33	44767.21	2.00	43.13	33977.23	10789.98	109.65
0.87	48.67	45116.40	2.00	43.22	34288.11	10828.30	109.69
0.87	49.00	45468.01	2.00	43.31	34599.65	10868.37	109.74
0.87	49.33	45822.01	2.00	43.41	34911.86	10910.15	109.78
0.87	49.67	46178.40	2.00	43.51	35224.79	10953.63	109.83
0.87	50.00	46537.21	2.00	43.62	35538.44	10998.77	109.88
0.88	50.33	46898.40	2.00	43.72	35852.86	11045.55	109.94
0.88	50.67	47262.01	2.00	43.84	36168.08	11093.94	109.99
0.88	51.00	47628.01	2.00	43.95	36484.10	11143.91	110.05
0.88	51.33	47996.40	2.00	44.07	36800.97	11195.44	110.11
0.88	51.67	48367.21	2.00	44.19	37118.71	11248.50	110.17
0.89	52.00	48740.40	2.00	44.32	37437.35	11303.07	110.23
0.89	52.33	49116.01	2.00	44.45	37756.90	11359.12	110.29
0.89	52.67	49494.01	2.00	44.58	38077.39	11416.63	110.36
0.89	53.00	49874.40	2.00	44.72	38398.85	11475.57	110.42
0.89	53.33	50257.21	2.00	44.85	38721.30	11535.92	110.49
0.90	53.67	50642.40	2.00	45.00	39044.76	11597.65	110.56
0.90	54.00	51030.01	2.00	45.14	39369.26	11660.75	110.63
0.90	54.33	51420.01	2.00	45.29	39694.82	11725.19	110.70
0.90	54.67	51812.40	2.00	45.44	40021.46	11790.95	110.78
0.90	55.00	52207.21	2.00	45.60	40349.20	11858.01	110.85
0.91	55.33	52604.40	2.00	45.75	40678.07	11926.35	110.93
0.91	55.67	53004.01	2.00	45.92	41008.08	11995.93	111.01
0.91	56.00	53406.01	2.00	46.10	41339.35	12066.67	111.09
[illegible]1	56.33	53810.40	2.00	46.29	41671.95	12138.46	111.17
[illegible]1	56.67	54217.21	2.00	46.48	42005.92	12211.30	111.25
0.92	57.00	54626.40	2.00	46.67	42341.26	12285.15	111.33
0.92	57.33	55038.01	2.00	46.87	42678.01	12360.01	111.42
0.92	57.67	55452.01	2.00	47.07	43016.17	12435.85	111.50
0.92	58.00	55868.40	2.00	47.27	43355.76	12512.65	111.59
0.92	58.33	56287.21	2.00	47.47	43696.82	12590.40	111.68
0.93	58.67	56708.40	2.00	47.68	44039.33	12669.08	111.77
0.93	59.00	57132.01	3.00	71.82	44469.53	12533.20	111.85

0.93	59.33	57558.01	3.00	70.63	44982.38	12575.64	111.51
0.93	59.67	57986.40	3.00	70.83	45491.64	12494.78	111.57
0.93	60.00	58417.21	3.00	70.52	46000.48	12416.73	111.48
0.94	60.33	58850.40	3.00	70.23	46507.16	12343.25	111.40
0.94	60.67	59286.01	3.00	69.96	47011.83	12274.19	111.32
0.94	61.00	59724.01	3.00	69.70	47514.61	12209.40	111.25
0.94	61.33	60164.40	3.00	69.47	48015.62	12148.79	111.18
0.94	61.67	60607.21	3.00	69.24	48514.98	12092.23	111.11
0.95	62.00	61052.40	3.00	69.04	49012.80	12039.61	111.05
0.95	62.33	61500.01	3.00	68.85	49509.19	11990.82	111.00
0.95	62.67	61950.01	3.00	68.69	50004.33	11945.68	110.95
0.95	63.00	62402.40	3.00	68.55	50498.40	11904.02	110.90
0.95	63.33	62857.21	3.00	68.42	50991.47	11865.75	110.86

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.96	63.67	63314.40	3.00	68.30	51483.63	11830.79	110.82
0.96	64.00	63774.01	3.00	68.19	51974.96	11799.06	110.78
0.96	64.33	64236.01	3.00	68.09	52465.54	11770.48	110.75
0.96	64.67	64700.40	3.00	68.00	52955.44	11744.97	110.72
0.96	65.00	65167.21	3.00	67.92	53444.75	11722.46	110.70
0.97	65.33	65636.41	3.00	67.85	53933.54	11702.88	110.68
0.97	65.67	66108.01	3.00	67.80	54421.87	11686.15	110.66
0.97	66.00	66582.01	3.00	67.75	54909.83	11672.19	110.64
0.97	66.33	67058.41	3.00	67.71	55397.46	11660.96	110.63
0.97	66.67	67537.21	3.00	67.68	55884.85	11652.36	110.62
0.98	67.00	68018.41	3.00	67.66	56372.07	11646.35	110.61
0.98	67.33	68502.01	3.00	67.65	56859.15	11642.87	110.61
0.98	67.67	68988.01	3.00	67.64	57346.19	11641.83	110.61
0.98	68.00	69476.41	3.00	67.65	57833.23	11643.19	110.61
0.98	68.33	69967.21	3.00	67.66	58320.33	11646.89	110.61
0.99	68.67	70460.41	3.00	67.68	58807.55	11652.87	110.62
0.99	69.00	70956.01	3.00	67.71	59294.95	11661.07	110.63
0.99	69.33	71454.01	3.00	67.74	59782.58	11671.44	110.64
0.99	69.67	71954.41	3.00	67.79	60270.49	11683.92	110.65
0.99	70.00	72457.21	3.00	67.84	60758.74	11698.47	110.67
1.00	70.33	72962.41	3.00	67.90	61247.39	11715.03	110.69
1.00	70.67	73470.01	3.00	67.96	61736.46	11733.56	110.71
1.00	71.00	73980.01	3.00	68.03	62226.02	11754.00	110.73
1.00	72.50	74496.61	3.00	68.12	62716.17	11780.46	110.76
1.00	74.00	75024.01	3.00	68.25	63207.09	11816.93	110.80
1.01	75.50	75562.21	3.00	68.41	63699.05	11863.18	110.86
1.01	77.00	76111.21	3.00	68.60	64192.27	11918.96	110.92
1.01	78.50	76671.01	3.00	68.82	64686.99	11984.03	110.99
1.01	80.00	77241.61	3.00	69.11	65183.56	12058.06	111.07
1.01	81.50	77823.01	3.00	69.43	65682.32	12140.70	111.17
1.02	83.00	78415.21	3.00	69.79	66183.53	12231.69	111.27
1.02	84.50	79018.21	3.00	70.18	66687.43	12330.80	111.38
1.02	86.00	79632.01	3.00	70.60	67194.23	12437.79	111.50
1.02	87.50	80256.61	3.00	71.05	67704.16	12552.46	111.63
1.02	89.00	80892.01	3.00	71.53	68217.43	12674.60	111.77
1.03	90.50	81538.21	3.00	72.03	68734.24	12803.99	111.91
1.03	92.00	82195.21	3.00	72.57	69254.80	12940.42	112.07
1.03	93.50	82863.01	3.00	73.13	69779.31	13083.71	112.23
1.03	95.00	83541.61	3.00	73.72	70307.96	13233.67	112.40
1.03	96.50	84231.01	3.00	74.33	70840.93	13390.10	112.57
1.04	98.00	84931.21	3.00	74.97	71378.40	13552.83	112.76
1.04	99.50	85642.21	3.00	75.63	71920.54	13721.68	112.95
1.04	101.00	86364.01	3.00	76.31	72467.53	13896.49	113.14
1.04	102.50	87096.61	3.00	77.02	73019.55	14077.07	113.35
1.04	104.00	87840.01	3.00	77.71	73576.58	14263.44	113.56
1.05	105.50	88594.21	4.00	104.38	74232.10	14174.24	113.78
1.05	107.00	89359.21	4.00	103.29	74979.69	14379.53	113.48
1.05	108.50	90135.01	4.00	104.19	75726.60	14408.42	113.72
1.05	110.00	90921.61	4.00	104.32	76477.26	14444.36	113.76
1.05	111.50	91719.01	4.00	104.51	77229.05	14489.97	113.81
1.06	113.00	92527.21	4.00	104.73	77982.28	14544.94	113.87
1.06	114.50	93346.21	4.00	104.98	78737.24	14608.99	113.95
1.06	116.00	94176.01	4.00	105.27	79494.16	14681.86	114.03
1.06	117.50	95016.61	4.00	105.60	80253.30	14763.32	114.12
1.06	119.00	95868.01	4.00	105.96	81014.91	14853.11	114.22
1.07	120.50	96730.21	4.00	106.35	81779.22	14951.00	114.33
1.07	122.00	97603.21	4.00	106.77	82546.46	15056.76	114.45
1.07	123.50	98487.01	4.00	107.23	83316.86	15170.16	114.58
1.07	125.00	99381.61	4.00	107.71	84090.63	15290.99	114.71
1.07	126.50	%100287.00	4.00	108.22	84867.99	15419.03	114.86
1.08	128.00	%101203.20	4.00	108.76	85649.12	15554.10	115.01
1.08	129.50	%102130.20	4.00	109.33	86434.25	15695.97	115.17
1.08	131.00	%103068.00	4.00	109.92	87223.56	15844.46	115.34
1.08	132.50	%104016.60	4.00	110.54	88017.24	15999.39	115.51
1.08	134.00	%104976.00	4.00	111.19	88815.47	16160.55	115.69
1.09	135.50	%105946.20	4.00	111.86	89618.44	16327.78	115.88
1.09	137.00	%106927.20	4.00	112.49	90426.09	16501.13	116.08
1.09	138.50	%107919.00	4.00	113.03	91237.96	16681.06	116.28
1.09	140.00	%108921.60	4.00	113.59	92053.81	16867.82	116.49
1.09	141.50	%109935.00	4.00	114.18	92873.78	17061.24	116.71
1.10	143.00	%110959.20	4.00	114.78	93698.03	17261.19	116.93
1.10	144.50	%111994.20	4.00	115.40	94526.69	17467.53	117.17
1.10	146.00	%113040.00	4.00	116.05	95359.91	17680.10	117.40
1.10	146.90	%114094.40	4.00	116.70	96197.79	17896.65	117.65
1.10	147.79	%115155.30	4.00	117.36	97040.39	18114.92	117.89

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.11	148.69	%116222.60	4.00	118.02	97887.75	18334.89	118.14
1.11	149.58	%117296.40	4.00	118.69	98739.91	18556.49	118.39
1.11	150.48	%118376.60	4.00	119.36	99596.90	18779.72	118.64
1.11	151.37	%119463.30	4.00	120.04	%100458.80	19004.53	118.90

1.11	152.27	%120556.40	4.00	120.72	%101325.50	19230.88	119.15
1.12	153.16	%121655.90	4.00	121.41	%102197.20	19458.74	119.41
1.12	154.06	%122762.00	4.00	122.11	%103073.90	19688.07	119.67
1.12	154.96	%123874.40	4.00	122.81	%103955.60	19918.80	119.93
1.12	155.85	%124993.30	4.00	123.05	%104840.70	20152.59	120.02
1.12	156.75	%126118.70	4.00	123.12	%105727.00	20391.71	120.05
1.13	157.64	%127250.50	4.00	123.19	%106613.70	20636.77	120.07
1.13	158.54	%128388.70	4.00	123.27	%107501.00	20887.74	120.10
1.13	159.43	%129533.40	4.00	123.35	%108388.80	21144.63	120.13
1.13	160.33	%130684.50	4.00	123.42	%109277.10	21407.40	120.16
1.13	161.22	%131842.10	4.00	123.50	%110166.10	21676.06	120.19
1.14	162.12	%133006.10	4.00	123.58	%111055.60	21950.57	120.22
1.14	163.01	%134176.60	4.00	123.67	%111945.70	22230.95	120.25
1.14	163.91	%135353.60	4.00	123.75	%112836.40	22517.18	120.28
1.14	164.81	%136536.90	4.00	123.84	%113727.70	22809.22	120.31
1.14	165.70	%137726.80	4.00	123.93	%114619.70	23107.09	120.35
1.15	166.60	%138923.10	4.00	124.02	%115512.30	23410.77	120.38
1.15	167.49	%140125.80	4.00	124.11	%116405.60	23720.23	120.41
1.15	168.39	%141334.90	4.00	124.20	%117299.50	24035.48	120.45
1.15	169.28	%142550.60	4.00	124.30	%118194.10	24356.50	120.48
1.15	170.18	%143772.60	4.00	124.39	%119089.40	24683.28	120.52
1.16	171.07	%145001.10	4.00	124.49	%119985.40	25015.80	120.56
1.16	171.97	%146236.10	4.00	124.59	%120882.10	25354.06	120.59
1.16	172.87	%147477.50	4.00	124.70	%121779.50	25698.03	120.63
1.16	173.76	%148725.40	4.00	124.80	%122677.70	26047.71	120.67
1.16	174.66	%149979.70	4.00	124.90	%123576.60	26403.07	120.71
1.17	175.55	%151240.40	4.00	125.01	%124476.30	26764.13	120.75
1.17	175.73	%152505.00	4.00	125.12	%125376.80	27128.27	120.79
1.17	175.18	%153768.30	4.00	125.23	%126278.00	27490.28	120.83
1.17	174.64	%155027.60	4.00	125.33	%127180.00	27847.61	120.87
1.17	174.09	%156283.10	4.00	125.44	%128082.80	28200.26	120.91
1.18	173.55	%157534.60	4.00	125.54	%128986.30	28548.22	120.95
1.18	173.00	%158782.10	4.00	125.64	%129890.60	28891.53	120.99
1.18	172.45	%160025.80	4.00	125.74	%130795.60	29230.18	121.02
1.18	171.91	%161265.50	4.00	125.84	%131701.30	29564.18	121.06
1.18	171.36	%162501.20	4.00	125.94	%132607.70	29893.56	121.10
1.19	170.82	%163733.10	4.00	126.04	%133514.80	30218.31	121.13
1.19	170.27	%164961.00	4.00	126.13	%134422.60	30538.43	121.17
1.19	169.73	%166185.00	4.00	126.22	%135331.10	30853.95	121.20
1.19	169.18	%167405.10	4.00	126.32	%136240.20	31164.89	121.24
1.19	168.64	%168621.20	4.00	126.41	%137150.00	31471.21	121.27
1.20	168.09	%169833.50	4.00	126.50	%138060.50	31772.98	121.30
1.20	167.55	%171041.80	4.00	126.58	%138971.60	32070.18	121.34
1.20	167.00	%172246.10	4.00	126.67	%139883.30	32362.82	121.37
1.20	166.45	%173446.60	4.00	126.76	%140795.60	32650.92	121.40
1.20	165.91	%174643.10	4.00	126.84	%141708.60	32934.48	121.43
1.21	165.36	%175835.60	4.00	126.92	%142622.10	33213.51	121.46
1.21	164.82	%177024.30	4.00	127.01	%143536.30	33488.03	121.49
1.21	164.27	%178209.00	4.00	127.09	%144451.00	33758.03	121.52
1.21	163.73	%179389.80	4.00	127.16	%145366.30	34023.53	121.55
1.21	163.18	%180566.70	4.00	127.24	%146282.20	34284.54	121.58
1.22	162.64	%181739.70	4.00	127.32	%147198.60	34541.09	121.61
1.22	162.09	%182908.70	4.00	127.39	%148115.50	34793.15	121.64
1.22	161.55	%184073.80	4.00	127.47	%149033.00	35040.76	121.67
1.22	161.00	%185234.90	4.00	127.54	%149951.00	35283.90	121.69
1.22	160.45	%186392.20	4.00	127.61	%150869.60	35522.61	121.72
1.23	159.91	%187545.50	4.00	127.68	%151788.60	35756.89	121.75
1.23	159.36	%188694.90	4.00	127.75	%152708.10	35986.73	121.77
1.23	158.82	%189840.30	4.00	127.81	%153628.10	36212.17	121.80
1.23	158.27	%190981.80	4.00	127.88	%154548.60	36433.22	121.82
1.23	157.53	%192118.70	4.00	127.94	%155469.60	36649.17	121.84
1.24	156.60	%193249.60	4.00	128.00	%156391.00	36858.67	121.87
1.24	155.68	%194373.90	4.00	128.06	%157312.80	37061.03	121.89
1.24	154.75	%195491.40	4.00	128.12	%158235.10	37256.26	121.91
1.24	153.81	%196602.20	4.00	128.18	%159157.80	37444.39	121.93
1.24	152.88	%197706.30	4.00	128.23	%160080.90	37625.43	121.95
1.25	151.95	%198803.70	4.00	128.28	%161004.30	37799.40	121.97
1.25	151.03	%199894.50	4.00	128.33	%161928.20	37966.31	121.99
1.25	150.10	%200978.50	4.00	128.36	%162852.30	38126.23	122.00
1.25	149.16	%202055.80	4.00	128.37	%163776.50	38279.33	122.00
1.25	148.23	%203126.50	4.00	128.38	%164700.80	38425.67	122.01

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.26	147.30	%204190.40	4.00	128.39	%165625.20	38565.25	122.01
1.26	146.38	%205247.70	4.00	128.39	%166549.60	38698.09	122.01
1.26	145.45	%206298.20	4.00	128.40	%167474.00	38824.18	122.01
1.26	144.51	%207342.10	4.00	128.41	%168398.50	38943.54	122.02
1.26	143.58	%208379.20	4.00	128.41	%169323.10	39056.15	122.02
1.27	142.66	%209409.70	4.00	128.42	%170247.70	39162.04	122.02
1.27	141.73	%210433.50	4.00	128.42	%171172.30	39261.18	122.02
1.27	140.79	%211450.50	4.00	128.43	%172096.90	39353.61	122.03
1.27	139.86	%212460.90	4.00	128.43	%173021.60	39439.29	122.03
1.27	138.94	%213464.60	4.00	128.44	%173946.40	39518.26	122.03
1.28	138.01	%214461.60	4.00	128.44	%174871.10	39590.50	122.03
1.28	137.07	%215451.90	4.00	128.44	%175795.90	39656.01	122.03
1.28	136.14	%216435.50	4.00	128.45	%176720.70	39714.81	122.03
1.28	135.21	%217412.40	4.00	128.45	%177645.50	39766.89	122.03
1.28	134.28	%218382.60	4.00	128.45	%178570.30	39812.26	122.03
1.29	133.36	%219346.10	4.00	128.45	%179495.10	39850.92	122.03
1.29	132.42	%220302.90	4.00	128.45	%180420.00	39882.87	122.04
1.29	131.49	%221253.00	4.00	128.46	%181344.90	39908.11	122.04
1.29	130.56	%222196.40	4.00	128.46	%182269.80	39926.65	122.04
1.29	129.64	%223133.10	4.00	128.46	%183194.60	39938.48	122.04
1.30	128.71	%224063.20	4.00	128.46	%184119.50	39943.62	122.04
1.30	127.77	%224986.50	4.00	128.46	%185044.40	39942.06	122.04
1.30	126.84	%225903.10	4.00	128.46	%185969.30	39933.79	122.04
1.30	125.91	%226813.00	4.00	128.46	%186894.20	39918.84	122.04
1.30	124.99	%227716.30	4.00	128.45	%187819.10	39897.20	122.04

1.31	124.06	%228612.80	4.00	128.45	%188744.00	39868.87	122.04
1.31	123.12	%229502.70	4.00	128.45	%189668.80	39833.86	122.03
1.31	122.19	%230385.80	4.00	128.45	%190593.70	39792.17	122.03
1.31	121.26	%231262.30	4.00	128.45	%191518.50	39743.79	122.03
1.31	120.34	%232132.00	4.00	128.44	%192443.30	39688.75	122.03
1.32	119.40	%232995.10	4.00	128.44	%193368.10	39627.03	122.03
1.32	118.47	%233851.50	4.00	128.44	%194292.90	39558.64	122.03
1.32	117.54	%234701.20	4.00	128.43	%195217.60	39483.58	122.03
32	116.61	%235544.10	4.00	128.43	%196142.30	39401.84	122.03
32	115.68	%236380.40	4.00	128.42	%197067.00	39313.45	122.02
1.33	114.75	%237210.00	4.00	128.42	%197991.60	39218.39	122.02
1.33	113.82	%238032.90	4.00	128.41	%198916.20	39116.67	122.02
1.33	112.89	%238849.10	4.00	128.41	%199840.80	39008.29	122.02
1.33	111.97	%239658.60	4.00	128.40	%200765.30	38893.26	122.02
1.33	111.03	%240461.40	4.00	128.40	%201689.80	38771.58	122.01
1.34	110.10	%241257.50	4.00	128.39	%202614.20	38643.25	122.01
1.34	109.17	%242046.90	4.00	128.38	%203538.60	38508.26	122.01
1.34	108.24	%242829.60	4.00	128.38	%204462.90	38366.65	122.01
1.34	107.32	%243605.60	4.00	128.37	%205387.20	38218.39	122.00
1.34	106.38	%244374.90	4.00	128.36	%206311.40	38063.48	122.00
1.35	105.45	%245137.50	4.00	128.31	%207235.50	37902.08	121.98
1.35	104.52	%245893.50	4.00	128.26	%208159.20	37734.31	121.96
1.35	103.59	%246642.70	4.00	128.21	%209082.50	37560.23	121.95
1.35	102.67	%247385.20	4.00	128.16	%210005.40	37379.83	121.93
1.35	101.73	%248121.10	4.00	128.10	%210928.00	37193.12	121.90
1.36	100.80	%248850.20	4.00	128.05	%211850.10	37000.12	121.88
1.36	99.87	%249572.70	4.00	127.99	%212771.80	36800.86	121.86
1.36	98.94	%250288.40	4.00	127.93	%213693.10	36595.31	121.84
1.36	98.01	%250997.50	4.00	127.86	%214614.00	36383.53	121.81
1.36	97.08	%251699.80	4.00	127.80	%215534.40	36165.50	121.79
1.37	96.15	%252395.50	4.00	127.73	%216454.30	35941.23	121.77
1.37	95.22	%253084.50	4.00	127.66	%217373.70	35710.76	121.74
1.37	94.29	%253766.70	4.00	127.59	%218292.70	35474.09	121.71
1.37	93.36	%254442.30	4.00	127.52	%219211.10	35231.25	121.69
1.37	92.43	%255111.20	4.00	127.45	%220129.00	34982.23	121.66
1.38	91.50	%255773.40	4.00	127.37	%221046.30	34727.06	121.63
1.38	90.57	%256428.90	4.00	127.30	%221963.10	34465.73	121.60
1.38	89.64	%257077.70	4.00	127.22	%222879.40	34198.29	121.57
1.38	88.71	%257719.70	4.00	127.13	%223795.00	33924.73	121.54
1.38	87.78	%258355.20	4.00	127.05	%224710.10	33645.06	121.51
1.39	86.85	%258983.90	4.00	126.97	%225624.60	33359.29	121.48
1.39	85.92	%259605.90	4.00	126.88	%226538.40	33067.45	121.45
1.39	84.99	%260221.20	4.00	126.79	%227451.70	32769.54	121.42
1.39	84.06	%260829.80	4.00	126.70	%228364.20	32465.57	121.38
1.39	83.13	%261431.70	4.00	126.61	%229276.20	32155.57	121.35
1.40	82.20	%262026.90	4.00	126.52	%230187.40	31839.54	121.31
1.40	81.27	%262615.50	4.00	126.42	%231098.00	31517.48	121.28
1.40	80.34	%263197.30	4.00	126.32	%232007.90	31189.45	121.24
1.40	79.41	%263772.40	4.00	126.22	%232917.00	30855.40	121.20
40	78.48	%264340.90	4.00	126.12	%233825.50	30515.39	121.17

ME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.41	77.55	%264902.60	4.00	126.02	%234733.20	30169.42	121.13
1.41	76.62	%265457.70	4.00	125.92	%235640.20	29817.50	121.09
1.41	75.69	%266006.00	4.00	125.81	%236546.40	29459.62	121.05
1.41	74.76	%266547.70	4.00	125.70	%237451.90	29095.82	121.01
1.41	73.83	%267082.60	4.00	125.59	%238356.50	28726.12	120.97
1.42	72.90	%267610.90	4.00	125.48	%239260.40	28350.50	120.93
1.42	71.97	%268132.50	4.00	125.37	%240163.50	27969.00	120.88
1.42	71.04	%268647.30	4.00	125.25	%241065.70	27581.64	120.84
1.42	70.11	%269155.50	4.00	125.14	%241967.10	27188.42	120.80
1.42	69.18	%269657.00	4.00	125.02	%242867.70	26789.32	120.75
1.43	68.25	%270151.80	4.00	124.90	%243767.40	26384.40	120.71
1.43	67.32	%270639.90	4.00	124.78	%244666.20	25973.67	120.66
1.43	66.39	%271121.30	4.00	124.65	%245564.20	25557.12	120.62
1.43	65.46	%271596.00	4.00	124.53	%246461.20	25134.75	120.57
1.43	64.84	%272065.10	4.00	124.40	%247357.40	24707.73	120.52
1.44	64.53	%272530.80	4.00	124.27	%248252.60	24278.25	120.48
1.44	64.22	%272994.30	4.00	124.15	%249146.90	23847.43	120.43
1.44	63.90	%273455.50	4.00	124.02	%250040.30	23415.26	120.38
1.44	63.59	%273914.50	4.00	123.89	%250932.80	22981.76	120.33
1.44	63.28	%274371.20	4.00	123.76	%251824.30	22546.93	120.28
1.45	62.96	%274825.70	4.00	123.63	%252714.90	22110.79	120.24
1.45	62.65	%275277.90	4.00	123.50	%253604.60	21673.32	120.19
1.45	62.34	%275727.90	4.00	123.37	%254493.40	21234.51	120.14
1.45	62.02	%276175.50	4.00	123.24	%255381.20	20794.39	120.09
1.45	61.71	%276621.00	4.00	123.11	%256268.00	20352.96	120.04
1.46	61.40	%277064.20	4.00	122.79	%257153.30	19910.92	119.92
1.46	61.08	%277505.10	4.00	121.45	%258032.50	19472.59	119.42
1.46	60.77	%277943.80	4.00	120.15	%258902.30	19041.49	118.94
1.46	60.46	%278380.20	4.00	118.87	%259762.80	18617.40	118.46
1.46	60.14	%278814.40	4.00	117.61	%260614.20	18200.20	117.99
1.47	59.83	%279246.30	4.00	116.38	%261456.50	17789.74	117.53
1.47	59.52	%279675.90	4.00	115.16	%262290.00	17385.89	117.07
1.47	59.20	%280103.30	4.00	113.96	%263114.90	16988.48	116.63
1.47	58.89	%280528.50	4.00	112.78	%263931.10	16597.35	116.19
1.47	58.58	%280951.30	4.00	111.40	%264738.10	16213.20	115.75
1.48	58.26	%281372.00	4.00	109.89	%265534.80	15837.17	115.33
1.48	57.95	%281790.30	4.00	108.42	%266320.70	15469.60	114.91
.48	57.64	%282206.50	4.00	106.99	%267096.20	15110.26	114.51
48	57.32	%282620.30	4.00	105.58	%267861.50	14758.85	114.11
.48	57.01	%283031.90	4.00	104.21	%268616.70	14415.20	113.73
1.49	56.70	%283441.20	4.00	102.70	%269361.60	14079.67	113.35
1.49	56.38	%283848.30	4.00	100.99	%270094.90	13753.48	112.98
1.49	56.07	%284253.20	4.00	99.34	%270816.00	13437.14	112.62
1.49	55.76	%284655.70	4.00	97.73	%271525.50	13130.23	112.28
1.49	55.44	%285056.00	3.00	72.13	%272223.60	12919.01	111.94
1.50	55.13	%285454.10	3.00	72.01	%272742.50	12711.60	111.91

1.50	54.82	%285849.90	3.00	71.20	%273258.10	12591.85	111.67
1.50	54.50	%286243.50	3.00	70.74	%273769.00	12474.45	111.54
1.50	54.19	%286634.80	3.00	70.29	%274276.70	12358.04	111.41
1.50	53.88	%287023.80	3.00	69.83	%274781.20	12242.64	111.28
1.51	53.56	%287410.60	3.00	69.39	%275282.40	12128.23	111.15
1.51	53.25	%287795.10	3.00	68.94	%275780.30	12014.79	111.03
1.51	52.94	%288177.40	3.00	68.54	%276275.30	11902.14	110.90
1.51	52.62	%288557.40	3.00	68.15	%276767.40	11790.07	110.77
[illegible]	52.31	%288935.20	3.00	67.77	%277256.70	11678.51	110.65
[illegible]	52.00	%289310.70	3.00	67.38	%277743.20	11567.45	110.52
1.52	51.68	%289683.90	3.00	67.00	%278227.00	11456.92	110.40
1.52	51.37	%290054.90	3.00	66.62	%278708.00	11346.89	110.27
1.52	51.06	%290423.70	3.00	66.24	%279186.40	11237.32	110.15
1.52	50.74	%290790.10	3.00	65.87	%279662.00	11128.20	110.03
1.53	50.43	%291154.40	2.00	43.66	%280134.80	11071.93	109.91
1.53	50.12	%291516.30	2.00	43.89	%280450.00	11066.32	110.02
1.53	49.80	%291876.00	2.00	43.87	%280766.00	11110.10	110.01
1.53	49.49	%292233.50	2.00	43.97	%281082.20	11151.35	110.06
1.53	49.18	%292588.70	2.00	44.06	%281399.00	11189.67	110.10
1.54	48.86	%292941.60	2.00	44.14	%281716.50	11225.10	110.14
1.54	48.55	%293292.30	2.00	44.21	%282034.60	11257.73	110.18
1.54	48.24	%293640.80	2.00	44.28	%282353.20	11287.57	110.21
1.54	47.92	%293987.00	2.00	44.34	%282672.30	11314.70	110.24
1.54	47.61	%294330.90	2.00	44.40	%282991.70	11339.14	110.27
1.55	47.30	%294672.50	2.00	44.45	%283311.60	11360.92	110.29
1.55	46.98	%295011.90	2.00	44.49	%283631.80	11380.10	110.31
1.55	46.67	%295349.10	2.00	44.53	%283952.30	11396.76	110.33
1.55	46.36	%295684.00	2.00	44.57	%284273.10	11410.92	110.35
1.55	46.04	%296016.60	2.00	44.59	%284594.00	11422.57	110.36
1.56	45.73	%296347.00	2.00	44.61	%284915.20	11431.79	110.37
1.56	45.42	%296675.10	2.00	44.63	%285236.50	11438.64	110.38
1.56	45.10	%297001.00	2.00	44.64	%285557.90	11443.14	110.38
1.56	44.79	%297324.60	2.00	44.65	%285879.30	11445.32	110.39
1.56	44.48	%297646.00	2.00	44.65	%286200.70	11445.26	110.39
1.57	44.16	%297965.10	2.00	44.64	%286522.20	11442.92	110.38
1.57	43.85	%298281.90	2.00	44.63	%286843.50	11438.39	110.38
1.57	43.54	%298596.50	2.00	44.61	%287164.80	11431.70	110.37
1.57	43.22	%298908.90	2.00	44.59	%287486.00	11422.89	110.36
1.57	42.91	%299219.00	2.00	44.57	%287807.00	11412.01	110.35
1.58	42.60	%299526.80	2.00	44.54	%288127.70	11399.04	110.34
1.58	42.28	%299832.30	2.00	44.50	%288448.30	11384.04	110.32
1.58	41.97	%300135.60	2.00	44.46	%288768.60	11367.07	110.30
1.58	41.66	%300436.70	2.00	44.42	%289088.60	11348.14	110.28
1.58	41.34	%300735.50	2.00	44.37	%289408.20	11327.29	110.25
1.59	41.03	%301032.00	2.00	44.32	%289727.50	11304.51	110.23
1.59	40.72	%301326.30	2.00	44.26	%290046.50	11279.89	110.20
1.59	40.40	%301618.40	2.00	44.20	%290364.90	11253.45	110.17
1.59	40.09	%301908.10	2.00	44.14	%290683.00	11225.20	110.14
1.59	39.78	%302195.70	2.00	44.07	%291000.50	11195.20	110.11
[illegible]	39.46	%302480.90	2.00	44.00	%291317.50	11163.42	110.07
[illegible]	39.15	%302763.90	2.00	43.92	%291634.00	11129.92	110.03
[illegible]	38.84	%303044.70	2.00	43.84	%291949.90	11094.76	109.99
1.60	38.52	%303323.20	2.00	43.75	%292265.20	11057.95	109.95
1.60	38.21	%303599.40	2.00	43.66	%292579.90	11019.51	109.91

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.61	37.90	%303873.40	2.00	43.57	%292894.00	10979.45	109.86
1.61	37.58	%304145.10	2.00	43.47	%293207.30	10937.79	109.82
1.61	37.27	%304414.60	2.00	43.38	%293520.00	10894.60	109.77
1.61	36.96	%304681.80	2.00	43.27	%293831.90	10849.89	109.72
1.61	36.64	%304946.80	2.00	43.17	%294143.10	10803.67	109.66
1.62	36.33	%305209.50	2.00	43.06	%294453.50	10755.98	109.61
1.62	36.02	%305469.90	2.00	42.94	%294763.10	10706.82	109.56
1.62	35.70	%305728.10	2.00	42.83	%295071.90	10656.26	109.50
1.62	35.39	%305984.00	2.00	42.71	%295379.80	10604.29	109.44
1.62	35.08	%306237.70	2.00	42.58	%295686.80	10550.95	109.38
1.63	34.76	%306489.20	2.00	42.46	%295993.00	10496.23	109.32
1.63	34.45	%306738.30	2.00	42.33	%296298.20	10440.17	109.26
1.63	34.14	%306985.20	2.00	42.20	%296602.50	10382.79	109.19
1.63	33.82	%307229.90	2.00	42.06	%296905.80	10324.14	109.12
1.63	33.51	%307472.30	2.00	41.92	%297208.10	10264.20	109.06
1.64	33.20	%307712.50	2.00	41.78	%297509.40	10203.04	108.99
1.64	32.88	%307950.30	2.00	41.64	%297809.70	10140.60	108.92
1.64	32.57	%308186.00	2.00	41.49	%298109.00	10076.98	108.85
1.64	32.26	%308419.30	2.00	41.34	%298407.20	10012.17	108.77
1.64	31.94	%308650.50	2.00	41.19	%298704.30	9946.20	108.70
1.65	31.63	%308879.30	2.00	41.03	%299000.30	9879.07	108.62
1.65	31.32	%309105.90	2.00	40.88	%299295.10	9810.79	108.55
1.65	31.00	%309330.30	2.00	40.72	%299588.90	9741.42	108.47
1.65	30.69	%309552.40	2.00	40.55	%299881.40	9670.95	108.39
1.65	30.38	%309772.20	2.00	40.39	%300172.80	9599.42	108.31
1.66	30.06	%309989.80	2.00	40.22	%300463.00	9526.82	108.23
1.66	29.75	%310205.10	2.00	40.05	%300752.00	9453.17	108.14
1.66	29.44	%310418.20	2.00	39.88	%301039.70	9378.48	108.06
1.66	29.12	%310629.00	1.00	19.85	%301326.20	9326.61	107.97
1.66	28.81	%310837.50	1.00	19.96	%301469.50	9368.04	108.08
1.67	28.50	%311043.90	1.00	20.00	%301613.40	9430.51	108.12
1.67	28.18	%311247.90	1.00	20.07	%301757.60	9490.32	108.19
1.67	27.87	%311449.70	1.00	20.14	%301902.40	9547.35	108.25
[illegible]	27.56	%311649.20	1.00	20.20	%302047.50	9601.70	108.31
[illegible]	27.24	%311846.50	1.00	20.26	%302193.20	9653.35	108.37
[illegible]	26.93	%312041.50	1.00	20.31	%302339.20	9702.32	108.43
1.68	26.62	%312234.30	1.00	20.37	%302485.70	9748.67	108.48
1.68	26.30	%312424.80	1.00	20.42	%302632.50	9792.35	108.53
1.68	25.99	%312613.10	1.00	20.47	%302779.70	9833.42	108.57
1.68	25.68	%312799.10	1.00	20.51	%302927.20	9871.92	108.62
1.69	25.36	%312982.80	1.00	20.55	%303075.00	9907.85	108.66
1.69	25.05	%313164.30	1.00	20.59	%303223.10	9941.26	108.69

1.69	24.74	%313343.50	1.00	20.63	%303371.50	9972.10	108.73
1.69	24.42	%313520.50	1.00	20.66	%303520.10	10000.45	108.76
1.69	24.11	%313695.20	1.00	20.69	%303668.90	10026.32	108.79
1.70	23.80	%313867.70	1.00	20.71	%303818.00	10049.73	108.82
1.70	23.48	%314037.90	1.00	20.74	%303967.20	10070.73	108.84
1.70	23.17	%314205.90	1.00	20.76	%304116.60	10089.26	108.86
1.70	22.86	%314371.50	1.00	20.78	%304266.10	10105.42	108.88
1.70	22.54	%314535.00	1.00	20.79	%304415.80	10119.20	108.90
1.71	22.23	%314696.20	1.00	20.81	%304565.60	10130.60	108.91
1.71	21.92	%314855.10	1.00	20.82	%304715.40	10139.70	108.92
1.71	21.60	%315011.80	1.00	20.83	%304865.30	10146.48	108.93
1.71	21.29	%315166.20	1.00	20.83	%305015.30	10150.92	108.93
1.71	20.98	%315318.40	1.00	20.83	%305165.30	10153.07	108.93
1.72	20.66	%315468.30	1.00	20.83	%305315.30	10152.98	108.93
1.72	20.35	%315615.90	1.00	20.83	%305465.30	10150.64	108.93
1.72	20.04	%315761.30	1.00	20.83	%305615.30	10146.07	108.93
1.72	19.72	%315904.50	1.00	20.82	%305765.20	10139.29	108.92
1.72	19.41	%316045.30	1.00	20.81	%305915.00	10130.32	108.91
1.73	19.10	%316184.00	1.00	20.79	%306064.80	10119.17	108.90
1.73	18.78	%316320.30	1.00	20.78	%306214.50	10105.89	108.88
1.73	18.47	%316454.50	1.00	20.76	%306364.00	10090.48	108.86
1.73	18.16	%316586.30	1.00	20.74	%306513.40	10072.92	108.84
1.73	17.96	%316716.30	1.00	20.72	%306662.60	10053.70	108.82
1.74	17.89	%316845.40	1.00	20.70	%306811.70	10033.67	108.80
1.74	17.81	%316973.90	1.00	20.67	%306960.70	10013.26	108.78
1.74	17.74	%317101.90	1.00	20.65	%307109.40	9992.48	108.75
1.74	17.66	%317229.30	1.00	20.62	%307258.00	9971.32	108.73
1.74	17.59	%317356.20	1.00	20.60	%307406.40	9949.82	108.70
1.75	17.51	%317482.60	1.00	20.57	%307554.60	9927.98	108.68
1.75	17.44	%317608.40	1.00	20.55	%307702.70	9905.76	108.65
1.75	17.36	%317733.70	1.00	20.52	%307850.50	9883.20	108.63
1.75	17.29	%317858.50	1.00	20.50	%307998.20	9860.29	108.60
1.75	17.21	%317982.70	1.00	20.47	%308145.60	9837.04	108.58
1.76	17.14	%318106.30	1.00	20.44	%308292.90	9813.42	108.55
1.76	17.06	%318229.50	1.00	20.41	%308440.00	9789.45	108.52
1.76	16.99	%318352.00	1.00	20.39	%308586.90	9765.17	108.50
1.76	16.91	%318474.10	1.00	20.36	%308733.60	9740.54	108.47
1.76	16.84	%318595.60	1.00	20.33	%308880.00	9715.57	108.44
1.77	16.76	%318716.60	1.00	20.30	%309026.30	9690.29	108.41
1.77	16.69	%318837.00	1.00	20.27	%309172.40	9664.67	108.38
1.77	16.61	%318956.90	1.00	20.24	%309318.20	9638.73	108.35
1.77	16.54	%319076.30	1.00	20.21	%309463.80	9612.45	108.32
1.77	16.46	%319195.10	1.00	20.18	%309609.20	9585.85	108.29
1.78	16.39	%319313.40	1.00	20.15	%309754.40	9558.95	108.26
1.78	16.31	%319431.10	1.00	20.12	%309899.40	9531.73	108.23
1.78	16.24	%319548.30	1.00	20.09	%310044.10	9504.20	108.20
1.78	16.16	%319665.00	1.00	20.05	%310188.60	9476.35	108.17
1.78	16.09	%319781.10	1.00	20.02	%310332.90	9448.20	108.14
1.79	16.01	%319896.60	1.00	19.99	%310476.90	9419.73	108.11
1.79	15.94	%320011.70	1.00	19.95	%310620.70	9390.98	108.08
1.79	15.87	%320126.20	1.00	19.92	%310764.30	9361.92	108.04
1.79	15.79	%320240.10	1.00	19.89	%310907.60	9332.57	108.01
1.79	15.72	%320353.50	1.00	19.85	%311050.60	9302.92	107.98
1.80	15.64	%320466.40	1.00	19.82	%311193.50	9272.98	107.94
1.80	15.57	%320578.80	1.00	19.78	%311336.00	9242.76	107.91
1.80	15.49	%320690.60	1.00	19.75	%311478.30	9212.26	107.87
1.80	15.42	%320801.80	1.00	19.71	%311620.40	9181.45	107.84
1.80	15.34	%320912.50	1.00	19.68	%311762.20	9150.35	107.80
1.81	15.27	%321022.70	1.00	19.64	%311903.80	9118.98	107.77
1.81	15.19	%321132.40	1.00	19.60	%312045.00	9087.35	107.73
1.81	15.12	%321241.50	1.00	19.57	%312186.10	9055.42	107.70
1.81	15.04	%321350.00	1.00	19.53	%312326.80	9023.23	107.66
1.81	14.97	%321458.10	1.00	19.49	%312467.30	8990.76	107.62
1.82	14.89	%321565.60	1.00	19.46	%312607.50	8958.04	107.59
1.82	14.82	%321672.50	1.00	19.42	%312747.50	8925.04	107.55
1.82	14.74	%321778.90	1.00	19.38	%312887.10	8891.79	107.51
1.82	14.67	%321884.80	1.00	19.34	%313026.50	8858.26	107.48
1.82	14.59	%321990.10	1.00	19.30	%313165.70	8824.48	107.44
1.83	14.52	%322094.90	1.00	19.26	%313304.50	8790.42	107.40
1.83	14.44	%322199.20	1.00	19.22	%313443.00	8756.14	107.36
1.83	14.37	%322302.90	1.00	19.18	%313581.30	8721.60	107.32
1.83	14.29	%322406.10	1.00	19.14	%313719.30	8686.82	107.28
1.83	14.22	%322508.70	1.00	19.10	%313857.00	8651.76	107.24
1.84	14.14	%322610.80	1.00	19.06	%313994.40	8616.45	107.20
1.84	14.07	%322712.40	1.00	19.02	%314131.50	8580.92	107.16
1.84	13.99	%322813.40	1.00	18.98	%314268.30	8545.14	107.12
1.84	13.92	%322913.90	1.00	18.94	%314404.80	8509.10	107.08
1.84	13.84	%323013.80	1.00	18.90	%314541.00	8472.85	107.04
1.85	13.77	%323113.20	1.00	18.85	%314676.90	8436.35	107.00
1.85	13.69	%323212.00	1.00	18.81	%314812.50	8399.60	106.96
1.85	13.62	%323310.40	1.00	18.77	%314947.70	8362.64	106.92
1.85	13.54	%323408.10	1.00	18.73	%315082.70	8325.45	106.88
1.85	13.47	%323505.40	1.00	18.68	%315217.40	8288.01	106.83
1.86	13.39	%323602.10	1.00	18.64	%315351.80	8250.32	106.79
1.86	13.32	%323698.20	1.00	18.60	%315485.80	8212.42	106.75
1.86	13.24	%323793.90	1.00	18.55	%315619.50	8174.32	106.70
1.86	13.17	%323889.00	1.00	18.51	%315753.00	8136.01	106.66
1.86	13.09	%323983.50	1.00	18.46	%315886.00	8097.45	106.62
1.87	13.02	%324077.50	1.00	18.42	%316018.80	8058.67	106.57
1.87	12.94	%324171.00	1.00	18.37	%316151.30	8019.70	106.53
1.87	12.87	%324263.90	1.00	18.33	%316283.40	7980.51	106.49
1.87	12.79	%324356.30	1.00	18.28	%316415.20	7941.07	106.44
1.87	12.72	%324448.10	1.00	18.24	%316546.70	7901.45	106.40
1.88	12.64	%324539.40	1.00	18.19	%316677.80	7861.60	106.35
1.88	12.57	%324630.20	1.00	18.15	%316808.60	7821.57	106.31
1.88	12.49	%324720.40	1.00	18.10	%316939.10	7781.32	106.26
1.88	12.42	%324810.10	1.00	18.05	%317069.30	7740.85	106.22
1.88	12.34	%324899.30	1.00	18.01	%317199.10	7700.20	106.17
1.89	12.27	%324987.90	1.00	17.96	%317328.50	7659.35	106.13
1.89	12.19	%325076.00	1.00	17.91	%317457.70	7618.29	106.08

2.49	5.08	%340593.20	0.00	0.00	%332491.20	8102.01	106.62
2.49	5.07	%340629.80	0.00	0.00	%332491.20	8138.57	106.67
2.49	5.06	%340666.30	0.00	0.00	%332491.20	8175.04	106.71
2.49	5.05	%340702.60	0.00	0.00	%332491.20	8211.42	106.75
2.49	5.04	%340739.00	0.00	0.00	%332491.20	8247.73	106.79
2.50	5.02	%340775.20	0.00	0.00	%332491.20	8283.95	106.83
2.50	5.01	%340811.30	0.00	0.00	%332491.20	8320.07	106.87

****
.NING ------ THE ROADWAY HAS 2.04 FEET OF PONDED WATER ---------WARNING
****
****
WARNING ------ THE MAXIMUM CAPACITY OF THE ONSITE STORM DRAIN ----WARNING
WARNING ------ IS 128 CFS WHILE THE PEAK INFLOW IS 176 CFS -------WARNING
****

EXPLANATION AND SUMMARY OF RUN

1.0 THE #1 PUMP RUNS FROM .573 HRS. UNTIL 1.897 HRS. THERE IS MINOR CYCLING WITH THE #1 PUMP ON THE RISING AND FALLING LEGS OF THE 50 YEAR (W/HOV) INFLOW HYDROGRAPH. SEE CYCLING CHECK RUNS FOR MORE INFORMATION ON THE CYCLING OF THE #1 PUMP. CYCLING IS NOT A PROBLEM WITH THIS RUN.

2.0 THE #2 PUMP DOES NOT CYCLE ON THE RISING OR FALLING LEGS OF THE INFLOW HYDROGRAPH; RUNNING FROM ABOUT .793 HRS. TO 1.665 HRS.

3.0 THE #3 PUMP DOES NOT CYCLE AND RUNS FROM .933 HRS. TO 1.529 HRS.

4.0 THE # 4 PUMP DOES NOT CYCLE AND RUNS FROM 1.049 HRS. TO 1.493 HRS.

5.0 THE PEAK OUTFLOW DURING THIS RUN IS 128.5 CFS AT ELEVATION 122.04 (i.e. 1122.04).

6.0 ONLY THE SIGNIFICANT PORTIONS OF THE OUTPUT WAS PRINTED, SEE FILE 50YHVPSN.OUT ON CD FOR COMPLETE OUTPUT.

7.0 THE COMPLETE FALLING LEG OF THE HYDROGRAPH WAS NOT INCLUDED AS ITS ONLY INTEREST WOULD BE FOR CYCLING, AND THE CONSTANT INFLOW OF .5 OF THE OUTFLOW (USED IN THE CYCLING CHECK RUNS) WITH THE NEW PUMP ON/OFF SETTINGS WOULD BE OF MORE INTEREST.

NOTE:

THIS PROGRAM DOES NOT ITERATE THE PUMP OUTFLOW RATES OR DURATIONS DURING THE ROUTING INTERVAL (i.e. 7.2 SEC.). THEREFORE THE WATER SURFACE ELEVATION IN THE WET WELL IS ONLY APPROXIMATE. THE MAXIMUM ERROR IN PUMPED FLOW SHOULD NOT EXCEED ONE HALF THE PEAK FLOW FROM ONE PUMP FOR THE ROUTING INTERVAL OR IN THIS CASE:

((128.46/4)/2) * 7.2 = 115.64 CUBIC FEET
WHICH CORRESPONDS TO A WET WELL ELEVATION OF
ABOUT +/- .13 FEET (i.e. 5 FEET IN THE WET WELL
CORRESPONDS TO 4440 CUBIC FEET, THEREFORE 116
CUBIC FEET IS ABOUT .13 FEET)

Colter Street Junction Structure Route
50-Year Storm
Proposed Condition- Pump Station Discharge Diverted Time:1158

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 1
Tue May 05 15:31:58 1998

JOB CONTROL : CONT
JOB SECTION : SEC
JOB NUMBER : JOB
PROJECT DESCRIPTION : SQUAW PEAK PARKWAY
ANALYSYS FREQUENCY : 10 Year
MEASUREMENT UNITS: Input ENGLISH Output ENGLISH

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 1	0.010	1.874	10.00	10.00	4.556	0.000	0.085
I 2	0.010	1.634	5.00	10.00	4.556	0.000	0.074
I 3	0.010	0.459	5.00	10.00	4.556	0.000	0.021
I 4	0.010	0.246	5.00	10.00	4.556	0.000	0.011
I 5	0.010	0.810	5.00	10.00	4.556	0.000	0.037
I 6	0.010	0.573	5.00	10.00	4.556	0.000	0.026
I 7	0.010	0.106	5.00	10.00	4.556	0.000	0.005
I 8	0.010	0.644	5.00	10.00	4.556	0.000	0.029
I 9	0.010	0.753	5.00	10.00	4.556	0.000	0.034
I 10	0.010	0.644	5.00	10.00	4.556	0.000	0.029
I 11	0.010	1.048	5.00	10.00	4.556	0.000	0.048
I 12	0.010	0.629	5.00	10.00	4.556	0.000	0.029
I 13	0.010	0.115	5.00	10.00	4.556	0.000	0.005
I 14	0.010	0.136	5.00	10.00	4.556	0.000	0.006
I 15	0.010	0.745	5.00	10.00	4.556	0.000	0.034
I 16	0.010	0.640	5.00	10.00	4.556	0.000	0.029
I 17	0.010	1.737	5.00	10.00	4.556	0.000	0.079
I 18	0.000	0.000	0.00	0.00	0.000	0.010	0.010 Pump Sta
I 19	0.010	0.960	5.00	10.00	4.556	0.000	0.044
I 20	0.010	0.960	5.00	10.00	4.556	0.000	0.044
I 21	0.010	0.960	5.00	10.00	4.556	0.000	0.044
J 21	0.000	0.000	0.00	0.00	0.000	15.000	15.000 Colter
I 100	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 101	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 102	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 103	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 104	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 105	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 106	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 107	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 108	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 109	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 110	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 111	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 112	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 113	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 114	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 115	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 116	0.000	0.000	0.00	0.00	0.000	0.010	0.010

Colter Street Junction Structure Route
50-Year Storm
Proposed Condition- Pump Station Discharge Diverted Time:1158

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 117	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 118	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 119	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 120	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 121	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 122	0.000	0.000	0.00	0.00	0.000	1.110	1.110
I 123	0.000	0.000	0.00	0.00	0.000	1.110	1.110
I 124	0.000	0.000	0.00	0.00	0.000	1.110	1.110
I 300	0.010	1.495	10.00	10.00	4.556	0.000	0.068
I 301	0.010	1.056	10.00	10.00	4.556	0.000	0.048
I 302	0.000	0.000	0.00	0.00	0.000	0.010	0.010
J 801	0.000	0.000	0.00	0.00	0.000	30.000	30.000
J 802	0.000	0.000	0.00	0.00	0.000	77.000	77.000

Highland Channel-back

Colter Street Junction Structure Route
50-Year Storm
Proposed Condition- Pump Station Discharge Diverted Time:1158

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I1	0.010	1.874	10.00	4.556	0.000	0.085
J1	0.010	15.673	13.37	3.971	125.550	126.172
I2	0.010	1.634	10.00	4.556	0.000	0.074
I3	0.010	0.459	10.00	4.556	0.000	0.021
J3	0.010	15.673	13.37	3.971	125.530	126.152
I4	0.010	0.246	10.00	4.556	0.000	0.011
J4	0.010	13.799	13.24	3.990	125.530	126.081
I5	0.010	0.810	10.00	4.556	0.000	0.037
J5	0.010	12.165	13.15	4.004	125.530	126.017
I6	0.010	1.383	10.00	4.556	0.000	0.063
J6	0.010	11.706	13.06	4.018	125.530	126.000
I7	0.010	0.106	10.00	4.556	0.000	0.005
J7	0.010	11.460	12.88	4.046	125.520	125.984
I8	0.010	0.644	10.00	4.556	0.000	0.029
J8	0.010	10.077	12.33	4.133	125.510	125.926
I9	0.010	1.397	10.00	4.556	0.000	0.064
J9	0.010	9.971	12.33	4.133	125.510	125.922
I10	0.010	0.644	10.00	4.556	0.000	0.029
J10	0.010	8.574	11.66	4.246	125.500	125.864
I11	0.010	1.048	10.00	4.556	0.000	0.048
J11	0.010	7.930	11.48	4.276	125.480	125.819
I12	0.010	0.629	10.00	4.556	0.000	0.029
J12	0.010	6.882	11.11	4.343	125.460	125.759
I13	0.010	0.115	10.00	4.556	0.000	0.005
J13	0.010	6.253	10.32	4.491	125.460	125.741
I14	0.010	0.136	10.00	4.556	0.000	0.006
J14	0.010	6.138	10.00	4.556	125.430	125.710
I15	0.010	0.745	10.00	4.556	0.000	0.034
J15	0.010	0.881	10.00	4.556	0.000	0.040
I16	0.010	0.640	10.00	4.556	0.000	0.029
J16	0.010	5.257	10.00	4.556	125.420	125.659
I17	0.010	1.737	10.00	4.556	0.000	0.079
J17	0.010	4.617	10.00	4.556	125.410	125.620
I18	0.000	0.000	0.00	0.000	0.010	0.010
J18	0.010	2.880	10.00	4.556	125.340	125.471
I19	0.010	2.880	10.00	4.556	95.330	95.461
J19	0.010	2.880	10.00	4.556	95.330	95.461
I20	0.010	1.920	10.00	4.556	95.330	95.417
J20	0.000	0.000	10.00	4.556	95.330	95.330
I21	0.010	0.960	10.00	4.556	95.330	95.374
J21	0.000	0.000	0.00	0.000	15.000	15.000
I100	0.000	0.000	0.00	0.000	0.010	0.010
J100	0.010	15.673	13.37	3.971	125.560	126.182
I101	0.000	0.000	0.00	0.000	0.010	0.010
J101	0.010	15.673	13.37	3.971	125.550	126.172

Colter Street Junction Structure Route
50-Year Storm
Proposed Condition- Pump Station Discharge Diverted Time:1158

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I102	0.000	0.000	0.00	0.000	0.010	0.010
J102	0.010	15.673	13.37	3.971	125.540	126.162
I103	0.000	0.000	0.00	0.000	0.010	0.010
J103	0.010	7.930	11.55	4.265	125.490	125.828
I104	0.000	0.000	0.00	0.000	0.010	0.010
J104	0.000	0.000	10.00	4.556	0.020	0.020
I105	0.000	0.000	0.00	0.000	0.010	0.010
J105	0.000	0.000	10.00	4.556	0.020	0.020
I106	0.000	0.000	0.00	0.000	0.010	0.010
J106	0.010	6.138	10.32	4.491	125.460	125.736
I107	0.000	0.000	0.00	0.000	0.010	0.010
J107	0.000	0.000	10.00	4.556	0.020	0.020
I108	0.000	0.000	0.00	0.000	0.010	0.010
J108	0.010	2.880	10.00	4.556	125.410	125.541
I109	0.000	0.000	0.00	0.000	0.010	0.010
J109	0.010	2.880	10.00	4.556	125.370	125.501
I110	0.000	0.000	0.00	0.000	0.010	0.010
J110	0.000	0.000	10.00	4.556	18.330	18.330
I111	0.000	0.000	0.00	0.000	0.010	0.010
I112	0.000	0.000	0.00	0.000	0.010	0.010
I113	0.000	0.000	0.00	0.000	0.010	0.010
I114	0.000	0.000	0.00	0.000	0.010	0.010
I115	0.000	0.000	0.00	0.000	0.010	0.010
I116	0.000	0.000	0.00	0.000	0.010	0.010
I117	0.000	0.000	0.00	0.000	0.010	0.010
I118	0.000	0.000	0.00	0.000	0.010	0.010
I119	0.000	0.000	0.00	0.000	0.010	0.010
I120	0.000	0.000	10.00	4.556	0.020	0.020
I121	0.000	0.000	0.00	0.000	0.010	0.010
I122	0.000	0.000	10.00	4.556	3.330	3.330
I123	0.000	0.000	10.00	4.556	2.220	2.220
I124	0.000	0.000	0.00	0.000	1.110	1.110
I300	0.010	1.495	10.00	4.556	0.000	0.068
J300	0.010	18.224	15.35	3.699	125.570	126.244
I301	0.010	2.551	11.73	4.233	0.000	0.108
I302	0.000	0.000	0.00	0.000	0.010	0.010
J801	0.000	0.000	0.00	0.000	30.000	30.000
J802	0.000	0.000	0.00	0.000	77.000	77.000

Colter Street Junction Structure Route
50-Year Storm
Proposed Condition- Pump Station Discharge Diverted Time:1158

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
1	J100	J300	1116.740	1116.050	Circ	1	n/a	6.000	258.00	0.267	0.012
2	J1	J100	1117.170	1116.740	Circ	1	n/a	6.000	159.00	0.270	0.012
3	J101	J1	1118.530	1118.170	Circ	1	n/a	5.000	150.00	0.240	0.012
4	J102	J101	1118.740	1118.530	Circ	1	n/a	5.000	88.00	0.239	0.012
5	J3	J102	1119.410	1118.740	Circ	1	n/a	5.000	304.00	0.220	0.012
6	I1	J3	1134.620	1121.420	Circ	1	n/a	1.250	170.00	7.788	0.012
7	J4	J3	1119.520	1119.410	Circ	1	n/a	5.000	57.00	0.193	0.012
8	I2	J4	1133.910	1121.160	Circ	1	n/a	1.250	46.00	28.848	0.012
9	J5	J4	1119.660	1119.520	Circ	1	n/a	5.000	48.00	0.292	0.012
10	I3	J5	1132.780	1121.620	Circ	1	n/a	1.250	188.00	5.947	0.012
11	J6	J5	1119.780	1119.660	Circ	1	n/a	5.000	45.00	0.267	0.012
12	I4	J6	1132.350	1123.020	Circ	1	n/a	1.250	24.00	42.194	0.012
13	J7	J6	1119.990	1119.780	Circ	1	n/a	5.000	87.00	0.241	0.012
14	I5	I6	1132.280	1123.140	Circ	1	n/a	1.250	172.00	5.321	0.012
15	I6	J7	1123.140	1121.880	Circ	1	n/a	1.250	19.00	6.646	0.012
16	J8	J7	1120.240	1119.990	Circ	1	n/a	5.000	105.00	0.238	0.012
17	I7	J8	1131.700	1123.860	Circ	1	n/a	1.250	18.00	48.386	0.012
18	J9	J8	1120.670	1120.240	Circ	1	n/a	5.000	163.00	0.264	0.012
19	I8	I9	1133.020	1124.160	Circ	1	n/a	1.250	140.00	6.341	0.012
20	I9	J9	1124.160	1122.660	Circ	1	n/a	1.250	24.00	6.262	0.012
21	J10	J9	1121.430	1120.670	Circ	1	n/a	5.000	317.00	0.240	0.012
22	I10	J10	1134.050	1123.480	Circ	1	n/a	1.250	166.00	6.380	0.012
23	J103	J10	1121.560	1121.430	Circ	1	n/a	5.000	53.00	0.245	0.012
24	J11	J103	1121.630	1121.560	Circ	1	n/a	5.000	30.00	0.233	0.012
25	I11	J11	1134.690	1125.180	Circ	1	n/a	1.250	29.00	34.713	0.012
26	J12	J11	1122.270	1120.630	Circ	1	n/a	5.000	263.00	0.624	0.012
27	I12	J12	1135.080	1124.270	Circ	1	n/a	1.250	166.00	6.526	0.012
28	J13	J12	1122.570	1122.270	Circ	1	n/a	5.000	132.00	0.227	0.012
29	I13	J13	1135.130	1125.700	Circ	1	n/a	1.250	24.00	42.728	0.012
30	J106	J13	1123.190	1122.570	Circ	1	n/a	5.000	247.00	0.251	0.012
31	J14	J106	1123.910	1123.190	Circ	1	n/a	5.000	298.00	0.242	0.012
32	I14	J15	1133.650	1126.740	Circ	1	n/a	1.250	172.00	4.021	0.012
33	I15	J15	1133.940	1126.740	Circ	1	n/a	1.250	14.00	59.967	0.012
34	J15	J14	1126.740	1125.850	Circ	1	n/a	1.250	32.00	2.782	0.012
35	J16	J14	1124.080	1123.910	Circ	1	n/a	5.000	74.00	0.230	0.012
36	I16	J16	1133.520	1126.700	Circ	1	n/a	1.250	25.00	28.356	0.012
37	J17	J16	1124.380	1124.080	Circ	1	n/a	5.000	130.00	0.231	0.012
38	I17	J17	1132.540	1126.260	Circ	1	n/a	1.250	216.00	2.909	0.012
69	J108	J17	1124.760	1124.380	Circ	1	n/a	5.000	158.00	0.241	0.012
40	J109	J108	1125.630	1124.760	Circ	1	n/a	5.000	364.00	0.239	0.012
41	J18	J109	1126.960	1125.630	Circ	1	n/a	5.000	240.00	0.554	0.012
42	I18	J18	1137.000	1127.960	Circ	1	n/a	4.000	60.00	15.241	0.012
44	J19	J18	1126.670	1126.460	Circ	1	n/a	5.000	195.00	0.108	0.012
45	I19	J19	1128.610	1127.170	Circ	1	n/a	4.500	450.00	0.320	0.012
46	I20	I19	1129.530	1128.610	Circ	1	n/a	4.500	295.00	0.312	0.012

Colter Street Junction Structure Route
50-Year Storm
Proposed Condition- Pump Station Discharge Diverted Time:1158

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
47	I21	I20	1130.440	1129.530	Circ	1	n/a	4.500	284.00	0.320	0.012
48	J20	I21	1131.390	1130.440	Circ	1	n/a	4.500	289.00	0.329	0.012
49	J21	J110	1136.330	1133.520	Circ	1	n/a	4.000	898.00	0.313	0.012
100	I100	J100	1131.610	1120.700	Circ	1	n/a	1.250	27.00	44.174	0.012
101	I101	J101	1133.380	1121.500	Circ	1	n/a	1.250	58.00	20.926	0.012
102	I102	J102	1132.440	1122.080	Circ	1	n/a	1.250	26.00	43.444	0.012
103	I103	J6	1133.260	1123.040	Circ	1	n/a	1.250	26.00	42.749	0.012
104	I104	J7	1135.230	1121.850	Circ	1	n/a	1.500	98.00	13.782	0.012
105	I105	J9	1133.860	1123.820	Circ	1	n/a	1.250	26.00	41.862	0.012
106	I106	J10	1135.510	1124.570	Circ	1	n/a	1.250	27.00	44.320	0.012
107	I107	J103	1137.480	1123.520	Circ	1	n/a	1.250	82.00	17.277	0.012
108	I108	J104	1137.010	1133.170	Circ	1	n/a	1.250	23.00	16.933	0.012
109	I109	J104	1137.590	1133.170	Circ	1	n/a	1.250	23.00	19.582	0.012
110	J104	J11	1133.170	1123.860	Circ	1	n/a	1.250	58.00	16.263	0.012
111	I110	J105	1139.380	1132.660	Circ	1	n/a	1.250	20.00	35.674	0.012
112	I111	J105	1138.620	1134.220	Circ	1	n/a	1.250	26.00	17.171	0.012
113	J105	J106	1132.660	1125.170	Circ	1	n/a	1.500	70.00	10.762	0.012
114	I112	J106	1136.200	1127.200	Circ	1	n/a	1.250	13.00	95.940	0.012
115	I113	J14	1140.210	1126.940	Circ	1	n/a	1.250	86.00	15.617	0.012
116	I114	J16	1137.890	1126.520	Circ	1	n/a	1.250	43.00	27.418	0.012
117	I115	J108	1138.520	1128.510	Circ	1	n/a	1.250	38.00	27.307	0.012
118	I116	J107	1140.620	1138.470	Circ	1	n/a	1.250	15.00	14.483	0.012
119	I117	J107	1141.280	1138.750	Circ	1	n/a	1.250	24.00	10.601	0.012
120	J107	J108	1137.500	1126.800	Circ	1	n/a	1.500	75.00	14.414	0.012
121	I118	J108	1138.850	1127.570	Circ	1	n/a	1.250	34.00	35.168	0.012
122	I119	I120	1141.450	1140.900	Circ	1	n/a	1.250	34.00	1.618	0.012
123	I120	J109	1140.650	1127.980	Circ	1	n/a	1.250	56.00	23.227	0.012
124	I121	J109	1139.810	1128.470	Circ	1	n/a	1.250	34.00	35.379	0.012
125	I122	J110	1146.860	1134.900	Circ	1	n/a	1.250	75.00	16.153	0.012
126	I123	I122	1146.860	1139.900	Circ	1	n/a	1.250	75.00	9.320	0.012
127	I124	I123	1146.060	1144.400	Circ	1	n/a	1.250	25.00	6.655	0.012
300	J300	O1	1116.050	1115.680	Circ	1	n/a	6.000	140.00	0.264	0.012
301	I300	I301	1128.990	1118.980	Circ	1	n/a	1.250	289.00	3.466	0.012
302	I301	J300	1118.980	1118.560	Circ	1	n/a	1.250	18.00	2.334	0.012
303	I302	J300	1130.450	1120.800	Circ	1	n/a	1.250	16.00	75.613	0.012
349	J110	J20	1133.520	1131.890	Circ	1	n/a	4.000	549.00	0.297	0.012
801	J801	J18	1127.250	1126.960	Circ	1	n/a	3.500	80.00	0.363	0.012
802	J802	J20	1136.660	1132.090	Circ	1	n/a	3.250	261.00	1.751	0.012

Colter Street Junction Structure Route
50-Year Storm
Proposed Condition- Pump Station Discharge Diverted Time:1158

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	1133.862	1133.636	0.08	3.078	6.000	8.64	4.46	126.182	237.268	0.031
2	1134.013	1133.862	0.08	3.078	6.000	8.64	4.46	126.172	238.595	0.031
3	1134.372	1134.013	0.20	3.811	5.000	7.86	6.43	126.172	138.223	0.064
4	1134.611	1134.372	0.20	3.811	5.000	7.86	6.43	126.162	137.830	0.064
5	1135.280	1134.611	0.20	3.958	5.000	7.57	6.42	126.152	132.457	0.064
6	1135.281	1135.280	0.00	0.060	1.250	3.89	0.07	0.085	19.530	0.000
7	1135.458	1135.280	0.20	4.105	5.000	7.31	6.42	126.081	123.946	0.064
8	1135.458	1135.458	0.00	0.042	1.250	5.78	0.06	0.074	37.587	0.000
9	1135.617	1135.458	0.20	3.445	5.000	8.73	6.42	126.017	152.377	0.064
10	1135.617	1135.617	0.00	0.033	1.250	2.34	0.02	0.021	17.065	0.000
11	1135.766	1135.617	0.20	3.591	5.000	8.35	6.42	126.000	145.700	0.064
12	1135.766	1135.766	0.00	0.015	1.250	4.15	0.01	0.011	45.457	0.000
13	1136.000	1135.766	0.20	3.738	5.000	8.00	6.42	125.984	138.620	0.064
14	1136.000	1136.000	0.00	0.044	1.250	2.65	0.03	0.037	16.143	0.000
15	1136.000	1136.000	0.00	0.054	1.250	3.43	0.05	0.063	18.041	0.000
16	1136.269	1136.000	0.20	3.811	5.000	7.84	6.41	125.926	137.673	0.064
17	1136.269	1136.269	0.00	0.010	1.250	3.10	0.00	0.005	48.679	0.000
18	1136.653	1136.269	0.20	3.591	5.000	8.34	6.41	125.922	144.916	0.064
19	1136.653	1136.653	0.00	0.038	1.250	2.70	0.02	0.029	17.623	0.000
20	1136.653	1136.653	0.00	0.054	1.250	3.46	0.05	0.064	17.512	0.000
21	1137.347	1136.653	0.20	3.811	5.000	7.84	6.41	125.864	138.150	0.064
22	1137.347	1137.347	0.00	0.038	1.250	2.70	0.02	0.029	17.677	0.000
23	1137.516	1137.347	0.20	3.665	5.000	8.16	6.41	125.828	139.736	0.064
24	1137.698	1137.516	0.20	3.811	5.000	7.83	6.41	125.819	136.290	0.128
25	1137.698	1137.698	0.00	0.033	1.250	5.33	0.04	0.048	41.231	0.000
26	1138.285	1137.698	0.20	2.694	5.000	11.66	6.40	125.759	222.804	0.064
27	1138.285	1138.285	0.00	0.037	1.250	2.64	0.02	0.029	17.877	0.000
28	1138.608	1138.285	0.20	3.811	5.000	7.83	6.40	125.741	134.508	0.064
29	1138.608	1138.608	0.00	0.011	1.250	3.37	0.00	0.005	45.744	0.000
30	1139.226	1138.608	0.20	3.665	5.000	8.15	6.40	125.736	141.359	0.127
31	1139.880	1139.226	0.20	3.738	5.000	7.98	6.40	125.710	138.686	0.064
32	1139.880	1139.880	0.00	0.020	1.250	1.54	0.01	0.006	14.032	0.000
33	1139.880	1139.880	0.00	0.025	1.250	6.14	0.03	0.034	54.192	0.000
34	1139.880	1139.880	0.00	0.053	1.250	2.18	0.03	0.040	11.673	0.000
35	1140.088	1139.880	0.20	3.811	5.000	7.82	6.40	125.659	135.233	0.064
36	1140.088	1140.088	0.00	0.027	1.250	4.60	0.02	0.029	37.265	0.000
37	1140.407	1140.088	0.20	3.811	5.000	7.82	6.40	125.620	135.539	0.064
38	1140.407	1140.407	0.00	0.073	1.250	2.79	0.06	0.079	11.935	0.000
69	1140.907	1140.407	0.20	3.738	5.000	7.97	6.39	125.541	138.369	0.191
40	1141.754	1140.907	0.20	3.811	5.000	7.81	6.39	125.501	137.938	0.127
41	1142.991	1141.754	0.20	2.785	5.000	11.16	6.39	125.471	210.038	0.762
42	1142.991	1142.991	0.00	0.014	4.000	2.58	0.00	0.010	607.504	0.000
44	1143.232	1142.991	0.11	4.105	5.000	5.53	4.86	95.461	92.591	0.018
45	1144.188	1143.232	0.20	3.034	4.500	8.37	6.00	95.461	120.512	0.056
46	1144.834	1144.188	0.20	3.034	4.500	8.36	6.00	95.417	118.970	0.056

Colter Street Junction Structure Route
50-Year Storm
Proposed Condition- Pump Station Discharge Diverted Time:1158

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
47	1145.455	1144.834	0.20	3.034	4.500	8.36	6.00	95.374	120.592	0.056
48	1146.309	1145.455	0.20	2.968	4.500	8.57	5.99	95.330	122.143	0.279
49	1146.482	1146.387	0.01	1.129	4.000	5.15	1.19	15.000	87.049	0.011
100	1133.862	1133.862	0.00	0.014	1.250	3.71	0.01	0.010	46.512	0.000
101	1134.372	1134.372	0.00	0.018	1.250	2.99	0.01	0.010	32.013	0.000
102	1134.611	1134.611	0.00	0.014	1.250	3.71	0.01	0.010	46.126	0.000
103	1135.766	1135.766	0.00	0.014	1.250	3.71	0.01	0.010	45.755	0.000
104	1136.000	1136.000	0.00	0.019	1.500	2.57	0.01	0.010	42.246	0.000
105	1136.653	1136.653	0.00	0.015	1.250	3.71	0.01	0.010	45.279	0.000
106	1137.347	1137.347	0.00	0.014	1.250	3.71	0.01	0.010	46.589	0.000
107	1137.689	1137.516	0.00	0.018	1.250	2.99	0.01	0.010	29.088	0.000
108	1137.698	1137.698	0.00	0.019	1.250	2.48	0.01	0.010	28.797	0.000
109	1137.799	1137.698	0.00	0.018	1.250	2.99	0.01	0.010	30.968	0.000
110	1137.698	1137.698	0.00	0.026	1.250	3.16	0.02	0.020	28.221	0.000
111	1139.589	1139.226	0.00	0.015	1.250	3.71	0.01	0.010	41.798	0.000
112	1139.226	1139.226	0.00	0.019	1.250	2.48	0.01	0.010	28.998	0.000
113	1139.226	1139.226	0.00	0.027	1.500	2.92	0.01	0.020	37.331	0.000
114	1139.226	1139.226	0.00	0.012	1.250	4.76	0.01	0.010	68.546	0.000
115	1140.419	1139.880	0.00	0.019	1.250	2.48	0.01	0.010	27.656	0.000
116	1140.088	1140.088	0.00	0.017	1.250	2.99	0.01	0.010	36.643	0.000
117	1140.907	1140.907	0.00	0.017	1.250	2.99	0.01	0.010	36.569	0.000
118	1140.907	1140.907	0.00	0.019	1.250	2.48	0.01	0.010	26.632	0.000
119	1141.489	1140.907	0.00	0.020	1.250	2.48	0.01	0.010	22.785	0.000
120	1140.907	1140.907	0.00	0.025	1.500	2.92	0.01	0.020	43.204	0.000
121	1140.907	1140.907	0.00	0.015	1.250	3.71	0.01	0.010	41.501	0.000
122	1141.754	1141.754	0.00	0.031	0.854	1.24	0.01	0.010	8.901	0.000
123	1141.754	1141.754	0.00	0.023	1.250	3.62	0.02	0.020	33.727	0.000
124	1141.754	1141.754	0.00	0.015	1.250	3.71	0.01	0.010	41.625	0.000
125	1147.242	1146.387	0.23	0.290	1.250	15.45	2.71	3.330	28.126	0.092
126	1147.358	1147.242	0.10	0.272	1.250	11.30	1.81	2.220	21.365	0.041
127	1147.371	1147.358	0.03	0.210	1.250	8.19	0.90	1.110	18.053	0.006
300	1133.636	1133.500	0.08	3.122	6.000	8.49	4.46	126.244	235.864	0.031
301	1133.636	1133.636	0.00	0.065	1.250	2.78	0.06	0.068	13.028	0.000
302	1133.636	1133.636	0.00	0.089	1.250	2.83	0.09	0.108	10.691	0.000
303	1133.636	1133.636	0.00	0.013	1.250	4.76	0.01	0.010	60.853	0.000
349	1146.387	1146.309	0.01	1.261	4.000	5.40	1.46	18.330	84.792	0.003
801	1143.081	1142.991	0.08	1.667	3.500	6.63	3.12	30.000	65.623	0.030
802	1148.377	1146.309	0.74	1.912	3.250	15.17	9.28	77.000	118.372	0.134

Colter Street Junction Structure Route
50-Year Storm
Proposed Condition- Pump Station Discharge Diverted Time:1158

Computation Messages

---

*Warning: Discharge decreased downstream Junction J13 - previous intensity used
*Warning: Discharge decreased downstream Junction J8 - previous intensity used
*Warning: Discharge decreased downstream Junction J102 - previous intensity used
*Warning: Discharge decreased downstream Junction J101 - previous intensity used
*Warning: Discharge decreased downstream Junction J1 - previous intensity used
*Warning: Discharge decreased downstream Junction J100 - previous intensity used
*Warning: Run - 302 - Upstream Hydraulic Gradeline = 1133.64 - Exceeds Critical Elevation = 1132.99
*Warning: Run - 12 - Upstream Hydraulic Gradeline = 1135.77 - Exceeds Critical Elevation = 1135.68
*Warning: Run - 15 - Upstream Hydraulic Gradeline = 1136.00 - Exceeds Critical Elevation = 1135.55
*Warning: Run - 20 - Upstream Hydraulic Gradeline = 1136.65 - Exceeds Critical Elevation = 1136.35
*Warning: Run - 25 - Upstream Hydraulic Gradeline = 1137.70 - Exceeds Critical Elevation = 1137.69
*Warning: Run - 36 - Upstream Hydraulic Gradeline = 1140.09 - Exceeds Critical Elevation = 1137.02
*Warning: Run - 37 - Upstream Hydraulic Gradeline = 1140.41 - Exceeds Critical Elevation = 1130.00
*Warning: Run - 38 - Upstream Hydraulic Gradeline = 1140.41 - Exceeds Critical Elevation = 1136.04
*Warning: Run - 103 - Upstream Hydraulic Gradeline = 1135.77 - Exceeds Critical Elevation = 1135.46
*Warning: Run - 33 - Upstream Hydraulic Gradeline = 1139.88 - Exceeds Critical Elevation = 1137.44
*Computation: Run = 1 - Pipe Flowing Full
*Computation: Run = 2 - Pipe Flowing Full
*Computation: Run = 3 - Pipe Flowing Full
*Computation: Run = 4 - Pipe Flowing Full
*Computation: Run = 5 - Pipe Flowing Full
*Computation: Run = 6 - Pipe Flowing Full
*Computation: Run = 7 - Insufficient Capacity
*Computation: Run = 8 - Pipe Flowing Full
*Computation: Run = 9 - Pipe Flowing Full
*Computation: Run = 10 - Pipe Flowing Full
*Computation: Run = 11 - Pipe Flowing Full
*Computation: Run = 12 - Pipe Flowing Full
*Computation: Run = 13 - Pipe Flowing Full
*Computation: Run = 14 - Pipe Flowing Full
*Computation: Run = 15 - Pipe Flowing Full
*Computation: Run = 16 - Pipe Flowing Full
*Computation: Run = 17 - Pipe Flowing Full
*Computation: Run = 18 - Pipe Flowing Full
*Computation: Run = 19 - Pipe Flowing Full
*Computation: Run = 20 - Pipe Flowing Full
*Computation: Run = 21 - Pipe Flowing Full
*Computation: Run = 22 - Pipe Flowing Full
*Computation: Run = 23 - Pipe Flowing Full

*Computation: Run = 24 - Pipe Flowing Full
*Computation: Run = 25 - Pipe Flowing Full
*Computation: Run = 26 - Pipe Flowing Full
*Computation: Run = 27 - Pipe Flowing Full
*Computation: Run = 28 - Pipe Flowing Full
*Computation: Run = 29 - Pipe Flowing Full
*Computation: Run = 30 - Pipe Flowing Full
*Computation: Run = 31 - Pipe Flowing Full
*Computation: Run = 32 - Pipe Flowing Full
*Computation: Run = 33 - Pipe Flowing Full
*Computation: Run = 34 - Pipe Flowing Full
*Computation: Run = 35 - Pipe Flowing Full
*Computation: Run = 36 - Pipe Flowing Full
*Computation: Run = 37 - Pipe Flowing Full
*Computation: Run = 38 - Pipe Flowing Full
*Computation: Run = 69 - Pipe Flowing Full
*Computation: Run = 40 - Pipe Flowing Full
*Computation: Run = 41 - Pipe Flowing Full
*Computation: Run = 42 - Pipe Flowing Full
*Computation: Run = 44 - Insufficient Capacity
*Computation: Run = 45 - Pipe Flowing Full
*Computation: Run = 46 - Pipe Flowing Full
*Computation: Run = 47 - Pipe Flowing Full
*Computation: Run = 48 - Pipe Flowing Full
*Computation: Run = 49 - Pipe Flowing Full
*Computation: Run = 100 - Pipe Flowing Full
*Computation: Run = 101 - Pipe Flowing Full
*Computation: Run = 102 - Pipe Flowing Full
*Computation: Run = 103 - Pipe Flowing Full
*Computation: Run = 104 - Pipe Flowing Full
*Computation: Run = 105 - Pipe Flowing Full
*Computation: Run = 106 - Pipe Flowing Full
*Computation: Run = 107 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 108 - Pipe Flowing Full
*Computation: Run = 109 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 110 - Pipe Flowing Full
*Computation: Run = 111 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 112 - Pipe Flowing Full
*Computation: Run = 113 - Pipe Flowing Full
*Computation: Run = 114 - Pipe Flowing Full
*Computation: Run = 115 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 116 - Pipe Flowing Full
*Computation: Run = 117 - Pipe Flowing Full
*Computation: Run = 118 - Pipe Flowing Full
*Computation: Run = 119 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 120 - Pipe Flowing Full
*Computation: Run = 121 - Pipe Flowing Full
*Computation: Run = 123 - Pipe Flowing Full

```
*Computation: Run = 124 - Pipe Flowing Full
*Computation: Run = 125 - Pipe Flowing Full
*Computation: Run = 126 - Pipe Flowing Full
*Computation: Run = 127 - Pipe Flowing Full
*Computation: Run = 300 - Pipe Flowing Full
*Computation: Run = 301 - Pipe Flowing Full
*Computation: Run = 302 - Pipe Flowing Full
*Computation: Run = 303 - Pipe Flowing Full
*Computation: Run = 349 - Pipe Flowing Full
*Computation: Run = 801 - Pipe Flowing Full
*Computation: Run = 802 - Pipe Flowing Full

NORMAL Completion of WinStorm.
```

Colter Street Junction Structure Route
50-Year Storm
Existing Condition

Time: 1154

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 1
Tue May 05 10:42:15 1998

JOB CONTROL : CONT
JOB SECTION : SEC
JOB NUMBER : JOB
PROJECT DESCRIPTION : SQUAW PEAK PARKWAY
ANALYSYS FREQUENCY : 10 Year
MEASUREMENT UNITS: Input ENGLISH Output ENGLISH

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)	
I 1	0.010	1.874	10.00	10.00	4.556	0.000	0.085	
I 2	0.010	1.634	5.00	10.00	4.556	0.000	0.074	
I 3	0.010	0.459	5.00	10.00	4.556	0.000	0.021	
I 4	0.010	0.246	5.00	10.00	4.556	0.000	0.011	
I 5	0.010	0.810	5.00	10.00	4.556	0.000	0.037	
I 6	0.010	0.573	5.00	10.00	4.556	0.000	0.026	
I 7	0.010	0.106	5.00	10.00	4.556	0.000	0.005	
I 8	0.010	0.644	5.00	10.00	4.556	0.000	0.029	
I 9	0.010	0.753	5.00	10.00	4.556	0.000	0.034	
I 10	0.010	0.644	5.00	10.00	4.556	0.000	0.029	
I 11	0.010	1.048	5.00	10.00	4.556	0.000	0.048	
I 12	0.010	0.629	5.00	10.00	4.556	0.000	0.029	
I 13	0.010	0.115	5.00	10.00	4.556	0.000	0.005	
I 14	0.010	0.136	5.00	10.00	4.556	0.000	0.006	
I 15	0.010	0.745	5.00	10.00	4.556	0.000	0.034	
I 16	0.010	0.640	5.00	10.00	4.556	0.000	0.029	
I 17	0.010	1.737	5.00	10.00	4.556	0.000	0.079	
I 18	0.000	0.000	0.00	0.00	0.000	55.000	55.000	Pump
I 19	0.010	0.960	5.00	10.00	4.556	0.000	0.044	Sta
I 20	0.010	0.960	5.00	10.00	4.556	0.000	0.044	
I 21	0.010	0.960	5.00	10.00	4.556	0.000	0.044	
J 21	0.000	0.000	0.00	0.00	0.000	0.010	0.010	Colter
I 100	0.000	0.000	0.00	0.00	0.000	0.010	0.010	
I 101	0.000	0.000	0.00	0.00	0.000	0.010	0.010	
I 102	0.000	0.000	0.00	0.00	0.000	0.010	0.010	
I 103	0.000	0.000	0.00	0.00	0.000	0.010	0.010	
I 104	0.000	0.000	0.00	0.00	0.000	0.010	0.010	
I 105	0.000	0.000	0.00	0.00	0.000	0.010	0.010	
I 106	0.000	0.000	0.00	0.00	0.000	0.010	0.010	
I 107	0.000	0.000	0.00	0.00	0.000	0.010	0.010	
I 108	0.000	0.000	0.00	0.00	0.000	0.010	0.010	
I 109	0.000	0.000	0.00	0.00	0.000	0.010	0.010	
I 110	0.000	0.000	0.00	0.00	0.000	0.010	0.010	
I 111	0.000	0.000	0.00	0.00	0.000	0.010	0.010	
I 112	0.000	0.000	0.00	0.00	0.000	0.010	0.010	
I 113	0.000	0.000	0.00	0.00	0.000	0.010	0.010	
I 114	0.000	0.000	0.00	0.00	0.000	0.010	0.010	
I 115	0.000	0.000	0.00	0.00	0.000	0.010	0.010	
I 116	0.000	0.000	0.00	0.00	0.000	0.010	0.010	

Colter Street Junction Structure Route
50-Year Storm
Existing Condition

Time: 1154

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 117	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 118	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 119	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 120	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 121	0.000	0.000	0.00	0.00	0.000	0.010	0.010
I 122	0.000	0.000	0.00	0.00	0.000	1.110	1.110
I 123	0.000	0.000	0.00	0.00	0.000	1.110	1.110
I 124	0.000	0.000	0.00	0.00	0.000	1.110	1.110
I 300	0.010	1.495	10.00	10.00	4.556	0.000	0.068
I 301	0.010	1.056	10.00	10.00	4.556	0.000	0.048
I 302	0.000	0.000	0.00	0.00	0.000	0.010	0.010
J 801	0.000	0.000	0.00	0.00	0.000	30.000	30.000
J 802	0.000	0.000	0.00	0.00	0.000	43.000	43.000

Highland inlet back

Colter Street Junction Structure Route
50-Year Storm
Existing Condition

Time: 1154

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I1	0.010	1.874	10.00	4.556	0.000	0.085
J1	0.010	15.673	38.84	2.119	131.550	131.882
I2	0.010	1.634	10.00	4.556	0.000	0.074
I3	0.010	0.459	10.00	4.556	0.000	0.021
J3	0.010	15.673	38.00	2.151	131.530	131.867
I4	0.010	0.246	10.00	4.556	0.000	0.011
J4	0.010	13.799	37.86	2.156	131.530	131.827
I5	0.010	0.810	10.00	4.556	0.000	0.037
J5	0.010	12.165	37.77	2.159	131.530	131.793
I6	0.010	1.383	10.00	4.556	0.000	0.063
J6	0.010	11.706	37.68	2.162	131.530	131.783
I7	0.010	0.106	10.00	4.556	0.000	0.005
J7	0.010	11.460	37.50	2.169	131.520	131.769
I8	0.010	0.644	10.00	4.556	0.000	0.029
J8	0.010	10.077	37.28	2.178	131.510	131.729
I9	0.010	1.397	10.00	4.556	0.000	0.064
J9	0.010	9.971	36.95	2.190	131.510	131.728
I10	0.010	0.644	10.00	4.556	0.000	0.029
J10	0.010	8.574	36.29	2.217	131.500	131.690
I11	0.010	1.048	10.00	4.556	0.000	0.048
J11	0.010	7.930	36.11	2.224	131.480	131.656
I12	0.010	0.629	10.00	4.556	0.000	0.029
J12	0.010	6.882	35.74	2.239	131.460	131.614
I13	0.010	0.115	10.00	4.556	0.000	0.005
J13	0.010	6.253	35.46	2.250	131.460	131.601
I14	0.010	0.136	10.00	4.556	0.000	0.006
J14	0.010	6.138	34.33	2.298	131.430	131.571
I15	0.010	0.745	10.00	4.556	0.000	0.034
J15	0.010	0.881	10.00	4.556	0.000	0.040
I16	0.010	0.640	10.00	4.556	0.000	0.029
J16	0.010	5.257	34.18	2.305	131.420	131.541
I17	0.010	1.737	10.00	4.556	0.000	0.079
J17	0.010	4.617	33.90	2.317	131.410	131.517
I18	0.000	0.000	0.00	0.000	55.000	55.000
J18	0.010	2.880	32.45	2.384	131.340	131.409
I19	0.010	2.880	30.70	2.470	46.340	46.411
J19	0.010	2.880	30.70	2.470	46.340	46.411
I20	0.010	1.920	30.00	2.506	46.340	46.388
J20	0.000	0.000	28.66	2.579	46.340	46.340
I21	0.010	0.960	29.32	2.542	46.340	46.364
J21	0.000	0.000	0.00	0.000	0.010	0.010
I100	0.000	0.000	0.00	0.000	0.010	0.010
J100	0.010	15.673	39.46	2.097	131.560	131.889
I101	0.000	0.000	0.00	0.000	0.010	0.010
J101	0.010	15.673	38.84	2.119	131.550	131.882

Colter Street Junction Structure Route
50-Year Storm
Existing Condition

Time: 1154

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
1	J100	J300	1116.740	1116.050	Circ	1	n/a	6.000	258.00	0.267	0.012
2	J1	J100	1117.170	1116.740	Circ	1	n/a	6.000	159.00	0.270	0.012
3	J101	J1	1118.530	1118.170	Circ	1	n/a	5.000	150.00	0.240	0.012
4	J102	J101	1118.740	1118.530	Circ	1	n/a	5.000	88.00	0.239	0.012
5	J3	J102	1119.410	1118.740	Circ	1	n/a	5.000	304.00	0.220	0.012
6	I1	J3	1134.620	1121.420	Circ	1	n/a	1.250	170.00	7.788	0.012
7	J4	J3	1119.520	1119.410	Circ	1	n/a	5.000	57.00	0.193	0.012
8	I2	J4	1133.910	1121.160	Circ	1	n/a	1.250	46.00	28.848	0.012
9	J5	J4	1119.660	1119.520	Circ	1	n/a	5.000	48.00	0.292	0.012
10	I3	J5	1132.780	1121.620	Circ	1	n/a	1.250	188.00	5.947	0.012
11	J6	J5	1119.780	1119.660	Circ	1	n/a	5.000	45.00	0.267	0.012
12	I4	J6	1132.350	1123.020	Circ	1	n/a	1.250	24.00	42.194	0.012
13	J7	J6	1119.990	1119.780	Circ	1	n/a	5.000	87.00	0.241	0.012
14	I5	I6	1132.280	1123.140	Circ	1	n/a	1.250	172.00	5.321	0.012
15	I6	J7	1123.140	1121.880	Circ	1	n/a	1.250	19.00	6.646	0.012
16	J8	J7	1120.240	1119.990	Circ	1	n/a	5.000	105.00	0.238	0.012
17	I7	J8	1131.700	1123.860	Circ	1	n/a	1.250	18.00	48.386	0.012
18	J9	J8	1120.670	1120.240	Circ	1	n/a	5.000	163.00	0.264	0.012
19	I8	I9	1133.020	1124.160	Circ	1	n/a	1.250	140.00	6.341	0.012
20	I9	J9	1124.160	1122.660	Circ	1	n/a	1.250	24.00	6.262	0.012
21	J10	J9	1121.430	1120.670	Circ	1	n/a	5.000	317.00	0.240	0.012
22	I10	J10	1134.050	1123.480	Circ	1	n/a	1.250	166.00	6.380	0.012
23	J103	J10	1121.560	1121.430	Circ	1	n/a	5.000	53.00	0.245	0.012
24	J11	J103	1121.630	1121.560	Circ	1	n/a	5.000	30.00	0.233	0.012
25	I11	J11	1134.690	1125.180	Circ	1	n/a	1.250	29.00	34.713	0.012
26	J12	J11	1122.270	1120.630	Circ	1	n/a	5.000	263.00	0.624	0.012
27	I12	J12	1135.080	1124.270	Circ	1	n/a	1.250	166.00	6.526	0.012
28	J13	J12	1122.570	1122.270	Circ	1	n/a	5.000	132.00	0.227	0.012
29	I13	J13	1135.130	1125.700	Circ	1	n/a	1.250	24.00	42.728	0.012
30	J106	J13	1123.190	1122.570	Circ	1	n/a	5.000	247.00	0.251	0.012
31	J14	J106	1123.910	1123.190	Circ	1	n/a	5.000	298.00	0.242	0.012
32	I14	J15	1133.650	1126.740	Circ	1	n/a	1.250	172.00	4.021	0.012
33	I15	J15	1133.940	1126.740	Circ	1	n/a	1.250	14.00	59.967	0.012
34	J15	J14	1126.740	1125.850	Circ	1	n/a	1.250	32.00	2.782	0.012
35	J16	J14	1124.080	1123.910	Circ	1	n/a	5.000	74.00	0.230	0.012
36	I16	J16	1133.520	1126.700	Circ	1	n/a	1.250	25.00	28.356	0.012
37	J17	J16	1124.380	1124.080	Circ	1	n/a	5.000	130.00	0.231	0.012
38	I17	J17	1132.540	1126.260	Circ	1	n/a	1.250	216.00	2.909	0.012
69	J108	J17	1124.760	1124.380	Circ	1	n/a	5.000	158.00	0.241	0.012
40	J109	J108	1125.630	1124.760	Circ	1	n/a	5.000	364.00	0.239	0.012
41	J18	J109	1126.960	1125.630	Circ	1	n/a	5.000	240.00	0.554	0.012
42	I18	J18	1137.000	1127.960	Circ	1	n/a	4.000	60.00	15.241	0.012
44	J19	J18	1126.670	1126.460	Circ	1	n/a	5.000	195.00	0.108	0.012
45	I19	J19	1128.610	1127.170	Circ	1	n/a	4.500	450.00	0.320	0.012
46	I20	I19	1129.530	1128.610	Circ	1	n/a	4.500	295.00	0.312	0.012

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
47	I21	I20	1130.440	1129.530	Circ	1	n/a	4.500	284.00	0.320	0.012
48	J20	I21	1131.390	1130.440	Circ	1	n/a	4.500	289.00	0.329	0.012
49	J21	J110	1136.330	1133.520	Circ	1	n/a	4.000	898.00	0.313	0.012
100	I100	J100	1131.610	1120.700	Circ	1	n/a	1.250	27.00	44.174	0.012
101	I101	J101	1133.380	1121.500	Circ	1	n/a	1.250	58.00	20.926	0.012
102	I102	J102	1132.440	1122.080	Circ	1	n/a	1.250	26.00	43.444	0.012
103	I103	J6	1133.260	1123.040	Circ	1	n/a	1.250	26.00	42.749	0.012
104	I104	J7	1135.230	1121.850	Circ	1	n/a	1.500	98.00	13.782	0.012
105	I105	J9	1133.860	1123.820	Circ	1	n/a	1.250	26.00	41.862	0.012
106	I106	J10	1135.510	1124.570	Circ	1	n/a	1.250	27.00	44.320	0.012
107	I107	J103	1137.480	1123.520	Circ	1	n/a	1.250	82.00	17.277	0.012
108	I108	J104	1137.010	1133.170	Circ	1	n/a	1.250	23.00	16.933	0.012
109	I109	J104	1137.590	1133.170	Circ	1	n/a	1.250	23.00	19.582	0.012
110	J104	J11	1133.170	1123.860	Circ	1	n/a	1.250	58.00	16.263	0.012
111	I110	J105	1139.380	1132.660	Circ	1	n/a	1.250	20.00	35.674	0.012
112	I111	J105	1138.620	1134.220	Circ	1	n/a	1.250	26.00	17.171	0.012
113	J105	J106	1132.660	1125.170	Circ	1	n/a	1.500	70.00	10.762	0.012
114	I112	J106	1136.200	1127.200	Circ	1	n/a	1.250	13.00	95.940	0.012
115	I113	J14	1140.210	1126.940	Circ	1	n/a	1.250	86.00	15.617	0.012
116	I114	J16	1137.890	1126.520	Circ	1	n/a	1.250	43.00	27.418	0.012
117	I115	J108	1138.520	1128.510	Circ	1	n/a	1.250	38.00	27.307	0.012
118	I116	J107	1140.620	1138.470	Circ	1	n/a	1.250	15.00	14.483	0.012
119	I117	J107	1141.280	1138.750	Circ	1	n/a	1.250	24.00	10.601	0.012
120	J107	J108	1137.500	1126.800	Circ	1	n/a	1.500	75.00	14.414	0.012
121	I118	J108	1138.850	1127.570	Circ	1	n/a	1.250	34.00	35.168	0.012
122	I119	I120	1141.450	1140.900	Circ	1	n/a	1.250	34.00	1.618	0.012
123	I120	J109	1140.650	1127.980	Circ	1	n/a	1.250	56.00	23.227	0.012
124	I121	J109	1139.810	1128.470	Circ	1	n/a	1.250	34.00	35.379	0.012
125	I122	J110	1146.860	1134.900	Circ	1	n/a	1.250	75.00	16.153	0.012
126	I123	I122	1146.860	1139.900	Circ	1	n/a	1.250	75.00	9.320	0.012
127	I124	I123	1146.060	1144.400	Circ	1	n/a	1.250	25.00	6.655	0.012
300	J300	O1	1116.050	1115.680	Circ	1	n/a	6.000	140.00	0.264	0.012
301	I300	I301	1128.990	1118.980	Circ	1	n/a	1.250	289.00	3.466	0.012
302	I301	J300	1118.980	1118.560	Circ	1	n/a	1.250	18.00	2.334	0.012
303	I302	J300	1130.450	1120.800	Circ	1	n/a	1.250	16.00	75.613	0.012
349	J110	J20	1133.520	1131.890	Circ	1	n/a	4.000	549.00	0.297	0.012
801	J801	J18	1127.250	1126.960	Circ	1	n/a	3.500	80.00	0.363	0.012
802	J802	J20	1136.660	1132.090	Circ	1	n/a	3.250	261.00	1.751	0.012

Colter Street Junction Structure Route
50-Year Storm
Existing Condition

Time: 1154

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	Hydraulic Gradeline DS Elev	Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (fps)	Velocity Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
1	1133.893	1133.649	0.08	3.166	6.000	8.71	4.66	131.889	237.268	0.034
2	1134.056	1133.893	0.08	3.166	6.000	8.71	4.66	131.882	238.595	0.034
3	1134.452	1134.056	0.22	3.958	5.000	7.91	6.72	131.882	138.223	0.070
4	1134.712	1134.452	0.22	3.958	5.000	7.91	6.72	131.873	137.830	0.070
5	1135.442	1134.712	0.22	4.105	5.000	7.64	6.72	131.867	132.457	0.070
6	1135.442	1135.442	0.00	0.060	1.250	3.89	0.07	0.085	19.530	0.000
7	1135.636	1135.442	0.22	4.398	5.000	7.21	6.71	131.827	123.946	0.070
8	1135.636	1135.636	0.00	0.042	1.250	5.78	0.06	0.074	37.587	0.000
9	1135.806	1135.636	0.22	3.591	5.000	8.73	6.71	131.793	152.377	0.070
10	1135.806	1135.806	0.00	0.033	1.250	2.34	0.02	0.021	17.065	0.000
11	1135.971	1135.806	0.22	3.738	5.000	8.37	6.71	131.783	145.700	0.070
12	1135.971	1135.971	0.00	0.015	1.250	4.15	0.01	0.011	45.457	0.000
13	1136.226	1135.971	0.22	3.958	5.000	7.90	6.71	131.769	138.620	0.070
14	1136.226	1136.226	0.00	0.044	1.250	2.65	0.03	0.037	16.143	0.000
15	1136.226	1136.226	0.00	0.054	1.250	3.43	0.05	0.063	18.041	0.000
16	1136.521	1136.226	0.22	3.958	5.000	7.90	6.71	131.729	137.673	0.070
17	1136.521	1136.521	0.00	0.010	1.250	3.10	0.00	0.005	48.679	0.000
18	1136.946	1136.521	0.22	3.738	5.000	8.37	6.71	131.728	144.916	0.070
19	1136.946	1136.946	0.00	0.038	1.250	2.70	0.02	0.029	17.623	0.000
20	1136.946	1136.946	0.00	0.054	1.250	3.46	0.05	0.064	17.512	0.000
21	1137.706	1136.946	0.22	3.958	5.000	7.90	6.71	131.690	138.150	0.070
22	1137.706	1137.706	0.00	0.038	1.250	2.70	0.02	0.029	17.677	0.000
23	1137.891	1137.706	0.22	3.811	5.000	8.20	6.71	131.666	139.736	0.070
24	1138.096	1137.891	0.22	3.958	5.000	7.90	6.71	131.656	136.290	0.140
25	1138.096	1138.096	0.00	0.033	1.250	5.33	0.04	0.048	41.231	0.000
26	1138.738	1138.096	0.22	2.767	5.000	11.80	6.70	131.614	222.804	0.070
27	1138.738	1138.738	0.00	0.037	1.250	2.64	0.02	0.029	17.877	0.000
28	1139.093	1138.738	0.22	3.958	5.000	7.89	6.70	131.601	134.508	0.070
29	1139.093	1139.093	0.00	0.011	1.250	3.37	0.00	0.005	45.744	0.000
30	1139.767	1139.093	0.22	3.811	5.000	8.19	6.70	131.599	141.359	0.140
31	1140.482	1139.767	0.22	3.958	5.000	7.89	6.70	131.571	138.686	0.070
32	1140.482	1140.482	0.00	0.020	1.250	1.54	0.01	0.006	14.032	0.000
33	1140.482	1140.482	0.00	0.025	1.250	6.14	0.03	0.034	54.192	0.000
34	1140.482	1140.482	0.00	0.053	1.250	2.18	0.03	0.040	11.673	0.000
35	1140.712	1140.482	0.22	3.958	5.000	7.89	6.70	131.541	135.233	0.070
36	1140.712	1140.712	0.00	0.027	1.250	4.60	0.02	0.029	37.265	0.000
37	1141.062	1140.712	0.22	3.958	5.000	7.89	6.70	131.517	135.539	0.070
38	1141.062	1141.062	0.00	0.073	1.250	2.79	0.06	0.079	11.935	0.000
69	1141.611	1141.062	0.22	3.958	5.000	7.89	6.70	131.477	138.369	0.209
40	1142.535	1141.611	0.22	3.958	5.000	7.88	6.69	131.438	137.938	0.139
41	1143.891	1142.535	0.22	2.859	5.000	11.32	6.69	131.409	210.038	0.835
42	1143.996	1143.891	0.12	0.813	4.000	30.11	4.38	55.000	607.504	0.030
44	1143.945	1143.891	0.03	2.492	5.000	4.75	2.36	46.411	92.591	0.004
45	1144.172	1143.945	0.05	1.946	4.500	7.04	2.92	46.411	120.512	0.013
46	1144.325	1144.172	0.05	1.946	4.500	7.04	2.92	46.388	118.970	0.013

Colter Street Junction Structure Route
50-Year Storm
Existing Condition

Time: 1154

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
47	1144.473	1144.325	0.05	1.946	4.500	7.04	2.92	46.364	120.592	0.013
48	1144.676	1144.473	0.05	1.913	4.500	7.19	2.91	46.340	122.143	0.066
49	1144.678	1144.678	0.00	0.036	4.000	0.58	0.00	0.010	87.049	0.000
100	1133.893	1133.893	0.00	0.014	1.250	3.71	0.01	0.010	46.512	0.000
101	1134.452	1134.452	0.00	0.018	1.250	2.99	0.01	0.010	32.013	0.000
102	1134.712	1134.712	0.00	0.014	1.250	3.71	0.01	0.010	46.126	0.000
103	1135.971	1135.971	0.00	0.014	1.250	3.71	0.01	0.010	45.755	0.000
104	1136.226	1136.226	0.00	0.019	1.500	2.57	0.01	0.010	42.246	0.000
105	1136.946	1136.946	0.00	0.015	1.250	3.71	0.01	0.010	45.279	0.000
106	1137.706	1137.706	0.00	0.014	1.250	3.71	0.01	0.010	46.589	0.000
107	1137.891	1137.891	0.00	0.018	1.250	2.99	0.01	0.010	29.088	0.000
108	1138.096	1138.096	0.00	0.019	1.250	2.48	0.01	0.010	28.797	0.000
109	1138.096	1138.096	0.00	0.018	1.250	2.99	0.01	0.010	30.968	0.000
110	1138.096	1138.096	0.00	0.026	1.250	3.16	0.02	0.020	28.221	0.000
111	1139.767	1139.767	0.00	0.015	1.250	3.71	0.01	0.010	41.798	0.000
112	1139.767	1139.767	0.00	0.019	1.250	2.48	0.01	0.010	28.998	0.000
113	1139.767	1139.767	0.00	0.027	1.500	2.92	0.01	0.020	37.331	0.000
114	1139.767	1139.767	0.00	0.012	1.250	4.76	0.01	0.010	68.546	0.000
115	1140.482	1140.482	0.00	0.019	1.250	2.48	0.01	0.010	27.656	0.000
116	1140.712	1140.712	0.00	0.017	1.250	2.99	0.01	0.010	36.643	0.000
117	1141.611	1141.611	0.00	0.017	1.250	2.99	0.01	0.010	36.569	0.000
118	1141.611	1141.611	0.00	0.019	1.250	2.48	0.01	0.010	26.632	0.000
119	1141.611	1141.611	0.00	0.020	1.250	2.48	0.01	0.010	22.785	0.000
120	1141.611	1141.611	0.00	0.025	1.500	2.92	0.01	0.020	43.204	0.000
121	1141.611	1141.611	0.00	0.015	1.250	3.71	0.01	0.010	41.501	0.000
122	1142.535	1142.535	0.00	0.031	1.250	1.24	0.01	0.010	8.901	0.000
123	1142.535	1142.535	0.00	0.023	1.250	3.62	0.02	0.020	33.727	0.000
124	1142.535	1142.535	0.00	0.015	1.250	3.71	0.01	0.010	41.625	0.000
125	1147.242	1144.678	0.23	0.290	1.250	15.45	2.71	3.330	28.126	0.092
126	1147.358	1147.242	0.10	0.272	1.250	11.30	1.81	2.220	21.365	0.041
127	1147.371	1147.358	0.03	0.210	1.250	8.19	0.90	1.110	18.053	0.006
300	1133.649	1133.500	0.08	3.210	6.000	8.57	4.67	131.949	235.864	0.034
301	1133.649	1133.649	0.00	0.065	1.250	2.78	0.06	0.068	13.028	0.000
302	1133.649	1133.649	0.00	0.089	1.250	2.83	0.09	0.108	10.691	0.000
303	1133.649	1133.649	0.00	0.013	1.250	4.76	0.01	0.010	60.853	0.000
349	1144.678	1144.676	0.00	0.542	4.000	3.27	0.27	3.340	84.792	0.000
801	1143.982	1143.891	0.08	1.667	3.500	6.63	3.12	30.000	65.623	0.030
802	1145.320	1144.676	0.23	1.355	3.250	13.13	5.18	43.000	118.372	0.042

Computation Messages

---

*Warning: Discharge decreased downstream Junction J19 - previous intensity used
*Warning: Discharge decreased downstream Junction J1 - previous intensity used
*Warning: Run - 302 - Upstream Hydraulic Gradeline = 1133.65 - Exceeds Critical Elevation = 1132.99
*Warning: Run - 12 - Upstream Hydraulic Gradeline = 1135.97 - Exceeds Critical Elevation = 1135.68
*Warning: Run - 15 - Upstream Hydraulic Gradeline = 1136.23 - Exceeds Critical Elevation = 1135.55
*Warning: Run - 20 - Upstream Hydraulic Gradeline = 1136.95 - Exceeds Critical Elevation = 1136.35
*Warning: Run - 25 - Upstream Hydraulic Gradeline = 1138.10 - Exceeds Critical Elevation = 1137.69
*Warning: Run - 29 - Upstream Hydraulic Gradeline = 1139.09 - Exceeds Critical Elevation = 1138.63
*Warning: Run - 36 - Upstream Hydraulic Gradeline = 1140.71 - Exceeds Critical Elevation = 1137.02
*Warning: Run - 37 - Upstream Hydraulic Gradeline = 1141.06 - Exceeds Critical Elevation = 1130.00
*Warning: Run - 38 - Upstream Hydraulic Gradeline = 1141.06 - Exceeds Critical Elevation = 1136.04
*Warning: Run - 103 - Upstream Hydraulic Gradeline = 1135.97 - Exceeds Critical Elevation = 1135.46
*Warning: Run - 33 - Upstream Hydraulic Gradeline = 1140.48 - Exceeds Critical Elevation = 1137.44
*Computation: Run = 1 - Pipe Flowing Full
*Computation: Run = 2 - Pipe Flowing Full
*Computation: Run = 3 - Pipe Flowing Full
*Computation: Run = 4 - Pipe Flowing Full
*Computation: Run = 5 - Pipe Flowing Full
*Computation: Run = 6 - Pipe Flowing Full
*Computation: Run = 7 - Insufficient Capacity
*Computation: Run = 8 - Pipe Flowing Full
*Computation: Run = 9 - Pipe Flowing Full
*Computation: Run = 10 - Pipe Flowing Full
*Computation: Run = 11 - Pipe Flowing Full
*Computation: Run = 12 - Pipe Flowing Full
*Computation: Run = 13 - Pipe Flowing Full
*Computation: Run = 14 - Pipe Flowing Full
*Computation: Run = 15 - Pipe Flowing Full
*Computation: Run = 16 - Pipe Flowing Full
*Computation: Run = 17 - Pipe Flowing Full
*Computation: Run = 18 - Pipe Flowing Full
*Computation: Run = 19 - Pipe Flowing Full
*Computation: Run = 20 - Pipe Flowing Full
*Computation: Run = 21 - Pipe Flowing Full
*Computation: Run = 22 - Pipe Flowing Full
*Computation: Run = 23 - Pipe Flowing Full
*Computation: Run = 24 - Pipe Flowing Full
*Computation: Run = 25 - Pipe Flowing Full

```
*Computation: Run = 26 - Pipe Flowing Full
*Computation: Run = 27 - Pipe Flowing Full
*Computation: Run = 28 - Pipe Flowing Full
*Computation: Run = 29 - Pipe Flowing Full
*Computation: Run = 30 - Pipe Flowing Full
*Computation: Run = 31 - Pipe Flowing Full
*Computation: Run = 32 - Pipe Flowing Full
*Computation: Run = 33 - Pipe Flowing Full
*Computation: Run = 34 - Pipe Flowing Full
*Computation: Run = 35 - Pipe Flowing Full
*Computation: Run = 36 - Pipe Flowing Full
*Computation: Run = 37 - Pipe Flowing Full
*Computation: Run = 38 - Pipe Flowing Full
*Computation: Run = 69 - Pipe Flowing Full
*Computation: Run = 40 - Pipe Flowing Full
*Computation: Run = 41 - Pipe Flowing Full
*Computation: Run = 42 - Pipe Flowing Full
*Computation: Run = 44 - Pipe Flowing Full
*Computation: Run = 45 - Pipe Flowing Full
*Computation: Run = 46 - Pipe Flowing Full
*Computation: Run = 47 - Pipe Flowing Full
*Computation: Run = 48 - Pipe Flowing Full
*Computation: Run = 49 - Pipe Flowing Full
*Computation: Run = 100 - Pipe Flowing Full
*Computation: Run = 101 - Pipe Flowing Full
*Computation: Run = 102 - Pipe Flowing Full
*Computation: Run = 103 - Pipe Flowing Full
*Computation: Run = 104 - Pipe Flowing Full
*Computation: Run = 105 - Pipe Flowing Full
*Computation: Run = 106 - Pipe Flowing Full
*Computation: Run = 107 - Pipe Flowing Full
*Computation: Run = 108 - Pipe Flowing Full
*Computation: Run = 109 - Pipe Flowing Full
*Computation: Run = 110 - Pipe Flowing Full
*Computation: Run = 111 - Pipe Flowing Full
*Computation: Run = 112 - Pipe Flowing Full
*Computation: Run = 113 - Pipe Flowing Full
*Computation: Run = 114 - Pipe Flowing Full
*Computation: Run = 115 - Pipe Flowing Full
*Computation: Run = 116 - Pipe Flowing Full
*Computation: Run = 117 - Pipe Flowing Full
*Computation: Run = 118 - Pipe Flowing Full
*Computation: Run = 119 - Pipe Flowing Full
*Computation: Run = 120 - Pipe Flowing Full
*Computation: Run = 121 - Pipe Flowing Full
*Computation: Run = 122 - Pipe Flowing Full
*Computation: Run = 123 - Pipe Flowing Full
*Computation: Run = 124 - Pipe Flowing Full
*Computation: Run = 125 - Pipe Flowing Full
*Computation: Run = 126 - Pipe Flowing Full
*Computation: Run = 127 - Pipe Flowing Full
```

```
*Computation: Run = 300 - Pipe Flowing Full
*Computation: Run = 301 - Pipe Flowing Full
*Computation: Run = 302 - Pipe Flowing Full
*Computation: Run = 303 - Pipe Flowing Full
*Computation: Run = 349 - Pipe Flowing Full
*Computation: Run = 801 - Pipe Flowing Full
*Computation: Run = 802 - Pipe Flowing Full

NORMAL Completion of WinStorm.
```

SR51 Drainage Assessment
Hydrograph Route Through Colter Street Splitter Box
50-year Storm, Proposed Condition
Highland Pump Station Discharge Diverted

Clock	Inflow Hydrograph (cfs)	Junction Structure WSE	S. Trunk Line Q_{OUT}	S. Trunk Line HGL	Colter St Detention Q_{IN}	Cumulative Storage (af)	Colter St Detention Basin WSE	Volume of Bypass to Trunkline (af)
614	0	1135.8	0	NA	0	0	1135.0	
616	1	1135.9	0	NA	1	0.00	1135.0	0.00
824	1	1135.9	0	NA	1	0.18	1135.0	0.00
826	2	1136.0	0	NA	2	0.18	1135.0	0.00
922	2	1136.0	0	NA	2	0.34	1135.8	0.00
924	3	1136.1	0	NA	3	0.35	1135.8	0.00
958	3	1136.1	0	NA	3	0.49	1136.0	0.00
1000	4	1137.0	4	1137.0	0	0.49	1137.0	0.01
1022	4	1137.0	4	1137.0	0	0.49	1137.0	0.13
1024	5	1137.0	5	1137.0	0	0.49	1137.0	0.15
1034	5	1137.0	5	1137.0	0	0.49	1137.0	0.21
1036	6	1137.0	6	1137.0	0	0.49	1137.0	0.23
1044	6	1137.0	6	1137.0	0	0.49	1137.0	0.30
1046	7	1137.1	6	1137.1	1	0.49	1137.0	0.31
1048	7	1137.1	6	1137.1	1	0.49	1137.0	0.33
1050	7	1137.1	6	1137.1	1	0.50	1137.0	0.35
1052	8	1137.2	5	1137.2	3	0.50	1137.0	0.36
1054	8	1137.2	5	1137.2	3	0.51	1137.0	0.37
1056	8	1137.2	5	1137.2	3	0.52	1137.0	0.39
1058	9	1137.2	5	1137.2	4	0.53	1137.0	0.40
1100	9	1137.2	5	1137.2	4	0.54	1137.0	0.42
1102	9	1137.2	5	1137.2	4	0.55	1137.0	0.43
1104	10	1137.2	6	1137.2	4	0.56	1137.0	0.45
1106	10	1137.2	6	1137.2	4	0.58	1137.0	0.46
1108	10	1137.2	6	1137.2	4	0.59	1137.0	0.48
1110	11	1137.2	7	1137.2	4	0.60	1137.0	0.50
1112	11	1137.2	7	1137.2	4	0.61	1137.1	0.52
1114	12	1137.3	7	1137.2	5	0.62	1137.2	0.54
1116	13	1137.4	7	1137.2	6	0.64	1137.3	0.56
1118	13	1137.5	7	1137.2	6	0.66	1137.4	0.58
1120	14	1137.6	7	1137.2	7	0.67	1137.5	0.60
1122	14	1137.7	7	1137.2	7	0.69	1137.6	0.61
1124	15	1137.8	8	1137.2	7	0.71	1137.6	0.64
1126	15	1137.9	8	1137.2	7	0.73	1137.7	0.66
1128	16	1138.0	8	1137.2	8	0.75	1137.8	0.68
1130	17	1138.1	9	1137.2	8	0.78	1137.8	0.71
1132	18	1138.2	11	1137.3	7	0.80	1137.8	0.74
1134	19	1138.3	11	1137.3	8	0.82	1137.8	0.77
1136	20	1138.4	11	1137.3	9	0.84	1137.3	0.80
1138	23	1138.5	12	1137.4	11	0.87	1137.6	0.83

SR51 Drainage Assessment
Hydrograph Route Through Colter Street Splitter Box
50-year Storm, Proposed Condition
Highland Pump Station Discharge Diverted

Clock	Inflow Hydrograph (cfs)	Junction Structure WSE	S. Trunk Line Q_{OUT}	S. Trunk Line HGL	Colter St Detention Q_{IN}	Cumulative Storage (af)	Colter St Detention Basin WSE	Volume of Bypass to Trunkline (af)
1140	28	1138.6	14	1137.5	14	0.91	1137.8	0.87
1142	36	1138.7	18	1137.6	18	0.96	1138.0	0.92
1144	44	1139.0	22	1137.7	22	1.02	1138.1	0.98
1146	53	1139.2	26	1138.7	27	1.10	1138.2	1.05
1148	62	1139.3	30	1139.1	32	1.18	1138.2	1.13
1150	72	1139.6	25	1139.4	47	1.31	1138.4	1.20
1152	86	1140.8	25	1140.5	61	1.48	1138.7	1.27
1154	101	1142.2	25	1142.0	76	1.69	1139.0	1.34
1156	117	1144.4	25	1144.2	92	1.94	1139.5	1.41
1158	129	1146.7	15	1146.5	114	2.26	1139.8	1.45

Total inflow to system approximately 126 cfs.
System capacity at exceedence point.
See Winstorm output

Sr 51 Drainage Assessment
Hydrograph Routing Through Colter Street Junction Structure
50-year Storm, Existing Condition

Trunk Line

Clock	Inflow Hydrograph (cfs)	Junction Structure WSE	S. Trunk Line Q_{OUT}	S. Trunk Line HGL	Colter St Detention Q_{IN}	Cumulative Storage (af)	Basin WSE	Bypass to Trunkline (af)
614	0	1135.8	0	NA	0	0	1135.0	
616	1	1135.9	0	NA	1	0.00	1135.0	0.00
824	1	1135.9	0	NA	1	0.18	1135.0	0.00
826	2	1136.0	0	NA	2	0.18	1135.0	0.00
922	2	1136.0	0	NA	2	0.34	1135.8	0.00
924	3	1136.1	0	NA	3	0.35	1135.8	0.00
958	3	1136.1	0	NA	3	0.49	1136.0	0.00
1000	4	1137.0	4	1137.0	0	0.49	1137.0	0.01
1022	4	1137.0	4	1137.0	0	0.49	1137.0	0.13
1024	5	1137.0	5	1137.0	0	0.49	1137.0	0.15
1034	5	1137.0	5	1137.0	0	0.49	1137.0	0.21
1036	6	1137.0	6	1137.0	0	0.49	1137.0	0.23
1044	6	1137.0	6	1137.0	0	0.49	1137.0	0.30
1046	7	1137.1	6	1137.1	1	0.49	1137.0	0.31
1048	7	1137.1	6	1137.1	1	0.49	1137.0	0.33
1050	7	1137.1	6	1137.1	1	0.50	1137.0	0.35
1052	8	1137.2	5	1137.2	3	0.50	1137.0	0.36
1054	8	1137.2	5	1137.2	3	0.51	1137.0	0.37
1056	8	1137.2	5	1137.2	3	0.52	1137.0	0.39
1058	9	1137.2	5	1137.2	4	0.53	1137.0	0.40
1100	9	1137.2	5	1137.2	4	0.54	1137.0	0.42
1102	9	1137.2	5	1137.2	4	0.55	1137.0	0.43
1104	10	1137.2	6	1137.2	4	0.56	1137.0	0.45
1106	10	1137.2	6	1137.2	4	0.58	1137.0	0.46
1108	10	1137.2	6	1137.2	4	0.59	1137.0	0.48
1110	11	1137.2	7	1137.2	4	0.60	1137.0	0.50
1112	11	1137.2	7	1137.2	4	0.61	1137.0	0.52
1114	12	1137.2	7	1137.2	5	0.62	1137.1	0.54
1116	12	1137.2	7	1137.2	5	0.64	1137.2	0.56
1118	12	1137.2	7	1137.2	5	0.65	1137.2	0.58
1120	13	1137.3	7	1137.3	6	0.67	1137.2	0.60
1122	13	1137.3	7	1137.3	6	0.68	1137.2	0.61
1124	14	1137.4	7	1137.3	7	0.70	1137.3	0.63
1126	14	1137.4	7	1137.3	7	0.72	1137.3	0.65
1128	16	1137.8	8	1137.3	8	0.74	1137.3	0.67
1130	17	1137.8	8	1137.3	9	0.77	1137.3	0.70
1132	18	1137.8	9	1137.3	9	0.79	1137.3	0.72
1134	19	1137.8	9	1137.3	10	0.82	1137.3	0.75
1136	20	1137.8	10	1137.5	10	0.85	1137.3	0.77
1138	23	1137.6	11	1137.5	12	0.88	1137.6	0.80
1140	28	1138.5	16	1137.5	12	0.91	1137.8	0.85
1142	36	1138.7	20	1138.5	16	0.96	1137.8	0.90
1144	44	1139.0	20	1139.2	24	1.02	1138.1	0.96
1146	53	1139.3	20	1139.2	33	1.12	1138.2	1.01
1148	62	1140.1	10	1140.1	52	1.26	1138.2	1.04
1150	72	1140.7	5	1140.7	67	1.44	1138.4	1.06

Sr 51 Drainage Assessment
Hydrograph Routing Through Colter Street Junction Structure
50-year Storm, Existing Condition

Trunk Line

Clock	Inflow Hydrograph (cfs)	Junction Structure WSE	S. Trunk Line Q_{OUT}	S. Trunk Line HGL	Colter St Detention Q_{IN}	Cumulative Storage (af)	Basin WSE	Bypass to Trunkline (af)
1152	86	1142.0	5	1141.8	81	1.67	1138.7	1.07
1154	101	1143.0	0	1144.7	101	1.94	1139.0	1.07

Maximum capacity of trunk line reached at this step
HGL in trunk line is higher than HGL in junction structure.
Runoff will over flow downstream inlets or back up in laterals
Inflow to trunk line reduced to nearly zero
See Winstorm Output-
Total flow equals 131 cfs
Total flow exceeds 125 cfs capacity of trunk line.

SECTION 2.3 EXISTING CONDITIONS ON-SITE DRAINAGE

On-Site Storm Drain

- **Node Diagram (See Node Diagram In Appendix Section 2.2)**
- **Winstorm Models- 10, 25 and 50-Year Storms**
- **Inlet Calculations- 10-Year and 50- Year Storms**

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 1
Mon May 04 14:36:55 1998

JOB CONTROL : CONT
JOB SECTION : SEC
JOB NUMBER : JOB
PROJECT DESCRIPTION : SR51 DRAINAGE ASSESSMENT
ANALYSYS FREQUENCY : 10 Year
MEASUREMENT UNITS: Input ENGLISH Output ENGLISH

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 300	0.990	0.163	2.00	10.00	4.556	0.000	0.735
I 323	0.990	0.325	2.00	10.00	4.556	0.000	1.466
I 700	0.990	0.627	2.00	10.00	4.556	0.000	2.828
I 701	0.990	0.466	2.00	10.00	4.556	0.000	2.102
I 702	0.990	0.698	2.00	10.00	4.556	0.000	3.148
I 703	0.990	0.680	2.00	10.00	4.556	0.000	3.067
I 704	0.990	1.409	2.00	10.00	4.556	0.000	6.355
I 705	0.990	0.085	2.00	10.00	4.556	0.000	0.383
I 706	0.990	0.336	2.00	10.00	4.556	0.000	1.515
I 707	0.990	0.277	2.00	10.00	4.556	0.000	1.249
I 708	0.990	0.251	2.00	10.00	4.556	0.000	1.132
I 709	0.990	0.251	2.00	10.00	4.556	0.000	1.132
I 710	0.990	0.643	2.00	10.00	4.556	0.000	2.900
I 711	0.990	0.255	2.00	10.00	4.556	0.000	1.150
I 712	0.990	0.422	2.00	10.00	4.556	0.000	1.903
I 713	0.990	0.413	2.00	10.00	4.556	0.000	1.863
I 714	0.990	0.470	2.00	10.00	4.556	0.000	2.120
I 715	0.990	0.354	2.00	10.00	4.556	0.000	1.597
I 716	0.990	0.470	2.00	10.00	4.556	0.000	2.120
I 717	0.990	0.799	2.00	10.00	4.556	0.000	3.603
I 718	0.990	0.422	2.00	10.00	4.556	0.000	1.903
I 719	0.990	0.422	2.00	10.00	4.556	0.000	1.903
I 720	0.990	0.870	2.00	10.00	4.556	0.000	3.924
I 721	0.990	0.451	2.00	10.00	4.556	0.000	2.034
I 722	0.990	0.451	2.00	10.00	4.556	0.000	2.034
I 723	0.990	0.453	2.00	10.00	4.556	0.000	2.043
I 724	0.990	0.384	2.00	10.00	4.556	0.000	1.732
I 725	0.990	0.384	2.00	10.00	4.556	0.000	1.732
I 726	0.990	1.230	2.00	10.00	4.556	0.000	5.547
I 727	0.990	0.297	2.00	10.00	4.556	0.000	1.339
I 728	0.990	0.317	2.00	10.00	4.556	0.000	1.430
I 729	0.990	1.075	2.00	10.00	4.556	0.000	4.848
I 730	0.990	0.393	2.00	10.00	4.556	0.000	1.772
I 731	0.990	0.393	2.00	10.00	4.556	0.000	1.772
I 732	0.990	0.317	2.00	10.00	4.556	0.000	1.430
I 733	0.990	0.573	2.00	10.00	4.556	0.000	2.584
I 734	0.990	0.317	2.00	10.00	4.556	0.000	1.430
I 735	0.990	0.637	2.00	10.00	4.556	0.000	2.873
I 736	0.990	0.863	2.00	10.00	4.556	0.000	3.892

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 2
Mon May 04 14:36:55 1998

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 737	0.990	0.990	2.00	10.00	4.556	0.000	4.465
I 738	0.990	0.221	2.00	10.00	4.556	0.000	0.997
I 739	0.990	0.839	2.00	10.00	4.556	0.000	3.784
I 740	0.990	0.675	2.00	10.00	4.556	0.000	3.044
I 741	0.990	0.618	2.00	10.00	4.556	0.000	2.787
I 742	0.990	0.982	2.00	10.00	4.556	0.000	4.429
I 743	0.990	0.413	2.00	10.00	4.556	0.000	1.863
I 744	0.990	0.375	2.00	10.00	4.556	0.000	1.691
I 745	0.990	0.064	2.00	10.00	4.556	0.000	0.289
I 746	0.990	0.432	2.00	10.00	4.556	0.000	1.948
I 747	0.990	0.332	2.00	10.00	4.556	0.000	1.497
I 748	0.990	0.413	2.00	10.00	4.556	0.000	1.863
I 749	0.990	0.393	2.00	10.00	4.556	0.000	1.772
I 750	0.990	0.470	2.00	10.00	4.556	0.000	2.120
I 751	0.990	0.499	2.00	10.00	4.556	0.000	2.250
I 752	0.990	0.141	2.00	10.00	4.556	0.000	0.636
I 753	0.990	0.432	2.00	10.00	4.556	0.000	1.948
I 754	0.990	0.686	2.00	10.00	4.556	0.000	3.094
I 755	0.990	0.249	2.00	10.00	4.556	0.000	1.123
I 756	0.990	0.460	2.00	10.00	4.556	0.000	2.075
I 757	0.990	0.096	2.00	10.00	4.556	0.000	0.433
I 758	0.990	0.192	2.00	10.00	4.556	0.000	0.866
I 759	0.990	0.307	2.00	10.00	4.556	0.000	1.385
I 760	0.990	0.259	2.00	10.00	4.556	0.000	1.168
I 761	0.990	0.453	2.00	10.00	4.556	0.000	2.043
I 762	0.990	0.202	2.00	10.00	4.556	0.000	0.911
I 763	0.990	0.336	2.00	10.00	4.556	0.000	1.515
I 764	0.990	0.361	2.00	10.00	4.556	0.000	1.628
I 765	0.990	0.413	2.00	10.00	4.556	0.000	1.863
I 766	0.990	0.125	2.00	10.00	4.556	0.000	0.564
I 767	0.990	0.382	2.00	10.00	4.556	0.000	1.723
I 768	0.990	0.064	2.00	10.00	4.556	0.000	0.289

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 3
Mon May 04 14:36:56 1998

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I300	0.990	0.163	10.00	4.556	0.000	0.735
I323	0.990	0.325	10.00	4.556	0.000	1.466
I700	0.990	1.093	10.00	4.556	0.000	4.929
J700	0.990	1.093	10.00	4.556	0.000	4.929
I701	0.990	0.466	10.00	4.556	0.000	2.102
J701	0.990	2.471	10.00	4.556	0.000	11.144
I702	0.990	1.378	10.00	4.556	0.000	6.215
J702	0.990	32.517	15.84	3.638	0.000	117.126
I703	0.990	0.680	10.00	4.556	0.000	3.067
I704	0.990	1.409	10.00	4.556	0.000	6.355
J704	0.990	28.637	15.61	3.667	0.000	103.952
I705	0.990	0.085	10.00	4.556	0.000	0.383
J705	0.990	28.216	15.31	3.705	0.000	103.496
I706	0.990	0.421	10.00	4.556	0.000	1.899
I707	0.990	0.779	10.00	4.556	0.000	3.513
I708	0.990	0.502	10.00	4.556	0.000	2.264
I709	0.990	0.251	10.00	4.556	0.000	1.132
I710	0.990	27.437	15.04	3.740	0.000	101.579
I711	0.990	0.255	10.00	4.556	0.000	1.150
J711	0.990	16.530	10.18	4.519	0.000	73.958
I712	0.990	0.422	10.00	4.556	0.000	1.903
J712	0.990	16.530	10.18	4.519	0.000	73.958
I713	0.990	26.539	14.49	3.812	0.000	100.157
J713	0.990	13.900	10.00	4.556	0.000	62.689
I714	0.990	0.824	10.00	4.556	0.000	3.716
J714	0.990	12.047	10.00	4.556	0.000	54.332
I715	0.990	0.354	10.00	4.556	0.000	1.597
J715	0.990	0.439	10.00	4.556	0.000	1.980
I716	0.990	25.704	13.74	3.917	0.000	99.671
J716	0.990	4.585	10.00	4.556	0.000	20.678
I717	0.990	0.799	10.00	4.556	0.000	3.603
I718	0.990	23.611	12.57	4.094	0.000	95.707
I719	0.990	0.422	10.00	4.556	0.000	1.903
I720	0.990	22.767	11.94	4.197	0.000	94.608
I721	0.990	1.680	10.00	4.556	0.000	7.577
I722	0.990	1.229	10.00	4.556	0.000	5.543
I723	0.990	0.778	10.00	4.556	0.000	3.509
I724	0.990	20.217	11.22	4.323	0.000	86.527
I725	0.990	0.384	10.00	4.556	0.000	1.732
I726	0.990	19.449	10.74	4.411	0.000	84.926
I727	0.990	18.219	10.67	4.424	0.000	79.800
I728	0.990	1.392	10.00	4.556	0.000	6.278
I729	0.990	1.075	10.00	4.556	0.000	4.848
I730	0.990	16.530	10.18	4.519	0.000	73.958
I731	0.990	0.393	10.00	4.556	0.000	1.772

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 4
Mon May 04 14:36:56 1998

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I732	0.990	15.744	10.00	4.556	0.000	71.005
I733	0.990	0.573	10.00	4.556	0.000	2.584
I734	0.990	0.954	10.00	4.556	0.000	4.303
I735	0.990	0.637	10.00	4.556	0.000	2.873
I736	0.990	0.863	10.00	4.556	0.000	3.892
I737	0.990	0.990	10.00	4.556	0.000	4.465
I738	0.990	0.221	10.00	4.556	0.000	0.997
I739	0.990	0.839	10.00	4.556	0.000	3.784
I740	0.990	10.987	10.00	4.556	0.000	49.551
I741	0.990	10.312	10.00	4.556	0.000	46.507
I742	0.990	0.982	10.00	4.556	0.000	4.429
I743	0.990	8.712	10.00	4.556	0.000	39.291
I744	0.990	0.375	10.00	4.556	0.000	1.691
I745	0.990	0.064	10.00	4.556	0.000	0.289
I746	0.990	7.697	10.00	4.556	0.000	34.713
I747	0.990	0.745	10.00	4.556	0.000	3.360
I748	0.990	0.413	10.00	4.556	0.000	1.863
I749	0.990	6.520	10.00	4.556	0.000	29.405
I750	0.990	0.470	10.00	4.556	0.000	2.120
I751	0.990	5.657	10.00	4.556	0.000	25.513
I752	0.990	0.573	10.00	4.556	0.000	2.584
I753	0.990	0.432	10.00	4.556	0.000	1.948
I754	0.990	0.686	10.00	4.556	0.000	3.094
I755	0.990	0.709	10.00	4.556	0.000	3.198
I756	0.990	0.460	10.00	4.556	0.000	2.075
I757	0.990	3.190	10.00	4.556	0.000	14.387
I758	0.990	0.192	10.00	4.556	0.000	0.866
I759	0.990	2.902	10.00	4.556	0.000	13.088
I760	0.990	0.259	10.00	4.556	0.000	1.168
I761	0.990	0.655	10.00	4.556	0.000	2.954
I762	0.990	0.202	10.00	4.556	0.000	0.911
I763	0.990	1.681	10.00	4.556	0.000	7.581
I764	0.990	0.774	10.00	4.556	0.000	3.491
I765	0.990	0.413	10.00	4.556	0.000	1.863
I766	0.990	0.571	10.00	4.556	0.000	2.575
I767	0.990	0.382	10.00	4.556	0.000	1.723
I768	0.990	0.064	10.00	4.556	0.000	0.289

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 5
Mon May 04 14:36:56 1998

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
300	I300	I743	1145.010	1144.610	Circ	1	n/a	1.250	6.00	6.682	0.012
323	I323	I723	1134.110	1125.040	Circ	1	n/a	1.250	31.00	30.597	0.012
333	I727	I726	1112.850	1112.480	Circ	1	n/a	3.000	50.00	0.740	0.012
336	J712	J711	1126.340	1113.690	Circ	1	n/a	3.000	48.00	27.320	0.012
337	I730	J712	1127.720	1126.340	Circ	1	n/a	3.000	186.00	0.742	0.012
700	I700	J700	1128.600	1127.990	Circ	1	n/a	1.250	54.00	1.130	0.012
701	I701	I700	1129.170	1128.700	Circ	1	n/a	1.250	68.50	0.686	0.012
702	J700	J701	1127.740	1119.310	Circ	1	n/a	1.500	305.00	2.765	0.012
703	I702	J701	1122.000	1119.450	Circ	1	n/a	1.250	90.00	2.834	0.012
704	I703	I702	1122.190	1120.940	Circ	1	n/a	1.250	55.00	2.273	0.012
705	J701	J702	1119.310	1114.100	Circ	1	n/a	1.500	189.00	2.758	0.012
706	J702	J703	1103.280	1103.150	Circ	1	n/a	4.000	46.00	0.283	0.012
707	I704	J702	1118.970	1114.360	Circ	1	n/a	1.250	56.00	8.260	0.012
708	J704	J702	1103.660	1103.380	Circ	1	n/a	4.000	117.00	0.239	0.012
709	I706	J704	1117.060	1104.040	Circ	1	n/a	1.250	79.00	16.710	0.012
710	I705	I706	1118.500	1117.560	Circ	1	n/a	1.250	10.00	9.442	0.012
711	J705	J704	1104.030	1103.660	Circ	1	n/a	4.000	155.00	0.239	0.012
712	I707	J705	1116.790	1105.410	Circ	1	n/a	1.250	50.00	23.373	0.012
713	I708	I707	1117.570	1116.950	Circ	1	n/a	1.250	26.00	2.385	0.012
714	I709	I708	1118.400	1117.820	Circ	1	n/a	1.250	26.00	2.231	0.012
715	I710	J705	1104.350	1104.030	Circ	1	n/a	4.000	134.00	0.239	0.012
716	I711	I710	1115.560	1107.510	Circ	1	n/a	1.250	20.00	43.969	0.012
717	I713	I710	1104.890	1104.500	Circ	1	n/a	4.000	268.00	0.146	0.012
718	I712	I713	1119.420	1117.870	Circ	1	n/a	1.250	51.00	3.041	0.012
720	I716	I713	1105.620	1104.890	Circ	1	n/a	4.000	366.00	0.199	0.012
721	I714	I716	1120.590	1117.760	Circ	1	n/a	1.250	98.00	2.889	0.012
722	I715	I714	1120.890	1120.690	Circ	1	n/a	1.250	11.00	1.818	0.012
723	I717	I716	1119.480	1105.620	Circ	1	n/a	1.250	20.00	96.125	0.012
724	I718	I716	1106.720	1105.620	Circ	1	n/a	4.000	550.00	0.200	0.012
725	I719	I718	1122.200	1120.700	Circ	1	n/a	1.250	98.00	1.531	0.012
726	I720	I718	1108.900	1107.220	Circ	1	n/a	3.500	381.00	0.441	0.012
727	I721	I720	1121.960	1120.300	Circ	1	n/a	1.250	10.00	16.834	0.012
728	I722	I721	1123.960	1122.210	Circ	1	n/a	1.250	100.00	1.750	0.012
729	I723	I722	1125.040	1124.210	Circ	1	n/a	1.250	25.00	3.322	0.012
730	I724	I720	1110.660	1108.900	Circ	1	n/a	3.500	400.00	0.440	0.012
731	I725	I724	1125.850	1123.950	Circ	1	n/a	1.250	98.00	1.939	0.012
732	I726	I724	1112.230	1110.910	Circ	1	n/a	3.250	300.00	0.440	0.012
733	I728	I727	1127.560	1126.560	Circ	1	n/a	1.250	98.00	1.020	0.012
734	I729	I728	1127.890	1127.660	Circ	1	n/a	1.250	10.00	2.301	0.012
735	J711	I727	1113.660	1112.850	Circ	1	n/a	3.000	117.00	0.692	0.012
736	I731	I730	1130.560	1129.160	Circ	1	n/a	1.250	98.00	1.429	0.012
737	I732	I730	1130.560	1127.970	Circ	1	n/a	2.750	350.00	0.740	0.012
738	I733	I732	1137.450	1131.310	Circ	1	n/a	1.250	64.00	9.638	0.012
739	I734	I732	1132.620	1131.310	Circ	1	n/a	1.250	108.00	1.213	0.012
740	I735	I734	1137.020	1133.120	Circ	1	n/a	1.250	88.00	4.436	0.012

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 6
Mon May 04 14:36:56 1998

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
741	J713	I732	1131.990	1131.310	Circ	1	n/a	2.750	285.00	0.239	0.012
742	I736	J713	1134.170	1132.740	Circ	1	n/a	1.250	29.00	4.937	0.012
743	I737	J713	1134.540	1132.740	Circ	1	n/a	1.250	165.00	1.091	0.012
744	J714	J713	1133.020	1131.990	Circ	1	n/a	2.750	206.00	0.500	0.012
745	I738	J714	1136.210	1134.520	Circ	1	n/a	1.250	23.00	7.368	0.012
746	I739	J714	1136.210	1134.520	Circ	1	n/a	1.250	154.00	1.097	0.012
747	I740	J714	1134.400	1130.520	Circ	1	n/a	2.500	113.00	3.436	0.012
748	I741	I740	1138.170	1134.400	Circ	1	n/a	2.500	334.00	1.129	0.012
749	I742	I741	1140.510	1138.920	Circ	1	n/a	1.250	153.00	1.039	0.013
750	I743	I741	1143.360	1138.170	Circ	1	n/a	2.500	273.00	1.901	0.012
751	J715	I743	1145.780	1144.610	Circ	1	n/a	1.250	85.00	1.377	0.012
752	I744	J715	1146.790	1145.780	Circ	1	n/a	1.250	65.00	1.554	0.012
753	I745	J715	1147.000	1145.780	Circ	1	n/a	1.250	57.00	2.141	0.012
754	I746	I743	1147.590	1144.360	Circ	1	n/a	2.500	255.00	1.267	0.012
755	I747	I746	1155.720	1154.400	Circ	1	n/a	1.250	75.00	1.760	0.012
756	I748	I747	1157.220	1155.720	Circ	1	n/a	1.250	16.00	9.416	0.012
757	I749	I746	1148.900	1147.990	Circ	1	n/a	2.000	300.00	0.303	0.012
758	I750	I749	1165.870	1163.360	Circ	1	n/a	1.250	90.00	2.790	0.012
759	I751	I749	1149.790	1148.900	Circ	1	n/a	2.000	300.00	0.297	0.012
760	I752	I751	1169.180	1150.160	Circ	1	n/a	1.250	54.00	37.634	0.012
761	I753	I752	1170.560	1169.280	Circ	1	n/a	1.250	16.00	8.026	0.012
762	J716	I751	1150.470	1149.780	Circ	1	n/a	2.000	300.00	0.230	0.012
763	I754	J716	1169.000	1150.470	Circ	1	n/a	1.250	43.00	47.755	0.012
764	I755	J716	1169.430	1150.930	Circ	1	n/a	1.250	153.00	12.181	0.012
765	I756	I755	1169.930	1169.430	Circ	1	n/a	1.250	10.00	5.006	0.012
766	I757	J716	1150.890	1150.550	Circ	1	n/a	2.000	115.00	0.296	0.012
767	I758	I757	1170.780	1168.020	Circ	1	n/a	1.250	30.00	9.239	0.012
768	I759	I757	1151.780	1150.890	Circ	1	n/a	2.000	300.00	0.297	0.012
769	I760	I759	1179.530	1163.730	Circ	1	n/a	1.250	56.00	29.409	0.012
770	I761	I759	1164.880	1163.820	Circ	1	n/a	1.250	127.00	0.835	0.012
771	I762	I761	1177.880	1164.980	Circ	1	n/a	1.250	38.00	36.091	0.012
772	I763	I759	1152.660	1151.780	Circ	1	n/a	2.000	300.00	0.293	0.012
773	I764	I763	1160.490	1159.890	Circ	1	n/a	1.250	60.00	1.000	0.012
774	I765	I764	1161.090	1160.490	Circ	1	n/a	1.250	60.00	1.000	0.012
775	I766	I763	1153.030	1152.660	Circ	1	n/a	2.000	125.00	0.296	0.012
776	I767	I766	1159.150	1159.000	Circ	1	n/a	1.250	8.00	1.875	0.012
777	I768	I766	1159.730	1159.490	Circ	1	n/a	1.250	60.00	0.400	0.012

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 7
Mon May 04 14:36:56 1998

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
300	1156.371	1156.368	0.01	0.172	1.250	7.16	0.60	0.735	18.089	0.003
323	1134.326	1126.887	0.04	0.167	1.250	15.15	1.19	1.466	38.710	0.011
333	1132.024	1131.216	1.22	3.000	3.000	11.59	11.29	79.800	62.158	0.198
336	1134.263	1133.590	1.05	0.899	3.000	41.46	10.46	73.958	377.675	0.170
337	1136.552	1134.263	1.05	3.000	3.000	10.74	10.46	73.958	62.240	0.340
700	1129.670	1128.444	0.50	0.742	0.742	6.49	6.49	4.929	7.438	0.328
701	1129.764	1129.670	0.09	0.522	0.970	4.33	2.06	2.102	5.797	0.033
702	1128.444	1121.293	0.19	0.522	1.500	9.01	2.79	4.929	18.922	0.181
703	1122.964	1121.293	0.79	0.645	1.250	9.74	5.06	6.215	11.782	0.319
704	1123.118	1122.964	0.19	0.462	1.250	7.45	2.50	3.067	10.551	0.049
705	1121.293	1114.706	0.96	0.829	0.829	11.13	11.13	11.144	18.897	1.155
706	1114.706	1113.500	0.57	4.000	4.000	9.57	9.32	117.126	82.726	0.945
707	1121.094	1114.706	0.82	0.483	0.483	14.55	14.53	6.355	20.113	1.641
708	1115.440	1114.706	0.45	4.000	4.000	8.49	8.27	103.952	76.126	0.213
709	1117.308	1115.440	0.07	0.218	1.250	13.16	1.55	1.899	28.606	0.030
710	1118.963	1117.308	0.00	0.116	0.116	6.73	6.68	0.383	21.503	0.347
711	1116.337	1115.440	0.44	4.000	4.000	8.45	8.24	103.496	76.030	0.211
712	1117.164	1116.337	0.25	0.272	1.250	17.88	2.86	3.513	33.833	0.102
713	1118.562	1117.164	0.10	0.388	0.388	6.97	6.97	2.264	10.808	0.604
714	1118.695	1118.562	0.03	0.278	0.742	5.56	1.49	1.132	10.454	0.017
715	1117.010	1116.337	0.43	4.000	4.000	8.30	8.08	101.579	76.045	0.102
716	1117.022	1117.010	0.03	0.136	1.250	15.86	0.94	1.150	46.404	0.007
717	1118.219	1117.010	0.41	4.000	4.000	8.18	7.97	100.157	59.363	0.099
718	1120.114	1118.219	0.07	0.334	0.349	7.25	6.80	1.903	12.203	0.360
720	1119.818	1118.219	0.41	4.000	4.000	8.14	7.93	99.671	69.497	0.098
721	1121.184	1119.818	0.28	0.480	1.250	8.57	3.03	3.716	11.895	0.114
722	1121.336	1121.184	0.05	0.348	0.494	5.72	3.54	1.597	9.437	0.097
723	1119.938	1119.818	0.27	0.194	1.250	29.81	2.94	3.603	68.612	0.067
724	1122.079	1119.818	0.38	4.000	4.000	7.82	7.62	95.707	69.593	0.180
725	1122.617	1122.079	0.07	0.399	1.250	5.65	1.55	1.903	8.658	0.019
726	1125.250	1122.079	0.75	3.500	3.500	10.09	9.83	94.608	72.376	0.301
727	1125.841	1125.250	1.17	0.438	1.250	19.72	6.17	7.577	28.712	0.474
728	1126.722	1125.841	0.63	0.696	1.250	7.89	4.52	5.543	9.258	0.254
729	1126.887	1126.722	0.25	0.448	1.250	8.88	2.86	3.509	12.755	0.102
730	1128.023	1125.250	0.63	3.500	3.500	9.23	8.99	86.527	72.299	0.251
731	1128.098	1128.023	0.06	0.357	1.250	6.01	1.41	1.732	9.745	0.015
732	1131.216	1128.023	0.90	3.250	3.250	10.51	10.24	84.926	59.334	0.489
733	1133.138	1132.024	0.80	0.916	1.250	6.51	5.12	6.278	7.069	0.325
734	1133.307	1133.138	0.48	0.593	1.250	8.45	3.95	4.848	10.615	0.121
735	1133.590	1132.024	1.05	3.000	3.000	10.74	10.46	73.958	60.122	0.340
736	1136.631	1136.552	0.06	0.391	1.250	5.41	1.44	1.772	8.365	0.016
737	1142.372	1136.552	1.54	2.750	2.750	12.27	11.95	71.005	49.287	0.444
738	1142.494	1142.372	0.14	0.291	1.250	11.85	2.11	2.584	21.726	0.034
739	1142.934	1142.372	0.38	0.669	1.250	6.44	3.51	4.303	7.708	0.153
740	1143.124	1142.934	0.17	0.374	1.250	9.30	2.34	2.873	14.740	0.043

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 8
Mon May 04 14:36:56 1998

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
741	1146.131	1142.372	1.20	2.750	2.750	10.83	10.55	62.689	27.986	0.346
742	1146.299	1146.131	0.31	0.426	1.250	10.54	3.17	3.892	15.549	0.078
743	1146.906	1146.131	0.41	0.705	1.250	6.25	3.64	4.465	7.310	0.103
744	1148.374	1146.131	0.90	2.750	2.750	9.39	9.15	54.332	40.513	0.390
745	1148.384	1148.374	0.02	0.194	1.250	8.25	0.81	0.997	18.995	0.005
746	1148.898	1148.374	0.29	0.637	1.250	6.02	3.08	3.784	7.331	0.074
747	1150.096	1148.374	1.24	1.397	2.500	17.56	10.09	49.551	82.363	0.317
748	1154.034	1150.096	1.10	2.016	2.500	10.97	9.47	46.507	47.211	0.279
749	1154.854	1154.034	0.47	0.751	1.250	5.75	3.61	4.429	6.585	0.101
750	1156.368	1154.034	0.78	1.457	2.500	13.23	8.00	39.291	61.273	0.199
751	1156.468	1156.368	0.08	0.418	1.250	5.50	1.61	1.980	8.211	0.032
752	1156.521	1156.468	0.06	0.373	1.250	5.50	1.38	1.691	8.724	0.015
753	1156.470	1156.468	0.00	0.144	1.250	3.66	0.24	0.289	10.239	0.001
754	1158.313	1156.368	0.61	1.530	2.500	11.03	7.07	34.713	50.012	0.389
755	1158.579	1158.313	0.23	0.520	1.250	6.96	2.74	3.360	9.285	0.093
756	1158.608	1158.579	0.07	0.249	1.250	10.75	1.52	1.863	21.475	0.018
757	1163.449	1158.313	1.44	2.000	2.000	9.61	9.36	29.405	13.498	0.817
758	1166.636	1163.449	0.09	0.361	0.361	7.22	7.22	2.120	11.689	0.406
759	1167.315	1163.449	1.08	2.000	2.000	8.34	8.12	25.513	13.349	0.615
760	1169.443	1167.315	0.14	0.208	1.250	19.36	2.11	2.584	42.931	0.055
761	1171.642	1169.443	0.08	0.265	0.265	10.29	10.25	1.948	19.825	0.817
762	1169.855	1167.315	0.71	2.000	2.000	6.76	6.58	20.678	11.753	0.404
763	1169.988	1169.855	0.20	0.215	1.250	22.12	2.52	3.094	48.360	0.049
764	1170.259	1169.855	0.21	0.305	1.250	13.74	2.61	3.198	24.424	0.084
765	1170.312	1170.259	0.09	0.307	0.829	8.82	2.40	2.075	15.658	0.045
766	1170.447	1169.855	0.34	1.818	2.000	4.80	4.58	14.387	13.326	0.196
767	1170.993	1170.447	0.02	0.172	1.250	8.44	0.71	0.866	21.271	0.004
768	1171.464	1170.447	0.29	1.583	2.000	4.91	4.17	13.088	13.349	0.162
769	1179.744	1171.464	0.03	0.151	1.250	14.00	0.95	1.168	37.951	0.007
770	1171.762	1171.464	0.18	0.596	1.250	5.12	2.41	2.954	6.394	0.072
771	1178.093	1171.762	0.02	0.128	1.250	13.92	0.74	0.911	42.041	0.004
772	1171.803	1171.464	0.10	1.085	2.000	4.36	2.41	7.581	13.273	0.054
773	1172.053	1171.803	0.25	0.623	1.250	5.71	2.84	3.491	6.998	0.101
774	1172.113	1172.053	0.07	0.440	1.250	4.83	1.52	1.863	6.998	0.018
775	1171.829	1171.803	0.01	0.601	2.000	3.24	0.82	2.575	13.334	0.016
776	1171.849	1171.829	0.06	0.358	1.250	5.92	1.40	1.723	9.583	0.015
777	1171.830	1171.829	0.00	0.215	1.250	2.05	0.24	0.289	4.426	0.000

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 9
Mon May 04 14:36:56 1998

Computation Messages

---

*Warning: Discharge decreased downstream Junction J712 - previous intensity used
*Warning: Discharge decreased downstream Junction J711 - previous intensity used
*Warning: Run - 333 - Upstream Hydraulic Gradeline = 1132.02 - Exceeds Critical Elevation = 1131.06
*Warning: Run - 337 - Upstream Hydraulic Gradeline = 1136.55 - Exceeds Critical Elevation = 1133.56
*Warning: Run - 747 - Upstream Hydraulic Gradeline = 1150.10 - Exceeds Critical Elevation = 1139.85
*Warning: Run - 754 - Upstream Hydraulic Gradeline = 1158.31 - Exceeds Critical Elevation = 1157.94
*Warning: Run - 775 - Upstream Hydraulic Gradeline = 1171.83 - Exceeds Critical Elevation = 1162.28
*Computation: Run = 300 - Pipe Flowing Full
*Computation: Run = 323 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 333 - Insufficient Capacity
*Computation: Run = 336 - Pipe Flowing Full
*Computation: Run = 337 - Insufficient Capacity
*Computation: Run = 702 - Pipe Flowing Full
*Computation: Run = 703 - Pipe Flowing Full
*Computation: Run = 704 - Pipe Flowing Full
*Computation: Run = 706 - Insufficient Capacity
*Computation: Run = 708 - Insufficient Capacity
*Computation: Run = 709 - Pipe Flowing Full
*Computation: Run = 711 - Insufficient Capacity
*Computation: Run = 712 - Pipe Flowing Full
*Computation: Run = 715 - Insufficient Capacity
*Computation: Run = 716 - Pipe Flowing Full
*Computation: Run = 717 - Insufficient Capacity
*Computation: Run = 720 - Insufficient Capacity
*Computation: Run = 721 - Pipe Flowing Full
*Computation: Run = 723 - Pipe Flowing Full
*Computation: Run = 724 - Insufficient Capacity
*Computation: Run = 725 - Pipe Flowing Full
*Computation: Run = 726 - Insufficient Capacity
*Computation: Run = 727 - Pipe Flowing Full
*Computation: Run = 728 - Pipe Flowing Full
*Computation: Run = 729 - Pipe Flowing Full
*Computation: Run = 730 - Insufficient Capacity
*Computation: Run = 731 - Pipe Flowing Full
*Computation: Run = 732 - Insufficient Capacity
*Computation: Run = 733 - Pipe Flowing Full
*Computation: Run = 734 - Pipe Flowing Full
*Computation: Run = 735 - Insufficient Capacity
*Computation: Run = 736 - Pipe Flowing Full
*Computation: Run = 737 - Insufficient Capacity
*Computation: Run = 738 - Pipe Flowing Full
*Computation: Run = 739 - Pipe Flowing Full
*Computation: Run = 740 - Pipe Flowing Full

```
*Computation: Run = 741 - Insufficient Capacity
*Computation: Run = 742 - Pipe Flowing Full
*Computation: Run = 743 - Pipe Flowing Full
*Computation: Run = 744 - Insufficient Capacity
*Computation: Run = 745 - Pipe Flowing Full
*Computation: Run = 746 - Pipe Flowing Full
*Computation: Run = 747 - Pipe Flowing Full
*Computation: Run = 748 - Pipe Flowing Full
*Computation: Run = 749 - Pipe Flowing Full
*Computation: Run = 750 - Pipe Flowing Full
*Computation: Run = 751 - Pipe Flowing Full
*Computation: Run = 752 - Pipe Flowing Full
*Computation: Run = 753 - Pipe Flowing Full
*Computation: Run = 754 - Pipe Flowing Full
*Computation: Run = 755 - Pipe Flowing Full
*Computation: Run = 756 - Pipe Flowing Full
*Computation: Run = 757 - Insufficient Capacity
*Computation: Run = 759 - Insufficient Capacity
*Computation: Run = 760 - Pipe Flowing Full
*Computation: Run = 762 - Insufficient Capacity
*Computation: Run = 763 - Pipe Flowing Full
*Computation: Run = 764 - Pipe Flowing Full
*Computation: Run = 766 - Insufficient Capacity
*Computation: Run = 767 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 768 - Pipe Flowing Full
*Computation: Run = 769 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 770 - Pipe Flowing Full
*Computation: Run = 771 - Steep Lateral run with Inlet Controlling Hydraulic
Gradeline
*Computation: Run = 772 - Pipe Flowing Full
*Computation: Run = 773 - Pipe Flowing Full
*Computation: Run = 774 - Pipe Flowing Full
*Computation: Run = 775 - Pipe Flowing Full
*Computation: Run = 776 - Pipe Flowing Full
*Computation: Run = 777 - Pipe Flowing Full


NORMAL Completion of WinStorm.
```

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 1
Tue Nov 18 06:07:33 1997

JOB CONTROL : CONT
JOB SECTION : SEC
JOB NUMBER : JOB
PROJECT DESCRIPTION : SR51 DRAINAGE ASSESSMENT
ANALYSYS FREQUENCY : 25 Year
MEASUREMENT UNITS: Input ENGLISH Output ENGLISH

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 300	0.990	0.174	2.00	10.00	5.400	0.000	0.930
I 323	0.990	0.348	2.00	10.00	5.400	0.000	1.860
I 700	0.990	0.642	2.00	10.00	5.400	0.000	3.432
I 701	0.990	0.474	2.00	10.00	5.400	0.000	2.534
I 702	0.990	0.726	2.00	10.00	5.400	0.000	3.881
I 703	0.990	0.705	2.00	10.00	5.400	0.000	3.769
I 704	0.990	1.473	2.00	10.00	5.400	0.000	7.875
I 705	0.990	0.091	2.00	10.00	5.400	0.000	0.487
I 706	0.990	0.336	2.00	10.00	5.400	0.000	1.796
I 707	0.990	0.283	2.00	10.00	5.400	0.000	1.513
I 708	0.990	0.256	2.00	10.00	5.400	0.000	1.369
I 709	0.990	0.256	2.00	10.00	5.400	0.000	1.369
I 710	0.990	0.643	2.00	10.00	5.400	0.000	3.438
I 711	0.990	0.273	2.00	10.00	5.400	0.000	1.460
I 712	0.990	0.422	2.00	10.00	5.400	0.000	2.256
I 713	0.990	0.413	2.00	10.00	5.400	0.000	2.208
I 714	0.990	0.470	2.00	10.00	5.400	0.000	2.513
I 715	0.990	0.379	2.00	10.00	5.400	0.000	2.026
I 716	0.990	0.470	2.00	10.00	5.400	0.000	2.513
I 717	0.990	0.856	2.00	10.00	5.400	0.000	4.576
I 718	0.990	0.422	2.00	10.00	5.400	0.000	2.256
I 719	0.990	0.422	2.00	10.00	5.400	0.000	2.256
I 720	0.990	0.932	2.00	10.00	5.400	0.000	4.983
I 721	0.990	0.451	2.00	10.00	5.400	0.000	2.411
I 722	0.990	0.451	2.00	10.00	5.400	0.000	2.411
I 723	0.990	0.485	2.00	10.00	5.400	0.000	2.593
I 724	0.990	0.384	2.00	10.00	5.400	0.000	2.053
I 725	0.990	0.384	2.00	10.00	5.400	0.000	2.053
I 726	0.990	1.318	2.00	10.00	5.400	0.000	7.046
I 727	0.990	0.297	2.00	10.00	5.400	0.000	1.588
I 728	0.990	0.317	2.00	10.00	5.400	0.000	1.695
I 729	0.990	1.152	2.00	10.00	5.400	0.000	6.159
I 730	0.990	0.393	2.00	10.00	5.400	0.000	2.101
I 731	0.990	0.393	2.00	10.00	5.400	0.000	2.101
I 732	0.990	0.317	2.00	10.00	5.400	0.000	1.695
I 733	0.990	0.593	2.00	10.00	5.400	0.000	3.170
I 734	0.990	0.317	2.00	10.00	5.400	0.000	1.695
I 735	0.990	0.661	2.00	10.00	5.400	0.000	3.534
I 736	0.990	0.904	2.00	10.00	5.400	0.000	4.833
I 737	0.990	1.051	2.00	10.00	5.400	0.000	5.619
I 738	0.990	0.221	2.00	10.00	5.400	0.000	1.182
I 739	0.990	0.852	2.00	10.00	5.400	0.000	4.555
I 740	0.990	0.690	2.00	10.00	5.400	0.000	3.689
I 741	0.990	0.632	2.00	10.00	5.400	0.000	3.379
I 742	0.990	0.998	2.00	10.00	5.400	0.000	5.336
I 743	0.990	0.413	2.00	10.00	5.400	0.000	2.208
I 744	0.990	0.402	2.00	10.00	5.400	0.000	2.149
I 745	0.990	0.068	2.00	10.00	5.400	0.000	0.364
I 746	0.990	0.432	2.00	10.00	5.400	0.000	2.310
I 747	0.990	0.356	2.00	10.00	5.400	0.000	1.903
I 748	0.990	0.413	2.00	10.00	5.400	0.000	2.208

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 2
Tue Nov 18 06:07:33 1997

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 749	0.990	0.393	2.00	10.00	5.400	0.000	2.101
I 750	0.990	0.470	2.00	10.00	5.400	0.000	2.513
I 751	0.990	0.499	2.00	10.00	5.400	0.000	2.668
I 752	0.990	0.152	2.00	10.00	5.400	0.000	0.813
I 753	0.990	0.432	2.00	10.00	5.400	0.000	2.310
I 754	0.990	0.735	2.00	10.00	5.400	0.000	3.929
I 755	0.990	0.249	2.00	10.00	5.400	0.000	1.331
I 756	0.990	0.492	2.00	10.00	5.400	0.000	2.630
I 757	0.990	0.096	2.00	10.00	5.400	0.000	0.513
I 758	0.990	0.192	2.00	10.00	5.400	0.000	1.026
I 759	0.990	0.307	2.00	10.00	5.400	0.000	1.641
I 760	0.990	0.259	2.00	10.00	5.400	0.000	1.385
I 761	0.990	0.456	2.00	10.00	5.400	0.000	2.438
I 762	0.990	0.202	2.00	10.00	5.400	0.000	1.080
I 763	0.990	0.336	2.00	10.00	5.400	0.000	1.796
I 764	0.990	0.386	2.00	10.00	5.400	0.000	2.064
I 765	0.990	0.421	2.00	10.00	5.400	0.000	2.251
I 766	0.990	0.125	2.00	10.00	5.400	0.000	0.668
I 767	0.990	0.409	2.00	10.00	5.400	0.000	2.187
I 768	0.990	0.068	2.00	10.00	5.400	0.000	0.364

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 3
Tue Nov 18 06:07:34 1997

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I300	0.990	0.174	10.00	5.400	0.000	0.930
I323	0.990	0.348	10.00	5.400	0.000	1.860
I700	0.990	1.116	10.00	5.400	0.000	5.966
J700	0.990	1.116	10.00	5.400	0.000	5.966
I701	0.990	0.474	10.00	5.400	0.000	2.534
J701	0.990	2.547	10.00	5.400	0.000	13.617
I702	0.990	1.431	10.00	5.400	0.000	7.650
J702	0.990	33.490	13.70	4.676	0.000	155.041
I703	0.990	0.705	10.00	5.400	0.000	3.769
I704	0.990	1.473	10.00	5.400	0.000	7.875
J704	0.990	29.470	13.53	4.705	0.000	137.278
I705	0.990	0.091	10.00	5.400	0.000	0.487
J705	0.990	29.043	13.29	4.745	0.000	136.421
I706	0.990	0.427	10.00	5.400	0.000	2.283
I707	0.990	0.795	10.00	5.400	0.000	4.250
I708	0.990	0.512	10.00	5.400	0.000	2.737
I709	0.990	0.256	10.00	5.400	0.000	1.369
I710	0.990	28.248	13.09	4.780	0.000	133.677
I711	0.990	0.273	10.00	5.400	0.000	1.460
J711	0.990	16.959	10.00	5.400	0.000	90.666
I712	0.990	0.422	10.00	5.400	0.000	2.256
J712	0.990	16.959	10.00	5.400	0.000	90.666
I713	0.990	27.332	12.67	4.854	0.000	131.343
J713	0.990	14.285	10.00	5.400	0.000	76.370
I714	0.990	0.849	10.00	5.400	0.000	4.539
J714	0.990	12.330	10.00	5.400	0.000	65.919
I715	0.990	0.379	10.00	5.400	0.000	2.026
J715	0.990	0.470	10.00	5.400	0.000	2.513
I716	0.990	26.497	12.10	4.960	0.000	130.120
J716	0.990	4.733	10.00	5.400	0.000	25.304
I717	0.990	0.856	10.00	5.400	0.000	4.576
I718	0.990	24.322	11.19	5.140	0.000	123.761
I719	0.990	0.422	10.00	5.400	0.000	2.256
I720	0.990	23.478	10.70	5.243	0.000	121.861
I721	0.990	1.735	10.00	5.400	0.000	9.276
I722	0.990	1.284	10.00	5.400	0.000	6.865
I723	0.990	0.833	10.00	5.400	0.000	4.453
I724	0.990	20.811	10.14	5.368	0.000	110.599
I725	0.990	0.384	10.00	5.400	0.000	2.053
I726	0.990	20.043	10.00	5.400	0.000	107.154
I727	0.990	18.725	10.00	5.400	0.000	100.108
I728	0.990	1.469	10.00	5.400	0.000	7.854
I729	0.990	1.152	10.00	5.400	0.000	6.159
I730	0.990	16.959	10.00	5.400	0.000	90.666
I731	0.990	0.393	10.00	5.400	0.000	2.101
I732	0.990	16.173	10.00	5.400	0.000	86.464
I733	0.990	0.593	10.00	5.400	0.000	3.170
I734	0.990	0.978	10.00	5.400	0.000	5.229
I735	0.990	0.661	10.00	5.400	0.000	3.534
I736	0.990	0.904	10.00	5.400	0.000	4.833
I737	0.990	1.051	10.00	5.400	0.000	5.619

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 4
Tue Nov 18 06:07:34 1997

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I738	0.990	0.221	10.00	5.400	0.000	1.182
I739	0.990	0.852	10.00	5.400	0.000	4.555
I740	0.990	11.257	10.00	5.400	0.000	60.182
I741	0.990	10.567	10.00	5.400	0.000	56.493
I742	0.990	0.998	10.00	5.400	0.000	5.336
I743	0.990	8.937	10.00	5.400	0.000	47.779
I744	0.990	0.402	10.00	5.400	0.000	2.149
I745	0.990	0.068	10.00	5.400	0.000	0.364
I746	0.990	7.880	10.00	5.400	0.000	42.128
I747	0.990	0.769	10.00	5.400	0.000	4.111
I748	0.990	0.413	10.00	5.400	0.000	2.208
I749	0.990	6.679	10.00	5.400	0.000	35.707
I750	0.990	0.470	10.00	5.400	0.000	2.513
I751	0.990	5.816	10.00	5.400	0.000	31.094
I752	0.990	0.584	10.00	5.400	0.000	3.122
I753	0.990	0.432	10.00	5.400	0.000	2.310
I754	0.990	0.735	10.00	5.400	0.000	3.929
I755	0.990	0.741	10.00	5.400	0.000	3.962
I756	0.990	0.492	10.00	5.400	0.000	2.630
I757	0.990	3.257	10.00	5.400	0.000	17.413
I758	0.990	0.192	10.00	5.400	0.000	1.026
I759	0.990	2.969	10.00	5.400	0.000	15.873
I760	0.990	0.259	10.00	5.400	0.000	1.385
I761	0.990	0.658	10.00	5.400	0.000	3.518
I762	0.990	0.202	10.00	5.400	0.000	1.080
I763	0.990	1.745	10.00	5.400	0.000	9.329
I764	0.990	0.807	10.00	5.400	0.000	4.314
I765	0.990	0.421	10.00	5.400	0.000	2.251
I766	0.990	0.602	10.00	5.400	0.000	3.218
I767	0.990	0.409	10.00	5.400	0.000	2.187
I768	0.990	0.068	10.00	5.400	0.000	0.364

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 5
Tue Nov 18 06:07:34 1997

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
300	I300	I743	1145.010	1144.610	Circ	1	n/a	1.250	6.00	6.682	0.012
323	I323	I723	1134.110	1125.040	Circ	1	n/a	1.250	31.00	30.597	0.012
333	I727	I726	1112.850	1112.480	Circ	1	n/a	3.000	50.00	0.740	0.012
336	J712	J711	1126.340	1113.690	Circ	1	n/a	3.000	48.00	27.320	0.012
337	I730	J712	1127.720	1126.340	Circ	1	n/a	3.000	186.00	0.742	0.012
700	I700	J700	1128.600	1127.990	Circ	1	n/a	1.250	54.00	1.130	0.012
701	I701	I700	1129.170	1128.700	Circ	1	n/a	1.250	68.50	0.686	0.012
702	J700	J701	1127.740	1119.310	Circ	1	n/a	1.500	305.00	2.765	0.012
703	I702	J701	1122.000	1119.450	Circ	1	n/a	1.250	90.00	2.834	0.012
704	I703	I702	1122.190	1120.940	Circ	1	n/a	1.250	55.00	2.273	0.012
705	J701	J702	1119.310	1114.100	Circ	1	n/a	1.500	189.00	2.758	0.012
706	J702	J703	1103.280	1103.150	Circ	1	n/a	4.000	46.00	0.283	0.012
707	I704	J702	1118.970	1114.360	Circ	1	n/a	1.250	56.00	8.260	0.012
708	J704	J702	1103.660	1103.380	Circ	1	n/a	4.000	117.00	0.239	0.012
709	I706	J704	1117.060	1104.040	Circ	1	n/a	1.250	79.00	16.710	0.012
710	I705	I706	1118.500	1117.560	Circ	1	n/a	1.250	10.00	9.442	0.012
711	J705	J704	1104.030	1103.660	Circ	1	n/a	4.000	155.00	0.239	0.012
712	I707	J705	1116.790	1105.410	Circ	1	n/a	1.250	50.00	23.373	0.012
713	I708	I707	1117.570	1116.950	Circ	1	n/a	1.250	26.00	2.385	0.012
714	I709	I708	1118.400	1117.820	Circ	1	n/a	1.250	26.00	2.231	0.012
715	I710	J705	1104.350	1104.030	Circ	1	n/a	4.000	134.00	0.239	0.012
716	I711	I710	1115.560	1107.510	Circ	1	n/a	1.250	20.00	43.969	0.012
717	I713	I710	1104.890	1104.500	Circ	1	n/a	4.000	268.00	0.146	0.012
718	I712	I713	1119.420	1117.870	Circ	1	n/a	1.250	51.00	3.041	0.012
720	I716	I713	1105.620	1104.890	Circ	1	n/a	4.000	366.00	0.199	0.012
721	I714	I716	1120.590	1117.760	Circ	1	n/a	1.250	98.00	2.889	0.012
722	I715	I714	1120.890	1120.690	Circ	1	n/a	1.250	11.00	1.818	0.012
723	I717	I716	1119.480	1105.620	Circ	1	n/a	1.250	20.00	96.125	0.012
724	I718	I716	1106.720	1105.620	Circ	1	n/a	4.000	550.00	0.200	0.012
725	I719	I718	1122.200	1120.700	Circ	1	n/a	1.250	98.00	1.531	0.012
726	I720	I718	1108.900	1107.220	Circ	1	n/a	3.500	381.00	0.441	0.012
727	I721	I720	1121.960	1120.300	Circ	1	n/a	1.250	10.00	16.834	0.012
728	I722	I721	1123.960	1122.210	Circ	1	n/a	1.250	100.00	1.750	0.012
729	I723	I722	1125.040	1124.210	Circ	1	n/a	1.250	25.00	3.322	0.012
730	I724	I720	1110.660	1108.900	Circ	1	n/a	3.500	400.00	0.440	0.012
731	I725	I724	1125.850	1123.950	Circ	1	n/a	1.250	98.00	1.939	0.012
732	I726	I724	1112.230	1110.910	Circ	1	n/a	3.250	300.00	0.440	0.012
733	I728	I727	1127.560	1126.560	Circ	1	n/a	1.250	98.00	1.020	0.012
734	I729	I728	1127.890	1127.660	Circ	1	n/a	1.250	10.00	2.301	0.012
735	J711	I727	1113.660	1112.850	Circ	1	n/a	3.000	117.00	0.692	0.012
736	I731	I730	1130.560	1129.160	Circ	1	n/a	1.250	98.00	1.429	0.012
737	I732	I730	1130.560	1127.970	Circ	1	n/a	2.750	350.00	0.740	0.012
738	I733	I732	1137.450	1131.310	Circ	1	n/a	1.250	64.00	9.638	0.012
739	I734	I732	1132.620	1131.310	Circ	1	n/a	1.250	108.00	1.213	0.012
740	I735	I734	1137.020	1133.120	Circ	1	n/a	1.250	88.00	4.436	0.012
741	J713	I732	1131.990	1131.310	Circ	1	n/a	2.750	285.00	0.239	0.012
742	I736	J713	1134.170	1132.740	Circ	1	n/a	1.250	29.00	4.937	0.012
743	I737	J713	1134.540	1132.740	Circ	1	n/a	1.250	165.00	1.091	0.012
744	J714	J713	1133.020	1131.990	Circ	1	n/a	2.750	206.00	0.500	0.012
745	I738	J714	1136.210	1134.520	Circ	1	n/a	1.250	23.00	7.368	0.012
746	I739	J714	1136.210	1134.520	Circ	1	n/a	1.250	154.00	1.097	0.012

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 6
Tue Nov 18 06:07:34 1997

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
747	I740	J714	1134.400	1130.520	Circ	1	n/a	2.500	113.00	3.436	0.012
748	I741	I740	1138.170	1134.400	Circ	1	n/a	2.500	334.00	1.129	0.012
749	I742	I741	1140.510	1138.920	Circ	1	n/a	1.250	153.00	1.039	0.013
750	I743	I741	1143.360	1138.170	Circ	1	n/a	2.500	273.00	1.901	0.012
751	J715	I743	1145.780	1144.610	Circ	1	n/a	1.250	85.00	1.377	0.012
752	I744	J715	1146.790	1145.780	Circ	1	n/a	1.250	65.00	1.554	0.012
753	I745	J715	1147.000	1145.780	Circ	1	n/a	1.250	57.00	2.141	0.012
754	I746	I743	1147.590	1144.360	Circ	1	n/a	2.500	255.00	1.267	0.012
755	I747	I746	1155.720	1154.400	Circ	1	n/a	1.250	75.00	1.760	0.012
756	I748	I747	1157.220	1155.720	Circ	1	n/a	1.250	16.00	9.416	0.012
757	I749	I746	1148.900	1147.990	Circ	1	n/a	2.000	300.00	0.303	0.012
758	I750	I749	1165.870	1163.360	Circ	1	n/a	1.250	90.00	2.790	0.012
759	I751	I749	1149.790	1148.900	Circ	1	n/a	2.000	300.00	0.297	0.012
760	I752	I751	1169.180	1150.160	Circ	1	n/a	1.250	54.00	37.634	0.012
761	I753	I752	1170.560	1169.280	Circ	1	n/a	1.250	16.00	8.026	0.012
762	J716	I751	1150.470	1149.780	Circ	1	n/a	2.000	300.00	0.230	0.012
763	I754	J716	1169.000	1150.470	Circ	1	n/a	1.250	43.00	47.755	0.012
764	I755	J716	1169.430	1150.930	Circ	1	n/a	1.250	153.00	12.181	0.012
765	I756	I755	1169.930	1169.430	Circ	1	n/a	1.250	10.00	5.006	0.012
766	I757	J716	1150.890	1150.550	Circ	1	n/a	2.000	115.00	0.296	0.012
767	I758	I757	1170.780	1168.020	Circ	1	n/a	1.250	30.00	9.239	0.012
768	I759	I757	1151.780	1150.890	Circ	1	n/a	2.000	300.00	0.297	0.012
769	I760	I759	1179.530	1163.730	Circ	1	n/a	1.250	56.00	29.409	0.012
770	I761	I759	1164.880	1163.820	Circ	1	n/a	1.250	127.00	0.835	0.012
771	I762	I761	1177.880	1164.980	Circ	1	n/a	1.250	38.00	36.091	0.012
772	I763	I759	1152.660	1151.780	Circ	1	n/a	2.000	300.00	0.293	0.012
773	I764	I763	1160.490	1159.890	Circ	1	n/a	1.250	60.00	1.000	0.012
774	I765	I764	1161.090	1160.490	Circ	1	n/a	1.250	60.00	1.000	0.012
775	I766	I763	1153.030	1152.660	Circ	1	n/a	2.000	125.00	0.296	0.012
776	I767	I766	1159.150	1159.000	Circ	1	n/a	1.250	8.00	1.875	0.012
777	I768	I766	1159.730	1159.490	Circ	1	n/a	1.250	60.00	0.400	0.012

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 7
Tue Nov 18 06:07:34 1997

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
300	1180.471	1180.466	0.02	0.193	1.250	7.70	0.76	0.930	18.089	0.004
323	1136.006	1135.966	0.07	0.186	1.250	16.22	1.52	1.860	38.710	0.018
333	1144.349	1143.077	1.92	3.000	3.000	14.54	14.16	100.108	62.158	0.312
336	1147.714	1146.702	1.57	1.001	3.000	43.85	12.83	90.666	377.675	0.256
337	1151.154	1147.714	1.57	3.000	3.000	13.17	12.83	90.666	62.240	0.511
700	1129.800	1128.584	0.73	0.847	0.847	6.74	6.74	5.966	7.438	0.353
701	1129.928	1129.800	0.13	0.577	1.100	4.58	2.22	2.534	5.797	0.038
702	1128.584	1120.806	0.27	0.579	1.496	9.49	3.38	5.966	18.922	0.266
703	1123.216	1120.806	1.20	0.733	1.250	10.23	6.23	7.650	11.782	0.483
704	1123.449	1123.216	0.29	0.517	1.250	7.87	3.07	3.769	10.551	0.073
705	1120.806	1115.613	1.43	0.943	1.500	11.64	7.71	13.617	18.897	0.554
706	1115.613	1113.500	0.99	4.000	4.000	12.67	12.34	155.041	82.726	1.656
707	1119.833	1115.613	1.27	0.543	1.250	15.36	6.42	7.875	20.113	0.320
708	1116.894	1115.613	0.78	4.000	4.000	11.21	10.92	137.278	76.126	0.371
709	1117.342	1116.894	0.11	0.239	1.250	13.91	1.86	2.283	28.606	0.043
710	1119.032	1117.342	0.00	0.130	0.130	7.24	7.19	0.487	21.503	0.402
711	1118.452	1116.894	0.77	4.000	4.000	11.14	10.86	136.421	76.030	0.366
712	1118.785	1118.452	0.37	0.299	1.250	18.86	3.46	4.250	33.833	0.149
713	1118.887	1118.785	0.15	0.429	1.250	7.33	2.23	2.737	10.808	0.062
714	1118.909	1118.887	0.04	0.306	1.067	5.88	1.23	1.369	10.454	0.012
715	1119.617	1118.452	0.74	4.000	4.000	10.92	10.64	133.677	76.045	0.176
716	1119.636	1119.617	0.04	0.152	1.250	17.11	1.19	1.460	46.404	0.011
717	1121.696	1119.617	0.71	4.000	4.000	10.73	10.45	131.343	59.363	0.170
718	1121.775	1121.696	0.10	0.364	1.250	7.59	1.84	2.256	12.203	0.026
720	1124.422	1121.696	0.70	4.000	4.000	10.63	10.35	130.120	69.497	0.167
721	1125.004	1124.422	0.42	0.536	1.250	9.03	3.70	4.539	11.895	0.170
722	1125.034	1125.004	0.08	0.393	1.250	6.14	1.65	2.026	9.437	0.021
723	1124.615	1124.422	0.43	0.218	1.250	31.73	3.73	4.576	68.612	0.108
724	1128.202	1124.422	0.63	4.000	4.000	10.11	9.85	123.761	69.593	0.301
725	1128.330	1128.202	0.10	0.435	1.250	5.94	1.84	2.256	8.658	0.026
726	1133.464	1128.202	1.25	3.500	3.500	13.00	12.67	121.861	72.376	0.499
727	1134.350	1133.464	1.76	0.488	1.250	20.85	7.56	9.276	28.712	0.710
728	1135.701	1134.350	0.96	0.802	1.250	8.26	5.59	6.865	9.258	0.389
729	1135.966	1135.701	0.41	0.510	1.250	9.47	3.63	4.453	12.755	0.164
730	1137.994	1133.464	1.03	3.500	3.500	11.80	11.50	110.599	72.299	0.411
731	1138.100	1137.994	0.09	0.389	1.250	6.29	1.67	2.053	9.745	0.022
732	1143.077	1137.994	1.44	3.250	3.250	13.26	12.92	107.154	59.334	0.778
733	1146.092	1144.349	1.26	1.250	1.250	6.57	6.40	7.854	7.069	0.509
734	1146.365	1146.092	0.77	0.684	1.250	8.97	5.02	6.159	10.615	0.196
735	1146.702	1144.349	1.57	3.000	3.000	13.17	12.83	90.666	60.122	0.511
736	1151.265	1151.154	0.09	0.427	1.250	5.67	1.71	2.101	8.365	0.023
737	1159.784	1151.154	2.28	2.750	2.750	14.94	14.56	86.464	49.287	0.659
738	1159.968	1159.784	0.21	0.322	1.250	12.68	2.58	3.170	21.726	0.052
739	1160.613	1159.784	0.56	0.756	1.250	6.74	4.26	5.229	7.708	0.226
740	1160.902	1160.613	0.26	0.417	1.250	9.86	2.88	3.534	14.740	0.064
741	1165.363	1159.784	1.78	2.750	2.750	13.20	12.86	76.370	27.986	0.514
742	1165.621	1165.363	0.48	0.479	1.250	11.18	3.94	4.833	15.549	0.121
743	1166.589	1165.363	0.64	0.820	1.250	6.58	4.58	5.619	7.310	0.163
744	1168.664	1165.363	1.32	2.750	2.750	11.39	11.10	65.919	40.513	0.574
745	1168.678	1168.664	0.03	0.211	1.250	8.58	0.96	1.182	18.995	0.007
746	1169.423	1168.664	0.42	0.715	1.250	6.28	3.71	4.555	7.331	0.107

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 8
Tue Nov 18 06:07:34 1997

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
747	1171.204	1168.664	1.83	1.585	2.500	18.34	12.26	60.182	82.363	0.467
748	1177.015	1171.204	1.62	2.500	2.500	11.81	11.51	56.493	47.211	0.412
749	1178.206	1177.015	0.68	0.852	1.250	5.99	4.35	5.336	6.585	0.147
750	1180.466	1177.015	1.16	1.658	2.500	13.82	9.73	47.779	61.273	0.294
751	1180.628	1180.466	0.13	0.474	1.250	5.89	2.05	2.513	8.211	0.052
752	1180.713	1180.628	0.09	0.423	1.250	5.89	1.75	2.149	8.724	0.024
753	1180.630	1180.628	0.00	0.161	1.250	3.91	0.30	0.364	10.239	0.001
754	1183.331	1180.466	0.90	1.759	2.500	11.41	8.58	42.128	50.012	0.572
755	1183.729	1183.331	0.35	0.582	1.250	7.35	3.35	4.111	9.285	0.140
756	1183.770	1183.729	0.10	0.271	1.250	11.24	1.80	2.208	21.475	0.025
757	1190.904	1183.331	2.12	2.000	2.000	11.67	11.37	35.707	13.498	1.205
758	1191.053	1190.904	0.13	0.393	1.250	7.61	2.05	2.513	11.689	0.033
759	1196.647	1190.904	1.61	2.000	2.000	10.16	9.90	31.094	13.349	0.913
760	1196.835	1196.647	0.20	0.228	1.250	20.41	2.54	3.122	42.931	0.080
761	1196.880	1196.835	0.11	0.288	1.250	10.83	1.88	2.310	19.825	0.028
762	1200.450	1196.647	1.07	2.000	2.000	8.27	8.05	25.304	11.753	0.605
763	1200.665	1200.450	0.32	0.241	1.250	23.61	3.20	3.929	48.360	0.080
764	1201.070	1200.450	0.32	0.341	1.250	14.66	3.23	3.962	24.424	0.130
765	1201.120	1201.070	0.14	0.346	1.250	9.46	2.14	2.630	15.658	0.036
766	1201.317	1200.450	0.50	2.000	2.000	5.69	5.54	17.413	13.326	0.286
767	1201.329	1201.317	0.02	0.187	1.250	8.95	0.84	1.026	21.271	0.005
768	1202.814	1201.317	0.42	2.000	2.000	5.19	5.05	15.873	13.349	0.238
769	1202.846	1202.814	0.04	0.163	1.250	14.60	1.13	1.385	37.951	0.010
770	1203.237	1202.814	0.25	0.660	1.250	5.36	2.87	3.518	6.394	0.102
771	1203.252	1203.237	0.02	0.138	1.250	14.54	0.88	1.080	42.041	0.006
772	1203.326	1202.814	0.14	1.231	2.000	4.60	2.97	9.329	13.273	0.082
773	1203.708	1203.326	0.38	0.710	1.250	6.00	3.52	4.314	6.998	0.154
774	1203.796	1203.708	0.10	0.488	1.250	5.07	1.83	2.251	6.998	0.026
775	1203.370	1203.326	0.02	0.674	2.000	3.46	1.02	3.218	13.334	0.024
776	1203.403	1203.370	0.10	0.407	1.250	6.32	1.78	2.187	9.583	0.025
777	1203.373	1203.370	0.00	0.243	1.250	2.17	0.30	0.364	4.426	0.001

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 9
Tue Nov 18 06:07:34 1997

Computation Messages

---

*Warning: Run - 715 - Upstream Hydraulic Gradeline = 1119.62 - Exceeds Critical Elevation = 1119.30
*Warning: Run - 717 - Upstream Hydraulic Gradeline = 1121.70 - Exceeds Critical Elevation = 1120.37
*Warning: Run - 726 - Upstream Hydraulic Gradeline = 1133.46 - Exceeds Critical Elevation = 1127.46
*Warning: Run - 333 - Upstream Hydraulic Gradeline = 1144.35 - Exceeds Critical Elevation = 1131.06
*Warning: Run - 337 - Upstream Hydraulic Gradeline = 1151.15 - Exceeds Critical Elevation = 1133.56
*Warning: Run - 747 - Upstream Hydraulic Gradeline = 1171.20 - Exceeds Critical Elevation = 1139.85
*Warning: Run - 754 - Upstream Hydraulic Gradeline = 1183.33 - Exceeds Critical Elevation = 1157.94
*Warning: Run - 766 - Upstream Hydraulic Gradeline = 1201.32 - Exceeds Critical Elevation = 1173.04
*Warning: Run - 775 - Upstream Hydraulic Gradeline = 1203.37 - Exceeds Critical Elevation = 1162.28
*Computation: Run = 300 - Pipe Flowing Full
*Computation: Run = 323 - Pipe Flowing Full
*Computation: Run = 333 - Insufficient Capacity
*Computation: Run = 336 - Pipe Flowing Full
*Computation: Run = 337 - Insufficient Capacity
*Computation: Run = 702 - Pipe Flowing Full
*Computation: Run = 703 - Pipe Flowing Full
*Computation: Run = 704 - Pipe Flowing Full
*Computation: Run = 705 - Pipe Flowing Full
*Computation: Run = 706 - Insufficient Capacity
*Computation: Run = 707 - Pipe Flowing Full
*Computation: Run = 708 - Insufficient Capacity
*Computation: Run = 709 - Pipe Flowing Full
*Computation: Run = 711 - Insufficient Capacity
*Computation: Run = 712 - Pipe Flowing Full
*Computation: Run = 713 - Pipe Flowing Full
*Computation: Run = 715 - Insufficient Capacity
*Computation: Run = 716 - Pipe Flowing Full
*Computation: Run = 717 - Insufficient Capacity
*Computation: Run = 718 - Pipe Flowing Full
*Computation: Run = 720 - Insufficient Capacity
*Computation: Run = 721 - Pipe Flowing Full
*Computation: Run = 722 - Pipe Flowing Full
*Computation: Run = 723 - Pipe Flowing Full
*Computation: Run = 724 - Insufficient Capacity
*Computation: Run = 725 - Pipe Flowing Full
*Computation: Run = 726 - Insufficient Capacity
*Computation: Run = 727 - Pipe Flowing Full
*Computation: Run = 728 - Pipe Flowing Full
*Computation: Run = 729 - Pipe Flowing Full
*Computation: Run = 730 - Insufficient Capacity
*Computation: Run = 731 - Pipe Flowing Full
*Computation: Run = 732 - Insufficient Capacity
*Computation: Run = 733 - Insufficient Capacity
*Computation: Run = 734 - Pipe Flowing Full
*Computation: Run = 735 - Insufficient Capacity
*Computation: Run = 736 - Pipe Flowing Full
*Computation: Run = 737 - Insufficient Capacity
*Computation: Run = 738 - Pipe Flowing Full
*Computation: Run = 739 - Pipe Flowing Full
*Computation: Run = 740 - Pipe Flowing Full
*Computation: Run = 741 - Insufficient Capacity

```
*Computation: Run = 742 - Pipe Flowing Full
*Computation: Run = 743 - Pipe Flowing Full
*Computation: Run = 744 - Insufficient Capacity
*Computation: Run = 745 - Pipe Flowing Full
*Computation: Run = 746 - Pipe Flowing Full
*Computation: Run = 747 - Pipe Flowing Full
*Computation: Run = 748 - Insufficient Capacity
*Computation: Run = 749 - Pipe Flowing Full
*Computation: Run = 750 - Pipe Flowing Full
*Computation: Run = 751 - Pipe Flowing Full
*Computation: Run = 752 - Pipe Flowing Full
*Computation: Run = 753 - Pipe Flowing Full
*Computation: Run = 754 - Pipe Flowing Full
*Computation: Run = 755 - Pipe Flowing Full
*Computation: Run = 756 - Pipe Flowing Full
*Computation: Run = 757 - Insufficient Capacity
*Computation: Run = 758 - Pipe Flowing Full
*Computation: Run = 759 - Insufficient Capacity
*Computation: Run = 760 - Pipe Flowing Full
*Computation: Run = 761 - Pipe Flowing Full
*Computation: Run = 762 - Insufficient Capacity
*Computation: Run = 763 - Pipe Flowing Full
*Computation: Run = 764 - Pipe Flowing Full
*Computation: Run = 765 - Pipe Flowing Full
*Computation: Run = 766 - Insufficient Capacity
*Computation: Run = 767 - Pipe Flowing Full
*Computation: Run = 768 - Insufficient Capacity
*Computation: Run = 769 - Pipe Flowing Full
*Computation: Run = 770 - Pipe Flowing Full
*Computation: Run = 771 - Pipe Flowing Full
*Computation: Run = 772 - Pipe Flowing Full
*Computation: Run = 773 - Pipe Flowing Full
*Computation: Run = 774 - Pipe Flowing Full
*Computation: Run = 775 - Pipe Flowing Full
*Computation: Run = 776 - Pipe Flowing Full
*Computation: Run = 777 - Pipe Flowing Full

NORMAL Completion of WinStorm.
```

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 1
Tue Nov 18 07:30:53 1997

JOB CONTROL : CONT
JOB SECTION : SEC
JOB NUMBER : JOB
PROJECT DESCRIPTION : SR51 DRAINAGE ASSESSMENT
ANALYSYS FREQUENCY : 50 Year
MEASUREMENT UNITS: Input ENGLISH Output ENGLISH

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 300	0.990	0.174	2.00	10.00	6.059	0.000	1.044
I 323	0.990	0.348	2.00	10.00	6.059	0.000	2.088
I 700	0.990	0.642	2.00	10.00	6.059	0.000	3.851
I 701	0.990	0.474	2.00	10.00	6.059	0.000	2.843
I 702	0.990	0.726	2.00	10.00	6.059	0.000	4.355
I 703	0.990	0.705	2.00	10.00	6.059	0.000	4.229
I 704	0.990	1.473	2.00	10.00	6.059	0.000	8.836
I 705	0.990	0.091	2.00	10.00	6.059	0.000	0.546
I 706	0.990	0.336	2.00	10.00	6.059	0.000	2.016
I 707	0.990	0.283	2.00	10.00	6.059	0.000	1.698
I 708	0.990	0.256	2.00	10.00	6.059	0.000	1.536
I 709	0.990	0.256	2.00	10.00	6.059	0.000	1.536
I 710	0.990	0.643	2.00	10.00	6.059	0.000	3.857
I 711	0.990	0.273	2.00	10.00	6.059	0.000	1.638
I 712	0.990	0.422	2.00	10.00	6.059	0.000	2.532
I 713	0.990	0.413	2.00	10.00	6.059	0.000	2.478
I 714	0.990	0.470	2.00	10.00	6.059	0.000	2.819
I 715	0.990	0.379	2.00	10.00	6.059	0.000	2.274
I 716	0.990	0.470	2.00	10.00	6.059	0.000	2.819
I 717	0.990	0.856	2.00	10.00	6.059	0.000	5.135
I 718	0.990	0.422	2.00	10.00	6.059	0.000	2.532
I 719	0.990	0.422	2.00	10.00	6.059	0.000	2.532
I 720	0.990	0.932	2.00	10.00	6.059	0.000	5.591
I 721	0.990	0.451	2.00	10.00	6.059	0.000	2.706
I 722	0.990	0.451	2.00	10.00	6.059	0.000	2.706
I 723	0.990	0.485	2.00	10.00	6.059	0.000	2.909
I 724	0.990	0.384	2.00	10.00	6.059	0.000	2.304
I 725	0.990	0.384	2.00	10.00	6.059	0.000	2.304
I 726	0.990	1.318	2.00	10.00	6.059	0.000	7.907
I 727	0.990	0.297	2.00	10.00	6.059	0.000	1.782
I 728	0.990	0.317	2.00	10.00	6.059	0.000	1.902
I 729	0.990	1.152	2.00	10.00	6.059	0.000	6.911
I 730	0.990	0.393	2.00	10.00	6.059	0.000	2.358
I 731	0.990	0.393	2.00	10.00	6.059	0.000	2.358
I 732	0.990	0.317	2.00	10.00	6.059	0.000	1.902
I 733	0.990	0.593	2.00	10.00	6.059	0.000	3.557
I 734	0.990	0.317	2.00	10.00	6.059	0.000	1.902
I 735	0.990	0.661	2.00	10.00	6.059	0.000	3.965
I 736	0.990	0.904	2.00	10.00	6.059	0.000	5.423
I 737	0.990	1.051	2.00	10.00	6.059	0.000	6.305
I 738	0.990	0.221	2.00	10.00	6.059	0.000	1.326
I 739	0.990	0.852	2.00	10.00	6.059	0.000	5.111
I 740	0.990	0.690	2.00	10.00	6.059	0.000	4.139
I 741	0.990	0.632	2.00	10.00	6.059	0.000	3.791
I 742	0.990	0.998	2.00	10.00	6.059	0.000	5.987

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 3
Tue Nov 18 07:30:54 1997

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I300	0.990	0.174	10.00	6.059	0.000	1.044
I323	0.990	0.348	10.00	6.059	0.000	2.088
I700	0.990	1.116	10.00	6.059	0.000	6.695
J700	0.990	1.116	10.00	6.059	0.000	6.695
I701	0.990	0.474	10.00	6.059	0.000	2.843
J701	0.990	2.547	10.00	6.059	0.000	15.279
I702	0.990	1.431	10.00	6.059	0.000	8.584
J702	0.990	33.490	12.59	5.487	0.000	181.923
I703	0.990	0.705	10.00	6.059	0.000	4.229
I704	0.990	1.473	10.00	6.059	0.000	8.836
J704	0.990	29.470	12.44	5.517	0.000	160.947
I705	0.990	0.091	10.00	6.059	0.000	0.546
J705	0.990	29.043	12.24	5.557	0.000	159.764
I706	0.990	0.427	10.00	6.059	0.000	2.562
I707	0.990	0.795	10.00	6.059	0.000	4.769
I708	0.990	0.512	10.00	6.059	0.000	3.071
I709	0.990	0.256	10.00	6.059	0.000	1.536
I710	0.990	28.248	12.07	5.592	0.000	156.393
I711	0.990	0.273	10.00	6.059	0.000	1.638
J711	0.990	16.959	10.00	6.059	0.000	101.735
I712	0.990	0.422	10.00	6.059	0.000	2.532
J712	0.990	16.959	10.00	6.059	0.000	101.735
I713	0.990	27.332	11.71	5.667	0.000	153.343
J713	0.990	14.285	10.00	6.059	0.000	85.694
I714	0.990	0.849	10.00	6.059	0.000	5.093
J714	0.990	12.330	10.00	6.059	0.000	73.966
I715	0.990	0.379	10.00	6.059	0.000	2.274
J715	0.990	0.470	10.00	6.059	0.000	2.819
I716	0.990	26.497	11.22	5.774	0.000	151.468
J716	0.990	4.733	10.00	6.059	0.000	28.393
I717	0.990	0.856	10.00	6.059	0.000	5.135
I718	0.990	24.322	10.44	5.954	0.000	143.364
I719	0.990	0.422	10.00	6.059	0.000	2.532
I720	0.990	23.478	10.01	6.056	0.000	140.770
I721	0.990	1.735	10.00	6.059	0.000	10.408
I722	0.990	1.284	10.00	6.059	0.000	7.703
I723	0.990	0.833	10.00	6.059	0.000	4.997
I724	0.990	20.811	10.00	6.059	0.000	124.843
I725	0.990	0.384	10.00	6.059	0.000	2.304
I726	0.990	20.043	10.00	6.059	0.000	120.236
I727	0.990	18.725	10.00	6.059	0.000	112.329
I728	0.990	1.469	10.00	6.059	0.000	8.812
I729	0.990	1.152	10.00	6.059	0.000	6.911
I730	0.990	16.959	10.00	6.059	0.000	101.735
I731	0.990	0.393	10.00	6.059	0.000	2.358
I732	0.990	16.173	10.00	6.059	0.000	97.020
I733	0.990	0.593	10.00	6.059	0.000	3.557
I734	0.990	0.978	10.00	6.059	0.000	5.867
I735	0.990	0.661	10.00	6.059	0.000	3.965
I736	0.990	0.904	10.00	6.059	0.000	5.423
I737	0.990	1.051	10.00	6.059	0.000	6.305

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 4
Tue Nov 18 07:30:54 1997

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I738	0.990	0.221	10.00	6.059	0.000	1.326
I739	0.990	0.852	10.00	6.059	0.000	5.111
I740	0.990	11.257	10.00	6.059	0.000	67.530
I741	0.990	10.567	10.00	6.059	0.000	63.390
I742	0.990	0.998	10.00	6.059	0.000	5.987
I743	0.990	8.937	10.00	6.059	0.000	53.612
I744	0.990	0.402	10.00	6.059	0.000	2.412
I745	0.990	0.068	10.00	6.059	0.000	0.408
I746	0.990	7.880	10.00	6.059	0.000	47.271
I747	0.990	0.769	10.00	6.059	0.000	4.613
I748	0.990	0.413	10.00	6.059	0.000	2.478
I749	0.990	6.679	10.00	6.059	0.000	40.067
I750	0.990	0.470	10.00	6.059	0.000	2.819
I751	0.990	5.816	10.00	6.059	0.000	34.890
I752	0.990	0.584	10.00	6.059	0.000	3.503
I753	0.990	0.432	10.00	6.059	0.000	2.592
I754	0.990	0.735	10.00	6.059	0.000	4.409
I755	0.990	0.741	10.00	6.059	0.000	4.445
I756	0.990	0.492	10.00	6.059	0.000	2.951
I757	0.990	3.257	10.00	6.059	0.000	19.538
I758	0.990	0.192	10.00	6.059	0.000	1.152
I759	0.990	2.969	10.00	6.059	0.000	17.811
I760	0.990	0.259	10.00	6.059	0.000	1.554
I761	0.990	0.658	10.00	6.059	0.000	3.947
I762	0.990	0.202	10.00	6.059	0.000	1.212
I763	0.990	1.745	10.00	6.059	0.000	10.468
I764	0.990	0.807	10.00	6.059	0.000	4.841
I765	0.990	0.421	10.00	6.059	0.000	2.526
I766	0.990	0.602	10.00	6.059	0.000	3.611
I767	0.990	0.409	10.00	6.059	0.000	2.454
I768	0.990	0.068	10.00	6.059	0.000	0.408

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 5
Tue Nov 18 07:30:54 1997

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
300	I300	I743	1145.010	1144.610	Circ	1	n/a	1.250	6.00	6.682	0.012
323	I323	I723	1134.110	1125.040	Circ	1	n/a	1.250	31.00	30.597	0.012
333	I727	I726	1112.850	1112.480	Circ	1	n/a	3.000	50.00	0.740	0.012
336	J712	J711	1126.340	1113.690	Circ	1	n/a	3.000	48.00	27.320	0.012
337	I730	J712	1127.720	1126.340	Circ	1	n/a	3.000	186.00	0.742	0.012
700	I700	J700	1128.600	1127.990	Circ	1	n/a	1.250	54.00	1.130	0.012
701	I701	I700	1129.170	1128.700	Circ	1	n/a	1.250	68.50	0.686	0.012
702	J700	J701	1127.740	1119.310	Circ	1	n/a	1.500	305.00	2.765	0.012
703	I702	J701	1122.000	1119.450	Circ	1	n/a	1.250	90.00	2.834	0.012
704	I703	I702	1122.190	1120.940	Circ	1	n/a	1.250	55.00	2.273	0.012
705	J701	J702	1119.310	1114.100	Circ	1	n/a	1.500	189.00	2.758	0.012
706	J702	J703	1103.280	1103.150	Circ	1	n/a	4.000	46.00	0.283	0.012
707	I704	J702	1118.970	1114.360	Circ	1	n/a	1.250	56.00	8.260	0.012
708	J704	J702	1103.660	1103.380	Circ	1	n/a	4.000	117.00	0.239	0.012
709	I706	J704	1117.060	1104.040	Circ	1	n/a	1.250	79.00	16.710	0.012
710	I705	I706	1118.500	1117.560	Circ	1	n/a	1.250	10.00	9.442	0.012
711	J705	J704	1104.030	1103.660	Circ	1	n/a	4.000	155.00	0.239	0.012
712	I707	J705	1116.790	1105.410	Circ	1	n/a	1.250	50.00	23.373	0.012
713	I708	I707	1117.570	1116.950	Circ	1	n/a	1.250	26.00	2.385	0.012
714	I709	I708	1118.400	1117.820	Circ	1	n/a	1.250	26.00	2.231	0.012
715	I710	J705	1104.350	1104.030	Circ	1	n/a	4.000	134.00	0.239	0.012
716	I711	I710	1115.560	1107.510	Circ	1	n/a	1.250	20.00	43.969	0.012
717	I713	I710	1104.890	1104.500	Circ	1	n/a	4.000	268.00	0.146	0.012
718	I712	I713	1119.420	1117.870	Circ	1	n/a	1.250	51.00	3.041	0.012
720	I716	I713	1105.620	1104.890	Circ	1	n/a	4.000	366.00	0.199	0.012
721	I714	I716	1120.590	1117.760	Circ	1	n/a	1.250	98.00	2.889	0.012
722	I715	I714	1120.890	1120.690	Circ	1	n/a	1.250	11.00	1.818	0.012
723	I717	I716	1119.480	1105.620	Circ	1	n/a	1.250	20.00	96.125	0.012
724	I718	I716	1106.720	1105.620	Circ	1	n/a	4.000	550.00	0.200	0.012
725	I719	I718	1122.200	1120.700	Circ	1	n/a	1.250	98.00	1.531	0.012
726	I720	I718	1108.900	1107.220	Circ	1	n/a	3.500	381.00	0.441	0.012
727	I721	I720	1121.960	1120.300	Circ	1	n/a	1.250	10.00	16.834	0.012
728	I722	I721	1123.960	1122.210	Circ	1	n/a	1.250	100.00	1.750	0.012
729	I723	I722	1125.040	1124.210	Circ	1	n/a	1.250	25.00	3.322	0.012
730	I724	I720	1110.660	1108.900	Circ	1	n/a	3.500	400.00	0.440	0.012
731	I725	I724	1125.850	1123.950	Circ	1	n/a	1.250	98.00	1.939	0.012
732	I726	I724	1112.230	1110.910	Circ	1	n/a	3.250	300.00	0.440	0.012
733	I728	I727	1127.560	1126.560	Circ	1	n/a	1.250	98.00	1.020	0.012
734	I729	I728	1127.890	1127.660	Circ	1	n/a	1.250	10.00	2.301	0.012
735	J711	I727	1113.660	1112.850	Circ	1	n/a	3.000	117.00	0.692	0.012
736	I731	I730	1130.560	1129.160	Circ	1	n/a	1.250	98.00	1.429	0.012
737	I732	I730	1130.560	1127.970	Circ	1	n/a	2.750	350.00	0.740	0.012
738	I733	I732	1137.450	1131.310	Circ	1	n/a	1.250	64.00	9.638	0.012
739	I734	I732	1132.620	1131.310	Circ	1	n/a	1.250	108.00	1.213	0.012
740	I735	I734	1137.020	1133.120	Circ	1	n/a	1.250	88.00	4.436	0.012
741	J713	I732	1131.990	1131.310	Circ	1	n/a	2.750	285.00	0.239	0.012
742	I736	J713	1134.170	1132.740	Circ	1	n/a	1.250	29.00	4.937	0.012
743	I737	J713	1134.540	1132.740	Circ	1	n/a	1.250	165.00	1.091	0.012
744	J714	J713	1133.020	1131.990	Circ	1	n/a	2.750	206.00	0.500	0.012
745	I738	J714	1136.210	1134.520	Circ	1	n/a	1.250	23.00	7.368	0.012
746	I739	J714	1136.210	1134.520	Circ	1	n/a	1.250	154.00	1.097	0.012

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 6
Tue Nov 18 07:30:54 1997

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
747	I740	J714	1134.400	1130.520	Circ	1	n/a	2.500	113.00	3.436	0.012
748	I741	I740	1138.170	1134.400	Circ	1	n/a	2.500	334.00	1.129	0.012
749	I742	I741	1140.510	1138.920	Circ	1	n/a	1.250	153.00	1.039	0.013
750	I743	I741	1143.360	1138.170	Circ	1	n/a	2.500	273.00	1.901	0.012
751	J715	I743	1145.780	1144.610	Circ	1	n/a	1.250	85.00	1.377	0.012
752	I744	J715	1146.790	1145.780	Circ	1	n/a	1.250	65.00	1.554	0.012
753	I745	J715	1147.000	1145.780	Circ	1	n/a	1.250	57.00	2.141	0.012
754	I746	I743	1147.590	1144.360	Circ	1	n/a	2.500	255.00	1.267	0.012
755	I747	I746	1155.720	1154.400	Circ	1	n/a	1.250	75.00	1.760	0.012
756	I748	I747	1157.220	1155.720	Circ	1	n/a	1.250	16.00	9.416	0.012
757	I749	I746	1148.900	1147.990	Circ	1	n/a	2.000	300.00	0.303	0.012
758	I750	I749	1165.870	1163.360	Circ	1	n/a	1.250	90.00	2.790	0.012
759	I751	I749	1149.790	1148.900	Circ	1	n/a	2.000	300.00	0.297	0.012
760	I752	I751	1169.180	1150.160	Circ	1	n/a	1.250	54.00	37.634	0.012
761	I753	I752	1170.560	1169.280	Circ	1	n/a	1.250	16.00	8.026	0.012
762	J716	I751	1150.470	1149.780	Circ	1	n/a	2.000	300.00	0.230	0.012
763	I754	J716	1169.000	1150.470	Circ	1	n/a	1.250	43.00	47.755	0.012
764	I755	J716	1169.430	1150.930	Circ	1	n/a	1.250	153.00	12.181	0.012
765	I756	I755	1169.930	1169.430	Circ	1	n/a	1.250	10.00	5.006	0.012
766	I757	J716	1150.890	1150.550	Circ	1	n/a	2.000	115.00	0.296	0.012
767	I758	I757	1170.780	1168.020	Circ	1	n/a	1.250	30.00	9.239	0.012
768	I759	I757	1151.780	1150.890	Circ	1	n/a	2.000	300.00	0.297	0.012
769	I760	I759	1179.530	1163.730	Circ	1	n/a	1.250	56.00	29.409	0.012
770	I761	I759	1164.880	1163.820	Circ	1	n/a	1.250	127.00	0.835	0.012
771	I762	I761	1177.880	1164.980	Circ	1	n/a	1.250	38.00	36.091	0.012
772	I763	I759	1152.660	1151.780	Circ	1	n/a	2.000	300.00	0.293	0.012
773	I764	I763	1160.490	1159.890	Circ	1	n/a	1.250	60.00	1.000	0.012
774	I765	I764	1161.090	1160.490	Circ	1	n/a	1.250	60.00	1.000	0.012
775	I766	I763	1153.030	1152.660	Circ	1	n/a	2.000	125.00	0.296	0.012
776	I767	I766	1159.150	1159.000	Circ	1	n/a	1.250	8.00	1.875	0.012
777	I768	I766	1159.730	1159.490	Circ	1	n/a	1.250	60.00	0.400	0.012

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 7
Tue Nov 18 07:30:54 1997

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
300	1199.777	1199.771	0.02	0.204	1.250	8.01	0.85	1.044	18.089	0.006
323	1143.723	1143.673	0.09	0.198	1.250	16.70	1.70	2.088	38.710	0.022
333	1154.296	1152.695	2.42	3.000	3.000	16.31	15.89	112.329	62.158	0.392
336	1158.533	1157.259	1.98	1.063	3.000	45.41	14.39	101.735	377.675	0.322
337	1162.864	1158.533	1.98	3.000	3.000	14.78	14.39	101.735	62.240	0.644
700	1129.892	1128.690	0.92	0.925	0.925	6.87	6.87	6.695	7.438	0.367
701	1130.049	1129.892	0.17	0.618	1.192	4.70	2.36	2.843	5.797	0.043
702	1128.690	1121.030	0.35	0.616	1.500	9.80	3.79	6.695	18.922	0.335
703	1123.401	1121.030	1.50	0.793	1.250	10.46	7.00	8.584	11.782	0.608
704	1123.694	1123.401	0.37	0.551	1.250	8.12	3.45	4.229	10.551	0.092
705	1121.030	1116.409	1.80	1.022	1.500	11.91	8.65	15.279	18.897	0.697
706	1116.409	1113.500	1.37	4.000	4.000	14.86	14.48	181.923	82.726	2.280
707	1119.953	1116.409	1.59	0.580	1.250	15.83	7.20	8.836	20.113	0.403
708	1118.170	1116.409	1.07	4.000	4.000	13.15	12.81	160.947	76.126	0.510
709	1118.330	1118.170	0.13	0.253	1.250	14.40	2.09	2.562	28.606	0.054
710	1118.712	1118.330	0.01	0.137	0.770	7.53	0.69	0.546	21.503	0.004
711	1120.307	1118.170	1.05	4.000	4.000	13.05	12.71	159.764	76.030	0.502
712	1120.727	1120.307	0.46	0.317	1.250	19.46	3.89	4.769	33.833	0.188
713	1120.854	1120.727	0.19	0.456	1.250	7.59	2.50	3.071	10.808	0.078
714	1120.879	1120.854	0.05	0.324	1.250	6.08	1.25	1.536	10.454	0.012
715	1121.901	1120.307	1.01	4.000	4.000	12.78	12.45	156.393	76.045	0.241
716	1121.926	1121.901	0.05	0.161	1.250	17.63	1.33	1.638	46.404	0.014
717	1124.735	1121.901	0.97	4.000	4.000	12.53	12.20	153.343	59.363	0.231
718	1124.835	1124.735	0.13	0.387	1.250	7.86	2.06	2.532	12.203	0.033
720	1128.428	1124.735	0.95	4.000	4.000	12.37	12.05	151.468	69.497	0.226
721	1129.162	1128.428	0.53	0.571	1.250	9.31	4.15	5.093	11.895	0.214
722	1129.200	1129.162	0.11	0.418	1.250	6.32	1.85	2.274	9.437	0.027
723	1128.672	1128.428	0.54	0.232	1.250	32.62	4.18	5.135	68.612	0.136
724	1133.502	1128.428	0.85	4.000	4.000	11.71	11.41	143.364	69.593	0.405
725	1133.663	1133.502	0.13	0.463	1.250	6.13	2.06	2.532	8.658	0.033
726	1140.523	1133.502	1.67	3.500	3.500	15.02	14.63	140.770	72.376	0.665
727	1141.638	1140.523	2.21	0.521	1.250	21.49	8.48	10.408	28.712	0.894
728	1143.340	1141.638	1.21	0.870	1.250	8.44	6.28	7.703	9.258	0.490
729	1143.673	1143.340	0.51	0.543	1.250	9.75	4.07	4.997	12.755	0.206
730	1146.295	1140.523	1.31	3.500	3.500	13.32	12.98	124.843	72.299	0.523
731	1146.428	1146.295	0.11	0.413	1.250	6.50	1.88	2.304	9.745	0.027
732	1152.695	1146.295	1.81	3.250	3.250	14.88	14.49	120.236	59.334	0.979
733	1156.491	1154.296	1.59	1.250	1.250	7.37	7.18	8.812	7.069	0.641
734	1156.835	1156.491	0.98	0.735	1.250	9.21	5.63	6.911	10.615	0.246
735	1157.259	1154.296	1.98	3.000	3.000	14.78	14.39	101.735	60.122	0.644
736	1163.004	1162.864	0.11	0.454	1.250	5.87	1.92	2.358	8.365	0.029
737	1173.731	1162.864	2.87	2.750	2.750	16.77	16.33	97.020	49.287	0.829
738	1173.961	1173.731	0.26	0.342	1.250	13.04	2.90	3.557	21.726	0.065
739	1174.774	1173.731	0.70	0.815	1.250	6.92	4.78	5.867	7.708	0.284
740	1175.138	1174.774	0.32	0.443	1.250	10.18	3.23	3.965	14.740	0.081
741	1180.754	1173.731	2.24	2.750	2.750	14.81	14.43	85.694	27.986	0.647
742	1181.080	1180.754	0.60	0.510	1.250	11.53	4.42	5.423	15.549	0.152
743	1182.299	1180.754	0.81	0.898	1.250	6.68	5.14	6.305	7.310	0.205
744	1184.911	1180.754	1.67	2.750	2.750	12.78	12.45	73.966	40.513	0.723
745	1184.928	1184.911	0.04	0.224	1.250	8.92	1.08	1.326	18.995	0.009
746	1185.867	1184.911	0.53	0.770	1.250	6.45	4.16	5.111	7.331	0.135

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 8
Tue Nov 18 07:30:54 1997

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	Hydraulic Gradeline DS Elev	Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (fps)	Velocity Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
747	1188.109	1184.911	2.31	1.722	2.500	18.72	13.76	67.530	82.363	0.588
748	1195.425	1188.109	2.04	2.500	2.500	13.26	12.91	63.390	47.211	0.518
749	1196.925	1195.425	0.86	0.935	1.250	6.08	4.88	5.987	6.585	0.185
750	1199.771	1195.425	1.46	1.814	2.500	14.05	10.92	53.612	61.273	0.371
751	1199.974	1199.771	0.16	0.505	1.250	6.07	2.30	2.819	8.211	0.066
752	1200.081	1199.974	0.12	0.449	1.250	6.08	1.97	2.412	8.724	0.030
753	1199.977	1199.974	0.00	0.170	1.250	4.05	0.33	0.408	10.239	0.001
754	1203.377	1199.771	1.13	1.942	2.500	11.55	9.63	47.271	50.012	0.721
755	1203.879	1203.377	0.43	0.623	1.250	7.55	3.76	4.613	9.285	0.176
756	1203.931	1203.879	0.13	0.287	1.250	11.62	2.02	2.478	21.475	0.032
757	1212.913	1203.377	2.67	2.000	2.000	13.10	12.75	40.067	13.498	1.517
758	1213.100	1212.913	0.16	0.418	1.250	7.84	2.30	2.819	11.689	0.041
759	1220.144	1212.913	2.03	2.000	2.000	11.40	11.11	34.890	13.349	1.150
760	1220.380	1220.144	0.25	0.241	1.250	21.05	2.85	3.503	42.931	0.101
761	1220.437	1220.380	0.14	0.305	1.250	11.14	2.11	2.592	19.825	0.035
762	1224.932	1220.144	1.34	2.000	2.000	9.28	9.04	28.393	11.753	0.762
763	1225.203	1224.932	0.40	0.255	1.250	24.48	3.59	4.409	48.360	0.100
764	1225.713	1224.932	0.40	0.361	1.250	15.15	3.62	4.445	24.424	0.163
765	1225.775	1225.713	0.18	0.368	1.250	9.80	2.41	2.951	15.658	0.045
766	1226.024	1224.932	0.64	2.000	2.000	6.39	6.22	19.538	13.326	0.361
767	1226.039	1226.024	0.03	0.198	1.250	9.21	0.94	1.152	21.271	0.007
768	1227.908	1226.024	0.53	2.000	2.000	5.82	5.67	17.811	13.349	0.300
769	1227.948	1227.908	0.05	0.172	1.250	15.14	1.27	1.554	37.951	0.012
770	1228.441	1227.908	0.32	0.710	1.250	5.49	3.22	3.947	6.394	0.129
771	1228.460	1228.441	0.03	0.146	1.250	15.20	0.99	1.212	42.041	0.008
772	1228.557	1227.908	0.18	1.349	2.000	4.64	3.33	10.468	13.273	0.104
773	1229.037	1228.557	0.48	0.765	1.250	6.15	3.94	4.841	6.998	0.193
774	1229.148	1229.037	0.13	0.520	1.250	5.23	2.06	2.526	6.998	0.033
775	1228.612	1228.557	0.02	0.711	2.000	3.61	1.15	3.611	13.334	0.031
776	1228.653	1228.612	0.12	0.432	1.250	6.53	2.00	2.454	9.583	0.031
777	1228.615	1228.612	0.00	0.257	1.250	2.25	0.33	0.408	4.426	0.001

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 9
Tue Nov 18 07:30:54 1997

Computation Messages

---

*Warning: Run - 715 - Upstream Hydraulic Gradeline = 1121.90 - Exceeds Critical Elevation = 1119.30
*Warning: Run - 717 - Upstream Hydraulic Gradeline = 1124.73 - Exceeds Critical Elevation = 1120.37
*Warning: Run - 726 - Upstream Hydraulic Gradeline = 1140.52 - Exceeds Critical Elevation = 1127.46
*Warning: Run - 333 - Upstream Hydraulic Gradeline = 1154.30 - Exceeds Critical Elevation = 1131.06
*Warning: Run - 337 - Upstream Hydraulic Gradeline = 1162.86 - Exceeds Critical Elevation = 1133.56
*Warning: Run - 747 - Upstream Hydraulic Gradeline = 1188.11 - Exceeds Critical Elevation = 1139.85
*Warning: Run - 754 - Upstream Hydraulic Gradeline = 1203.38 - Exceeds Critical Elevation = 1157.94
*Warning: Run - 766 - Upstream Hydraulic Gradeline = 1226.02 - Exceeds Critical Elevation = 1173.04
*Warning: Run - 775 - Upstream Hydraulic Gradeline = 1228.61 - Exceeds Critical Elevation = 1162.28
*Computation: Run = 300 - Pipe Flowing Full
*Computation: Run = 323 - Pipe Flowing Full
*Computation: Run = 333 - Insufficient Capacity
*Computation: Run = 336 - Pipe Flowing Full
*Computation: Run = 337 - Insufficient Capacity
*Computation: Run = 702 - Pipe Flowing Full
*Computation: Run = 703 - Pipe Flowing Full
*Computation: Run = 704 - Pipe Flowing Full
*Computation: Run = 705 - Pipe Flowing Full
*Computation: Run = 706 - Insufficient Capacity
*Computation: Run = 707 - Pipe Flowing Full
*Computation: Run = 708 - Insufficient Capacity
*Computation: Run = 709 - Pipe Flowing Full
*Computation: Run = 710 - Steep Lateral run with Inlet Controlling Hydraulic Gradeline
*Computation: Run = 711 - Insufficient Capacity
*Computation: Run = 712 - Pipe Flowing Full
*Computation: Run = 713 - Pipe Flowing Full
*Computation: Run = 714 - Pipe Flowing Full
*Computation: Run = 715 - Insufficient Capacity
*Computation: Run = 716 - Pipe Flowing Full
*Computation: Run = 717 - Insufficient Capacity
*Computation: Run = 718 - Pipe Flowing Full
*Computation: Run = 720 - Insufficient Capacity
*Computation: Run = 721 - Pipe Flowing Full
*Computation: Run = 722 - Pipe Flowing Full
*Computation: Run = 723 - Pipe Flowing Full
*Computation: Run = 724 - Insufficient Capacity
*Computation: Run = 725 - Pipe Flowing Full
*Computation: Run = 726 - Insufficient Capacity
*Computation: Run = 727 - Pipe Flowing Full
*Computation: Run = 728 - Pipe Flowing Full
*Computation: Run = 729 - Pipe Flowing Full
*Computation: Run = 730 - Insufficient Capacity
*Computation: Run = 731 - Pipe Flowing Full
*Computation: Run = 732 - Insufficient Capacity
*Computation: Run = 733 - Insufficient Capacity
*Computation: Run = 734 - Pipe Flowing Full

```
*Computation: Run = 735 - Insufficient Capacity
*Computation: Run = 736 - Pipe Flowing Full
*Computation: Run = 737 - Insufficient Capacity
*Computation: Run = 738 - Pipe Flowing Full
*Computation: Run = 739 - Pipe Flowing Full
*Computation: Run = 740 - Pipe Flowing Full
*Computation: Run = 741 - Insufficient Capacity
*Computation: Run = 742 - Pipe Flowing Full
*Computation: Run = 743 - Pipe Flowing Full
*Computation: Run = 744 - Insufficient Capacity
*Computation: Run = 745 - Pipe Flowing Full
*Computation: Run = 746 - Pipe Flowing Full
*Computation: Run = 747 - Pipe Flowing Full
*Computation: Run = 748 - Insufficient Capacity
*Computation: Run = 749 - Pipe Flowing Full
*Computation: Run = 750 - Pipe Flowing Full
*Computation: Run = 751 - Pipe Flowing Full
*Computation: Run = 752 - Pipe Flowing Full
*Computation: Run = 753 - Pipe Flowing Full
*Computation: Run = 754 - Pipe Flowing Full
*Computation: Run = 755 - Pipe Flowing Full
*Computation: Run = 756 - Pipe Flowing Full
*Computation: Run = 757 - Insufficient Capacity
*Computation: Run = 758 - Pipe Flowing Full
*Computation: Run = 759 - Insufficient Capacity
*Computation: Run = 760 - Pipe Flowing Full
*Computation: Run = 761 - Pipe Flowing Full
*Computation: Run = 762 - Insufficient Capacity
*Computation: Run = 763 - Pipe Flowing Full
*Computation: Run = 764 - Pipe Flowing Full
*Computation: Run = 765 - Pipe Flowing Full
*Computation: Run = 766 - Insufficient Capacity
*Computation: Run = 767 - Pipe Flowing Full
*Computation: Run = 768 - Insufficient Capacity
*Computation: Run = 769 - Pipe Flowing Full
*Computation: Run = 770 - Pipe Flowing Full
*Computation: Run = 771 - Pipe Flowing Full
*Computation: Run = 772 - Pipe Flowing Full
*Computation: Run = 773 - Pipe Flowing Full
*Computation: Run = 774 - Pipe Flowing Full
*Computation: Run = 775 - Pipe Flowing Full
*Computation: Run = 776 - Pipe Flowing Full
*Computation: Run = 777 - Pipe Flowing Full

NORMAL Completion of WinStorm.
```

HEC-12

Spreadsheet calculates runoff produced at each inlet using Rational Method Calculations.

Inflow into each catch basin, bypass flows and flooded width in gutter is calculated using HEC-12 methodology.

Minimum 10 minute time of concentration is used to show worst-case conditions at each inlet. There is no reduction in intensity for travel time in the storm drain system. As a result, the total flow calculated by the spreadsheet will not agree with the total flow calculated by Winstorm.

Bypass flows are added to the runoff generated at each inlet. Total discharge reflects the addition of bypass flows. See the line "Subarea discharge Q" for the runoff generated at the inlet. This will agree with total discharge calculated by Winstorm for subareas with a time of concentration of 10 minutes. Winstorm <u>does</u> reduce rainfall intensity for travel time in the storm drain, so total runoff calculated at these inlets will not agree between Winstorm and the spreadsheet.

AD T / HEC-12 — Pavement Spread Check for 10-yr Onsite Storm Drain

JOB: 51 DRAINAGE ASSESSMENT — FILE: 10yrONSITE.XLS — 10-yr Existing Condition

Capture ratios: 80% 50%

Inlet number:	I700	I701	I702	I703	I704	I705	I706	I707	I708	I709	I710	I711	I712	I713	I714	I715	I716	I717	I718
Return Period	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
HYDROLOGY COMPUTATION:																			
Structure location station (ft):	152+40	152+40	155+35	155+35	156+88	158+35	158+35	159+90	160+23	160+55	161+25	161+40	164+32	164+00	168+03	167+85	168+03	167+85	173+20
Paved Area (acres)	0.44	0.36	0.33	0.34	0.54	0.00	0.35	0.20	0.18	0.18	0.67	0.00	0.44	0.43	0.49	0.00	0.49	0.00	0.44
Pavement Runoff Coefficient	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Landscaped Area (acres)	0.29	0.17	0.54	0.50	1.26	0.12	0.00	0.12	0.11	0.11	0.00	0.36	0.00	0.00	0.00	0.50	0.00	1.13	0.00
Landscape Runoff Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Contributing watershed area (acres):	**0.730**	**0.530**	**0.870**	**0.840**	**1.800**	**0.120**	**0.350**	**0.320**	**0.290**	**0.290**	**0.670**	**0.360**	**0.440**	**0.430**	**0.490**	**0.500**	**0.490**	**1.130**	**0.440**
Composite Runoff Coefficient "C":	0.85	0.87	0.79	0.80	0.78	0.70	0.95	0.86	0.86	0.86	0.95	0.70	0.95	0.95	0.95	0.70	0.95	0.70	0.95
Time of Concentration (10 minute minimum)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation intensity (in/hr):	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56
Subarea discharge Q (cfs):	2.83	2.10	3.15	3.07	6.35	0.38	1.51	1.25	1.13	1.13	2.90	1.15	1.90	1.86	2.12	1.59	2.12	3.60	1.90
Previous by-pass flow (cfs):	0.00	0.00	1.11	0.80	1.92	0.00	0.00	0.19	0.30	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00
Upstream inlet(s) contributing by-pass	None	None	I700	I701	I702	None	I703 I705	I708 I706	I709	I712	I704, I711 I713	I717	I714	I716	I715 I719	None	I718	None	I721
Discharge added by operator:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total discharge Q (cfs):	**2.83**	**2.10**	**4.26**	**3.87**	**8.27**	**0.38**	**1.51**	**1.44**	**1.42**	**1.13**	**2.90**	**1.15**	**2.33**	**1.86**	**2.12**	**1.59**	**2.12**	**3.60**	**1.90**
SHOULDER AND GUTTER CONFIGURATION:						Area Drain						Area Drain				Area Drain		Area Drain	
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0205	0.0205	0.0205	0.0205	0.0150	0.0000	0.0080	0.0000	0.0015	0.0030	0.0047	0.0000	0.0471	0.0471	0.0471	0.0000	0.0471	0.0000	0.0471
Inlet type (1=grate, 2=side opening or slotted):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Longitudinal profile (1=on-grade, 2=sag):	1	1	1	1	1	2	1	2	1	1	2	2	1	1	1	2	1	2	1
Gutter Configuration (1=freeway, 2=vertical):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Catch Basins in Grouped Inlets	1	1	1	2	3	1	2	1	1	1	2	2	2	2	2	1	2	1	2
Inlet description:	N(dbl)	N(dbl)	N(dbl)	2, N(dbl)	3, N(dbl)	N(dbl)	2, N(trp)	N(dbl)	N(dbl)	N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	N(dbl)	2, N(dbl)	N(dbl)	2, N(dbl)
Grate width:	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Grate length:	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Pavement cross-slope (Sx):	0.040	0.032	0.040	0.040	0.023	0.000	0.007	0.019	0.019	0.024	0.034	0.000	0.040	0.040	0.005	0.000	0.020	0.000	0.020
Width of gutter from flowline (ft):	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (Sw=Sw-Sx)	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056
Flooded Width from flowline (ft): before inlet	**5.75**	**5.83**	**6.70**	**6.45**	**13.00**	**NA**	**15.21**	**NA**	**11.42**	**7.93**	**NA**	**NA**	**4.48**	**4.09**	**15.32**	**NA**	**6.43**	**NA**	**6.13**
Depth at flowline (ft): before inlet	0.25	0.22	0.29	0.28	0.35	0.00	0.18	0.00	0.27	0.24	0.00	0.00	0.20	0.19	0.15	0.00	0.18	0.00	0.18
Water cross-area (sq.ft): before inlet	0.77	0.63	1.04	0.97	2.16	0.00	0.96	0.00	1.41	0.87	0.00	0.00	0.48	0.40	0.68	0.00	0.50	0.00	0.46
Velocity V for total discharge (fps): before inlet	3.70	3.31	4.09	4.00	3.83	0.00	1.58	0.00	1.01	1.30	0.00	0.00	4.85	4.60	3.12	0.00	4.21	0.00	4.12
Ratio of gutter depression flow to total Q (Eod):	61.6%	62.7%	55.5%	56.9%	35.1%	100.0%	37.5%	100.0%	39.9%	52.1%	100.0%	100.0%	71.9%	75.8%	42.4%	100.0%	62.8%	100.0%	65.0%
Equivalent cross-slope (Se):	0.049	0.047	0.049	0.049	0.034	0.056	0.025	0.056	0.034	0.040	0.056	0.056	0.051	0.052	0.026	0.056	0.042	0.056	0.043
GRATE INLETS ON-GRADE:																			
Ratio of grate frontal flow to total flow:	48.3%	50.1%	43.1%	44.3%	27.3%	—	31.2%	—	88.0%	41.6%	—	—	57.6%	61.3%	36.6%	—	51.9%	—	54.0%
Inlet frontal flow in cfs (Qw):	1.37	1.05	1.84	1.71	2.26	—	0.47	—	1.25	0.47	—	—	1.34	1.14	0.78	—	1.10	—	1.03
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	10.30	10.30	10.30	10.30	10.30	—	10.30	—	10.30	10.30	—	—	10.30	10.30	10.30	—	10.30	—	10.30
Fraction of frontal flow intercepted (Rf):	100.0%	100.0%	100.0%	100.0%	100.0%	—	100.0%	—	100.0%	100.0%	—	—	100.0%	100.0%	100.0%	—	100.0%	—	100.0%
Side flow in cfs (Qs):	1.46	1.05	2.43	2.15	6.01	—	1.04	—	0.17	0.66	—	—	0.99	0.72	1.34	—	1.02	—	0.88
Effective grate length w/clogging:	3.00	3.00	3.00	3.00	3.00	—	3.00	—	3.00	3.00	—	—	3.00	3.00	3.00	—	3.00	—	3.00
Fraction of side flow interception (Rs):	23.8%	23.3%	20.9%	21.6%	14.6%	—	21.4%	—	61.3%	55.3%	—	—	16.3%	17.6%	5.1%	—	11.1%	—	11.5%
Grate Efficiency (E):	60.6%	61.7%	55.0%	56.3%	37.9%	—	45.9%	—	95.4%	73.9%	—	—	64.5%	68.1%	39.9%	—	57.2%	—	59.3%
Total flow intercepted (cfs):	**1.72**	**1.30**	**2.34**	**3.87**	**8.27**	**0.00**	**1.39**	**0.00**	**1.36**	**0.83**	**0.00**	**0.00**	**2.33**	**1.86**	**1.69**	**0.00**	**2.12**	**0.00**	**1.90**
Grate flow-by (cfs):	**1.11**	**0.80**	**1.92**	**0.00**	**0.00**	—	**0.12**	—	**0.07**	**0.30**	—	—	**0.00**	**0.00**	**0.43**	—	**0.00**	—	**0.00**
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:																			
Length required for total interception (ft): w/o clogging	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Length of inlet provided L (ft):																			
Interception for length L (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Efficiency for length L:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slotted drain or side opening flow-by (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:																			
Head available for weir flow at sag (ft):						0.33		0.21			0.18	0.33				0.33		0.33	0.33
Capacity of grate in a sag (3-sided weir) in cfs:	—	—	—	—	—	—	—	**1.44**	—	—	**2.29**	—	—	—	—	—	—	—	**1.90**
Capacity of grate in a sag (4-sided weir):	—	—	—	—	—	0.38	—	—	—	—	—	1.15	—	—	—	1.59	—	3.60	—
Length provided of curb-opening inlet at sag:																			
Capacity of curb-opening inlet in a sag (weir) in cfs:	—	—	—	—	—	Grate	—	Grate	—	—	Grate	Grate	—	—	—	Grate	—	Grate	Grate
INFLOW Q FOR CATCH BASIN	**1.72**	**1.30**	**2.34**	**3.87**	**8.27**	**0.38**	**1.39**	**1.44**	**1.36**	**0.83**	**2.29**	**1.15**	**2.33**	**1.86**	**1.69**	**1.59**	**2.12**	**3.60**	**1.90**
Adjusted CA	0.627	0.466	0.698	0.680	1.409	0.085	0.336	0.277	0.251	0.251	0.643	0.255	0.422	0.413	0.470	0.354	0.470	0.799	0.422

Design by: AJH

ADOT / HEC-12

JOB: [illegible] DRAINAGE ASSESSMENT — [illegible]-yr Existing Condition

Inlet number:	I719	I720	I721	I722	I723	I323	I724	I725	I726	I727	I728	I729	I730	I731	I732	I733	I734	I735
Return Period	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
HYDROLOGY COMPUTATION:																		
Structure location station (ft):	173+20	177+15	177+33	177+33	177+00	177+00	181+00	181+00	184+15	184+83	184+83	184+50	188+00	188+00	191+50	191+56	191+50	191+50
Paved Area (acres)	0.44	0.00	0.47	0.47	0.00	0.00	0.40	0.40	0.00	0.31	0.33	0.00	0.41	0.41	0.33	0.31	0.33	0.31
Pavement Runoff Coefficient	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Landscaped Area (acres)	0.00	1.23	0.00	0.00	0.64	0.46	0.00	0.00	1.74	0.00	0.00	1.52	0.00	0.00	0.00	0.39	0.00	0.48
Landscape Runoff Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Contributing watershed area (acres):	**0.440**	**1.230**	**0.470**	**0.470**	**0.640**	**0.460**	**0.400**	**0.400**	**1.740**	**0.310**	**0.330**	**1.520**	**0.410**	**0.410**	**0.330**	**0.700**	**0.330**	**0.790**
Composite Runoff Coefficient "C":	0.95	0.70	0.95	0.95	0.70	0.70	0.95	0.95	0.70	0.95	0.95	0.70	0.95	0.95	0.95	0.81	0.95	0.80
Time of Concentration (10 minute minimum)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation intensity (in/hr):	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56
Subarea discharge Q (cfs):	1.90	3.92	2.03	2.03	2.04	1.47	1.73	1.73	5.55	1.34	1.43	4.85	1.77	1.77	1.43	2.59	1.43	2.87
Previous by-pass flow (cfs):	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Upstream inlet(s) contributing by-pass	I722	None	I720 I724	I725 I723	None	None	I726 I727	I728	None	I730	I729 I731	None	I732	I734	None	None	None	None
Discharge added by operator:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total discharge Q (cfs):	**1.90**	**3.92**	**2.03**	**2.03**	**2.04**	**1.47**	**1.73**	**1.73**	**5.55**	**1.34**	**1.73**	**4.85**	**1.77**	**1.77**	**1.43**	**2.59**	**1.43**	**2.87**
SHOULDER AND GUTTER CONFIGURATION:		Area Drain			Area Drain	Area Drain			Area Drain			Area Drain						
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0471	0.0000	0.0471	0.0471	0.0000	0.0000	0.0471	0.0471	0.0000	0.0065	0.0065	0.0000	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073
Inlet type (1=grate, 2=side opening or slotted):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Longitudinal profile (1=on-grade, 2=sag):	1	2	1	1	2	2	1	1	2	1	1	2	1	1	1	1	1	1
Gutter Configuration (1=freeway, 2=vertical):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Catch Basins in Grouped Inlets	2	1	3	3	1	1	3	3	1	3	2	1	2	3	2	2	2	2
Inlet description:	2, N(dbl)	N(dbl)	3, N(dbl)	3, N(dbl)	2, N(dbl)	2, N(dbl)	3, N(dbl)	3, N(dbl)	N(dbl)	3, N(dbl)	2, N(dbl)	N(dbl)	2, N(dbl)	3, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)
Grate width:	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Grate length:	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Pavement cross-slope (Sx):	0.020	0.000	0.020	0.020	0.000	0.000	0.020	0.020	0.000	0.020	0.020	0.000	0.020	0.020	0.020	0.020	0.020	0.020
Width of gutter from flowline (ft):	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (S'w=Sw-Sx)	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056
Flooded Width from flowline (ft): before inlet	**6.13**	**NA**	**6.31**	**6.31**	**NA**	**NA**	**5.87**	**5.87**	**NA**	**8.08**	**8.97**	**NA**	**8.86**	**8.86**	**8.09**	**10.32**	**8.09**	**10.77**
Depth at flowline (ft): before inlet	0.18	0.00	0.18	0.18	0.00	0.00	0.17	0.17	0.00	0.21	0.23	0.00	0.23	0.23	0.22	0.26	0.22	0.27
Water cross-area (sq.ft): before inlet	0.46	0.00	0.49	0.49	0.00	0.00	0.43	0.43	0.00	0.76	0.93	0.00	0.90	0.90	0.76	1.21	0.76	1.31
Velocity V for total discharge (fps): before inlet	4.12	0.00	4.18	4.18	0.00	0.00	4.04	4.04	0.00	1.76	1.86	0.00	1.96	1.96	1.87	2.14	1.87	2.20
Ratio of gutter depression flow to total Q (Eod):	65.0%	100.0%	63.6%	63.6%	100.0%	100.0%	66.9%	66.9%	100.0%	52.8%	48.6%	100.0%	49.1%	49.1%	52.8%	43.3%	52.8%	41.8%
Equivalent cross-slope (Se):	0.043	0.056	0.043	0.043	0.056	0.056	0.044	0.044	0.056	0.039	0.037	0.056	0.037	0.037	0.039	0.035	0.039	0.035
GRATE INLETS ON-GRADE:																		
Ratio of grate frontal flow to total flow:	54.0%	—	52.7%	52.7%	—	—	55.9%	55.9%	—	42.7%	38.9%	—	39.3%	39.3%	42.6%	34.3%	42.6%	33.0%
Inlet frontal flow in cfs (Qw):	1.03	—	1.07	1.07	—	—	0.97	0.97	—	0.57	0.67	—	0.70	0.70	0.61	0.89	0.61	0.95
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	10.30	—	10.30	10.30	—	—	10.30	10.30	—	10.30	10.30	—	10.30	10.30	10.30	10.30	10.30	10.30
Fraction of frontal flow intercepted (Rf):	100.0%	—	100.0%	100.0%	—	—	100.0%	100.0%	—	100.0%	100.0%	—	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Side flow in cfs (Qs):	0.88	—	0.96	0.96	—	—	0.76	0.76	—	0.77	1.05	—	1.08	1.08	0.82	1.70	0.82	1.92
Effective grate length w/clogging:	3.00	—	3.00	3.00	—	—	3.00	3.00	—	3.00	3.00	—	3.00	3.00	3.00	3.00	3.00	3.00
Fraction of side flow interception (Rs):	11.5%	—	11.3%	11.3%	—	—	11.9%	11.9%	—	37.6%	35.2%	—	33.1%	33.1%	35.1%	29.7%	35.1%	28.8%
Grate Efficiency (E):	59.3%	—	58.0%	58.0%	—	—	61.1%	61.1%	—	64.2%	60.4%	—	59.4%	59.4%	62.8%	53.8%	62.8%	52.3%
Total flow intercepted (cfs):	**1.90**	**0.00**	**2.03**	**2.03**	**0.00**	**0.00**	**1.73**	**1.73**	**0.00**	**1.34**	**1.73**	**0.00**	**1.77**	**1.77**	**1.43**	**2.59**	**1.43**	**2.87**
Grate flow-by (cfs):	**0.00**	**—**	**0.00**	**0.00**	**—**	**—**	**0.00**	**0.00**	**—**	**0.00**	**0.00**	**—**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:																		
Length required for total interception (ft): w/o clogging	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Length of inlet provided L (ft):																		
Interception for length L (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Efficiency for length L:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slotted drain or side opening flow-by (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:																		
Head available for weir flow at sag (ft):		0.33			0.33	0.5			0.38			0.33						
Capacity of grate in a sag (3-sided weir) in cfs:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Capacity of grate in a sag (4-sided weir):	—	3.92	—	—	2.04	1.47	—	—	5.55	—	—	4.55	—	—	—	—	—	—
Length provided of curb-opening inlet at sag:																		
Capacity of curb-opening inlet in a sag (weir) in cfs:	—	Grate	—	—	Grate	Grate	—	—	Grate	—	—	Grate	—	—	—	—	—	—
INFLOW Q FOR CATCH BASIN	1.90	3.92	2.03	2.03	2.04	1.47	1.73	1.73	5.55	1.34	1.73	4.55	1.77	1.77	1.43	2.59	1.43	2.87
Adjusted CA	0.422	0.870	0.451	0.451	0.453	0.325	0.384	0.384	1.230	0.297	0.317	1.075	0.393	0.393	0.317	0.573	0.317	0.637

Design by: AJH

Inlet number:	I736	I737	I738	I739	I740	I741	I742	I743	I300	I744	I745	I746	I747	I748	I749	I750	I751
Return Period	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
HYDROLOGY COMPUTATION:																	
Structure location station (ft):	194+48	194+48	196+40	196+40	197+50	201+12	201+12	203+20	203+20	203+20	203+80	205+75	205+75	205+75	208+75	208+75	211+80
Paved Area (acres)	0.31	0.29	0.23	0.69	0.49	0.43	0.78	0.43	0.00	0.00	0.00	0.45	0.00	0.43	0.41	0.49	0.52
Pavement Runoff Coefficient	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Landscaped Area (acres)	0.80	1.02	0.00	0.25	0.29	0.29	0.33	0.00	0.23	0.53	0.09	0.00	0.47	0.00	0.00	0.00	0.00
Landscape Runoff Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Contributing watershed area (acres):	**1.110**	**1.310**	**0.230**	**0.940**	**0.780**	**0.720**	**1.110**	**0.430**	**0.230**	**0.530**	**0.090**	**0.450**	**0.470**	**0.430**	**0.410**	**0.490**	**0.520**
Composite Runoff Coefficient "C":	0.77	0.76	0.95	0.88	0.86	0.85	0.88	0.95	0.70	0.70	0.70	0.95	0.70	0.95	0.95	0.95	0.95
Time of Concentration (10 minute minimum)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation intensity (in/hr):	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56
Subarea discharge Q (cfs):	3.89	4.51	1.00	3.78	3.05	2.79	4.43	1.86	0.73	1.69	0.29	1.95	1.50	1.86	1.77	2.12	2.25
Previous by-pass flow (cfs):	0.00	0.13	1.66	0.00	0.25	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.49	0.92
Upstream inlet(s) contributing by-pass	I733 I738	I735 I739	I740	I742	I741	I743 I746	I744, I745 & I748	None	None	None	I747	I749	I752	I750	I751	I753	I754 I758
Discharge added by operator:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total discharge Q (cfs):	**3.89**	**4.64**	**2.65**	**3.78**	**3.29**	**3.57**	**4.43**	**1.86**	**0.73**	**1.69**	**0.29**	**1.95**	**1.50**	**1.86**	**2.62**	**2.61**	**3.17**
SHOULDER AND GUTTER CONFIGURATION:									Area Drain	Area Drain	Area Drain		Area Drain				
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0000	0.0000	0.0075	0.0075	0.0085	0.0180	0.0180	0.0320	0.0000	0.0000	0.0000	0.0340	0.0000	0.0340	0.0220	0.0220	0.0100
Inlet type (1=grate, 2=side opening or slotted):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Longitudinal profile (1=on-grade, 2=sag):	2	2	1	1	1	1	1	1	2	2	2	1	2	1	1	1	1
Gutter Configuration (1=freeway, 2=vertical):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Catch Basins in Grouped Inlets	2	2	2	2	1	2	3	1	1	1	1	3	1	3	3	3	2
Inlet description:	2, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	N(dbl)	2, N(dbl)	3, N(dbl)	N(dbl)	N(dbl)	N(dbl)	N(dbl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)
Grate width:	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.00	2.00	2.00	2.00	2.00
Grate length:	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	3.0	3.0	3.0	3.0	3.0	3.0
Pavement cross-slope (Sx):	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.000	0.000	0.000	0.025	0.000	0.024	0.027	0.027	0.020
Width of gutter from flowline (ft):	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	2.50	2.50	2.50	2.50	2.50
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (S'w=Sw-Sx)	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.033	0.033	0.033	0.033	0.033
Flooded Width from flowline (ft): before inlet	**NA**	**NA**	**10.38**	**11.96**	**11.04**	**9.80**	**10.70**	**6.61**	**NA**	**NA**	**NA**	**5.85**	**NA**	**5.98**	**7.07**	**7.06**	**10.58**
Depth at flowline (ft): before inlet	0.00	0.00	0.26	0.29	0.27	0.25	0.27	0.19	0.00	0.00	0.00	0.19	0.00	0.17	0.21	0.21	0.24
Water cross-area (sq.ft): before inlet	0.00	0.00	1.22	1.60	1.37	1.09	1.29	0.53	0.00	0.00	0.00	0.51	0.00	0.50	0.76	0.76	1.25
Velocity V for total discharge (fps): before inlet	0.00	0.00	2.18	2.37	2.40	3.26	3.43	3.52	0.00	0.00	0.00	3.79	0.00	3.70	3.45	3.45	2.54
Ratio of gutter depression flow to total Q (Eod):	100.0%	100.0%	43.1%	38.2%	40.9%	45.2%	42.0%	61.6%	100.0%	100.0%	100.0%	64.7%	100.0%	80.5%	72.3%	72.4%	57.3%
Equivalent cross-slope (Se):	0.056	0.056	0.035	0.034	0.035	0.036	0.035	0.042	0.056	0.056	0.056	0.045	0.033	0.032	0.032	0.032	0.028
GRATE INLETS ON-GRADE:																	
Ratio of grate frontal flow to total flow:	—	—	34.1%	30.0%	32.3%	35.9%	33.2%	50.7%	—	—	—	52.9%	—	49.2%	41.0%	41.0%	32.7%
Inlet frontal flow in cfs (Qw):	—	—	0.90	1.14	1.06	1.28	1.47	0.94	—	—	—	1.03	—	0.92	1.07	1.07	1.04
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	—	—	10.30	10.30	10.30	10.30	10.30	10.30	—	—	—	6.85	—	6.85	6.85	6.85	6.85
Fraction of frontal flow intercepted (Rf):	—	—	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	—	—	—	100.0%	—	100.0%	100.0%	100.0%	100.0%
Side flow in cfs (Qs):	—	—	1.75	2.65	2.23	2.29	2.96	0.92	—	—	—	0.92	—	0.95	1.54	1.54	2.13
Effective grate length w/clogging:	—	—	3.00	3.00	3.00	3.00	3.00	3.00	—	—	—	1.50	—	1.50	1.50	1.50	1.50
Fraction of side flow interception (Rs):	—	—	29.2%	26.1%	25.6%	16.6%	15.4%	14.8%	—	—	—	3.7%	—	3.8%	4.7%	4.7%	6.0%
Grate Efficiency (E):	—	—	53.3%	48.3%	49.6%	46.5%	43.5%	58.0%	—	—	—	54.6%	—	51.1%	43.7%	43.8%	36.7%
Total flow intercepted (cfs):	**0.00**	**0.00**	**2.65**	**3.66**	**1.63**	**3.32**	**4.43**	**1.08**	**0.00**	**0.00**	**0.00**	**1.95**	**0.00**	**1.86**	**2.62**	**2.61**	**2.33**
Grate flow-by (cfs):	—	—	**0.00**	**0.13**	**1.66**	**0.25**	**0.00**	**0.78**	—	—	—	**0.00**	—	**0.00**	**0.00**	**0.00**	**0.84**
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:																	
Length required for total interception (ft): w/o clogging	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Length of inlet provided L (ft):																	
Interception for length L (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Efficiency for length L:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slotted drain or side opening flow-by (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:																	
Head available for weir flow at sag (ft):	0.26	0.29							0.33	0.33	0.33		0.33				
Capacity of grate in a sag (3-sided weir) in cfs:	**3.89**	**4.64**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Capacity of grate in a sag (4-sided weir):	—	—	—	—	—	—	—	—	0.73	1.69	0.29	—	1.50	—	—	—	—
Length provided of curb-opening inlet at sag:																	
Capacity of curb-opening inlet in a sag (weir) in cfs:	Grate	Grate	—	—	—	—	—	—	Grate	Grate	Grate	—	Grate	—	—	—	—
INFLOW Q FOR CATCH BASIN	3.89	4.64	2.65	3.66	1.63	3.32	4.43	1.08	0.73	1.69	0.29	1.95	1.50	1.86	2.62	2.61	2.33
Adjusted CA	0.863	0.999	0.221	0.839	0.675	0.618	0.982	0.413	0.163	0.375	0.064	0.432	0.332	0.413	0.393	0.470	0.499

Inlet number:	I752	I753	I754	I755	I756	I757	I758	I759	I760	I761	I762	I763	I764	I765	I766	I767	I768
Return Period	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
HYDROLOGY COMPUTATION:				Ramp A	Ramp A		Ramp B		Ramp B		Ramp A						
Structure location station (ft):	211+75	211+75	214+00	14+25	14+25	215+40	65+37	218+40	68+36	218+40	18+37	221+40	221+40	221+40	222+60	222+60	222+65
Paved Area (acres)	0.00	0.45	0.00	0.26	0.00	0.10	0.20	0.32	0.27	0.42	0.21	0.35	0.00	0.32	0.13	0.00	0.00
Pavement Runoff Coefficient	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Landscaped Area (acres)	0.20	0.00	0.97	0.00	0.65	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.51	0.15	0.00	0.54	0.09
Landscape Runoff Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Contributing watershed area (acres):	0.200	0.450	0.970	0.260	0.650	0.100	0.200	0.320	0.270	0.490	0.210	0.350	0.510	0.470	0.130	0.540	0.090
Composite Runoff Coefficient "C":	0.70	0.95	0.70	0.95	0.70	0.95	0.95	0.95	0.95	0.91	0.95	0.95	0.70	0.87	0.95	0.70	0.70
Time of Concentration (10 minute minimum)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation intensity (in/hr):	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56
Subarea discharge Q (cfs):	0.64	1.95	3.09	1.13	2.07	0.43	0.87	1.38	1.17	2.04	0.91	1.51	1.63	1.86	0.56	1.72	0.29
Previous by-pass flow (cfs):	0.00	0.52	0.00	0.41	0.00	0.00	0.49	0.20	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00
Upstream inlet(s) contributing by-pass	None	I755 I756	None	I762	None	None	I760	I757	None	None	None	I759	None	I761	I763 I767	None	I764
Discharge added by operator:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total discharge Q (cfs):	0.64	2.47	3.09	1.53	2.07	0.43	1.35	1.59	1.17	2.04	0.91	1.51	1.63	2.10	0.56	1.72	0.29
SHOULDER AND GUTTER CONFIGURATION:	Area Drain		Area Drain		Area Drain								Area Drain			Area Drain	Area Drain
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0000	0.0100	0.0000	0.0032	0.0000	0.0045	0.0170	0.0142	0.0270	0.0142	0.0179	0.0295	0.0000	0.0295	0.0230	0.0000	0.0000
Inlet type (1=grate, 2=side opening or slotted):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Longitudinal profile (1=on-grade, 2=sag):	2	1	2	1	2	1	1	1	1	1	1	1	2	1	1	2	2
Gutter Configuration (1=freeway, 2=vertical):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Catch Basins in Grouped Inlets	1	2	1	2	2	1	1	3	1	2	1	3	1	2	3	1	1
Inlet description:	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)
Grate width:	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Grate length:	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Pavement cross-slope (Sx):	0.000	0.020	0.000	0.006	0.000	0.020	0.040	0.020	0.020	0.020	0.040	0.020	0.000	0.020	0.020	0.000	0.000
Width of gutter from flowline (ft):	2.50	2.50	2.50	2.50	2.50	0.00	2.50	2.50	2.50	2.50	2.50	2.50	0.00	2.50	2.50	2.50	2.50
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (Sw=Sw-Sx)	0.033	0.033	0.033	0.033	0.033	0.020	0.033	0.033	0.033	0.033	0.033	0.033	0.000	0.033	0.033	0.033	0.033
Flooded Width from flowline (ft): before inlet	NA	9.49	NA	20.77	NA	6.03	4.78	7.42	5.65	8.24	4.13	6.22	NA	7.15	4.16	NA	NA
Depth at flowline (ft): before inlet	0.00	0.23	0.00	0.19	0.00	0.12	0.17	0.18	0.15	0.20	0.15	0.16	0.00	0.18	0.12	0.00	0.00
Water cross-area (sq.ft): before inlet	0.00	1.03	0.00	1.44	0.00	0.39	0.48	0.64	0.39	0.78	0.35	0.47	0.00	0.60	0.23	0.00	0.00
Velocity V for total discharge (fps): before inlet	0.00	2.40	0.00	1.07	0.00	1.12	2.80	2.47	2.97	2.62	2.57	3.25	0.00	3.50	2.40	0.00	0.00
Ratio of gutter depression flow to total Q (Eod):	100.0%	61.8%	100.0%	40.8%	100.0%	3.6%	85.7%	72.9%	84.5%	68.2%	91.2%	80.6%	100.0%	74.5%	94.6%	100.0%	100.0%
Equivalent cross-slope (Se):	0.033	0.028	0.033	0.017	0.033	0.020	0.034	0.030	0.031	0.029	0.034	0.031	0.000	0.030	0.033	0.033	0.033
GRATE INLETS ON-GRADE:																	
Ratio of grate frontal flow to total flow:	—	35.9%	—	26.9%	—	40.6%	45.1%	44.9%	56.2%	40.9%	49.5%	52.1%	—	46.3%	70.2%	—	—
Inlet frontal flow in cfs (Qw):	—	0.89	—	0.41	—	0.18	0.61	0.71	0.66	0.83	0.45	0.79	—	0.97	0.39	—	—
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	—	6.85	—	6.85	—	6.85	6.85	6.85	6.85	6.85	6.85	6.85	—	6.85	6.85	—	—
Fraction of frontal flow intercepted (Rf):	—	100.0%	—	100.0%	—	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	—	100.0%	100.0%	—	—
Side flow in cfs (Qs):	—	1.58	—	1.12	—	0.26	0.74	0.87	0.51	1.21	0.46	0.73	—	1.13	0.17	—	—
Effective grate length w/clogging:	—	1.50	—	1.50	—	1.50	1.50	1.50	1.50	1.50	1.50	1.50	—	1.50	1.50	—	—
Fraction of side flow interception (Rs):	—	6.6%	—	8.3%	—	21.6%	9.6%	6.2%	4.6%	5.7%	11.0%	3.9%	—	3.4%	6.6%	—	—
Grate Efficiency (E):	—	40.1%	—	32.9%	—	53.4%	50.4%	48.3%	58.2%	44.3%	55.1%	53.9%	—	48.1%	72.1%	—	—
Total flow intercepted (cfs):	0.00	1.98	0.00	1.01	0.00	0.23	0.68	1.59	0.68	1.81	0.50	1.51	0.00	2.02	0.56	0.00	0.00
Grate flow-by (cfs):	—	0.49	—	0.52	—	0.20	0.67	0.00	0.49	0.23	0.41	0.00	—	0.08	0.00	—	—
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:																	
Length required for total interception (ft): w/o clogging	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Length of inlet provided L (ft):																	
Interception for length L (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Efficiency for length L:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slotted drain or side opening flow-by (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:																	
Head available for weir flow at sag (ft):	0.33		0.33		0.33	0.15							0.33			0.33	0.33
Capacity of grate in a sag (3-sided weir) in cfs:	—	—	—	—	—	0.43	—	—	—	—	—	—	—	—	—	—	—
Capacity of grate in a sag (4-sided weir):	0.64	—	2.84	—	2.07	—	—	—	—	—	—	—	1.63	—	—	1.72	0.29
Length provided of curb-opening inlet at sag:																	
Capacity of curb-opening inlet in a sag (weir) in cfs:	Grate	—	Grate	—	Grate	Grate	—	—	—	—	—	—	Grate	—	—	Grate	Grate
INFLOW Q FOR CATCH BASIN	0.64	1.98	2.84	1.01	2.07	0.43	0.68	1.59	0.68	1.81	0.50	1.51	1.63	2.02	0.56	1.72	0.29
Adjusted CA	0.141	0.432	0.686	0.249	0.460	0.096	0.192	0.307	0.259	0.453	0.202	0.336	0.361	0.413	0.125	0.382	0.064

AI T / HEC-12 — Pavement Spread Check r 50-yr Onsite Storm Drain

JOB: SR51 DRAINAGE ASSESSMENT — FILE: 50yrONSITE.XLS — 50-yr Existing Condition

Capture ratios: 80% 50%

Inlet number:	I700	I701	I702	I703	I704	I705	I706	I707	I708	I709	I710	I711	I712	I713	I714	I715	I716	I717	I718
Return Period	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
HYDROLOGY COMPUTATION:																			
Structure location station (ft):	152+40	152+40	155+35	155+35	156+88	158+35	158+35	159+90	160+23	160+55	161+25	161+40	164+32	164+00	168+03	167+85	168+03	167+85	173+20
Paved Area (acres)	0.44	0.36	0.33	0.34	0.54	0.00	0.35	0.20	0.18	0.18	0.67	0.00	0.44	0.43	0.49	0.00	0.49	0.00	0.44
Pavement Runoff Coefficient	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Landscaped Area (acres)	0.29	0.17	0.54	0.50	1.26	0.12	0.00	0.12	0.11	0.11	0.00	0.36	0.00	0.00	0.00	0.50	0.00	1.13	0.00
Landscape Runoff Coefficient	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Contributing watershed area (acres):	0.730	0.530	0.870	0.840	1.800	0.120	0.350	0.320	0.290	0.290	0.670	0.360	0.440	0.430	0.490	0.500	0.490	1.130	0.440
Composite Runoff Coefficient "C":	0.87	0.89	0.83	0.83	0.81	0.75	0.95	0.88	0.87	0.87	0.95	0.75	0.95	0.95	0.95	0.75	0.95	0.75	0.95
Time of Concentration (10 minute minimum)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation intensity (in/hr):	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06
Subarea discharge Q (cfs):	3.85	2.84	4.35	4.23	8.83	0.55	2.01	1.70	1.54	1.54	3.86	1.64	2.53	2.48	2.82	2.27	2.82	5.14	2.53
Previous by-pass flow (cfs):	0.00	0.00	1.69	1.22	3.00	0.00	0.00	0.49	0.46	0.00	0.00	0.59	0.86	0.00	0.00	0.00	0.00	0.00	0.00
Upstream inlet(s) contributing by-pass	None	None	I700	I701	I702	None	I703 I705	I708 I706	I709	I712	I704, I711 I713	I717	I714	I716	I715 I719	None	I718	None	I721
Discharge added by operator:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total discharge Q (cfs):	3.85	2.84	6.04	5.45	11.84	0.55	2.01	2.18	2.00	1.54	3.86	2.22	3.40	2.48	2.82	2.27	2.82	5.14	2.53
SHOULDER AND GUTTER CONFIGURATION:						Area Drain						Area Drain				Area Drain		Area Drain	
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0205	0.0205	0.0205	0.0205	0.0150	0.0000	0.0080	0.0000	0.0015	0.0030	0.0047	0.0000	0.0471	0.0471	0.0471	0.0000	0.0471	0.0000	0.0471
Inlet type (1=grate, 2=side opening or slotted):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Longitudinal profile (1=on-grade, 2=sag):	1	1	1	1	1	2	1	2	1	1	2	2	1	1	1	2	1	2	1
Gutter Configuration (1=freeway, 2=vertical):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Catch Basins in Grouped Inlets	1	1	1	2	3	1	2	1	1	1	2	2	2	2	2	1	2	1	2
Inlet description:	N(dbl)	N(dbl)	N(dbl)	2, N(dbl)	3, N(dbl)	N(dbl)	2, N(trp)	N(dbl)	N(dbl)	N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	N(dbl)	2, N(dbl)	N(dbl)	2, N(dbl)
Grate width:	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Grate length:	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Pavement cross-slope (Sx):	0.040	0.032	0.040	0.040	0.023	0.000	0.007	0.019	0.019	0.024	0.034	0.000	0.040	0.040	0.005	0.000	0.020	0.000	0.020
Width of gutter from flowline (ft):	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (S'w=Sw-Sx)	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056
Flooded Width from flowline (ft): before inlet	6.48	6.59	7.66	7.36	14.94	NA	17.15	NA	13.08	8.99	NA	NA	5.20	4.59	17.41	NA	7.28	NA	6.95
Depth at flowline (ft): before inlet	0.28	0.24	0.33	0.32	0.39	0.00	0.20	0.00	0.31	0.26	0.00	0.00	0.23	0.21	0.16	0.00	0.20	0.00	0.19
Water cross-area (sq.ft): before inlet	0.97	0.80	1.35	1.25	2.83	0.00	1.20	0.00	1.83	1.10	0.00	0.00	0.64	0.50	0.85	0.00	0.63	0.00	0.58
Velocity V for total discharge (fps): before inlet	3.98	3.56	4.46	4.35	4.18	0.00	1.68	0.00	1.09	1.40	0.00	0.00	5.31	4.92	3.30	0.00	4.48	0.00	4.38
Ratio of gutter depression flow to total Q (Eod):	56.8%	57.6%	50.5%	51.9%	31.3%	100.0%	33.1%	100.0%	35.6%	47.3%	100.0%	100.0%	65.6%	70.9%	37.0%	100.0%	57.3%	100.0%	59.3%
Equivalent cross-slope (Se):	0.049	0.045	0.048	0.048	0.033	0.056	0.023	0.056	0.032	0.039	0.056	0.056	0.050	0.051	0.024	0.056	0.040	0.056	0.041
GRATE INLETS ON-GRADE:																			
Ratio of grate frontal flow to total flow:	44.2%	45.5%	39.0%	40.2%	24.3%	—	27.3%	—	82.7%	37.4%	—	—	51.8%	56.6%	31.5%	—	46.7%	—	48.6%
Inlet frontal flow in cfs (Qw):	1.70	1.29	2.36	2.19	2.87	—	0.55	—	1.65	0.57	—	—	1.76	1.40	0.89	—	1.32	—	1.23
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	10.30	10.30	10.30	10.30	10.30	—	10.30	—	10.30	10.30	—	—	10.30	10.30	10.30	—	10.30	—	10.30
Fraction of frontal flow intercepted (Rf):	100.0%	100.0%	100.0%	100.0%	100.0%	—	100.0%	—	100.0%	100.0%	—	—	100.0%	100.0%	100.0%	—	100.0%	—	100.0%
Side flow in cfs (Qs):	2.15	1.55	3.68	3.26	8.97	—	1.46	—	0.35	0.96	—	—	1.64	1.07	1.93	—	1.50	—	1.30
Effective grate length w/clogging:	3.00	3.00	3.00	3.00	3.00	—	3.00	—	3.00	3.00	—	—	3.00	3.00	3.00	—	3.00	—	3.00
Fraction of side flow interception (Rs):	21.5%	21.1%	18.5%	19.1%	12.8%	—	19.6%	—	57.8%	52.1%	—	—	14.2%	15.9%	4.6%	—	10.1%	—	10.5%
Grate Efficiency (E):	56.2%	57.0%	50.3%	51.6%	33.9%	—	41.5%	—	92.7%	70.0%	—	—	58.7%	63.6%	34.7%	—	52.1%	—	54.0%
Total flow intercepted (cfs):	2.16	1.62	3.04	5.45	11.84	0.00	1.67	0.00	1.85	1.08	0.00	0.00	3.40	2.48	1.96	0.00	2.82	0.00	2.53
Grate flow-by (cfs):	1.69	1.22	3.00	0.00	0.00	—	0.34	—	0.15	0.48	—	—	0.00	0.00	0.86	—	0.00	—	0.00
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:																			
Length required for total interception (ft): w/o clogging	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Length of inlet provided L (ft):																			
Interception for length L (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Efficiency for length L:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slotted drain or side opening flow-by (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:																			
Head available for weir flow at sag (ft):						0.33		0.33			0.33	0.33				0.33		0.33	0.33
Capacity of grate in a sag (3-sided weir) in cfs:	—	—	—	—	—	—	—	2.18	—	—	2.84	—	—	—	—	—	—	—	2.53
Capacity of grate in a sag (4-sided weir):	—	—	—	—	—	0.55	—	—	—	—	—	2.22	—	—	—	2.27	—	4.55	—
Length provided of curb-opening inlet at sag:																			
Capacity of curb-opening inlet in a sag (weir) in cfs:	—	—	—	—	—	Grate	—	Grate	—	—	Grate	Grate	—	—	—	Grate	—	Grate	Grate
INFLOW Q FOR CATCH BASIN	2.16	1.62	3.04	5.45	11.84	0.55	1.67	2.18	1.85	1.08	2.84	2.22	3.40	2.48	1.98	2.27	2.82	4.55	2.53
Adjusted CA	0.361	0.474	0.726	0.705	1.473	0.091	0.336	0.283	0.256	0.256	0.643	0.273	0.422	0.413	0.470	0.379	0.470	0.856	0.422

Design by: AJH

AD T / HEC-12

JOB: SR51 DRAINAGE ASSESSMENT

50-yr Existing Condition

Inlet number:	I719	I720	I721	I722	I723	I323	I724	I725	I726	I727	I728	I729	I730	I731	I732	I733	I734	I735
Return Period	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
HYDROLOGY COMPUTATION:																		
Structure location station (ft):	173+20	177+15	177+33	177+33	177+00	177+00	181+00	181+00	184+15	184+83	184+83	184+50	188+00	188+00	191+50	191+56	191+50	191+50
Paved Area (acres)	0.44	0.00	0.47	0.47	0.00	0.00	0.40	0.40	0.00	0.31	0.33	0.00	0.41	0.41	0.33	0.31	0.33	0.31
Pavement Runoff Coefficient	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Landscaped Area (acres)	0.00	1.23	0.00	0.00	0.64	0.46	0.00	0.00	1.74	0.00	0.00	1.52	0.00	0.00	0.00	0.39	0.00	0.48
Landscape Runoff Coefficient	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Contributing watershed area (acres):	0.440	1.230	0.470	0.470	0.640	0.460	0.400	0.400	1.740	0.310	0.330	1.520	0.410	0.410	0.330	0.700	0.330	0.790
Composite Runoff Coefficient "C":	0.95	0.75	0.95	0.95	0.75	0.75	0.95	0.95	0.75	0.95	0.95	0.75	0.95	0.95	0.95	0.84	0.95	0.83
Time of Concentration (10 minute minimum)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation intensity (in/hr):	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06
Subarea discharge Q (cfs):	2.53	5.59	2.71	2.71	2.91	2.09	2.30	2.30	7.91	1.78	1.90	6.91	2.36	2.36	1.90	3.56	1.90	3.97
Previous by-pass flow (cfs):	0.00	0.00	1.04	0.00	0.00	0.00	3.36	0.21	0.00	0.00	2.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Upstream inlet(s) contributing by-pass	I722	None	I720 I724	I725 I723	None	None	I726 I727	I728	None	I730	I729 I731	None	I732	I734	None	None	None	None
Discharge added by operator:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total discharge Q (cfs):	2.53	5.59	3.75	2.71	2.91	2.09	5.66	2.51	7.91	1.78	4.26	6.91	2.36	2.36	1.90	3.56	1.90	3.97
SHOULDER AND GUTTER CONFIGURATION:		Area Drain			Area Drain	Area Drain			Area Drain			Area Drain						
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0471	0.0000	0.0471	0.0471	0.0000	0.0000	0.0471	0.0471	0.0000	0.0065	0.0065	0.0000	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073
Inlet type (1=grate, 2=side opening or slotted):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Longitudinal profile (1=on-grade, 2=sag):	1	2	1	1	2	2	1	1	2	1	1	2	1	1	1	1	1	1
Gutter Configuration (1=freeway, 2=vertical):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Catch Basins in Grouped Inlets	2	1	3	3	1	1	3	3	1	3	2	1	2	3	2	2	2	2
Inlet description:	2, N(dbl)	N(dbl)	3, N(dbl)	3, N(dbl)	2, N(dbl)	2, N(dbl)	3, N(dbl)	3, N(dbl)	N(dbl)	3, N(dbl)	2, N(dbl)	N(dbl)	2, N(dbl)	3, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)
Grate width:	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Grate length:	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Pavement cross-slope (Sx):	0.020	0.000	0.020	0.020	0.000	0.000	0.020	0.020	0.000	0.020	0.020	0.000	0.020	0.020	0.020	0.020	0.020	0.020
Width of gutter from flowline (ft):	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (S'w=Sw-Sx)	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056
Flooded Width from flowline (ft): before inlet	6.95	NA	8.21	7.15	NA	NA	9.73	6.93	NA	9.10	12.89	NA	9.95	9.95	9.11	11.73	9.11	12.25
Depth at flowline (ft): before inlet	0.19	0.00	0.22	0.20	0.00	0.00	0.25	0.19	0.00	0.24	0.31	0.00	0.25	0.25	0.24	0.29	0.24	0.30
Water cross-area (sq.ft): before inlet	0.58	0.00	0.78	0.61	0.00	0.00	1.08	0.58	0.00	0.95	1.85	0.00	1.13	1.13	0.95	1.54	0.95	1.67
Velocity V for total discharge (fps): before inlet	4.38	0.00	4.77	4.44	0.00	0.00	5.25	4.37	0.00	1.88	2.31	0.00	2.10	2.10	1.99	2.31	1.99	2.37
Ratio of gutter depression flow to total Q (Eod):	59.3%	100.0%	52.2%	58.1%	100.0%	100.0%	45.4%	59.5%	100.0%	48.0%	35.8%	100.0%	44.6%	44.6%	48.0%	38.8%	48.0%	37.4%
Equivalent cross-slope (Se):	0.041	0.056	0.039	0.041	0.056	0.056	0.036	0.041	0.056	0.037	0.033	0.056	0.036	0.036	0.037	0.034	0.037	0.033
GRATE INLETS ON-GRADE:																		
Ratio of grate frontal flow to total flow:	48.6%	—	42.1%	47.4%	—	—	36.1%	48.7%	—	38.4%	28.1%	—	35.4%	35.4%	38.4%	30.5%	38.4%	29.4%
Inlet frontal flow in cfs (Qw):	1.23	—	1.58	1.28	—	—	2.05	1.22	—	0.69	1.19	—	0.84	0.84	0.73	1.09	0.73	1.17
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	10.30	—	10.30	10.30	—	—	10.30	10.30	—	10.30	10.30	—	10.30	10.30	10.30	10.30	10.30	10.30
Fraction of frontal flow intercepted (Rf):	100.0%	—	100.0%	100.0%	—	—	100.0%	100.0%	—	100.0%	100.0%	—	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Side flow in cfs (Qs):	1.30	—	2.17	1.42	—	—	3.61	1.29	—	1.10	3.06	—	1.52	1.52	1.17	2.47	1.17	2.80
Effective grate length w/clogging:	3.00	—	3.00	3.00	—	—	3.00	3.00	—	3.00	3.00	—	3.00	3.00	3.00	3.00	3.00	3.00
Fraction of side flow interception (Rs):	10.5%	—	9.1%	10.2%	—	—	7.8%	10.5%	—	34.9%	27.1%	—	30.6%	30.6%	32.5%	27.0%	32.5%	26.1%
Grate Efficiency (E):	54.0%	—	47.3%	52.8%	—	—	41.1%	54.1%	—	59.9%	47.5%	—	55.2%	55.2%	58.4%	49.3%	58.4%	47.8%
Total flow intercepted (cfs):	2.53	0.00	3.75	2.71	0.00	0.00	5.66	2.51	0.00	1.78	4.05	0.00	2.36	2.36	1.90	3.51	1.90	3.79
Grate flow-by (cfs):	0.00	—	0.00	0.00	—	—	0.00	0.00	—	0.00	0.21	—	0.00	0.00	0.00	0.05	0.00	0.17
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:																		
Length required for total interception (ft): w/o clogging	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Length of inlet provided L (ft):																		
Interception for length L (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Efficiency for length L:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slotted drain or side opening flow-by (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:																		
Head available for weir flow at sag (ft):		0.33			0.33	0.5			0.33			0.33						
Capacity of grate in a sag (3-sided weir) in cfs:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Capacity of grate in a sag (4-sided weir):	—	4.55	—	—	2.91	2.09	—	—	4.55	—	—	4.55	—	—	—	—	—	—
Length provided of curb-opening inlet at sag:																		
Capacity of curb-opening inlet in a sag (weir) in cfs:	—	Grate	—	—	Grate	Grate	—	—	Grate	—	—	Grate	—	—	—	—	—	—
INFLOW Q FOR CATCH BASIN	2.53	4.55	3.75	2.71	2.91	2.09	5.66	2.51	4.55	1.78	4.05	4.55	2.36	2.36	1.90	3.51	1.90	3.79
Adjusted CA	0.422	0.932	0.451	0.451	0.485	0.348	0.384	0.384	1.318	0.297	0.317	1.152	0.393	0.393	0.317	0.593	0.317	0.661

Inlet number:	I736	I737	I738	I739	I740	I741	I742	I743	I300	I744	I745	I746	I747	I748	I749	I750	I751
Return Period	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
HYDROLOGY COMPUTATION:																	
Structure location station (ft):	194+48	194+48	196+40	196+40	197+50	201+12	201+12	203+20	203+20	203+20	203+80	205+75	205+75	205+75	208+75	208+75	211+80
Paved Area (acres)	0.31	0.29	0.23	0.69	0.49	0.43	0.78	0.43	0.00	0.00	0.00	0.45	0.00	0.43	0.41	0.49	0.52
Pavement Runoff Coefficient	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Landscaped Area (acres)	0.80	1.02	0.00	0.25	0.29	0.29	0.33	0.00	0.23	0.53	0.09	0.00	0.47	0.00	0.00	0.00	0.00
Landscape Runoff Coefficient	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Contributing watershed area (acres):	1.110	1.310	0.230	0.940	0.780	0.720	1.110	0.430	0.230	0.530	0.090	0.450	0.470	0.430	0.410	0.490	0.520
Composite Runoff Coefficient "C":	0.81	0.79	0.95	0.90	0.88	0.87	0.89	0.95	0.75	0.75	0.75	0.95	0.75	0.95	0.95	0.95	0.95
Time of Concentration (10 minute minimum)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation intensity (in/hr):	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06
Subarea discharge Q (cfs):	5.42	6.30	1.32	5.11	4.14	3.79	5.99	2.48	1.05	2.41	0.41	2.59	2.14	2.48	2.36	2.82	2.99
Previous by-pass flow (cfs):	0.27	0.76	2.76	0.00	0.80	1.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19	1.05	2.57
Upstream inlet(s) contributing by-pass	I733 I738	I735 I739	I740	I742	I741	I743 I746	I744, I745 & I748	None	None	None	I747	I749	I752	I750	I751	I753	I754 I758
Discharge added by operator:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total discharge Q (cfs):	5.69	7.06	4.09	5.11	4.94	4.96	5.99	2.48	1.05	2.41	0.41	2.59	2.14	2.48	4.55	3.87	5.56
SHOULDER AND GUTTER CONFIGURATION:									Area Drain	Area Drain	Area Drain		Area Drain				
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0000	0.0000	0.0075	0.0075	0.0085	0.0180	0.0180	0.0320	0.0000	0.0000	0.0000	0.0340	0.0000	0.0340	0.0220	0.0220	0.0100
Inlet type (1=grate, 2=side opening or slotted):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Longitudinal profile (1=on-grade, 2=sag):	2	2	1	1	1	1	1	1	2	2	2	1	2	1	1	1	1
Gutter Configuration (1=freeway, 2=vertical):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Catch Basins in Grouped Inlets	2	2	2	2	1	2	3	1	1	1	1	3	1	3	3	3	2
Inlet description:	2, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	N(dbl)	2, N(dbl)	3, N(dbl)	N(dbl)	N(dbl)	N(dbl)	N(dbl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)
Grate width:	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.00	2.00	2.00	2.00	2.00
Grate length:	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	3.0	3.0	3.0	3.0	3.0	3.0
Pavement cross-slope (Sx):	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.000	0.000	0.000	0.025	0.000	0.024	0.027	0.027	0.020
Width of gutter from flowline (ft):	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	2.50	2.50	2.50	2.50	2.50
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (Sw=Sw-Sx)	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.033	0.033	0.033	0.033	0.033
Flooded Width from flowline (ft): before inlet	NA	NA	12.33	13.46	12.97	11.19	12.06	7.48	NA	NA	NA	6.60	NA	6.72	8.77	8.24	13.20
Depth at flowline (ft): before inlet	0.00	0.00	0.30	0.32	0.31	0.28	0.29	0.20	0.00	0.00	0.00	0.21	0.00	0.19	0.25	0.24	0.30
Water cross-area (sq.ft): before inlet	0.00	0.00	1.70	2.01	1.87	1.41	1.63	0.66	0.00	0.00	0.00	0.64	0.00	0.63	1.15	1.02	1.92
Velocity V for total discharge (fps): before inlet	0.00	0.00	2.41	2.54	2.65	3.52	3.68	3.75	0.00	0.00	0.00	4.04	0.00	3.95	3.95	3.80	2.90
Ratio of gutter depression flow to total Q (Eod):	100.0%	100.0%	37.2%	34.5%	35.7%	40.4%	37.9%	56.1%	100.0%	100.0%	100.0%	59.4%	100.0%	75.4%	63.0%	65.7%	48.4%
Equivalent cross-slope (Se):	0.056	0.056	0.033	0.032	0.033	0.034	0.033	0.040	0.056	0.056	0.056	0.043	0.033	0.031	0.031	0.031	0.026
GRATE INLETS ON-GRADE:																	
Ratio of grate frontal flow to total flow:	—	—	29.2%	27.0%	27.9%	31.9%	29.8%	45.7%	—	—	—	48.0%	—	44.8%	34.4%	36.2%	26.8%
Inlet frontal flow in cfs (Qw):	—	—	1.19	1.38	1.38	1.58	1.78	1.13	—	—	—	1.24	—	1.11	1.57	1.40	1.49
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	—	—	10.30	10.30	10.30	10.30	10.30	10.30	—	—	—	6.85	—	6.85	6.85	6.85	6.85
Fraction of frontal flow intercepted (Rf):	—	—	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	—	—	—	100.0%	—	100.0%	100.0%	100.0%	100.0%
Side flow in cfs (Qs):	—	—	2.89	3.73	3.56	3.38	4.21	1.35	—	—	—	1.35	—	1.37	2.99	2.47	4.07
Effective grate length w/clogging:	—	—	3.00	3.00	3.00	3.00	3.00	3.00	—	—	—	1.50	—	1.50	1.50	1.50	1.50
Fraction of side flow interception (Rs):	—	—	25.5%	23.7%	22.5%	14.7%	13.8%	13.4%	—	—	—	3.3%	—	3.3%	3.7%	4.0%	4.7%
Grate Efficiency (E):	—	—	47.3%	44.3%	44.1%	41.9%	39.4%	52.9%	—	—	—	49.7%	—	46.6%	36.9%	38.8%	30.3%
Total flow intercepted (cfs):	0.00	0.00	3.86	4.53	2.18	4.16	5.99	1.31	0.00	0.00	0.00	2.59	0.00	2.48	4.55	3.87	3.37
Grate flow-by (cfs):	—	—	0.22	0.58	2.78	0.80	0.00	1.16	—	—	—	0.00	—	0.00	0.00	0.00	2.19
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:																	
Length required for total interception (ft): w/o clogging	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Length of inlet provided L (ft):																	
Interception for length L (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Efficiency for length L:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slotted drain or side opening flow-by (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:																	
Head available for weir flow at sag (ft):	0.33	0.33							0.33	0.33	0.33		0.33				
Capacity of grate in a sag (3-sided weir) in cfs:	2.84	2.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Capacity of grate in a sag (4-sided weir):	—	—	—	—	—	—	—	—	1.05	2.41	0.41	—	2.14	—	—	—	—
Length provided of curb-opening inlet at sag:																	
Capacity of curb-opening inlet in a sag (weir) in cfs:	Grate	Grate	—	—	—	—	—	—	Grate	Grate	Grate	—	Grate	—	—	—	—
INFLOW Q FOR CATCH BASIN	2.84	2.84	3.86	4.53	2.18	4.16	5.99	1.31	1.05	2.41	0.41	2.59	2.14	2.48	4.55	3.87	3.37
Adjusted CA	0.904	1.051	0.221	0.852	0.690	0.632	0.998	0.413	0.174	0.402	0.068	0.432	0.356	0.413	0.393	0.470	0.499

A)T / HEC-12

JOB: SR51 DRAINAGE ASSESSMENT

50-yr Existing Condition

Inlet number:	I752	I753	I754	I755	I756	I757	I758	I759	I760	I761	I762	I763	I764	I765	I766	I767	I768
Return Period	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
HYDROLOGY COMPUTATION:				Ramp A	Ramp A		Ramp B		Ramp B		Ramp A						
Structure location station (ft):	211+75	211+75	214+00	14+25	14+25	215+40	65+37	218+40	68+36	218+40	18+37	221+40	221+40	221+40	222+60	222+60	222+65
Paved Area (acres)	0.00	0.45	0.00	0.26	0.00	0.10	0.20	0.32	0.27	0.42	0.21	0.35	0.00	0.32	0.13	0.00	0.00
Pavement Runoff Coefficient	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Landscaped Area (acres)	0.20	0.00	0.97	0.00	0.65	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.51	0.15	0.00	0.54	0.09
Landscape Runoff Coefficient	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Contributing watershed area (acres):	0.200	0.450	0.970	0.260	0.650	0.100	0.200	0.320	0.270	0.490	0.210	0.350	0.510	0.470	0.130	0.540	0.090
Composite Runoff Coefficient "C":	0.75	0.95	0.75	0.95	0.75	0.95	0.95	0.95	0.95	0.92	0.95	0.95	0.75	0.89	0.95	0.75	0.75
Time of Concentration (10 minute minimum)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation Intensity (in/hr):	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06
Subarea discharge Q (cfs):	0.91	2.59	4.41	1.50	2.95	0.58	1.15	1.84	1.55	2.74	1.21	2.01	2.32	2.52	0.75	2.45	0.41
Previous by-pass flow (cfs):	0.00	0.99	0.00	0.58	0.00	0.00	0.73	0.29	0.00	0.00	0.00	0.00	0.00	0.55	0.00	0.00	0.00
Upstream inlet(s) contributing by-pass	None	I755 I756	None	I762	None	None	I760	I757	None	None	None	I759	None	I761	I763 I767	None	I764
Discharge added by operator:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total discharge Q (cfs):	0.91	3.59	4.41	2.08	2.95	0.58	1.88	2.13	1.55	2.74	1.21	2.01	2.32	3.07	0.75	2.45	0.41
SHOULDER AND GUTTER CONFIGURATION:	Area Drain		Area Drain		Area Drain								Area Drain			Area Drain	Area Drain
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0000	0.0100	0.0000	0.0032	0.0000	0.0045	0.0170	0.0142	0.0270	0.0142	0.0179	0.0295	0.0000	0.0295	0.0230	0.0000	0.0000
Inlet type (1=grate, 2=side opening or slotted):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Longitudinal profile (1=on-grade, 2=sag):	2	1	2	1	2	1	1	1	1	1	1	1	2	1	1	2	2
Gutter Configuration (1=freeway, 2=vertical):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Catch Basins in Grouped Inlets	1	2	1	2	2	1	1	3	1	2	1	3	1	2	3	1	1
Inlet description:	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)
Grate width:	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Grate length:	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Pavement cross-slope (Sx):	0.000	0.020	0.000	0.006	0.000	0.020	0.040	0.020	0.020	0.020	0.040	0.020	0.000	0.020	0.020	0.000	0.000
Width of gutter from flowline (ft):	2.50	2.50	2.50	2.50	2.50	0.00	2.50	2.50	2.50	2.50	2.50	2.50	0.00	2.50	2.50	2.50	2.50
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (S'w=Sw-Sx)	0.033	0.033	0.033	0.033	0.033	0.020	0.033	0.033	0.033	0.033	0.033	0.033	0.000	0.033	0.033	0.033	0.033
Flooded Width from flowline (ft): before inlet	NA	11.01	NA	23.60	NA	6.71	5.38	8.39	6.41	9.29	4.56	7.03	NA	8.39	4.78	NA	NA
Depth at flowline (ft): before inlet	0.00	0.26	0.00	0.21	0.00	0.13	0.20	0.20	0.16	0.22	0.17	0.17	0.00	0.20	0.13	0.00	0.00
Water cross-area (sq.ft): before inlet	0.00	1.37	0.00	1.82	0.00	0.48	0.62	0.81	0.49	0.98	0.44	0.58	0.00	0.81	0.29	0.00	0.00
Velocity V for total discharge (fps): before inlet	0.00	2.62	0.00	1.14	0.00	1.21	3.06	2.64	3.16	2.80	2.77	3.46	0.00	3.81	2.54	0.00	0.00
Ratio of gutter depression flow to total Q (Eod):	100.0%	55.5%	100.0%	35.9%	100.0%	3.7%	81.0%	67.4%	79.3%	62.9%	87.6%	75.3%	100.0%	67.4%	90.6%	100.0%	100.0%
Equivalent cross-slope (Se):	0.033	0.028	0.033	0.016	0.033	0.020	0.035	0.029	0.031	0.028	0.034	0.030	0.000	0.029	0.032	0.033	0.033
GRATE INLETS ON-GRADE:																	
Ratio of grate frontal flow to total flow:	—	31.4%	—	23.0%	—	37.4%	41.9%	40.3%	50.8%	36.8%	46.6%	47.0%	—	40.3%	63.8%	—	—
Inlet frontal flow in cfs (Qw):	—	1.13	—	0.48	—	0.22	0.79	0.86	0.79	1.01	0.56	0.95	—	1.24	0.48	—	—
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	—	6.85	—	6.85	—	6.85	6.85	6.85	6.85	6.85	6.85	6.85	—	6.85	6.85	—	—
Fraction of frontal flow intercepted (Rf):	—	100.0%	—	100.0%	—	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	—	100.0%	100.0%	—	—
Side flow in cfs (Qs):	—	2.46	—	1.60	—	0.36	1.10	1.27	0.77	1.73	0.65	1.07	—	1.84	0.27	—	—
Effective grate length w/clogging:	—	1.50	—	1.50	—	1.50	1.50	1.50	1.50	1.50	1.50	1.50	—	1.50	1.50	—	—
Fraction of side flow interception (Rs):	—	5.7%	—	7.4%	—	19.5%	8.3%	5.6%	4.1%	5.0%	9.7%	3.5%	—	3.0%	6.0%	—	—
Grate Efficiency (E):	—	35.3%	—	28.7%	—	49.6%	46.7%	43.6%	52.8%	40.0%	51.8%	48.8%	—	42.0%	66.0%	—	—
Total flow intercepted (cfs):	0.00	2.53	0.00	1.20	0.00	0.29	0.88	2.13	0.82	2.19	0.63	2.01	0.00	2.58	0.75	0.00	0.00
Grate flow-by (cfs):	—	1.05	—	0.88	—	0.29	1.00	0.00	0.73	0.55	0.58	0.00	—	0.49	0.00	—	—
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:																	
Length required for total interception (ft): w/o clogging	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Length of inlet provided L (ft):																	
Interception for length L (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Efficiency for length L:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slotted drain or side opening flow-by (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:																	
Head available for weir flow at sag (ft):	0.33		0.33		0.33	0.33							0.33			0.33	0.33
Capacity of grate in a sag (3-sided weir) in cfs:	—	—	—	—	—	0.58	—	—	—	—	—	—	—	—	—	—	—
Capacity of grate in a sag (4-sided weir):	0.91	—	2.84	—	2.84	—	—	—	—	—	—	—	2.32	—	—	2.45	0.41
Length provided of curb-opening inlet at sag:																	
Capacity of curb-opening inlet in a sag (weir) in cfs:	Grate	—	Grate	—	Grate	Grate	—	—	—	—	—	—	Grate	—	—	Grate	Grate
INFLOW Q FOR CATCH BASIN	0.91	2.53	2.84	1.20	2.84	0.58	0.88	2.13	0.82	2.19	0.63	2.01	2.32	2.58	0.75	2.45	0.41
Adjusted CA	0.152	0.432	0.735	0.249	0.492	0.096	0.192	0.307	0.259	0.456	0.202	0.336	0.386	0.421	0.125	0.409	0.068

Design by: AJH

SECTION 4.1 METHODS OF ANALYSIS
OFF-SITE DRAINAGE

Hydrology

HEC-1 Models, 50-Year Storm

Existing Condition

Design Condition

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              MAY   1991               *
*            VERSION 4.0.1E             *
*     Lahey F77L-EM/32 version 5.01     *
*       Dodson & Associates, Inc.       *
*  RUN DATE  04/15/98  TIME  11:13:26   *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 551-1748              *
*                                       *
*****************************************
```

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

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

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

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

  1           ID       SR 51 Offsite Hydrology (sr51E.dat)
  2           ID       50-year 24-hour Storm -(Burgess & Niple, HNTB orginal model)
  3           ID       SQUAW PEAK FREEWAY INDIAN SCHOOL ROAD TO BETHANY HOME ROAD
  4           ID       Model modified to determine flow at 1/4 mile St. (Highland and Turney)
  5           ID       CHECK MODEL FOR SR51D.DAT (VERIFY BN & HNTB PARAMETERS) MINOR CHANGES
  6           ID       RESERVOIR AT 18TH STREET & HIGHLAND AVENUE
              *DIAGRAM
  7           IT       2                    1000
  8           IN      15
  9           IO       5       0       0

 10           KK   BAS1A
 11           KM       Runoff from Basin 1A (All Maryland Avenue Flows Siphoned Under Freeway)
              * PB  3.57 original PB
 12           PB    3.57
 13           PC       0    .002    .005    .008    .011    .014    .017    .020    .023    .026
 14           PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
 15           PC    .064    .068    .072    .076     .08    .085    .090    .095    .100    .105
 16           PC     .11    .115    .120    .126    .133    .140    .147    .155    .163    .172
 17           PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
 18           PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
 19           PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
 20           PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
 21           PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
 22           PC    .983    .986    .989    .992    .995    .998    1.00
 23           BA   .0213
 24           LS       0   74.93
 25           UD    .106
              *

 26           KK    BAS1
 27           KM       Runoff from Basin 1 (Flows Contributing to Rose Lane and 18th Street)
 28           BA   .0461
 29           LS            68.7
 30           UD     .11

 31           KK   DIV1A
 32           KM       Divide flow into the siphon (west) and 18th Street (south)
 33           DT   1SIPH
 34           DI       0      10      16      30      40      50
 35           DQ       0      10      10      10      10      10

 36           KK  DIV1AP
 37           KM       Divide flows into pipe flow (south) & street flow (south) along 18th
 38           DT  1APIPE
 39           DI       0      10      20      40      60
 40           DQ       0       1       1       1       1

 41           KK  R1ASTR
 42           KM       Route street flow from Rose Lane to Bethany Home along 18th St.(south)
 43           RS      18    FLOW
 44           RC    .035    .016    .035    1660    .011
 45           RX     110     120   139.5     140     170   170.5     190     200
 46           RY  1177.4  1176.5    1176  1175.4  1175.4    1176  1176.5  1177.4
```

Existing?

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

  47          KK  1APIPE
  48          KM       Retrieve pipe flow at Rose Lane and 18th Street
  49          DR  1APIPE

  50          KK  R1APIP
  51          KM       Route storm drain flow from Rose Lane to Rovey (south)
  52          RD    1100    .008    .013            CIRC    1.75

  53          KK  SR51FL
  54          KM       Dummy basin to simulate SR-51 flow contributing to 18th Street pipe
  55          BA    .016
  56          LS              82
  57          UD     .14

  58          KK  CPSR51
  59          KM       Combine hydrographs near Rovey (onsite & offsite)
  60          HC       2

  61          KK  R1BPIP
  62          KM       Route storm drain flow from Rovey to Bethany Home (south)
  63          RD     560    .008    .013            CIRC    2.00
              *

  64          KK    BAS3
  65          KM       Runoff from Basin 3 (Contributes Flow to Bethany Home & 20th St.)
  66          BA   .0238
  67          LS           85.54
  68          UD     .14

  69          KK    DIV3
  70          KM       Divide flows into pipe flow (west) & Street flow at 20th & Bethany
  71          DT   3PIPE
  72          DI       0      10      20      40      60      80     100     200
  73          DQ       0      10      20      20      20      20      20      20

  74          KK   DIV3A
  75          KM       Divide street flows into west (Bethany Home) and south (20th St.)
  76          DT  3SOUTH
  77          DI       0      10      20      40      60      80     100     200
  78          DQ       0       5      10      20      30      40      50     100

  79          KK  R3STRW
  80          KM       Route street flow from 20th to 18th along Bethany Home (west)
  81          RS       4    FLOW
  82          RC    .035    .016    .035    1320    .005
  83          RX     110     120   139.5     140     170   170.5     190     200
  84          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              *
```

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

  85          KK    BAS2
  86          KM       Runoff from Basin 2 (Contributes Flow to Bethany Home & 18th St.)
  87          BA   .0202
  88          LS           93.25
  89          UD     .18

  90          KK   3PIPE
  91          KM       Retrieve pipe flow at Bethany and 20th St.
  92          DR   3PIPE

  93          KK  R3PIPE
  94          KM       Route storm drain flow from 20th to 18th along Bethany Home (west)
  95          RD    1320    .005    .013            CIRC    1.75

  96          KK     CP2
  97          KM       Combine Hydrographs
  98          HC       5

  99          KK    DIV2
 100          KM       Divide flow at Bethany Home into siphon (west) and pipe (south)
 101          DT   2SIPH
 102          DI       0      10      16      40      62     100     200
 103          DQ       0      10      16      40      50      50      50

 104          KK   DIV2A
 105          KM       Divide flows into pipe south and street south
 106          DT   2PIPE
 107          DI       0      10      16      40      62     100     160
 108          DQ       0      10      16      40      52      52      52

 109          KK   R2STR
 110          KM       Route street flow from Bethany Home to Montebello (along 18th)
 111          RS       4    FLOW
 112          RC    .035    .016    .035    1320    .005
 113          RX     110     120     138     140     170     172     190     200
 114          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 115          KK   2PIPE
 116          KM       Retrieve pipe flow at Bethany Home & 18th St.
 117          DR   2PIPE

 118          KK  R2PIPE
 119          KM       Route pipe flow from Bethany Home to & Montebello (along 18th St.)
 120          RD     660    .005    .013            CIRC     2.5

 121          KK  R2APIP
 122          KM       Route pipe flow from Bethany Home to & Montebello (along 18th St.)
 123          RD     660    .005    .013            CIRC    2.75
              *
```

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

 124          KK    BAS4
 125          KM       Runoff from basin 4 (contributes to Montebello & 18th St.)
 126          BA   .0192
 127          LS           94.29
 128          UD     .13

 129          KK     CP4
 130          KM       Combine hydrographs at 18th & Montebello
 131          HC       3

 132          KK    DIV4
 133          KM       Divide flow into street and pipe at 18th (south)
 134          DT   4PIPE
 135          DI       0      20      36      80     170     320
 136          DQ       0      20      36      70      70      70

 137          KK   R4STR
 138          KM       Route street flow from Montebello to Missouri (along 18th St.)
 139          RS       4    FLOW
 140          RC    .035    .016    .035    1320    .006
 141          RX     110     120   139.5     140     170   170.5     190     200
 142          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 143          KK   4PIPE
 144          KM       Retrieve pipe flow at Montebello & 18th St.
 145          DR   4PIPE

 146          KK  R4PIPE
 147          KM       Route 4pipe flows from Montebello to Missouri (along 18th St.)
 148          RD    1320    .005    .013            CIRC     3.5
              *

 149          KK    BAS7
 150          KM       Runoff from Basin 7 (Contributes Flow to Montebello & 22nd)
 151          BA   .0752
 152          LS           79.87
 153          UD     .15

 154          KK   RBAS7
 155          KM       Route runoff from Basin 7 to 22nd & Missouri
 156          RS       4    FLOW
 157          RC    .035    .016    .035    1320    .005
 158          RX     110     120   139.5     140     170   170.5     190     200
 159          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              *

 160          KK    BAS8
 161          KM       Runoff from basin 8 (Contributes Flow to Missouri & 22nd)
 162          BA   .0638
 163          LS           80.73
 164          UD     .19
```

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

 165          KK     CP8
 166          KM       Combine hydrographs (bas7 & bas8)
 167          HC       2

 168          KK    8DIV
 169          KM       Divide flows from basin 8 (street flow south & west)
 170          DT  8SOUTH
 171          DI       0      20      40      80     167     320     640
 172          DQ       0       4       8      16      31      60     130

 173          KK  R8STRW
 174          KM       Route flows from 22nd St. to 20th Street along Missouri (west)
 175          RS       4    FLOW
 176          RC    .035    .016    .035    1320    .005
 177          RX     110     120   139.5     140     170   170.5     190     200
 178          RY  1177.4  1176.5  1176.5  1175.4  1175.4  1176.5  1176.5  1177.4
              *

 179          KK    BAS6
 180          KM       Runoff from basin 6 (contributes flow to Missouri & 20th St)
 181          BA   .0328
 182          LS           88.58
 183          UD     .14

 184          KK  3SOUTH
 185          KM       Retrieve street flow from 20th St. & Bethany Home
 186          DR  3SOUTH

 187          KK   R3STH
 188          KM       Route street flow from Bethany Home to Missouri along 20th (south)
 189          RS       6    FLOW
 190          RC    .035    .016    .035    2675    .005
 191          RX     110     120   139.5     140     170   170.5     190     200
 192          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 193          KK     CP6
 194          KM       Combine Hydrographs
 195          HC       3

 196          KK    6DIV
 197          KM       Divide flow into street and pipe going west along Missouri
 198          DT   6PIPE
 199          DI       0      20      40      80     170     320     640
 200          DQ       0      20      40      50      65      65      65

 201          KK   DIV6A
 202          KM       Divide Street flow west along Missouri south along 20th
 203          DT  6SOUTH
 204          DI       0      20      40      80     130     320     640
 205          DQ       0      14      28      65     100     240     450
```

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

 206          KK  R6STRW
 207          KM       Route street flow from 20th St. to 18th St  along Missouri (west)
 208          RS       4    FLOW
 209          RC    .035    .016    .035    1320    .005
 210          RX     110     120   139.5     140     170   170.5     190     200
 211          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 212          KK   6PIPE
 213          KM       Retrieve pipe flow from 20th St. & Missouri
 214          DR   6PIPE

 215          KK  R6PIPW
 216          KM       Route pipe flow from 20th St. to 18th St. along Missouri (west)
 217          RD    1320    .004    .013            CIRC    3.25
              *

 218          KK    BAS5
 219          KM       Runoff from basin 5 (contributes to 18th St. & Missouri)
 220          BA   .0231
 221          LS           91.81
 222          UD     .20

 223          KK     CP5
 224          KM       Combine hydrographs
 225          HC       5

 226          KK    5DIV
 227          KM       Divide flow into street and pipe going south along 18th St
 228          DT   5PIPE
 229          DI       0      20      36      90     170     320
 230          DQ       0      20      36      90     116     116

 231          KK  5DIVST
 232          KM       Divide flow into street west (Missouri) & street south (18th)
 233          DT   5MISS
 234          DI       0      20      40      80     120     160
 235          DQ       0      10      20      44      66      88

 236          KK  R5STRS
 237          KM       Route street flow from Missouri to Colter along 18th St. (south)
 238          RS       4    FLOW
 239          RC    .035    .016    .035    1320    .007
 240          RX     110     120   139.5     140     170   170.5     190     200
 241          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 242          KK  8SOUTH
 243          KM       Retrieve street flow from Missouri and 22nd St.
 244          DR  8SOUTH
```

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

 245          KK   R8STH
 246          KM       Route flow from Missouri & 22nd St to Colter & 20th St
 247          RS       6    FLOW
 248          RC    .035    .016    .035    2680    .005
 249          RX     110     120   139.5     140     170   170.5     190     200
 250          RY  1177.4  1176.5    1176  1175.4  1175.4    1176  1176.5  1177.4

 251          KK   BAS10
 252          KM       Runoff from Basin 10 (contributes flow to 20th & Colter)
 253          BA    .042
 254          LS              83
 255          UD     .25

 256          KK  6SOUTH
 257          KM       Retrieve street flow from Missouri & 20th St.
 258          DR  6SOUTH

 259          KK   6STRS
 260          KM       Route 6south flows to 20th & Colter
 261          RS       4    FLOW
 262          RC    .035    .016    .035    1320    .005
 263          RX     110     120   139.5     140     170   170.5     190     200
 264          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 265          KK    CP10
 266          KM       Combine hydrographs at 20th & Colter
 267          HC       3

 268          KK   DIV10
 269          KM       Divide flow west along Colter & south along 20th
 270          DT   10STH
 271          DI       0      20      40      60      80     135     155     310
 272          DQ       0      14      28      42      55      88     105     210

 273          KK    RT10
 274          KM       Route flows from CP10 to 18th Street & Colter
 275          RS       4    FLOW
 276          RC    .035    .016    .035    1320    .007
 277          RX     110     120   139.5     140     170   170.5     190     200
 278          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              *

 279          KK    BAS9
 280          KM       Runoff from basin 9
 281          BA   .0398
 282          LS           76.78
 283          UD     .17

 284          KK   5PIPE
 285          KM       Retrieve flows from 5pipe
 286          DR   5PIPE
```

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

 287          KK    RT5A
 288          KM       Route 5pipe flows to 18th & Colter
 289          RD    1320    .005    .013            CIRC     4.5

 290          KK     CP9
 291          KM       Combine hydrographs from Basin 9 & 18th Street pipe
              * KO     1       2
 292          HC       2

 293          KK    CP9A
 294          KM       Combine hydrographs at 18th Street & Colter
              * KO     1       2
 295          HC       3

 296          KK    DIV9
 297          KM       Divide flows between siphon to Colter Basin & south to 18th & Camelback
 298          KM       DIV9 MOVED FROM BELOW CP9 TO BELOW CP9A AND MAX DIVERSION CHANGED
 299          KM       FROM 45 CFS TO 100 CFS BY MALUECKER 4/7/98
 300          DT  COLTER
 301          DI       0      20      40      60      80     100     200     300
              * DQ     0      10      20      30      40      45      45      45
 302          DQ       0      15      40      60      80     100     100     100

 303          KK   DIV9A
 304          KM       Divide flows between pipe & street at 18th & Colter
 305          DT   9PIPE
 306          DI       0      20      40      60      80     100     200     300
 307          DQ       0      20      40      60      80     100     116     116

 308          KK     RT9
 309          KM       Route flow from 18th & Colter to 18th & Camelback
 310          RS       4    FLOW
 311          RC    .035    .016    .035    1320    .007
 312          RX     110     120   139.5     140     170   170.5     190     200
 313          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              *      DECREASE UD FROM 0.37 TO 0.29

 314          KK   BAS27
 315          KM       Runoff from basin 27 (north of Arizona canal)
 316          BA  1.4166
 317          LS            85.6
 318          UD     .29

 319          KK   DIV27
 320          KM       Divert flows at the Arizona Canal
 321          DT   CANAL
 322          DI       0     100     200     400     800    1400    1600    3200
 323          DQ       0     100     200     200     405     490     720    1440
```

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

 324          KK    RT27
 325          KM       Route flows from Arizona Canal to 38th Street & Camelback Road
 326          RS       3    FLOW
 327          RC    .030    .016    .030    1320    .015
 328          RX     110     120     138     140     300     302     320     330
 329          RY   177.9    1176    1176  1175.4  1175.4    1176    1176  1177.9

 330          KK   DIV38
 331          KM       Divide flows along Camelback (west) & 38th Street (south)
 332          DT   38STH
 333          DI       0     100     200     400     925    1600
 334          DQ       0      40      80     175     380     650

 335          KK    38RT
 336          KM       Route flow from 38th Street to 37th Street
 337          RS       2    FLOW
 338          RC    .030    .016    .030     660    .008
 339          RX      90     110   119.5     120     192   192.5     202     222
 340          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 341          KK   37STH
 342          KM       Divide flows along Camelback (west) & 37th Street (south)
 343          DT   37STH
 344          DI       0     100     200     400     545     800
 345          DQ       0      35      70     130     185     280

 346          KK    37RT
 347          KM       Route flow from 37th Street to 36th Street
 348          RS       2    FLOW
 349          RC    .030    .016    .030     700    .008
 350          RX      90     110   119.5     120     192   192.5     202     222
 351          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              *

 352          KK   BAS26
 353          BA   .0658
 354          LS           84.29
 355          UD     .14

 356          KK    26CP
 357          KM       Combine hydrographs
 358          HC       2

 359          KK   36DIV
 360          KM       Divide flows Camelback (west) and 36th Street (south)
 361          DT   36STH
 362          DI       0      20      40      80     160     320     640
 363          DQ       0       8      16      24      64     120     250
```

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

 364          KK  36PIPE
 365          KM       Divide flows at 36th & Camelback pipe (west) and street (west)
 366          DT  36PIPE
 367          DI       0      10      20      40      80     160     320     640
 368          DQ       0      10      20      27      27      27      27      27

 369          KK    26RT
 370          KM       Route flows from 36th Street to 35th Place
 371          RS       2    FLOW
 372          RC    .030    .016    .030     430    .008
 373          RX      90     110   119.5     120     192   192.5     202     222
 374          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 375          KK  35PDIV
 376          KM       Divide flows Camelback (west) and 35th Place (south)
 377          DT  35PSTH
 378          DI       0      20      40      80     160     320     640
 379          DQ       0       4       6      12      25      50      96

 380          KK   26ART
 381          KM       Route flows from 35th Place to 35th Street
 382          RS       1    FLOW
 383          RC    .030    .016    .030     220    .008
 384          RX      90     110   119.5     120     192   192.5     202     222
 385          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 386          KK  35SSTH
 387          KM       Divide flow at Camelback Road (west) & 35 Street (south)
 388          DT  35SSTH
 389          DI       0      20      40      60     100     200     300
 390          DQ       0       4       6       9      16      32      45

 391          KK   26BRT
 392          KM       Route flows from 35th Street to 34th Place
 393          RS       2    FLOW
 394          RC    .030    .016    .030     710    .008
 395          RX      90     110   119.5     120     192   192.5     202     222
 396          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              *

 397          KK  36PIPE
 398          KM       Retrieve flow from 36th Street pipe
 399          DR  36PIPE

 400          KK  RT36PI
 401          KM       Route flows in storm drain along Camelback to 34th Street
 402          RD    1320    .005    .012            CIRC    2.25

 403          KK   BAS25
 404          KM       Runoff from basin 25
 405          BA   .0202
 406          LS          86.65
 407          UD     .15
```

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

 408          KK    CP25
 409          KM       Combine hydrographs
 410          HC       3
              *

 411          KK  34PSTH
 412          KM       Divide flow at Camelback Road (west) & 34 Place (south)
 413          DT  34PSTH
 414          DI       0      20      40      60      80     100     200
 415          DQ       0       2       4       6       8      10      16
              *

 416          KK   34DIV
 417          KM       Divide flow into pipe (west) and street (west)
 418          DT  34PIPE
 419          DI       0      10      20      40      80     160     320     640
 420          DQ       0      10      20      36      36      36      36      36

 421          KK  RT34ST
 422          KM       Route street flow from 34th Street to 32nd Place
 423          RS       2    FLOW
 424          RC    .030    .016    .030     870    .008
 425          RX      90     110   119.5     120     192   192.5     202     222
 426          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 427          KK   32DIV
 428          KM       Divide flow at 32nd Place (west) & street (south)
 429          DT  32PSTH
 430          DI       0      30      60     120     180     320     640
 431          DQ       0       7      12      28      34      55     100

 432          KK    32RT
 433          KM       Route flow from 32nd Place & Camelback to 32nd Street & Camelback
 434          RS       2    FLOW
 435          RC    .030    .016    .030     500    .008
 436          RX      90     110   119.5     120     192   192.5     202     222
 437          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 438          KK   BAS23
 439          KM       Runoff from basin 23 (between 32nd and 36th north of Camelback)
 440          BA   .0474
 441          LS           84.89
 442          UD     .18

 443          KK   23DIV
 444          KM       Divide flow into pipe and street
 445          DT  23PIPE
 446          DI       0      10      20      40      60      80
 447          DQ       0      10      13      13      13      13
```

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

 448          KK    23RT
 449          KM       Route street flow to 32nd St. and Camelback Road
 450          RS       4    FLOW
 451          RC    .035    .016    .035    1495    .004
 452          RX     110     120     138     140     170     172     190     200
 453          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 454          KK   R23PI
 455          KM       Retrieve 23pipe flows
 456          DR  23PIPE

 457          KK  RT23PI
 458          KM       Route pipe flow to 32nd Street and Camelback Road
 459          RD    1495    .004    .013            CIRC    1.75
              *      UD adjusted .17 - .24
              *      CN increased from 79.36 to 82.36

 460          KK   BAS24
 461          KM       Runoff from Basin 24 (32nd Street & Camelback)
 462          BA   .0943
 463          LS           79.36
 464          UD     .17

 465          KK    RT34
 466          KM       Retrieve flow from pipe at 32nd & Camelback Road
 467          DR  34PIPE

 468          KK  RT34PI
 469          KM       Route flows 34pipe to 32nd Street and Camelback Road
 470          RD    1370   .0066    .012            CIRC     2.5

 471          KK    CP32
 472          KM       Combine Hydrographs
 473          HC       5

 474          KK  32SDIV
 475          KM       Divide flow at 32nd Street & Camelback (west and south)
 476          DT  32SSTH
 477          DI       0      20      40      80     160     278     640
 478          DQ       0      20      40      70     106     156     303

 479          KK  RT32DI
 480          KM       Route flows from 32nd Street to 31st Street along Camelback
 481          RS       3    FLOW
 482          RC    .030    .016    .030     890    .007
 483          RX      90     110   119.5     120     192   192.5     202     222
 484          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 485          KK  31SDIV
 486          KM       Divide flow at 31st Street & Camelback (west and south)
 487          DT  31SSTH
 488          DI       0      30      60      90     120     240     480
 489          DQ       0      10      20      30      40      80     160
```

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

 490          KK  RT31DI
 491          KM       Route flows from 31st Street to 29th Street along Camelback
 492          RS       3    FLOW
 493          RC    .030    .016    .030    1050    .009
 494          RX      90     110   119.5     120     192   192.5     202     222
 495          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 496          KK  29SDIV
 497          KM       Divide flow at 29th Street & Camelback (west and south)
 498          DT  29SSTH
 499          DI       0      10      20      40      80     160     320
 500          DQ       0       2       4       9       9      10      10

 501          KK  RT29DI
 502          KM       Route flows from 29th Street to 28th Street along Camelback
 503          RS       2    FLOW
 504          RC    .030    .016    .030     670    .009
 505          RX      90     110   119.5     120     192   192.5     202     222
 506          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 507          KK  28SDIV
 508          KM       Divide flow at 28th Street & Camelback (west and south)
 509          DT  28SSTH
 510          DI       0      10      20      40      80     160
 511          DQ       0       1       2       4       5       7

 512          KK  RT28DI
 513          KM       Route flows from 28th Street to 24th Street along Camelback
 514          RS       6    FLOW
 515          RC    .030    .016    .030    2640    .010
 516          RX      90     110   119.5     120     192   192.5     202     222
 517          RY  1177.4  1176.5    1176  1175.4  1175.4    1176  1176.5  1177.4
              * CURVE NUMBER INCREASED FROM 64.44 TO 66 .33 to .24

 518          KK   BAS17
 519          KM       Runoff from basin 17
 520          BA   .1645
 521          LS              66
 522          UD     .24

 523          KK    RT17
 524          KM       Route flows from Basin 17 to 24th Street and Camelback Road
 525          RS       6    FLOW
 526          RC    .030    .016    .030    2475    .009
 527          RX      90     110   119.5     120     192   192.5     202     222
 528          RY  1177.4  1176.5    1176  1175.4  1175.4    1176  1176.5  1177.4
              *      UD increased from .19 to .22 LS increased from 73 to 75

 529          KK   BAS13
 530          KM       Runoff from Basin 13
 531          BA   .1336
 532          LS              74
 533          UD     .20
```

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

 534          KK   13DIV
 535          KM       Divide flow from basin 13 into pipe (south) & street (south)
 536          DT  13PIPE
 537          DI       0      10      20      30      60      90     120     150
 538          DQ       0       8      17      17      17      17      17      17

 539          KK    RT13
 540          KM       Route flows from Basin 13 to 1/4 mile north of Camelback
 541          RS       4    FLOW
 542          RC    .035    .016    .035    1390    .004
 543          RX     110     120     138     140     170     172     190     200
 544          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 545          KK  R13PIP
 546          KM       Retrieve flow from 13pipe
 547          DR  13PIPE

 548          KK  RT13PA
 549          KM       Route flow from 13pipe to 1/4 mile north of Camelback
 550          RD    1390    .004    .013            CIRC    1.75
              *      UD increased from .30 to .32 LS 71 to 73

 551          KK   BAS14
 552          KM       Runoff from basin 14
 553          BA    .089
 554          LS              73
 555          UD     .30

 556          KK    CP14
 557          KM       Combine Hydrographs
 558          HC       3

 559          KK   14DIV
 560          KM       Divide flow from basin 14 into pipe (south) & street (south)
 561          DT  14PIPE
 562          DI       0      10      20      30      60      80     160     240
 563          DQ       0       8      13      16      24      30      34      40

 564          KK    RT14
 565          KM       Route flows from Basin 14 to 24th Street and Camelback
 566          RS       3    FLOW
 567          RC    .030    .016    .030    1040    .004
 568          RX     110     120     138     140     170     172     190     200
 569          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 570          KK  R14PIP
 571          KM       Retrieve flow from 14pipe
 572          DR  14PIPE
```

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

 573          KK  RT14PA
 574          KM       Route flow from 14pipe to 24th Street and Camelback
 575          RD    1040    .004    .013            CIRC    2.25
              *      LAG TIME INCREASED FROM .21 TO .38 LS increased 73.8 to 82

 576          KK   BAS15
 577          KM       Runoff from Basin 15
 578          BA   .1014
 579          LS              82
 580          UD     .38

 581          KK    CP24
 582          KM       Combine Hydrographs
 583          HC       5

 584          KK   24DIV
 585          KM       Divide flows at 24th Street & Camelback pipe (south) & street
 586          DT   24SST
 587          DI       0      20      40      80     160     320     400
 588          DQ       0      17      32      36      75     150     190

 589          KK    RT24
 590          KM       Route flows from 24th Street & Camelback to 22nd Street & Camelback
 591          RS       4    FLOW
 592          RC    .035    .016    .035    1340    .005
 593          RX      90     110   119.5     120     192   192.5     202     222
 594          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 595          KK   BAS12
 596          KM       Runoff from basin 12
 597          BA   .0324
 598          LS          76.18
 599          UD     .16

 600          KK    CP12
 601          KM       Combine hydrographs at 22nd and Camelback
 602          HC       2

 603          KK   22DIV
 604          KM       Divide flows at 22th Street & Camelback street (south) & street (west)
 605          DT   22STH
 606          DI       0      20      40      80     170     275     360
 607          DQ       0       7      12      25      48      80     108

 608          KK    RT22
 609          KM       Route flows from 22nd Street & Camelback to 20th Street & Camelback
 610          RS       4    FLOW
 611          RC    .035    .016    .035    1320    .005
 612          RX      90     110   119.5     120     192   192.5     202     222
 613          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
```

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

 614          KK   R10ST
 615          KM        Retrieve flows from hydrograph 10sth (split at 20th & Colter)
 616          DR   10STH

 617          KK  RT10ST
 618          KM        Route flows from 20th & Colter to 20th & Camelback
 619          RS        4    FLOW
 620          RC    .035    .016    .035    1320    .005
 621          RX     110     120     138     140     170     172     190     200
 622          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 623          KK   BAS11
 624          KM        Runoff from basin 11
 625          BA   .0380
 626          LS              78
 627          UD     .16

 628          KK    CP20
 629          KM        Combine hydrographs at 20th & Camelback
 630          HC        3

 631          KK   20DIV
 632          KM        Divide flows at 20th & Camelback (street south street west)
 633          DT   20STH
 634          DI        0      20      40      80     160     227     360
 635          DQ        0       8      16      32      60      80     154

 636          KK   20PIP
 637          KM        Divide flows at 20th & Camelback (pipe west & street west)
 638          KM        DQ CARD MODIFIED BY MALUECKER 4/9/98
 639          DT  20PIPE
 640          DI        0      20      40      80     160     260
              * DQ      0      20      40      40      40      40
 641          DQ        0      20      40      70     100     100

 642          KK    RT20
 643          KM        Route street flows from 20th & Camelback to 18th & Camelback
 644          RS        4    FLOW
 645          RC    .035    .016    .035    1320    .005
 646          RX      90     110   119.5     120     192   192.5     202     222
 647          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 648          KK  R20PIP
 649          KM        Retrieve flow from 20pipe
 650          DR  20PIPE

 651          KK  RT20PA
 652          KM        Route flows from 20pipe to 18th & Camelback
 653          RD    1320    .005    .013            CIRC    2.75
```

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

 654          KK   9PIPE
 655          KM        Retrieve flows from 5pipe
 656          DR   9PIPE

 657          KK  RT9PIP
 658          KM        Route 9pipe flows to 18th & Camelback
 659          RD    1320    .007    .013            CIRC     3.5

 660          KK   BAS28
 661          KM        Runoff from basin 28
 662          BA   .0579
 663          LS           77.88
 664          UD     .19

 665          KK    CP18
 666          KM        Combine hydrographs at 18th & Camelback
 667          HC        5

 668          KK   18DIV
 669          KM        Divide flow at 18th & Camelback between pipe (south) & street (west)
 670          DT  18SPIP
 671          DI        0     100     200     300     400     500    1000
 672          DQ        0     100     125     125     125     125     125

 673          KK  18DIVA
 674          KM        Divide flow at 18th & Camelback between street (west) & alley (south)
 675          DT  CAMELW
 676          DI        0     100     200     300     400     500
 677          DQ        0      50      50      50      50      50

 678          KK  RTMALL
 679          KM        Route flow south through Colonade Mall to 18th & Highland
 680          RS        6    FLOW
 681          RC    .016    .016    .016    1320    .004
 682          RX     100     150     195     200     300     305     350     400
 683          RY     102   101.5     101   100.3   100.3     101   101.5     102

 684          KK   BAS1H
 685          KM        Runoff from HNTB basin 1
 686          BA    .593
 687          LS           82.6
 688          UD    1.01

 689          KK    RT1H
 690          KM        Route flow from HNTB basin 1 to HNTB basin 2
 691          RS        6    FLOW
 692          RC    .040    .035    .040    1440   .0008
 693          RX      70      90     110     140     240     270     290     310
 694          RY    1009    1006    1003    1000    1000    1003    1006    1009
```

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

 695          KK   BAS2H
 696          KM       Runoff from HNTB basin 2
 697          BA    .219
 698          LS            84.2
 699          UD     .67

 700          KK    CP2H
 701          KM       Combine hydrographs
 702          HC       2

 703          KK    RT2H
 704          KM       Route flow from HNTB basin 2 to HNTB basin 3
 705          RS       6    FLOW
 706          RC    .040    .035    .040    2045   .0008
 707          RX      70      90     110     140     240     270     290     310
 708          RY    1009    1006    1003    1000    1000    1003    1006    1009

 709          KK   BAS3H
 710          KM       Runoff from HNTB basin 3
 711          BA    .179
 712          LS            87.6
 713          UD     .67

 714          KK    CP3H
 715          KM       Combine hydrographs
 716          HC       2

 717          KK    RT3H
 718          KM       Route flow from HNTB basin 3 to HNTB basin 4
 719          RS       6    FLOW
 720          RC    .040    .035    .040    2465   .0008
 721          RX      70      90     110     140     240     270     290     310
 722          RY    1009    1006    1003    1000    1000    1003    1006    1009

 723          KK   BAS4H
 724          KM       Runoff from HNTB basin 4
 725          BA    .374
 726          LS            87.0
 727          UD     .68

 728          KK    CP4H
 729          KM       Combine hydrographs at CP 4
 730          HC       2

 731          KK   DIV4H
 732          KM       Divide flow at HNTB basin 4 west along canal & south
 733          DT   4HSTH
 734          DI       0     150     300     542     800
 735          DQ       0      92     185     333     488
```

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

 736          KK    RT4H
 737          KM       Route flow from HNTB basin 4 to HNTB basin 5
 738          RS       6    FLOW
 739          RC    .040    .035    .040    2400   .0002
 740          RX      70      90     110     140     240     370     490     610
 741          RY    1009    1006    1003    1000    1000    1003    1006    1009

 742          KK   BAS5H
 743          KM       Runoff from HNTBbasin 5
 744          BA    .183
 745          LS            84.1
 746          UD     .66

 747          KK    CP5H
 748          KM       Combine hydrographs
 749          HC       2

 750          KK    RT5H
 751          KM       Route flow from HNTB basin 5 to HNTB basin 6
 752          RS       6    FLOW
 753          RC    .040    .035    .040    1625    .002
 754          RX     110     120     138     140     170     172     190     200
 755          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 756          KK   BAS6H
 757          KM       Runoff from HNTB basin 6
 758          BA    .194
 759          LS            86.4
 760          UD     .61

 761          KK    CP6H
 762          KM       Combine hydrographs at CP 6
 763          HC       2

 764          KK    RT6H
 765          KM       Route flow from HNTB basin 6 to HNTB basin 7
 766          RS       6    FLOW
 767          RC    .040    .035    .040    1625    .002
 768          RX     110     120     138     140     170     172     190     200
 769          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 770          KK   BAS7H
 771          KM       Runoff from HNTB basin 7
 772          BA    .305
 773          LS            86.5
 774          UD     .67

 775          KK    CP7H
 776          KM       Combine hydrographs at CP 7
 777          HC       2
```

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

 778          KK   DIV7H
 779          KM       Divide flow at HNTB basin 7 west along canal & south
 780          DT    OCCS
 781          DI       0     150     300     500     800    1300
 782          DQ       0     145     286     486     786    1286

 783          KK    RT7H
 784          KM       Route flow from HNTB basin 7 to HNTB basin 8
 785          RS       6    FLOW
 786          RC    .045    .040    .045    2750   .0008
 787          RX      70      90     110     140     240     370     490     610
 788          RY    1009    1006    1003    1000    1000    1003    1006    1009

 789          KK   BAS8H
 790          KM       Runoff from HNTB basin 8
 791          BA    .140
 792          LS             84.6
 793          UD     .56

 794          KK    CP8H
 795          KM       Combine hydrographs at CP 8
 796          HC       2

 797          KK    RT8H
 798          KM       Route flow from HNTB basin 8 to HNTB basin 9
 799          RS       6    FLOW
 800          RC    .045    .040    .045    1300   .0005
 801          RX      70      90     110     140     240     370     490     610
 802          RY    1009    1006    1003    1000    1000    1003    1006    1009

 803          KK   BAS9H
 804          KM       Runoff from HNTB basin 9
 805          BA    .343
 806          LS             88.0
 807          UD     .73

 808          KK    CP9H
 809          KM       Combine hydrographs at CP 9
 810          HC       2

 811          KK    RT9H
 812          KM       Route flow from HNTB basin 9 to 44th St. & Campbell
 813          RS       6    FLOW
 814          RC    .035    .016    .035     660    .007
 815          RX     110     120     138     140     170     172     190     200
 816          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 817          KK   DIV9H
 818          KM       Divide flow from HNTB basin 9 at 44th St & Campbell (south & west)
 819          DT   9HSTH
 820          DI       0     150     331     500     800    1200
 821          DQ       0      80     176     265     424     636
```

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

 822          KK    RT9A
 823          KM       Route flow from 44th St. & Campbell to 40th & Campbell
 824          RS       6    FLOW
 825          RC    .035    .016    .035    2640    .005
 826          RX     110     120     138     140     170     172     190     200
 827          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 828          KK  RCANAL
 829          KM       Retrieve flow at the Az Canal
 830          DR   CANAL

 831          KK  26PIPE
 832          KM       Divide flow at the Az Canal between canal (west) and pipe (south)
 833          DT  CANALW
 834          DI       0      56     100     400    1000    1500    2000
 835          DQ       0       0      44     344     944    1444    1944

 836          KK  RT26PI
 837          KM       Route pipe flow from the Az canal to 40th & Campbell
 838          RD    3200    .006    .012            CIRC     3.0

 839          KK  BAS26H
 840          KM       Runoff from HNTB Basin 26 (40th and Campbell)
 841          BA    .058
 842          LS            89.7
 843          UD     .23

 844          KK   CP26H
 845          KM       Combine hydrographs at 40th & Campbell
 846          HC       3

 847          KK   DIV26
 848          KM       Divide flow between Campbell (west) and 40th St (south)
 849          DT   40STR
 850          DI       0      20      40     228     456
 851          DQ       0      12      24     146     292

 852          KK   RT26H
 853          KM       Route flow from 40th & Campbell to 36th & Campbell
 854          RS       6    FLOW
 855          RC    .035    .016    .035    2640    .007
 856          RX     110     120     138     140     170     172     190     200
 857          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 858          KK  BAS34H
 859          KM       Runoff from HNTB Basin 34 (36th and Campbell)
 860          BA    .114
 861          LS            87.8
 862          UD     .38
```

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

 863          KK  RET38S
 864          KM       Retrieve flows at 38th Street and Camelback
 865          DR   38STH

 866          KK  R38STH
 867          KM       Route flows from 38th Street & Camelback to 36th & Campbell
 868          RS       6    FLOW
 869          RC    .035    .016    .035    3960    .007
 870          RX     110     120     138     140     170     172     190     200
 871          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 872          KK  RET37S
 873          KM       Retrieve flows at 37th Street and Camelback
 874          DR   37STH

 875          KK  R37STH
 876          KM       Route flows from 37th Street & Camelback to 36th & Campbell
 877          RS       6    FLOW
 878          RC    .035    .016    .035    3300    .007
 879          RX     110     120     138     140     170     172     190     200
 880          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 881          KK  RET36S
 882          KM       Retrieve flows at 36th Street and Camelback
 883          DR   36STH

 884          KK  R36STH
 885          KM       Route flows from 36th Street & Camelback to 36th & Campbell
 886          RS       6    FLOW
 887          RC    .035    .016    .035    2640    .007
 888          RX     110     120     138     140     170     172     190     200
 889          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 890          KK    CP34
 891          KM       Combine hydrographs at 36th & Campbell
 892          HC       5

 893          KK   DIV34
 894          KM       Divide flow at 36th & Campbell (Campbell west & 36th St. south)
 895          DT   36STH
 896          DI       0      20      40     120     222     320     640
 897          DQ       0      15      30      90     149     210     390

 898          KK    RT34
 899          KM       Route flow from 36th & Campbell to 32nd & Campbell
 900          RS       6    FLOW
 901          RC    .035    .016    .035    2640    .007
 902          RX     110     120     138     140     170     172     190     200
 903          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
```

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

 904          KK    R35P
 905          KM       Retrieve flows at 35th Place and Camelback
 906          DR  35PSTH

 907          KK   RT35P
 908          KM       Route flow from 35th Place & Camelback to 32nd & Campbell
 909          RS       6    FLOW
 910          RC    .035    .016    .035    4820    .007
 911          RX     110     120     138     140     170     172     190     200
 912          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 913          KK    R35S
 914          KM       Retrieve flows at 35th Street and Camelback
 915          DR  35SSTH

 916          KK   RT35S
 917          KM       Route flow from 35th Street & Camelback to 32nd & Campbell
 918          RS       6    FLOW
 919          RC    .035    .016    .035    4620    .007
 920          RX     110     120     138     140     170     172     190     200
 921          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 922          KK    R34P
 923          KM       Retrieve flows at 34th Place and Camelback
 924          DR  34PSTH

 925          KK   RT34P
 926          KM       Route flow from 34th Place & Camelback to 32nd & Campbell
 927          RS       6    FLOW
 928          RC    .035    .016    .035    3960    .007
 929          RX     110     120     138     140     170     172     190     200
 930          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 931          KK    CP32
 932          KM       Combine Hydrographs at 32nd & Campbell (2 combines)
 933          HC       4

 934          KK    R32P
 935          KM       Retrieve flows at 32nd Place and Camelback
 936          DR  32PSTH

 937          KK   RT32P
 938          KM       Route flow from 32nd Place & Camelback to 32nd & Campbell
 939          RS       6    FLOW
 940          RC    .035    .016    .035    3140    .007
 941          RX     110     120     138     140     170     172     190     200
 942          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 943          KK    R32S
 944          KM       Retrieve flows at 32nd Street and Camelback
 945          DR  32SSTH
```

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

 946          KK   RT32S
 947          KM        Route flow from 32nd Steet & Camelback to 32nd & Campbell
 948          RS        6    FLOW
 949          RC     .035    .016    .035    2640    .007
 950          RX      110     120     138     140     170     172     190     200
 951          RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 952          KK   BAS42H
 953          KM        Runoff from HNTB basin 42
 954          BA     .153
 955          LS             85.9
 956          UD      .41

 957          KK    CP42
 958          KM        Combine hydrographs at 32nd & Campbell
 959          HC        4

 960          KK   DIV42
 961          KM        Divide flow to Campbell (west) & 32nd (south)
 962          DT   32STH
 963          DI        0      60     160     332     660     800
 964          DQ        0      36     100     182     340     407

 965          KK   RT42W
 966          KM        Route flow from Campbell & 32nd St to Campbell and 28th St
 967          RS        6    FLOW
 968          RC     .035    .016    .035    2640    .007
 969          RX      110     120     138     140     170     172     190     200
 970          RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 971          KK   R31STH
 972          KM        Retrieve flow at 31st Street & Camelback
 973          DR   31SSTH

 974          KK   RT31S
 975          KM        Route flow from 31st & Camelback to 28th & Campbell
 976          RS        6    FLOW
 977          RC     .035    .016    .035    4390    .007
 978          RX      110     120     138     140     170     172     190     200
 979          RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 980          KK   R29STH
 981          KM        Retrieve flow at 29th Street & Camelback
 982          DR   29SSTH

 983          KK   RT29S
 984          KM        Route flow from 29th & Camelback to 28th & Campbell
 985          RS        6    FLOW
 986          RC     .035    .016    .035    3340    .007
 987          RX      110     120     138     140     170     172     190     200
 988          RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
```

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

 989          KK  R28STH
 990          KM       Retrieve flow at 28th Street & Camelback
 991          DR  28SSTH

 992          KK   RT28S
 993          KM       Route flow from 28th & Camelback to 28th & Campbell
 994          RS       6    FLOW
 995          RC    .035    .016    .035    2640    .007
 996          RX     110     120     138     140     170     172     190     200
 997          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 998          KK  BAS49H
 999          KM       Runoff from HNTB basin 49
1000          BA    .121
1001          LS            88.3
1002          UD     .41

1003          KK    CP49
1004          KM       Combine hydrographs at 28th & Campbell
1005          HC       5

1006          KK   DIV49
1007          KM       Divide flow to Campbell (west) & 28nd (south)
1008          DT   28STH
1009          DI       0      60     160     280     500     800
1010          DQ       0      45      90     140     235     360

1011          KK   RT28W
1012          KM       Route flow from 28th & Campbell to 24th & Campbell
1013          RS       6    FLOW
1014          RC    .035    .016    .035    2640    .007
1015          RX     110     120     138     140     170     172     190     200
1016          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1017          KK   24SST
1018          KM       Retrieve flow at 24th & Camelback (south)
1019          DR   24SST

1020          KK   24DIV
1021          KM       Divide flow south at 24th between pipe and street
1022          DT  24PIPE
1023          DI       0      50     100     150     200
1024          DQ       0      35      45      65      65

1025          KK  R24SST
1026          KM       Route flow south from 24 & Camelback to 24 & Campbell
1027          RS       6    FLOW
1028          RC    .035    .016    .035    2640    .007
1029          RX     110     120     138     140     170     172     190     200
1030          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
```

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

1031          KK  R24PIP
1032          KM       Retrieve flow (pipe) at 24th & Camelback
1033          DR  24PIPE

1034          KK  RT24PI
1035          KM       Route flow (pipe) 24th & Camelback to 24th & Campbell
1036          RD    2640    .005    .012            CIRC     3.5
              *      Area increased from .17 to .19 to adjust basin runoff
              *      designer determined that peak Q cannot vary more than 10% from original

1037          KK  BAS56H
1038          KM       Runoff from HNTB basin 56
1039          BA    .196
1040          LS            86.1
1041          UD     .46

1042          KK    CP24
1043          KM       Combine hydrographs at 24th & Campbell
1044          HC       4

1045          KK   DIV24
1046          KM       Divide flow at 24th & Campbell
1047          DT  24CSTH
1048          DI       0     100     200     400     520
1049          DQ       0      70     140     230     300

1050          KK   RT24W
1051          KM       Route flow from 24th & Campbell to 20th & Campbell
1052          RS       6    FLOW
1053          RC    .035    .016    .035    2640    .007
1054          RX     110     120     138     140     170     172     190     200
1055          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1056          KK   R22ST
1057          KM       Retrieve flow at 22nd Street and Camelback
1058          DR   22STH

1059          KK  RT22ST
1060          KM       Route flow from 22nd & Camelback to 20th & Campbell
1061          RS       6    FLOW
1062          RC    .035    .016    .035    3960    .007
1063          RX     110     120     138     140     170     172     190     200
1064          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1065          KK   R20ST
1066          KM       Retrieve flow at 20th Street and Camelback
1067          DR   20STH

1068          KK  RT20ST
1069          KM       Route flow from 20th & Camelback to 20th & Campbell
1070          RS       6    FLOW
1071          RC    .035    .016    .035    2640    .007
1072          RX     110     120     138     140     170     172     190     200
1073          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
```

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

1074          KK  BAS29H
1075          KM       Runoff from HNTB basin 29
1076          BA     .16
1077          LS            92.1
1078          UD     .46

1079          KK    CP20
1080          KM       Combine hydrographs at 20th & Campbell
1081          HC       4

1082          KK   DIV20
1083          KM       Divide flow at 20th & Campbell between 20th (south) & Campbell (west)
1084          DT  20CSTH
1085          DI       0     100     200     400     536
1086          DQ       0      75     125     205     258

1087          KK  HIGHLD
1088          KM       Divide flow at 20th & Campbell between Campbell & Highland
1089          DT  CAMPBL
1090          DI       0     100     200     400     800
1091          DQ       0      50     100     200     400

1092          KK  RTHIGH
1093          KM       Route flow from 20th & Highland to 18th & Highland
1094          RS       6    FLOW
1095          RC    .035    .016    .035    1320    .007
1096          RX     110     120     138     140     170     172     190     200
1097          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1098          KK  R18SPI
1099          KM       Retrieve flow at 18th and Camelback (pipe)
1100          DR  18SPIP

1101          KK  R18SPA
1102          KM       Route flow from 18th & Camelback to 18th & Highland
              * KO     1       2
1103          RD    1320    .006    .013            CIRC     4.5

1104          KK  BAS40A
1105          KM       Runoff from Basin 40 (original basin 40 cut in half by freeway)
1106          BA    .066
1107          LS            80.1
1108          UD     .35

1109          KK   CP40A
1110          KM       Combine hydrographs at 18th & Highland
              * KO     1       2
1111          HC       4
```

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

1112          KK  CPHI18
1113          KM       Divide flow at 18th & Highland between Highland (west) & 18th (south)
              * KO     1       2       0
1114          DT  HIWEST
1115          DI       0      30      60     120     240     480     960
1116          DQ       0      30      30      30      30      30      30

1117          KK  18SSTH
1118          KM       Divide flow at 18th & Highland between 18th pipe & 18th street
              * KO     1       2
1119          DT  18PIPA
1120          DI       0      30      60     125     240     480     960
1121          DQ       0      30      60     125     125     125     125
              * KK BASIN
              * KM     Detention basin at 18th street & Highland Avenue
              * KO     1       2
              * RS     1    STOR       0
              * SL  1131   3.142     .67      .5
              * SS  1142     200     2.8     1.5
              * SV     0     0.2    14.2    22.7    32.2    42.6    54.0      60
              * SE  1130    1132    1134    1136    1138    1140    1142    1144

1122          KK  RT18ST
1123          KM       Route flow from 18th & Highland south to 18th & Campbell
1124          RS       4    FLOW
1125          RC    .035    .016    .035    1320    .005
1126          RX     110     120     138     140     170     172     190     200
1127          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1128          KK  RT18HP
1129          KM       Retrieve flow at 18th and Highland(pipe)
1130          DR  18PIPA

1131          KK  RT18PA
1132          KM       Route flow from 18th & Highland to 18th & Campbell
1133          RD    1320    .006    .013            CIRC       5

1134          KK  RCAMPB
1135          KM       Retrieve flow at 20th and Campbell
1136          DR  CAMPBL

1137          KK  RDIV20
1138          KM       Route flow from 20th & Campbell west to 18th & Campbell
1139          RS       6    FLOW
1140          RC    .035    .016    .035    1320    .007
1141          RX     110     120     138     140     170     172     190     200
1142          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1143          KK  BAS40B
1144          KM       Runoff from Basin 40 (original basin 40 cut in half by freeway)
1145          BA    .066
1146          LS             80.1
1147          UD     .35
```

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

1148          KK    CP18
1149          KM       Combine hydrographs at 18th & Campbell
              * KO     1       2
1150          HC       4

1151          KK  18CAMP
1152          KM       Divide flow at 18th & Campbell between 18th pipe & 18th street
1153          DT  18PIPB
1154          DI       0      30      60     125     240     480     960
1155          DQ       0      30      60     125     125     125     125
              * KK BASIN
              * KM     Detention basin at 18th street & Campbell
              * KO     1       2
              * RS     1    STOR       0
              * SL  1131   3.142     .67      .5
              * SS  1142     200     2.8     1.5
              * SV     0     6.2    14.2    22.7    32.2    42.6    54.0      60
              * SE  1130    1132    1134    1136    1138    1140    1142    1144

1156          KK  R18STB
1157          KM       Route flow from 18th & Campbell south to 18th & Glenrosa
1158          RS       4    FLOW
1159          RC    .035    .016    .035    1320    .005
1160          RX     110     120     138     140     170     172     190     200
1161          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1162          KK  RT18HP
1163          KM       Retrieve flow at 18th and Campbell (pipe)
1164          DR  18PIPB

1165          KK  RT18PB
1166          KM       Route flow from 18th & Highland to 18th & Campbell
1167          RD    1320    .006    .013            CIRC       5

1168          KK   ROCCS
1169          KM       Retrieve flow from canal & 48th St. (old cross-cut canal)
1170          DR    OCCS

1171          KK  RTOCCS
1172          KM       Route flow from canal south along 48th Street
1173          RS       6    FLOW
1174          RC    .040    .035    .040     660    .007
1175          RX     110     120     138     140     170     172     190     200
1176          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1177          KK  DIOCCS
1178          KM       Divide flow at Indian School & 48th Street
1179          DT    OCCS
1180          DI       0     150     300     550     800    1300
1181          DQ       0     120     254     500     735    1200
```

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

1182          KK  RTOCCA
1183          KM       Route flow from 48th & Indian School to 44th St and Indian School
1184          RS       6    FLOW
1185          RC    .035    .016    .035    2640    .007
1186          RX     110     120     138     140     170     172     190     200
1187          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1188          KK  R9HSTH
1189          KM       Retrieve flow at 40th St & Campbell
1190          DR   9HSTH

1191          KK  RT9HST
1192          KM       Route flow from 44th & Campbell to 44th & Indian School
1193          RS       6    FLOW
1194          RC    .035    .016    .035    2640    .007
1195          RX     110     120     138     140     170     172     190     200
1196          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1197          KK  BAS20H
1198          KM       Runoff from basin 20 (Indian School Road & 44th St)
1199          BA    .138
1200          LS             86.1
1201          UD     .21

1202          KK   CP20H
1203          KM       Combine flow at 44th St & Indian School
1204          HC       3

1205          KK   DIV20
1206          KM       Divide flow at 44th St & Indian School Road (south and west)
1207          DT   20STH
1208          DI       0     100     200     310     500     800
1209          DQ       0      55     110     170     275     440

1210          KK   RT20W
1211          KM       Route flow from 44th St. & Indian School to 40th St. & Indian School
1212          RS       6    FLOW
1213          RC    .035    .016    .035    2640    .007
1214          RX     110     120     138     140     170     172     190     200
1215          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1216          KK  R40STR
1217          KM       Retrieve flow from basin 26 (south along 40th St)
1218          DR   40STR

1219          KK   RT40S
1220          KM       Route flow from 40th St. & Highland to 40th St. & Indian School
1221          RS       6    FLOW
1222          RC    .035    .016    .035    2640    .007
1223          RX     110     120     138     140     170     172     190     200
1224          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
```

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

1225          KK  BAS27H
1226          KM       Runoff from basin 27 (Indian School Road & 40th St)
1227          BA    .174
1228          LS            87.6
1229          UD     .41

1230          KK   CP27H
1231          KM       Combine hydrographs at 40th St. and Indian School
1232          HC       3

1233          KK  DIV27H
1234          KM       Divide flow at 40th St & Indian School Road (south and west)
1235          DT   27STH
1236          DI       0     100     200     300     428     800
1237          DQ       0     100     169     240     310     510

1238          KK   RT27W
1239          KM       Route flow from 40th St. & Indian School to 36th St. & Indian School
1240          RS       6    FLOW
1241          RC    .035    .016    .035    2640    .007
1242          RX     110     120     138     140     170     172     190     200
1243          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1244          KK  R36STH
1245          KM       Retrieve flow from 36th Street and Campbell
1246          DR   36STH

1247          KK  RT36ST
1248          KM       Route flow from 36th St. & Campbell to 36th St. & Indian School
1249          RS       6    FLOW
1250          RC    .035    .016    .035    2640    .007
1251          RX     110     120     138     140     170     172     190     200
1252          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1253          KK  BAS35H
1254          KM       Runoff from basin 35 (HNTB)
1255          BA    .185
1256          LS            83.3
1257          UD     .44

1258          KK   CP35H
1259          KM       Combine hydrographs at 36th & Indian School
1260          HC       3

1261          KK  DIV35H
1262          KM       Divide flow at 36th St & Indian School Road (south and west)
1263          DT  35HSTH
1264          DI       0     100     200     300     386     800
1265          DQ       0      81     140     190     233     440
```

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

1266          KK  RT35HW
1267          KM       Route flow from 36th St. & Indian School to 32th St. & Indian School
1268          RS       6    FLOW
1269          RC    .035    .016    .035    2640    .007
1270          RX     110     120     138     140     170     172     190     200
1271          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1272          KK  R32STH
1273          KM       Retrieve flow from 32th Street and Campbell
1274          DR   32STH

1275          KK  RT32ST
1276          KM       Route flow from 32th St. & Campbell to 32th St. & Indian School
1277          RS       6    FLOW
1278          RC    .035    .016    .035    2640    .007
1279          RX     110     120     138     140     170     172     190     200
1280          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1281          KK  BAS43H
1282          KM       Runoff from basin 43 (HNTB)
1283          BA    .218
1284          LS            84.8
1285          UD     .45

1286          KK   CP43H
1287          KM       Combine hydrographs at 32th & Indian School
1288          HC       3

1289          KK  DIV43H
1290          KM       Divide flow at 32th St & Indian School Road (south and west)
1291          DT  43HSTH
1292          DI       0     100     200     300     490     800
1293          DQ       0      85     134     183     275     428

1294          KK  RT43HW
1295          KM       Route flow from 32th St. & Indian School to 28th St. & Indian School
1296          RS       6    FLOW
1297          RC    .035    .016    .035    2640    .007
1298          RX     110     120     138     140     170     172     190     200
1299          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1300          KK  R28STH
1301          KM       Retrieve flow from 28th Street and Campbell
1302          DR   28STH

1303          KK  RT28ST
1304          KM       Route flow from 28th St. & Campbell to 28th St. & Indian School
1305          RS       6    FLOW
1306          RC    .035    .016    .035    2640    .007
1307          RX     110     120     138     140     170     172     190     200
1308          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
```

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

1309          KK  BAS50H
1310          KM      Runoff from basin 50 (HNTB)
1311          BA    .21
1312          LS            82.6
1313          UD    .46

1314          KK   CP50H
1315          KM      Combine hydrographs at 28th & Indian School
1316          HC      3

1317          KK  DIV50H
1318          KM      Divide flow at 28th St & Indian School Road (south and west)
1319          DT  50HSTH
1320          DI      0     100     200     300     483     800
1321          DQ      0      80     117     155     227     345

1322          KK  RT50HW
1323          KM      Route flow from 28th St. & Indian School to 24th St. & Indian School
1324          RS      6    FLOW
1325          RC   .035    .016    .035    2640    .007
1326          RX    110     120     138     140     170     172     190     200
1327          RY 1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1328          KK  R24STH
1329          KM      Retrieve flow from 24th Street and Campbell
1330          DR  24CSTH

1331          KK  RT24ST
1332          KM      Route flow from 24th St. & Campbell to 24th St. & Indian School
1333          RS      6    FLOW
1334          RC   .035    .016    .035    2640    .007
1335          RX    110     120     138     140     170     172     190     200
1336          RY 1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1337          KK  BAS57H
1338          KM      Runoff from basin 57 (HNTB)
1339          BA   .248
1340          LS            84.3
1341          UD    .45

1342          KK   CP57H
1343          KM      Combine hydrographs at 24th & Indian School
1344          HC      3

1345          KK  DIV57H
1346          KM      Divide flow at 24th St & Indian School Road (south and west)
1347          DT  57HSTH
1348          DI      0     100     200     500     716     900
1349          DQ      0      93     140     282     383     470
```

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

1350          KK  RT57HW
1351          KM       Route flow from 24th St. & Indian School to 20th St. & Indian School
1352          RS       6    FLOW
1353          RC    .035    .016    .035    2640    .007
1354          RX     110     120     138     140     170     172     190     200
1355          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1356          KK  R20STH
1357          KM       Retrieve flow from 20th Street and Campbell
1358          DR  20CSTH

1359          KK  RT20ST
1360          KM       Route flow from 20th St. & Campbell to 20th St. & Indian School
1361          RS       6    FLOW
1362          RC    .035    .016    .035    2640    .007
1363          RX     110     120     138     140     170     172     190     200
1364          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              *      Basin area modified from HNTB data (west boundary at 20th Street)

1365          KK  BAS30H
1366          KM       Runoff from basin 30 (HNTB)
1367          BA     .25
1368          LS            80.1
1369          UD     .45

1370          KK   CP30H
1371          KM       Combine hydrographs at 20th & Indian School
1372          HC       3

1373          KK  DIV30H
1374          KM       Divide flow at 20th St & Indian School Road (south and west)
1375          DT  30HSTH
1376          DI       0     100     200     400     664     900
1377          DQ       0     100     154     230     328     420

1378          KK  DIV30A
1379          KM       Divide flow at 20th & Indian School between Indian School & Glenrosa
1380          DT  INDIAN
1381          DI       0     100     200     400     800
1382          DQ       0      50     100     200     400

1383          KK  RTGLEN
1384          KM       Route flow from 20th & Glenrosa to 18th & Glenrosa
1385          RS       6    FLOW
1386          RC    .035    .016    .035    1320    .007
1387          RX     110     120     138     140     170     172     190     200
1388          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              *      Basin area modified from HNTB data (west boundary at freeway)
```

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

1389          KK  BAS41A
1390          KM       Runoff from basin 41 (HNTB MODIFIED)
1391          BA     .05
1392          LS             83.3
1393          UD     .34

1394          KK   CP41A
1395          KM       Combine hydrographs at 18th & Glenrosa
              * KO     1       2
1396          HC       4

1397          KK  18GLEN
1398          KM       Divide flow at 18th & Glenrosa between 18th pipe & 18th street
1399          DT  18PIPC
1400          DI       0      30      60     125     240     480     960
1401          DQ       0      30      60     125     125     125     125
              * KK BASIN
              * KM     Detention basin at 18th street & Glenrosa
              * KO     1       2
              * RS     1    STOR       0
              * SL  1131   3.142     .67      .5
              * SS  1142     200     2.8     1.5
              * SV     0     6.2    14.2    22.7    32.2    42.6    54.0      60
              * SE  1130    1132    1134    1136    1138    1140    1142    1144

1402          KK  R18STC
1403          KM       Route flow from 18th & Glenrosa south to 18th & Indian School
1404          RS       4    FLOW
1405          RC    .035    .016    .035    1320    .005
1406          RX     110     120     138     140     170     172     190     200
1407          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1408          KK  RT18GP
1409          KM       Retrieve flow at 18th and Glenrosa (pipe)
1410          DR  18PIPC

1411          KK  RT18PC
1412          KM       Route flow from 18th & Glenrosa to 18th & Indian School
1413          RD    1320    .006    .013            CIRC       5

1414          KK  RINDIA
1415          KM       Retrieve flow from 20th Street and Indian School
1416          DR  INDIAN

1417          KK  RT30HW
1418          KM       Route flow from 20th St. & Indian School to 18th St. & Indian School
1419          RS       6    FLOW
1420          RC    .035    .016    .035    1320    .007
1421          RX     110     120     138     140     170     172     190     200
1422          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              *      Basin area modified from HNTB data (west boundary at freeway)
```

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

1423          KK  BAS41H
1424          KM       Runoff from basin 41 (HNTB)
1425          BA     .05
1426          LS             83.3
1427          UD     .34

1428          KK   CP41H
1429          KM       Combine hydrographs at 18th & Indian School
              * KO     1       2
1430          HC       4
1431          ZZ
```

```
                SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   10       BAS1A
                .
                .
   26           .        BAS1
                .          .
                .          .
   33           .          .------->   1SIPH
   31           .       DIV1A
                .          .
                .          .
   38           .          .------->  1APIPE
   36           .      DIV1AP
                .          V
                .          V
   41           .      R1ASTR
                .          .
                .          .
   49           .          .          .<-------  1APIPE
   47           .          .     1APIPE
                .          .          V
                .          .          V
   50           .          .     R1APIP
                .          .          .
                .          .          .
   53           .          .          .      SR51FL
                .          .          .           .
                .          .          .           .
   58           .          .     CPSR51............
                .          .          V
                .          .          V
   61           .          .     R1BPIP
                .          .          .
                .          .          .
   64           .          .          .        BAS3
                .          .          .           .
                .          .          .           .
   71           .          .          .           .------->   3PIPE
   69           .          .          .        DIV3
                .          .          .           .
                .          .          .           .
   76           .          .          .           .------->  3SOUTH
   74           .          .          .       DIV3A
                .          .          .           V
                .          .          .           V
   79           .          .          .      R3STRW
                .          .          .           .
                .          .          .           .
   85           .          .          .           .       BAS2
                .          .          .           .         .
                .          .          .           .         .
   92           .          .          .           .         .          .<-------   3PIPE
   90           .          .          .           .         .      3PIPE
                .          .          .           .         .          V
                .          .          .           .         .          V
   93           .          .          .           .         .     R3PIPE
                .          .          .           .         .          .
                .          .          .           .         .          .
   96           .         CP2.........................................
                .          .
```

```
101          .          .------->   2SIPH
 99          .      DIV2
             .          .
             .          .
106          .          .------->   2PIPE
104          .     DIV2A
             .         V
             .         V
109          .     R2STR
             .          .
             .          .
117          .          .          .<-------   2PIPE
115          .          .      2PIPE
             .          .          V
             .          .          V
118          .          .     R2PIPE
             .          .          V
             .          .          V
121          .          .     R2APIP
             .          .          .
             .          .          .
124          .          .          .       BAS4
             .          .          .          .
             .          .          .          .
129          .      CP4.......................
             .          .
             .          .
134          .          .------->   4PIPE
132          .      DIV4
             .         V
             .         V
137          .     R4STR
             .          .
             .          .
145          .          .          .<-------   4PIPE
143          .          .      4PIPE
             .          .          V
             .          .          V
146          .          .     R4PIPE
             .          .          .
             .          .          .
149          .          .          .       BAS7
             .          .          .          V
             .          .          .          V
154          .          .          .      RBAS7
             .          .          .          .
             .          .          .          .
160          .          .          .          .        BAS8
             .          .          .          .          .
             .          .          .          .          .
165          .          .          .        CP8............
             .          .          .          .
             .          .          .          .
170          .          .          .          .-------> 8SOUTH
168          .          .          .       8DIV
             .          .          .          V
             .          .          .          V
173          .          .          .     R8STRW
             .          .          .          .
             .          .          .          .
179          .          .          .          .        BAS6
             .          .          .          .          .
             .          .          .          .          .
186          .          .          .          .          .          .<-------  3SOUTH
184          .          .          .          .          .     3SOUTH
```

```
                                                                  V
                                                                  V
187                                                           R3STH
                                                                  .
                                                                  .
193                                   CP6.......................
                                          .
                                          .
198                                       .-------->   6PIPE
196                                   6DIV
                                          .
                                          .
203                                       .-------->  6SOUTH
201                                  DIV6A
                                          V
                                          V
206                                 R6STRW
                                          .
                                          .
214                                       .           .<-------   6PIPE
212                                       .      6PIPE
                                          .          V
                                          .          V
215                                       .     R6PIPW
                                          .          .
                                          .          .
218                                       .          .       BAS5
                                          .          .          .
                                          .          .          .
223                            CP5.............................................
                                 .
                                 .
228                              .-------->   5PIPE
226                          5DIV
                                 .
                                 .
233                              .-------->   5MISS
231                        5DIVST
                                 V
                                 V
236                        R5STRS
                                 .
                                 .
244                              .           .<-------  8SOUTH
242                              .      8SOUTH
                                 .          V
                                 .          V
245                              .      R8STH
                                 .          .
                                 .          .
251                              .      BAS10
                                 .          .
                                 .          .
258                              .          .           .<-------  6SOUTH
256                              .          .      6SOUTH
                                 .          .          V
                                 .          .          V
259                              .          .      6STRS
                                 .          .          .
                                 .          .          .
265                              .      CP10........................
                                 .          .
                                 .          .
270                              .          .-------->   10STH
268                              .      DIV10
                                 .          V
```

```
                 .          .          V
273              .          .       RT10
                 .          .          .
                 .          .          .
279              .          .          .        BAS9
                 .          .          .          .
                 .          .          .          .
286              .          .          .          .          .<-------   5PIPE
284              .          .          .          .       5PIPE
                 .          .          .          .          V
                 .          .          .          .          V
287              .          .          .          .       RT5A
                 .          .          .          .          .
                 .          .          .          .          .
290              .          .          .        CP9............
                 .          .          .          .
                 .          .          .          .
293              .       CP9A........................
                 .          .
                 .          .
300              .          .-------> COLTER
296              .       DIV9
                 .          .
                 .          .
305              .          .------->   9PIPE
303              .      DIV9A
                 .          V
                 .          V
308              .        RT9
                 .          .
                 .          .
314              .          .      BAS27
                 .          .          .
                 .          .          .
321              .          .          .------->   CANAL
319              .          .      DIV27
                 .          .          V
                 .          .          V
324              .          .       RT27
                 .          .          .
                 .          .          .
332              .          .          .------->   38STH
330              .          .      DIV38
                 .          .          V
                 .          .          V
335              .          .       38RT
                 .          .          .
                 .          .          .
343              .          .          .------->   37STH
341              .          .      37STH
                 .          .          V
                 .          .          V
346              .          .       37RT
                 .          .          .
                 .          .          .
352              .          .          .       BAS26
                 .          .          .          .
                 .          .          .          .
356              .          .       26CP............
                 .          .          .
                 .          .          .
361              .          .          .------->   36STH
359              .          .      36DIV
                 .          .          .
                 .          .          .
366              .          .          .-------> 36PIPE
```

```
364          .          .      36PIPE
             .          .          V
             .          .          V
369          .          .       26RT
             .          .          .
             .          .          .
377          .          .          .-------> 35PSTH
375          .          .      35PDIV
             .          .          V
             .          .          V
380          .          .      26ART
             .          .          .
             .          .          .
388          .          .          .-------> 35SSTH
386          .          .      35SSTH
             .          .          V
             .          .          V
391          .          .      26BRT
             .          .          .
             .          .          .
399          .          .          .          .<-------  36PIPE
397          .          .          .     36PIPE
             .          .          .          V
             .          .          .          V
400          .          .          .     RT36PI
             .          .          .          .
             .          .          .          .
403          .          .          .          .      BAS25
             .          .          .          .          .
             .          .          .          .          .
408          .          .       CP25.......................
             .          .          .
             .          .          .
413          .          .          .-------> 34PSTH
411          .          .      34PSTH
             .          .          .
             .          .          .
418          .          .          .-------> 34PIPE
416          .          .      34DIV
             .          .          V
             .          .          V
421          .          .      RT34ST
             .          .          .
             .          .          .
429          .          .          .-------> 32PSTH
427          .          .      32DIV
             .          .          V
             .          .          V
432          .          .       32RT
             .          .          .
             .          .          .
438          .          .          .      BAS23
             .          .          .          .
             .          .          .          .
445          .          .          .          .-------> 23PIPE
443          .          .          .      23DIV
             .          .          .          V
             .          .          .          V
448          .          .          .       23RT
             .          .          .          .
             .          .          .          .
456          .          .          .          .          .<-------  23PIPE
454          .          .          .          .      R23PI
             .          .          .          .          V
             .          .          .          .          V
457          .          .          .          .     RT23PI
```

```
460                                  BAS24
                                       .
                                       .
467                                    .<-------  34PIPE
465                                 RT34
                                       V
                                       V
468                                 RT34PI
                                       .
                                       .
471                   CP32.............................................
                        .
                        .
476                     .-------> 32SSTH
474                 32SDIV
                        V
                        V
479                 RT32DI
                        .
                        .
487                     .-------> 31SSTH
485                 31SDIV
                        V
                        V
490                 RT31DI
                        .
                        .
498                     .-------> 29SSTH
496                 29SDIV
                        V
                        V
501                 RT29DI
                        .
                        .
509                     .-------> 28SSTH
507                 28SDIV
                        V
                        V
512                 RT28DI
                        .
                        .
518                     .      BAS17
                        .          V
                        .          V
523                     .       RT17
                        .          .
                        .          .
529                     .          .      BAS13
                        .          .          .
                        .          .          .
536                     .          .          .-------> 13PIPE
534                     .          .      13DIV
                        .          .          V
                        .          .          V
539                     .          .       RT13
                        .          .          .
                        .          .          .
547                     .          .          .         .<-------  13PIPE
545                     .          .          .     R13PIP
                        .          .          .         V
                        .          .          .         V
548                     .          .          .     RT13PA
                        .          .          .          .
                        .          .          .          .
```

```
551                                                                  BAS14
                                                                        .
                                                                        .
556                                        CP14.......................
                                                .
                                                .
561                                             .-------> 14PIPE
559                                        14DIV
                                                V
                                                V
564                                        RT14
                                                .
                                                .
572                                             .<------- 14PIPE
570                                             .     R14PIP
                                                .         V
                                                .         V
573                                             .     RT14PA
                                                .         .
                                                .         .
576                                             .         .      BAS15
                                                .         .        .
                                                .         .        .
581                                CP24.............................................
                                        .
                                        .
586                                     .-------> 24SST
584                                24DIV
                                        V
                                        V
589                                RT24
                                        .
                                        .
595                                     .      BAS12
                                        .        .
                                        .        .
600                                CP12............
                                        .
                                        .
605                                     .-------> 22STH
603                                22DIV
                                        V
                                        V
608                                RT22
                                        .
                                        .
616                                     .        .<------- 10STH
614                                     .      R10ST
                                        .        V
                                        .        V
617                                     .     RT10ST
                                        .        .
                                        .        .
623                                     .        .      BAS11
                                        .        .        .
                                        .        .        .
628                                CP20........................
                                        .
                                        .
633                                     .-------> 20STH
631                                20DIV
                                        .
                                        .
639                                     .-------> 20PIPE
636                                20PIP
                                        V
```

```
                 .          .          V
642              .          .       RT20
                 .          .          .
                 .          .          .
650              .          .          .<-------  20PIPE
648              .          .          .     R20PIP
                 .          .          .         V
                 .          .          .         V
651              .          .          .     RT20PA
                 .          .          .          .
                 .          .          .          .
656              .          .          .          .<-------   9PIPE
654              .          .          .          .      9PIPE
                 .          .          .          .          V
                 .          .          .          .          V
657              .          .          .          .     RT9PIP
                 .          .          .          .          .
                 .          .          .          .          .
660              .          .          .          .          .      BAS28
                 .          .          .          .          .          .
                 .          .          .          .          .          .
665              .       CP18.......................................
                 .          .
                 .          .
670              .          .-------> 18SPIP
668              .      18DIV
                 .          .
                 .          .
675              .          .-------> CAMELW
673              .     18DIVA
                 .          V
                 .          V
678              .     RTMALL
                 .          .
                 .          .
684              .          .      BAS1H
                 .          .          V
                 .          .          V
689              .          .       RT1H
                 .          .          .
                 .          .          .
695              .          .          .      BAS2H
                 .          .          .          .
                 .          .          .          .
700              .          .       CP2H............
                 .          .          V
                 .          .          V
703              .          .       RT2H
                 .          .          .
                 .          .          .
709              .          .          .      BAS3H
                 .          .          .          .
                 .          .          .          .
714              .          .       CP3H............
                 .          .          V
                 .          .          V
717              .          .       RT3H
                 .          .          .
                 .          .          .
723              .          .          .      BAS4H
                 .          .          .          .
                 .          .          .          .
728              .          .       CP4H............
                 .          .          .
                 .          .          .
733              .          .          .------->   4HSTH
```

```
731          .          .       DIV4H
             .          .          V
             .          .          V
736          .          .       RT4H
             .          .          .
             .          .          .
742          .          .          .       BAS5H
             .          .          .          .
             .          .          .          .
747          .          .       CP5H............
             .          .          V
             .          .          V
750          .          .       RT5H
             .          .          .
             .          .          .
756          .          .          .       BAS6H
             .          .          .          .
             .          .          .          .
761          .          .       CP6H............
             .          .          V
             .          .          V
764          .          .       RT6H
             .          .          .
             .          .          .
770          .          .          .       BAS7H
             .          .          .          .
             .          .          .          .
775          .          .       CP7H............
             .          .          .
             .          .          .
780          .          .          .-------->    OCCS
778          .          .       DIV7H
             .          .          V
             .          .          V
783          .          .       RT7H
             .          .          .
             .          .          .
789          .          .          .       BAS8H
             .          .          .          .
             .          .          .          .
794          .          .       CP8H............
             .          .          V
             .          .          V
797          .          .       RT8H
             .          .          .
             .          .          .
803          .          .          .       BAS9H
             .          .          .          .
             .          .          .          .
808          .          .       CP9H............
             .          .          V
             .          .          V
811          .          .       RT9H
             .          .          .
             .          .          .
819          .          .          .-------->   9HSTH
817          .          .       DIV9H
             .          .          V
             .          .          V
822          .          .       RT9A
             .          .          .
             .          .          .
830          .          .          .          .<-------   CANAL
828          .          .          .      RCANAL
             .          .          .          .
             .          .          .          .
```

```
833          .          .          .          .-------> CANALW
831          .          .          .     26PIPE
             .          .          .          V
             .          .          .          V
836          .          .          .     RT26PI
             .          .          .          .
             .          .          .          .
839          .          .          .          .     BAS26H
             .          .          .          .          .
             .          .          .          .          .
844          .          .      CP26H.......................
             .          .          .
             .          .          .
849          .          .          .-------> 40STR
847          .          .      DIV26
             .          .          V
             .          .          V
852          .          .      RT26H
             .          .          .
             .          .          .
858          .          .          .     BAS34H
             .          .          .          .
             .          .          .          .
865          .          .          .          .          .<-------   38STH
863          .          .          .          .     RET38S
             .          .          .          .          V
             .          .          .          .          V
866          .          .          .          .     R38STH
             .          .          .          .          .
             .          .          .          .          .
874          .          .          .          .          .          .<-------   37STH
872          .          .          .          .          .     RET37S
             .          .          .          .          .          V
             .          .          .          .          .          V
875          .          .          .          .          .     R37STH
             .          .          .          .          .          .
             .          .          .          .          .          .
883          .          .          .          .          .          .          .<-------   36STH
881          .          .          .          .          .          .     RET36S
             .          .          .          .          .          .          V
             .          .          .          .          .          .          V
884          .          .          .          .          .          .     R36STH
             .          .          .          .          .          .          .
             .          .          .          .          .          .          .
890          .          .       CP34.............................................
             .          .          .
             .          .          .
895          .          .          .-------> 36STH
893          .          .      DIV34
             .          .          V
             .          .          V
898          .          .       RT34
             .          .          .
             .          .          .
906          .          .          .          .<-------  35PSTH
904          .          .          .       R35P
             .          .          .          V
             .          .          .          V
907          .          .          .      RT35P
             .          .          .          .
             .          .          .          .
915          .          .          .          .          .<-------  35SSTH
913          .          .          .          .       R35S
             .          .          .          .          V
             .          .          .          .          V
916          .          .          .          .      RT35S
```

```
                .          .          .          .          .
                .          .          .          .          .
924             .          .          .          .          .<-------  34PSTH
922             .          .          .          .       R34P
                .          .          .          .          V
                .          .          .          .          V
925             .          .          .          .      RT34P
                .          .          .          .          .
                .          .          .          .          .
931             .          .       CP32.....................................
                .          .          .
                .          .          .
936             .          .          .          .<-------  32PSTH
934             .          .          .       R32P
                .          .          .          V
                .          .          .          V
937             .          .          .      RT32P
                .          .          .          .
                .          .          .          .
945             .          .          .          .          .<-------  32SSTH
943             .          .          .          .       R32S
                .          .          .          .          V
                .          .          .          .          V
946             .          .          .          .      RT32S
                .          .          .          .          .
                .          .          .          .          .
952             .          .          .          .          .     BAS42H
                .          .          .          .          .          .
                .          .          .          .          .          .
957             .          .       CP42.....................................
                .          .          .
                .          .          .
962             .          .          .-------> 32STH
960             .          .      DIV42
                .          .          V
                .          .          V
965             .          .      RT42W
                .          .          .
                .          .          .
973             .          .          .          .<-------  31SSTH
971             .          .          .     R31STH
                .          .          .          V
                .          .          .          V
974             .          .          .      RT31S
                .          .          .          .
                .          .          .          .
982             .          .          .          .          .<-------  29SSTH
980             .          .          .          .     R29STH
                .          .          .          .          V
                .          .          .          .          V
983             .          .          .          .      RT29S
                .          .          .          .          .
                .          .          .          .          .
991             .          .          .          .          .          .<-------  28SSTH
989             .          .          .          .          .     R28STH
                .          .          .          .          .          V
                .          .          .          .          .          V
992             .          .          .          .          .      RT28S
                .          .          .          .          .          .
                .          .          .          .          .          .
998             .          .          .          .          .          .     BAS49H
                .          .          .          .          .          .          .
                .          .          .          .          .          .          .
1003            .          .       CP49.............................................
                .          .          .
                .          .          .
```

```
1008          .          .          .-------> 28STH
1006          .          .      DIV49
              .          .          V
              .          .          V
1011          .          .      RT28W
              .          .          .
              .          .          .
1019          .          .          .          .<-------  24SST
1017          .          .          .      24SST
              .          .          .          .
              .          .          .          .
1022          .          .          .          .-------> 24PIPE
1020          .          .          .      24DIV
              .          .          .          V
              .          .          .          V
1025          .          .          .     R24SST
              .          .          .          .
              .          .          .          .
1033          .          .          .          .          .<-------  24PIPE
1031          .          .          .          .     R24PIP
              .          .          .          .          V
              .          .          .          .          V
1034          .          .          .          .     RT24PI
              .          .          .          .          .
              .          .          .          .          .
1037          .          .          .          .          .     BAS56H
              .          .          .          .          .          .
              .          .          .          .          .          .
1042          .          .       CP24.....................................
              .          .          .
              .          .          .
1047          .          .          .-------> 24CSTH
1045          .          .      DIV24
              .          .          V
              .          .          V
1050          .          .      RT24W
              .          .          .
              .          .          .
1058          .          .          .          .<-------  22STH
1056          .          .          .      R22ST
              .          .          .          V
              .          .          .          V
1059          .          .          .     RT22ST
              .          .          .          .
              .          .          .          .
1067          .          .          .          .          .<-------  20STH
1065          .          .          .          .      R20ST
              .          .          .          .          V
              .          .          .          .          V
1068          .          .          .          .     RT20ST
              .          .          .          .          .
              .          .          .          .          .
1074          .          .          .          .          .     BAS29H
              .          .          .          .          .          .
              .          .          .          .          .          .
1079          .          .       CP20.....................................
              .          .          .
              .          .          .
1084          .          .          .-------> 20CSTH
1082          .          .      DIV20
              .          .          .
              .          .          .
1089          .          .          .-------> CAMPBL
1087          .          .     HIGHLD
              .          .          V
              .          .          V
```

```
1092          .           .      RTHIGH
              .           .           .
              .           .           .
1100          .           .           .<-------  18SPIP
1098          .           .      R18SPI
              .           .           V
              .           .           V
1101          .           .      R18SPA
              .           .           .
              .           .           .
1104          .           .           .      BAS40A
              .           .           .           .
              .           .           .           .
1109          .       CP40A.................................
              .           .
              .           .
1114          .           .-------> HIWEST
1112          .      CPHI18
              .           .
              .           .
1119          .           .-------> 18PIPA
1117          .      18SSTH
              .           V
              .           V
1122          .      RT18ST
              .           .
              .           .
1130          .           .           .<-------  18PIPA
1128          .           .      RT18HP
              .           .           V
              .           .           V
1131          .           .      RT18PA
              .           .           .
              .           .           .
1136          .           .           .<-------  CAMPBL
1134          .           .      RCAMPB
              .           .           V
              .           .           V
1137          .           .      RDIV20
              .           .           .
              .           .           .
1143          .           .           .      BAS40B
              .           .           .           .
              .           .           .           .
1148          .        CP18.................................
              .           .
              .           .
1153          .           .-------> 18PIPB
1151          .      18CAMP
              .           V
              .           V
1156          .      R18STB
              .           .
              .           .
1164          .           .           .<-------  18PIPB
1162          .           .      RT18HP
              .           .           V
              .           .           V
1165          .           .      RT18PB
              .           .           .
              .           .           .
1170          .           .           .<-------    OCCS
1168          .           .       ROCCS
              .           .           V
              .           .           V
1171          .           .      RTOCCS
```

```
                .          .          .          .
                .          .          .          .
1179            .          .          .-------->    OCCS
1177            .          .      DIOCCS
                .          .          V
                .          .          V
1182            .          .      RTOCCA
                .          .          .
                .          .          .
1190            .          .          .          .<-------   9HSTH
1188            .          .          .     R9HSTH
                .          .          .          V
                .          .          .          V
1191            .          .          .     RT9HST
                .          .          .          .
                .          .          .          .
1197            .          .          .          .      BAS20H
                .          .          .          .           .
                .          .          .          .           .
1202            .          .       CP20H.......................
                .          .          .
                .          .          .
1207            .          .          .-------->   20STH
1205            .          .       DIV20
                .          .          V
                .          .          V
1210            .          .       RT20W
                .          .          .
                .          .          .
1218            .          .          .          .<-------   40STR
1216            .          .          .     R40STR
                .          .          .          V
                .          .          .          V
1219            .          .          .      RT40S
                .          .          .          .
                .          .          .          .
1225            .          .          .          .      BAS27H
                .          .          .          .           .
                .          .          .          .           .
1230            .          .       CP27H.......................
                .          .          .
                .          .          .
1235            .          .          .-------->   27STH
1233            .          .      DIV27H
                .          .          V
                .          .          V
1238            .          .       RT27W
                .          .          .
                .          .          .
1246            .          .          .          .<-------   36STH
1244            .          .          .     R36STH
                .          .          .          V
                .          .          .          V
1247            .          .          .     RT36ST
                .          .          .          .
                .          .          .          .
1253            .          .          .          .      BAS35H
                .          .          .          .           .
                .          .          .          .           .
1258            .          .       CP35H.......................
                .          .          .
                .          .          .
1263            .          .          .-------> 35HSTH
1261            .          .      DIV35H
                .          .          V
                .          .          V
```

```
1266        .         .         .     RT35HW
            .         .         .         .
            .         .         .         .
1274        .         .         .         .          .<-------   32STH
1272        .         .         .         .     R32STH
            .         .         .         .          V
            .         .         .         .          V
1275        .         .         .         .     RT32ST
            .         .         .         .          .
            .         .         .         .          .
1281        .         .         .         .          .     BAS43H
            .         .         .         .          .          .
            .         .         .         .          .          .
1286        .         .         .      CP43H.......................
            .         .         .         .
            .         .         .         .
1291        .         .         .         .-------> 43HSTH
1289        .         .         .     DIV43H
            .         .         .         V
            .         .         .         V
1294        .         .         .     RT43HW
            .         .         .         .
            .         .         .         .
1302        .         .         .         .          .<-------   28STH
1300        .         .         .         .     R28STH
            .         .         .         .          V
            .         .         .         .          V
1303        .         .         .         .     RT28ST
            .         .         .         .          .
            .         .         .         .          .
1309        .         .         .         .          .     BAS50H
            .         .         .         .          .          .
            .         .         .         .          .          .
1314        .         .         .      CP50H.......................
            .         .         .         .
            .         .         .         .
1319        .         .         .         .-------> 50HSTH
1317        .         .         .     DIV50H
            .         .         .         V
            .         .         .         V
1322        .         .         .     RT50HW
            .         .         .         .
            .         .         .         .
1330        .         .         .         .          .<-------  24CSTH
1328        .         .         .         .     R24STH
            .         .         .         .          V
            .         .         .         .          V
1331        .         .         .         .     RT24ST
            .         .         .         .          .
            .         .         .         .          .
1337        .         .         .         .          .     BAS57H
            .         .         .         .          .          .
            .         .         .         .          .          .
1342        .         .         .      CP57H.......................
            .         .         .         .
            .         .         .         .
1347        .         .         .         .-------> 57HSTH
1345        .         .         .     DIV57H
            .         .         .         V
            .         .         .         V
1350        .         .         .     RT57HW
            .         .         .         .
            .         .         .         .
1358        .         .         .         .          .<-------  20CSTH
1356        .         .         .         .     R20STH
            .         .         .         .          V
```

```
                 .          .          .          .          V
1359             .          .          .          .     RT20ST
                 .          .          .          .          .
                 .          .          .          .          .
1365             .          .          .          .          .     BAS30H
                 .          .          .          .          .          .
                 .          .          .          .          .          .
1370             .          .          .      CP30H.......................
                 .          .          .          .
                 .          .          .          .
1375             .          .          .          .-------> 30HSTH
1373             .          .          .     DIV30H
                 .          .          .          .
                 .          .          .          .
1380             .          .          .          .-------> INDIAN
1378             .          .          .     DIV30A
                 .          .          .          V
                 .          .          .          V
1383             .          .          .     RTGLEN
                 .          .          .          .
                 .          .          .          .
1389             .          .          .          .     BAS41A
                 .          .          .          .          .
                 .          .          .          .          .
1394             .      CP41A...................................
                 .          .
                 .          .
1399             .          .-------> 18PIPC
1397             .     18GLEN
                 .          V
                 .          V
1402             .     R18STC
                 .          .
                 .          .
1410             .          .          .<-------  18PIPC
1408             .          .     RT18GP
                 .          .          V
                 .          .          V
1411             .          .     RT18PC
                 .          .          .
                 .          .          .
1416             .          .          .          .<-------  INDIAN
1414             .          .          .     RINDIA
                 .          .          .          V
                 .          .          .          V
1417             .          .          .     RT30HW
                 .          .          .          .
                 .          .          .          .
1423             .          .          .          .     BAS41H
                 .          .          .          .          .
                 .          .          .          .          .
1428             .      CP41H...................................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              MAY   1991              *
*            VERSION 4.0.1E            *
*     Lahey F77L-EM/32 version 5.01    *
*       Dodson & Associates, Inc.      *
*  RUN DATE  04/15/98  TIME  11:13:26  *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 551-1748             *
*                                      *
****************************************
```

```
                    SR 51 Offsite Hydrology (sr51E.dat)
                    50-year 24-hour Storm -(Burgess & Niple, HNTB orginal model)
                    SQUAW PEAK FREEWAY INDIAN SCHOOL ROAD TO BETHANY HOME ROAD
                    Model modified to determine flow at 1/4 mile St. (Highland and Turney)
                    CHECK MODEL FOR SR51D.DAT (VERIFY BN & HNTB PARAMETERS) MINOR CHANGES
                    RESERVOIR AT 18TH STREET & HIGHLAND AVENUE

  9 IO        OUTPUT CONTROL VARIABLES
                  IPRNT          5  PRINT CONTROL
                  IPLOT          0  PLOT CONTROL
                  QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT         HYDROGRAPH TIME DATA
                   NMIN          2  MINUTES IN COMPUTATION INTERVAL
                  IDATE      1   0  STARTING DATE
                  ITIME       0000  STARTING TIME
                     NQ       1000  NUMBER OF HYDROGRAPH ORDINATES
                 NDDATE      2   0  ENDING DATE
                 NDTIME       0918  ENDING TIME
                  ICENT         19  CENTURY MARK

             COMPUTATION INTERVAL    0.03 HOURS
                  TOTAL TIME BASE   33.30 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	BAS1A	24.	12.03	3.	1.	1.	0.02		
HYDROGRAPH AT	BAS1	36.	12.03	4.	1.	1.	0.05		
DIVERSION TO	1SIPH	10.	12.03	3.	1.	1.	0.05		
HYDROGRAPH AT	DIV1A	26.	12.03	1.	0.	0.	0.05		
DIVERSION TO	1APIPE	1.	12.03	0.	0.	0.	0.05		
HYDROGRAPH AT	DIV1AP	25.	12.03	1.	0.	0.	0.05		
ROUTED TO	R1ASTR	26.	12.10	1.	0.	0.	0.05	1175.63	12.10
HYDROGRAPH AT	1APIPE	1.	11.93	0.	0.	0.	0.00		
ROUTED TO	R1APIP	1.	11.97	0.	0.	0.	0.00		
HYDROGRAPH AT	SR51FL	23.	12.07	3.	1.	1.	0.02		
2 COMBINED AT	CPSR51	24.	12.07	3.	1.	1.	0.02		
ROUTED TO	R1BPIP	24.	12.07	3.	1.	1.	0.02		
HYDROGRAPH AT	BAS3	38.	12.03	4.	1.	1.	0.02		
DIVERSION TO	3PIPE	20.	12.03	4.	1.	1.	0.02		
HYDROGRAPH AT	DIV3	18.	12.03	1.	0.	0.	0.02		
DIVERSION TO	3SOUTH	9.	12.03	0.	0.	0.	0.02		
HYDROGRAPH AT	DIV3A	9.	12.03	0.	0.	0.	0.02		
ROUTED TO	R3STRW	7.	12.20	0.	0.	0.	0.02	1175.53	12.20
HYDROGRAPH AT	BAS2	38.	12.07	5.	2.	1.	0.02		
HYDROGRAPH AT	3PIPE	20.	11.90	4.	1.	1.	0.00		
ROUTED TO	R3PIPE	20.	11.97	4.	1.	1.	0.00		
5 COMBINED AT	CP2	110.	12.10	12.	4.	3.	0.11		
DIVERSION TO	2SIPH	50.	12.10	10.	3.	2.	0.11		
HYDROGRAPH AT	DIV2	60.	12.10	2.	1.	0.	0.11		
DIVERSION TO	2PIPE	51.	12.10	2.	1.	0.	0.11		
HYDROGRAPH AT	DIV2A	9.	12.10	0.	0.	0.	0.11		
ROUTED TO	R2STR	3.	12.30	0.	0.	0.	0.11	1175.46	12.30
HYDROGRAPH AT	2PIPE	51.	12.10	2.	1.	0.	0.00		
ROUTED TO	R2PIPE	49.	12.13	2.	1.	0.	0.00		

ROUTED TO	R2APIP	47.	12.13	2.	1.	0.	0.00		
HYDROGRAPH AT	BAS4	41.	12.03	5.	2.	1.	0.02		
3 COMBINED AT	CP4	78.	12.10	7.	2.	1.	0.13		
DIVERSION TO	4PIPE	69.	12.10	7.	2.	1.	0.13		
HYDROGRAPH AT	DIV4	10.	12.10	0.	0.	0.	0.13		
ROUTED TO	R4STR	7.	12.23	0.	0.	0.	0.13	1175.53	12.23
HYDROGRAPH AT	4PIPE	69.	12.10	7.	2.	1.	0.00		
ROUTED TO	R4PIPE	68.	12.13	7.	2.	1.	0.00		
HYDROGRAPH AT	BAS7	96.	12.07	11.	3.	2.	0.08		
ROUTED TO	RBAS7	92.	12.13	11.	3.	2.	0.08	1176.03	12.13
HYDROGRAPH AT	BAS8	77.	12.10	10.	3.	2.	0.06		
2 COMBINED AT	CP8	168.	12.10	21.	6.	5.	0.14		
DIVERSION TO	8SOUTH	31.	12.10	4.	1.	1.	0.14		
HYDROGRAPH AT	8DIV	136.	12.10	17.	5.	4.	0.14		
ROUTED TO	R8STRW	135.	12.17	17.	5.	4.	0.14	1176.20	12.17
HYDROGRAPH AT	BAS6	59.	12.03	7.	2.	2.	0.03		
HYDROGRAPH AT	3SOUTH	9.	12.03	0.	0.	0.	0.00		
ROUTED TO	R3STH	4.	12.43	0.	0.	0.	0.00	1175.48	12.43
3 COMBINED AT	CP6	181.	12.10	24.	7.	5.	0.17		
DIVERSION TO	6PIPE	65.	12.10	17.	6.	4.	0.17		
HYDROGRAPH AT	6DIV	116.	12.10	7.	2.	1.	0.17		
DIVERSION TO	6SOUTH	90.	12.10	5.	1.	1.	0.17		
HYDROGRAPH AT	DIV6A	26.	12.10	2.	0.	0.	0.17		
ROUTED TO	R6STRW	24.	12.20	2.	0.	0.	0.17	1175.68	12.20
HYDROGRAPH AT	6PIPE	65.	12.07	17.	6.	4.	0.00		
ROUTED TO	R6PIPW	65.	12.13	17.	6.	4.	0.00		
HYDROGRAPH AT	BAS5	41.	12.10	5.	2.	1.	0.02		
5 COMBINED AT	CP5	196.	12.17	30.	10.	7.	0.32		
DIVERSION TO	5PIPE	116.	12.17	27.	9.	6.	0.32		
HYDROGRAPH AT	5DIV	80.	12.17	4.	1.	1.	0.32		
DIVERSION TO	5MISS	44.	12.17	2.	0.	0.	0.32		
HYDROGRAPH AT	5DIVST	36.	12.17	2.	0.	0.	0.32		
ROUTED TO	R5STRS	35.	12.23	2.	0.	0.	0.32	1175.72	12.23

HYDROGRAPH AT	8SOUTH	31.	12.10	4.	1.	1.	0.00		
ROUTED TO	R8STH	29.	12.27	4.	1.	1.	0.00	1175.71	12.27
HYDROGRAPH AT	BAS10	49.	12.13	7.	2.	2.	0.04		
HYDROGRAPH AT	6SOUTH	90.	12.10	5.	1.	1.	0.00		
ROUTED TO	6STRS	88.	12.20	5.	1.	1.	0.00	1176.01	12.20
3 COMBINED AT	CP10	160.	12.20	16.	5.	3.	0.04		
DIVERSION TO	10STH	108.	12.20	11.	3.	2.	0.04		
HYDROGRAPH AT	DIV10	52.	12.20	5.	1.	1.	0.04		
ROUTED TO	RT10	51.	12.23	5.	1.	1.	0.04	1175.80	12.23
HYDROGRAPH AT	BAS9	42.	12.07	5.	2.	1.	0.04		
HYDROGRAPH AT	5PIPE	116.	12.07	27.	9.	6.	0.00		
ROUTED TO	RT5A	116.	12.13	27.	9.	6.	0.00		
2 COMBINED AT	CP9	156.	12.10	32.	10.	7.	0.04		
3 COMBINED AT	CP9A	229.	12.20	39.	12.	9.	0.40		
DIVERSION TO	COLTER	100.	12.20	29.	9.	7.	0.40		
HYDROGRAPH AT	DIV9	129.	12.20	10.	3.	2.	0.40		
DIVERSION TO	9PIPE	105.	12.20	10.	3.	2.	0.40		
HYDROGRAPH AT	DIV9A	25.	12.20	1.	0.	0.	0.40		
ROUTED TO	RT9	20.	12.30	1.	0.	0.	0.40	1175.63	12.30
HYDROGRAPH AT	BAS27	1689.	12.17	262.	81.	58.	1.42		
DIVERSION TO	CANAL	760.	12.17	163.	56.	41.	1.42		
HYDROGRAPH AT	DIV27	929.	12.17	99.	25.	18.	1.42		
ROUTED TO	RT27	921.	12.23	99.	25.	18.	1.42	354.84	12.23
DIVERSION TO	38STH	378.	12.23	41.	10.	7.	1.42		
HYDROGRAPH AT	DIV38	543.	12.23	58.	14.	10.	1.42		
ROUTED TO	38RT	541.	12.23	58.	14.	10.	1.42	1176.32	12.23
DIVERSION TO	37STH	183.	12.23	20.	5.	4.	1.42		
HYDROGRAPH AT	37STH	357.	12.23	38.	10.	7.	1.42		
ROUTED TO	37RT	357.	12.27	38.	10.	7.	1.42	1176.13	12.27
HYDROGRAPH AT	BAS26	101.	12.07	12.	4.	3.	0.07		
2 COMBINED AT	26CP	409.	12.17	50.	13.	9.	1.48		
DIVERSION TO	36STH	156.	12.17	19.	5.	4.	1.48		
HYDROGRAPH AT	36DIV	253.	12.17	31.	8.	6.	1.48		

DIVERSION TO	36PIPE	27.	12.17	9.	3.	2.	1.48		
HYDROGRAPH AT	36PIPE	226.	12.17	22.	5.	4.	1.48		
ROUTED TO	26RT	226.	12.20	22.	5.	4.	1.48	1175.96	12.20
DIVERSION TO	35PSTH	35.	12.20	3.	1.	1.	1.48		
HYDROGRAPH AT	35PDIV	190.	12.20	18.	5.	3.	1.48		
ROUTED TO	26ART	191.	12.20	18.	5.	3.	1.48	1175.90	12.20
DIVERSION TO	35SSTH	31.	12.20	3.	1.	1.	1.48		
HYDROGRAPH AT	35SSTH	160.	12.20	15.	4.	3.	1.48		
ROUTED TO	26BRT	159.	12.23	15.	4.	3.	1.48	1175.85	12.23
HYDROGRAPH AT	36PIPE	27.	11.90	9.	3.	2.	0.00		
ROUTED TO	RT36PI	27.	11.97	9.	3.	2.	0.00		
HYDROGRAPH AT	BAS25	33.	12.07	4.	1.	1.	0.02		
3 COMBINED AT	CP25	203.	12.20	28.	8.	6.	1.50		
DIVERSION TO	34PSTH	16.	12.20	3.	1.	1.	1.50		
HYDROGRAPH AT	34PSTH	187.	12.20	26.	7.	5.	1.50		
DIVERSION TO	34PIPE	36.	12.20	12.	4.	3.	1.50		
HYDROGRAPH AT	34DIV	151.	12.20	14.	3.	2.	1.50		
ROUTED TO	RT34ST	150.	12.23	14.	3.	2.	1.50	1175.83	12.23
DIVERSION TO	32PSTH	31.	12.23	3.	1.	1.	1.50		
HYDROGRAPH AT	32DIV	119.	12.23	11.	3.	2.	1.50		
ROUTED TO	32RT	119.	12.27	11.	3.	2.	1.50	1175.78	12.27
HYDROGRAPH AT	BAS23	69.	12.07	9.	3.	2.	0.05		
DIVERSION TO	23PIPE	13.	12.07	5.	2.	1.	0.05		
HYDROGRAPH AT	23DIV	56.	12.07	3.	1.	1.	0.05		
ROUTED TO	23RT	54.	12.17	3.	1.	1.	0.05	1175.88	12.17
HYDROGRAPH AT	R23PI	13.	11.80	5.	2.	1.	0.00		
ROUTED TO	RT23PI	13.	11.90	5.	2.	1.	0.00		
HYDROGRAPH AT	BAS24	112.	12.07	14.	4.	3.	0.09		
HYDROGRAPH AT	RT34	36.	11.90	12.	4.	3.	0.00		
ROUTED TO	RT34PI	37.	11.97	12.	4.	3.	0.00		
5 COMBINED AT	CP32	282.	12.20	45.	13.	9.	1.64		
DIVERSION TO	32SSTH	158.	12.20	34.	10.	7.	1.64		
HYDROGRAPH AT	32SDIV	124.	12.20	11.	3.	2.	1.64		

ROUTED TO	RT32DI	123.	12.23	11.	3.	2.	1.64	1175.80	12.23
DIVERSION TO	31SSTH	41.	12.23	4.	1.	1.	1.64		
HYDROGRAPH AT	31SDIV	82.	12.23	7.	2.	1.	1.64		
ROUTED TO	RT31DI	81.	12.30	7.	2.	1.	1.64	1175.69	12.30
DIVERSION TO	29SSTH	9.	12.30	1.	0.	0.	1.64		
HYDROGRAPH AT	29SDIV	72.	12.30	6.	2.	1.	1.64		
ROUTED TO	RT29DI	71.	12.33	6.	2.	1.	1.64	1175.66	12.33
DIVERSION TO	28SSTH	5.	12.33	1.	0.	0.	1.64		
HYDROGRAPH AT	28SDIV	66.	12.33	6.	1.	1.	1.64		
ROUTED TO	RT28DI	62.	12.47	6.	1.	1.	1.64	1175.64	12.47
HYDROGRAPH AT	BAS17	75.	12.17	12.	4.	3.	0.16		
ROUTED TO	RT17	72.	12.30	12.	4.	3.	0.16	1175.67	12.30
HYDROGRAPH AT	BAS13	113.	12.10	15.	5.	3.	0.13		
DIVERSION TO	13PIPE	17.	12.10	8.	3.	2.	0.13		
HYDROGRAPH AT	13DIV	96.	12.10	7.	2.	1.	0.13		
ROUTED TO	RT13	92.	12.20	7.	2.	1.	0.13	1176.06	12.20
HYDROGRAPH AT	R13PIP	17.	11.80	8.	3.	2.	0.00		
ROUTED TO	RT13PA	17.	11.90	8.	3.	2.	0.00		
HYDROGRAPH AT	BAS14	57.	12.20	10.	3.	2.	0.09		
3 COMBINED AT	CP14	166.	12.20	25.	8.	5.	0.22		
DIVERSION TO	14PIPE	34.	12.20	12.	4.	3.	0.22		
HYDROGRAPH AT	14DIV	132.	12.20	13.	4.	3.	0.22		
ROUTED TO	RT14	128.	12.27	13.	4.	3.	0.22	1176.18	12.27
HYDROGRAPH AT	R14PIP	34.	12.20	12.	4.	3.	0.00		
ROUTED TO	RT14PA	34.	12.23	12.	4.	3.	0.00		
HYDROGRAPH AT	BAS15	89.	12.27	16.	5.	4.	0.10		
5 COMBINED AT	CP24	325.	12.27	58.	18.	13.	2.13		
DIVERSION TO	24SST	153.	12.27	33.	11.	8.	2.13		
HYDROGRAPH AT	24DIV	173.	12.27	25.	7.	5.	2.13		
ROUTED TO	RT24	172.	12.33	25.	7.	5.	2.13	1175.94	12.33
HYDROGRAPH AT	BAS12	34.	12.07	4.	1.	1.	0.03		
2 COMBINED AT	CP12	183.	12.33	29.	8.	6.	2.17		
DIVERSION TO	22STH	52.	12.33	9.	2.	2.	2.17		

HYDROGRAPH AT	22DIV	131.	12.33	20.	5.	4.	2.17		
ROUTED TO	RT22	130.	12.40	20.	5.	4.	2.17	1175.86	12.40
HYDROGRAPH AT	R10ST	108.	12.20	11.	3.	2.	0.00		
ROUTED TO	RT10ST	105.	12.27	11.	3.	2.	0.00	1176.06	12.27
HYDROGRAPH AT	BAS11	43.	12.07	5.	2.	1.	0.04		
3 COMBINED AT	CP20	238.	12.33	36.	10.	7.	2.20		
DIVERSION TO	20STH	86.	12.33	14.	4.	3.	2.20		
HYDROGRAPH AT	20DIV	152.	12.33	22.	6.	5.	2.20		
DIVERSION TO	20PIPE	97.	12.33	19.	5.	4.	2.20		
HYDROGRAPH AT	20PIP	55.	12.33	3.	1.	1.	2.20		
ROUTED TO	RT20	53.	12.40	3.	1.	1.	2.20	1175.67	12.40
HYDROGRAPH AT	R20PIP	97.	12.33	19.	5.	4.	0.00		
ROUTED TO	RT20PA	97.	12.37	19.	5.	4.	0.00		
HYDROGRAPH AT	9PIPE	105.	12.20	10.	3.	2.	0.00		
ROUTED TO	RT9PIP	105.	12.23	9.	3.	2.	0.00		
HYDROGRAPH AT	BAS28	61.	12.10	8.	2.	2.	0.06		
5 COMBINED AT	CP18	283.	12.33	40.	12.	9.	2.66		
DIVERSION TO	18SPIP	125.	12.33	31.	10.	7.	2.66		
HYDROGRAPH AT	18DIV	158.	12.33	9.	2.	2.	2.66		
DIVERSION TO	CAMELW	50.	12.33	4.	1.	1.	2.66		
HYDROGRAPH AT	18DIVA	108.	12.33	5.	1.	1.	2.66		
ROUTED TO	RTMALL	101.	12.40	5.	1.	1.	2.66	100.64	12.40
HYDROGRAPH AT	BAS1H	274.	12.93	97.	30.	22.	0.59		
ROUTED TO	RT1H	273.	13.10	97.	30.	22.	0.59	1001.56	13.10
HYDROGRAPH AT	BAS2H	146.	12.57	38.	12.	9.	0.22		
2 COMBINED AT	CP2H	369.	12.93	134.	42.	30.	0.81		
ROUTED TO	RT2H	363.	13.20	133.	42.	30.	0.81	1001.85	13.20
HYDROGRAPH AT	BAS3H	136.	12.57	35.	11.	8.	0.18		
2 COMBINED AT	CP3H	437.	13.10	166.	53.	38.	0.99		
ROUTED TO	RT3H	431.	13.37	166.	53.	38.	0.99	1002.04	13.37
HYDROGRAPH AT	BAS4H	276.	12.57	72.	23.	16.	0.37		
2 COMBINED AT	CP4H	559.	13.20	234.	76.	54.	1.37		
DIVERSION TO	4HSTH	343.	13.20	144.	46.	33.	1.37		

HYDROGRAPH AT	DIV4H	216.	13.20	90.	29.	21.	1.37		
ROUTED TO	RT4H	201.	13.90	88.	29.	21.	1.37	1001.81	13.90
HYDROGRAPH AT	BAS5H	123.	12.57	32.	10.	7.	0.18		
2 COMBINED AT	CP5H	230.	13.83	117.	39.	28.	1.55		
ROUTED TO	RT5H	229.	13.97	117.	39.	28.	1.55	1177.11	13.97
HYDROGRAPH AT	BAS6H	150.	12.50	37.	11.	8.	0.19		
2 COMBINED AT	CP6H	266.	12.63	152.	50.	36.	1.74		
ROUTED TO	RT6H	263.	12.77	151.	50.	36.	1.74	1177.23	12.77
HYDROGRAPH AT	BAS7H	223.	12.57	58.	18.	13.	0.31		
2 COMBINED AT	CP7H	471.	12.70	208.	68.	49.	2.05		
DIVERSION TO	OCCS	457.	12.33	199.	66.	48.	2.05		
HYDROGRAPH AT	DIV7H	14.	12.33	8.	3.	2.	2.05		
ROUTED TO	RT7H	14.	14.80	8.	3.	2.	2.05	1000.20	14.80
HYDROGRAPH AT	BAS8H	107.	12.43	25.	8.	6.	0.14		
2 COMBINED AT	CP8H	108.	12.43	32.	10.	7.	2.19		
ROUTED TO	RT8H	100.	12.80	32.	10.	7.	2.19	1001.03	12.80
HYDROGRAPH AT	BAS9H	250.	12.63	69.	22.	16.	0.34		
2 COMBINED AT	CP9H	341.	12.70	100.	32.	23.	2.53		
ROUTED TO	RT9H	341.	12.73	100.	32.	23.	2.53	1176.51	12.73
DIVERSION TO	9HSTH	181.	12.73	53.	17.	12.	2.53		
HYDROGRAPH AT	DIV9H	160.	12.73	47.	15.	11.	2.53		
ROUTED TO	RT9A	158.	12.87	47.	15.	11.	2.53	1176.22	12.87
HYDROGRAPH AT	RCANAL	760.	12.17	163.	56.	41.	0.00		
DIVERSION TO	CANALW	704.	10.80	107.	27.	19.	0.00		
HYDROGRAPH AT	26PIPE	56.	10.80	56.	30.	21.	0.00		
ROUTED TO	RT26PI	56.	10.90	56.	30.	21.	0.00		
HYDROGRAPH AT	BAS26H	90.	12.13	12.	4.	3.	0.06		
3 COMBINED AT	CP26H	227.	12.87	115.	48.	35.	2.59		
DIVERSION TO	40STR	145.	12.87	72.	30.	22.	2.59		
HYDROGRAPH AT	DIV26	81.	12.87	42.	18.	13.	2.59		
ROUTED TO	RT26H	81.	12.97	42.	18.	13.	2.59	1175.92	12.97
HYDROGRAPH AT	BAS34H	126.	12.27	23.	7.	5.	0.11		
HYDROGRAPH AT	RET38S	378.	12.23	41.	10.	7.	0.00		

ROUTED TO	R38STH	372.	12.37	41.	10.	7.	0.00	1176.56	12.37
HYDROGRAPH AT	RET37S	183.	12.23	20.	5.	4.	0.00		
ROUTED TO	R37STH	179.	12.40	20.	5.	4.	0.00	1176.20	12.40
HYDROGRAPH AT	RET36S	156.	12.17	19.	5.	4.	0.00		
ROUTED TO	R36STH	151.	12.37	19.	5.	4.	0.00	1176.14	12.37
5 COMBINED AT	CP34	879.	12.37	144.	45.	33.	2.70		
DIVERSION TO	36STH	524.	12.37	95.	31.	22.	2.70		
HYDROGRAPH AT	DIV34	354.	12.37	49.	15.	11.	2.70		
ROUTED TO	RT34	351.	12.47	49.	15.	11.	2.70	1176.53	12.47
HYDROGRAPH AT	R35P	35.	12.20	3.	1.	1.	0.00		
ROUTED TO	RT35P	31.	12.57	3.	1.	1.	0.00	1175.69	12.57
HYDROGRAPH AT	R35S	31.	12.20	3.	1.	1.	0.00		
ROUTED TO	RT35S	27.	12.57	3.	1.	1.	0.00	1175.67	12.57
HYDROGRAPH AT	R34P	16.	12.20	3.	1.	1.	0.00		
ROUTED TO	RT34P	15.	12.60	3.	1.	1.	0.00	1175.59	12.60
4 COMBINED AT	CP32	417.	12.50	58.	17.	12.	2.70		
HYDROGRAPH AT	R32P	31.	12.23	3.	1.	1.	0.00		
ROUTED TO	RT32P	30.	12.50	3.	1.	1.	0.00	1175.69	12.50
HYDROGRAPH AT	R32S	158.	12.20	34.	10.	7.	0.00		
ROUTED TO	RT32S	152.	12.33	34.	10.	7.	0.00	1176.14	12.33
HYDROGRAPH AT	BAS42H	151.	12.30	29.	9.	6.	0.15		
4 COMBINED AT	CP42	708.	12.47	124.	37.	27.	2.86		
DIVERSION TO	32STH	363.	12.47	69.	21.	15.	2.86		
HYDROGRAPH AT	DIV42	345.	12.47	55.	16.	12.	2.86		
ROUTED TO	RT42W	341.	12.57	55.	16.	12.	2.86	1176.51	12.57
HYDROGRAPH AT	R31STH	41.	12.23	4.	1.	1.	0.00		
ROUTED TO	RT31S	34.	12.50	4.	1.	1.	0.00	1175.71	12.50
HYDROGRAPH AT	R29STH	9.	12.30	1.	0.	0.	0.00		
ROUTED TO	RT29S	9.	12.73	1.	0.	0.	0.00	1175.53	12.73
HYDROGRAPH AT	R28STH	5.	12.33	1.	0.	0.	0.00		
ROUTED TO	RT28S	4.	12.83	1.	0.	0.	0.00	1175.47	12.83
HYDROGRAPH AT	BAS49H	130.	12.30	25.	8.	6.	0.12		
5 COMBINED AT	CP49	476.	12.53	85.	25.	18.	2.98		

DIVERSION TO	28STH	225.	12.53	48.	15.	11.	2.98		
HYDROGRAPH AT	DIV49	251.	12.53	37.	10.	7.	2.98		
ROUTED TO	RT28W	247.	12.63	37.	10.	7.	2.98	1176.34	12.63
HYDROGRAPH AT	24SST	153.	12.27	33.	11.	8.	0.00		
DIVERSION TO	24PIPE	65.	12.27	20.	7.	5.	0.00		
HYDROGRAPH AT	24DIV	88.	12.27	13.	4.	3.	0.00		
ROUTED TO	R24SST	85.	12.40	13.	4.	3.	0.00	1175.94	12.40
HYDROGRAPH AT	R24PIP	65.	12.27	20.	7.	5.	0.00		
ROUTED TO	RT24PI	65.	12.33	20.	7.	5.	0.00		
HYDROGRAPH AT	BAS56H	181.	12.33	37.	11.	8.	0.20		
4 COMBINED AT	CP24	507.	12.53	106.	33.	24.	3.17		
DIVERSION TO	24CSTH	292.	12.53	68.	21.	15.	3.17		
HYDROGRAPH AT	DIV24	214.	12.53	39.	12.	8.	3.17		
ROUTED TO	RT24W	211.	12.67	39.	12.	8.	3.17	1176.27	12.67
HYDROGRAPH AT	R22ST	52.	12.33	9.	2.	2.	0.00		
ROUTED TO	RT22ST	50.	12.53	9.	2.	2.	0.00	1175.79	12.53
HYDROGRAPH AT	R20ST	86.	12.33	14.	4.	3.	0.00		
ROUTED TO	RT20ST	83.	12.43	14.	4.	3.	0.00	1175.93	12.43
HYDROGRAPH AT	BAS29H	182.	12.33	37.	12.	8.	0.16		
4 COMBINED AT	CP20	481.	12.47	97.	30.	21.	3.33		
DIVERSION TO	20CSTH	236.	12.47	59.	19.	13.	3.33		
HYDROGRAPH AT	DIV20	244.	12.47	38.	11.	8.	3.33		
DIVERSION TO	CAMPBL	122.	12.47	19.	5.	4.	3.33		
HYDROGRAPH AT	HIGHLD	122.	12.47	19.	5.	4.	3.33		
ROUTED TO	RTHIGH	121.	12.53	19.	5.	4.	3.33	1176.06	12.53
HYDROGRAPH AT	R18SPI	125.	12.13	31.	10.	7.	0.00		
ROUTED TO	R18SPA	125.	12.20	31.	10.	7.	0.00		
HYDROGRAPH AT	BAS40A	56.	12.23	10.	3.	2.	0.07		
4 COMBINED AT	CP40A	376.	12.43	65.	19.	14.	6.06		
DIVERSION TO	HIWEST	30.	12.43	22.	9.	6.	6.06		
HYDROGRAPH AT	CPHI18	346.	12.43	43.	11.	8.	6.06		
DIVERSION TO	18PIPA	125.	12.43	27.	7.	5.	6.06		
HYDROGRAPH AT	18SSTH	221.	12.43	16.	4.	3.	6.06		

ROUTED TO	RT18ST	215.	12.50	16.	4.	3.	6.06	1176.36	12.50
HYDROGRAPH AT	RT18HP	125.	12.07	27.	7.	5.	0.00		
ROUTED TO	RT18PA	125.	12.17	27.	7.	5.	0.00		
HYDROGRAPH AT	RCAMPB	122.	12.47	19.	5.	4.	0.00		
ROUTED TO	RDIV20	121.	12.53	19.	5.	4.	0.00	1176.06	12.53
HYDROGRAPH AT	BAS40B	56.	12.23	10.	3.	2.	0.07		
4 COMBINED AT	CP18	496.	12.50	72.	19.	14.	6.13		
DIVERSION TO	18PIPB	125.	12.50	37.	10.	8.	6.13		
HYDROGRAPH AT	18CAMP	371.	12.50	35.	9.	6.	6.13		
ROUTED TO	R18STB	368.	12.53	35.	9.	6.	6.13	1176.66	12.53
HYDROGRAPH AT	RT18HP	125.	12.03	37.	10.	8.	0.00		
ROUTED TO	RT18PB	126.	12.10	37.	10.	8.	0.00		
HYDROGRAPH AT	ROCCS	457.	12.70	199.	66.	48.	0.00		
ROUTED TO	RTOCCS	457.	12.73	199.	66.	48.	0.00	1177.16	12.73
DIVERSION TO	OCCS	409.	12.73	168.	55.	39.	0.00		
HYDROGRAPH AT	DIOCCS	49.	12.73	32.	11.	8.	0.00		
ROUTED TO	RTOCCA	48.	12.83	32.	11.	8.	0.00	1175.78	12.83
HYDROGRAPH AT	R9HSTH	181.	12.73	53.	17.	12.	0.00		
ROUTED TO	RT9HST	180.	12.87	53.	17.	12.	0.00	1176.20	12.87
HYDROGRAPH AT	BAS20H	197.	12.10	26.	8.	6.	0.14		
3 COMBINED AT	CP20H	256.	12.83	110.	36.	26.	0.14		
DIVERSION TO	20STH	140.	12.83	60.	20.	14.	0.14		
HYDROGRAPH AT	DIV20	115.	12.83	49.	16.	12.	0.14		
ROUTED TO	RT20W	114.	12.97	49.	16.	12.	0.14	1176.04	12.97
HYDROGRAPH AT	R40STR	145.	12.87	72.	30.	22.	0.00		
ROUTED TO	RT40S	144.	13.00	72.	30.	22.	0.00	1176.12	13.00
HYDROGRAPH AT	BAS27H	183.	12.30	35.	11.	8.	0.17		
3 COMBINED AT	CP27H	403.	12.27	156.	57.	41.	0.31		
DIVERSION TO	27STH	296.	12.27	136.	52.	37.	0.31		
HYDROGRAPH AT	DIV27H	106.	12.27	20.	5.	4.	0.31		
ROUTED TO	RT27W	104.	12.40	20.	5.	4.	0.31	1176.00	12.40
HYDROGRAPH AT	R36STH	156.	12.17	19.	5.	4.	0.00		
ROUTED TO	RT36ST	151.	12.37	19.	5.	4.	0.00	1176.14	12.37

HYDROGRAPH AT	BAS35H	157.	12.33	31.	10.	7.	0.19		
3 COMBINED AT	CP35H	409.	12.37	70.	20.	14.	0.50		
DIVERSION TO	35HSTH	245.	12.37	49.	14.	10.	0.50		
HYDROGRAPH AT	DIV35H	165.	12.37	21.	6.	4.	0.50		
ROUTED TO	RT35HW	161.	12.50	21.	6.	4.	0.50	1176.16	12.50
HYDROGRAPH AT	R32STH	363.	12.47	69.	21.	15.	0.00		
ROUTED TO	RT32ST	359.	12.57	69.	21.	15.	0.00	1176.54	12.57
HYDROGRAPH AT	BAS43H	194.	12.33	39.	12.	9.	0.22		
3 COMBINED AT	CP43H	682.	12.50	129.	39.	28.	0.71		
DIVERSION TO	43HSTH	370.	12.50	84.	26.	19.	0.71		
HYDROGRAPH AT	DIV43H	312.	12.50	45.	12.	9.	0.71		
ROUTED TO	RT43HW	308.	12.60	45.	12.	9.	0.71	1176.45	12.60
HYDROGRAPH AT	R28STH	225.	12.53	48.	15.	11.	0.00		
ROUTED TO	RT28ST	221.	12.63	48.	15.	11.	0.00	1176.29	12.63
HYDROGRAPH AT	BAS50H	168.	12.33	35.	11.	8.	0.21		
3 COMBINED AT	CP50H	654.	12.60	127.	38.	27.	0.92		
DIVERSION TO	50HSTH	291.	12.60	72.	23.	16.	0.92		
HYDROGRAPH AT	DIV50H	363.	12.60	55.	15.	11.	0.92		
ROUTED TO	RT50HW	359.	12.70	55.	15.	11.	0.92	1176.54	12.70
HYDROGRAPH AT	R24STH	292.	12.53	68.	21.	15.	0.00		
ROUTED TO	RT24ST	289.	12.63	68.	21.	15.	0.00	1176.42	12.63
HYDROGRAPH AT	BAS57H	216.	12.33	44.	13.	10.	0.25		
3 COMBINED AT	CP57H	785.	12.63	166.	50.	36.	1.17		
DIVERSION TO	57HSTH	416.	12.63	108.	35.	25.	1.17		
HYDROGRAPH AT	DIV57H	369.	12.63	58.	15.	11.	1.17		
ROUTED TO	RT57HW	366.	12.73	58.	15.	11.	1.17	1176.55	12.73
HYDROGRAPH AT	R20STH	236.	12.47	59.	19.	13.	0.00		
ROUTED TO	RT20ST	234.	12.60	59.	19.	13.	0.00	1176.32	12.60
HYDROGRAPH AT	BAS30H	181.	12.33	37.	11.	8.	0.25		
3 COMBINED AT	CP30H	708.	12.63	154.	45.	32.	1.42		
DIVERSION TO	30HSTH	345.	12.63	100.	32.	23.	1.42		
HYDROGRAPH AT	DIV30H	363.	12.63	54.	13.	10.	1.42		
DIVERSION TO	INDIAN	182.	12.63	27.	7.	5.	1.42		

HYDROGRAPH AT	DIV30A	182.	12.63	27.	7.	5.	1.42		
ROUTED TO	RTGLEN	181.	12.70	27.	7.	5.	1.42	1176.21	12.70
HYDROGRAPH AT	BAS41A	50.	12.23	8.	3.	2.	0.05		
4 COMBINED AT	CP41A	687.	12.57	107.	29.	21.	7.60		
DIVERSION TO	18PIPC	125.	12.57	43.	12.	9.	7.60		
HYDROGRAPH AT	18GLEN	562.	12.57	64.	16.	12.	7.60		
ROUTED TO	R18STC	560.	12.60	64.	16.	12.	7.60	1176.96	12.60
HYDROGRAPH AT	RT18GP	125.	12.03	43.	12.	9.	0.00		
ROUTED TO	RT18PC	125.	12.10	43.	12.	9.	0.00		
HYDROGRAPH AT	RINDIA	182.	12.63	27.	7.	5.	0.00		
ROUTED TO	RT30HW	181.	12.70	27.	7.	5.	0.00	1176.21	12.70
HYDROGRAPH AT	BAS41H	50.	12.23	8.	3.	2.	0.05		
4 COMBINED AT	CP41H	885.	12.60	143.	38.	27.	7.65		

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)
R1APIP	MANE	0.50	1.01	718.00	-1.00	2.00	1.01	718.00	-1.00
R1BPIP	MANE	1.06	23.57	724.29	1.87	2.00	23.54	724.00	1.87

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1599E+01 EXCESS=0.0000E+00 OUTFLOW=0.1599E+01 BASIN STORAGE=0.8032E-04 PERCENT ERROR= 0.0

R3PIPE	MANE	2.00	20.13	718.00	-1.00	2.00	20.13	718.00	-1.00
R2PIPE	MANE	1.25	48.99	727.84	-1.00	2.00	48.77	728.00	-1.00
R2APIP	MANE	1.25	47.83	729.46	-1.00	2.00	47.46	728.00	-1.00
R4PIPE	MANE	2.00	67.99	728.00	-1.00	2.00	67.99	728.00	-1.00
R6PIPW	MANE	2.00	65.03	728.00	-1.00	2.00	65.03	728.00	-1.00
RT5A	MANE	1.96	116.20	728.56	-1.00	2.00	116.07	728.00	-1.00
RT36PI	MANE	2.00	27.07	718.00	-1.00	2.00	27.07	718.00	-1.00
RT23PI	MANE	2.00	13.01	714.00	-1.00	2.00	13.01	714.00	-1.00
RT34PI	MANE	2.00	36.53	718.00	-1.00	2.00	36.53	718.00	-1.00
RT13PA	MANE	2.00	17.02	714.00	-1.00	2.00	17.02	714.00	-1.00
RT14PA	MANE	2.00	34.35	734.00	-1.00	2.00	34.35	734.00	-1.00
RT20PA	MANE	2.00	96.61	742.00	-1.00	2.00	96.61	742.00	-1.00

RT9PIP	MANE	1.81	104.63	733.80	-1.00	2.00	104.57	734.00	-1.00
RT26PI	MANE	2.00	56.12	654.00	-1.00	2.00	56.12	654.00	-1.00
RT24PI	MANE	2.00	65.13	740.00	-1.00	2.00	65.13	740.00	-1.00
R18SPA	MANE	1.80	125.10	730.23	-1.00	2.00	125.02	732.00	-1.00
RT18PA	MANE	1.30	125.32	726.70	-1.00	2.00	125.00	730.00	-1.00
RT18PB	MANE	1.77	126.10	725.36	-1.00	2.00	125.57	726.00	-1.00
RT18PC	MANE	1.77	125.86	725.36	-1.00	2.00	125.45	726.00	-1.00

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

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              MAY   1991              *
*           VERSION 4.0.1E             *
*     Lahey F77L-EM/32 version 5.01    *
*       Dodson & Associates, Inc.      *
*  RUN DATE  04/15/98  TIME  11:52:47  *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 551-1748             *
*                                      *
****************************************
```

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

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

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

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

  1           ID       SR 51 Offsite Hydrology (sr51E.dat)
  2           ID       50-year 24-hour Storm -(Burgess & Niple, HNTB orginal model)
  3           ID       SQUAW PEAK FREEWAY INDIAN SCHOOL ROAD TO BETHANY HOME ROAD
  4           ID       Model modified to determine flow at 1/4 mile St. (Highland and Turney)
  5           ID       CHECK MODEL FOR SR51D.DAT (VERIFY BN & HNTB PARAMETERS) MINOR CHANGES
  6           ID       RESERVOIR AT 18TH STREET & HIGHLAND AVENUE
  7           ID       DETENTION BASINS ADDED AT HIGHLAND, CAMPBELL AND GLENROSA
  8           ID       18TH STREET PIPE REMOVED BETWEEN HIGHLAND AND GLENROSA
              *DIAGRAM
  9           IT       2                    1000
 10           IN      15
 11           IO       5       0       0

 12           KK   BAS1A
 13           KM       Runoff from Basin 1A (All Maryland Avenue Flows Siphoned Under Freeway)
              * PB  3.57 original PB
 14           PB    3.57
 15           PC       0    .002    .005    .008    .011    .014    .017    .020    .023    .026
 16           PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
 17           PC    .064    .068    .072    .076     .08    .085    .090    .095    .100    .105
 18           PC     .11    .115    .120    .126    .133    .140    .147    .155    .163    .172
 19           PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
 20           PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
 21           PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
 22           PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
 23           PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
 24           PC    .983    .986    .989    .992    .995    .998    1.00
 25           BA   .0213
 26           LS       0   74.93
 27           UD    .106
              *

 28           KK    BAS1
 29           KM       Runoff from Basin 1 (Flows Contributing to Rose Lane and 18th Street)
 30           BA   .0461
 31           LS            68.7
 32           UD     .11

 33           KK   DIV1A
 34           KM       Divide flow into the siphon (west) and 18th Street (south)
 35           DT   1SIPH
 36           DI       0      10      16      30      40      50
 37           DQ       0      10      10      10      10      10

 38           KK  DIV1AP
 39           KM       Divide flows into pipe flow (south) & street flow (south) along 18th
 40           DT  1APIPE
 41           DI       0      10      20      40      60
 42           DQ       0       1       1       1       1
```

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

  43          KK  R1ASTR
  44          KM       Route street flow from Rose Lane to Bethany Home along 18th St.(south)
  45          RS      18    FLOW
  46          RC    .035    .016    .035    1660    .011
  47          RX     110     120   139.5     140     170   170.5     190     200
  48          RY  1177.4  1176.5    1176  1175.4  1175.4    1176  1176.5  1177.4

  49          KK  1APIPE
  50          KM       Retrieve pipe flow at Rose Lane and 18th Street
  51          DR  1APIPE

  52          KK  R1APIP
  53          KM       Route storm drain flow from Rose Lane to Rovey (south)
  54          RD    1100    .008    .013            CIRC    1.75

  55          KK  SR51FL
  56          KM       Dummy basin to simulate SR-51 flow contributing to 18th Street pipe
  57          BA    .016
  58          LS              82
  59          UD     .14

  60          KK  CPSR51
  61          KM       Combine hydrographs near Rovey (onsite & offsite)
  62          HC       2

  63          KK  R1BPIP
  64          KM       Route storm drain flow from Rovey to Bethany Home (south)
  65          RD     560    .008    .013            CIRC    2.00
              *

  66          KK    BAS3
  67          KM       Runoff from Basin 3 (Contributes Flow to Bethany Home & 20th St.)
  68          BA   .0238
  69          LS           85.54
  70          UD     .14

  71          KK    DIV3
  72          KM       Divide flows into pipe flow (west) & Street flow at 20th & Bethany
  73          DT   3PIPE
  74          DI       0      10      20      40      60      80     100     200
  75          DQ       0      10      20      20      20      20      20      20

  76          KK   DIV3A
  77          KM       Divide street flows into west (Bethany Home) and south (20th St.)
  78          DT  3SOUTH
  79          DI       0      10      20      40      60      80     100     200
  80          DQ       0       5      10      20      30      40      50     100

  81          KK  R3STRW
  82          KM       Route street flow from 20th to 18th along Bethany Home (west)
  83          RS       4    FLOW
  84          RC    .035    .016    .035    1320    .005
  85          RX     110     120   139.5     140     170   170.5     190     200
  86          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              *
```

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

  87          KK    BAS2
  88          KM       Runoff from Basin 2 (Contributes Flow to Bethany Home & 18th St.)
  89          BA   .0202
  90          LS           93.25
  91          UD     .18

  92          KK   3PIPE
  93          KM       Retrieve pipe flow at Bethany and 20th St.
  94          DR   3PIPE

  95          KK  R3PIPE
  96          KM       Route storm drain flow from 20th to 18th along Bethany Home (west)
  97          RD    1320    .005    .013            CIRC    1.75

  98          KK     CP2
  99          KM       Combine Hydrographs
 100          HC       5

 101          KK    DIV2
 102          KM       Divide flow at Bethany Home into siphon (west) and pipe (south)
 103          DT   2SIPH
 104          DI       0      10      16      40      62     100     200
 105          DQ       0      10      16      40      50      50      50

 106          KK   DIV2A
 107          KM       Divide flows into pipe south and street south
 108          DT   2PIPE
 109          DI       0      10      16      40      62     100     160
 110          DQ       0      10      16      40      52      52      52

 111          KK   R2STR
 112          KM       Route street flow from Bethany Home to Montebello (along 18th)
 113          RS       4    FLOW
 114          RC    .035    .016    .035    1320    .005
 115          RX     110     120     138     140     170     172     190     200
 116          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 117          KK   2PIPE
 118          KM       Retrieve pipe flow at Bethany Home & 18th St.
 119          DR   2PIPE

 120          KK  R2PIPE
 121          KM       Route pipe flow from Bethany Home to & Montebello (along 18th St.)
 122          RD     660    .005    .013            CIRC     2.5

 123          KK  R2APIP
 124          KM       Route pipe flow from Bethany Home to & Montebello (along 18th St.)
 125          RD     660    .005    .013            CIRC    2.75
              *
```

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

 126          KK    BAS4
 127          KM       Runoff from basin 4 (contributes to Montebello & 18th St.)
 128          BA   .0192
 129          LS           94.29
 130          UD     .13

 131          KK     CP4
 132          KM       Combine hydrographs at 18th & Montebello
 133          HC       3

 134          KK    DIV4
 135          KM       Divide flow into street and pipe at 18th (south)
 136          DT   4PIPE
 137          DI       0      20      36      80     170     320
 138          DQ       0      20      36      70      70      70

 139          KK   R4STR
 140          KM       Route street flow from Montebello to Missouri (along 18th St.)
 141          RS       4    FLOW
 142          RC    .035    .016    .035    1320    .006
 143          RX     110     120   139.5     140     170   170.5     190     200
 144          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 145          KK   4PIPE
 146          KM       Retrieve pipe flow at Montebello & 18th St.
 147          DR   4PIPE

 148          KK  R4PIPE
 149          KM       Route 4pipe flows from Montebello to Missouri (along 18th St.)
 150          RD    1320    .005    .013            CIRC     3.5
              *

 151          KK    BAS7
 152          KM       Runoff from Basin 7 (Contributes Flow to Montebello & 22nd)
 153          BA   .0752
 154          LS           79.87
 155          UD     .15

 156          KK   RBAS7
 157          KM       Route runoff from Basin 7 to 22nd & Missouri
 158          RS       4    FLOW
 159          RC    .035    .016    .035    1320    .005
 160          RX     110     120   139.5     140     170   170.5     190     200
 161          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              *

 162          KK    BAS8
 163          KM       Runoff from basin 8 (Contributes Flow to Missouri & 22nd)
 164          BA   .0638
 165          LS           80.73
 166          UD     .19
```

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

 167          KK     CP8
 168          KM       Combine hydrographs (bas7 & bas8)
 169          HC       2

 170          KK    8DIV
 171          KM       Divide flows from basin 8 (street flow south & west)
 172          DT  8SOUTH
 173          DI       0      20      40      80     167     320     640
 174          DQ       0       4       8      16      31      60     130

 175          KK  R8STRW
 176          KM       Route flows from 22nd St. to 20th Street along Missouri (west)
 177          RS       4    FLOW
 178          RC    .035    .016    .035    1320    .005
 179          RX     110     120   139.5     140     170   170.5     190     200
 180          RY  1177.4  1176.5  1176.5  1175.4  1175.4  1176.5  1176.5  1177.4
              *

 181          KK    BAS6
 182          KM       Runoff from basin 6 (contributes flow to Missouri & 20th St)
 183          BA   .0328
 184          LS           88.58
 185          UD     .14

 186          KK  3SOUTH
 187          KM       Retrieve street flow from 20th St. & Bethany Home
 188          DR  3SOUTH

 189          KK   R3STH
 190          KM       Route street flow from Bethany Home to Missouri along 20th (south)
 191          RS       6    FLOW
 192          RC    .035    .016    .035    2675    .005
 193          RX     110     120   139.5     140     170   170.5     190     200
 194          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 195          KK     CP6
 196          KM       Combine Hydrographs
 197          HC       3

 198          KK    6DIV
 199          KM       Divide flow into street and pipe going west along Missouri
 200          DT   6PIPE
 201          DI       0      20      40      80     170     320     640
 202          DQ       0      20      40      50      65      65      65

 203          KK   DIV6A
 204          KM       Divide Street flow west along Missouri south along 20th
 205          DT  6SOUTH
 206          DI       0      20      40      80     130     320     640
 207          DQ       0      14      28      65     100     240     450
```

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

 208          KK  R6STRW
 209          KM       Route street flow from 20th St. to 18th St  along Missouri (west)
 210          RS       4    FLOW
 211          RC    .035    .016    .035    1320    .005
 212          RX     110     120   139.5     140     170   170.5     190     200
 213          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 214          KK   6PIPE
 215          KM       Retrieve pipe flow from 20th St. & Missouri
 216          DR   6PIPE

 217          KK  R6PIPW
 218          KM       Route pipe flow from 20th St. to 18th St. along Missouri (west)
 219          RD    1320    .004    .013            CIRC    3.25
              *

 220          KK    BAS5
 221          KM       Runoff from basin 5 (contributes to 18th St. & Missouri)
 222          BA   .0231
 223          LS           91.81
 224          UD     .20

 225          KK     CP5
 226          KM       Combine hydrographs
 227          HC       5

 228          KK    5DIV
 229          KM       Divide flow into street and pipe going south along 18th St
 230          DT   5PIPE
 231          DI       0      20      36      90     170     320
 232          DQ       0      20      36      90     116     116

 233          KK  5DIVST
 234          KM       Divide flow into street west (Missouri) & street south (18th)
 235          DT   5MISS
 236          DI       0      20      40      80     120     160
 237          DQ       0      10      20      44      66      88

 238          KK  R5STRS
 239          KM       Route street flow from Missouri to Colter along 18th St. (south)
 240          RS       4    FLOW
 241          RC    .035    .016    .035    1320    .007
 242          RX     110     120   139.5     140     170   170.5     190     200
 243          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 244          KK  8SOUTH
 245          KM       Retrieve street flow from Missouri and 22nd St.
 246          DR  8SOUTH
```

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

 247          KK   R8STH
 248          KM        Route flow from Missouri & 22nd St to Colter & 20th St
 249          RS        6    FLOW
 250          RC    .035    .016    .035    2680    .005
 251          RX     110     120   139.5     140     170   170.5     190     200
 252          RY  1177.4  1176.5    1176  1175.4  1175.4    1176  1176.5  1177.4

 253          KK   BAS10
 254          KM        Runoff from Basin 10 (contributes flow to 20th & Colter)
 255          BA    .042
 256          LS              83
 257          UD     .25

 258          KK  6SOUTH
 259          KM        Retrieve street flow from Missouri & 20th St.
 260          DR  6SOUTH

 261          KK   6STRS
 262          KM        Route 6south flows to 20th & Colter
 263          RS        4    FLOW
 264          RC    .035    .016    .035    1320    .005
 265          RX     110     120   139.5     140     170   170.5     190     200
 266          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 267          KK    CP10
 268          KM        Combine hydrographs at 20th & Colter
 269          HC        3

 270          KK   DIV10
 271          KM        Divide flow west along Colter & south along 20th
 272          DT   10STH
 273          DI        0      20      40      60      80     135     155     310
 274          DQ        0      14      28      42      55      88     105     210

 275          KK    RT10
 276          KM        Route flows from CP10 to 18th Street & Colter
 277          RS        4    FLOW
 278          RC    .035    .016    .035    1320    .007
 279          RX     110     120   139.5     140     170   170.5     190     200
 280          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              *

 281          KK    BAS9
 282          KM        Runoff from basin 9
 283          BA   .0398
 284          LS          76.78
 285          UD     .17

 286          KK   5PIPE
 287          KM        Retrieve flows from 5pipe
 288          DR   5PIPE
```

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

 289          KK    RT5A
 290          KM       Route 5pipe flows to 18th & Colter
 291          RD    1320    .005    .013            CIRC     4.5

 292          KK     CP9
 293          KM       Combine hydrographs from Basin 9 & 18th Street pipe
 294          HC       2

 295          KK    CP9A
 296          KM       Combine hydrographs at 18th Street & Colter
 297          HC       3

 298          KK    DIV9
 299          KM       Divide flows between siphon to Colter Basin & south to 18th & Camelback
 300          KM       DIV9 MOVED FROM BELOW CP9 TO BELOW CP9A AND DIVERSION CHANGED
 301          KM       FROM 45 CFS TO 100 CFS MAXIMUM BY MALUECKER 4/7/98.
 302          DT  COLTER
 303          DI       0      20      40      60      80     100     200     300
              * DQ     0      10      20      30      40      45      45      45
 304          DQ       0      15      40      60      80     100     100     100

 305          KK   DIV9A
 306          KM       Divide flows between pipe & street at 18th & Colter
 307          DT   9PIPE
 308          DI       0      20      40      60      80     100     200     300
 309          DQ       0      20      40      60      80     100     116     116

 310          KK     RT9
 311          KM       Route flow from 18th & Colter to 18th & Camelback
 312          RS       4    FLOW
 313          RC    .035    .016    .035    1320    .007
 314          RX     110     120   139.5     140     170   170.5     190     200
 315          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              *      DECREASE UD FROM 0.37 TO 0.29

 316          KK   BAS27
 317          KM       Runoff from basin 27 (north of Arizona canal)
 318          BA  1.4166
 319          LS            85.6
 320          UD     .29

 321          KK   DIV27
 322          KM       Divert flows at the Arizona Canal
 323          DT   CANAL
 324          DI       0     100     200     400     800    1400    1600    3200
 325          DQ       0     100     200     200     405     490     720    1440

 326          KK    RT27
 327          KM       Route flows from Arizona Canal to 38th Street & Camelback Road
 328          RS       3    FLOW
 329          RC    .030    .016    .030    1320    .015
 330          RX     110     120     138     140     300     302     320     330
 331          RY   177.9    1176    1176  1175.4  1175.4    1176    1176  1177.9
```

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

 332          KK   DIV38
 333          KM        Divide flows along Camelback (west) & 38th Street (south)
 334          DT   38STH
 335          DI        0     100     200     400     925    1600
 336          DQ        0      40      80     175     380     650

 337          KK    38RT
 338          KM        Route flow from 38th Street to 37th Street
 339          RS        2    FLOW
 340          RC     .030    .016    .030     660    .008
 341          RX       90     110   119.5     120     192   192.5     202     222
 342          RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 343          KK   37STH
 344          KM        Divide flows along Camelback (west) & 37th Street (south)
 345          DT   37STH
 346          DI        0     100     200     400     545     800
 347          DQ        0      35      70     130     185     280

 348          KK    37RT
 349          KM        Route flow from 37th Street to 36th Street
 350          RS        2    FLOW
 351          RC     .030    .016    .030     700    .008
 352          RX       90     110   119.5     120     192   192.5     202     222
 353          RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              *

 354          KK   BAS26
 355          BA   .0658
 356          LS           84.29
 357          UD     .14

 358          KK    26CP
 359          KM        Combine hydrographs
 360          HC        2

 361          KK   36DIV
 362          KM        Divide flows Camelback (west) and 36th Street (south)
 363          DT   36STH
 364          DI        0      20      40      80     160     320     640
 365          DQ        0       8      16      24      64     120     250

 366          KK  36PIPE
 367          KM        Divide flows at 36th & Camelback pipe (west) and street (west)
 368          DT  36PIPE
 369          DI        0      10      20      40      80     160     320     640
 370          DQ        0      10      20      27      27      27      27      27

 371          KK    26RT
 372          KM        Route flows from 36th Street to 35th Place
 373          RS        2    FLOW
 374          RC     .030    .016    .030     430    .008
 375          RX       90     110   119.5     120     192   192.5     202     222
 376          RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
```

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

 377          KK  35PDIV
 378          KM      Divide flows Camelback (west) and 35th Place (south)
 379          DT  35PSTH
 380          DI       0      20      40      80     160     320     640
 381          DQ       0       4       6      12      25      50      96

 382          KK   26ART
 383          KM      Route flows from 35th Place to 35th Street
 384          RS       1    FLOW
 385          RC    .030    .016    .030     220    .008
 386          RX      90     110   119.5     120     192   192.5     202     222
 387          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 388          KK  35SSTH
 389          KM      Divide flow at Camelback Road (west) & 35 Street (south)
 390          DT  35SSTH
 391          DI       0      20      40      60     100     200     300
 392          DQ       0       4       6       9      16      32      45

 393          KK   26BRT
 394          KM      Route flows from 35th Street to 34th Place
 395          RS       2    FLOW
 396          RC    .030    .016    .030     710    .008
 397          RX      90     110   119.5     120     192   192.5     202     222
 398          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              *

 399          KK  36PIPE
 400          KM      Retrieve flow from 36th Street pipe
 401          DR  36PIPE

 402          KK  RT36PI
 403          KM      Route flows in storm drain along Camelback to 34th Street
 404          RD    1320    .005    .012            CIRC    2.25

 405          KK   BAS25
 406          KM      Runoff from basin 25
 407          BA   .0202
 408          LS           86.65
 409          UD     .15

 410          KK    CP25
 411          KM      Combine hydrographs
 412          HC       3
              *

 413          KK  34PSTH
 414          KM      Divide flow at Camelback Road (west) & 34 Place (south)
 415          DT  34PSTH
 416          DI       0      20      40      60      80     100     200
 417          DQ       0       2       4       6       8      10      16
              *
```

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

 418          KK   34DIV
 419          KM        Divide flow into pipe (west) and street (west)
 420          DT   34PIPE
 421          DI        0       10       20       40       80      160      320      640
 422          DQ        0       10       20       36       36       36       36       36

 423          KK   RT34ST
 424          KM        Route street flow from 34th Street to 32nd Place
 425          RS        2     FLOW
 426          RC     .030     .016     .030      870     .008
 427          RX       90      110    119.5      120      192    192.5      202      222
 428          RY   1177.4     1176     1176   1175.4   1175.4     1176     1176   1177.4

 429          KK   32DIV
 430          KM        Divide flow at 32nd Place (west) & street (south)
 431          DT   32PSTH
 432          DI        0       30       60      120      180      320      640
 433          DQ        0        7       12       28       34       55      100

 434          KK    32RT
 435          KM        Route flow from 32nd Place & Camelback to 32nd Street & Camelback
 436          RS        2     FLOW
 437          RC     .030     .016     .030      500     .008
 438          RX       90      110    119.5      120      192    192.5      202      222
 439          RY   1177.4     1176     1176   1175.4   1175.4     1176     1176   1177.4

 440          KK   BAS23
 441          KM        Runoff from basin 23 (between 32nd and 36th north of Camelback)
 442          BA    .0474
 443          LS            84.89
 444          UD      .18

 445          KK   23DIV
 446          KM        Divide flow into pipe and street
 447          DT   23PIPE
 448          DI        0       10       20       40       60       80
 449          DQ        0       10       13       13       13       13

 450          KK    23RT
 451          KM        Route street flow to 32nd St. and Camelback Road
 452          RS        4     FLOW
 453          RC     .035     .016     .035     1495     .004
 454          RX      110      120      138      140      170      172      190      200
 455          RY   1177.4     1176     1176   1175.4   1175.4     1176     1176   1177.4

 456          KK   R23PI
 457          KM        Retrieve 23pipe flows
 458          DR   23PIPE
```

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

 459          KK  RT23PI
 460          KM       Route pipe flow to 32nd Street and Camelback Road
 461          RD    1495    .004    .013            CIRC    1.75
              *      UD adjusted .17 - .24
              *      CN increased from 79.36 to 82.36

 462          KK   BAS24
 463          KM       Runoff from Basin 24 (32nd Street & Camelback)
 464          BA   .0943
 465          LS           79.36
 466          UD     .17

 467          KK    RT34
 468          KM       Retrieve flow from pipe at 32nd & Camelback Road
 469          DR  34PIPE

 470          KK  RT34PI
 471          KM       Route flows 34pipe to 32nd Street and Camelback Road
 472          RD    1370   .0066    .012            CIRC     2.5

 473          KK    CP32
 474          KM       Combine Hydrographs
 475          HC       5

 476          KK  32SDIV
 477          KM       Divide flow at 32nd Street & Camelback (west and south)
 478          DT  32SSTH
 479          DI       0      20      40      80     160     278     640
 480          DQ       0      20      40      70     106     156     303

 481          KK  RT32DI
 482          KM       Route flows from 32nd Street to 31st Street along Camelback
 483          RS       3    FLOW
 484          RC    .030    .016    .030     890    .007
 485          RX      90     110   119.5     120     192   192.5     202     222
 486          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 487          KK  31SDIV
 488          KM       Divide flow at 31st Street & Camelback (west and south)
 489          DT  31SSTH
 490          DI       0      30      60      90     120     240     480
 491          DQ       0      10      20      30      40      80     160

 492          KK  RT31DI
 493          KM       Route flows from 31st Street to 29th Street along Camelback
 494          RS       3    FLOW
 495          RC    .030    .016    .030    1050    .009
 496          RX      90     110   119.5     120     192   192.5     202     222
 497          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
```

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

 498          KK  29SDIV
 499          KM       Divide flow at 29th Street & Camelback (west and south)
 500          DT  29SSTH
 501          DI       0      10      20      40      80     160     320
 502          DQ       0       2       4       9       9      10      10

 503          KK  RT29DI
 504          KM       Route flows from 29th Street to 28th Street along Camelback
 505          RS       2    FLOW
 506          RC    .030    .016    .030     670    .009
 507          RX      90     110   119.5     120     192   192.5     202     222
 508          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 509          KK  28SDIV
 510          KM       Divide flow at 28th Street & Camelback (west and south)
 511          DT  28SSTH
 512          DI       0      10      20      40      80     160
 513          DQ       0       1       2       4       5       7

 514          KK  RT28DI
 515          KM       Route flows from 28th Street to 24th Street along Camelback
 516          RS       6    FLOW
 517          RC    .030    .016    .030    2640    .010
 518          RX      90     110   119.5     120     192   192.5     202     222
 519          RY  1177.4  1176.5    1176  1175.4  1175.4    1176  1176.5  1177.4
              * CURVE NUMBER INCREASED FROM 64.44 TO 66 .33 to .24

 520          KK   BAS17
 521          KM       Runoff from basin 17
 522          BA   .1645
 523          LS             66
 524          UD     .24

 525          KK    RT17
 526          KM       Route flows from Basin 17 to 24th Street and Camelback Road
 527          RS       6    FLOW
 528          RC    .030    .016    .030    2475    .009
 529          RX      90     110   119.5     120     192   192.5     202     222
 530          RY  1177.4  1176.5    1176  1175.4  1175.4    1176  1176.5  1177.4
              *      UD increased from .19 to .22 LS increased from 73 to 75

 531          KK   BAS13
 532          KM       Runoff from Basin 13
 533          BA   .1336
 534          LS             74
 535          UD     .20

 536          KK   13DIV
 537          KM       Divide flow from basin 13 into pipe (south) & street (south)
 538          DT  13PIPE
 539          DI       0      10      20      30      60      90     120     150
 540          DQ       0       8      17      17      17      17      17      17
```

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

 541          KK    RT13
 542          KM       Route flows from Basin 13 to 1/4 mile north of Camelback
 543          RS       4    FLOW
 544          RC    .035    .016    .035    1390    .004
 545          RX     110     120     138     140     170     172     190     200
 546          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 547          KK  R13PIP
 548          KM       Retrieve flow from 13pipe
 549          DR  13PIPE

 550          KK  RT13PA
 551          KM       Route flow from 13pipe to 1/4 mile north of Camelback
 552          RD    1390    .004    .013            CIRC    1.75
              *      UD increased from .30 to .32 LS 71 to 73

 553          KK   BAS14
 554          KM       Runoff from basin 14
 555          BA    .089
 556          LS              73
 557          UD     .30

 558          KK    CP14
 559          KM       Combine Hydrographs
 560          HC       3

 561          KK   14DIV
 562          KM       Divide flow from basin 14 into pipe (south) & street (south)
 563          DT  14PIPE
 564          DI       0      10      20      30      60      80     160     240
 565          DQ       0       8      13      16      24      30      34      40

 566          KK    RT14
 567          KM       Route flows from Basin 14 to 24th Street and Camelback
 568          RS       3    FLOW
 569          RC    .030    .016    .030    1040    .004
 570          RX     110     120     138     140     170     172     190     200
 571          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 572          KK  R14PIP
 573          KM       Retrieve flow from 14pipe
 574          DR  14PIPE

 575          KK  RT14PA
 576          KM       Route flow from 14pipe to 24th Street and Camelback
 577          RD    1040    .004    .013            CIRC    2.25
              *      LAG TIME INCREASED FROM .21 TO .38 LS increased 73.8 to 82

 578          KK   BAS15
 579          KM       Runoff from Basin 15
 580          BA   .1014
 581          LS              82
 582          UD     .38
```

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

 583          KK    CP24
 584          KM       Combine Hydrographs
 585          HC       5

 586          KK   24DIV
 587          KM       Divide flows at 24th Street & Camelback pipe (south) & street
 588          DT   24SST
 589          DI       0      20      40      80     160     320     400
 590          DQ       0      17      32      36      75     150     190

 591          KK    RT24
 592          KM       Route flows from 24th Street & Camelback to 22nd Street & Camelback
 593          RS       4    FLOW
 594          RC    .035    .016    .035    1340    .005
 595          RX      90     110   119.5     120     192   192.5     202     222
 596          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 597          KK   BAS12
 598          KM       Runoff from basin 12
 599          BA   .0324
 600          LS           76.18
 601          UD     .16

 602          KK    CP12
 603          KM       Combine hydrographs at 22nd and Camelback
 604          HC       2

 605          KK   22DIV
 606          KM       Divide flows at 22th Street & Camelback street (south) & street (west)
 607          DT   22STH
 608          DI       0      20      40      80     170     275     360
 609          DQ       0       7      12      25      48      80     108

 610          KK    RT22
 611          KM       Route flows from 22nd Street & Camelback to 20th Street & Camelback
 612          RS       4    FLOW
 613          RC    .035    .016    .035    1320    .005
 614          RX      90     110   119.5     120     192   192.5     202     222
 615          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 616          KK   R10ST
 617          KM       Retrieve flows from hydrograph 10sth (split at 20th & Colter)
 618          DR   10STH

 619          KK  RT10ST
 620          KM       Route flows from 20th & Colter to 20th & Camelback
 621          RS       4    FLOW
 622          RC    .035    .016    .035    1320    .005
 623          RX     110     120     138     140     170     172     190     200
 624          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
```

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

 625          KK   BAS11
 626          KM       Runoff from basin 11
 627          BA   .0380
 628          LS              78
 629          UD     .16

 630          KK    CP20
 631          KM       Combine hydrographs at 20th & Camelback
 632          HC       3

 633          KK   20DIV
 634          KM       Divide flows at 20th & Camelback (street south street west)
 635          DT   20STH
 636          DI       0      20      40      80     160     227     360
 637          DQ       0       8      16      32      60      80     154

 638          KK   20PIP
 639          KM       Divide flows at 20th & Camelback (pipe west & street west)
 640          DT  20PIPE
 641          DI       0      20      40      80     160     260
 642          DQ       0      20      40      40      40      40

 643          KK    RT20
 644          KM       Route street flows from 20th & Camelback to 18th & Camelback
 645          RS       4    FLOW
 646          RC    .035    .016    .035    1320    .005
 647          RX      90     110   119.5     120     192   192.5     202     222
 648          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 649          KK  R20PIP
 650          KM       Retrieve flow from 20pipe
 651          DR  20PIPE

 652          KK  RT20PA
 653          KM       Route flows from 20pipe to 18th & Camelback
 654          RD    1320    .005    .013            CIRC    2.75

 655          KK   9PIPE
 656          KM       Retrieve flows from 5pipe
 657          DR   9PIPE

 658          KK  RT9PIP
 659          KM       Route 9pipe flows to 18th & Camelback
 660          RD    1320    .007    .013            CIRC     3.5

 661          KK   BAS28
 662          KM       Runoff from basin 28
 663          BA   .0579
 664          LS           77.88
 665          UD     .19
```

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

 666          KK    CP18
 667          KM       Combine hydrographs at 18th & Camelback
 668          HC       5

 669          KK   18DIV
 670          KM       Divide flow at 18th & Camelback between pipe (south) & street (west)
 671          DT  18SPIP
 672          DI       0     100     200     300     400     500    1000
 673          DQ       0     100     125     125     125     125     125

 674          KK  18DIVA
 675          KM       Divide flow at 18th & Camelback between street (west) & alley (south)
 676          DT  CAMELW
 677          DI       0     100     200     300     400     500
 678          DQ       0      50      50      50      50      50

 679          KK  RTMALL
 680          KM       Route flow south through Colonade Mall to 18th & Highland
 681          RS       6    FLOW
 682          RC    .016    .016    .016    1320    .004
 683          RX     100     150     195     200     300     305     350     400
 684          RY     102   101.5     101   100.3   100.3     101   101.5     102

 685          KK   BAS1H
 686          KM       Runoff from HNTB basin 1
 687          BA    .593
 688          LS            82.6
 689          UD    1.01

 690          KK    RT1H
 691          KM       Route flow from HNTB basin 1 to HNTB basin 2
 692          RS       6    FLOW
 693          RC    .040    .035    .040    1440   .0008
 694          RX      70      90     110     140     240     270     290     310
 695          RY    1009    1006    1003    1000    1000    1003    1006    1009

 696          KK   BAS2H
 697          KM       Runoff from HNTB basin 2
 698          BA    .219
 699          LS            84.2
 700          UD     .67

 701          KK    CP2H
 702          KM       Combine hydrographs
 703          HC       2

 704          KK    RT2H
 705          KM       Route flow from HNTB basin 2 to HNTB basin 3
 706          RS       6    FLOW
 707          RC    .040    .035    .040    2045   .0008
 708          RX      70      90     110     140     240     270     290     310
 709          RY    1009    1006    1003    1000    1000    1003    1006    1009
```

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

 710          KK   BAS3H
 711          KM       Runoff from HNTB basin 3
 712          BA    .179
 713          LS            87.6
 714          UD     .67

 715          KK    CP3H
 716          KM       Combine hydrographs
 717          HC       2

 718          KK    RT3H
 719          KM       Route flow from HNTB basin 3 to HNTB basin 4
 720          RS       6    FLOW
 721          RC    .040    .035    .040    2465   .0008
 722          RX      70      90     110     140     240     270     290     310
 723          RY    1009    1006    1003    1000    1000    1003    1006    1009

 724          KK   BAS4H
 725          KM       Runoff from HNTB basin 4
 726          BA    .374
 727          LS            87.0
 728          UD     .68

 729          KK    CP4H
 730          KM       Combine hydrographs at CP 4
 731          HC       2

 732          KK   DIV4H
 733          KM       Divide flow at HNTB basin 4 west along canal & south
 734          DT   4HSTH
 735          DI       0     150     300     542     800
 736          DQ       0      92     185     333     488

 737          KK    RT4H
 738          KM       Route flow from HNTB basin 4 to HNTB basin 5
 739          RS       6    FLOW
 740          RC    .040    .035    .040    2400   .0002
 741          RX      70      90     110     140     240     370     490     610
 742          RY    1009    1006    1003    1000    1000    1003    1006    1009

 743          KK   BAS5H
 744          KM       Runoff from HNTBbasin 5
 745          BA    .183
 746          LS            84.1
 747          UD     .66

 748          KK    CP5H
 749          KM       Combine hydrographs
 750          HC       2
```

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

 751          KK    RT5H
 752          KM       Route flow from HNTB basin 5 to HNTB basin 6
 753          RS       6    FLOW
 754          RC    .040    .035    .040    1625    .002
 755          RX     110     120     138     140     170     172     190     200
 756          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 757          KK   BAS6H
 758          KM       Runoff from HNTB basin 6
 759          BA    .194
 760          LS            86.4
 761          UD     .61

 762          KK    CP6H
 763          KM       Combine hydrographs at CP 6
 764          HC       2

 765          KK    RT6H
 766          KM       Route flow from HNTB basin 6 to HNTB basin 7
 767          RS       6    FLOW
 768          RC    .040    .035    .040    1625    .002
 769          RX     110     120     138     140     170     172     190     200
 770          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 771          KK   BAS7H
 772          KM       Runoff from HNTB basin 7
 773          BA    .305
 774          LS            86.5
 775          UD     .67

 776          KK    CP7H
 777          KM       Combine hydrographs at CP 7
 778          HC       2

 779          KK   DIV7H
 780          KM       Divide flow at HNTB basin 7 west along canal & south
 781          DT    OCCS
 782          DI       0     150     300     500     800    1300
 783          DQ       0     145     286     486     786    1286

 784          KK    RT7H
 785          KM       Route flow from HNTB basin 7 to HNTB basin 8
 786          RS       6    FLOW
 787          RC    .045    .040    .045    2750   .0008
 788          RX      70      90     110     140     240     370     490     610
 789          RY    1009    1006    1003    1000    1000    1003    1006    1009

 790          KK   BAS8H
 791          KM       Runoff from HNTB basin 8
 792          BA    .140
 793          LS            84.6
 794          UD     .56
```

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

 795          KK    CP8H
 796          KM       Combine hydrographs at CP 8
 797          HC       2

 798          KK    RT8H
 799          KM       Route flow from HNTB basin 8 to HNTB basin 9
 800          RS       6    FLOW
 801          RC    .045    .040    .045    1300   .0005
 802          RX      70      90     110     140     240     370     490     610
 803          RY    1009.   1006    1003    1000    1000    1003    1006    1009

 804          KK   BAS9H
 805          KM       Runoff from HNTB basin 9
 806          BA    .343
 807          LS            88.0
 808          UD     .73

 809          KK    CP9H
 810          KM       Combine hydrographs at CP 9
 811          HC       2

 812          KK    RT9H
 813          KM       Route flow from HNTB basin 9 to 44th St. & Campbell
 814          RS       6    FLOW
 815          RC    .035    .016    .035     660    .007
 816          RX     110     120     138     140     170     172     190     200
 817          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 818          KK   DIV9H
 819          KM       Divide flow from HNTB basin 9 at 44th St & Campbell (south & west)
 820          DT   9HSTH
 821          DI       0     150     331     500     800    1200
 822          DQ       0      80     176     265     424     636

 823          KK    RT9A
 824          KM       Route flow from 44th St. & Campbell to 40th & Campbell
 825          RS       6    FLOW
 826          RC    .035    .016    .035    2640    .005
 827          RX     110     120     138     140     170     172     190     200
 828          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 829          KK  RCANAL
 830          KM       Retrieve flow at the Az Canal
 831          DR   CANAL

 832          KK  26PIPE
 833          KM       Divide flow at the Az Canal between canal (west) and pipe (south)
 834          DT  CANALW
 835          DI       0      56     100     400    1000    1500    2000
 836          DQ       0       0      44     344     944    1444    1944
```

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

 837          KK  RT26PI
 838          KM       Route pipe flow from the Az canal to 40th & Campbell
 839          RD    3200    .006    .012            CIRC     3.0

 840          KK  BAS26H
 841          KM       Runoff from HNTB Basin 26 (40th and Campbell)
 842          BA    .058
 843          LS            89.7
 844          UD     .23

 845          KK   CP26H
 846          KM       Combine hydrographs at 40th & Campbell
 847          HC       3

 848          KK   DIV26
 849          KM       Divide flow between Campbell (west) and 40th St (south)
 850          DT   40STR
 851          DI       0      20      40     228     456
 852          DQ       0      12      24     146     292

 853          KK   RT26H
 854          KM       Route flow from 40th & Campbell to 36th & Campbell
 855          RS       6    FLOW
 856          RC    .035    .016    .035    2640    .007
 857          RX     110     120     138     140     170     172     190     200
 858          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 859          KK  BAS34H
 860          KM       Runoff from HNTB Basin 34 (36th and Campbell)
 861          BA    .114
 862          LS            87.8
 863          UD     .38

 864          KK  RET38S
 865          KM       Retrieve flows at 38th Street and Camelback
 866          DR   38STH

 867          KK  R38STH
 868          KM       Route flows from 38th Street & Camelback to 36th & Campbell
 869          RS       6    FLOW
 870          RC    .035    .016    .035    3960    .007
 871          RX     110     120     138     140     170     172     190     200
 872          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 873          KK  RET37S
 874          KM       Retrieve flows at 37th Street and Camelback
 875          DR   37STH

 876          KK  R37STH
 877          KM       Route flows from 37th Street & Camelback to 36th & Campbell
 878          RS       6    FLOW
 879          RC    .035    .016    .035    3300    .007
 880          RX     110     120     138     140     170     172     190     200
 881          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
```

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

 882          KK  RET36S
 883          KM       Retrieve flows at 36th Street and Camelback
 884          DR   36STH

 885          KK  R36STH
 886          KM       Route flows from 36th Street & Camelback to 36th & Campbell
 887          RS       6    FLOW
 888          RC    .035    .016    .035    2640    .007
 889          RX     110     120     138     140     170     172     190     200
 890          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 891          KK    CP34
 892          KM       Combine hydrographs at 36th & Campbell
 893          HC       5

 894          KK   DIV34
 895          KM       Divide flow at 36th & Campbell (Campbell west & 36th St. south)
 896          DT   36STH
 897          DI       0      20      40     120     222     320     640
 898          DQ       0      15      30      90     149     210     390

 899          KK    RT34
 900          KM       Route flow from 36th & Campbell to 32nd & Campbell
 901          RS       6    FLOW
 902          RC    .035    .016    .035    2640    .007
 903          RX     110     120     138     140     170     172     190     200
 904          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 905          KK    R35P
 906          KM       Retrieve flows at 35th Place and Camelback
 907          DR  35PSTH

 908          KK   RT35P
 909          KM       Route flow from 35th Place & Camelback to 32nd & Campbell
 910          RS       6    FLOW
 911          RC    .035    .016    .035    4820    .007
 912          RX     110     120     138     140     170     172     190     200
 913          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 914          KK    R35S
 915          KM       Retrieve flows at 35th Street and Camelback
 916          DR  35SSTH

 917          KK   RT35S
 918          KM       Route flow from 35th Street & Camelback to 32nd & Campbell
 919          RS       6    FLOW
 920          RC    .035    .016    .035    4620    .007
 921          RX     110     120     138     140     170     172     190     200
 922          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
```

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

 923          KK    R34P
 924          KM       Retrieve flows at 34th Place and Camelback
 925          DR  34PSTH

 926          KK   RT34P
 927          KM       Route flow from 34th Place & Camelback to 32nd & Campbell
 928          RS       6    FLOW
 929          RC    .035    .016    .035    3960    .007
 930          RX     110     120     138     140     170     172     190     200
 931          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 932          KK    CP32
 933          KM       Combine Hydrographs at 32nd & Campbell (2 combines)
 934          HC       4

 935          KK    R32P
 936          KM       Retrieve flows at 32nd Place and Camelback
 937          DR  32PSTH

 938          KK   RT32P
 939          KM       Route flow from 32nd Place & Camelback to 32nd & Campbell
 940          RS       6    FLOW
 941          RC    .035    .016    .035    3140    .007
 942          RX     110     120     138     140     170     172     190     200
 943          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 944          KK    R32S
 945          KM       Retrieve flows at 32nd Street and Camelback
 946          DR  32SSTH

 947          KK   RT32S
 948          KM       Route flow from 32nd Steet & Camelback to 32nd & Campbell
 949          RS       6    FLOW
 950          RC    .035    .016    .035    2640    .007
 951          RX     110     120     138     140     170     172     190     200
 952          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

 953          KK  BAS42H
 954          KM       Runoff from HNTB basin 42
 955          BA    .153
 956          LS            85.9
 957          UD     .41

 958          KK    CP42
 959          KM       Combine hydrographs at 32nd & Campbell
 960          HC       4

 961          KK   DIV42
 962          KM       Divide flow to Campbell (west) & 32nd (south)
 963          DT   32STH
 964          DI       0      60     160     332     660     800
 965          DQ       0      36     100     182     340     407
```

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

  966         KK   RT42W
  967         KM        Route flow from Campbell & 32nd St to Campbell and 28th St
  968         RS        6    FLOW
  969         RC     .035    .016    .035    2640    .007
  970         RX      110     120     138     140     170     172     190     200
  971         RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

  972         KK   R31STH
  973         KM        Retrieve flow at 31st Street & Camelback
  974         DR   31SSTH

  975         KK   RT31S
  976         KM        Route flow from 31st & Camelback to 28th & Campbell
  977         RS        6    FLOW
  978         RC     .035    .016    .035    4390    .007
  979         RX      110     120     138     140     170     172     190     200
  980         RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

  981         KK   R29STH
  982         KM        Retrieve flow at 29th Street & Camelback
  983         DR   29SSTH

  984         KK   RT29S
  985         KM        Route flow from 29th & Camelback to 28th & Campbell
  986         RS        6    FLOW
  987         RC     .035    .016    .035    3340    .007
  988         RX      110     120     138     140     170     172     190     200
  989         RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

  990         KK   R28STH
  991         KM        Retrieve flow at 28th Street & Camelback
  992         DR   28SSTH

  993         KK   RT28S
  994         KM        Route flow from 28th & Camelback to 28th & Campbell
  995         RS        6    FLOW
  996         RC     .035    .016    .035    2640    .007
  997         RX      110     120     138     140     170     172     190     200
  998         RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

  999         KK   BAS49H
 1000         KM        Runoff from HNTB basin 49
 1001         BA     .121
 1002         LS             88.3
 1003         UD      .41

 1004         KK    CP49
 1005         KM        Combine hydrographs at 28th & Campbell
 1006         HC        5
```

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

1007          KK   DIV49
1008          KM        Divide flow to Campbell (west) & 28nd (south)
1009          DT   28STH
1010          DI        0      60     160     280     500     800
1011          DQ        0      45      90     140     235     360

1012          KK   RT28W
1013          KM        Route flow from 28th & Campbell to 24th & Campbell
1014          RS        6    FLOW
1015          RC     .035    .016    .035    2640    .007
1016          RX      110     120     138     140     170     172     190     200
1017          RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1018          KK   24SST
1019          KM        Retrieve flow at 24th & Camelback (south)
1020          DR   24SST

1021          KK   24DIV
1022          KM        Divide flow south at 24th between pipe and street
1023          DT   24PIPE
1024          DI        0      50     100     150     200
1025          DQ        0      35      45      65      65

1026          KK  R24SST
1027          KM        Route flow south from 24 & Camelback to 24 & Campbell
1028          RS        6    FLOW
1029          RC     .035    .016    .035    2640    .007
1030          RX      110     120     138     140     170     172     190     200
1031          RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1032          KK  R24PIP
1033          KM        Retrieve flow (pipe) at 24th & Camelback
1034          DR  24PIPE

1035          KK  RT24PI
1036          KM        Route flow (pipe) 24th & Camelback to 24th & Campbell
1037          RD    2640    .005    .012            CIRC     3.5
              *      Area increased from .17 to .19 to adjust basin runoff
              *      designer determined that peak Q cannot vary more than 10% from original

1038          KK  BAS56H
1039          KM        Runoff from HNTB basin 56
1040          BA     .196
1041          LS            86.1
1042          UD      .46

1043          KK    CP24
1044          KM        Combine hydrographs at 24th & Campbell
1045          HC        4
```

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

1046          KK   DIV24
1047          KM        Divide flow at 24th & Campbell
1048          DT  24CSTH
1049          DI        0      100      200      400      520
1050          DQ        0       70      140      230      300

1051          KK   RT24W
1052          KM        Route flow from 24th & Campbell to 20th & Campbell
1053          RS        6     FLOW
1054          RC     .035     .016     .035     2640     .007
1055          RX      110      120      138      140      170      172      190      200
1056          RY   1177.4     1176     1176   1175.4   1175.4     1176     1176   1177.4

1057          KK   R22ST
1058          KM        Retrieve flow at 22nd Street and Camelback
1059          DR   22STH

1060          KK  RT22ST
1061          KM        Route flow from 22nd & Camelback to 20th & Campbell
1062          RS        6     FLOW
1063          RC     .035     .016     .035     3960     .007
1064          RX      110      120      138      140      170      172      190      200
1065          RY   1177.4     1176     1176   1175.4   1175.4     1176     1176   1177.4

1066          KK   R20ST
1067          KM        Retrieve flow at 20th Street and Camelback
1068          DR   20STH

1069          KK  RT20ST
1070          KM        Route flow from 20th & Camelback to 20th & Campbell
1071          RS        6     FLOW
1072          RC     .035     .016     .035     2640     .007
1073          RX      110      120      138      140      170      172      190      200
1074          RY   1177.4     1176     1176   1175.4   1175.4     1176     1176   1177.4

1075          KK  BAS29H
1076          KM        Runoff from HNTB basin 29
1077          BA      .16
1078          LS              92.1
1079          UD      .46

1080          KK    CP20
1081          KM        Combine hydrographs at 20th & Campbell
1082          HC        4

1083          KK   DIV20
1084          KM        Divide flow at 20th & Campbell between 20th (south) & Campbell (west)
1085          DT  20CSTH
1086          DI        0      100      200      400      536
1087          DQ        0       75      125      205      258
```

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

1088          KK  HIGHLD
1089          KM       Divide flow at 20th & Campbell between Campbell & Highland
1090          DT  CAMPBL
1091          DI       0     100     200     400     800
1092          DQ       0      50     100     200     400

1093          KK  RTHIGH
1094          KM       Route flow from 20th & Highland to 18th & Highland
1095          RS       6    FLOW
1096          RC    .035    .016    .035    1320    .007
1097          RX     110     120     138     140     170     172     190     200
1098          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1099          KK  R18SPI
1100          KM       Retrieve flow at 18th and Camelback (pipe)
1101          DR  18SPIP

1102          KK  R18SPA
1103          KM       Route flow from 18th & Camelback to 18th & Highland
              * KO     1       2
1104          RD    1320    .006    .013            CIRC     4.5

1105          KK  BAS40A
1106          KM       Runoff from Basin 40 (original basin 40 cut in half by freeway)
1107          BA    .066
1108          LS            80.1
1109          UD     .35

1110          KK   CP40A
1111          KM       Combine hydrographs at 18th & Highland
              * KO     1       2
1112          HC       4

1113          KK  CPHI18
1114          KM       Divide flow at 18th & Highland between Highland (west) & 18th (south)
              * KO     1       2       0
1115          DT  HIWEST
1116          DI       0      30      60     120     240     480     960
1117          DQ       0      30      30      30      30      30      30

1118          KK  18SSTH
1119          KM       Divide flow at 18th & Highland between 18th pipe & 18th street
              * KO     1       2
1120          DT  18PIPA
1121          DI       0      30      60     125     240     480     960
1122          DQ       0      30      60     125     125     125     125

1123          KK   BASIN
1124          KM       Detention basin at 18th street & Highland Avenue
              * KO     1       2
1125          RS       1    STOR       0
              * SL  1131   3.142     .67      .5
1126          SS    1142     200     2.8     1.5
1127          SV       0     0.2    14.2    22.7    32.2    42.6    54.0      60
```

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

1128          SE    1130    1132    1134    1136    1138    1140    1142    1144

1129          KK  RT18ST
1130          KM       Route flow from 18th & Highland south to 18th & Campbell
1131          RS       4    FLOW
1132          RC    .035    .016    .035    1320    .005
1133          RX     110     120     138     140     170     172     190     200
1134          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              * KKRT18HP
              * KM     Retrieve flow at 18th and Highland(pipe)
              * DR18PIPA
              * KKRT18PA
              * KM     Route flow from 18th & Highland to 18th & Campbell
              * RD  1320    .006    .013            CIRC       5

1135          KK  RCAMPB
1136          KM       Retrieve flow at 20th and Campbell
1137          DR  CAMPBL

1138          KK  RDIV20
1139          KM       Route flow from 20th & Campbell west to 18th & Campbell
1140          RS       6    FLOW
1141          RC    .035    .016    .035    1320    .007
1142          RX     110     120     138     140     170     172     190     200
1143          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1144          KK  BAS40B
1145          KM       Runoff from Basin 40 (original basin 40 cut in half by freeway)
1146          BA    .066
1147          LS            80.1
1148          UD     .35

1149          KK    CP18
1150          KM       Combine hydrographs at 18th & Campbell
              * KO     1       2
1151          HC       4

1152          KK  18CAMP
1153          KM       Divide flow at 18th & Campbell between 18th pipe & 18th street
1154          DT  18PIPB
1155          DI       0      30      60     125     240     480     960
1156          DQ       0      30      60     125     125     125     125

1157          KK   BASIN
1158          KM       Detention basin at 18th street & Campbell
              * KO     1       2
1159          RS       1    STOR       0
              * SL  1131   3.142     .67      .5
1160          SS    1142     200     2.8     1.5
1161          SV       0     6.2    14.2    22.7    32.2    42.6    54.0      60
1162          SE    1130    1132    1134    1136    1138    1140    1142    1144
```

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

1163          KK  R18STB
1164          KM       Route flow from 18th & Campbell south to 18th & Glenrosa
1165          RS       4    FLOW
1166          RC    .035    .016    .035    1320    .005
1167          RX     110     120     138     140     170     172     190     200
1168          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              * KKRT18HP
              * KM     Retrieve flow at 18th and Campbell (pipe)
              * DR18PIPB
              * KKRT18PB
              * KM     Route flow from 18th & Highland to 18th & Campbell
              * RD  1320    .006    .013            CIRC       5

1169          KK   ROCCS
1170          KM       Retrieve flow from canal & 48th St. (old cross-cut canal)
1171          DR    OCCS

1172          KK  RTOCCS
1173          KM       Route flow from canal south along 48th Street
1174          RS       6    FLOW
1175          RC    .040    .035    .040     660    .007
1176          RX     110     120     138     140     170     172     190     200
1177          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1178          KK  DIOCCS
1179          KM       Divide flow at Indian School & 48th Street
1180          DT    OCCS
1181          DI       0     150     300     550     800    1300
1182          DQ       0     120     254     500     735    1200

1183          KK  RTOCCA
1184          KM       Route flow from 48th & Indian School to 44th St and Indian School
1185          RS       6    FLOW
1186          RC    .035    .016    .035    2640    .007
1187          RX     110     120     138     140     170     172     190     200
1188          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1189          KK  R9HSTH
1190          KM       Retrieve flow at 40th St & Campbell
1191          DR   9HSTH

1192          KK  RT9HST
1193          KM       Route flow from 44th & Campbell to 44th & Indian School
1194          RS       6    FLOW
1195          RC    .035    .016    .035    2640    .007
1196          RX     110     120     138     140     170     172     190     200
1197          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1198          KK  BAS20H
1199          KM       Runoff from basin 20 (Indian School Road & 44th St)
1200          BA    .138
1201          LS             86.1
1202          UD     .21
```

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

1203          KK   CP20H
1204          KM        Combine flow at 44th St & Indian School
1205          HC        3

1206          KK   DIV20
1207          KM        Divide flow at 44th St & Indian School Road (south and west)
1208          DT   20STH
1209          DI        0     100     200     310     500     800
1210          DQ        0      55     110     170     275     440

1211          KK   RT20W
1212          KM        Route flow from 44th St. & Indian School to 40th St. & Indian School
1213          RS        6    FLOW
1214          RC     .035    .016    .035    2640    .007
1215          RX      110     120     138     140     170     172     190     200
1216          RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1217          KK  R40STR
1218          KM        Retrieve flow from basin 26 (south along 40th St)
1219          DR   40STR

1220          KK   RT40S
1221          KM        Route flow from 40th St. & Highland to 40th St. & Indian School
1222          RS        6    FLOW
1223          RC     .035    .016    .035    2640    .007
1224          RX      110     120     138     140     170     172     190     200
1225          RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1226          KK  BAS27H
1227          KM        Runoff from basin 27 (Indian School Road & 40th St)
1228          BA     .174
1229          LS             87.6
1230          UD      .41

1231          KK   CP27H
1232          KM        Combine hydrographs at 40th St. and Indian School
1233          HC        3

1234          KK  DIV27H
1235          KM        Divide flow at 40th St & Indian School Road (south and west)
1236          DT   27STH
1237          DI        0     100     200     300     428     800
1238          DQ        0     100     169     240     310     510

1239          KK   RT27W
1240          KM        Route flow from 40th St. & Indian School to 36th St. & Indian School
1241          RS        6    FLOW
1242          RC     .035    .016    .035    2640    .007
1243          RX      110     120     138     140     170     172     190     200
1244          RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
```

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

1245          KK  R36STH
1246          KM       Retrieve flow from 36th Street and Campbell
1247          DR   36STH

1248          KK  RT36ST
1249          KM       Route flow from 36th St. & Campbell to 36th St. & Indian School
1250          RS       6    FLOW
1251          RC    .035    .016    .035    2640    .007
1252          RX     110     120     138     140     170     172     190     200
1253          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1254          KK  BAS35H
1255          KM       Runoff from basin 35 (HNTB)
1256          BA    .185
1257          LS            83.3
1258          UD     .44

1259          KK   CP35H
1260          KM       Combine hydrographs at 36th & Indian School
1261          HC       3

1262          KK  DIV35H
1263          KM       Divide flow at 36th St & Indian School Road (south and west)
1264          DT  35HSTH
1265          DI       0     100     200     300     386     800
1266          DQ       0      81     140     190     233     440

1267          KK  RT35HW
1268          KM       Route flow from 36th St. & Indian School to 32th St. & Indian School
1269          RS       6    FLOW
1270          RC    .035    .016    .035    2640    .007
1271          RX     110     120     138     140     170     172     190     200
1272          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1273          KK  R32STH
1274          KM       Retrieve flow from 32th Street and Campbell
1275          DR   32STH

1276          KK  RT32ST
1277          KM       Route flow from 32th St. & Campbell to 32th St. & Indian School
1278          RS       6    FLOW
1279          RC    .035    .016    .035    2640    .007
1280          RX     110     120     138     140     170     172     190     200
1281          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1282          KK  BAS43H
1283          KM       Runoff from basin 43 (HNTB)
1284          BA    .218
1285          LS            84.8
1286          UD     .45
```

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

1287          KK   CP43H
1288          KM        Combine hydrographs at 32th & Indian School
1289          HC        3

1290          KK  DIV43H
1291          KM        Divide flow at 32th St & Indian School Road (south and west)
1292          DT  43HSTH
1293          DI        0     100     200     300     490     800
1294          DQ        0      85     134     183     275     428

1295          KK  RT43HW
1296          KM        Route flow from 32th St. & Indian School to 28th St. & Indian School
1297          RS        6    FLOW
1298          RC     .035    .016    .035    2640    .007
1299          RX      110     120     138     140     170     172     190     200
1300          RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1301          KK  R28STH
1302          KM        Retrieve flow from 28th Street and Campbell
1303          DR   28STH

1304          KK  RT28ST
1305          KM        Route flow from 28th St. & Campbell to 28th St. & Indian School
1306          RS        6    FLOW
1307          RC     .035    .016    .035    2640    .007
1308          RX      110     120     138     140     170     172     190     200
1309          RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1310          KK  BAS50H
1311          KM        Runoff from basin 50 (HNTB)
1312          BA      .21
1313          LS              82.6
1314          UD      .46

1315          KK   CP50H
1316          KM        Combine hydrographs at 28th & Indian School
1317          HC        3

1318          KK  DIV50H
1319          KM        Divide flow at 28th St & Indian School Road (south and west)
1320          DT  50HSTH
1321          DI        0     100     200     300     483     800
1322          DQ        0      80     117     155     227     345

1323          KK  RT50HW
1324          KM        Route flow from 28th St. & Indian School to 24th St. & Indian School
1325          RS        6    FLOW
1326          RC     .035    .016    .035    2640    .007
1327          RX      110     120     138     140     170     172     190     200
1328          RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
```

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

1329          KK  R24STH
1330          KM       Retrieve flow from 24th Street and Campbell
1331          DR  24CSTH

1332          KK  RT24ST
1333          KM       Route flow from 24th St. & Campbell to 24th St. & Indian School
1334          RS       6    FLOW
1335          RC    .035    .016    .035    2640    .007
1336          RX     110     120     138     140     170     172     190     200
1337          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1338          KK  BAS57H
1339          KM       Runoff from basin 57 (HNTB)
1340          BA    .248
1341          LS            84.3
1342          UD     .45

1343          KK   CP57H
1344          KM       Combine hydrographs at 24th & Indian School
1345          HC       3

1346          KK  DIV57H
1347          KM       Divide flow at 24th St & Indian School Road (south and west)
1348          DT  57HSTH
1349          DI       0     100     200     500     716     900
1350          DQ       0      93     140     282     383     470

1351          KK  RT57HW
1352          KM       Route flow from 24th St. & Indian School to 20th St. & Indian School
1353          RS       6    FLOW
1354          RC    .035    .016    .035    2640    .007
1355          RX     110     120     138     140     170     172     190     200
1356          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1357          KK  R20STH
1358          KM       Retrieve flow from 20th Street and Campbell
1359          DR  20CSTH

1360          KK  RT20ST
1361          KM       Route flow from 20th St. & Campbell to 20th St. & Indian School
1362          RS       6    FLOW
1363          RC    .035    .016    .035    2640    .007
1364          RX     110     120     138     140     170     172     190     200
1365          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              *      Basin area modified from HNTB data (west boundary at 20th Street)

1366          KK  BAS30H
1367          KM       Runoff from basin 30 (HNTB)
1368          BA     .25
1369          LS            80.1
1370          UD     .45
```

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

1371          KK   CP30H
1372          KM        Combine hydrographs at 20th & Indian School
1373          HC        3

1374          KK  DIV30H
1375          KM        Divide flow at 20th St & Indian School Road (south and west)
1376          DT  30HSTH
1377          DI        0     100     200     400     664     900
1378          DQ        0     100     154     230     328     420

1379          KK  DIV30A
1380          KM        Divide flow at 20th & Indian School between Indian School & Glenrosa
1381          DT  INDIAN
1382          DI        0     100     200     400     800
1383          DQ        0      50     100     200     400

1384          KK  RTGLEN
1385          KM        Route flow from 20th & Glenrosa to 18th & Glenrosa
1386          RS        6    FLOW
1387          RC     .035    .016    .035    1320    .007
1388          RX      110     120     138     140     170     172     190     200
1389          RY   1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              *       Basin area modified from HNTB data (west boundary at freeway)

1390          KK  BAS41A
1391          KM        Runoff from basin 41 (HNTB MODIFIED)
1392          BA      .05
1393          LS             83.3
1394          UD      .34

1395          KK   CP41A
1396          KM        Combine hydrographs at 18th & Glenrosa
              * KO      1       2
              * HC      4
1397          HC        3

1398          KK  18GLEN
1399          KM        Divide flow at 18th & Glenrosa between 18th pipe & 18th street
1400          DT  18PIPC
1401          DI        0      30      60     125     240     480     960
1402          DQ        0      30      60     125     125     125     125

1403          KK   BASIN
1404          KM        Detention basin at 18th street & Glenrosa
              * KO      1       2
1405          RS        1    STOR       0
              * SL   1131   3.142     .67      .5
1406          SS     1142     200     2.8     1.5
1407          SV        0     6.2    14.2    22.7    32.2    42.6    54.0      60
1408          SE     1130    1132    1134    1136    1138    1140    1142    1144
```

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

1409          KK  R18STC
1410          KM       Route flow from 18th & Glenrosa south to 18th & Indian School
1411          RS       4    FLOW
1412          RC    .035    .016    .035    1320    .005
1413          RX     110     120     138     140     170     172     190     200
1414          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4

1415          KK  RT18GP
1416          KM       Retrieve flow at 18th and Glenrosa (pipe)
1417          DR  18PIPC

1418          KK  RT18PC
1419          KM       Route flow from 18th & Glenrosa to 18th & Indian School
1420          RD    1320    .006    .013            CIRC       5

1421          KK  RINDIA
1422          KM       Retrieve flow from 20th Street and Indian School
1423          DR  INDIAN

1424          KK  RT30HW
1425          KM       Route flow from 20th St. & Indian School to 18th St. & Indian School
1426          RS       6    FLOW
1427          RC    .035    .016    .035    1320    .007
1428          RX     110     120     138     140     170     172     190     200
1429          RY  1177.4    1176    1176  1175.4  1175.4    1176    1176  1177.4
              *      Basin area modified from HNTB data (west boundary at freeway)

1430          KK  BAS41H
1431          KM       Runoff from basin 41 (HNTB)
1432          BA     .05
1433          LS            83.3
1434          UD     .34

1435          KK   CP41H
1436          KM       Combine hydrographs at 18th & Indian School
              * KO     1       2
1437          HC       4
1438          ZZ
```

```
                SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   12       BAS1A
                .
                .
   28           .        BAS1
                .           .
                .           .
   35           .           .-------->   1SIPH
   33           .       DIV1A
                .           .
                .           .
   40           .           .-------->  1APIPE
   38           .      DIV1AP
                .           V
                .           V
   43           .      R1ASTR
                .           .
                .           .
   51           .           .           .<-------  1APIPE
   49           .           .      1APIPE
                .           .           V
                .           .           V
   52           .           .      R1APIP
                .           .           .
                .           .           .
   55           .           .           .      SR51FL
                .           .           .           .
                .           .           .           .
   60           .           .      CPSR51............
                .           .           V
                .           .           V
   63           .           .      R1BPIP
                .           .           .
                .           .           .
   66           .           .           .       BAS3
                .           .           .           .
                .           .           .           .
   73           .           .           .           .-------->   3PIPE
   71           .           .           .       DIV3
                .           .           .           .
                .           .           .           .
   78           .           .           .           .-------->  3SOUTH
   76           .           .           .      DIV3A
                .           .           .           V
                .           .           .           V
   81           .           .           .      R3STRW
                .           .           .           .
                .           .           .           .
   87           .           .           .           .       BAS2
                .           .           .           .           .
                .           .           .           .           .
   94           .           .           .           .           .           .<-------   3PIPE
   92           .           .           .           .           .      3PIPE
                .           .           .           .           .           V
                .           .           .           .           .           V
   95           .           .           .           .           .      R3PIPE
                .           .           .           .           .           .
                .           .           .           .           .           .
   98           .         CP2.............................................
                .
```

```
103          .          .
             .          .-------->  2SIPH
101          .       DIV2
             .          .
             .          .
108          .          .-------->  2PIPE
106          .      DIV2A
             .          V
             .          V
111          .      R2STR
             .          .
             .          .
119          .          .          .<-------   2PIPE
117          .          .      2PIPE
             .          .          V
             .          .          V
120          .          .     R2PIPE
             .          .          V
             .          .          V
123          .          .     R2APIP
             .          .          .
             .          .          .
126          .          .          .       BAS4
             .          .          .          .
             .          .          .          .
131          .        CP4.......................
             .          .
             .          .
136          .          .-------->  4PIPE
134          .       DIV4
             .          V
             .          V
139          .      R4STR
             .          .
             .          .
147          .          .          .<-------   4PIPE
145          .          .      4PIPE
             .          .          V
             .          .          V
148          .          .     R4PIPE
             .          .          .
             .          .          .
151          .          .          .       BAS7
             .          .          .          V
             .          .          .          V
156          .          .          .      RBAS7
             .          .          .          .
             .          .          .          .
162          .          .          .          .       BAS8
             .          .          .          .          .
             .          .          .          .          .
167          .          .          .        CP8............
             .          .          .          .
             .          .          .          .
172          .          .          .          .-------->  8SOUTH
170          .          .          .       8DIV
             .          .          .          V
             .          .          .          V
175          .          .          .     R8STRW
             .          .          .          .
             .          .          .          .
181          .          .          .          .       BAS6
             .          .          .          .          .
             .          .          .          .          .
188          .          .          .          .          .          .<-------  3SOUTH
186          .          .          .          .          .     3SOUTH
```

```
                                                                  V
                                                                  V
189                                                            R3STH
                                                                  .
                                                                  .
195                                                 CP6.......................
                                                                  .
                                                                  .
200                                                 .-------> 6PIPE
198                                              6DIV
                                                                  .
                                                                  .
205                                                 .-------> 6SOUTH
203                                           DIV6A
                                                                  V
                                                                  V
208                                           R6STRW
                                                                  .
                                                                  .
216                                                 .<------- 6PIPE
214                                                       6PIPE
                                                                  V
                                                                  V
217                                                       R6PIPW
                                                                  .
                                                                  .
220                                                            BAS5
                                                                  .
                                                                  .
225                                   CP5.............................................
                                                 .
                                                 .
230                                              .-------> 5PIPE
228                                        5DIV
                                                 .
                                                 .
235                                              .-------> 5MISS
233                                     5DIVST
                                                 V
                                                 V
238                                     R5STRS
                                                 .
                                                 .
246                                              .<------- 8SOUTH
244                                                  8SOUTH
                                                         V
                                                         V
247                                                  R8STH
                                                         .
                                                         .
253                                                      BAS10
                                                         .
                                                         .
260                                                      .<------- 6SOUTH
258                                                      6SOUTH
                                                         V
                                                         V
261                                                      6STRS
                                                         .
                                                         .
267                                                  CP10.......................
                                                         .
                                                         .
272                                                      .-------> 10STH
270                                                  DIV10
                                                         V
```

```
                 .          .          V
275              .          .       RT10
                 .          .          .
                 .          .          .
281              .          .          .       BAS9
                 .          .          .          .
                 .          .          .          .
288              .          .          .          .          .<-------   5PIPE
286              .          .          .          .       5PIPE
                 .          .          .          .          V
                 .          .          .          .          V
289              .          .          .          .       RT5A
                 .          .          .          .          .
                 .          .          .          .          .
292              .          .          .        CP9............
                 .          .          .          .
                 .          .          .          .
295              .       CP9A........................
                 .          .
                 .          .
302              .          .-------> COLTER
298              .       DIV9
                 .          .
                 .          .
307              .          .------->  9PIPE
305              .      DIV9A
                 .          V
                 .          V
310              .        RT9
                 .          .
                 .          .
316              .          .      BAS27
                 .          .          .
                 .          .          .
323              .          .          .------->  CANAL
321              .          .      DIV27
                 .          .          V
                 .          .          V
326              .          .       RT27
                 .          .          .
                 .          .          .
334              .          .          .------->  38STH
332              .          .      DIV38
                 .          .          V
                 .          .          V
337              .          .       38RT
                 .          .          .
                 .          .          .
345              .          .          .------->  37STH
343              .          .      37STH
                 .          .          V
                 .          .          V
348              .          .       37RT
                 .          .          .
                 .          .          .
354              .          .          .      BAS26
                 .          .          .          .
                 .          .          .          .
358              .          .       26CP............
                 .          .          .
                 .          .          .
363              .          .          .------->  36STH
361              .          .      36DIV
                 .          .          .
                 .          .          .
368              .          .          .-------> 36PIPE
```

```
366          .          .     36PIPE
             .          .         V
             .          .         V
371          .          .      26RT
             .          .         .
             .          .         .
379          .          .         .-------> 35PSTH
377          .          .     35PDIV
             .          .         V
             .          .         V
382          .          .      26ART
             .          .         .
             .          .         .
390          .          .         .-------> 35SSTH
388          .          .     35SSTH
             .          .         V
             .          .         V
393          .          .      26BRT
             .          .         .
             .          .         .
401          .          .         .          .<-------  36PIPE
399          .          .         .     36PIPE
             .          .         .          V
             .          .         .          V
402          .          .         .     RT36PI
             .          .         .          .
             .          .         .          .
405          .          .         .          .      BAS25
             .          .         .          .          .
             .          .         .          .          .
410          .          .      CP25.......................
             .          .         .
             .          .         .
415          .          .         .-------> 34PSTH
413          .          .     34PSTH
             .          .         .
             .          .         .
420          .          .         .-------> 34PIPE
418          .          .      34DIV
             .          .         V
             .          .         V
423          .          .     RT34ST
             .          .         .
             .          .         .
431          .          .         .-------> 32PSTH
429          .          .      32DIV
             .          .         V
             .          .         V
434          .          .      32RT
             .          .         .
             .          .         .
440          .          .         .      BAS23
             .          .         .          .
             .          .         .          .
447          .          .         .          .-------> 23PIPE
445          .          .         .      23DIV
             .          .         .          V
             .          .         .          V
450          .          .         .       23RT
             .          .         .          .
             .          .         .          .
458          .          .         .          .          .<-------  23PIPE
456          .          .         .          .      R23PI
             .          .         .          .          V
             .          .         .          .          V
459          .          .         .          .     RT23PI
```


K&E 4-PRINT

```
462                                                  BAS24
                                                       .
469                                                    .<-------  34PIPE
467                                                    .      RT34
                                                       .        V
                                                       .        V
470                                                    .     RT34PI
                                                       .        .
                                                       .        .
473                                  CP32.............................................
                                       .
                                       .
478                                    .-------> 32SSTH
476                                 32SDIV
                                       V
                                       V
481                                 RT32DI
                                       .
                                       .
489                                    .-------> 31SSTH
487                                 31SDIV
                                       V
                                       V
492                                 RT31DI
                                       .
                                       .
500                                    .-------> 29SSTH
498                                 29SDIV
                                       V
                                       V
503                                 RT29DI
                                       .
                                       .
511                                    .-------> 28SSTH
509                                 28SDIV
                                       V
                                       V
514                                 RT28DI
                                       .
                                       .
520                                    .      BAS17
                                       .         V
                                       .         V
525                                    .       RT17
                                       .         .
                                       .         .
531                                    .         .      BAS13
                                       .         .        .
                                       .         .        .
538                                    .         .        .-------> 13PIPE
536                                    .         .      13DIV
                                       .         .        V
                                       .         .        V
541                                    .         .       RT13
                                       .         .        .
                                       .         .        .
549                                    .         .        .        .<-------  13PIPE
547                                    .         .        .     R13PIP
                                       .         .        .        V
                                       .         .        .        V
550                                    .         .        .     RT13PA
                                       .         .        .        .
                                       .         .        .        .
```

```
553          .          .          .          .          .          .      BAS14
             .          .          .          .          .          .          .
             .          .          .          .          .          .          .
558          .          .          .          .       CP14.......................
             .          .          .          .          .
             .          .          .          .          .
563          .          .          .          .          .-------> 14PIPE
561          .          .          .          .      14DIV
             .          .          .          .          V
             .          .          .          .          V
566          .          .          .          .       RT14
             .          .          .          .          .
             .          .          .          .          .
574          .          .          .          .          .          .<-------  14PIPE
572          .          .          .          .          .     R14PIP
             .          .          .          .          .          V
             .          .          .          .          .          V
575          .          .          .          .          .     RT14PA
             .          .          .          .          .          .
             .          .          .          .          .          .
578          .          .          .          .          .          .      BAS15
             .          .          .          .          .          .          .
             .          .          .          .          .          .          .
583          .          .      CP24...........................................
             .          .          .
             .          .          .
588          .          .          .-------> 24SST
586          .          .     24DIV
             .          .          V
             .          .          V
591          .          .      RT24
             .          .          .
             .          .          .
597          .          .          .     BAS12
             .          .          .          .
             .          .          .          .
602          .          .      CP12............
             .          .          .
             .          .          .
607          .          .          .-------> 22STH
605          .          .     22DIV
             .          .          V
             .          .          V
610          .          .      RT22
             .          .          .
             .          .          .
618          .          .          .          .<-------  10STH
616          .          .          .     R10ST
             .          .          .          V
             .          .          .          V
619          .          .          .    RT10ST
             .          .          .          .
             .          .          .          .
625          .          .          .          .      BAS11
             .          .          .          .          .
             .          .          .          .          .
630          .          .      CP20........................
             .          .          .
             .          .          .
635          .          .          .-------> 20STH
633          .          .     20DIV
             .          .          .
             .          .          .
640          .          .          .-------> 20PIPE
638          .          .     20PIP
             .          .          V
```

```
                 .         .         V
643              .         .      RT20
                 .         .         .
                 .         .         .
651              .         .         .<-------  20PIPE
649              .         .         .     R20PIP
                 .         .         .         V
                 .         .         .         V
652              .         .         .     RT20PA
                 .         .         .         .
                 .         .         .         .
657              .         .         .         .<-------   9PIPE
655              .         .         .      9PIPE
                 .         .         .         V
                 .         .         .         V
658              .         .         .     RT9PIP
                 .         .         .         .
                 .         .         .         .
661              .         .         .         .      BAS28
                 .         .         .         .         .
                 .         .         .         .         .
666              .      CP18.......................................
                 .         .
                 .         .
671              .         .-------> 18SPIP
669              .      18DIV
                 .         .
                 .         .
676              .         .-------> CAMELW
674              .     18DIVA
                 .         V
                 .         V
679              .     RTMALL
                 .         .
                 .         .
685              .         .      BAS1H
                 .         .         V
                 .         .         V
690              .         .      RT1H
                 .         .         .
                 .         .         .
696              .         .         .      BAS2H
                 .         .         .         .
                 .         .         .         .
701              .         .      CP2H............
                 .         .         V
                 .         .         V
704              .         .      RT2H
                 .         .         .
                 .         .         .
710              .         .         .      BAS3H
                 .         .         .         .
                 .         .         .         .
715              .         .      CP3H............
                 .         .         V
                 .         .         V
718              .         .      RT3H
                 .         .         .
                 .         .         .
724              .         .         .      BAS4H
                 .         .         .         .
                 .         .         .         .
729              .         .      CP4H............
                 .         .         .
                 .         .         .
734              .         .         .------->  4HSTH
```

```
732          .          .      DIV4H
             .          .         V
             .          .         V
737          .          .      RT4H
             .          .         .
             .          .         .
743          .          .         .       BAS5H
             .          .         .          .
             .          .         .          .
748          .          .      CP5H............
             .          .         V
             .          .         V
751          .          .      RT5H
             .          .         .
             .          .         .
757          .          .         .       BAS6H
             .          .         .          .
             .          .         .          .
762          .          .      CP6H............
             .          .         V
             .          .         V
765          .          .      RT6H
             .          .         .
             .          .         .
771          .          .         .       BAS7H
             .          .         .          .
             .          .         .          .
776          .          .      CP7H............
             .          .         .
             .          .         .
781          .          .         .-------->    OCCS
779          .          .      DIV7H
             .          .         V
             .          .         V
784          .          .      RT7H
             .          .         .
             .          .         .
790          .          .         .       BAS8H
             .          .         .          .
             .          .         .          .
795          .          .      CP8H............
             .          .         V
             .          .         V
798          .          .      RT8H
             .          .         .
             .          .         .
804          .          .         .       BAS9H
             .          .         .          .
             .          .         .          .
809          .          .      CP9H............
             .          .         V
             .          .         V
812          .          .      RT9H
             .          .         .
             .          .         .
820          .          .         .-------->   9HSTH
818          .          .      DIV9H
             .          .         V
             .          .         V
823          .          .      RT9A
             .          .         .
             .          .         .
831          .          .         .          .<--------   CANAL
829          .          .         .       RCANAL
             .          .         .          .
             .          .         .          .
```

```
834          .          .          .          .-------> CANALW
832          .          .          .     26PIPE
             .          .          .          V
             .          .          .          V
837          .          .          .     RT26PI
             .          .          .          .
             .          .          .          .
840          .          .          .          .     BAS26H
             .          .          .          .          .
             .          .          .          .          .
845          .          .      CP26H.......................
             .          .          .
             .          .          .
850          .          .          .-------> 40STR
848          .          .      DIV26
             .          .          V
             .          .          V
853          .          .      RT26H
             .          .          .
             .          .          .
859          .          .          .     BAS34H
             .          .          .          .
             .          .          .          .
866          .          .          .          .          .<-------  38STH
864          .          .          .          .     RET38S
             .          .          .          .          V
             .          .          .          .          V
867          .          .          .          .     R38STH
             .          .          .          .          .
             .          .          .          .          .
875          .          .          .          .          .          .<-------  37STH
873          .          .          .          .          .     RET37S
             .          .          .          .          .          V
             .          .          .          .          .          V
876          .          .          .          .          .     R37STH
             .          .          .          .          .          .
             .          .          .          .          .          .
884          .          .          .          .          .          .          .<-------  36STH
882          .          .          .          .          .          .     RET36S
             .          .          .          .          .          .          V
             .          .          .          .          .          .          V
885          .          .          .          .          .          .     R36STH
             .          .          .          .          .          .          .
             .          .          .          .          .          .          .
891          .          .      CP34.............................................
             .          .          .
             .          .          .
896          .          .          .-------> 36STH
894          .          .      DIV34
             .          .          V
             .          .          V
899          .          .      RT34
             .          .          .
             .          .          .
907          .          .          .          .<-------  35PSTH
905          .          .          .       R35P
             .          .          .          V
             .          .          .          V
908          .          .          .      RT35P
             .          .          .          .
             .          .          .          .
916          .          .          .          .          .<-------  35SSTH
914          .          .          .          .       R35S
             .          .          .          .          V
             .          .          .          .          V
917          .          .          .          .      RT35S
```

```
925                                                  .<-------  34PSTH
923                                              R34P
                                                    V
                                                    V
926                                             RT34P
932                 CP32.....................................
937                                  .<-------  32PSTH
935                              R32P
                                    V
                                    V
938                             RT32P
946                                                  .<-------  32SSTH
944                                           R32S
                                                    V
                                                    V
947                                          RT32S
953                                                     BAS42H
958                 CP42.....................................
963                 .------->  32STH
961               DIV42
                     V
                     V
966               RT42W
974                                  .<-------  31SSTH
972                           R31STH
                                    V
                                    V
975                            RT31S
983                                                  .<-------  29SSTH
981                                        R29STH
                                                    V
                                                    V
984                                         RT29S
992                                                  .<-------  28SSTH
990                                                     R28STH
                                                           V
                                                           V
993                                                     RT28S
999                                                            BAS49H
1004                CP49.............................................
```

```
1009          .          .          .-------->  28STH
1007          .          .      DIV49
              .          .          V
              .          .          V
1012          .          .      RT28W
              .          .          .
              .          .          .
1020          .          .          .<-------   24SST
1018          .          .          .      24SST
              .          .          .          .
              .          .          .          .
1023          .          .          .          .-------->  24PIPE
1021          .          .          .      24DIV
              .          .          .          V
              .          .          .          V
1026          .          .          .     R24SST
              .          .          .          .
              .          .          .          .
1034          .          .          .          .          .<-------  24PIPE
1032          .          .          .          .     R24PIP
              .          .          .          .          V
              .          .          .          .          V
1035          .          .          .          .     RT24PI
              .          .          .          .          .
              .          .          .          .          .
1038          .          .          .          .          .      BAS56H
              .          .          .          .          .          .
              .          .          .          .          .          .
1043          .          .       CP24.................................
              .          .          .
              .          .          .
1048          .          .          .-------->  24CSTH
1046          .          .      DIV24
              .          .          V
              .          .          V
1051          .          .      RT24W
              .          .          .
              .          .          .
1059          .          .          .<-------   22STH
1057          .          .          .      R22ST
              .          .          .          V
              .          .          .          V
1060          .          .          .     RT22ST
              .          .          .          .
              .          .          .          .
1068          .          .          .          .          .<-------   20STH
1066          .          .          .          .      R20ST
              .          .          .          .          V
              .          .          .          .          V
1069          .          .          .          .     RT20ST
              .          .          .          .          .
              .          .          .          .          .
1075          .          .          .          .          .      BAS29H
              .          .          .          .          .          .
              .          .          .          .          .          .
1080          .          .       CP20.................................
              .          .          .
              .          .          .
1085          .          .          .-------->  20CSTH
1083          .          .      DIV20
              .          .          .
              .          .          .
1090          .          .          .-------->  CAMPBL
1088          .          .     HIGHLD
              .          .          V
              .          .          V
```

```
1093          .          .      RTHIGH
              .          .          .
              .          .          .
1101          .          .          .          .<-------  18SPIP
1099          .          .          .      R18SPI
              .          .          .          V
              .          .          .          V
1102          .          .          .      R18SPA
              .          .          .          .
              .          .          .          .
1105          .          .          .          .      BAS40A
              .          .          .          .          .
              .          .          .          .          .
1110          .       CP40A.................................
              .          .
              .          .
1115          .          .-------> HIWEST
1113          .      CPHI18
              .          .
              .          .
1120          .          .-------> 18PIPA
1118          .      18SSTH
              .          V
              .          V
1123          .       BASIN
              .          V
              .          V
1129          .      RT18ST
              .          .
              .          .
1137          .          .          .<-------  CAMPBL
1135          .          .      RCAMPB
              .          .          V
              .          .          V
1138          .          .      RDIV20
              .          .          .
              .          .          .
1144          .          .          .      BAS40B
              .          .          .          .
              .          .          .          .
1149        CP18.................................
              .
              .
1154          .-------> 18PIPB
1152      18CAMP
              V
              V
1157       BASIN
              V
              V
1163      R18STB
              .
              .
1171          .          .<-------    OCCS
1169          .       ROCCS
              .          V
              .          V
1172          .      RTOCCS
              .          .
              .          .
1180          .          .------->    OCCS
1178          .      DIOCCS
              .          V
              .          V
1183          .      RTOCCA
              .          .
```

```
                .          .
1191            .          .          .<-------   9HSTH
1189            .          .     R9HSTH
                .          .          V
                .          .          V
1192            .          .     RT9HST
                .          .          .
                .          .          .
1198            .          .          .     BAS20H
                .          .          .          .
                .          .          .          .
1203            .      CP20H.......................
                .          .
                .          .
1208            .          .------->   20STH
1206            .      DIV20
                .          V
                .          V
1211            .      RT20W
                .          .
                .          .
1219            .          .          .<-------   40STR
1217            .          .     R40STR
                .          .          V
                .          .          V
1220            .          .      RT40S
                .          .          .
                .          .          .
1226            .          .          .     BAS27H
                .          .          .          .
                .          .          .          .
1231            .      CP27H.......................
                .          .
                .          .
1236            .          .------->   27STH
1234            .     DIV27H
                .          V
                .          V
1239            .      RT27W
                .          .
                .          .
1247            .          .          .<-------   36STH
1245            .          .     R36STH
                .          .          V
                .          .          V
1248            .          .     RT36ST
                .          .          .
                .          .          .
1254            .          .          .     BAS35H
                .          .          .          .
                .          .          .          .
1259            .      CP35H.......................
                .          .
                .          .
1264            .          .------->  35HSTH
1262            .     DIV35H
                .          V
                .          V
1267            .     RT35HW
                .          .
                .          .
1275            .          .          .<-------   32STH
1273            .          .     R32STH
                .          .          V
                .          .          V
1276            .          .     RT32ST
```

```
                .          .
                .          .
1282            .          .      BAS43H
                .          .          .
                .          .          .
1287            .     CP43H.......................
                .          .
                .          .
1292            .          .-------> 43HSTH
1290            .     DIV43H
                .          V
                .          V
1295            .     RT43HW
                .          .
                .          .
1303            .          .          .<-------   28STH
1301            .          .     R28STH
                .          .          V
                .          .          V
1304            .          .     RT28ST
                .          .          .
                .          .          .
1310            .          .          .      BAS50H
                .          .          .          .
                .          .          .          .
1315            .     CP50H.......................
                .          .
                .          .
1320            .          .-------> 50HSTH
1318            .     DIV50H
                .          V
                .          V
1323            .     RT50HW
                .          .
                .          .
1331            .          .          .<-------  24CSTH
1329            .          .     R24STH
                .          .          V
                .          .          V
1332            .          .     RT24ST
                .          .          .
                .          .          .
1338            .          .          .      BAS57H
                .          .          .          .
                .          .          .          .
1343            .     CP57H.......................
                .          .
                .          .
1348            .          .-------> 57HSTH
1346            .     DIV57H
                .          V
                .          V
1351            .     RT57HW
                .          .
                .          .
1359            .          .          .<-------  20CSTH
1357            .          .     R20STH
                .          .          V
                .          .          V
1360            .          .     RT20ST
                .          .          .
                .          .          .
1366            .          .          .      BAS30H
                .          .          .          .
                .          .          .          .
1371            .     CP30H.......................
```

```
                .          .
                .          .
1376            .          .-------> 30HSTH
1374            .     DIV30H
                .          .
                .          .
1381            .          .-------> INDIAN
1379            .     DIV30A
                .          V
                .          V
1384            .     RTGLEN
                .          .
                .          .
1390            .          .     BAS41A
                .          .          .
                .          .          .
1395         CP41A.......................
                .
                .
1400            .-------> 18PIPC
1398       18GLEN
                V
                V
1403         BASIN
                V
                V
1409       R18STC
                .
                .
1417            .          .<------- 18PIPC
1415            .     RT18GP
                .          V
                .          V
1418            .     RT18PC
                .          .
                .          .
1423            .          .          .<------- INDIAN
1421            .          .     RINDIA
                .          .          V
                .          .          V
1424            .          .     RT30HW
                .          .          .
                .          .          .
1430            .          .          .     BAS41H
                .          .          .          .
                .          .          .          .
1435         CP41H.................................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              MAY   1991              *
*           VERSION 4.0.1E             *
*     Lahey F77L-EM/32 version 5.01    *
*       Dodson & Associates, Inc.      *
*  RUN DATE  04/15/98  TIME  11:52:47  *
****************************************
```

```
****************************************
*                                      *
*   U.S. ARMY CORPS OF ENGINEERS       *
*   HYDROLOGIC ENGINEERING CENTER      *
*         609 SECOND STREET            *
*      DAVIS, CALIFORNIA 95616         *
*          (916) 551-1748              *
*                                      *
****************************************
```

```
                    SR 51 Offsite Hydrology (sr51E.dat)
                    50-year 24-hour Storm -(Burgess & Niple, HNTB orginal model)
                    SQUAW PEAK FREEWAY INDIAN SCHOOL ROAD TO BETHANY HOME ROAD
                    Model modified to determine flow at 1/4 mile St. (Highland and Turney)
                    CHECK MODEL FOR SR51D.DAT (VERIFY BN & HNTB PARAMETERS) MINOR CHANGES
                    RESERVOIR AT 18TH STREET & HIGHLAND AVENUE
                    DETENTION BASINS ADDED AT HIGHLAND, CAMPBELL AND GLENROSA
                    18TH STREET PIPE REMOVED BETWEEN HIGHLAND AND GLENROSA

 11 IO        OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT        HYDROGRAPH TIME DATA
                     NMIN          2  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1   0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ       1000  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      2   0  ENDING DATE
                   NDTIME       0918  ENDING TIME
                    ICENT         19  CENTURY MARK

              COMPUTATION INTERVAL    0.03 HOURS
                   TOTAL TIME BASE   33.30 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	BAS1A	24.	12.03	3.	1.	1.	0.02		
HYDROGRAPH AT	BAS1	36.	12.03	4.	1.	1.	0.05		
DIVERSION TO	1SIPH	10.	12.03	3.	1.	1.	0.05		
HYDROGRAPH AT	DIV1A	26.	12.03	1.	0.	0.	0.05		
DIVERSION TO	1APIPE	1.	12.03	0.	0.	0.	0.05		
HYDROGRAPH AT	DIV1AP	25.	12.03	1.	0.	0.	0.05		
ROUTED TO	R1ASTR	26.	12.10	1.	0.	0.	0.05	1175.63	12.10
HYDROGRAPH AT	1APIPE	1.	11.93	0.	0.	0.	0.00		
ROUTED TO	R1APIP	1.	11.97	0.	0.	0.	0.00		
HYDROGRAPH AT	SR51FL	23.	12.07	3.	1.	1.	0.02		
2 COMBINED AT	CPSR51	24.	12.07	3.	1.	1.	0.02		
ROUTED TO	R1BPIP	24.	12.07	3.	1.	1.	0.02		
HYDROGRAPH AT	BAS3	38.	12.03	4.	1.	1.	0.02		
DIVERSION TO	3PIPE	20.	12.03	4.	1.	1.	0.02		
HYDROGRAPH AT	DIV3	18.	12.03	1.	0.	0.	0.02		
DIVERSION TO	3SOUTH	9.	12.03	0.	0.	0.	0.02		
HYDROGRAPH AT	DIV3A	9.	12.03	0.	0.	0.	0.02		
ROUTED TO	R3STRW	7.	12.20	0.	0.	0.	0.02	1175.53	12.20
HYDROGRAPH AT	BAS2	38.	12.07	5.	2.	1.	0.02		
HYDROGRAPH AT	3PIPE	20.	11.90	4.	1.	1.	0.00		
ROUTED TO	R3PIPE	20.	11.97	4.	1.	1.	0.00		
5 COMBINED AT	CP2	110.	12.10	12.	4.	3.	0.11		
DIVERSION TO	2SIPH	50.	12.10	10.	3.	2.	0.11		
HYDROGRAPH AT	DIV2	60.	12.10	2.	1.	0.	0.11		
DIVERSION TO	2PIPE	51.	12.10	2.	1.	0.	0.11		
HYDROGRAPH AT	DIV2A	9.	12.10	0.	0.	0.	0.11		
ROUTED TO	R2STR	3.	12.30	0.	0.	0.	0.11	1175.46	12.30
HYDROGRAPH AT	2PIPE	51.	12.10	2.	1.	0.	0.00		
ROUTED TO	R2PIPE	49.	12.13	2.	1.	0.	0.00		

ROUTED TO	R2APIP	47.	12.13	2.	1.	0.	0.00		
HYDROGRAPH AT	BAS4	41.	12.03	5.	2.	1.	0.02		
3 COMBINED AT	CP4	78.	12.10	7.	2.	1.	0.13		
DIVERSION TO	4PIPE	69.	12.10	7.	2.	1.	0.13		
HYDROGRAPH AT	DIV4	10.	12.10	0.	0.	0.	0.13		
ROUTED TO	R4STR	7.	12.23	0.	0.	0.	0.13	1175.53	12.23
HYDROGRAPH AT	4PIPE	69.	12.10	7.	2.	1.	0.00		
ROUTED TO	R4PIPE	68.	12.13	7.	2.	1.	0.00		
HYDROGRAPH AT	BAS7	96.	12.07	11.	3.	2.	0.08		
ROUTED TO	RBAS7	92.	12.13	11.	3.	2.	0.08	1176.03	12.13
HYDROGRAPH AT	BAS8	77.	12.10	10.	3.	2.	0.06		
2 COMBINED AT	CP8	168.	12.10	21.	6.	5.	0.14		
DIVERSION TO	8SOUTH	31.	12.10	4.	1.	1.	0.14		
HYDROGRAPH AT	8DIV	136.	12.10	17.	5.	4.	0.14		
ROUTED TO	R8STRW	135.	12.17	17.	5.	4.	0.14	1176.20	12.17
HYDROGRAPH AT	BAS6	59.	12.03	7.	2.	2.	0.03		
HYDROGRAPH AT	3SOUTH	9.	12.03	0.	0.	0.	0.00		
ROUTED TO	R3STH	4.	12.43	0.	0.	0.	0.00	1175.48	12.43
3 COMBINED AT	CP6	181.	12.10	24.	7.	5.	0.17		
DIVERSION TO	6PIPE	65.	12.10	17.	6.	4.	0.17		
HYDROGRAPH AT	6DIV	116.	12.10	7.	2.	1.	0.17		
DIVERSION TO	6SOUTH	90.	12.10	5.	1.	1.	0.17		
HYDROGRAPH AT	DIV6A	26.	12.10	2.	0.	0.	0.17		
ROUTED TO	R6STRW	24.	12.20	2.	0.	0.	0.17	1175.68	12.20
HYDROGRAPH AT	6PIPE	65.	12.07	17.	6.	4.	0.00		
ROUTED TO	R6PIPW	65.	12.13	17.	6.	4.	0.00		
HYDROGRAPH AT	BAS5	41.	12.10	5.	2.	1.	0.02		
5 COMBINED AT	CP5	196.	12.17	30.	10.	7.	0.32		
DIVERSION TO	5PIPE	116.	12.17	27.	9.	6.	0.32		
HYDROGRAPH AT	5DIV	80.	12.17	4.	1.	1.	0.32		
DIVERSION TO	5MISS	44.	12.17	2.	0.	0.	0.32		
HYDROGRAPH AT	5DIVST	36.	12.17	2.	0.	0.	0.32		
ROUTED TO	R5STRS	35.	12.23	2.	0.	0.	0.32	1175.72	12.23

HYDROGRAPH AT	8SOUTH	31.	12.10	4.	1.	1.	0.00		
ROUTED TO	R8STH	29.	12.27	4.	1.	1.	0.00	1175.71	12.27
HYDROGRAPH AT	BAS10	49.	12.13	7.	2.	2.	0.04		
HYDROGRAPH AT	6SOUTH	90.	12.10	5.	1.	1.	0.00		
ROUTED TO	6STRS	88.	12.20	5.	1.	1.	0.00	1176.01	12.20
3 COMBINED AT	CP10	160.	12.20	16.	5.	3.	0.04		
DIVERSION TO	10STH	108.	12.20	11.	3.	2.	0.04		
HYDROGRAPH AT	DIV10	52.	12.20	5.	1.	1.	0.04		
ROUTED TO	RT10	51.	12.23	5.	1.	1.	0.04	1175.80	12.23
HYDROGRAPH AT	BAS9	42.	12.07	5.	2.	1.	0.04		
HYDROGRAPH AT	5PIPE	116.	12.07	27.	9.	6.	0.00		
ROUTED TO	RT5A	116.	12.13	27.	9.	6.	0.00		
2 COMBINED AT	CP9	156.	12.10	32.	10.	7.	0.04		
3 COMBINED AT	CP9A	229.	12.20	39.	12.	9.	0.40		
DIVERSION TO	COLTER	100.	12.20	29.	9.	7.	0.40		
HYDROGRAPH AT	DIV9	129.	12.20	10.	3.	2.	0.40		
DIVERSION TO	9PIPE	105.	12.20	10.	3.	2.	0.40		
HYDROGRAPH AT	DIV9A	25.	12.20	1.	0.	0.	0.40		
ROUTED TO	RT9	20.	12.30	1.	0.	0.	0.40	1175.63	12.30
HYDROGRAPH AT	BAS27	1689.	12.17	262.	81.	58.	1.42		
DIVERSION TO	CANAL	760.	12.17	163.	56.	41.	1.42		
HYDROGRAPH AT	DIV27	929.	12.17	99.	25.	18.	1.42		
ROUTED TO	RT27	921.	12.23	99.	25.	18.	1.42	354.84	12.23
DIVERSION TO	38STH	378.	12.23	41.	10.	7.	1.42		
HYDROGRAPH AT	DIV38	543.	12.23	58.	14.	10.	1.42		
ROUTED TO	38RT	541.	12.23	58.	14.	10.	1.42	1176.32	12.23
DIVERSION TO	37STH	183.	12.23	20.	5.	4.	1.42		
HYDROGRAPH AT	37STH	357.	12.23	38.	10.	7.	1.42		
ROUTED TO	37RT	357.	12.27	38.	10.	7.	1.42	1176.13	12.27
HYDROGRAPH AT	BAS26	101.	12.07	12.	4.	3.	0.07		
2 COMBINED AT	26CP	409.	12.17	50.	13.	9.	1.48		
DIVERSION TO	36STH	156.	12.17	19.	5.	4.	1.48		
HYDROGRAPH AT	36DIV	253.	12.17	31.	8.	6.	1.48		

DIVERSION TO	36PIPE	27.	12.17	9.	3.	2.	1.48		
HYDROGRAPH AT	36PIPE	226.	12.17	22.	5.	4.	1.48		
ROUTED TO	26RT	226.	12.20	22.	5.	4.	1.48	1175.96	12.20
DIVERSION TO	35PSTH	35.	12.20	3.	1.	1.	1.48		
HYDROGRAPH AT	35PDIV	190.	12.20	18.	5.	3.	1.48		
ROUTED TO	26ART	191.	12.20	18.	5.	3.	1.48	1175.90	12.20
DIVERSION TO	35SSTH	31.	12.20	3.	1.	1.	1.48		
HYDROGRAPH AT	35SSTH	160.	12.20	15.	4.	3.	1.48		
ROUTED TO	26BRT	159.	12.23	15.	4.	3.	1.48	1175.85	12.23
HYDROGRAPH AT	36PIPE	27.	11.90	9.	3.	2.	0.00		
ROUTED TO	RT36PI	27.	11.97	9.	3.	2.	0.00		
HYDROGRAPH AT	BAS25	33.	12.07	4.	1.	1.	0.02		
3 COMBINED AT	CP25	203.	12.20	28.	8.	6.	1.50		
DIVERSION TO	34PSTH	16.	12.20	3.	1.	1.	1.50		
HYDROGRAPH AT	34PSTH	187.	12.20	26.	7.	5.	1.50		
DIVERSION TO	34PIPE	36.	12.20	12.	4.	3.	1.50		
HYDROGRAPH AT	34DIV	151.	12.20	14.	3.	2.	1.50		
ROUTED TO	RT34ST	150.	12.23	14.	3.	2.	1.50	1175.83	12.23
DIVERSION TO	32PSTH	31.	12.23	3.	1.	1.	1.50		
HYDROGRAPH AT	32DIV	119.	12.23	11.	3.	2.	1.50		
ROUTED TO	32RT	119.	12.27	11.	3.	2.	1.50	1175.78	12.27
HYDROGRAPH AT	BAS23	69.	12.07	9.	3.	2.	0.05		
DIVERSION TO	23PIPE	13.	12.07	5.	2.	1.	0.05		
HYDROGRAPH AT	23DIV	56.	12.07	3.	1.	1.	0.05		
ROUTED TO	23RT	54.	12.17	3.	1.	1.	0.05	1175.88	12.17
HYDROGRAPH AT	R23PI	13.	11.80	5.	2.	1.	0.00		
ROUTED TO	RT23PI	13.	11.90	5.	2.	1.	0.00		
HYDROGRAPH AT	BAS24	112.	12.07	14.	4.	3.	0.09		
HYDROGRAPH AT	RT34	36.	11.90	12.	4.	3.	0.00		
ROUTED TO	RT34PI	37.	11.97	12.	4.	3.	0.00		
5 COMBINED AT	CP32	282.	12.20	45.	13.	9.	1.64		
DIVERSION TO	32SSTH	158.	12.20	34.	10.	7.	1.64		
HYDROGRAPH AT	32SDIV	124.	12.20	11.	3.	2.	1.64		

ROUTED TO	RT32DI	123.	12.23	11.	3.	2.	1.64	1175.80	12.23
DIVERSION TO	31SSTH	41.	12.23	4.	1.	1.	1.64		
HYDROGRAPH AT	31SDIV	82.	12.23	7.	2.	1.	1.64		
ROUTED TO	RT31DI	81.	12.30	7.	2.	1.	1.64	1175.69	12.30
DIVERSION TO	29SSTH	9.	12.30	1.	0.	0.	1.64		
HYDROGRAPH AT	29SDIV	72.	12.30	6.	2.	1.	1.64		
ROUTED TO	RT29DI	71.	12.33	6.	2.	1.	1.64	1175.66	12.33
DIVERSION TO	28SSTH	5.	12.33	1.	0.	0.	1.64		
HYDROGRAPH AT	28SDIV	66.	12.33	6.	1.	1.	1.64		
ROUTED TO	RT28DI	62.	12.47	6.	1.	1.	1.64	1175.64	12.47
HYDROGRAPH AT	BAS17	75.	12.17	12.	4.	3.	0.16		
ROUTED TO	RT17	72.	12.30	12.	4.	3.	0.16	1175.67	12.30
HYDROGRAPH AT	BAS13	113.	12.10	15.	5.	3.	0.13		
DIVERSION TO	13PIPE	17.	12.10	8.	3.	2.	0.13		
HYDROGRAPH AT	13DIV	96.	12.10	7.	2.	1.	0.13		
ROUTED TO	RT13	92.	12.20	7.	2.	1.	0.13	1176.06	12.20
HYDROGRAPH AT	R13PIP	17.	11.80	8.	3.	2.	0.00		
ROUTED TO	RT13PA	17.	11.90	8.	3.	2.	0.00		
HYDROGRAPH AT	BAS14	57.	12.20	10.	3.	2.	0.09		
3 COMBINED AT	CP14	166.	12.20	25.	8.	5.	0.22		
DIVERSION TO	14PIPE	34.	12.20	12.	4.	3.	0.22		
HYDROGRAPH AT	14DIV	132.	12.20	13.	4.	3.	0.22		
ROUTED TO	RT14	128.	12.27	13.	4.	3.	0.22	1176.18	12.27
HYDROGRAPH AT	R14PIP	34.	12.20	12.	4.	3.	0.00		
ROUTED TO	RT14PA	34.	12.23	12.	4.	3.	0.00		
HYDROGRAPH AT	BAS15	89.	12.27	16.	5.	4.	0.10		
5 COMBINED AT	CP24	325.	12.27	58.	18.	13.	2.13		
DIVERSION TO	24SST	153.	12.27	33.	11.	8.	2.13		
HYDROGRAPH AT	24DIV	173.	12.27	25.	7.	5.	2.13		
ROUTED TO	RT24	172.	12.33	25.	7.	5.	2.13	1175.94	12.33
HYDROGRAPH AT	BAS12	34.	12.07	4.	1.	1.	0.03		
2 COMBINED AT	CP12	183.	12.33	29.	8.	6.	2.17		
DIVERSION TO	22STH	52.	12.33	9.	2.	2.	2.17		

HYDROGRAPH AT	22DIV	131.	12.33	20.	5.	4.	2.17		
ROUTED TO	RT22	130.	12.40	20.	5.	4.	2.17	1175.86	12.40
HYDROGRAPH AT	R10ST	108.	12.20	11.	3.	2.	0.00		
ROUTED TO	RT10ST	105.	12.27	11.	3.	2.	0.00	1176.06	12.27
HYDROGRAPH AT	BAS11	43.	12.07	5.	2.	1.	0.04		
3 COMBINED AT	CP20	238.	12.33	36.	10.	7.	2.20		
DIVERSION TO	20STH	86.	12.33	14.	4.	3.	2.20		
HYDROGRAPH AT	20DIV	152.	12.33	22.	6.	5.	2.20		
DIVERSION TO	20PIPE	40.	12.33	14.	4.	3.	2.20		
HYDROGRAPH AT	20PIP	112.	12.33	8.	2.	2.	2.20		
ROUTED TO	RT20	110.	12.40	8.	2.	2.	2.20	1175.82	12.40
HYDROGRAPH AT	R20PIP	40.	12.03	14.	4.	3.	0.00		
ROUTED TO	RT20PA	40.	12.10	14.	4.	3.	0.00		
HYDROGRAPH AT	9PIPE	105.	12.20	10.	3.	2.	0.00		
ROUTED TO	RT9PIP	105.	12.23	9.	3.	2.	0.00		
HYDROGRAPH AT	BAS28	61.	12.10	8.	2.	2.	0.06		
5 COMBINED AT	CP18	290.	12.30	40.	12.	9.	2.66		
DIVERSION TO	18SPIP	125.	12.30	31.	10.	7.	2.66		
HYDROGRAPH AT	18DIV	165.	12.30	9.	2.	2.	2.66		
DIVERSION TO	CAMELW	50.	12.30	4.	1.	1.	2.66		
HYDROGRAPH AT	18DIVA	115.	12.30	5.	1.	1.	2.66		
ROUTED TO	RTMALL	109.	12.40	5.	1.	1.	2.66	100.66	12.40
HYDROGRAPH AT	BAS1H	274.	12.93	97.	30.	22.	0.59		
ROUTED TO	RT1H	273.	13.10	97.	30.	22.	0.59	1001.56	13.10
HYDROGRAPH AT	BAS2H	146.	12.57	38.	12.	9.	0.22		
2 COMBINED AT	CP2H	369.	12.93	134.	42.	30.	0.81		
ROUTED TO	RT2H	363.	13.20	133.	42.	30.	0.81	1001.85	13.20
HYDROGRAPH AT	BAS3H	136.	12.57	35.	11.	8.	0.18		
2 COMBINED AT	CP3H	437.	13.10	166.	53.	38.	0.99		
ROUTED TO	RT3H	431.	13.37	166.	53.	38.	0.99	1002.04	13.37
HYDROGRAPH AT	BAS4H	276.	12.57	72.	23.	16.	0.37		
2 COMBINED AT	CP4H	559.	13.20	234.	76.	54.	1.37		
DIVERSION TO	4HSTH	343.	13.20	144.	46.	33.	1.37		

HYDROGRAPH AT	DIV4H	216.	13.20	90.	29.	21.	1.37		
ROUTED TO	RT4H	201.	13.90	88.	29.	21.	1.37	1001.81	13.90
HYDROGRAPH AT	BAS5H	123.	12.57	32.	10.	7.	0.18		
2 COMBINED AT	CP5H	230.	13.83	117.	39.	28.	1.55		
ROUTED TO	RT5H	229.	13.97	117.	39.	28.	1.55	1177.11	13.97
HYDROGRAPH AT	BAS6H	150.	12.50	37.	11.	8.	0.19		
2 COMBINED AT	CP6H	266.	12.63	152.	50.	36.	1.74		
ROUTED TO	RT6H	263.	12.77	151.	50.	36.	1.74	1177.23	12.77
HYDROGRAPH AT	BAS7H	223.	12.57	58.	18.	13.	0.31		
2 COMBINED AT	CP7H	471.	12.70	208.	68.	49.	2.05		
DIVERSION TO	OCCS	457.	12.33	199.	66.	48.	2.05		
HYDROGRAPH AT	DIV7H	14.	12.33	8.	3.	2.	2.05		
ROUTED TO	RT7H	14.	14.80	8.	3.	2.	2.05	1000.20	14.80
HYDROGRAPH AT	BAS8H	107.	12.43	25.	8.	6.	0.14		
2 COMBINED AT	CP8H	108.	12.43	32.	10.	7.	2.19		
ROUTED TO	RT8H	100.	12.80	32.	10.	7.	2.19	1001.03	12.80
HYDROGRAPH AT	BAS9H	250.	12.63	69.	22.	16.	0.34		
2 COMBINED AT	CP9H	341.	12.70	100.	32.	23.	2.53		
ROUTED TO	RT9H	341.	12.73	100.	32.	23.	2.53	1176.51	12.73
DIVERSION TO	9HSTH	181.	12.73	53.	17.	12.	2.53		
HYDROGRAPH AT	DIV9H	160.	12.73	47.	15.	11.	2.53		
ROUTED TO	RT9A	158.	12.87	47.	15.	11.	2.53	1176.22	12.87
HYDROGRAPH AT	RCANAL	760.	12.17	163.	56.	41.	0.00		
DIVERSION TO	CANALW	704.	10.80	107.	27.	19.	0.00		
HYDROGRAPH AT	26PIPE	56.	10.80	56.	30.	21.	0.00		
ROUTED TO	RT26PI	56.	10.90	56.	30.	21.	0.00		
HYDROGRAPH AT	BAS26H	90.	12.13	12.	4.	3.	0.06		
3 COMBINED AT	CP26H	227.	12.87	115.	48.	35.	2.59		
DIVERSION TO	40STR	145.	12.87	72.	30.	22.	2.59		
HYDROGRAPH AT	DIV26	81.	12.87	42.	18.	13.	2.59		
ROUTED TO	RT26H	81.	12.97	42.	18.	13.	2.59	1175.92	12.97
HYDROGRAPH AT	BAS34H	126.	12.27	23.	7.	5.	0.11		
HYDROGRAPH AT	RET38S	378.	12.23	41.	10.	7.	0.00		

ROUTED TO	R38STH	372.	12.37	41.	10.	7.	0.00	1176.56	12.37
HYDROGRAPH AT	RET37S	183.	12.23	20.	5.	4.	0.00		
ROUTED TO	R37STH	179.	12.40	20.	5.	4.	0.00	1176.20	12.40
HYDROGRAPH AT	RET36S	156.	12.17	19.	5.	4.	0.00		
ROUTED TO	R36STH	151.	12.37	19.	5.	4.	0.00	1176.14	12.37
5 COMBINED AT	CP34	879.	12.37	144.	45.	33.	2.70		
DIVERSION TO	36STH	524.	12.37	95.	31.	22.	2.70		
HYDROGRAPH AT	DIV34	354.	12.37	49.	15.	11.	2.70		
ROUTED TO	RT34	351.	12.47	49.	15.	11.	2.70	1176.53	12.47
HYDROGRAPH AT	R35P	35.	12.20	3.	1.	1.	0.00		
ROUTED TO	RT35P	31.	12.57	3.	1.	1.	0.00	1175.69	12.57
HYDROGRAPH AT	R35S	31.	12.20	3.	1.	1.	0.00		
ROUTED TO	RT35S	27.	12.57	3.	1.	1.	0.00	1175.67	12.57
HYDROGRAPH AT	R34P	16.	12.20	3.	1.	1.	0.00		
ROUTED TO	RT34P	15.	12.60	3.	1.	1.	0.00	1175.59	12.60
4 COMBINED AT	CP32	417.	12.50	58.	17.	12.	2.70		
HYDROGRAPH AT	R32P	31.	12.23	3.	1.	1.	0.00		
ROUTED TO	RT32P	30.	12.50	3.	1.	1.	0.00	1175.69	12.50
HYDROGRAPH AT	R32S	158.	12.20	34.	10.	7.	0.00		
ROUTED TO	RT32S	152.	12.33	34.	10.	7.	0.00	1176.14	12.33
HYDROGRAPH AT	BAS42H	151.	12.30	29.	9.	6.	0.15		
4 COMBINED AT	CP42	708.	12.47	124.	37.	27.	2.86		
DIVERSION TO	32STH	363.	12.47	69.	21.	15.	2.86		
HYDROGRAPH AT	DIV42	345.	12.47	55.	16.	12.	2.86		
ROUTED TO	RT42W	341.	12.57	55.	16.	12.	2.86	1176.51	12.57
HYDROGRAPH AT	R31STH	41.	12.23	4.	1.	1.	0.00		
ROUTED TO	RT31S	34.	12.50	4.	1.	1.	0.00	1175.71	12.50
HYDROGRAPH AT	R29STH	9.	12.30	1.	0.	0.	0.00		
ROUTED TO	RT29S	9.	12.73	1.	0.	0.	0.00	1175.53	12.73
HYDROGRAPH AT	R28STH	5.	12.33	1.	0.	0.	0.00		
ROUTED TO	RT28S	4.	12.83	1.	0.	0.	0.00	1175.47	12.83
HYDROGRAPH AT	BAS49H	130.	12.30	25.	8.	6.	0.12		
5 COMBINED AT	CP49	476.	12.53	85.	25.	18.	2.98		

DIVERSION TO	28STH	225.	12.53	48.	15.	11.	2.98		
HYDROGRAPH AT	DIV49	251.	12.53	37.	10.	7.	2.98		
ROUTED TO	RT28W	247.	12.63	37.	10.	7.	2.98	1176.34	12.63
HYDROGRAPH AT	24SST	153.	12.27	33.	11.	8.	0.00		
DIVERSION TO	24PIPE	65.	12.27	20.	7.	5.	0.00		
HYDROGRAPH AT	24DIV	88.	12.27	13.	4.	3.	0.00		
ROUTED TO	R24SST	85.	12.40	13.	4.	3.	0.00	1175.94	12.40
HYDROGRAPH AT	R24PIP	65.	12.27	20.	7.	5.	0.00		
ROUTED TO	RT24PI	65.	12.33	20.	7.	5.	0.00		
HYDROGRAPH AT	BAS56H	181.	12.33	37.	11.	8.	0.20		
4 COMBINED AT	CP24	507.	12.53	106.	33.	24.	3.17		
DIVERSION TO	24CSTH	292.	12.53	68.	21.	15.	3.17		
HYDROGRAPH AT	DIV24	214.	12.53	39.	12.	8.	3.17		
ROUTED TO	RT24W	211.	12.67	39.	12.	8.	3.17	1176.27	12.67
HYDROGRAPH AT	R22ST	52.	12.33	9.	2.	2.	0.00		
ROUTED TO	RT22ST	50.	12.53	9.	2.	2.	0.00	1175.79	12.53
HYDROGRAPH AT	R20ST	86.	12.33	14.	4.	3.	0.00		
ROUTED TO	RT20ST	83.	12.43	14.	4.	3.	0.00	1175.93	12.43
HYDROGRAPH AT	BAS29H	182.	12.33	37.	12.	8.	0.16		
4 COMBINED AT	CP20	481.	12.47	97.	30.	21.	3.33		
DIVERSION TO	20CSTH	236.	12.47	59.	19.	13.	3.33		
HYDROGRAPH AT	DIV20	244.	12.47	38.	11.	8.	3.33		
DIVERSION TO	CAMPBL	122.	12.47	19.	5.	4.	3.33		
HYDROGRAPH AT	HIGHLD	122.	12.47	19.	5.	4.	3.33		
ROUTED TO	RTHIGH	121.	12.53	19.	5.	4.	3.33	1176.06	12.53
HYDROGRAPH AT	R18SPI	125.	12.17	31.	10.	7.	0.00		
ROUTED TO	R18SPA	125.	12.20	31.	10.	7.	0.00		
HYDROGRAPH AT	BAS40A	56.	12.23	10.	3.	2.	0.07		
4 COMBINED AT	CP40A	383.	12.40	66.	19.	14.	6.06		
DIVERSION TO	HIWEST	30.	12.40	22.	9.	6.	6.06		
HYDROGRAPH AT	CPHI18	353.	12.40	43.	11.	8.	6.06		
DIVERSION TO	18PIPA	125.	12.40	27.	7.	5.	6.06		
HYDROGRAPH AT	18SSTH	228.	12.40	16.	4.	3.	6.06		

ROUTED TO	BASIN	0.	0.03	0.	0.	0.	6.06	1133.11	12.97
ROUTED TO	RT18ST	0.	0.03	0.	0.	0.	6.06	1175.40	0.00
HYDROGRAPH AT	RCAMPB	122.	12.47	19.	5.	4.	0.00		
ROUTED TO	RDIV20	121.	12.53	19.	5.	4.	0.00	1176.06	12.53
HYDROGRAPH AT	BAS40B	56.	12.23	10.	3.	2.	0.07		
4 COMBINED AT	CP18	159.	12.50	32.	9.	7.	6.15		
DIVERSION TO	18PIPB	125.	12.50	30.	9.	6.	6.15		
HYDROGRAPH AT	18CAMP	34.	12.50	2.	0.	0.	6.15		
ROUTED TO	BASIN	0.	0.03	0.	0.	0.	6.15	1130.28	12.77
ROUTED TO	R18STB	0.	0.03	0.	0.	0.	6.15	1175.40	0.00
HYDROGRAPH AT	ROCCS	457.	12.70	199.	66.	48.	0.00		
ROUTED TO	RTOCCS	457.	12.73	199.	66.	48.	0.00	1177.16	12.73
DIVERSION TO	OCCS	409.	12.73	168.	55.	39.	0.00		
HYDROGRAPH AT	DIOCCS	49.	12.73	32.	11.	8.	0.00		
ROUTED TO	RTOCCA	48.	12.83	32.	11.	8.	0.00	1175.78	12.83
HYDROGRAPH AT	R9HSTH	181.	12.73	53.	17.	12.	0.00		
ROUTED TO	RT9HST	180.	12.87	53.	17.	12.	0.00	1176.20	12.87
HYDROGRAPH AT	BAS20H	197.	12.10	26.	8.	6.	0.14		
3 COMBINED AT	CP20H	256.	12.83	110.	36.	26.	0.14		
DIVERSION TO	20STH	140.	12.83	60.	20.	14.	0.14		
HYDROGRAPH AT	DIV20	115.	12.83	49.	16.	12.	0.14		
ROUTED TO	RT20W	114.	12.97	49.	16.	12.	0.14	1176.04	12.97
HYDROGRAPH AT	R40STR	145.	12.87	72.	30.	22.	0.00		
ROUTED TO	RT40S	144.	13.00	72.	30.	22.	0.00	1176.12	13.00
HYDROGRAPH AT	BAS27H	183.	12.30	35.	11.	8.	0.17		
3 COMBINED AT	CP27H	403.	12.27	156.	57.	41.	0.31		
DIVERSION TO	27STH	296.	12.27	136.	52.	37.	0.31		
HYDROGRAPH AT	DIV27H	106.	12.27	20.	5.	4.	0.31		
ROUTED TO	RT27W	104.	12.40	20.	5.	4.	0.31	1176.00	12.40
HYDROGRAPH AT	R36STH	156.	12.17	19.	5.	4.	0.00		
ROUTED TO	RT36ST	151.	12.37	19.	5.	4.	0.00	1176.14	12.37
HYDROGRAPH AT	BAS35H	157.	12.33	31.	10.	7.	0.19		
3 COMBINED AT	CP35H	409.	12.37	70.	20.	14.	0.50		

DIVERSION TO	35HSTH	245.	12.37	49.	14.	10.	0.50		
HYDROGRAPH AT	DIV35H	165.	12.37	21.	6.	4.	0.50		
ROUTED TO	RT35HW	161.	12.50	21.	6.	4.	0.50	1176.16	12.50
HYDROGRAPH AT	R32STH	363.	12.47	69.	21.	15.	0.00		
ROUTED TO	RT32ST	359.	12.57	69.	21.	15.	0.00	1176.54	12.57
HYDROGRAPH AT	BAS43H	194.	12.33	39.	12.	9.	0.22		
3 COMBINED AT	CP43H	682.	12.50	129.	39.	28.	0.71		
DIVERSION TO	43HSTH	370.	12.50	84.	26.	19.	0.71		
HYDROGRAPH AT	DIV43H	312.	12.50	45.	12.	9.	0.71		
ROUTED TO	RT43HW	308.	12.60	45.	12.	9.	0.71	1176.45	12.60
HYDROGRAPH AT	R28STH	225.	12.53	48.	15.	11.	0.00		
ROUTED TO	RT28ST	221.	12.63	48.	15.	11.	0.00	1176.29	12.63
HYDROGRAPH AT	BAS50H	168.	12.33	35.	11.	8.	0.21		
3 COMBINED AT	CP50H	654.	12.60	127.	38.	27.	0.92		
DIVERSION TO	50HSTH	291.	12.60	72.	23.	16.	0.92		
HYDROGRAPH AT	DIV50H	363.	12.60	55.	15.	11.	0.92		
ROUTED TO	RT50HW	359.	12.70	55.	15.	11.	0.92	1176.54	12.70
HYDROGRAPH AT	R24STH	292.	12.53	68.	21.	15.	0.00		
ROUTED TO	RT24ST	289.	12.63	68.	21.	15.	0.00	1176.42	12.63
HYDROGRAPH AT	BAS57H	216.	12.33	44.	13.	10.	0.25		
3 COMBINED AT	CP57H	785.	12.63	166.	50.	36.	1.17		
DIVERSION TO	57HSTH	416.	12.63	108.	35.	25.	1.17		
HYDROGRAPH AT	DIV57H	369.	12.63	58.	15.	11.	1.17		
ROUTED TO	RT57HW	366.	12.73	58.	15.	11.	1.17	1176.55	12.73
HYDROGRAPH AT	R20STH	236.	12.47	59.	19.	13.	0.00		
ROUTED TO	RT20ST	234.	12.60	59.	19.	13.	0.00	1176.32	12.60
HYDROGRAPH AT	BAS30H	181.	12.33	37.	11.	8.	0.25		
3 COMBINED AT	CP30H	708.	12.63	154.	45.	32.	1.42		
DIVERSION TO	30HSTH	345.	12.63	100.	32.	23.	1.42		
HYDROGRAPH AT	DIV30H	363.	12.63	54.	13.	10.	1.42		
DIVERSION TO	INDIAN	182.	12.63	27.	7.	5.	1.42		
HYDROGRAPH AT	DIV30A	182.	12.63	27.	7.	5.	1.42		
ROUTED TO	RTGLEN	181.	12.70	27.	7.	5.	1.42	1176.21	12.70

HYDROGRAPH AT	BAS41A	50.	12.23	8.	3.	2.	0.05		
3 COMBINED AT	CP41A	201.	12.63	35.	9.	7.	7.62		
DIVERSION TO	18PIPC	125.	12.63	29.	8.	6.	7.62		
HYDROGRAPH AT	18GLEN	76.	12.63	6.	2.	1.	7.62		
ROUTED TO	BASIN	0.	0.03	0.	0.	0.	7.62	1131.01	13.10
ROUTED TO	R18STC	0.	0.03	0.	0.	0.	7.62	1175.40	0.00
HYDROGRAPH AT	RT18GP	125.	12.30	29.	8.	6.	0.00		
ROUTED TO	RT18PC	125.	12.33	29.	8.	6.	0.00		
HYDROGRAPH AT	RINDIA	182.	12.63	27.	7.	5.	0.00		
ROUTED TO	RT30HW	181.	12.70	27.	7.	5.	0.00	1176.21	12.70
HYDROGRAPH AT	BAS41H	50.	12.23	8.	3.	2.	0.05		
4 COMBINED AT	CP41H	326.	12.63	64.	17.	12.	7.67		

K&T 4PRINT

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)
R1APIP	MANE	0.50	1.01	718.00	-1.00	2.00	1.01	718.00	-1.00
R1BPIP	MANE	1.06	23.57	724.29	1.87	2.00	23.54	724.00	1.87

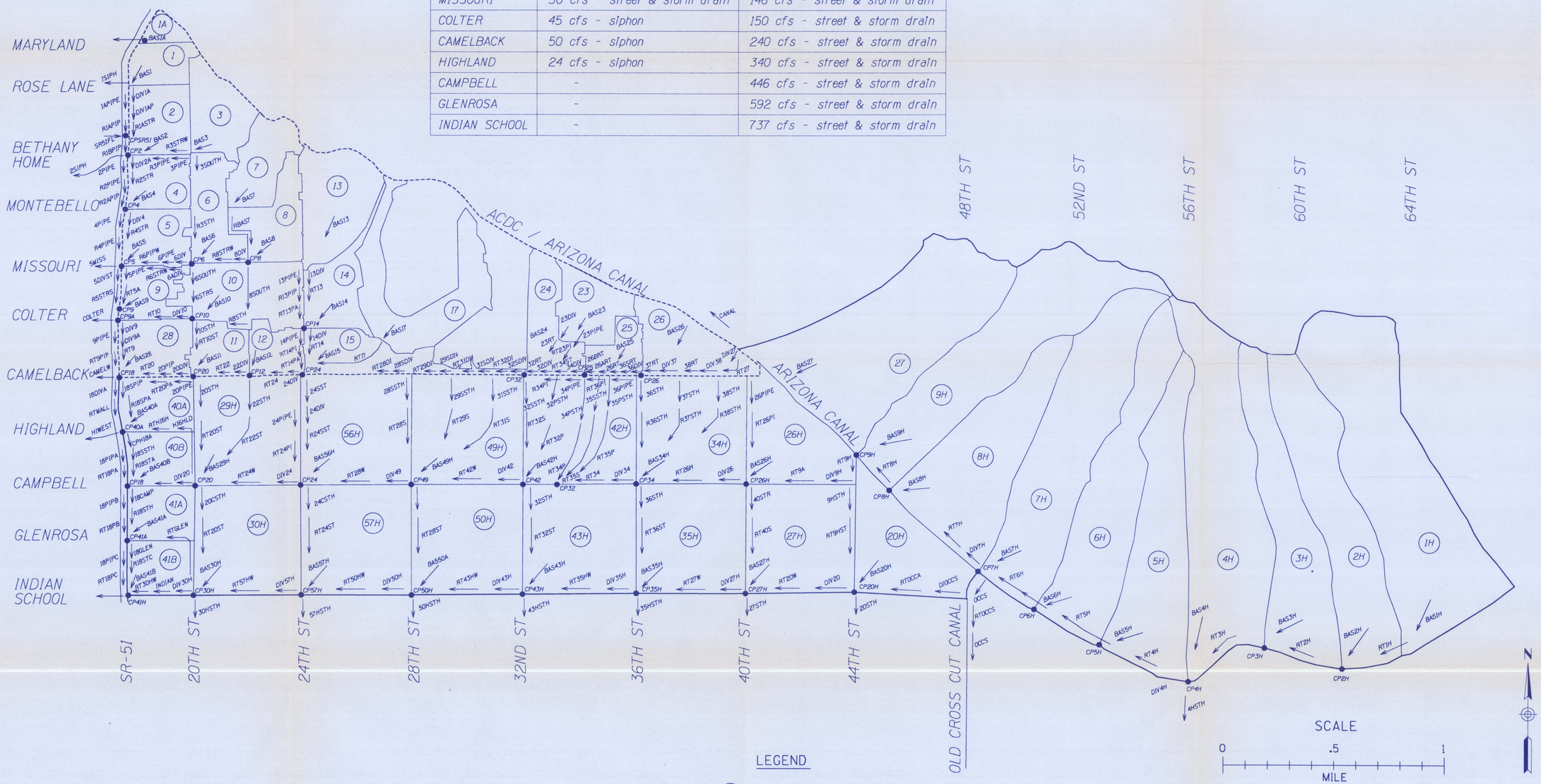
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1599E+01 EXCESS=0.0000E+00 OUTFLOW=0.1599E+01 BASIN STORAGE=0.8032E-04 PERCENT ERROR= 0.0

R3PIPE	MANE	2.00	20.13	718.00	-1.00	2.00	20.13	718.00	-1.00
R2PIPE	MANE	1.25	48.99	727.84	-1.00	2.00	48.77	728.00	-1.00
R2APIP	MANE	1.25	47.83	729.46	-1.00	2.00	47.46	728.00	-1.00
R4PIPE	MANE	2.00	67.99	728.00	-1.00	2.00	67.99	728.00	-1.00
R6PIPW	MANE	2.00	65.03	728.00	-1.00	2.00	65.03	728.00	-1.00
RT5A	MANE	1.96	116.20	728.56	-1.00	2.00	116.07	728.00	-1.00
RT36PI	MANE	2.00	27.07	718.00	-1.00	2.00	27.07	718.00	-1.00
RT23PI	MANE	2.00	13.01	714.00	-1.00	2.00	13.01	714.00	-1.00
RT34PI	MANE	2.00	36.53	718.00	-1.00	2.00	36.53	718.00	-1.00
RT13PA	MANE	2.00	17.02	714.00	-1.00	2.00	17.02	714.00	-1.00
RT14PA	MANE	2.00	34.35	734.00	-1.00	2.00	34.35	734.00	-1.00
RT20PA	MANE	2.00	40.17	726.00	-1.00	2.00	40.17	726.00	-1.00

RT9PIP	MANE	1.81	104.63	733.80	-1.00	2.00	104.57	734.00	-1.00
RT26PI	MANE	2.00	56.12	654.00	-1.00	2.00	56.12	654.00	-1.00
RT24PI	MANE	2.00	65.13	740.00	-1.00	2.00	65.13	740.00	-1.00
R18SPA	MANE	1.80	125.05	732.02	-1.00	2.00	125.04	732.00	-1.00
RT18PC	MANE	1.77	125.72	739.55	-1.00	2.00	125.46	740.00	-1.00

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

FLOW DATA AT SR-51		
STREET	WEST FLOW - TYPE	SOUTH FLOW - TYPE
MARYLAND	24 cfs - siphon	-
ROSE LANE	10 cfs - siphon	26 cfs - street & storm drain
BETHANY HOME	50 cfs - siphon	48 cfs - street & storm drain
MONTEBELLO	-	70 cfs - street & storm drain
MISSOURI	30 cfs - street & storm drain	146 cfs - street & storm drain
COLTER	45 cfs - siphon	150 cfs - street & storm drain
CAMELBACK	50 cfs - siphon	240 cfs - street & storm drain
HIGHLAND	24 cfs - siphon	340 cfs - street & storm drain
CAMPBELL	-	446 cfs - street & storm drain
GLENROSA	-	592 cfs - street & storm drain
INDIAN SCHOOL	-	737 cfs - street & storm drain



LEGEND

(41A) Sub-basin

Burgess & Niple Drainage Area

HNTB Drainage Area

← 331 Flow (cfs)

50-YR 24-HR DISCHARGE VALUES

	NAME	DATE
DESIGN	HMA	5/7/97
DRAWN	JMC	5/7/97
CHECKED	JJH	5/7/97

PREMIER

SR-51 INDIAN SCHOOL ROAD TO BETHANY HOME ROAD

DRAINAGE AREA MAP

FIGURE 2

t:\9714\exhib\exhibity.dgn Jun. 05, 1998 10:49:17 hpljet3

SECTION 4.2 METHODS OF ANALYSIS ON-SITE DRAINAGE

Rainfall
- **D-D-F Worksheets**
- **I-D-F**

Highland Avenue Pump Station
- **On-Site HEC-1 Model**
- **Stage/Storage Calculations for Ponding in Roadway**
- **Pump Curve With Superimposed System Curves**

Rainfall

ARIZONA DEPARTMENT OF TRANSPORTATION
HYDROLOGIC DESIGN DATA

Project No. 110-5-11 TRACS No. _____
Project Name _____ Date _____
Location/Station _____
Designer _____ Checker _____

FIGURE 1-2 Sheet 1 of 4

RAINFALL DEPTH-DURATION-FREQUENCY (D-D-F) WORKSHEET

PART A

Determine rainfall depths from the isopluvial maps **(Appendix B)**:

2-year, 6-hour		$P_{2,6'}$ = _____
2-year, 24-hour		$P_{2,24'}$ = _____
100-year, 6-hour		$P_{100,6'}$ = _____
100-year, 24-hour		$P_{100,24'}$ = _____

PART B

Compute the following:

2-year, 1-hour	$-0.011 + \frac{.942\,(P_{2,6'})^2}{(P_{2,24'})} = -0.011 + \frac{.942\,(\ \ )^2}{(\ \ )}$	$P_{2,1'}$ = _____
100-year, 1-hour	$.494 + \frac{.755\,(P_{100,6'})^2}{(P_{100,24'})} = .494 + \frac{.755\,(3.2\ )^2}{(\ 4.6\ )}$	$P_{100,1'}$ = _____
2-year, 2-hour	$.341(P_{2,6'}) + .659(P_{2,1'}) = .341(\ \ ) + .659(\ \ )$	$P_{2,2'}$ = _____
2-year, 3-hour	$.569(P_{2,6'}) + .431(P_{2,1'}) = .569(\ \ ) + .431(\ \ )$	$P_{2,3'}$ = _____
2-year, 12-hour	$.500(P_{2,6'}) + .500(P_{2,24'}) = .500(\ \ ) + .500(\ \ )$	$P_{2,12'}$ = 1.3
100-year, 2-hour	$.341(P_{100,6'}) + .659(P_{100,1'}) = .341(\ \ ) + .659(\ \ )$	$P_{100,2'}$ = _____
100-year, 3-hour	$.569(P_{100,6'}) + .431(P_{100,1'}) = .569(\ \ ) + .431(\ \ )$	$P_{100,3'}$ = _____
100-year, 12-hour	$.500(P_{100,6'}) + .500(P_{100,24'}) = .500(\ \ ) + .500(\ \ )$	$P_{100,12'}$ = 3.60

Note: 5" denotes 5 minutes, etc.; 1' denotes 1 hour, etc.

FIGURE 1-2

RAINFALL DEPTH-DURATION-FREQUENCY (D-D-F) WORKSHEET
(Continued)

PART C

Determine the short-duration rainfall zone (Figure 1-1):

Zone = 5

Determine the short-duration rainfall ratios (Table 1-1):

Duration (Minutes)	Ratio	
	2-Year	100-Year
5	A = [illegible]	E = [illegible]
10	B = [illegible]	F = [illegible]
15	C = [illegible]	G = [illegible]
30	D = [illegible]	H = [illegible]

Compute the following:

2-year, 5-min	(A) $(P_{2,1'})$ = ([illegible]) ([illegible])	$P_{2,5'}$ = [illegible]
2-year, 10-min	(B) $(P_{2,1'})$ = ([illegible]) ([illegible])	$P_{2,10'}$ = [illegible]
2-year, 15-min	(C) $(P_{2,1'})$ = ([illegible]) ([illegible])	$P_{2,15'}$ = [illegible]
2-year, 30-min	(D) $(P_{2,1'})$ = ([illegible]) ([illegible])	$P_{2,30'}$ = [illegible]
100-year, 5-min	(E) $(P_{100,1'})$ = ([illegible]) ([illegible])	$P_{100,5'}$ = [illegible]
100-year, 10-min	(F) $(P_{100,1'})$ = ([illegible]) ([illegible])	$P_{100,10'}$ = [illegible]
100-year, 15-min	(G) $(P_{100,1'})$ = ([illegible]) ([illegible])	$P_{100,15'}$ = [illegible]
100-year, 30-min	(H) $(P_{100,1'})$ = ([illegible]) ([illegible])	$P_{100,30'}$ = [illegible]

Note: 5" denotes 5 minutes, etc.; 1' denotes 1 hour, etc.

FIGURE 1-2
RAINFALL DEPTH-DURATION-FREQUENCY (D-D-F) WORKSHEET
(Continued)

PART D

For any flood frequency (T-yr) other than 2-year or 100-year, calculate the rainfall depth for each rainfall duration (t) by the following equation:

$$P_{T,t} = (X)(P_{2,t}) + (Y)(P_{100,t})$$

where X and Y for a selected frequency (T-yr) are:

Frequency (T-yr)	X	Y
5-year	.674	.278
10-year	.496	.449
25-year	.293	.669
50-year	.146	.835
500-year	-.337	1.381

Selected frequency (T-yr) = 10 X = 0.496 Y = 0.449

5-min	$(X)(P_{2,5'}) + (Y)(P_{100,5'})$ = ( )( ) + ( )( )	$P_{\_,5'}$ =
10-min	$(X)(P_{2,10'}) + (Y)(P_{100,10'})$ = ( )( ) + ( )( )	$P_{10,10'}$ =
15-min	$(X)(P_{2,15'}) + (Y)(P_{100,15'})$ = ( )( ) + ( )( )	$P_{\_,15'}$ =
30-min	$(X)(P_{2,30'}) + (Y)(P_{100,30'})$ = ( )( ) + ( )( )	$P_{\_,30'}$ =
1-hour	$(X)(P_{2,1'}) + (Y)(P_{100,1'})$ = ( )( ) + ( )( )	$P_{\_,1'}$ =
2-hour	$(X)(P_{2,2'}) + (Y)(P_{100,2'})$ = ( )( ) + ( )( )	$P_{\_,2'}$ =
3-hour	$(X)(P_{2,3'}) + (Y)(P_{100,3'})$ = ( )( ) + ( )( )	$P_{\_,3'}$ =
6-hour	$(X)(P_{2,6'}) + (Y)(P_{100,6'})$ = ( )( ) + ( )( )	$P_{\_,6'}$ =
12-hour	$(X)(P_{2,12'}) + (Y)(P_{100,12'})$ = ( )( ) + ( )( )	$P_{\_,12'}$ =
24-hour	$(X)(P_{2,24'}) + (Y)(P_{100,24'})$ = (1.4)(0.496) + (4.0)(0.449)	$P_{10,24'}$ = 2.47

Note: 5" denotes 5 minutes, etc.; 1' denotes 1 hour, etc.

FIGURE 1-2
RAINFALL DEPTH-DURATION-FREQUENCY (D-D-F) WORKSHEET
(Continued)

PART D

For any flood frequency (T-yr) other than 2-year or 100-year, calculate the rainfall depth for each rainfall duration (*t*) by the following equation:

$$P_{T,t} = (X)(P_{2,t}) + (Y)(P_{100,t})$$

where X and Y for a selected frequency (T-yr) are:

Frequency (T-yr)	X	Y
5-year	.674	.278
10-year	.496	.449
25-year	.293	.669
50-year	.146	.835
500-year	-.337	1.381

Selected frequency (T-yr) = 50 X = [illegible] Y = [illegible]

5-min	$(X)(P_{2,5'}) + (Y)(P_{100,5'})$ = ( )( ) + ( )( )	$P_{50,5'}$ = 0.66
10-min	$(X)(P_{2,10'}) + (Y)(P_{100,10'})$ = ( )( ) + ( )( )	$P_{\_,10'}$ = 1.01
15-min	$(X)(P_{2,15'}) + (Y)(P_{100,15'})$ = ( )( ) + ( )( )	$P_{\_,15'}$ = 1.23
30-min	$(X)(P_{2,30'}) + (Y)(P_{100,30'})$ = ( )( ) + ( )( )	$P_{\_,30'}$ = 1.74
1-hour	$(X)(P_{2,1'}) + (Y)(P_{100,1'})$ = ( )( ) + ( )( )	$P_{\_,1'}$ = 2.17
2-hour	$(X)(P_{2,2'}) + (Y)(P_{100,2'})$ = ( )( ) + ( )( )	$P_{\_,2'}$ = [illegible]
3-hour	$(X)(P_{2,3'}) + (Y)(P_{100,3'})$ = ( )( ) + ( )( )	$P_{\_,3'}$ = [illegible]
6-hour	$(X)(P_{2,6'}) + (Y)(P_{100,6'})$ = ( )( ) + ( )( )	$P_{\_,6'}$ = [illegible]
12-hour	$(X)(P_{2,12'}) + (Y)(P_{100,12'})$ = ( )( ) + ( )( )	$P_{\_,12'}$ = 3.20
24-hour	$(X)(P_{2,24'}) + (Y)(P_{100,24'})$ = ( )( ) + ( )( )	$P_{50,24'}$ = 3.54

Note: 5" denotes 5 minutes, etc.; 1' denotes 1 hour, etc.

FIGURE 1-2
RAINFALL DEPTH-DURATION-FREQUENCY (D-D-F) WORKSHEET
(Continued)

PART D

For any flood frequency (T-yr) other than 2-year or 100-year, calculate the rainfall depth for each rainfall duration (t) by the following equation:

$$P_{T,t} = (X)(P_{2,t}) + (Y)(P_{100,t})$$

where X and Y for a selected frequency (T-yr) are:

Frequency (T-yr)	X	Y
5-year	.674	.278
10-year	.496	.449
25-year	.293	.669
50-year	.146	.835
500-year	-.337	1.381

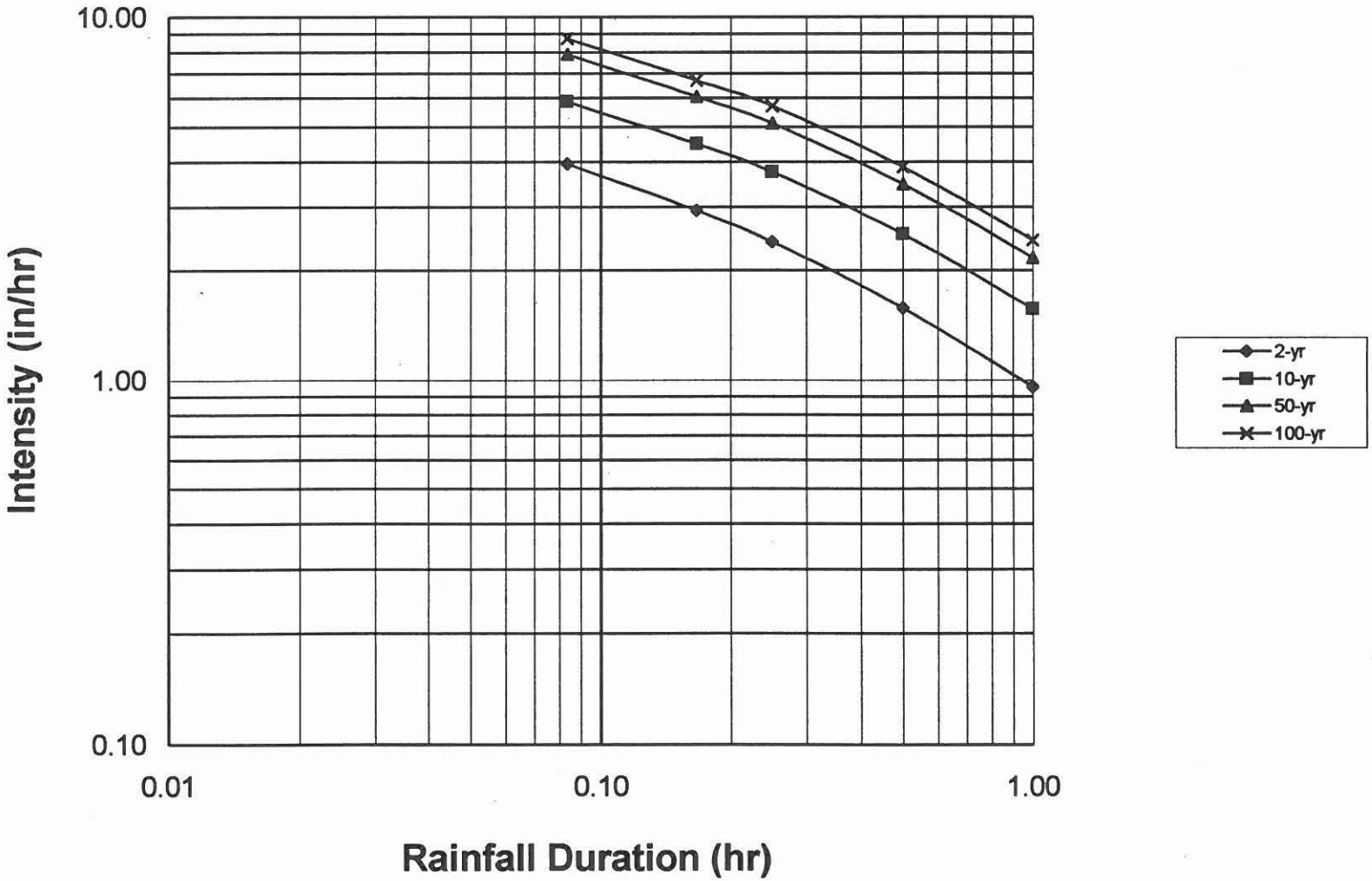
Selected frequency (T-yr) = 25 X = [illegible] Y = [illegible]

5-min	$(X)(P_{2,5'}) + (Y)(P_{100,5'})$ = ( )( ) + ( )( )	$P_{25,5'}$ = [illegible]
10-min	$(X)(P_{2,10'}) + (Y)(P_{100,10'})$ = ( )( ) + ( )( )	$P_{25,10'}$ = 0.39
15-min	$(X)(P_{2,15'}) + (Y)(P_{100,15'})$ = ( )( ) + ( )( )	$P_{25,15'}$ = [illegible]
30-min	$(X)(P_{2,30'}) + (Y)(P_{100,30'})$ = ( )( ) + ( )( )	$P_{25,30'}$ = 1.53
1-hour	$(X)(P_{2,1'}) + (Y)(P_{100,1'})$ = ( )( ) + ( )( )	$P_{25,1'}$ = [illegible]
2-hour	$(X)(P_{2,2'}) + (Y)(P_{100,2'})$ = ( )( ) + ( )( )	$P_{25,2'}$ = [illegible]
3-hour	$(X)(P_{2,3'}) + (Y)(P_{100,3'})$ = ( )( ) + ( )( )	$P_{25,3'}$ = [illegible]
6-hour	$(X)(P_{2,6'}) + (Y)(P_{100,6'})$ = ( )( ) + ( )( )	$P_{25,6'}$ = [illegible]
12-hour	$(X)(P_{2,12'}) + (Y)(P_{100,12'})$ = ( )( ) + ( )( )	$P_{25,12'}$ = 2.79
24-hour	$(X)(P_{2,24'}) + (Y)(P_{100,24'})$ = ( )( ) + ( )( )	$P_{25,24'}$ = 3.09

Note: 5" denotes 5 minutes, etc.; 1' denotes 1 hour, etc.

SR51 I-D-F Curves

Site Specific Curves



Highland Avenue Pump Station

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              MAY   1991               *
*            VERSION 4.0.1E             *
*     Lahey F77L-EM/32 version 5.01     *
*       Dodson & Associates, Inc.       *
*  RUN DATE  12/02/97  TIME  13:28:49   *
*****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*    HYDROLOGIC ENGINEERING CENTER
*          609 SECOND STREET
*       DAVIS, CALIFORNIA 95616
*          (916) 551-1748
*
*************************************
```

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

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

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

```
1                                          HEC-1 INPUT                                                    PAGE  1

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

        1           ID         ADOT
        2           ID         SR51 Drainage Assessment
        3           ID         Onsite Storm Drain System
        4           ID
        5           ID         Job No. 11045-11
        6           ID         Parsons Brinckerhoff
        7           ID         December 2, 1997
        8           ID         File: PUMP2.DAT
        9           ID
       10           ID          METHODOLOGY:
       11           ID                      *SCS DIMENSIONLESS UNIT HYDROGRAPH USED TO APPROXIMATE
       12           ID                       RATIONAL METHOD RUNOFF HYDROGRAPH
       13           ID                      *INPUT BASED ON RATIONAL METHOD CALCULATIONS
       14           ID                       PER ADOT STANDARDS
       15           ID
       16           ID         THE PURPOSE OF THIS MODEL IS TO PROVIDE AN INPUT HYDROGRAPH TO MODEL
       17           ID         PERFORMANCE OF THE HIGHLAND AVENUE PUMP STATION.
       18           ID
       19           ID
       20           ID         THE MODEL HAS ONLY ONE SUBBASIN.  THERE IS NO ROUTING OF FLOWS
       21           ID         THROUGH THE STORM DRAIN. Tc IN THE STORM DRAIN WERE CALCULATED
       22           ID         BY WINSTORM.
       23           ID
       24           ID         BASIN AREAS SHOWN ARE COMBINED CA VALUES
       25           ID
       26           ID         MODEL PREPARED BY: ALAN HUMPHREY - PB - OCTOBER 29, 1997
       27           ID               REVISED  BY: RAY JORDAN    - PB _ DECEMBER 1, 1997
       28           ID
                    *DIAGRAM
*** FREE ***
       29           IT       2 29OCT97       0     360
       30           IO       0

       31           KK  10EXST
```

```
          32          KM    10-YEAR STORM, EXISTING CONDITION
          33          BA   .0508
          34          PH       0       0     .49     .94    1.57    1.72    1.83    2.03
          35          LS       0      96     100
          36          UD    .150
                      *

          37          KK   25HOV
          38          KM    25-YEAR STORM, WITH HOV LANES
          39          KM    BA CARD NOT ADJUSTED, MATCHES RATIONAL PEAK Q
          40          BA  0.0540
          41          PH       0       0     .62    1.13    1.91    2.10    2.24    2.49
          42          LS       0      96     100
          43          UD   0.150
                      *
1                                                HEC-1 INPUT                                                PAGE  2

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


          44          KK   50HOV
          45          KM    50-YEAR STORM, WITH HOV LANES
          46          KM    BA CARD ADJUSTED TO MATCH RATIONAL PEAK Q
          47          BA   .0555
          48          PH       0       0     .66    1.28    2.17     2.4    2.55    2.85
          49          LS       0      96     100
          50          UD   0.150
                      *
          51          ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   31       10EXST
                 .
                 .
   37            .       25HOV
                 .          .
                 .          .
   44            .          .       50HOV

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1*****************************************                                    ************************************
*                                         *                                    *                                  *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)     *                                    *   U.S. ARMY CORPS OF ENGINEERS   *
*              MAY   1991                 *                                    *   HYDROLOGIC ENGINEERING CENTER  *
*            VERSION 4.0.1E               *                                    *         609 SECOND STREET        *
*     Lahey F77L-EM/32 version 5.01       *                                    *      DAVIS, CALIFORNIA 95616     *
*       Dodson & Associates, Inc.         *                                    *          (916) 551-1748          *
*  RUN DATE  12/02/97  TIME  13:28:49     *                                    *                                  *
*****************************************                                    ************************************
```

ADOT
SR51 Drainage Assessment
Onsite Storm Drain System

Job No. 11045-11
Parsons Brinckerhoff
December 2, 1997
File: PUMP2.DAT

METHODOLOGY:

*SCS DIMENSIONLESS UNIT HYDROGRAPH USED TO APPROXIMATE RATIONAL METHOD RUNOFF HYDROGRAPH
*INPUT BASED ON RATIONAL METHOD CALCULATIONS

PER ADOT STANDARDS

THE PURPOSE OF THIS MODEL IS TO PROVIDE AN INPUT HYDROGRAPH TO MODEL PERFORMANCE OF THE HIGHLAND AVENUE PUMP STATION.

THE MODEL HAS ONLY ONE SUBBASIN. THERE IS NO ROUTING OF FLOWS THROUGH THE STORM DRAIN. Tc IN THE STORM DRAIN WERE CALCULATED BY WINSTORM.

BASIN AREAS SHOWN ARE COMBINED CA VALUES

MODEL PREPARED BY: ALAN HUMPHREY - PB - OCTOBER 29, 1997
REVISED BY: RAY JORDAN - PB _ DECEMBER 1, 1997

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

   IT        HYDROGRAPH TIME DATA
                    NMIN          2  MINUTES IN COMPUTATION INTERVAL
                   IDATE     29OCT97  STARTING DATE
                   ITIME        0000  STARTING TIME
                      NQ         360  NUMBER OF HYDROGRAPH ORDINATES
                  NDDATE     29OCT97  ENDING DATE
                  NDTIME        1158  ENDING TIME
                   ICENT          19  CENTURY MARK

             COMPUTATION INTERVAL    0.03 HOURS
                  TOTAL TIME BASE   11.97 HOURS

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

*** ***

```
          **************
          *            *
31 KK     *    10EXST  *
          *            *
          **************
                    10-YEAR STORM, EXISTING CONDITION

             SUBBASIN RUNOFF DATA

33 BA          SUBBASIN CHARACTERISTICS
                   TAREA        0.05  SUBBASIN AREA

               PRECIPITATION DATA

34 PH                                DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
               ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
               5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                0.49    0.94    1.57    1.72    1.83    2.03    0.00    0.00    0.00    0.00    0.00    0.00

                                                STORM AREA =    0.05

35 LS          SCS LOSS RATE
                   STRTL        0.08  INITIAL ABSTRACTION
                  CRVNBR       96.00  CURVE NUMBER
                   RTIMP      100.00  PERCENT IMPERVIOUS AREA
```

36 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.15 LAG

***

UNIT HYDROGRAPH
24 END-OF-PERIOD ORDINATES

15.	46.	97.	137.	147.	137.	115.	83.	58.	41.
31.	22.	16.	11.	8.	6.	4.	3.	2.	2.
1.	1.	1.	0.						

****

HYDROGRAPH AT STATION 10EXST

****

DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
29 OCT 0000	1	0.00	0.00	0.00	0.	*	29 OCT 0600	181	0.00	0.00	0.00	2.
29 OCT 0002	2	0.00	0.00	0.00	0.	*	29 OCT 0602	182	0.00	0.00	0.00	2.
29 OCT 0004	3	0.00	0.00	0.00	0.	*	29 OCT 0604	183	0.00	0.00	0.00	2.
29 OCT 0006	4	0.00	0.00	0.00	0.	*	29 OCT 0606	184	0.00	0.00	0.00	1.
29 OCT 0008	5	0.00	0.00	0.00	1.	*	29 OCT 0608	185	0.00	0.00	0.00	1.
29 OCT 0010	6	0.00	0.00	0.00	1.	*	29 OCT 0610	186	0.00	0.00	0.00	1.
29 OCT 0012	7	0.00	0.00	0.00	1.	*	29 OCT 0612	187	0.00	0.00	0.00	1.
29 OCT 0014	8	0.00	0.00	0.00	1.	*	29 OCT 0614	188	0.00	0.00	0.00	1.
29 OCT 0016	9	0.00	0.00	0.00	1.	*	29 OCT 0616	189	0.00	0.00	0.00	0.
29 OCT 0018	10	0.00	0.00	0.00	1.	*	29 OCT 0618	190	0.00	0.00	0.00	0.
29 OCT 0020	11	0.00	0.00	0.00	2.	*	29 OCT 0620	191	0.00	0.00	0.00	0.
29 OCT 0022	12	0.00	0.00	0.00	2.	*	29 OCT 0622	192	0.00	0.00	0.00	0.
29 OCT 0024	13	0.00	0.00	0.00	2.	*	29 OCT 0624	193	0.00	0.00	0.00	0.
29 OCT 0026	14	0.00	0.00	0.00	2.	*	29 OCT 0626	194	0.00	0.00	0.00	0.
29 OCT 0028	15	0.00	0.00	0.00	2.	*	29 OCT 0628	195	0.00	0.00	0.00	0.
29 OCT 0030	16	0.00	0.00	0.00	2.	*	29 OCT 0630	196	0.00	0.00	0.00	0.
29 OCT 0032	17	0.00	0.00	0.00	2.	*	29 OCT 0632	197	0.00	0.00	0.00	0.
29 OCT 0034	18	0.00	0.00	0.00	2.	*	29 OCT 0634	198	0.00	0.00	0.00	0.
29 OCT 0036	19	0.00	0.00	0.00	2.	*	29 OCT 0636	199	0.00	0.00	0.00	0.
29 OCT 0038	20	0.00	0.00	0.00	2.	*	29 OCT 0638	200	0.00	0.00	0.00	0.
29 OCT 0040	21	0.00	0.00	0.00	2.	*	29 OCT 0640	201	0.00	0.00	0.00	0.
29 OCT 0042	22	0.00	0.00	0.00	2.	*	29 OCT 0642	202	0.00	0.00	0.00	0.
29 OCT 0044	23	0.00	0.00	0.00	2.	*	29 OCT 0644	203	0.00	0.00	0.00	0.
29 OCT 0046	24	0.00	0.00	0.00	2.	*	29 OCT 0646	204	0.00	0.00	0.00	0.
29 OCT 0048	25	0.00	0.00	0.00	2.	*	29 OCT 0648	205	0.00	0.00	0.00	0.
29 OCT 0050	26	0.00	0.00	0.00	2.	*	29 OCT 0650	206	0.00	0.00	0.00	0.
29 OCT 0052	27	0.00	0.00	0.00	2.	*	29 OCT 0652	207	0.00	0.00	0.00	0.
29 OCT 0054	28	0.00	0.00	0.00	2.	*	29 OCT 0654	208	0.00	0.00	0.00	0.
29 OCT 0056	29	0.00	0.00	0.00	2.	*	29 OCT 0656	209	0.00	0.00	0.00	0.
29 OCT 0058	30	0.00	0.00	0.00	2.	*	29 OCT 0658	210	0.00	0.00	0.00	0.
29 OCT 0100	31	0.00	0.00	0.00	2.	*	29 OCT 0700	211	0.00	0.00	0.00	0.
29 OCT 0102	32	0.00	0.00	0.00	2.	*	29 OCT 0702	212	0.00	0.00	0.00	0.
29 OCT 0104	33	0.00	0.00	0.00	2.	*	29 OCT 0704	213	0.00	0.00	0.00	0.
29 OCT 0106	34	0.00	0.00	0.00	2.	*	29 OCT 0706	214	0.00	0.00	0.00	0.
29 OCT 0108	35	0.00	0.00	0.00	2.	*	29 OCT 0708	215	0.00	0.00	0.00	0.
29 OCT 0110	36	0.00	0.00	0.00	2.	*	29 OCT 0710	216	0.00	0.00	0.00	0.
29 OCT 0112	37	0.00	0.00	0.00	2.	*	29 OCT 0712	217	0.00	0.00	0.00	0.
29 OCT 0114	38	0.00	0.00	0.00	2.	*	29 OCT 0714	218	0.00	0.00	0.00	0.
29 OCT 0116	39	0.00	0.00	0.00	2.	*	29 OCT 0716	219	0.00	0.00	0.00	0.
29 OCT 0118	40	0.00	0.00	0.00	2.	*	29 OCT 0718	220	0.00	0.00	0.00	0.
29 OCT 0120	41	0.00	0.00	0.00	2.	*	29 OCT 0720	221	0.00	0.00	0.00	0.
29 OCT 0122	42	0.00	0.00	0.00	3.	*	29 OCT 0722	222	0.00	0.00	0.00	0.
29 OCT 0124	43	0.00	0.00	0.00	3.	*	29 OCT 0724	223	0.00	0.00	0.00	0.
29 OCT 0126	44	0.00	0.00	0.00	3.	*	29 OCT 0726	224	0.00	0.00	0.00	0.
29 OCT 0128	45	0.00	0.00	0.00	3.	*	29 OCT 0728	225	0.00	0.00	0.00	0.
29 OCT 0130	46	0.00	0.00	0.00	3.	*	29 OCT 0730	226	0.00	0.00	0.00	0.
29 OCT 0132	47	0.00	0.00	0.00	3.	*	29 OCT 0732	227	0.00	0.00	0.00	0.
29 OCT 0134	48	0.00	0.00	0.00	3.	*	29 OCT 0734	228	0.00	0.00	0.00	0.
29 OCT 0136	49	0.00	0.00	0.00	3.	*	29 OCT 0736	229	0.00	0.00	0.00	0.
29 OCT 0138	50	0.00	0.00	0.00	3.	*	29 OCT 0738	230	0.00	0.00	0.00	0.
29 OCT 0140	51	0.00	0.00	0.00	3.	*	29 OCT 0740	231	0.00	0.00	0.00	0.
29 OCT 0142	52	0.00	0.00	0.00	3.	*	29 OCT 0742	232	0.00	0.00	0.00	0.

29 OCT 0144	53	0.00	0.00	0.00	3.	*	29 OCT 0744	233	0.00	0.00	0.00	0.
29 OCT 0146	54	0.00	0.00	0.00	3.	*	29 OCT 0746	234	0.00	0.00	0.00	0.
29 OCT 0148	55	0.00	0.00	0.00	3.	*	29 OCT 0748	235	0.00	0.00	0.00	0.
29 OCT 0150	56	0.00	0.00	0.00	3.	*	29 OCT 0750	236	0.00	0.00	0.00	0.
29 OCT 0152	57	0.00	0.00	0.00	3.	*	29 OCT 0752	237	0.00	0.00	0.00	0.
29 OCT 0154	58	0.00	0.00	0.00	3.	*	29 OCT 0754	238	0.00	0.00	0.00	0.
29 OCT 0156	59	0.00	0.00	0.00	4.	*	29 OCT 0756	239	0.00	0.00	0.00	0.
29 OCT 0158	60	0.00	0.00	0.00	4.	*	29 OCT 0758	240	0.00	0.00	0.00	0.
29 OCT 0200	61	0.00	0.00	0.00	4.	*	29 OCT 0800	241	0.00	0.00	0.00	0.
29 OCT 0202	62	0.00	0.00	0.00	4.	*	29 OCT 0802	242	0.00	0.00	0.00	0.
29 OCT 0204	63	0.00	0.00	0.00	4.	*	29 OCT 0804	243	0.00	0.00	0.00	0.
29 OCT 0206	64	0.00	0.00	0.00	4.	*	29 OCT 0806	244	0.00	0.00	0.00	0.
29 OCT 0208	65	0.00	0.00	0.00	4.	*	29 OCT 0808	245	0.00	0.00	0.00	0.
29 OCT 0210	66	0.00	0.00	0.00	4.	*	29 OCT 0810	246	0.00	0.00	0.00	0.
29 OCT 0212	67	0.00	0.00	0.00	4.	*	29 OCT 0812	247	0.00	0.00	0.00	0.
29 OCT 0214	68	0.00	0.00	0.00	4.	*	29 OCT 0814	248	0.00	0.00	0.00	0.
29 OCT 0216	69	0.00	0.00	0.00	4.	*	29 OCT 0816	249	0.00	0.00	0.00	0.
29 OCT 0218	70	0.00	0.00	0.00	4.	*	29 OCT 0818	250	0.00	0.00	0.00	0.
29 OCT 0220	71	0.01	0.00	0.01	4.	*	29 OCT 0820	251	0.00	0.00	0.00	0.
29 OCT 0222	72	0.01	0.00	0.01	4.	*	29 OCT 0822	252	0.00	0.00	0.00	0.
29 OCT 0224	73	0.01	0.00	0.01	5.	*	29 OCT 0824	253	0.00	0.00	0.00	0.
29 OCT 0226	74	0.01	0.00	0.01	5.	*	29 OCT 0826	254	0.00	0.00	0.00	0.
29 OCT 0228	75	0.01	0.00	0.01	5.	*	29 OCT 0828	255	0.00	0.00	0.00	0.
29 OCT 0230	76	0.01	0.00	0.01	5.	*	29 OCT 0830	256	0.00	0.00	0.00	0.
29 OCT 0232	77	0.02	0.00	0.02	5.	*	29 OCT 0832	257	0.00	0.00	0.00	0.
29 OCT 0234	78	0.02	0.00	0.02	6.	*	29 OCT 0834	258	0.00	0.00	0.00	0.
29 OCT 0236	79	0.02	0.00	0.02	8.	*	29 OCT 0836	259	0.00	0.00	0.00	0.
29 OCT 0238	80	0.02	0.00	0.02	9.	*	29 OCT 0838	260	0.00	0.00	0.00	0.
29 OCT 0240	81	0.02	0.00	0.02	11.	*	29 OCT 0840	261	0.00	0.00	0.00	0.
29 OCT 0242	82	0.02	0.00	0.02	13.	*	29 OCT 0842	262	0.00	0.00	0.00	0.
29 OCT 0244	83	0.02	0.00	0.02	15.	*	29 OCT 0844	263	0.00	0.00	0.00	0.
29 OCT 0246	84	0.03	0.00	0.03	17.	*	29 OCT 0846	264	0.00	0.00	0.00	0.
29 OCT 0248	85	0.04	0.00	0.04	19.	*	29 OCT 0848	265	0.00	0.00	0.00	0.
29 OCT 0250	86	0.04	0.00	0.04	21.	*	29 OCT 0850	266	0.00	0.00	0.00	0.
29 OCT 0252	87	0.04	0.00	0.04	24.	*	29 OCT 0852	267	0.00	0.00	0.00	0.
29 OCT 0254	88	0.06	0.00	0.06	27.	*	29 OCT 0854	268	0.00	0.00	0.00	0.
29 OCT 0256	89	0.08	0.00	0.08	31.	*	29 OCT 0856	269	0.00	0.00	0.00	0.
29 OCT 0258	90	0.11	0.00	0.11	37.	*	29 OCT 0858	270	0.00	0.00	0.00	0.
29 OCT 0300	91	0.20	0.00	0.20	46.	*	29 OCT 0900	271	0.00	0.00	0.00	0.
29 OCT 0302	92	0.20	0.00	0.20	60.	*	29 OCT 0902	272	0.00	0.00	0.00	0.
29 OCT 0304	93	0.16	0.00	0.16	79.	*	29 OCT 0904	273	0.00	0.00	0.00	0.
29 OCT 0306	94	0.10	0.00	0.10	98.	*	29 OCT 0906	274	0.00	0.00	0.00	0.
29 OCT 0308	95	0.07	0.00	0.07	112.	*	29 OCT 0908	275	0.00	0.00	0.00	0.
29 OCT 0310	96	0.05	0.00	0.05	118.	*	29 OCT 0910	276	0.00	0.00	0.00	0.
29 OCT 0312	97	0.04	0.00	0.04	115.	*	29 OCT 0912	277	0.00	0.00	0.00	0.
29 OCT 0314	98	0.04	0.00	0.04	106.	*	29 OCT 0914	278	0.00	0.00	0.00	0.
29 OCT 0316	99	0.03	0.00	0.03	93.	*	29 OCT 0916	279	0.00	0.00	0.00	0.
29 OCT 0318	100	0.03	0.00	0.03	79.	*	29 OCT 0918	280	0.00	0.00	0.00	0.
29 OCT 0320	101	0.02	0.00	0.02	68.	*	29 OCT 0920	281	0.00	0.00	0.00	0.
29 OCT 0322	102	0.02	0.00	0.02	58.	*	29 OCT 0922	282	0.00	0.00	0.00	0.
29 OCT 0324	103	0.02	0.00	0.02	49.	*	29 OCT 0924	283	0.00	0.00	0.00	0.
29 OCT 0326	104	0.02	0.00	0.02	43.	*	29 OCT 0926	284	0.00	0.00	0.00	0.
29 OCT 0328	105	0.02	0.00	0.02	37.	*	29 OCT 0928	285	0.00	0.00	0.00	0.
29 OCT 0330	106	0.02	0.00	0.02	32.	*	29 OCT 0930	286	0.00	0.00	0.00	0.
29 OCT 0332	107	0.01	0.00	0.01	29.	*	29 OCT 0932	287	0.00	0.00	0.00	0.
29 OCT 0334	108	0.01	0.00	0.01	25.	*	29 OCT 0934	288	0.00	0.00	0.00	0.
29 OCT 0336	109	0.01	0.00	0.01	22.	*	29 OCT 0936	289	0.00	0.00	0.00	0.
29 OCT 0338	110	0.01	0.00	0.01	19.	*	29 OCT 0938	290	0.00	0.00	0.00	0.
29 OCT 0340	111	0.01	0.00	0.01	16.	*	29 OCT 0940	291	0.00	0.00	0.00	0.
29 OCT 0342	112	0.01	0.00	0.01	13.	*	29 OCT 0942	292	0.00	0.00	0.00	0.
29 OCT 0344	113	0.01	0.00	0.01	11.	*	29 OCT 0944	293	0.00	0.00	0.00	0.
29 OCT 0346	114	0.00	0.00	0.00	9.	*	29 OCT 0946	294	0.00	0.00	0.00	0.
29 OCT 0348	115	0.00	0.00	0.00	8.	*	29 OCT 0948	295	0.00	0.00	0.00	0.
29 OCT 0350	116	0.00	0.00	0.00	7.	*	29 OCT 0950	296	0.00	0.00	0.00	0.
29 OCT 0352	117	0.00	0.00	0.00	7.	*	29 OCT 0952	297	0.00	0.00	0.00	0.
29 OCT 0354	118	0.00	0.00	0.00	6.	*	29 OCT 0954	298	0.00	0.00	0.00	0.
29 OCT 0356	119	0.00	0.00	0.00	6.	*	29 OCT 0956	299	0.00	0.00	0.00	0.
29 OCT 0358	120	0.00	0.00	0.00	5.	*	29 OCT 0958	300	0.00	0.00	0.00	0.
29 OCT 0400	121	0.00	0.00	0.00	5.	*	29 OCT 1000	301	0.00	0.00	0.00	0.
29 OCT 0402	122	0.00	0.00	0.00	5.	*	29 OCT 1002	302	0.00	0.00	0.00	0.
29 OCT 0404	123	0.00	0.00	0.00	4.	*	29 OCT 1004	303	0.00	0.00	0.00	0.
29 OCT 0406	124	0.00	0.00	0.00	4.	*	29 OCT 1006	304	0.00	0.00	0.00	0.

29	OCT	0408	125	0.00	0.00	0.00	4.	*	29	OCT	1008	305	0.00	0.00	0.00	0.
29	OCT	0410	126	0.00	0.00	0.00	4.	*	29	OCT	1010	306	0.00	0.00	0.00	0.
29	OCT	0412	127	0.00	0.00	0.00	4.	*	29	OCT	1012	307	0.00	0.00	0.00	0.
29	OCT	0414	128	0.00	0.00	0.00	4.	*	29	OCT	1014	308	0.00	0.00	0.00	0.
29	OCT	0416	129	0.00	0.00	0.00	4.	*	29	OCT	1016	309	0.00	0.00	0.00	0.
29	OCT	0418	130	0.00	0.00	0.00	4.	*	29	OCT	1018	310	0.00	0.00	0.00	0.
29	OCT	0420	131	0.00	0.00	0.00	4.	*	29	OCT	1020	311	0.00	0.00	0.00	0.
29	OCT	0422	132	0.00	0.00	0.00	4.	*	29	OCT	1022	312	0.00	0.00	0.00	0.
29	OCT	0424	133	0.00	0.00	0.00	4.	*	29	OCT	1024	313	0.00	0.00	0.00	0.
29	OCT	0426	134	0.00	0.00	0.00	4.	*	29	OCT	1026	314	0.00	0.00	0.00	0.
29	OCT	0428	135	0.00	0.00	0.00	4.	*	29	OCT	1028	315	0.00	0.00	0.00	0.
29	OCT	0430	136	0.00	0.00	0.00	3.	*	29	OCT	1030	316	0.00	0.00	0.00	0.
29	OCT	0432	137	0.00	0.00	0.00	3.	*	29	OCT	1032	317	0.00	0.00	0.00	0.
29	OCT	0434	138	0.00	0.00	0.00	3.	*	29	OCT	1034	318	0.00	0.00	0.00	0.
29	OCT	0436	139	0.00	0.00	0.00	3.	*	29	OCT	1036	319	0.00	0.00	0.00	0.
29	OCT	0438	140	0.00	0.00	0.00	3.	*	29	OCT	1038	320	0.00	0.00	0.00	0.
29	OCT	0440	141	0.00	0.00	0.00	3.	*	29	OCT	1040	321	0.00	0.00	0.00	0.
29	OCT	0442	142	0.00	0.00	0.00	3.	*	29	OCT	1042	322	0.00	0.00	0.00	0.
29	OCT	0444	143	0.00	0.00	0.00	3.	*	29	OCT	1044	323	0.00	0.00	0.00	0.
29	OCT	0446	144	0.00	0.00	0.00	3.	*	29	OCT	1046	324	0.00	0.00	0.00	0.
29	OCT	0448	145	0.00	0.00	0.00	3.	*	29	OCT	1048	325	0.00	0.00	0.00	0.
29	OCT	0450	146	0.00	0.00	0.00	3.	*	29	OCT	1050	326	0.00	0.00	0.00	0.
29	OCT	0452	147	0.00	0.00	0.00	3.	*	29	OCT	1052	327	0.00	0.00	0.00	0.
29	OCT	0454	148	0.00	0.00	0.00	3.	*	29	OCT	1054	328	0.00	0.00	0.00	0.
29	OCT	0456	149	0.00	0.00	0.00	3.	*	29	OCT	1056	329	0.00	0.00	0.00	0.
29	OCT	0458	150	0.00	0.00	0.00	3.	*	29	OCT	1058	330	0.00	0.00	0.00	0.
29	OCT	0500	151	0.00	0.00	0.00	3.	*	29	OCT	1100	331	0.00	0.00	0.00	0.
29	OCT	0502	152	0.00	0.00	0.00	3.	*	29	OCT	1102	332	0.00	0.00	0.00	0.
29	OCT	0504	153	0.00	0.00	0.00	3.	*	29	OCT	1104	333	0.00	0.00	0.00	0.
29	OCT	0506	154	0.00	0.00	0.00	2.	*	29	OCT	1106	334	0.00	0.00	0.00	0.
29	OCT	0508	155	0.00	0.00	0.00	2.	*	29	OCT	1108	335	0.00	0.00	0.00	0.
29	OCT	0510	156	0.00	0.00	0.00	2.	*	29	OCT	1110	336	0.00	0.00	0.00	0.
29	OCT	0512	157	0.00	0.00	0.00	2.	*	29	OCT	1112	337	0.00	0.00	0.00	0.
29	OCT	0514	158	0.00	0.00	0.00	2.	*	29	OCT	1114	338	0.00	0.00	0.00	0.
29	OCT	0516	159	0.00	0.00	0.00	2.	*	29	OCT	1116	339	0.00	0.00	0.00	0.
29	OCT	0518	160	0.00	0.00	0.00	2.	*	29	OCT	1118	340	0.00	0.00	0.00	0.
29	OCT	0520	161	0.00	0.00	0.00	2.	*	29	OCT	1120	341	0.00	0.00	0.00	0.
29	OCT	0522	162	0.00	0.00	0.00	2.	*	29	OCT	1122	342	0.00	0.00	0.00	0.
29	OCT	0524	163	0.00	0.00	0.00	2.	*	29	OCT	1124	343	0.00	0.00	0.00	0.
29	OCT	0526	164	0.00	0.00	0.00	2.	*	29	OCT	1126	344	0.00	0.00	0.00	0.
29	OCT	0528	165	0.00	0.00	0.00	2.	*	29	OCT	1128	345	0.00	0.00	0.00	0.
29	OCT	0530	166	0.00	0.00	0.00	2.	*	29	OCT	1130	346	0.00	0.00	0.00	0.
29	OCT	0532	167	0.00	0.00	0.00	2.	*	29	OCT	1132	347	0.00	0.00	0.00	0.
29	OCT	0534	168	0.00	0.00	0.00	2.	*	29	OCT	1134	348	0.00	0.00	0.00	0.
29	OCT	0536	169	0.00	0.00	0.00	2.	*	29	OCT	1136	349	0.00	0.00	0.00	0.
29	OCT	0538	170	0.00	0.00	0.00	2.	*	29	OCT	1138	350	0.00	0.00	0.00	0.
29	OCT	0540	171	0.00	0.00	0.00	2.	*	29	OCT	1140	351	0.00	0.00	0.00	0.
29	OCT	0542	172	0.00	0.00	0.00	2.	*	29	OCT	1142	352	0.00	0.00	0.00	0.
29	OCT	0544	173	0.00	0.00	0.00	2.	*	29	OCT	1144	353	0.00	0.00	0.00	0.
29	OCT	0546	174	0.00	0.00	0.00	2.	*	29	OCT	1146	354	0.00	0.00	0.00	0.
29	OCT	0548	175	0.00	0.00	0.00	2.	*	29	OCT	1148	355	0.00	0.00	0.00	0.
29	OCT	0550	176	0.00	0.00	0.00	2.	*	29	OCT	1150	356	0.00	0.00	0.00	0.
29	OCT	0552	177	0.00	0.00	0.00	2.	*	29	OCT	1152	357	0.00	0.00	0.00	0.
29	OCT	0554	178	0.00	0.00	0.00	2.	*	29	OCT	1154	358	0.00	0.00	0.00	0.
29	OCT	0556	179	0.00	0.00	0.00	2.	*	29	OCT	1156	359	0.00	0.00	0.00	0.
29	OCT	0558	180	0.00	0.00	0.00	2.	*	29	OCT	1158	360	0.00	0.00	0.00	0.
								*								

****

TOTAL RAINFALL = 2.03, TOTAL LOSS = 0.00, TOTAL EXCESS = 2.03

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	11.97-HR
+ (CFS)	(HR)					
		(CFS)				
+ 118.	3.17		11.	6.	6.	6.
		(INCHES)	2.025	2.030	2.030	2.030
		(AC-FT)	5.	5.	5.	5.

CUMULATIVE AREA = 0.05 SQ MI

*** ***

```
          **************
          *            *
37 KK     *     25HOV  *
          *            *
          **************
                         25-YEAR STORM, WITH HOV LANES
                         BA CARD NOT ADJUSTED, MATCHES RATIONAL PEAK Q

            SUBBASIN RUNOFF DATA

40 BA         SUBBASIN CHARACTERISTICS
                    TAREA        0.05  SUBBASIN AREA

              PRECIPITATION DATA

41 PH                                 DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
              ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
              5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
               0.62    1.13    1.91    2.10    2.24    2.49    0.00    0.00    0.00    0.00    0.00    0.00

                                                   STORM AREA =    0.05

42 LS         SCS LOSS RATE
                    STRTL        0.08  INITIAL ABSTRACTION
                   CRVNBR       96.00  CURVE NUMBER
                    RTIMP      100.00  PERCENT IMPERVIOUS AREA

43 UD         SCS DIMENSIONLESS UNITGRAPH
                     TLAG        0.15  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                            24 END-OF-PERIOD ORDINATES
            16.      49.     103.     146.     157.     146.     122.      88.      61.      44.
            32.      23.      17.      12.       9.       6.       5.       3.       2.       2.
             1.       1.       1.       0.
```

****

HYDROGRAPH AT STATION 25HOV

****

DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
29 OCT 0000	1	0.00	0.00	0.00	0.	*	29 OCT 0600	181	0.00	0.00	0.00	2.
29 OCT 0002	2	0.00	0.00	0.00	0.	*	29 OCT 0602	182	0.00	0.00	0.00	2.
29 OCT 0004	3	0.00	0.00	0.00	0.	*	29 OCT 0604	183	0.00	0.00	0.00	2.
29 OCT 0006	4	0.00	0.00	0.00	0.	*	29 OCT 0606	184	0.00	0.00	0.00	2.
29 OCT 0008	5	0.00	0.00	0.00	1.	*	29 OCT 0608	185	0.00	0.00	0.00	2.
29 OCT 0010	6	0.00	0.00	0.00	1.	*	29 OCT 0610	186	0.00	0.00	0.00	1.
29 OCT 0012	7	0.00	0.00	0.00	1.	*	29 OCT 0612	187	0.00	0.00	0.00	1.
29 OCT 0014	8	0.00	0.00	0.00	2.	*	29 OCT 0614	188	0.00	0.00	0.00	1.
29 OCT 0016	9	0.00	0.00	0.00	2.	*	29 OCT 0616	189	0.00	0.00	0.00	0.
29 OCT 0018	10	0.00	0.00	0.00	2.	*	29 OCT 0618	190	0.00	0.00	0.00	0.
29 OCT 0020	11	0.00	0.00	0.00	2.	*	29 OCT 0620	191	0.00	0.00	0.00	0.
29 OCT 0022	12	0.00	0.00	0.00	2.	*	29 OCT 0622	192	0.00	0.00	0.00	0.
29 OCT 0024	13	0.00	0.00	0.00	2.	*	29 OCT 0624	193	0.00	0.00	0.00	0.
29 OCT 0026	14	0.00	0.00	0.00	2.	*	29 OCT 0626	194	0.00	0.00	0.00	0.
29 OCT 0028	15	0.00	0.00	0.00	2.	*	29 OCT 0628	195	0.00	0.00	0.00	0.
29 OCT 0030	16	0.00	0.00	0.00	2.	*	29 OCT 0630	196	0.00	0.00	0.00	0.
29 OCT 0032	17	0.00	0.00	0.00	2.	*	29 OCT 0632	197	0.00	0.00	0.00	0.
29 OCT 0034	18	0.00	0.00	0.00	2.	*	29 OCT 0634	198	0.00	0.00	0.00	0.
29 OCT 0036	19	0.00	0.00	0.00	2.	*	29 OCT 0636	199	0.00	0.00	0.00	0.
29 OCT 0038	20	0.00	0.00	0.00	3.	*	29 OCT 0638	200	0.00	0.00	0.00	0.
29 OCT 0040	21	0.00	0.00	0.00	3.	*	29 OCT 0640	201	0.00	0.00	0.00	0.

29 OCT 0042	22	0.00	0.00	0.00	3.	*	29 OCT 0642	202	0.00	0.00	0.00	0.
29 OCT 0044	23	0.00	0.00	0.00	3.	*	29 OCT 0644	203	0.00	0.00	0.00	0.
29 OCT 0046	24	0.00	0.00	0.00	3.	*	29 OCT 0646	204	0.00	0.00	0.00	0.
29 OCT 0048	25	0.00	0.00	0.00	3.	*	29 OCT 0648	205	0.00	0.00	0.00	0.
29 OCT 0050	26	0.00	0.00	0.00	3.	*	29 OCT 0650	206	0.00	0.00	0.00	0.
29 OCT 0052	27	0.00	0.00	0.00	3.	*	29 OCT 0652	207	0.00	0.00	0.00	0.
29 OCT 0054	28	0.00	0.00	0.00	3.	*	29 OCT 0654	208	0.00	0.00	0.00	0.
29 OCT 0056	29	0.00	0.00	0.00	3.	*	29 OCT 0656	209	0.00	0.00	0.00	0.
29 OCT 0058	30	0.00	0.00	0.00	3.	*	29 OCT 0658	210	0.00	0.00	0.00	0.
29 OCT 0100	31	0.00	0.00	0.00	3.	*	29 OCT 0700	211	0.00	0.00	0.00	0.
29 OCT 0102	32	0.00	0.00	0.00	3.	*	29 OCT 0702	212	0.00	0.00	0.00	0.
29 OCT 0104	33	0.00	0.00	0.00	3.	*	29 OCT 0704	213	0.00	0.00	0.00	0.
29 OCT 0106	34	0.00	0.00	0.00	3.	*	29 OCT 0706	214	0.00	0.00	0.00	0.
29 OCT 0108	35	0.00	0.00	0.00	3.	*	29 OCT 0708	215	0.00	0.00	0.00	0.
29 OCT 0110	36	0.00	0.00	0.00	3.	*	29 OCT 0710	216	0.00	0.00	0.00	0.
29 OCT 0112	37	0.00	0.00	0.00	3.	*	29 OCT 0712	217	0.00	0.00	0.00	0.
29 OCT 0114	38	0.00	0.00	0.00	3.	*	29 OCT 0714	218	0.00	0.00	0.00	0.
29 OCT 0116	39	0.00	0.00	0.00	3.	*	29 OCT 0716	219	0.00	0.00	0.00	0.
29 OCT 0118	40	0.00	0.00	0.00	3.	*	29 OCT 0718	220	0.00	0.00	0.00	0.
29 OCT 0120	41	0.00	0.00	0.00	3.	*	29 OCT 0720	221	0.00	0.00	0.00	0.
29 OCT 0122	42	0.00	0.00	0.00	3.	*	29 OCT 0722	222	0.00	0.00	0.00	0.
29 OCT 0124	43	0.00	0.00	0.00	3.	*	29 OCT 0724	223	0.00	0.00	0.00	0.
29 OCT 0126	44	0.00	0.00	0.00	3.	*	29 OCT 0726	224	0.00	0.00	0.00	0.
29 OCT 0128	45	0.00	0.00	0.00	4.	*	29 OCT 0728	225	0.00	0.00	0.00	0.
29 OCT 0130	46	0.00	0.00	0.00	4.	*	29 OCT 0730	226	0.00	0.00	0.00	0.
29 OCT 0132	47	0.00	0.00	0.00	4.	*	29 OCT 0732	227	0.00	0.00	0.00	0.
29 OCT 0134	48	0.00	0.00	0.00	4.	*	29 OCT 0734	228	0.00	0.00	0.00	0.
29 OCT 0136	49	0.00	0.00	0.00	4.	*	29 OCT 0736	229	0.00	0.00	0.00	0.
29 OCT 0138	50	0.00	0.00	0.00	4.	*	29 OCT 0738	230	0.00	0.00	0.00	0.
29 OCT 0140	51	0.00	0.00	0.00	4.	*	29 OCT 0740	231	0.00	0.00	0.00	0.
29 OCT 0142	52	0.00	0.00	0.00	4.	*	29 OCT 0742	232	0.00	0.00	0.00	0.
29 OCT 0144	53	0.00	0.00	0.00	4.	*	29 OCT 0744	233	0.00	0.00	0.00	0.
29 OCT 0146	54	0.00	0.00	0.00	4.	*	29 OCT 0746	234	0.00	0.00	0.00	0.
29 OCT 0148	55	0.00	0.00	0.00	4.	*	29 OCT 0748	235	0.00	0.00	0.00	0.
29 OCT 0150	56	0.00	0.00	0.00	4.	*	29 OCT 0750	236	0.00	0.00	0.00	0.
29 OCT 0152	57	0.00	0.00	0.00	5.	*	29 OCT 0752	237	0.00	0.00	0.00	0.
29 OCT 0154	58	0.01	0.00	0.01	5.	*	29 OCT 0754	238	0.00	0.00	0.00	0.
29 OCT 0156	59	0.01	0.00	0.01	5.	*	29 OCT 0756	239	0.00	0.00	0.00	0.
29 OCT 0158	60	0.01	0.00	0.01	5.	*	29 OCT 0758	240	0.00	0.00	0.00	0.
29 OCT 0200	61	0.01	0.00	0.01	5.	*	29 OCT 0800	241	0.00	0.00	0.00	0.
29 OCT 0202	62	0.00	0.00	0.00	5.	*	29 OCT 0802	242	0.00	0.00	0.00	0.
29 OCT 0204	63	0.00	0.00	0.00	5.	*	29 OCT 0804	243	0.00	0.00	0.00	0.
29 OCT 0206	64	0.01	0.00	0.01	5.	*	29 OCT 0806	244	0.00	0.00	0.00	0.
29 OCT 0208	65	0.01	0.00	0.01	5.	*	29 OCT 0808	245	0.00	0.00	0.00	0.
29 OCT 0210	66	0.01	0.00	0.01	5.	*	29 OCT 0810	246	0.00	0.00	0.00	0.
29 OCT 0212	67	0.01	0.00	0.01	5.	*	29 OCT 0812	247	0.00	0.00	0.00	0.
29 OCT 0214	68	0.01	0.00	0.01	5.	*	29 OCT 0814	248	0.00	0.00	0.00	0.
29 OCT 0216	69	0.01	0.00	0.01	5.	*	29 OCT 0816	249	0.00	0.00	0.00	0.
29 OCT 0218	70	0.01	0.00	0.01	6.	*	29 OCT 0818	250	0.00	0.00	0.00	0.
29 OCT 0220	71	0.01	0.00	0.01	6.	*	29 OCT 0820	251	0.00	0.00	0.00	0.
29 OCT 0222	72	0.01	0.00	0.01	6.	*	29 OCT 0822	252	0.00	0.00	0.00	0.
29 OCT 0224	73	0.01	0.00	0.01	6.	*	29 OCT 0824	253	0.00	0.00	0.00	0.
29 OCT 0226	74	0.01	0.00	0.01	6.	*	29 OCT 0826	254	0.00	0.00	0.00	0.
29 OCT 0228	75	0.01	0.00	0.01	7.	*	29 OCT 0828	255	0.00	0.00	0.00	0.
29 OCT 0230	76	0.01	0.00	0.01	7.	*	29 OCT 0830	256	0.00	0.00	0.00	0.
29 OCT 0232	77	0.02	0.00	0.02	7.	*	29 OCT 0832	257	0.00	0.00	0.00	0.
29 OCT 0234	78	0.02	0.00	0.02	8.	*	29 OCT 0834	258	0.00	0.00	0.00	0.
29 OCT 0236	79	0.02	0.00	0.02	10.	*	29 OCT 0836	259	0.00	0.00	0.00	0.
29 OCT 0238	80	0.03	0.00	0.03	12.	*	29 OCT 0838	260	0.00	0.00	0.00	0.
29 OCT 0240	81	0.03	0.00	0.03	15.	*	29 OCT 0840	261	0.00	0.00	0.00	0.
29 OCT 0242	82	0.03	0.00	0.03	18.	*	29 OCT 0842	262	0.00	0.00	0.00	0.
29 OCT 0244	83	0.03	0.00	0.03	20.	*	29 OCT 0844	263	0.00	0.00	0.00	0.
29 OCT 0246	84	0.03	0.00	0.03	23.	*	29 OCT 0846	264	0.00	0.00	0.00	0.
29 OCT 0248	85	0.05	0.00	0.05	25.	*	29 OCT 0848	265	0.00	0.00	0.00	0.
29 OCT 0250	86	0.05	0.00	0.05	28.	*	29 OCT 0850	266	0.00	0.00	0.00	0.
29 OCT 0252	87	0.06	0.00	0.06	31.	*	29 OCT 0852	267	0.00	0.00	0.00	0.
29 OCT 0254	88	0.07	0.00	0.07	35.	*	29 OCT 0854	268	0.00	0.00	0.00	0.
29 OCT 0256	89	0.09	0.00	0.09	41.	*	29 OCT 0856	269	0.00	0.00	0.00	0.
29 OCT 0258	90	0.12	0.00	0.12	48.	*	29 OCT 0858	270	0.00	0.00	0.00	0.
29 OCT 0300	91	0.25	0.00	0.25	59.	*	29 OCT 0900	271	0.00	0.00	0.00	0.
29 OCT 0302	92	0.25	0.00	0.25	77.	*	29 OCT 0902	272	0.00	0.00	0.00	0.
29 OCT 0304	93	0.19	0.00	0.19	101.	*	29 OCT 0904	273	0.00	0.00	0.00	0.

29 OCT 0306	94	0.11	0.00	0.11	127.	*	29 OCT 0906	274	0.00	0.00	0.00	0.
29 OCT 0308	95	0.08	0.00	0.08	146.	*	29 OCT 0908	275	0.00	0.00	0.00	0.
29 OCT 0310	96	0.06	0.00	0.06	153.	*	29 OCT 0910	276	0.00	0.00	0.00	0.
29 OCT 0312	97	0.05	0.00	0.05	149.	*	29 OCT 0912	277	0.00	0.00	0.00	0.
29 OCT 0314	98	0.05	0.00	0.05	136.	*	29 OCT 0914	278	0.00	0.00	0.00	0.
29 OCT 0316	99	0.04	0.00	0.04	119.	*	29 OCT 0916	279	0.00	0.00	0.00	0.
29 OCT 0318	100	0.03	0.00	0.03	102.	*	29 OCT 0918	280	0.00	0.00	0.00	0.
29 OCT 0320	101	0.03	0.00	0.03	87.	*	29 OCT 0920	281	0.00	0.00	0.00	0.
29 OCT 0322	102	0.03	0.00	0.03	74.	*	29 OCT 0922	282	0.00	0.00	0.00	0.
29 OCT 0324	103	0.03	0.00	0.03	64.	*	29 OCT 0924	283	0.00	0.00	0.00	0.
29 OCT 0326	104	0.02	0.00	0.02	55.	*	29 OCT 0926	284	0.00	0.00	0.00	0.
29 OCT 0328	105	0.02	0.00	0.02	48.	*	29 OCT 0928	285	0.00	0.00	0.00	0.
29 OCT 0330	106	0.02	0.00	0.02	42.	*	29 OCT 0930	286	0.00	0.00	0.00	0.
29 OCT 0332	107	0.01	0.00	0.01	37.	*	29 OCT 0932	287	0.00	0.00	0.00	0.
29 OCT 0334	108	0.01	0.00	0.01	33.	*	29 OCT 0934	288	0.00	0.00	0.00	0.
29 OCT 0336	109	0.01	0.00	0.01	29.	*	29 OCT 0936	289	0.00	0.00	0.00	0.
29 OCT 0338	110	0.01	0.00	0.01	25.	*	29 OCT 0938	290	0.00	0.00	0.00	0.
29 OCT 0340	111	0.01	0.00	0.01	21.	*	29 OCT 0940	291	0.00	0.00	0.00	0.
29 OCT 0342	112	0.01	0.00	0.01	17.	*	29 OCT 0942	292	0.00	0.00	0.00	0.
29 OCT 0344	113	0.01	0.00	0.01	15.	*	29 OCT 0944	293	0.00	0.00	0.00	0.
29 OCT 0346	114	0.01	0.00	0.01	13.	*	29 OCT 0946	294	0.00	0.00	0.00	0.
29 OCT 0348	115	0.01	0.00	0.01	11.	*	29 OCT 0948	295	0.00	0.00	0.00	0.
29 OCT 0350	116	0.01	0.00	0.01	10.	*	29 OCT 0950	296	0.00	0.00	0.00	0.
29 OCT 0352	117	0.01	0.00	0.01	9.	*	29 OCT 0952	297	0.00	0.00	0.00	0.
29 OCT 0354	118	0.01	0.00	0.01	8.	*	29 OCT 0954	298	0.00	0.00	0.00	0.
29 OCT 0356	119	0.01	0.00	0.01	7.	*	29 OCT 0956	299	0.00	0.00	0.00	0.
29 OCT 0358	120	0.01	0.00	0.01	7.	*	29 OCT 0958	300	0.00	0.00	0.00	0.
29 OCT 0400	121	0.00	0.00	0.00	7.	*	29 OCT 1000	301	0.00	0.00	0.00	0.
29 OCT 0402	122	0.01	0.00	0.01	6.	*	29 OCT 1002	302	0.00	0.00	0.00	0.
29 OCT 0404	123	0.01	0.00	0.01	6.	*	29 OCT 1004	303	0.00	0.00	0.00	0.
29 OCT 0406	124	0.01	0.00	0.01	6.	*	29 OCT 1006	304	0.00	0.00	0.00	0.
29 OCT 0408	125	0.01	0.00	0.01	6.	*	29 OCT 1008	305	0.00	0.00	0.00	0.
29 OCT 0410	126	0.00	0.00	0.00	6.	*	29 OCT 1010	306	0.00	0.00	0.00	0.
29 OCT 0412	127	0.00	0.00	0.00	6.	*	29 OCT 1012	307	0.00	0.00	0.00	0.
29 OCT 0414	128	0.00	0.00	0.00	6.	*	29 OCT 1014	308	0.00	0.00	0.00	0.
29 OCT 0416	129	0.00	0.00	0.00	5.	*	29 OCT 1016	309	0.00	0.00	0.00	0.
29 OCT 0418	130	0.00	0.00	0.00	5.	*	29 OCT 1018	310	0.00	0.00	0.00	0.
29 OCT 0420	131	0.00	0.00	0.00	5.	*	29 OCT 1020	311	0.00	0.00	0.00	0.
29 OCT 0422	132	0.00	0.00	0.00	5.	*	29 OCT 1022	312	0.00	0.00	0.00	0.
29 OCT 0424	133	0.00	0.00	0.00	5.	*	29 OCT 1024	313	0.00	0.00	0.00	0.
29 OCT 0426	134	0.00	0.00	0.00	5.	*	29 OCT 1026	314	0.00	0.00	0.00	0.
29 OCT 0428	135	0.00	0.00	0.00	5.	*	29 OCT 1028	315	0.00	0.00	0.00	0.
29 OCT 0430	136	0.00	0.00	0.00	5.	*	29 OCT 1030	316	0.00	0.00	0.00	0.
29 OCT 0432	137	0.00	0.00	0.00	5.	*	29 OCT 1032	317	0.00	0.00	0.00	0.
29 OCT 0434	138	0.00	0.00	0.00	5.	*	29 OCT 1034	318	0.00	0.00	0.00	0.
29 OCT 0436	139	0.00	0.00	0.00	4.	*	29 OCT 1036	319	0.00	0.00	0.00	0.
29 OCT 0438	140	0.00	0.00	0.00	4.	*	29 OCT 1038	320	0.00	0.00	0.00	0.
29 OCT 0440	141	0.00	0.00	0.00	4.	*	29 OCT 1040	321	0.00	0.00	0.00	0.
29 OCT 0442	142	0.00	0.00	0.00	4.	*	29 OCT 1042	322	0.00	0.00	0.00	0.
29 OCT 0444	143	0.00	0.00	0.00	4.	*	29 OCT 1044	323	0.00	0.00	0.00	0.
29 OCT 0446	144	0.00	0.00	0.00	4.	*	29 OCT 1046	324	0.00	0.00	0.00	0.
29 OCT 0448	145	0.00	0.00	0.00	4.	*	29 OCT 1048	325	0.00	0.00	0.00	0.
29 OCT 0450	146	0.00	0.00	0.00	4.	*	29 OCT 1050	326	0.00	0.00	0.00	0.
29 OCT 0452	147	0.00	0.00	0.00	4.	*	29 OCT 1052	327	0.00	0.00	0.00	0.
29 OCT 0454	148	0.00	0.00	0.00	4.	*	29 OCT 1054	328	0.00	0.00	0.00	0.
29 OCT 0456	149	0.00	0.00	0.00	4.	*	29 OCT 1056	329	0.00	0.00	0.00	0.
29 OCT 0458	150	0.00	0.00	0.00	3.	*	29 OCT 1058	330	0.00	0.00	0.00	0.
29 OCT 0500	151	0.00	0.00	0.00	3.	*	29 OCT 1100	331	0.00	0.00	0.00	0.
29 OCT 0502	152	0.00	0.00	0.00	3.	*	29 OCT 1102	332	0.00	0.00	0.00	0.
29 OCT 0504	153	0.00	0.00	0.00	3.	*	29 OCT 1104	333	0.00	0.00	0.00	0.
29 OCT 0506	154	0.00	0.00	0.00	3.	*	29 OCT 1106	334	0.00	0.00	0.00	0.
29 OCT 0508	155	0.00	0.00	0.00	3.	*	29 OCT 1108	335	0.00	0.00	0.00	0.
29 OCT 0510	156	0.00	0.00	0.00	3.	*	29 OCT 1110	336	0.00	0.00	0.00	0.
29 OCT 0512	157	0.00	0.00	0.00	3.	*	29 OCT 1112	337	0.00	0.00	0.00	0.
29 OCT 0514	158	0.00	0.00	0.00	3.	*	29 OCT 1114	338	0.00	0.00	0.00	0.
29 OCT 0516	159	0.00	0.00	0.00	3.	*	29 OCT 1116	339	0.00	0.00	0.00	0.
29 OCT 0518	160	0.00	0.00	0.00	3.	*	29 OCT 1118	340	0.00	0.00	0.00	0.
29 OCT 0520	161	0.00	0.00	0.00	3.	*	29 OCT 1120	341	0.00	0.00	0.00	0.
29 OCT 0522	162	0.00	0.00	0.00	3.	*	29 OCT 1122	342	0.00	0.00	0.00	0.
29 OCT 0524	163	0.00	0.00	0.00	3.	*	29 OCT 1124	343	0.00	0.00	0.00	0.
29 OCT 0526	164	0.00	0.00	0.00	3.	*	29 OCT 1126	344	0.00	0.00	0.00	0.
29 OCT 0528	165	0.00	0.00	0.00	3.	*	29 OCT 1128	345	0.00	0.00	0.00	0.

29 OCT 0530	166	0.00	0.00	0.00	3.	*	29 OCT 1130	346	0.00	0.00	0.00	0.
29 OCT 0532	167	0.00	0.00	0.00	3.	*	29 OCT 1132	347	0.00	0.00	0.00	0.
29 OCT 0534	168	0.00	0.00	0.00	3.	*	29 OCT 1134	348	0.00	0.00	0.00	0.
29 OCT 0536	169	0.00	0.00	0.00	3.	*	29 OCT 1136	349	0.00	0.00	0.00	0.
29 OCT 0538	170	0.00	0.00	0.00	3.	*	29 OCT 1138	350	0.00	0.00	0.00	0.
29 OCT 0540	171	0.00	0.00	0.00	3.	*	29 OCT 1140	351	0.00	0.00	0.00	0.
29 OCT 0542	172	0.00	0.00	0.00	3.	*	29 OCT 1142	352	0.00	0.00	0.00	0.
29 OCT 0544	173	0.00	0.00	0.00	3.	*	29 OCT 1144	353	0.00	0.00	0.00	0.
29 OCT 0546	174	0.00	0.00	0.00	3.	*	29 OCT 1146	354	0.00	0.00	0.00	0.
29 OCT 0548	175	0.00	0.00	0.00	3.	*	29 OCT 1148	355	0.00	0.00	0.00	0.
29 OCT 0550	176	0.00	0.00	0.00	2.	*	29 OCT 1150	356	0.00	0.00	0.00	0.
29 OCT 0552	177	0.00	0.00	0.00	2.	*	29 OCT 1152	357	0.00	0.00	0.00	0.
29 OCT 0554	178	0.00	0.00	0.00	2.	*	29 OCT 1154	358	0.00	0.00	0.00	0.
29 OCT 0556	179	0.00	0.00	0.00	2.	*	29 OCT 1156	359	0.00	0.00	0.00	0.
29 OCT 0558	180	0.00	0.00	0.00	2.	*	29 OCT 1158	360	0.00	0.00	0.00	0.
						*						

****

TOTAL RAINFALL = 2.49, TOTAL LOSS = 0.00, TOTAL EXCESS = 2.49

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	11.97-HR
+ (CFS)	(HR)					
		(CFS)				
+ 153.	3.17		14.	7.	7.	7.
		(INCHES)	2.484	2.490	2.490	2.490
		(AC-FT)	7.	7.	7.	7.

CUMULATIVE AREA = 0.05 SQ MI

*** ***

```
          **************
          *            *
44 KK     *     50HOV  *
          *            *
          **************
```

50-YEAR STORM, WITH HOV LANES
BA CARD ADJUSTED TO MATCH RATIONAL PEAK Q

SUBBASIN RUNOFF DATA

47 BA SUBBASIN CHARACTERISTICS
TAREA 0.06 SUBBASIN AREA

PRECIPITATION DATA

48 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.66	1.28	2.17	2.40	2.55	2.85	0.00	0.00	0.00	0.00	0.00	0.00

STORM AREA = 0.06

49 LS SCS LOSS RATE
STRTL 0.08 INITIAL ABSTRACTION
CRVNBR 96.00 CURVE NUMBER
RTIMP 100.00 PERCENT IMPERVIOUS AREA

50 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.15 LAG

***

UNIT HYDROGRAPH
24 END-OF-PERIOD ORDINATES

16.	50.	106.	150.	161.	150.	126.	90.	63.	45.
33.	24.	17.	12.	9.	6.	5.	3.	2.	2.

1. 1. 1. 0.

****

HYDROGRAPH AT STATION 50HOV

****

DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
						*						
29 OCT 0000	1	0.00	0.00	0.00	0.	*	29 OCT 0600	181	0.00	0.00	0.00	3.
29 OCT 0002	2	0.00	0.00	0.00	0.	*	29 OCT 0602	182	0.00	0.00	0.00	3.
29 OCT 0004	3	0.00	0.00	0.00	0.	*	29 OCT 0604	183	0.00	0.00	0.00	3.
29 OCT 0006	4	0.00	0.00	0.00	0.	*	29 OCT 0606	184	0.00	0.00	0.00	2.
29 OCT 0008	5	0.00	0.00	0.00	1.	*	29 OCT 0608	185	0.00	0.00	0.00	2.
29 OCT 0010	6	0.00	0.00	0.00	1.	*	29 OCT 0610	186	0.00	0.00	0.00	2.
29 OCT 0012	7	0.00	0.00	0.00	2.	*	29 OCT 0612	187	0.00	0.00	0.00	1.
29 OCT 0014	8	0.00	0.00	0.00	2.	*	29 OCT 0614	188	0.00	0.00	0.00	1.
29 OCT 0016	9	0.00	0.00	0.00	2.	*	29 OCT 0616	189	0.00	0.00	0.00	1.
29 OCT 0018	10	0.00	0.00	0.00	2.	*	29 OCT 0618	190	0.00	0.00	0.00	0.
29 OCT 0020	11	0.00	0.00	0.00	3.	*	29 OCT 0620	191	0.00	0.00	0.00	0.
29 OCT 0022	12	0.00	0.00	0.00	3.	*	29 OCT 0622	192	0.00	0.00	0.00	0.
29 OCT 0024	13	0.00	0.00	0.00	3.	*	29 OCT 0624	193	0.00	0.00	0.00	0.
29 OCT 0026	14	0.00	0.00	0.00	3.	*	29 OCT 0626	194	0.00	0.00	0.00	0.
29 OCT 0028	15	0.00	0.00	0.00	3.	*	29 OCT 0628	195	0.00	0.00	0.00	0.
29 OCT 0030	16	0.00	0.00	0.00	3.	*	29 OCT 0630	196	0.00	0.00	0.00	0.
29 OCT 0032	17	0.00	0.00	0.00	3.	*	29 OCT 0632	197	0.00	0.00	0.00	0.
29 OCT 0034	18	0.00	0.00	0.00	3.	*	29 OCT 0634	198	0.00	0.00	0.00	0.
29 OCT 0036	19	0.00	0.00	0.00	3.	*	29 OCT 0636	199	0.00	0.00	0.00	0.
29 OCT 0038	20	0.00	0.00	0.00	3.	*	29 OCT 0638	200	0.00	0.00	0.00	0.
29 OCT 0040	21	0.00	0.00	0.00	3.	*	29 OCT 0640	201	0.00	0.00	0.00	0.
29 OCT 0042	22	0.00	0.00	0.00	3.	*	29 OCT 0642	202	0.00	0.00	0.00	0.
29 OCT 0044	23	0.00	0.00	0.00	3.	*	29 OCT 0644	203	0.00	0.00	0.00	0.
29 OCT 0046	24	0.00	0.00	0.00	3.	*	29 OCT 0646	204	0.00	0.00	0.00	0.
29 OCT 0048	25	0.00	0.00	0.00	3.	*	29 OCT 0648	205	0.00	0.00	0.00	0.
29 OCT 0050	26	0.00	0.00	0.00	3.	*	29 OCT 0650	206	0.00	0.00	0.00	0.
29 OCT 0052	27	0.00	0.00	0.00	3.	*	29 OCT 0652	207	0.00	0.00	0.00	0.
29 OCT 0054	28	0.00	0.00	0.00	3.	*	29 OCT 0654	208	0.00	0.00	0.00	0.
29 OCT 0056	29	0.00	0.00	0.00	3.	*	29 OCT 0656	209	0.00	0.00	0.00	0.
29 OCT 0058	30	0.00	0.00	0.00	3.	*	29 OCT 0658	210	0.00	0.00	0.00	0.
29 OCT 0100	31	0.00	0.00	0.00	4.	*	29 OCT 0700	211	0.00	0.00	0.00	0.
29 OCT 0102	32	0.00	0.00	0.00	4.	*	29 OCT 0702	212	0.00	0.00	0.00	0.
29 OCT 0104	33	0.00	0.00	0.00	4.	*	29 OCT 0704	213	0.00	0.00	0.00	0.
29 OCT 0106	34	0.00	0.00	0.00	4.	*	29 OCT 0706	214	0.00	0.00	0.00	0.
29 OCT 0108	35	0.00	0.00	0.00	4.	*	29 OCT 0708	215	0.00	0.00	0.00	0.
29 OCT 0110	36	0.00	0.00	0.00	4.	*	29 OCT 0710	216	0.00	0.00	0.00	0.
29 OCT 0112	37	0.00	0.00	0.00	4.	*	29 OCT 0712	217	0.00	0.00	0.00	0.
29 OCT 0114	38	0.00	0.00	0.00	4.	*	29 OCT 0714	218	0.00	0.00	0.00	0.
29 OCT 0116	39	0.00	0.00	0.00	4.	*	29 OCT 0716	219	0.00	0.00	0.00	0.
29 OCT 0118	40	0.00	0.00	0.00	4.	*	29 OCT 0718	220	0.00	0.00	0.00	0.
29 OCT 0120	41	0.00	0.00	0.00	4.	*	29 OCT 0720	221	0.00	0.00	0.00	0.
29 OCT 0122	42	0.00	0.00	0.00	4.	*	29 OCT 0722	222	0.00	0.00	0.00	0.
29 OCT 0124	43	0.00	0.00	0.00	4.	*	29 OCT 0724	223	0.00	0.00	0.00	0.
29 OCT 0126	44	0.00	0.00	0.00	4.	*	29 OCT 0726	224	0.00	0.00	0.00	0.
29 OCT 0128	45	0.00	0.00	0.00	4.	*	29 OCT 0728	225	0.00	0.00	0.00	0.
29 OCT 0130	46	0.00	0.00	0.00	4.	*	29 OCT 0730	226	0.00	0.00	0.00	0.
29 OCT 0132	47	0.00	0.00	0.00	4.	*	29 OCT 0732	227	0.00	0.00	0.00	0.
29 OCT 0134	48	0.00	0.00	0.00	5.	*	29 OCT 0734	228	0.00	0.00	0.00	0.
29 OCT 0136	49	0.00	0.00	0.00	5.	*	29 OCT 0736	229	0.00	0.00	0.00	0.
29 OCT 0138	50	0.00	0.00	0.00	5.	*	29 OCT 0738	230	0.00	0.00	0.00	0.
29 OCT 0140	51	0.00	0.00	0.00	5.	*	29 OCT 0740	231	0.00	0.00	0.00	0.
29 OCT 0142	52	0.00	0.00	0.00	5.	*	29 OCT 0742	232	0.00	0.00	0.00	0.
29 OCT 0144	53	0.00	0.00	0.00	5.	*	29 OCT 0744	233	0.00	0.00	0.00	0.
29 OCT 0146	54	0.00	0.00	0.00	5.	*	29 OCT 0746	234	0.00	0.00	0.00	0.
29 OCT 0148	55	0.01	0.00	0.01	5.	*	29 OCT 0748	235	0.00	0.00	0.00	0.
29 OCT 0150	56	0.01	0.00	0.01	5.	*	29 OCT 0750	236	0.00	0.00	0.00	0.
29 OCT 0152	57	0.01	0.00	0.01	5.	*	29 OCT 0752	237	0.00	0.00	0.00	0.
29 OCT 0154	58	0.01	0.00	0.01	5.	*	29 OCT 0754	238	0.00	0.00	0.00	0.
29 OCT 0156	59	0.01	0.00	0.01	5.	*	29 OCT 0756	239	0.00	0.00	0.00	0.
29 OCT 0158	60	0.01	0.00	0.01	5.	*	29 OCT 0758	240	0.00	0.00	0.00	0.
29 OCT 0200	61	0.01	0.00	0.01	6.	*	29 OCT 0800	241	0.00	0.00	0.00	0.
29 OCT 0202	62	0.01	0.00	0.01	6.	*	29 OCT 0802	242	0.00	0.00	0.00	0.

29 OCT 0204	63	0.01	0.00	0.01	6.	*	29 OCT 0804	243	0.00	0.00	0.00	0.
29 OCT 0206	64	0.01	0.00	0.01	6.	*	29 OCT 0806	244	0.00	0.00	0.00	0.
29 OCT 0208	65	0.01	0.00	0.01	6.	*	29 OCT 0808	245	0.00	0.00	0.00	0.
29 OCT 0210	66	0.01	0.00	0.01	6.	*	29 OCT 0810	246	0.00	0.00	0.00	0.
29 OCT 0212	67	0.01	0.00	0.01	6.	*	29 OCT 0812	247	0.00	0.00	0.00	0.
29 OCT 0214	68	0.01	0.00	0.01	7.	*	29 OCT 0814	248	0.00	0.00	0.00	0.
29 OCT 0216	69	0.01	0.00	0.01	7.	*	29 OCT 0816	249	0.00	0.00	0.00	0.
29 OCT 0218	70	0.01	0.00	0.01	7.	*	29 OCT 0818	250	0.00	0.00	0.00	0.
29 OCT 0220	71	0.01	0.00	0.01	7.	*	29 OCT 0820	251	0.00	0.00	0.00	0.
29 OCT 0222	72	0.01	0.00	0.01	7.	*	29 OCT 0822	252	0.00	0.00	0.00	0.
29 OCT 0224	73	0.01	0.00	0.01	8.	*	29 OCT 0824	253	0.00	0.00	0.00	0.
29 OCT 0226	74	0.01	0.00	0.01	8.	*	29 OCT 0826	254	0.00	0.00	0.00	0.
29 OCT 0228	75	0.01	0.00	0.01	8.	*	29 OCT 0828	255	0.00	0.00	0.00	0.
29 OCT 0230	76	0.01	0.00	0.01	9.	*	29 OCT 0830	256	0.00	0.00	0.00	0.
29 OCT 0232	77	0.02	0.00	0.02	9.	*	29 OCT 0832	257	0.00	0.00	0.00	0.
29 OCT 0234	78	0.03	0.00	0.03	10.	*	29 OCT 0834	258	0.00	0.00	0.00	0.
29 OCT 0236	79	0.03	0.00	0.03	12.	*	29 OCT 0836	259	0.00	0.00	0.00	0.
29 OCT 0238	80	0.03	0.00	0.03	15.	*	29 OCT 0838	260	0.00	0.00	0.00	0.
29 OCT 0240	81	0.03	0.00	0.03	18.	*	29 OCT 0840	261	0.00	0.00	0.00	0.
29 OCT 0242	82	0.03	0.00	0.03	21.	*	29 OCT 0842	262	0.00	0.00	0.00	0.
29 OCT 0244	83	0.03	0.00	0.03	24.	*	29 OCT 0844	263	0.00	0.00	0.00	0.
29 OCT 0246	84	0.04	0.00	0.04	27.	*	29 OCT 0846	264	0.00	0.00	0.00	0.
29 OCT 0248	85	0.05	0.00	0.05	29.	*	29 OCT 0848	265	0.00	0.00	0.00	0.
29 OCT 0250	86	0.06	0.00	0.06	32.	*	29 OCT 0850	266	0.00	0.00	0.00	0.
29 OCT 0252	87	0.06	0.00	0.06	36.	*	29 OCT 0852	267	0.00	0.00	0.00	0.
29 OCT 0254	88	0.08	0.00	0.08	41.	*	29 OCT 0854	268	0.00	0.00	0.00	0.
29 OCT 0256	89	0.11	0.00	0.11	48.	*	29 OCT 0856	269	0.00	0.00	0.00	0.
29 OCT 0258	90	0.15	0.00	0.15	57.	*	29 OCT 0858	270	0.00	0.00	0.00	0.
29 OCT 0300	91	0.26	0.00	0.26	71.	*	29 OCT 0900	271	0.00	0.00	0.00	0.
29 OCT 0302	92	0.26	0.00	0.26	91.	*	29 OCT 0902	272	0.00	0.00	0.00	0.
29 OCT 0304	93	0.21	0.00	0.21	118.	*	29 OCT 0904	273	0.00	0.00	0.00	0.
29 OCT 0306	94	0.14	0.00	0.14	146.	*	29 OCT 0906	274	0.00	0.00	0.00	0.
29 OCT 0308	95	0.10	0.00	0.10	167.	*	29 OCT 0908	275	0.00	0.00	0.00	0.
29 OCT 0310	96	0.07	0.00	0.07	176.	*	29 OCT 0910	276	0.00	0.00	0.00	0.
29 OCT 0312	97	0.06	0.00	0.06	172.	*	29 OCT 0912	277	0.00	0.00	0.00	0.
29 OCT 0314	98	0.05	0.00	0.05	158.	*	29 OCT 0914	278	0.00	0.00	0.00	0.
29 OCT 0316	99	0.05	0.00	0.05	139.	*	29 OCT 0916	279	0.00	0.00	0.00	0.
29 OCT 0318	100	0.04	0.00	0.04	119.	*	29 OCT 0918	280	0.00	0.00	0.00	0.
29 OCT 0320	101	0.03	0.00	0.03	102.	*	29 OCT 0920	281	0.00	0.00	0.00	0.
29 OCT 0322	102	0.03	0.00	0.03	87.	*	29 OCT 0922	282	0.00	0.00	0.00	0.
29 OCT 0324	103	0.03	0.00	0.03	75.	*	29 OCT 0924	283	0.00	0.00	0.00	0.
29 OCT 0326	104	0.03	0.00	0.03	65.	*	29 OCT 0926	284	0.00	0.00	0.00	0.
29 OCT 0328	105	0.03	0.00	0.03	56.	*	29 OCT 0928	285	0.00	0.00	0.00	0.
29 OCT 0330	106	0.03	0.00	0.03	50.	*	29 OCT 0930	286	0.00	0.00	0.00	0.
29 OCT 0332	107	0.01	0.00	0.01	44.	*	29 OCT 0932	287	0.00	0.00	0.00	0.
29 OCT 0334	108	0.01	0.00	0.01	39.	*	29 OCT 0934	288	0.00	0.00	0.00	0.
29 OCT 0336	109	0.01	0.00	0.01	34.	*	29 OCT 0936	289	0.00	0.00	0.00	0.
29 OCT 0338	110	0.01	0.00	0.01	29.	*	29 OCT 0938	290	0.00	0.00	0.00	0.
29 OCT 0340	111	0.01	0.00	0.01	25.	*	29 OCT 0940	291	0.00	0.00	0.00	0.
29 OCT 0342	112	0.01	0.00	0.01	21.	*	29 OCT 0942	292	0.00	0.00	0.00	0.
29 OCT 0344	113	0.01	0.00	0.01	18.	*	29 OCT 0944	293	0.00	0.00	0.00	0.
29 OCT 0346	114	0.01	0.00	0.01	15.	*	29 OCT 0946	294	0.00	0.00	0.00	0.
29 OCT 0348	115	0.01	0.00	0.01	13.	*	29 OCT 0948	295	0.00	0.00	0.00	0.
29 OCT 0350	116	0.01	0.00	0.01	12.	*	29 OCT 0950	296	0.00	0.00	0.00	0.
29 OCT 0352	117	0.01	0.00	0.01	11.	*	29 OCT 0952	297	0.00	0.00	0.00	0.
29 OCT 0354	118	0.01	0.00	0.01	10.	*	29 OCT 0954	298	0.00	0.00	0.00	0.
29 OCT 0356	119	0.01	0.00	0.01	9.	*	29 OCT 0956	299	0.00	0.00	0.00	0.
29 OCT 0358	120	0.01	0.00	0.01	9.	*	29 OCT 0958	300	0.00	0.00	0.00	0.
29 OCT 0400	121	0.01	0.00	0.01	8.	*	29 OCT 1000	301	0.00	0.00	0.00	0.
29 OCT 0402	122	0.01	0.00	0.01	8.	*	29 OCT 1002	302	0.00	0.00	0.00	0.
29 OCT 0404	123	0.01	0.00	0.01	7.	*	29 OCT 1004	303	0.00	0.00	0.00	0.
29 OCT 0406	124	0.01	0.00	0.01	7.	*	29 OCT 1006	304	0.00	0.00	0.00	0.
29 OCT 0408	125	0.01	0.00	0.01	7.	*	29 OCT 1008	305	0.00	0.00	0.00	0.
29 OCT 0410	126	0.01	0.00	0.01	7.	*	29 OCT 1010	306	0.00	0.00	0.00	0.
29 OCT 0412	127	0.01	0.00	0.01	6.	*	29 OCT 1012	307	0.00	0.00	0.00	0.
29 OCT 0414	128	0.01	0.00	0.01	6.	*	29 OCT 1014	308	0.00	0.00	0.00	0.
29 OCT 0416	129	0.00	0.00	0.00	6.	*	29 OCT 1016	309	0.00	0.00	0.00	0.
29 OCT 0418	130	0.00	0.00	0.00	6.	*	29 OCT 1018	310	0.00	0.00	0.00	0.
29 OCT 0420	131	0.00	0.00	0.00	6.	*	29 OCT 1020	311	0.00	0.00	0.00	0.
29 OCT 0422	132	0.00	0.00	0.00	6.	*	29 OCT 1022	312	0.00	0.00	0.00	0.
29 OCT 0424	133	0.00	0.00	0.00	6.	*	29 OCT 1024	313	0.00	0.00	0.00	0.
29 OCT 0426	134	0.00	0.00	0.00	5.	*	29 OCT 1026	314	0.00	0.00	0.00	0.

29 OCT 0428	135	0.00	0.00	0.00	5.	*	29 OCT 1028	315	0.00	0.00	0.00	0.
29 OCT 0430	136	0.00	0.00	0.00	5.	*	29 OCT 1030	316	0.00	0.00	0.00	0.
29 OCT 0432	137	0.00	0.00	0.00	5.	*	29 OCT 1032	317	0.00	0.00	0.00	0.
29 OCT 0434	138	0.00	0.00	0.00	5.	*	29 OCT 1034	318	0.00	0.00	0.00	0.
29 OCT 0436	139	0.00	0.00	0.00	5.	*	29 OCT 1036	319	0.00	0.00	0.00	0.
29 OCT 0438	140	0.00	0.00	0.00	5.	*	29 OCT 1038	320	0.00	0.00	0.00	0.
29 OCT 0440	141	0.00	0.00	0.00	5.	*	29 OCT 1040	321	0.00	0.00	0.00	0.
29 OCT 0442	142	0.00	0.00	0.00	5.	*	29 OCT 1042	322	0.00	0.00	0.00	0.
29 OCT 0444	143	0.00	0.00	0.00	5.	*	29 OCT 1044	323	0.00	0.00	0.00	0.
29 OCT 0446	144	0.00	0.00	0.00	5.	*	29 OCT 1046	324	0.00	0.00	0.00	0.
29 OCT 0448	145	0.00	0.00	0.00	5.	*	29 OCT 1048	325	0.00	0.00	0.00	0.
29 OCT 0450	146	0.00	0.00	0.00	5.	*	29 OCT 1050	326	0.00	0.00	0.00	0.
29 OCT 0452	147	0.00	0.00	0.00	4.	*	29 OCT 1052	327	0.00	0.00	0.00	0.
29 OCT 0454	148	0.00	0.00	0.00	4.	*	29 OCT 1054	328	0.00	0.00	0.00	0.
29 OCT 0456	149	0.00	0.00	0.00	4.	*	29 OCT 1056	329	0.00	0.00	0.00	0.
29 OCT 0458	150	0.00	0.00	0.00	4.	*	29 OCT 1058	330	0.00	0.00	0.00	0.
29 OCT 0500	151	0.00	0.00	0.00	4.	*	29 OCT 1100	331	0.00	0.00	0.00	0.
29 OCT 0502	152	0.00	0.00	0.00	4.	*	29 OCT 1102	332	0.00	0.00	0.00	0.
29 OCT 0504	153	0.00	0.00	0.00	4.	*	29 OCT 1104	333	0.00	0.00	0.00	0.
29 OCT 0506	154	0.00	0.00	0.00	4.	*	29 OCT 1106	334	0.00	0.00	0.00	0.
29 OCT 0508	155	0.00	0.00	0.00	4.	*	29 OCT 1108	335	0.00	0.00	0.00	0.
29 OCT 0510	156	0.00	0.00	0.00	4.	*	29 OCT 1110	336	0.00	0.00	0.00	0.
29 OCT 0512	157	0.00	0.00	0.00	4.	*	29 OCT 1112	337	0.00	0.00	0.00	0.
29 OCT 0514	158	0.00	0.00	0.00	4.	*	29 OCT 1114	338	0.00	0.00	0.00	0.
29 OCT 0516	159	0.00	0.00	0.00	4.	*	29 OCT 1116	339	0.00	0.00	0.00	0.
29 OCT 0518	160	0.00	0.00	0.00	4.	*	29 OCT 1118	340	0.00	0.00	0.00	0.
29 OCT 0520	161	0.00	0.00	0.00	4.	*	29 OCT 1120	341	0.00	0.00	0.00	0.
29 OCT 0522	162	0.00	0.00	0.00	4.	*	29 OCT 1122	342	0.00	0.00	0.00	0.
29 OCT 0524	163	0.00	0.00	0.00	4.	*	29 OCT 1124	343	0.00	0.00	0.00	0.
29 OCT 0526	164	0.00	0.00	0.00	4.	*	29 OCT 1126	344	0.00	0.00	0.00	0.
29 OCT 0528	165	0.00	0.00	0.00	3.	*	29 OCT 1128	345	0.00	0.00	0.00	0.
29 OCT 0530	166	0.00	0.00	0.00	3.	*	29 OCT 1130	346	0.00	0.00	0.00	0.
29 OCT 0532	167	0.00	0.00	0.00	3.	*	29 OCT 1132	347	0.00	0.00	0.00	0.
29 OCT 0534	168	0.00	0.00	0.00	3.	*	29 OCT 1134	348	0.00	0.00	0.00	0.
29 OCT 0536	169	0.00	0.00	0.00	3.	*	29 OCT 1136	349	0.00	0.00	0.00	0.
29 OCT 0538	170	0.00	0.00	0.00	3.	*	29 OCT 1138	350	0.00	0.00	0.00	0.
29 OCT 0540	171	0.00	0.00	0.00	3.	*	29 OCT 1140	351	0.00	0.00	0.00	0.
29 OCT 0542	172	0.00	0.00	0.00	3.	*	29 OCT 1142	352	0.00	0.00	0.00	0.
29 OCT 0544	173	0.00	0.00	0.00	3.	*	29 OCT 1144	353	0.00	0.00	0.00	0.
29 OCT 0546	174	0.00	0.00	0.00	3.	*	29 OCT 1146	354	0.00	0.00	0.00	0.
29 OCT 0548	175	0.00	0.00	0.00	3.	*	29 OCT 1148	355	0.00	0.00	0.00	0.
29 OCT 0550	176	0.00	0.00	0.00	3.	*	29 OCT 1150	356	0.00	0.00	0.00	0.
29 OCT 0552	177	0.00	0.00	0.00	3.	*	29 OCT 1152	357	0.00	0.00	0.00	0.
29 OCT 0554	178	0.00	0.00	0.00	3.	*	29 OCT 1154	358	0.00	0.00	0.00	0.
29 OCT 0556	179	0.00	0.00	0.00	3.	*	29 OCT 1156	359	0.00	0.00	0.00	0.
29 OCT 0558	180	0.00	0.00	0.00	3.	*	29 OCT 1158	360	0.00	0.00	0.00	0.
						*						

****

TOTAL RAINFALL = 2.85, TOTAL LOSS = 0.00, TOTAL EXCESS = 2.85

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	11.97-HR
+ (CFS)	(HR)					
		(CFS)				
+ 176.	3.17		17.	9.	9.	9.
		(INCHES)	2.843	2.850	2.850	2.850
		(AC-FT)	8.	8.	8.	8.

CUMULATIVE AREA = 0.06 SQ MI

1

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

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	10EXST	118.	3.17	11.	6.	6.	0.05		

```
+       HYDROGRAPH AT
                        25HOV      153.   3.17        14.        7.        7.      0.05
+       HYDROGRAPH AT
                        50HOV      176.   3.17        17.        9.        9.      0.06

*** NORMAL END OF HEC-1 ***
```

```
ID       ADOT
ID       SR51 Drainage Assessment
ID       Onsite Storm Drain System
ID
ID       Job No. 11045-11
ID       Parsons Brinckerhoff
ID       December 2, 1997
ID       File: PUMP2.DAT
ID
ID        METHODOLOGY:
ID                      *SCS DIMENSIONLESS UNIT HYDROGRAPH USED TO APPROXIMATE
ID                       RATIONAL METHOD RUNOFF HYDROGRAPH
ID                      *INPUT BASED ON RATIONAL METHOD CALCULATIONS
ID                       PER ADOT STANDARDS
ID
ID       THE PURPOSE OF THIS MODEL IS TO PROVIDE AN INPUT HYDROGRAPH TO MODEL
ID       PERFORMANCE OF THE HIGHLAND AVENUE PUMP STATION.
ID
ID
ID       THE MODEL HAS ONLY ONE SUBBASIN.  THERE IS NO ROUTING OF FLOWS
ID       THROUGH THE STORM DRAIN. Tc IN THE STORM DRAIN WERE CALCULATED
ID       BY WINSTORM.
ID
ID       BASIN AREAS SHOWN ARE COMBINED CA VALUES
ID
ID       MODEL PREPARED BY: ALAN HUMPHREY - PB - OCTOBER 29, 1997
ID             REVISED  BY: RAY JORDAN    - PB _ DECEMBER 1, 1997
ID
*DIAGRAM
*FREE
IT     2 29OCT97       0     360
IO     0
KK  2EXST
KM  2-YEAR STORM, EXISTING CONDITION
BA  .0493
PH   0   0    .33    .60   0.96    1.04    1.10    1.20
LS   0    96    100
UD   .2
*
KK  10EXST
KM  10-YEAR STORM, EXISTING CONDITION
BA  .0508
PH   0   0    .49    .94   1.57    1.72    1.83    2.03
LS   0    96    100
UD   .150
*
KK  25HOV
KM  25-YEAR STORM, WITH HOV LANES
KM  BA CARD NOT ADJUSTED, MATCHES RATIONAL PEAK Q
BA0.0540
PH     0       0     .62    1.13    1.91    2.10    2.24    2.49
LS     0      96     100
UD 0.150
*
KK  50HOV
KM  50-YEAR STORM, WITH HOV LANES
KM  BA CARD ADJUSTED TO MATCH RATIONAL PEAK Q
BA .0555
PH     0       0     .66    1.28    2.17     2.4    2.55    2.85
LS     0      96     100
UD 0.150
*
ZZ
```

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

          **************
          *            *
 31 KK    *     2EXST  *
          *            *
          **************
                          2-YEAR STORM, EXISTING CONDITION

             SUBBASIN RUNOFF DATA

 33 BA          SUBBASIN CHARACTERISTICS
                      TAREA        0.05  SUBBASIN AREA

                PRECIPITATION DATA

 34 PH                                 DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 ......   ............... TP-40 ...............   ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.33    0.60    0.96    1.04    1.10    1.20    0.00    0.00    0.00    0.00    0.00    0.00

                                                STORM AREA =    0.05

 35 LS          SCS LOSS RATE
                      STRTL        0.08  INITIAL ABSTRACTION
                     CRVNBR       96.00  CURVE NUMBER
                      RTIMP      100.00  PERCENT IMPERVIOUS AREA

 36 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG        0.20  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                          32 END-OF-PERIOD ORDINATES
                7.      22.      45.      75.      99.     109.     109.     100.      87.      70.
               51.      40.      31.      25.      19.      15.      12.       9.       7.       5.
                4.       3.       3.       2.       2.       1.       1.       1.       1.       0.
                0.       0.
*****************************************************************************************************

                                          HYDROGRAPH AT STATION    2EXST

*****************************************************************************************************
                                                                  *
     DA MON HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q         *     DA MON HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q
                                                                  *
     29 OCT 0000    1    0.00    0.00    0.00         0.         *     29 OCT 0600  181    0.00    0.00    0.00         1.
     29 OCT 0002    2    0.00    0.00    0.00         0.         *     29 OCT 0602  182    0.00    0.00    0.00         1.
     29 OCT 0004    3    0.00    0.00    0.00         0.         *     29 OCT 0604  183    0.00    0.00    0.00         1.
     29 OCT 0006    4    0.00    0.00    0.00         0.         *     29 OCT 0606  184    0.00    0.00    0.00         1.
     29 OCT 0008    5    0.00    0.00    0.00         0.         *     29 OCT 0608  185    0.00    0.00    0.00         1.
     29 OCT 0010    6    0.00    0.00    0.00         0.         *     29 OCT 0610  186    0.00    0.00    0.00         1.
     29 OCT 0012    7    0.00    0.00    0.00         0.         *     29 OCT 0612  187    0.00    0.00    0.00         1.
     29 OCT 0014    8    0.00    0.00    0.00         0.         *     29 OCT 0614  188    0.00    0.00    0.00         0.
     29 OCT 0016    9    0.00    0.00    0.00         0.         *     29 OCT 0616  189    0.00    0.00    0.00         0.
     29 OCT 0018   10    0.00    0.00    0.00         1.         *     29 OCT 0618  190    0.00    0.00    0.00         0.
     29 OCT 0020   11    0.00    0.00    0.00         1.         *     29 OCT 0620  191    0.00    0.00    0.00         0.
     29 OCT 0022   12    0.00    0.00    0.00         1.         *     29 OCT 0622  192    0.00    0.00    0.00         0.
     29 OCT 0024   13    0.00    0.00    0.00         1.         *     29 OCT 0624  193    0.00    0.00    0.00         0.
     29 OCT 0026   14    0.00    0.00    0.00         1.         *     29 OCT 0626  194    0.00    0.00    0.00         0.
     29 OCT 0028   15    0.00    0.00    0.00         1.         *     29 OCT 0628  195    0.00    0.00    0.00         0.
     29 OCT 0030   16    0.00    0.00    0.00         1.         *     29 OCT 0630  196    0.00    0.00    0.00         0.
     29 OCT 0032   17    0.00    0.00    0.00         1.         *     29 OCT 0632  197    0.00    0.00    0.00         0.
     29 OCT 0034   18    0.00    0.00    0.00         1.         *     29 OCT 0634  198    0.00    0.00    0.00         0.
     29 OCT 0036   19    0.00    0.00    0.00         1.         *     29 OCT 0636  199    0.00    0.00    0.00         0.
     29 OCT 0038   20    0.00    0.00    0.00         1.         *     29 OCT 0638  200    0.00    0.00    0.00         0.
     29 OCT 0040   21    0.00    0.00    0.00         1.         *     29 OCT 0640  201    0.00    0.00    0.00         0.
     29 OCT 0042   22    0.00    0.00    0.00         1.         *     29 OCT 0642  202    0.00    0.00    0.00         0.
     29 OCT 0044   23    0.00    0.00    0.00         1.         *     29 OCT 0644  203    0.00    0.00    0.00         0.
```

29 OCT 0046	24	0.00	0.00	0.00	1.	*	29 OCT 0646	204	0.00	0.00	0.00	0.
29 OCT 0048	25	0.00	0.00	0.00	1.	*	29 OCT 0648	205	0.00	0.00	0.00	0.
29 OCT 0050	26	0.00	0.00	0.00	1.	*	29 OCT 0650	206	0.00	0.00	0.00	0.
29 OCT 0052	27	0.00	0.00	0.00	1.	*	29 OCT 0652	207	0.00	0.00	0.00	0.
29 OCT 0054	28	0.00	0.00	0.00	1.	*	29 OCT 0654	208	0.00	0.00	0.00	0.
29 OCT 0056	29	0.00	0.00	0.00	1.	*	29 OCT 0656	209	0.00	0.00	0.00	0.
29 OCT 0058	30	0.00	0.00	0.00	1.	*	29 OCT 0658	210	0.00	0.00	0.00	0.
29 OCT 0100	31	0.00	0.00	0.00	1.	*	29 OCT 0700	211	0.00	0.00	0.00	0.
29 OCT 0102	32	0.00	0.00	0.00	1.	*	29 OCT 0702	212	0.00	0.00	0.00	0.
29 OCT 0104	33	0.00	0.00	0.00	1.	*	29 OCT 0704	213	0.00	0.00	0.00	0.
29 OCT 0106	34	0.00	0.00	0.00	1.	*	29 OCT 0706	214	0.00	0.00	0.00	0.
29 OCT 0108	35	0.00	0.00	0.00	1.	*	29 OCT 0708	215	0.00	0.00	0.00	0.
29 OCT 0110	36	0.00	0.00	0.00	1.	*	29 OCT 0710	216	0.00	0.00	0.00	0.
29 OCT 0112	37	0.00	0.00	0.00	1.	*	29 OCT 0712	217	0.00	0.00	0.00	0.
29 OCT 0114	38	0.00	0.00	0.00	1.	*	29 OCT 0714	218	0.00	0.00	0.00	0.
29 OCT 0116	39	0.00	0.00	0.00	1.	*	29 OCT 0716	219	0.00	0.00	0.00	0.
29 OCT 0118	40	0.00	0.00	0.00	1.	*	29 OCT 0718	220	0.00	0.00	0.00	0.
29 OCT 0120	41	0.00	0.00	0.00	1.	*	29 OCT 0720	221	0.00	0.00	0.00	0.
29 OCT 0122	42	0.00	0.00	0.00	1.	*	29 OCT 0722	222	0.00	0.00	0.00	0.
29 OCT 0124	43	0.00	0.00	0.00	1.	*	29 OCT 0724	223	0.00	0.00	0.00	0.
29 OCT 0126	44	0.00	0.00	0.00	1.	*	29 OCT 0726	224	0.00	0.00	0.00	0.
29 OCT 0128	45	0.00	0.00	0.00	1.	*	29 OCT 0728	225	0.00	0.00	0.00	0.
29 OCT 0130	46	0.00	0.00	0.00	1.	*	29 OCT 0730	226	0.00	0.00	0.00	0.
29 OCT 0132	47	0.00	0.00	0.00	1.	*	29 OCT 0732	227	0.00	0.00	0.00	0.
29 OCT 0134	48	0.00	0.00	0.00	1.	*	29 OCT 0734	228	0.00	0.00	0.00	0.
29 OCT 0136	49	0.00	0.00	0.00	1.	*	29 OCT 0736	229	0.00	0.00	0.00	0.
29 OCT 0138	50	0.00	0.00	0.00	1.	*	29 OCT 0738	230	0.00	0.00	0.00	0.
29 OCT 0140	51	0.00	0.00	0.00	1.	*	29 OCT 0740	231	0.00	0.00	0.00	0.
29 OCT 0142	52	0.00	0.00	0.00	1.	*	29 OCT 0742	232	0.00	0.00	0.00	0.
29 OCT 0144	53	0.00	0.00	0.00	2.	*	29 OCT 0744	233	0.00	0.00	0.00	0.
29 OCT 0146	54	0.00	0.00	0.00	2.	*	29 OCT 0746	234	0.00	0.00	0.00	0.
29 OCT 0148	55	0.00	0.00	0.00	2.	*	29 OCT 0748	235	0.00	0.00	0.00	0.
29 OCT 0150	56	0.00	0.00	0.00	2.	*	29 OCT 0750	236	0.00	0.00	0.00	0.
29 OCT 0152	57	0.00	0.00	0.00	2.	*	29 OCT 0752	237	0.00	0.00	0.00	0.
29 OCT 0154	58	0.00	0.00	0.00	2.	*	29 OCT 0754	238	0.00	0.00	0.00	0.
29 OCT 0156	59	0.00	0.00	0.00	2.	*	29 OCT 0756	239	0.00	0.00	0.00	0.
29 OCT 0158	60	0.00	0.00	0.00	2.	*	29 OCT 0758	240	0.00	0.00	0.00	0.
29 OCT 0200	61	0.00	0.00	0.00	2.	*	29 OCT 0800	241	0.00	0.00	0.00	0.
29 OCT 0202	62	0.00	0.00	0.00	2.	*	29 OCT 0802	242	0.00	0.00	0.00	0.
29 OCT 0204	63	0.00	0.00	0.00	2.	*	29 OCT 0804	243	0.00	0.00	0.00	0.
29 OCT 0206	64	0.00	0.00	0.00	2.	*	29 OCT 0806	244	0.00	0.00	0.00	0.
29 OCT 0208	65	0.00	0.00	0.00	2.	*	29 OCT 0808	245	0.00	0.00	0.00	0.
29 OCT 0210	66	0.00	0.00	0.00	2.	*	29 OCT 0810	246	0.00	0.00	0.00	0.
29 OCT 0212	67	0.00	0.00	0.00	2.	*	29 OCT 0812	247	0.00	0.00	0.00	0.
29 OCT 0214	68	0.00	0.00	0.00	2.	*	29 OCT 0814	248	0.00	0.00	0.00	0.
29 OCT 0216	69	0.00	0.00	0.00	2.	*	29 OCT 0816	249	0.00	0.00	0.00	0.
29 OCT 0218	70	0.00	0.00	0.00	2.	*	29 OCT 0818	250	0.00	0.00	0.00	0.
29 OCT 0220	71	0.00	0.00	0.00	2.	*	29 OCT 0820	251	0.00	0.00	0.00	0.
29 OCT 0222	72	0.00	0.00	0.00	2.	*	29 OCT 0822	252	0.00	0.00	0.00	0.
29 OCT 0224	73	0.00	0.00	0.00	2.	*	29 OCT 0824	253	0.00	0.00	0.00	0.
29 OCT 0226	74	0.00	0.00	0.00	2.	*	29 OCT 0826	254	0.00	0.00	0.00	0.
29 OCT 0228	75	0.00	0.00	0.00	2.	*	29 OCT 0828	255	0.00	0.00	0.00	0.
29 OCT 0230	76	0.00	0.00	0.00	2.	*	29 OCT 0830	256	0.00	0.00	0.00	0.
29 OCT 0232	77	0.01	0.00	0.01	3.	*	29 OCT 0832	257	0.00	0.00	0.00	0.
29 OCT 0234	78	0.01	0.00	0.01	3.	*	29 OCT 0834	258	0.00	0.00	0.00	0.
29 OCT 0236	79	0.01	0.00	0.01	3.	*	29 OCT 0836	259	0.00	0.00	0.00	0.
29 OCT 0238	80	0.01	0.00	0.01	4.	*	29 OCT 0838	260	0.00	0.00	0.00	0.
29 OCT 0240	81	0.01	0.00	0.01	5.	*	29 OCT 0840	261	0.00	0.00	0.00	0.
29 OCT 0242	82	0.01	0.00	0.01	6.	*	29 OCT 0842	262	0.00	0.00	0.00	0.
29 OCT 0244	83	0.01	0.00	0.01	7.	*	29 OCT 0844	263	0.00	0.00	0.00	0.
29 OCT 0246	84	0.02	0.00	0.02	8.	*	29 OCT 0846	264	0.00	0.00	0.00	0.
29 OCT 0248	85	0.02	0.00	0.02	9.	*	29 OCT 0848	265	0.00	0.00	0.00	0.
29 OCT 0250	86	0.02	0.00	0.02	10.	*	29 OCT 0850	266	0.00	0.00	0.00	0.
29 OCT 0252	87	0.03	0.00	0.03	11.	*	29 OCT 0852	267	0.00	0.00	0.00	0.
29 OCT 0254	88	0.04	0.00	0.04	12.	*	29 OCT 0854	268	0.00	0.00	0.00	0.
29 OCT 0256	89	0.05	0.00	0.05	14.	*	29 OCT 0856	269	0.00	0.00	0.00	0.
29 OCT 0258	90	0.06	0.00	0.06	16.	*	29 OCT 0858	270	0.00	0.00	0.00	0.
29 OCT 0300	91	0.13	0.00	0.13	20.	*	29 OCT 0900	271	0.00	0.00	0.00	0.
29 OCT 0302	92	0.13	0.00	0.13	26.	*	29 OCT 0902	272	0.00	0.00	0.00	0.
29 OCT 0304	93	0.10	0.00	0.10	33.	*	29 OCT 0904	273	0.00	0.00	0.00	0.
29 OCT 0306	94	0.06	0.00	0.06	43.	*	29 OCT 0906	274	0.00	0.00	0.00	0.
29 OCT 0308	95	0.04	0.00	0.04	52.	*	29 OCT 0908	275	0.00	0.00	0.00	0.

29 OCT 0310	96	0.03	0.00	0.03	59.	*	29 OCT 0910	276	0.00	0.00	0.00	0.
29 OCT 0312	97	0.02	0.00	0.02	63.	*	29 OCT 0912	277	0.00	0.00	0.00	0.
29 OCT 0314	98	0.02	0.00	0.02	64.	*	29 OCT 0914	278	0.00	0.00	0.00	0.
29 OCT 0316	99	0.02	0.00	0.02	61.	*	29 OCT 0916	279	0.00	0.00	0.00	0.
29 OCT 0318	100	0.01	0.00	0.01	56.	*	29 OCT 0918	280	0.00	0.00	0.00	0.
29 OCT 0320	101	0.01	0.00	0.01	50.	*	29 OCT 0920	281	0.00	0.00	0.00	0.
29 OCT 0322	102	0.01	0.00	0.01	44.	*	29 OCT 0922	282	0.00	0.00	0.00	0.
29 OCT 0324	103	0.01	0.00	0.01	38.	*	29 OCT 0924	283	0.00	0.00	0.00	0.
29 OCT 0326	104	0.01	0.00	0.01	33.	*	29 OCT 0926	284	0.00	0.00	0.00	0.
29 OCT 0328	105	0.01	0.00	0.01	29.	*	29 OCT 0928	285	0.00	0.00	0.00	0.
29 OCT 0330	106	0.01	0.00	0.01	25.	*	29 OCT 0930	286	0.00	0.00	0.00	0.
29 OCT 0332	107	0.00	0.00	0.00	22.	*	29 OCT 0932	287	0.00	0.00	0.00	0.
29 OCT 0334	108	0.00	0.00	0.00	20.	*	29 OCT 0934	288	0.00	0.00	0.00	0.
29 OCT 0336	109	0.00	0.00	0.00	17.	*	29 OCT 0936	289	0.00	0.00	0.00	0.
29 OCT 0338	110	0.00	0.00	0.00	15.	*	29 OCT 0938	290	0.00	0.00	0.00	0.
29 OCT 0340	111	0.00	0.00	0.00	13.	*	29 OCT 0940	291	0.00	0.00	0.00	0.
29 OCT 0342	112	0.00	0.00	0.00	11.	*	29 OCT 0942	292	0.00	0.00	0.00	0.
29 OCT 0344	113	0.00	0.00	0.00	10.	*	29 OCT 0944	293	0.00	0.00	0.00	0.
29 OCT 0346	114	0.00	0.00	0.00	8.	*	29 OCT 0946	294	0.00	0.00	0.00	0.
29 OCT 0348	115	0.00	0.00	0.00	7.	*	29 OCT 0948	295	0.00	0.00	0.00	0.
29 OCT 0350	116	0.00	0.00	0.00	6.	*	29 OCT 0950	296	0.00	0.00	0.00	0.
29 OCT 0352	117	0.00	0.00	0.00	5.	*	29 OCT 0952	297	0.00	0.00	0.00	0.
29 OCT 0354	118	0.00	0.00	0.00	5.	*	29 OCT 0954	298	0.00	0.00	0.00	0.
29 OCT 0356	119	0.00	0.00	0.00	4.	*	29 OCT 0956	299	0.00	0.00	0.00	0.
29 OCT 0358	120	0.00	0.00	0.00	4.	*	29 OCT 0958	300	0.00	0.00	0.00	0.
29 OCT 0400	121	0.00	0.00	0.00	3.	*	29 OCT 1000	301	0.00	0.00	0.00	0.
29 OCT 0402	122	0.00	0.00	0.00	3.	*	29 OCT 1002	302	0.00	0.00	0.00	0.
29 OCT 0404	123	0.00	0.00	0.00	3.	*	29 OCT 1004	303	0.00	0.00	0.00	0.
29 OCT 0406	124	0.00	0.00	0.00	3.	*	29 OCT 1006	304	0.00	0.00	0.00	0.
29 OCT 0408	125	0.00	0.00	0.00	3.	*	29 OCT 1008	305	0.00	0.00	0.00	0.
29 OCT 0410	126	0.00	0.00	0.00	2.	*	29 OCT 1010	306	0.00	0.00	0.00	0.
29 OCT 0412	127	0.00	0.00	0.00	2.	*	29 OCT 1012	307	0.00	0.00	0.00	0.
29 OCT 0414	128	0.00	0.00	0.00	2.	*	29 OCT 1014	308	0.00	0.00	0.00	0.
29 OCT 0416	129	0.00	0.00	0.00	2.	*	29 OCT 1016	309	0.00	0.00	0.00	0.
29 OCT 0418	130	0.00	0.00	0.00	2.	*	29 OCT 1018	310	0.00	0.00	0.00	0.
29 OCT 0420	131	0.00	0.00	0.00	2.	*	29 OCT 1020	311	0.00	0.00	0.00	0.
29 OCT 0422	132	0.00	0.00	0.00	2.	*	29 OCT 1022	312	0.00	0.00	0.00	0.
29 OCT 0424	133	0.00	0.00	0.00	2.	*	29 OCT 1024	313	0.00	0.00	0.00	0.
29 OCT 0426	134	0.00	0.00	0.00	2.	*	29 OCT 1026	314	0.00	0.00	0.00	0.
29 OCT 0428	135	0.00	0.00	0.00	2.	*	29 OCT 1028	315	0.00	0.00	0.00	0.
29 OCT 0430	136	0.00	0.00	0.00	2.	*	29 OCT 1030	316	0.00	0.00	0.00	0.
29 OCT 0432	137	0.00	0.00	0.00	2.	*	29 OCT 1032	317	0.00	0.00	0.00	0.
29 OCT 0434	138	0.00	0.00	0.00	2.	*	29 OCT 1034	318	0.00	0.00	0.00	0.
29 OCT 0436	139	0.00	0.00	0.00	2.	*	29 OCT 1036	319	0.00	0.00	0.00	0.
29 OCT 0438	140	0.00	0.00	0.00	2.	*	29 OCT 1038	320	0.00	0.00	0.00	0.
29 OCT 0440	141	0.00	0.00	0.00	2.	*	29 OCT 1040	321	0.00	0.00	0.00	0.
29 OCT 0442	142	0.00	0.00	0.00	2.	*	29 OCT 1042	322	0.00	0.00	0.00	0.
29 OCT 0444	143	0.00	0.00	0.00	2.	*	29 OCT 1044	323	0.00	0.00	0.00	0.
29 OCT 0446	144	0.00	0.00	0.00	2.	*	29 OCT 1046	324	0.00	0.00	0.00	0.
29 OCT 0448	145	0.00	0.00	0.00	2.	*	29 OCT 1048	325	0.00	0.00	0.00	0.
29 OCT 0450	146	0.00	0.00	0.00	1.	*	29 OCT 1050	326	0.00	0.00	0.00	0.
29 OCT 0452	147	0.00	0.00	0.00	1.	*	29 OCT 1052	327	0.00	0.00	0.00	0.
29 OCT 0454	148	0.00	0.00	0.00	1.	*	29 OCT 1054	328	0.00	0.00	0.00	0.
29 OCT 0456	149	0.00	0.00	0.00	1.	*	29 OCT 1056	329	0.00	0.00	0.00	0.
29 OCT 0458	150	0.00	0.00	0.00	1.	*	29 OCT 1058	330	0.00	0.00	0.00	0.
29 OCT 0500	151	0.00	0.00	0.00	1.	*	29 OCT 1100	331	0.00	0.00	0.00	0.
29 OCT 0502	152	0.00	0.00	0.00	1.	*	29 OCT 1102	332	0.00	0.00	0.00	0.
29 OCT 0504	153	0.00	0.00	0.00	1.	*	29 OCT 1104	333	0.00	0.00	0.00	0.
29 OCT 0506	154	0.00	0.00	0.00	1.	*	29 OCT 1106	334	0.00	0.00	0.00	0.
29 OCT 0508	155	0.00	0.00	0.00	1.	*	29 OCT 1108	335	0.00	0.00	0.00	0.
29 OCT 0510	156	0.00	0.00	0.00	1.	*	29 OCT 1110	336	0.00	0.00	0.00	0.
29 OCT 0512	157	0.00	0.00	0.00	1.	*	29 OCT 1112	337	0.00	0.00	0.00	0.
29 OCT 0514	158	0.00	0.00	0.00	1.	*	29 OCT 1114	338	0.00	0.00	0.00	0.
29 OCT 0516	159	0.00	0.00	0.00	1.	*	29 OCT 1116	339	0.00	0.00	0.00	0.
29 OCT 0518	160	0.00	0.00	0.00	1.	*	29 OCT 1118	340	0.00	0.00	0.00	0.
29 OCT 0520	161	0.00	0.00	0.00	1.	*	29 OCT 1120	341	0.00	0.00	0.00	0.
29 OCT 0522	162	0.00	0.00	0.00	1.	*	29 OCT 1122	342	0.00	0.00	0.00	0.
29 OCT 0524	163	0.00	0.00	0.00	1.	*	29 OCT 1124	343	0.00	0.00	0.00	0.
29 OCT 0526	164	0.00	0.00	0.00	1.	*	29 OCT 1126	344	0.00	0.00	0.00	0.
29 OCT 0528	165	0.00	0.00	0.00	1.	*	29 OCT 1128	345	0.00	0.00	0.00	0.
29 OCT 0530	166	0.00	0.00	0.00	1.	*	29 OCT 1130	346	0.00	0.00	0.00	0.
29 OCT 0532	167	0.00	0.00	0.00	1.	*	29 OCT 1132	347	0.00	0.00	0.00	0.

29 OCT 0534	168	0.00	0.00	0.00	1.	*	29 OCT 1134	348	0.00	0.00	0.00	0.
29 OCT 0536	169	0.00	0.00	0.00	1.	*	29 OCT 1136	349	0.00	0.00	0.00	0.
29 OCT 0538	170	0.00	0.00	0.00	1.	*	29 OCT 1138	350	0.00	0.00	0.00	0.
29 OCT 0540	171	0.00	0.00	0.00	1.	*	29 OCT 1140	351	0.00	0.00	0.00	0.
29 OCT 0542	172	0.00	0.00	0.00	1.	*	29 OCT 1142	352	0.00	0.00	0.00	0.
29 OCT 0544	173	0.00	0.00	0.00	1.	*	29 OCT 1144	353	0.00	0.00	0.00	0.
29 OCT 0546	174	0.00	0.00	0.00	1.	*	29 OCT 1146	354	0.00	0.00	0.00	0.
29 OCT 0548	175	0.00	0.00	0.00	1.	*	29 OCT 1148	355	0.00	0.00	0.00	0.
29 OCT 0550	176	0.00	0.00	0.00	1.	*	29 OCT 1150	356	0.00	0.00	0.00	0.
29 OCT 0552	177	0.00	0.00	0.00	1.	*	29 OCT 1152	357	0.00	0.00	0.00	0.
29 OCT 0554	178	0.00	0.00	0.00	1.	*	29 OCT 1154	358	0.00	0.00	0.00	0.
29 OCT 0556	179	0.00	0.00	0.00	1.	*	29 OCT 1156	359	0.00	0.00	0.00	0.
29 OCT 0558	180	0.00	0.00	0.00	1.	*	29 OCT 1158	360	0.00	0.00	0.00	0.
						*						

****

TOTAL RAINFALL = 1.20, TOTAL LOSS = 0.00, TOTAL EXCESS = 1.20

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	11.97-HR
+ (CFS)	(HR)					
		(CFS)				
+ 64.	3.23		6.	3.	3.	3.
		(INCHES)	1.197	1.200	1.200	1.200
		(AC-FT)	3.	3.	3.	3.

CUMULATIVE AREA = 0.05 SQ MI

*** ***

SR51 Drainage Assessment
Roadway Runoff Storage
at Highland Avenue Pump Station

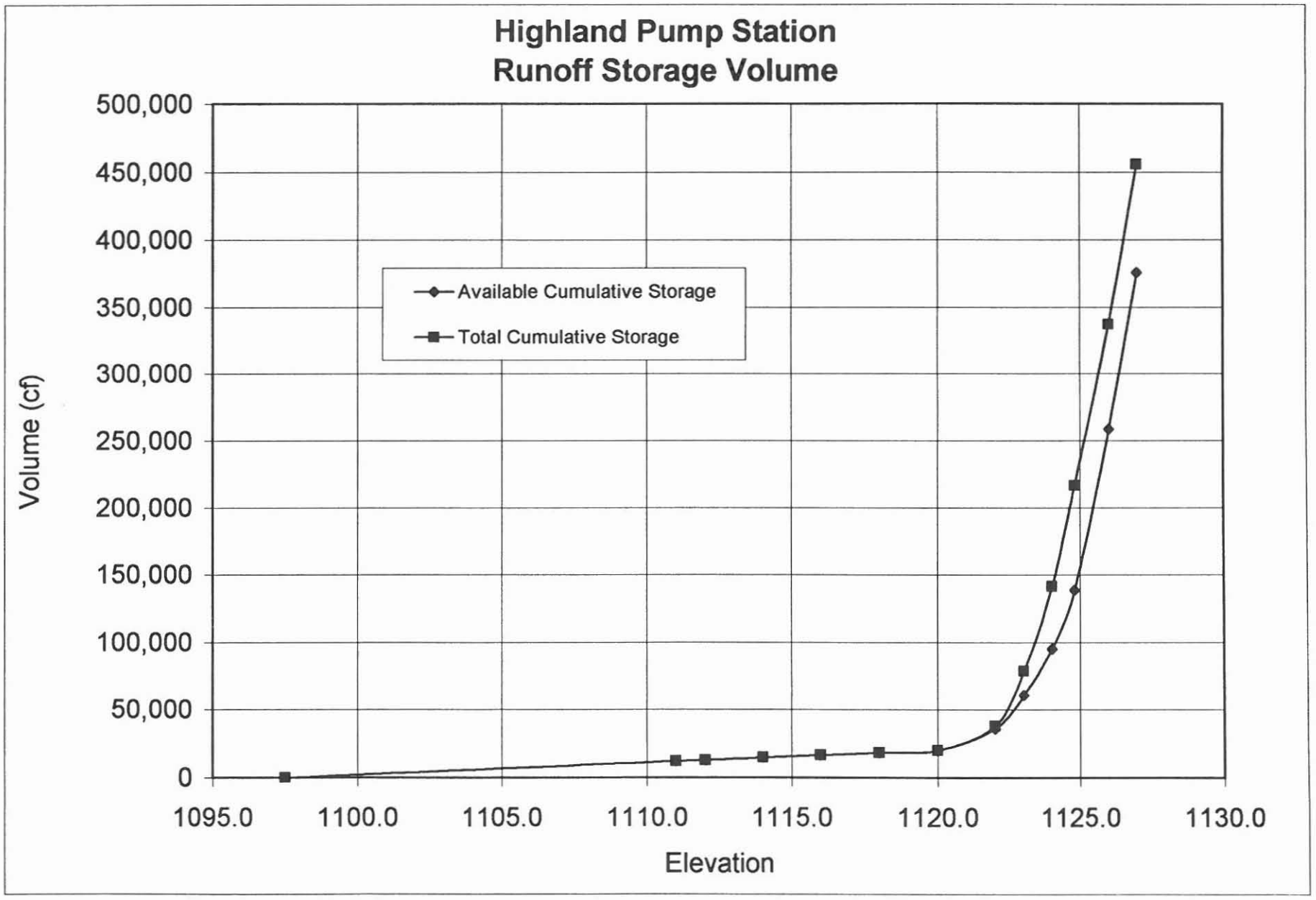
Runoff Storage Capacity
Parkway Pavement and Wet Well

Elevation (ft)	Available Cumulative Storage (cf)	Incremental Cumulative Storage (af)	Total Cumulative Storage (cf)	Total Cumulative Storage (af)
1097.5	0	0.00	0	0.00
1111.0	11,988	0.28	11,988	0.28
1112.0	12,876	0.30	12,876	0.30
1114.0	14,652	0.34	14,652	0.34
1116.0	16,428	0.38	16,428	0.38
1118.0	18,204	0.42	18,204	0.42
1120.0	19,980	0.46	19,980	0.46
1122.0	35,856	0.82	38,056	0.87
1123.0	60,656	1.39	78,444	1.80
1124.0	95,256	2.19	141,432	3.25
1124.8	138,556	3.18	216,442	4.97
1126.0	258,356	5.93	337,308	7.74
1127.0	375,956	8.63	455,796	10.46

Lowest Grate in Northbound Lanes- 1119.9
Lowest Grate in Southbound Lanes- 1121.3

Pump Performance

Elevation	Pumps Running	Discharge per Pump (gpm)	Discharge per Pump (cfs)	Total Discharge (gpm)	Total Discharge (cfs)
1,111.00	1	10,300.00	22.95	10,300.00	22.95
1,112.00	2	11,000.00	24.51	22,000.00	49.02
1,113.50	3	11,600.00	25.85	34,800.00	77.54
1,113.67	4	11,700.00	26.07	46,800.00	104.28
1,114.00	4	11,900.00	26.52	47,600.00	106.06
1,116.00	4	12,600.00	28.07	50,400.00	112.30
1,118.00	4	13,300.00	29.63	53,200.00	118.54
1,120.00	4	13,800.00	30.75	55,200.00	122.99
1,122.00	4	14,400.00	32.09	57,600.00	128.34
1,124.00	4	15,000.00	33.42	60,000.00	133.69
1,126.00	4	15,500.00	34.54	62,000.00	138.15
1,127.00	4	15,700.00	34.98	62,800.00	139.93


Highland Pump Station
Runoff Storage Volume
Volume (cf)
500,000
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
1095.0
1100.0
1105.0
1110.0
1115.0
1120.0
1125.0
1130.0
Elevation
Available Cumulative Storage
Total Cumulative Storage

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page 1 of

Made by ASH

Date 10/7/97

Checked by

Date

Subject SR51 Drainage Assessment
Pump Sta. Discharge

Pump activation elevations -

Roadway Sumps
SB 21.3 Grate
NB 19.9 Grate

Elev 1111.0 - all pumps off

REVISED per STEPINS OK

Elev 1112.5 - Pump #1 on 1111.0

Elev 1113.0 - Pump #2 on 1112.0

Elev 1114.0 - Pump #3 on 1113.5

Elev 1114.5 Pump #4 on 1113.67

Elev 1115.0 High level alarm

All pumps are high output storm water pumps. Pump #5 is for redundancy. Neglect effect of sump pump.

Pump discharge piping is 20" w/ flapgate
Discharge Elev = 1144.00
Top of discharge pit @ 1147.50

System curve:

Pipe length = 1144.0 - 1111.0 + 3' = 36'
vert. horizon.

2 - 90° Elbows = Equiv. length = 45' each (assume med. sweep)

1 - sudden expansion + flap gate = 55' + 60'
enlarg. flap
(assume = check valve)

Total each discharge = 36' + 45' + 45' + 55' + 60' = 241'

PARSONS BRINCKERHOFF COMPUTATION SHEET

Subject: [illegible] Drainage Assessment
Pump Sta Discharge

Page 2 of
Made by [illegible]
Date 10/7/97
Checked by
Date

With unimpeded discharge, C = 130 use Hazen-Williams to calculate head loss -

8,000 gpm → h_L = 2'

10,000 gpm → h_L = 3'

12,000 gpm → h_L = 4'

14,000 gpm → h_L = 5'

18,000 gpm → h_L = 11' 16,000 → 8.5

Δz = 1144.0 - 1111.0 = 33'

see system curve on pump curve

Pumps expected to operate in 10,300 gpm (1 pump on) to 10,800 gpm (4 pumps on) use average discharge of 10,500 gpm per pump.

10,300 gpm = 22.97 cfs → use 23 cfs w/ 1 pump on

see attached curves + spread sheet

Highland Pump Sta 4m
Squaw Peak Parkway

FLYGT

CUSTOMER REF. NO.
James Cooke

Squaw Peak Pkwy
Phoenix, AZ

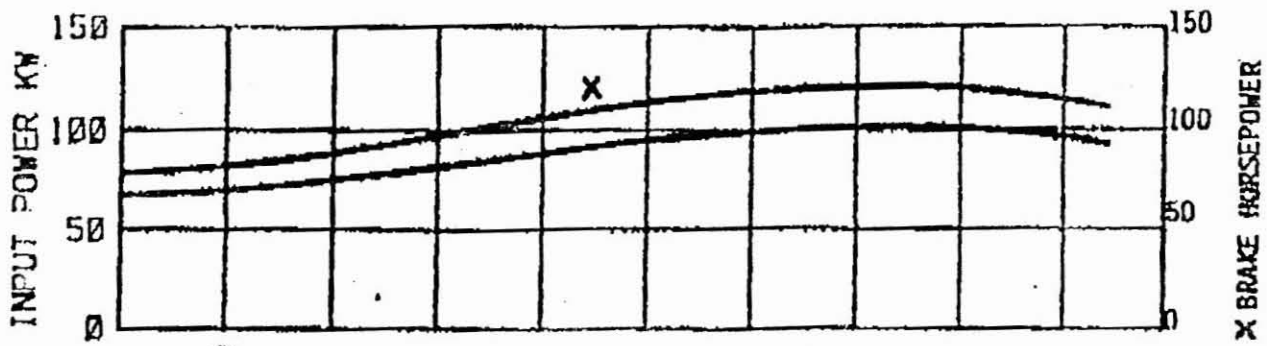
REP.
James Cooke

CERTIFIED TEST CURVE NO. 5949

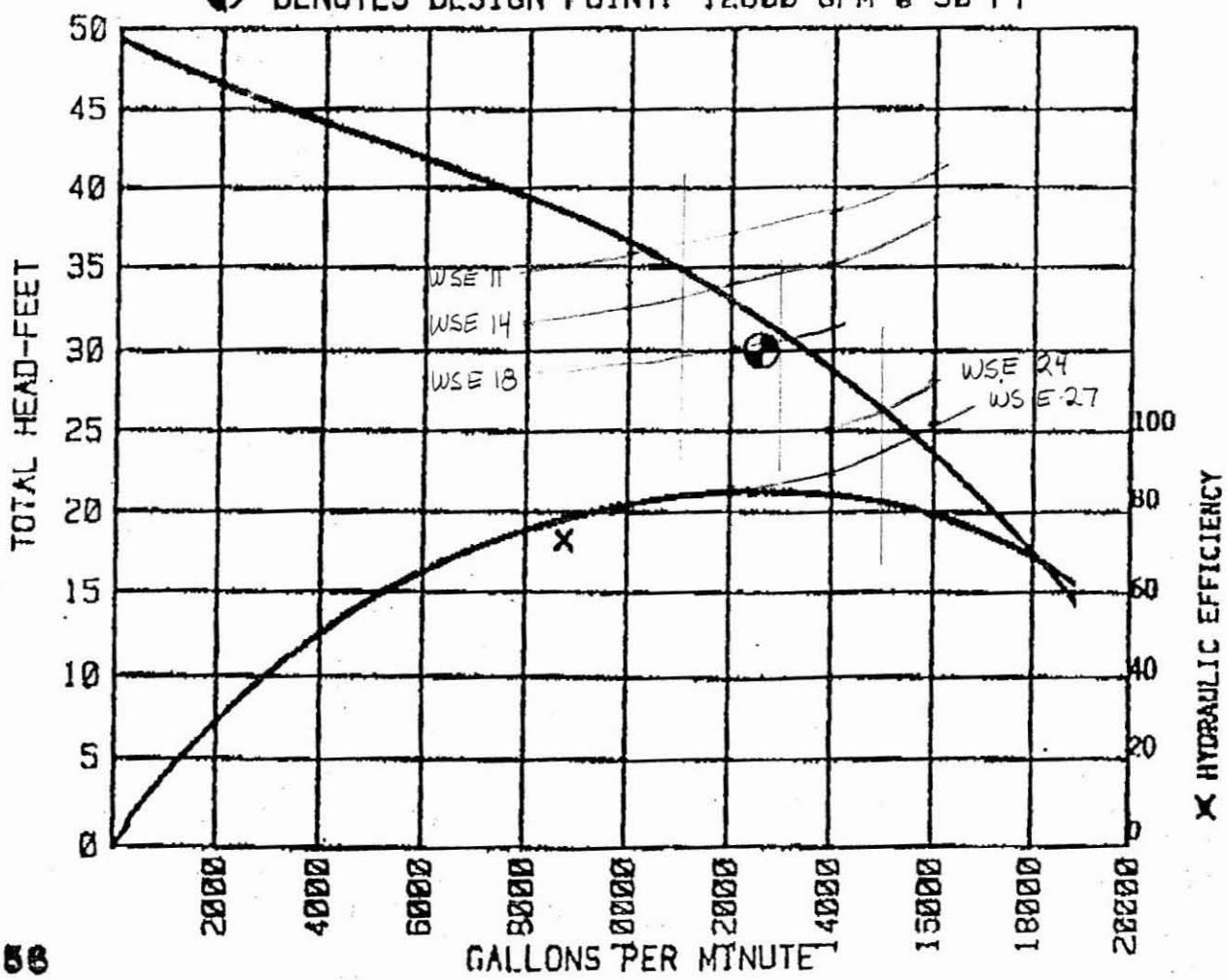
SER. NO. 880-8850644	KW 112	FLYGT REF. NO. C - 21868A	
HP 134	PH 3	VOLT. 480	PUMP MODEL CP-3500X / SIZE 20"
RTD. RPM 505	IMPLR. 1430		

CERTIFICATION THIS TEST WAS CONDUCTED AT A FLYGT CORPORATION TEST FACILITY USING CLEAR WATER AT AMBIENT TEMP. (60-90 F). FLOW, HEAD AND POWER READINGS WERE TAKEN FROM ELECTRONIC METERING EQUIPMENT. ACCURACY OF THE TEST EQUIPMENT CONFIRMED BY PERIODIC CALIBRATIONS.

T.A.# 6662	TEST BY Lindas DATE 7/6/88	PREP. BY A. Hannis DATE 7/29/88	WITNESSED BY DATE



DENOTES DESIGN POINT: 12600 GPM @ 30 FT



Az. Dept. of Transportation 2209 W. Durango St., Mail Drop PM91 Phoenix, AZ 85009-6556

FAX

Date: 9-23

Number of pages including cover sheet: 2

To: Alan Humphrey PB

Phone: 966 8295

Fax phone: 966 9234

CC:

From: A. JOHN STEPINS

Phone: (602) 255-6702, (602) 255-6709

Fax phone: (602) 407-3055

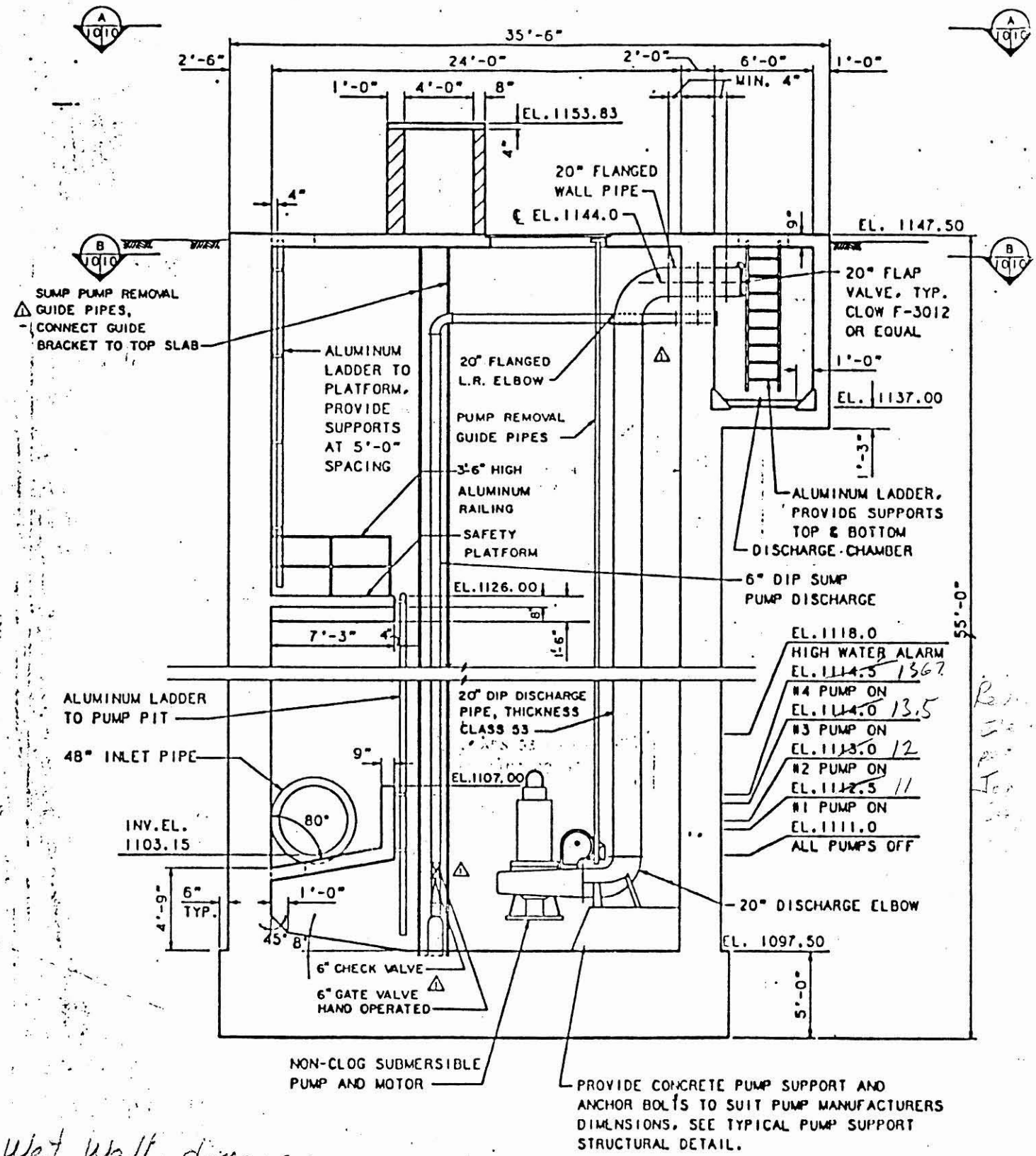
REMARKS: [ ] Urgent [x] For your review [ ] Reply ASAP [ ] Please comment

Squaw Peak Highland

My address
AZ. Dept. of Transportation
2209 W. Durango St. PM91
85009

Project No. 110455 #11
Original to Central File
PM CPHollows
Route to:
Alan H

Remarks



SECTION
SCALE: 1/4"=1'-0"

Wet Well dimensions
24W x 37L x 50D
Revised level contol elevations per ADOT

SECTION 5.2 ON-SITE PROBLEMS IDENTIFIED

Highland Avenue Pump Station
Pump Station Routing-
10–Year Existing Condition

PROGRAM INPUT DATA

SR-51 Drainage Assessment
Indian School Road to
Bethany Home Road

Pump Station Routing
Delta T = .002 Hrs.
FILE 10YEXPSE.OUT

FREQUENCY	10YR

Exist	~~HOV~~

INFLOW HYDROGRAPH

Hec1 Time	Time	Q (cfs)
2:00	0	4
2:30	.5	5
2:42	.7	13
3:00	1.0	46
3:06	1.1	98
3:10	1.167	118
3:14	1.233	106
3:26	1.433	43
3:44	1.733	11
4:00	2.0	5

STAGE - STORAGE/DISCHARGE RELATIONSHIP

Elev	Storage CuFt	Q cfs
97.5	0	12
106	7548	17.83
111	11988	22.95
113.5	14208	25.85
116	16428	28.07
120	19980	30.75
122	38056	32.09
124	141432	33.42
127	455796	34.98

1ST GEN SET ON ?
2ND GEN SET ON ?

PUMP	ON	OFF
1	111	110.9
2	112	110.9
3	113.5	110.9
4	113.67	110.9

PB

FILE CONVENTIONS:

10YEXPSE.OUT

10YR FREQUENCY

EXISTING CONDITIONS

HIGHLAND PUMP STATION

EXISTING ON/OFF SETTINGS

3/25/98

SR-51 Drainage Assessment
Indian School Rd. to Bethany Home Rd.

Pump Station Routing
Highland Pump Station

10 Year Inflow Hydrograph (existing)
Using HEC1 Files pump2.dat & pump2.out

10YEXPSE.out, 03-25-98
PB Phx., BY R.JORDAN

****

INPUT DATA FOR PUMP STATION ROUTING

Delta Time (routing interval) = .002 Hrs.(.12 min or 7.2 sec)

Frequency Existing 10 Year w/ existing pump on/off settings

INFLOW HYDROGRAPH

hec1 time	time	Q (cfs)
0200	0.0	4
0230	0.5	5
0242	0.6	13
0300	1.0	46
0306	1.1	98
0310	1.167	118
0314	1.233	106
0326	1.433	43
0344	1.733	11
0400	2.000	5

STAGE-STORAGE/DISCHARGE CURVE

Elev.	Storage CuFt	Outflow cfs
97.5	0	12
106	7548	17.83
111	11988	22.95
113.5	14208	25.85
116	16428	28.07
120	19980	30.75
122	38056	32.09
124	141432	33.42
127	455796	34.98

PUMP	ON	OFF
1	111.0	110.9
2	112.0	110.9
3	113.5	110.9
4	113.67	110.9

Gen Set	On
1	?
2	?

****

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.00	4.00	0.00	0.00	0.00	0.00	0.01	0.00
0.00	4.00	28.81	0.00	0.00	0.00	28.82	97.53
0.00	4.01	57.66	0.00	0.00	0.00	57.67	97.56
0.01	4.01	86.53	0.00	0.00	0.00	86.54	97.60
0.01	4.02	115.43	0.00	0.00	0.00	115.44	97.63
0.01	4.02	144.36	0.00	0.00	0.00	144.37	97.66
0.01	4.02	173.32	0.00	0.00	0.00	173.33	97.70
0.01	4.03	202.31	0.00	0.00	0.00	202.32	97.73
0.02	4.03	231.32	0.00	0.00	0.00	231.33	97.76
0.02	4.04	260.37	0.00	0.00	0.00	260.38	97.79
0.02	4.04	289.44	0.00	0.00	0.00	289.45	97.83
0.02	4.04	318.54	0.00	0.00	0.00	318.55	97.86
0.02	4.05	347.67	0.00	0.00	0.00	347.68	97.89
0.03	4.05	376.83	0.00	0.00	0.00	376.84	97.92
0.03	4.06	406.02	0.00	0.00	0.00	406.03	97.96
0.03	4.06	435.24	0.00	0.00	0.00	435.25	97.99
0.03	4.06	464.49	0.00	0.00	0.00	464.50	98.02
0.03	4.07	493.76	0.00	0.00	0.00	493.77	98.06
0.04	4.07	523.07	0.00	0.00	0.00	523.08	98.09
0.04	4.08	552.40	0.00	0.00	0.00	552.41	98.12
0.04	4.08	581.76	0.00	0.00	0.00	581.77	98.16
0.04	4.08	611.15	0.00	0.00	0.00	611.16	98.19
0.04	4.09	640.57	0.00	0.00	0.00	640.58	98.22
0.05	4.09	670.02	0.00	0.00	0.00	670.03	98.25
0.05	4.10	699.49	0.00	0.00	0.00	699.50	98.29
0.05	4.10	729.00	0.00	0.00	0.00	729.01	98.32
0.05	4.10	758.53	0.00	0.00	0.00	758.54	98.35
0.05	4.11	788.10	0.00	0.00	0.00	788.11	98.39
0.06	4.11	817.69	0.00	0.00	0.00	817.70	98.42
0.06	4.12	847.31	0.00	0.00	0.00	847.32	98.45
0.06	4.12	876.96	0.00	0.00	0.00	876.97	98.49
0.06	4.12	906.64	0.00	0.00	0.00	906.65	98.52
0.06	4.13	936.35	0.00	0.00	0.00	936.36	98.55
0.07	4.13	966.08	0.00	0.00	0.00	966.09	98.59
0.07	4.14	995.85	0.00	0.00	0.00	995.86	98.62
0.07	4.14	1025.64	0.00	0.00	0.00	1025.65	98.66
0.07	4.14	1055.46	0.00	0.00	0.00	1055.47	98.69
0.07	4.15	1085.31	0.00	0.00	0.00	1085.32	98.72
0.08	4.15	1115.19	0.00	0.00	0.00	1115.20	98.76
0.08	4.16	1145.10	0.00	0.00	0.00	1145.11	98.79
0.08	4.16	1175.04	0.00	0.00	0.00	1175.05	98.82
0.08	4.16	1205.01	0.00	0.00	0.00	1205.02	98.86
0.08	4.17	1235.00	0.00	0.00	0.00	1235.01	98.89
0.09	4.17	1265.03	0.00	0.00	0.00	1265.04	98.92
0.09	4.18	1295.08	0.00	0.00	0.00	1295.09	98.96
0.09	4.18	1325.16	0.00	0.00	0.00	1325.17	98.99
0.09	4.18	1355.27	0.00	0.00	0.00	1355.28	99.03
0.09	4.19	1385.41	0.00	0.00	0.00	1385.42	99.06
0.10	4.19	1415.58	0.00	0.00	0.00	1415.59	99.09
0.10	4.20	1445.77	0.00	0.00	0.00	1445.78	99.13
0.10	4.20	1476.00	0.00	0.00	0.00	1476.01	99.16
0.10	4.20	1506.25	0.00	0.00	0.00	1506.26	99.20
TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.10	4.21	1536.54	0.00	0.00	0.00	1536.55	99.23
0.11	4.21	1566.85	0.00	0.00	0.00	1566.86	99.26
0.11	4.22	1597.19	0.00	0.00	0.00	1597.20	99.30

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.64	10.44	11879.71	0.00	0.00	0.00	11879.72	110.88
0.64	10.52	11955.17	0.00	0.00	0.00	11955.18	110.96
0.64	10.60	12031.20	1.00	23.01	82.82	11906.98	111.05
0.64	10.68	12107.81	0.00	0.00	247.56	11860.26	110.81
0.64	10.76	12184.99	0.00	0.00	247.56	11937.44	110.94
0.65	10.84	12262.75	1.00	22.99	330.31	11891.08	111.03
0.65	10.92	12341.09	0.00	0.00	413.06	11928.04	110.79
0.65	11.00	12420.00	1.00	22.97	495.77	11882.89	111.02
0.65	11.08	12499.49	0.00	0.00	578.48	11921.02	110.79
0.65	11.16	12579.55	1.00	22.97	661.16	11877.06	111.01
0.66	11.24	12660.19	0.00	0.00	743.84	11916.36	110.78
0.66	11.32	12741.41	1.00	22.96	826.51	11873.58	111.01
0.66	11.40	12823.20	0.00	0.00	909.17	11914.04	110.78
0.66	11.48	12905.57	1.00	22.96	991.83	11872.42	111.01
0.66	11.56	12988.51	0.00	0.00	1074.49	11914.03	110.78
0.67	11.64	13072.03	1.00	22.96	1157.15	11873.56	111.01
0.67	11.72	13156.13	0.00	0.00	1239.82	11916.32	110.78
0.67	11.80	13240.80	1.00	22.97	1322.50	11876.97	111.01
0.67	11.88	13326.05	0.00	0.00	1405.18	11920.88	110.79
0.67	11.96	13411.87	1.00	22.97	1487.89	11882.64	111.02
0.68	12.04	13498.27	0.00	0.00	1570.60	11927.69	110.79
0.68	12.12	13585.25	1.00	22.98	1653.34	11890.54	111.03
0.68	12.20	13672.80	0.00	0.00	1736.09	11936.72	110.80
0.68	12.28	13760.93	1.00	23.00	1818.88	11900.66	111.04
0.68	12.36	13849.63	0.00	0.00	1983.62	11866.03	110.82
0.69	12.44	13938.91	0.00	0.00	1983.62	11955.31	110.96
0.69	12.52	14028.77	1.00	23.02	2066.50	11920.83	111.06
0.69	12.60	14119.20	0.00	0.00	2231.42	11887.79	110.84
0.69	12.68	14210.21	0.00	0.00	2231.42	11978.80	110.99
0.69	12.76	14301.79	1.00	23.06	2314.43	11945.87	111.09
0.70	12.84	14393.95	0.00	0.00	2479.58	11914.38	110.87
0.70	12.92	14486.69	1.00	22.97	2562.29	11883.06	111.02
0.70	13.00	14580.00	0.00	0.00	2645.00	11935.01	110.80
0.70	13.22	14674.39	1.00	23.00	2727.81	11905.18	111.05
0.70	13.44	14770.37	0.00	0.00	2892.62	11877.76	110.83
0.71	13.66	14867.93	0.00	0.00	2892.62	11975.32	110.99
0.71	13.88	14967.07	1.00	23.06	2975.64	11949.92	111.10
0.71	14.10	15067.80	0.00	0.00	3140.86	11926.95	110.88
0.71	14.32	15170.11	1.00	23.00	3223.68	11905.04	111.05
0.71	14.54	15274.01	0.00	0.00	3388.51	11885.51	110.84
0.72	14.76	15379.49	1.00	22.95	3471.15	11867.04	111.00
0.72	14.98	15486.56	0.00	0.00	3553.78	11932.78	110.80
0.72	15.20	15595.20	1.00	23.02	3636.65	11917.12	111.06
0.72	15.42	15705.44	0.00	0.00	3801.62	11903.82	110.86
0.72	15.64	15817.25	1.00	22.99	3884.37	11891.52	111.03
0.73	15.86	15930.65	0.00	0.00	4049.13	11881.54	110.83
0.73	16.08	16045.64	1.00	22.96	4131.79	11872.53	111.01
0.73	16.30	16162.21	0.00	0.00	4296.39	11865.83	110.82
0.73	16.52	16280.36	0.00	0.00	4296.39	11983.98	111.00
0.73	16.74	16400.09	1.00	23.10	4379.55	11978.97	111.13
0.74	16.96	16521.41	1.00	22.89	4545.11	11976.31	110.94
0.74	17.18	16644.32	1.00	22.89	4709.91	11934.42	110.94
0.74	17.40	16768.81	0.00	0.00	4874.53	11894.28	110.89
0.74	17.62	16894.88	1.00	22.99	4957.31	11896.20	111.04
0.74	17.84	17022.54	0.00	0.00	5122.16	11900.38	110.85
0.75	18.06	17151.78	1.00	23.00	5204.98	11905.40	111.05
0.75	18.28	17282.60	0.00	0.00	5369.93	11912.68	110.87
0.75	18.50	17415.01	1.00	23.02	5452.82	11920.76	111.06
0.75	18.72	17549.00	0.00	0.00	5617.92	11931.10	110.89
0.75	18.94	17684.58	1.00	23.05	5700.91	11942.19	111.09
0.76	19.16	17821.74	1.00	22.86	5866.21	11955.54	110.92
0.76	19.38	17960.48	1.00	22.88	6030.90	11929.60	110.93
0.76	19.60	18100.81	1.00	22.85	6195.55	11905.27	110.91
0.76	19.82	18242.72	0.00	0.00	6360.00	11882.73	110.88
0.76	20.04	18386.22	1.00	23.00	6442.80	11902.02	111.04
0.77	20.26	18531.30	0.00	0.00	6607.78	11923.52	110.88
0.77	20.48	18677.96	1.00	23.06	6690.79	11945.68	111.09
0.77	20.70	18826.21	1.00	22.88	6856.17	11970.05	110.93
0.77	20.92	18976.04	1.00	22.91	7021.02	11955.03	110.96
0.77	21.14	19127.46	1.00	22.90	7185.93	11941.54	110.95
0.78	21.36	19280.46	1.00	22.88	7350.73	11929.74	110.93
0.78	21.58	19435.04	1.00	22.87	7515.44	11919.61	110.92
0.78	21.80	19591.21	1.00	22.86	7680.08	11911.14	110.91
0.78	22.02	19748.96	1.00	22.85	7844.65	11904.32	110.91
0.78	22.24	19908.30	0.00	0.00	8009.17	11899.14	110.90
0.79	22.46	20069.22	1.00	23.04	8092.13	11935.62	111.08
0.79	22.68	20231.72	1.00	22.89	8257.48	11974.25	110.94
0.79	22.90	20395.81	1.00	22.93	8422.43	11973.39	110.98
0.79	23.12	20561.48	1.00	22.93	8587.55	11973.95	110.98
0.79	23.34	20728.74	1.00	22.94	8752.67	11976.07	110.99
0.80	23.56	20897.58	1.00	22.94	8917.83	11979.76	110.99
0.80	23.78	21068.00	1.00	22.95	9083.02	11984.99	111.00
0.80	24.00	21240.01	1.00	22.95	9248.26	11991.76	111.00
0.80	24.22	21413.60	1.00	22.97	9413.57	12000.04	111.01
0.80	24.44	21588.78	1.00	22.98	9578.97	12009.82	111.02

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.81	24.66	21765.54	1.00	22.99	9744.46	12021.09	111.04
0.81	24.88	21943.88	1.00	23.01	9910.07	12033.82	111.05
0.81	25.10	22123.81	1.00	23.03	10075.80	12048.02	111.07
0.81	25.32	22305.32	1.00	23.05	10241.68	12063.65	111.08
0.81	25.54	22488.42	1.00	23.07	10407.70	12080.72	111.10
0.82	25.76	22673.10	1.00	23.09	10573.90	12099.20	111.12
0.82	25.98	22859.36	1.00	23.12	10740.28	12119.09	111.15

0.82	26.20	23047.21	1.00	23.15	10906.85	12140.37	111.17
0.82	26.42	23236.64	1.00	23.18	11073.62	12163.03	111.20
0.82	26.64	23427.65	1.00	23.21	11240.62	12187.05	111.22
0.83	26.86	23620.25	1.00	23.24	11407.84	12212.42	111.25
0.83	27.08	23814.44	1.00	23.28	11575.32	12239.13	111.28
0.83	27.30	24010.20	1.00	23.31	11743.05	12267.17	111.31
0.83	27.52	24207.56	1.00	23.35	11911.05	12296.52	111.35
0.83	27.74	24406.49	1.00	23.39	12079.33	12327.17	111.38
0.84	27.96	24607.01	1.00	23.43	12247.91	12359.11	111.42
0.84	28.18	24809.11	1.00	23.48	12416.79	12392.34	111.45
0.84	28.40	25012.80	1.00	23.52	12585.99	12426.82	111.49
0.84	28.62	25218.07	1.00	23.57	12755.52	12462.56	111.53
0.84	28.84	25424.93	1.00	23.62	12925.40	12499.54	111.58
0.85	29.06	25633.37	1.00	23.67	13095.62	12537.76	111.62
0.85	29.28	25843.39	1.00	23.72	13266.22	12577.19	111.66
0.85	29.50	26055.00	1.00	23.77	13437.18	12617.82	111.71
0.85	29.72	26268.19	1.00	23.83	13608.54	12659.66	111.76
0.85	29.94	26482.97	1.00	23.88	13780.30	12702.68	111.80
0.86	30.16	26699.33	1.00	23.94	13952.46	12746.87	111.85
0.86	30.38	26917.27	2.00	48.00	14211.45	12619.43	111.91
0.86	30.60	27136.80	2.00	47.22	14554.25	12582.55	111.57
0.86	30.82	27357.91	2.00	47.14	14893.97	12463.95	111.54
0.86	31.04	27580.60	2.00	46.84	15232.29	12348.32	111.40
0.87	31.26	27804.88	2.00	46.54	15568.47	12236.42	111.28
0.87	31.48	28030.75	2.00	46.26	15902.57	12128.18	111.16
0.87	31.70	28258.19	2.00	45.99	16234.68	12023.53	111.04
0.87	31.92	28487.22	2.00	45.75	16564.92	11922.32	110.92
0.87	32.14	28717.84	0.00	0.00	16893.47	11824.38	110.81
0.88	32.36	28950.04	1.00	23.04	16976.41	11932.16	111.08
0.88	32.58	29183.82	1.00	22.97	17142.03	12041.80	111.01
0.88	32.80	29419.19	1.00	23.11	17307.91	12111.29	111.14
0.88	33.02	29656.14	1.00	23.20	17474.64	12181.51	111.22
0.88	33.24	29894.68	1.00	23.30	17642.03	12252.66	111.30
0.89	33.46	30134.79	1.00	23.39	17810.09	12324.71	111.38
0.89	33.68	30376.50	1.00	23.48	17978.84	12397.67	111.46
0.89	33.90	30619.78	1.00	23.58	18148.27	12471.52	111.54
0.89	34.12	30864.66	1.00	23.68	18318.41	12546.26	111.63
0.89	34.34	31111.11	1.00	23.78	18489.25	12621.87	111.71
0.90	34.56	31359.15	1.00	23.88	18660.81	12698.35	111.80
0.90	34.78	31608.77	1.00	23.98	18833.09	12775.69	111.89
0.90	35.00	31859.98	2.00	48.16	19092.79	12680.51	111.97
0.90	35.22	32112.78	2.00	47.47	19437.05	12675.74	111.68
0.90	35.44	32367.15	2.00	47.47	19778.81	12588.35	111.68
0.91	35.66	32623.11	2.00	47.24	20119.76	12503.36	111.58
0.91	35.88	32880.66	2.00	47.03	20459.14	12421.53	111.49
0.91	36.10	33139.79	2.00	46.82	20797.00	12342.80	111.40
0.91	36.32	33400.50	2.00	46.63	21133.41	12267.09	111.31
0.91	36.54	33662.79	2.00	46.44	21468.43	12194.38	111.23
0.92	36.76	33926.67	2.00	46.25	21802.10	12124.58	111.15
0.92	36.98	34192.14	2.00	46.08	22134.50	12057.65	111.08
0.92	37.20	34459.18	2.00	45.91	22465.65	11993.54	111.00
0.92	37.42	34727.82	2.00	45.77	22795.69	11932.13	110.94
0.92	37.64	34998.03	0.00	0.00	23124.74	11873.31	110.87
0.93	37.86	35269.83	1.00	23.16	23208.10	12020.07	111.18
0.93	38.08	35543.22	1.00	23.13	23374.72	12168.50	111.16
0.93	38.30	35818.18	1.00	23.33	23541.97	12276.23	111.32
0.93	38.52	36094.74	1.00	23.47	23710.43	12384.32	111.45
0.93	38.74	36372.87	1.00	23.61	23879.90	12492.98	111.57
0.94	38.96	36652.59	1.00	23.75	24050.40	12602.20	111.69
0.94	39.18	36933.90	1.00	23.90	24221.93	12711.98	111.81
0.94	39.40	37216.78	2.00	48.08	24481.04	12649.21	111.94
0.94	39.62	37501.26	2.00	47.47	24825.00	12676.26	111.68
0.94	39.84	37787.31	2.00	47.55	25167.07	12620.25	111.71
0.95	40.06	38074.95	2.00	47.41	25508.91	12566.05	111.65
0.95	40.28	38364.17	2.00	47.27	25849.75	12514.44	111.59
0.95	40.50	38654.98	2.00	47.14	26189.64	12465.36	111.54
0.95	40.72	38947.37	2.00	47.02	26528.63	12418.76	111.48
0.95	40.94	39241.35	2.00	46.91	26866.76	12374.60	111.43
0.96	41.16	39536.91	2.00	46.80	27204.09	12332.82	111.39
0.96	41.38	39834.05	2.00	46.69	27540.66	12293.40	111.34
0.96	41.60	40132.78	2.00	46.60	27876.51	12256.28	111.30
0.96	41.82	40433.09	2.00	46.51	28211.68	12221.43	111.26
0.96	42.04	40734.99	2.00	46.42	28546.21	12188.79	111.22
0.97	42.26	41038.47	2.00	46.34	28880.15	12158.32	111.19
0.97	42.48	41343.53	2.00	46.27	29213.54	12130.00	111.16
0.97	42.70	41650.18	2.00	46.20	29546.42	12103.77	111.13
0.97	42.92	41958.41	2.00	46.14	29878.82	12079.60	111.10
0.97	43.14	42268.23	2.00	46.08	30210.78	12057.45	111.08
0.98	43.36	42579.62	2.00	46.02	30542.35	12037.28	111.05
0.98	43.58	42892.61	2.00	45.98	30873.56	12019.06	111.03
0.98	43.80	43207.17	2.00	45.93	31204.44	12002.75	111.01
0.98	44.02	43523.33	2.00	45.90	31535.03	11988.31	111.00
0.98	44.24	43841.06	2.00	45.87	31865.39	11975.68	110.98
0.99	44.46	44160.38	2.00	45.84	32195.55	11964.84	110.97
0.99	44.68	44481.28	2.00	45.82	32525.54	11955.75	110.96
0.99	44.90	44803.77	2.00	45.81	32855.40	11948.38	110.95
0.99	45.12	45127.84	2.00	45.79	33185.15	11942.70	110.95
0.99	45.34	45453.50	2.00	45.78	33514.82	11938.69	110.94

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.00	45.56	45780.74	2.00	45.78	33844.44	11936.31	110.94
1.00	45.78	46109.56	2.00	45.78	34174.03	11935.54	110.94
1.00	46.00	46439.97	2.00	45.78	34503.62	11936.36	110.94
1.00	47.04	46774.91	2.00	45.79	34833.26	11941.66	110.95
1.00	48.08	47117.35	2.00	45.82	35163.05	11954.31	110.96
1.01	49.12	47467.27	2.00	45.86	35493.11	11974.17	110.98
1.01	50.16	47824.67	2.00	45.93	35823.57	12001.12	111.01
1.01	51.20	48189.57	2.00	46.02	36154.58	12034.99	111.05

1.01	52.24	48561.95	2.00	46.12	36486.30	12075.66	111.10
1.01	53.28	48941.82	2.00	46.25	36818.85	12122.99	111.15
1.02	54.32	49329.18	2.00	46.39	37152.34	12176.85	111.21
1.02	55.36	49724.03	2.00	46.55	37486.91	12237.13	111.28
1.02	56.40	50126.37	2.00	46.72	37822.67	12303.70	111.35
1.02	57.44	50536.19	2.00	46.91	38159.75	12376.45	111.44
1.02	58.48	50953.50	2.00	47.12	38498.25	12455.26	111.52
1.03	59.52	51378.30	2.00	47.34	38838.28	12540.03	111.62
1.03	60.56	51810.59	2.00	47.57	39179.97	12630.63	111.72
1.03	61.60	52250.37	2.00	47.83	39523.42	12726.96	111.83
1.03	62.64	52697.64	2.00	48.09	39868.72	12828.92	111.95
1.03	63.68	53152.39	2.00	48.37	40216.00	12936.40	112.07
1.04	64.72	53614.63	2.00	48.67	40565.35	13049.28	112.19
1.04	65.76	54084.35	2.00	48.98	40916.88	13167.49	112.33
1.04	66.80	54561.57	2.00	49.30	41270.67	13290.90	112.47
1.04	67.84	55046.27	2.00	49.64	41626.84	13419.44	112.61
1.04	68.88	55538.46	2.00	49.98	41985.48	13553.00	112.76
1.05	69.92	56038.14	2.00	50.35	42346.67	13691.49	112.92
1.05	70.96	56545.31	2.00	50.72	42710.51	13834.82	113.08
1.05	72.00	57059.97	2.00	51.11	43077.09	13982.89	113.24
1.05	73.04	57582.11	3.00	77.26	43539.21	13903.84	113.42
1.05	74.08	58111.74	3.00	76.25	44091.86	14019.89	113.13
1.06	75.12	58648.87	3.00	76.75	44642.68	14006.20	113.27
1.06	76.16	59193.48	3.00	76.71	45195.15	13998.33	113.26
1.06	77.20	59745.57	3.00	76.71	45747.49	13998.09	113.26
1.06	78.24	60305.16	3.00	76.74	46299.92	14005.24	113.27
1.06	79.28	60872.23	3.00	76.80	46852.66	14019.58	113.28
1.07	80.32	61446.79	3.00	76.88	47405.90	14040.89	113.31
1.07	81.36	62028.83	3.00	76.99	47959.85	14069.00	113.34
1.07	82.40	62618.37	4.00	102.84	48607.23	13826.04	113.38
1.07	83.44	63215.39	4.00	100.66	49339.82	13875.58	112.91
1.07	84.48	63819.90	4.00	101.01	50065.84	13754.08	112.99
1.08	85.52	64431.90	4.00	100.40	50790.92	13640.99	112.85
1.08	86.56	65051.39	4.00	99.87	51511.91	13539.49	112.74
1.08	87.60	65678.37	4.00	99.40	52229.28	13449.10	112.64
1.08	88.64	66312.83	4.00	98.98	52943.46	13369.38	112.55
1.08	89.68	66954.78	4.00	98.62	53654.83	13299.96	112.47
1.09	90.72	67604.22	4.00	98.31	54363.78	13240.45	112.40
1.09	91.76	68261.15	4.00	98.05	55070.67	13190.49	112.35
1.09	92.80	68925.56	4.00	97.84	55775.85	13149.72	112.30
1.09	93.84	69597.47	4.00	97.67	56479.67	13117.81	112.26
1.09	94.88	70276.86	4.00	97.55	57182.45	13094.42	112.24
1.10	95.92	70963.75	4.00	97.47	57884.50	13079.26	112.22
1.10	96.96	71658.11	4.00	97.43	58586.13	13071.99	112.21
1.10	98.00	72359.97	4.00	97.43	59287.63	13072.35	112.21
1.10	98.60	73067.72	4.00	97.46	59989.25	13078.48	112.22
1.10	99.19	73779.77	4.00	97.52	60691.17	13088.60	112.23
1.11	99.79	74496.11	4.00	97.59	61393.55	13102.57	112.25
1.11	100.39	75216.76	4.00	97.68	62096.53	13120.24	112.27
1.11	100.99	75941.71	4.00	97.79	62800.24	13141.48	112.29
1.11	101.58	76670.95	4.00	97.92	63504.81	13166.15	112.32
1.11	102.18	77404.49	4.00	98.07	64210.37	13194.13	112.35
1.12	102.78	78142.32	4.00	98.23	64917.04	13225.29	112.39
1.12	103.37	78884.46	4.00	98.41	65624.94	13259.53	112.42
1.12	103.97	79630.90	4.00	98.60	66334.18	13296.73	112.47
1.12	104.57	80381.63	4.00	98.81	67044.88	13336.77	112.51
1.12	105.16	81136.66	4.00	99.04	67757.13	13379.54	112.56
1.13	105.76	81896.00	4.00	99.27	68471.05	13424.96	112.61
1.13	106.36	82659.63	4.00	99.52	69186.72	13472.92	112.66
1.13	106.96	83427.56	4.00	99.79	69904.24	13523.33	112.72
1.13	107.55	84199.78	4.00	100.06	70623.70	13576.10	112.78
1.13	108.15	84976.31	4.00	100.35	71345.18	13631.14	112.84
1.14	108.75	85757.12	4.00	100.65	72068.78	13688.35	112.91
1.14	109.34	86542.25	4.00	100.96	72794.57	13747.69	112.97
1.14	109.94	87331.68	4.00	101.28	73522.63	13809.05	113.04
1.14	110.54	88125.39	4.00	101.61	74253.04	13872.36	113.11
1.14	111.13	88923.41	4.00	101.95	74985.87	13937.55	113.19
1.15	111.73	89725.72	4.00	102.30	75721.20	14004.53	113.26
1.15	112.33	90532.34	4.00	102.66	76459.09	14073.26	113.34
1.15	112.93	91343.25	4.00	103.03	77199.60	14143.66	113.42
1.15	113.52	92158.46	4.00	103.41	77942.80	14215.67	113.50
1.15	114.12	92977.97	4.00	103.70	78688.41	14289.57	113.59
1.16	114.72	93801.78	4.00	104.01	79436.18	14365.62	113.67
1.16	115.31	94629.89	4.00	104.32	80186.16	14443.74	113.76
1.16	115.91	95462.30	4.00	104.64	80938.43	14523.88	113.85
1.16	116.51	96299.00	4.00	104.97	81693.03	14605.98	113.94
1.16	117.10	97140.00	4.00	105.31	82450.03	14689.99	114.04
1.17	117.70	97985.31	4.00	105.65	83209.46	14775.85	114.13
1.17	117.82	98833.18	4.00	105.99	83971.38	14861.81	114.23
1.17	117.45	99680.16	4.00	106.32	84735.72	14944.45	114.32
1.17	117.09	%100524.50	4.00	106.63	85502.37	15022.17	114.41
1.17	116.73	%101366.30	4.00	106.93	86271.19	15095.09	114.49
1.18	116.36	%102205.40	4.00	107.20	87042.04	15163.36	114.57
1.18	116.00	%103041.90	4.00	107.45	87814.79	15227.12	114.64
1.18	115.64	%103875.80	4.00	107.69	88589.31	15286.49	114.71
1.18	115.27	%104707.10	4.00	107.91	89365.49	15341.59	114.77
1.18	114.91	%105535.70	4.00	108.12	90143.19	15392.54	114.83
1.19	114.55	%106361.80	4.00	108.30	90922.30	15439.47	114.88
1.19	114.18	%107185.20	4.00	108.48	91702.71	15482.49	114.93
1.19	113.82	%108006.00	4.00	108.63	92484.29	15521.70	114.97
1.19	113.45	%108824.20	4.00	108.77	93266.96	15557.21	115.01
1.19	113.09	%109639.70	4.00	108.90	94050.59	15589.14	115.05
1.20	112.73	%110452.70	4.00	109.02	94835.09	15617.59	115.08
1.20	112.36	%111263.00	4.00	109.12	95620.36	15642.64	115.11
1.20	112.00	%112070.70	4.00	109.20	96406.31	15664.41	115.13
1.20	111.64	%112875.80	4.00	109.28	97192.84	15682.97	115.15
1.20	111.27	%113678.30	4.00	109.34	97979.85	15698.43	115.17
1.21	110.91	%114478.10	4.00	109.39	98767.28	15710.86	115.19
1.21	110.55	%115275.40	4.00	109.43	99555.01	15720.36	115.20
1.21	110.18	%116070.00	4.00	109.45	%100343.00	15727.01	115.20

1.21	109.82	%116862.00	4.00	109.47	%101131.10	15730.89	115.21
1.21	109.45	%117651.40	4.00	109.47	%101919.30	15732.08	115.21
1.22	109.09	%118438.10	4.00	109.47	%102707.50	15730.66	115.21
1.22	108.73	%119222.30	4.00	109.45	%103495.60	15726.70	115.20
1.22	108.36	%120003.80	4.00	109.43	%104283.60	15720.26	115.20
1.22	108.00	%120782.70	4.00	109.39	%105071.30	15711.42	115.19
1.22	107.64	%121559.00	4.00	109.35	%105858.70	15700.26	115.17
1.23	107.27	%122332.70	4.00	109.29	%106645.90	15686.83	115.16
1.23	106.91	%123103.70	4.00	109.23	%107432.50	15671.21	115.14
1.23	106.55	%123872.20	4.00	109.16	%108218.70	15653.44	115.12
1.23	106.18	%124638.00	4.00	109.08	%109004.40	15633.60	115.10
1.23	105.68	%125400.70	4.00	108.99	%109789.40	15611.27	115.07
1.24	105.05	%126159.40	4.00	108.89	%110573.80	15585.57	115.04
1.24	104.43	%126913.50	4.00	108.77	%111357.40	15556.13	115.01
1.24	103.80	%127663.10	4.00	108.64	%112140.00	15523.06	114.97
1.24	103.16	%128408.10	4.00	108.49	%112921.70	15486.45	114.93
1.24	102.53	%129148.70	4.00	108.33	%113702.30	15446.41	114.89

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.25	101.91	%129884.60	4.00	108.16	%114481.60	15403.03	114.84
1.25	101.28	%130616.10	4.00	107.97	%115259.70	15356.42	114.79
1.25	100.65	%131343.00	4.00	107.77	%116036.40	15306.65	114.73
1.25	100.01	%132065.40	4.00	107.56	%116811.60	15253.82	114.67
1.25	99.38	%132783.20	4.00	107.34	%117585.20	15198.03	114.61
1.26	98.76	%133496.50	4.00	107.10	%118357.20	15139.35	114.54
1.26	98.13	%134205.30	4.00	106.86	%119127.40	15077.85	114.47
1.26	97.50	%134909.50	4.00	106.60	%119895.90	15013.64	114.40
1.26	96.86	%135609.20	4.00	106.33	%120662.50	14946.78	114.33
1.26	96.23	%136304.40	4.00	106.06	%121427.10	14877.34	114.25
1.27	95.60	%136995.00	4.00	105.77	%122189.60	14805.40	114.17
1.27	94.98	%137681.10	4.00	105.47	%122950.10	14731.04	114.08
1.27	94.34	%138362.60	4.00	105.16	%123708.40	14654.31	114.00
1.27	93.71	%139039.70	4.00	104.85	%124464.40	14575.28	113.91
1.27	93.08	%139712.10	4.00	104.52	%125218.10	14494.03	113.82
1.28	92.46	%140380.10	4.00	104.19	%125969.50	14410.61	113.72
1.28	91.82	%141043.50	4.00	103.85	%126718.40	14325.09	113.63
1.28	91.19	%141702.40	4.00	103.50	%127464.90	14237.53	113.53
1.28	90.56	%142356.70	4.00	103.06	%128208.50	14148.25	113.43
1.28	89.94	%143006.50	4.00	102.58	%128948.80	14057.74	113.32
1.29	89.31	%143651.80	4.00	102.10	%129685.60	13966.14	113.22
1.29	88.67	%144292.50	4.00	101.62	%130419.00	13873.48	113.12
1.29	88.04	%144928.70	4.00	101.13	%131148.90	13779.79	113.01
1.29	87.41	%145560.30	4.00	100.63	%131875.20	13685.12	112.90
1.29	86.78	%146187.50	4.00	100.13	%132598.00	13589.49	112.80
1.30	86.16	%146810.00	4.00	99.63	%133317.10	13492.93	112.69
1.30	85.52	%147428.10	4.00	99.12	%134032.60	13395.49	112.58
1.30	84.89	%148041.60	4.00	98.61	%134744.40	13297.20	112.47
1.30	84.26	%148650.60	4.00	98.09	%135452.50	13198.07	112.36
1.30	83.63	%149255.00	4.00	97.57	%136156.90	13098.15	112.24
1.31	83.01	%149854.90	4.00	97.04	%136857.40	12997.48	112.13
1.31	82.37	%150450.30	4.00	96.51	%137554.20	12896.07	112.02
1.31	81.74	%151041.10	4.00	95.98	%138247.20	12793.95	111.90
1.31	81.11	%151627.40	4.00	95.44	%138936.30	12691.14	111.78
1.31	80.49	%152209.20	4.00	94.90	%139621.50	12587.68	111.67
1.32	79.85	%152786.40	4.00	94.36	%140302.80	12483.57	111.55
1.32	79.22	%153359.10	4.00	93.81	%140980.20	12378.87	111.43
1.32	78.59	%153927.20	4.00	93.26	%141653.70	12273.57	111.31
1.32	77.96	%154490.90	4.00	92.71	%142323.10	12167.71	111.20
1.32	77.33	%155049.90	4.00	92.15	%142988.60	12061.31	111.08
1.33	76.70	%155604.50	4.00	91.62	%143650.20	11954.29	110.96
1.33	76.07	%156154.50	0.00	0.00	%144308.10	11846.45	110.83
1.33	75.44	%156700.00	1.00	23.48	%144392.60	12265.14	111.45
1.33	74.81	%157240.90	1.00	23.80	%144562.80	12678.15	111.73
1.33	74.18	%157777.30	2.00	48.65	%144823.60	12866.17	112.19
1.34	73.55	%158309.20	2.00	48.66	%145173.90	13135.26	112.19
1.34	72.92	%158836.50	2.00	49.35	%145526.80	13309.73	112.49
1.34	72.29	%159359.30	2.00	49.78	%145883.60	13475.65	112.67
1.34	71.66	%159877.50	2.00	50.20	%146243.60	13633.98	112.85
1.34	71.03	%160391.30	2.00	50.59	%146606.40	13784.87	113.02
1.35	70.40	%160900.40	2.00	50.97	%146972.00	13928.46	113.18
1.35	69.77	%161405.10	3.00	76.98	%147432.60	13833.93	113.34
1.35	69.14	%161905.20	3.00	75.87	%147982.90	13922.32	113.02
1.35	68.52	%162400.80	3.00	76.22	%148530.40	13870.37	113.12
1.35	67.88	%162891.80	3.00	75.99	%149078.40	13813.46	113.05
1.36	67.25	%163378.30	3.00	75.75	%149624.60	13753.68	112.98
1.36	66.62	%163860.30	3.00	75.51	%150169.20	13691.10	112.91
1.36	65.99	%164337.70	3.00	75.25	%150711.90	13625.79	112.84
1.36	65.36	%164810.60	3.00	74.99	%151252.80	13557.82	112.76
1.36	64.73	%165279.00	3.00	74.71	%151791.70	13487.28	112.68
1.37	64.10	%165742.80	3.00	74.42	%152328.60	13414.21	112.60
1.37	63.47	%166202.10	3.00	74.13	%152863.40	13338.70	112.52
1.37	62.84	%166656.80	3.00	73.82	%153396.00	13260.82	112.43
1.37	62.21	%167107.10	3.00	73.51	%153926.40	13180.65	112.34
1.37	61.58	%167552.70	3.00	73.19	%154454.50	13098.23	112.25
1.38	60.95	%167993.90	3.00	72.85	%154980.30	13013.62	112.15
1.38	60.32	%168430.50	3.00	72.52	%155503.60	12926.90	112.05
1.38	59.69	%168862.60	3.00	72.17	%156024.50	12838.12	111.95
1.38	59.06	%169290.10	3.00	71.81	%156542.80	12747.32	111.85
1.38	58.43	%169713.10	3.00	71.45	%157058.50	12654.59	111.75
1.39	57.80	%170131.60	3.00	71.08	%157571.60	12559.96	111.64
1.39	57.17	%170545.50	3.00	70.70	%158082.00	12463.49	111.53
1.39	56.54	%170954.90	3.00	70.31	%158589.70	12365.23	111.42
1.39	55.91	%171359.70	3.00	69.92	%159094.50	12265.23	111.31
1.39	55.28	%171760.10	3.00	69.52	%159596.50	12163.53	111.19
1.40	54.65	%172155.80	3.00	69.12	%160095.60	12060.20	111.08
1.40	54.02	%172547.10	3.00	68.72	%160591.90	11955.21	110.96
1.40	53.39	%172933.80	0.00	0.00	%161085.40	11848.45	110.84
1.40	52.76	%173316.00	1.00	23.27	%161169.10	12104.97	111.27

1.46	40.12	%182699.70	2.00	46.43	%170508.50	12191.21	111.23
1.46	39.91	%182987.80	2.00	46.31	%170842.30	12145.46	111.18
1.46	39.69	%183274.30	2.00	46.19	%171175.30	12099.06	111.12
1.47	39.48	%183559.40	2.00	46.06	%171507.40	12051.99	111.07
1.47	39.27	%183842.80	2.00	45.94	%171838.60	12004.28	111.02
1.47	39.05	%184124.80	2.00	45.82	%172168.90	11955.89	110.96
1.47	38.84	%184405.20	2.00	45.71	%172498.40	11906.79	110.91
1.47	38.63	%184684.10	0.00	0.00	%172827.10	11856.98	110.85
1.48	38.41	%184961.40	1.00	23.14	%172910.40	12009.36	111.16
1.48	38.20	%185237.20	1.00	23.12	%173077.00	12160.28	111.15
1.48	37.99	%185511.50	1.00	23.31	%173244.10	12267.37	111.31
1.48	37.77	%185784.20	1.00	23.45	%173412.50	12371.74	111.43
1.48	37.56	%186055.40	1.00	23.58	%173581.80	12473.62	111.55
1.49	37.35	%186325.10	1.00	23.71	%173752.10	12573.01	111.66
1.49	37.13	%186593.20	1.00	23.84	%173923.30	12669.95	111.77
1.49	36.92	%186859.80	1.00	23.96	%174095.40	12764.45	111.87
1.49	36.71	%187124.90	2.00	48.17	%174355.10	12683.14	111.98
1.49	36.49	%187388.40	2.00	47.50	%174699.50	12688.95	111.69
1.50	36.28	%187650.40	2.00	47.52	%175041.50	12608.85	111.70

****

WARNING ------ THE CYCLING OF PUMP # 1 IS EXCESSIVE ---------WARNING

****

EXPLANATION AND SUMMARY OF RUN

1.0 THE #1 PUMP CYCLES EXCESSIVELY. BETWEEN .642 HRS. AND .786 HRS. THE #1 PUMP IS STARTED 28 TIMES (i.e. IN ABOUT 10 MIN.). THIS IS NOT ACCEPTABLE; A REVISED PUMP ON/OFF SCHEDULE WILL BE DEVELOPED AND USED FOR ALL ADDITIONAL RUNS.

2.0 THE #1 PUMP RUNS FROM .79 HRS. UNTIL AT LEAST 1.48 HRS. THERE IS SOME CYCLING OF BOTH #1 AND #2 PUMPS BECAUSE OF THE COMMON PUMP OFF ELEVATIONS

3.0 THE #2 PUMP CYCLES ONLY 3 OR 4 TIMES ON THE RISING LEG OF THE INFLOW HYDROGRAPH; RUNNING FROM ABOUT .904 HRS. TO 1.476 HRS.

4.0 THE #3 PUMP CYCLES A FEW TIMES DURING BOTH THE RISING AND FALLING LEGS OF THE HYDROGRAPH. THERE ARE A FEW OCCASIONS WHEN THE # 1,2, AND 3 PUMPS ARE STOPPED AND THEN STARTED AGAIN DUE TO THE CLOSE SPACING OF THE PUMP ON SETTINGS (AS WELL AS THE COMMON PUMP OFF SETTINGS); WHICH IS NOT VERY DESIRABLE. THE # 3 PUMP RUNS FROM ABOUT 1.058 HRS. TO 1.404 HRS.

5.0 THE # 4 PUMP DOES NOT CYCLE AND RUNS FROM 1.074 HRS. TO 1.332 HRS.

6.0 THE PEAK OUTFLOW DURING THIS RUN IS 109.5 CFS AT ELEVATION 115.21 (i.e. 1115.21).

7.0 ONLY THE SIGNIFICANT PORTIONS OF THE OUTPUT WAS PRINTED, SEE FILE 10YEXPSE.OUT ON CD FOR COMPLETE OUTPUT.

7.0 THE FALLING LEG OF THE HYDROGRAPH WAS NOT INCLUDED AS ITS ONLY INTEREST WOULD BE FOR CYCLING, AND THE CONSTANT INFLOW OF .5 OF THE OUTFLOW (USED IN THE CYCLING CHECK RUNS) WITH THE NEW PUMP ON/OFF SETTINGS WOULD BE OF MORE INTEREST.

NOTE:

THIS PROGRAM DOES NOT ITERATE THE PUMP OUTFLOW RATES OR DURATIONS DURING THE ROUTING INTERVAL (i.e. 7.2 SEC.). THEREFORE THE WATER SURFACE ELEVATION IN THE WET WELL IS ONLY APPROXIMATE. THE MAXIMUM ERROR IN PUMPED FLOW SHOULD NOT EXCEED ONE HALF THE PEAK FLOW FROM ONE PUMP FOR THE ROUTING INTERVAL OR IN THIS CASE:

((109.5/4)/2) * 7.2 = 98.55 CUBIC FEET
WHICH CORRESPONDS TO A WET WELL ELEVATION OF
ABOUT +/- .11 FEET (i.e. 5 FEET IN THE WET WELL
CORRESPONDS TO 4440 CUBIC FEET, THEREFORE 99
CUBIC FEET IS ABOUT .11 FEET)

MULTIPLE "PUMP ON/OFF"'S IN RAPID SUCCESSION COULD COMPOUND THE ERROR BECAUSE THE PROGRAM DID NOT ANTICIPATE SUCH GROSS CYCLING AND DID NOT ERROR TRAP FOR THE CONDITIONS EXPERIENCED WITH THIS RUN.

SECTION 6.1 OFF-SITE SOLUTIONS/ALTERNATIVES

Alternatives 1A and 1B
18th Street 50-year Detention Basins
- **Model Verification**
- **Basin Volume Calculations**

Alternatives 2A and 2B
Walled Basin on Highland Avenue
- **Frequency Determination**
- **Basin Volume Calculations**

Alternative 4
Junction Structure Restriction Plate
- **Flow Calculations**

Alternatives 1A and 1B

Model Verification

As previously discussed, the hydrologic/hydraulic response of the subject watershed is extremely complex. The project team emphasized the development of design alternatives rather than refinement of the existing hydrologic analyses (BN & HNTB) or hydraulic analyses (HNTB's I-10 tunnel). The existing hydrologic models were converted to HEC-1 format and combined. All storm water runoff (south of Highland Avenue) was routed along 18t^{h} Street to Glenrosa Avenue.

In general City of Phoenix storm drains are designed for the 2-year storm event. The design team assumed that the 18th Street storm drain capacity would be exceeded during storm events with a return interval in excess of 2 years (125 cfs). Therefore, little if any flow could enter the pipe during a significant portion of the large storm events. Engineering judgement was utilized to determine the pipe flow characteristics. The following scenario was utilized to determine pipe flow characteristics for the 18th Street storm drain. The pipe will pass the rising limb of the flood hydrograph (up to 125 cfs). The inflow capacity of the pipe would then degrade to zero as the hydraulic grade line in the storm drain increases. The inflow capacity of the pipe would remain at or near zero through the peak discharge period. The pipe flow would then increase near the end of the receding limb (up to 125 cfs) and pass the remaining portion of the hydrograph. Figure A-1 shows the offsite inflow hydrograph at Glenrosa Avenue and the proposed outflow hydrograph for the 18th Street storm drain. The existing condition inflow hydrograph at Glenrosa includes all flow from the watershed (without any runoff entering the Squaw Peak Parkway). This is a conservative assumption because a portion of the runoff actually contributes to the freeway.

The project team utilized the Glenrosa Avenue hydrograph comparison to verify the total storage volume required for the drainage facilities. The difference between the area under each curve was the total required storage volume for the project (not including the onsite hydrograph). The total required storage volume was determined to be approximately 43.5 ac-ft. This volume was split into three basins – Highland Avenue, Campbell Avenue, and Glenrosa Avenue.

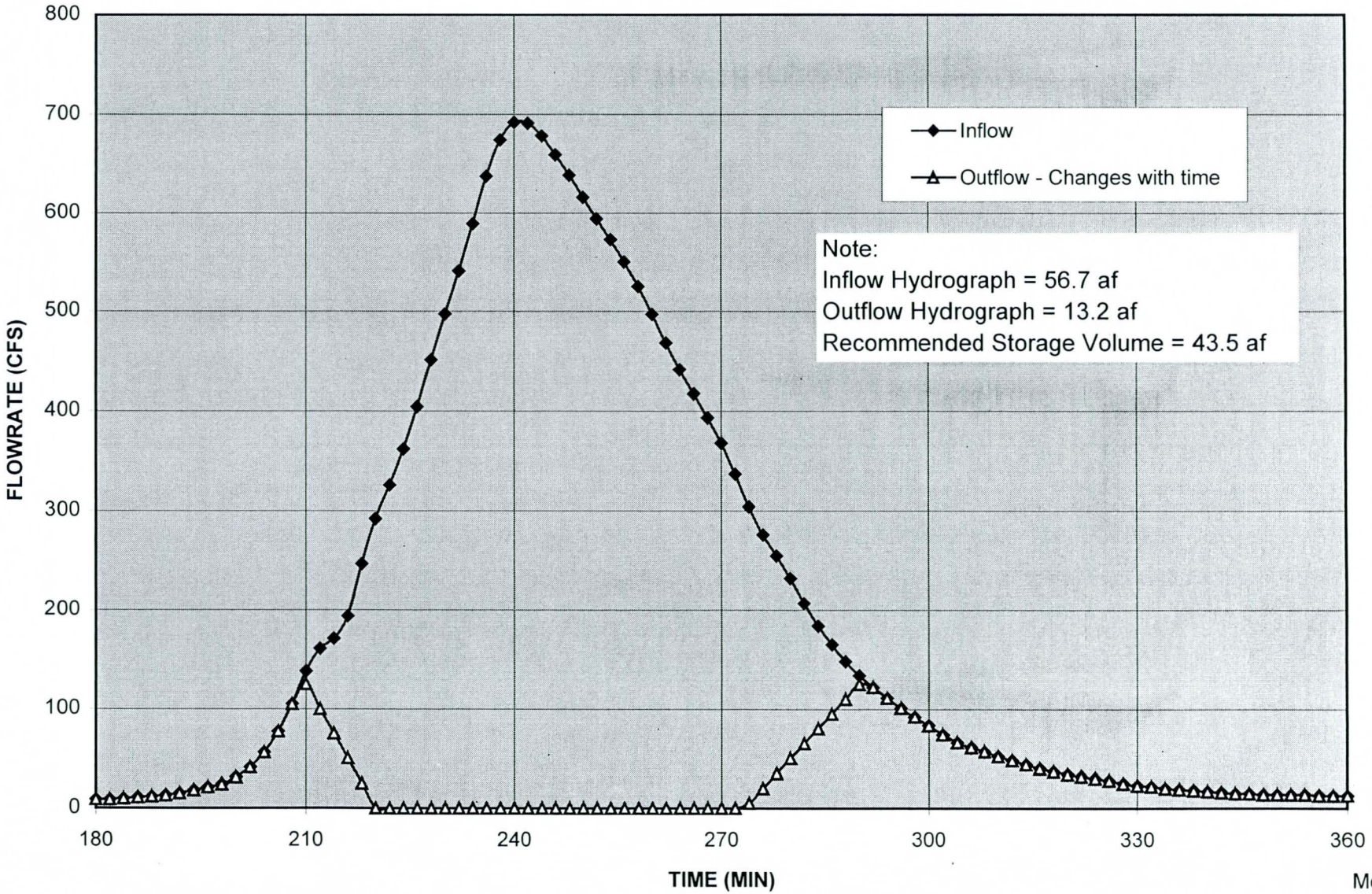
The preliminary storage volumes for the project were previously identified as 19.3 ac-ft, 10.2 ac-ft, and 14.3 ac-ft at Highland Avenue, Campbell Avenue, and Glenrosa Avenue, respectively. The proposed offsite detention basin volume was 43.8 ac-ft. This value appears to be reasonable based on the common sense check discussed above.

The Highland Avenue pump station (onsite runoff) contributes and additional 10.5 ac-ft of volume to the detention basin. Therefore, the total storage volume required by the 50-year event from Highland Avenue to Glenrosa Avenue is approximately 54 ac-ft. A comprehensive system analysis may reduce the size of the preliminary storage volumes that are identified. This analysis would need to consider the entire storm sewer network

(including the I-10 tunnel) to determine the capacity of the 18th Street Trunk line during the 50-year event 24-hour.

Storm water contributing to Indian School Road (1/4 mile south of Glenrosa Avenue) will flow west under the Squaw Peak overpass. The flow pattern for this water will be similar to the condition prior to the construction of the Squaw Peak Parkway (shallow sheet flow).

FIGURE A-1
GLENROSA MODEL CHECK
50-YEAR EVENT



Mdlchk
4/15/98

Highland Avenue Detention Basin Volume Analyses

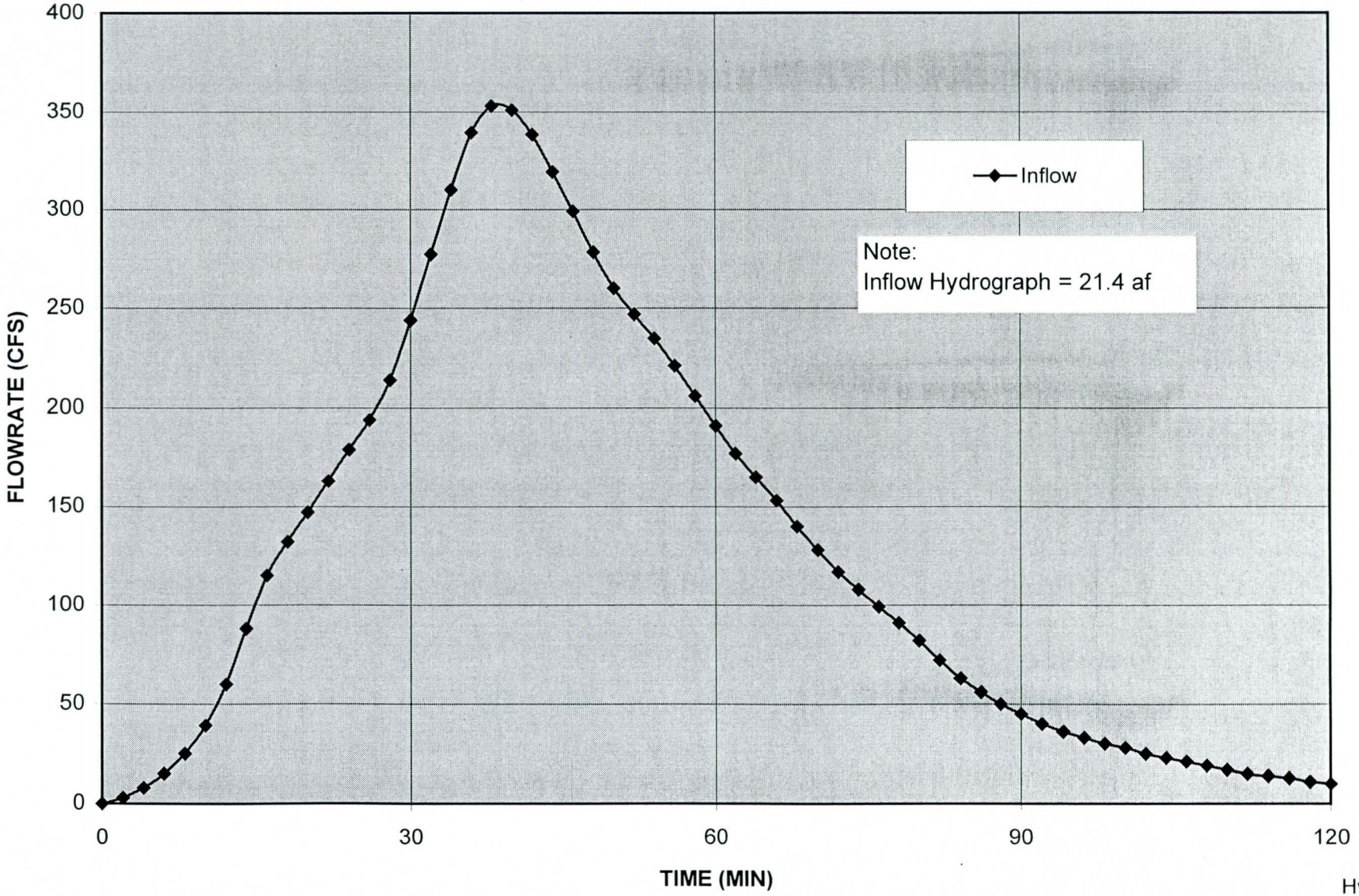
The required storage volume at Highland Avenue was determined by the following procedure. The inflow hydrograph was developed in the HEC-1 model (BN & HNTB TR-20 models converted to HEC-1). The inflow hydrograph for the 50-year, 24-hour event is shown in figure A-2. The capacity of the 18th Street storm drain was determined to be approximately 125 cfs. Engineering judgement was utilized to determine the capacity of the pipe at various locations. The team decided to allow an pipe inflow in the 18th Street storm drain of 43 cfs at Highland Avenue, 86 cfs at Campbell Avenue, and 125 cfs at Glenrosa Avenue (i.e., 1/3 of the capacity of the pipe enters at each basin location).

The design team determined that the 18th Street storm drain capacity would be exceeded during storm events with return intervals in excess of 2 years. Therefore, little if any flow could enter the pipe during a significant portion of the storm. Engineering judgement was utilized to determine the pipe flow characteristics. The pipe would pass the rising limb of the flood hydrograph (up to 43 cfs). Then the capacity of the pipe would degrade to zero as the hydraulic grade line in the storm drain increases. The inflow pipe capacity would increase near the end of the receding limb (up to 43 cfs) and pass the remaining portion of the hydrograph. Figure A-3 shows the offsite inflow hydrograph at Highland Avenue and the outflow hydrograph for the 18th Street storm drain at Highland Avenue.

The difference between the area under each curve is the total required storage volume for the Highland Avenue detention basin (not including the onsite hydrograph). The total required storage volume was determined to be approximately 19.3 ac-ft. This basin was sized assuming no outflow from the basin. This is a conservative approach, as outflow from the basin during a storm event may reduce the required storage volume.

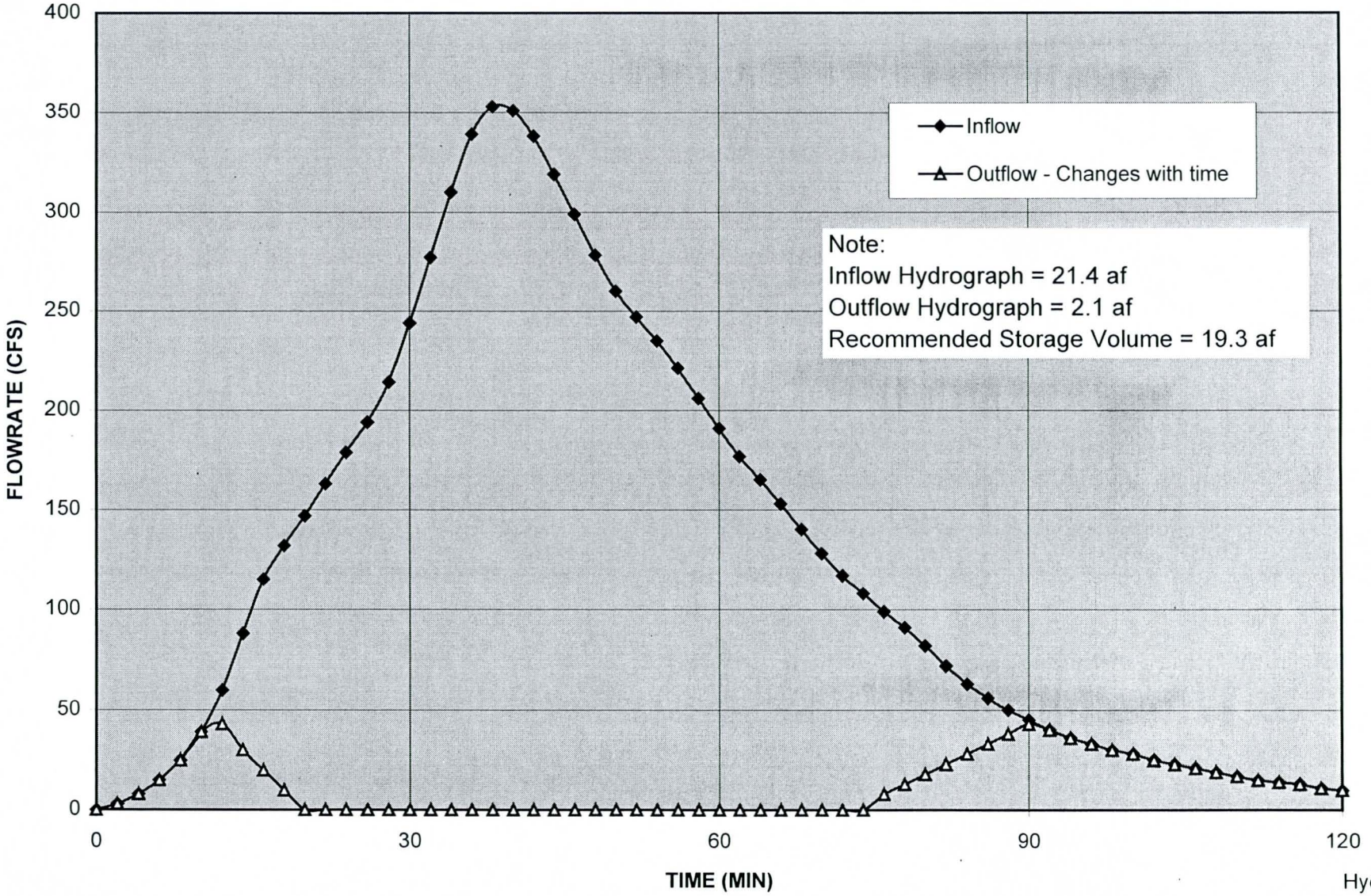
The storage volume of the Highland Avenue basin needs to be increased by 10.5 ac-ft to include onsite flow from the Highland Avenue pump station. Therefore, the total storage volume required for the basin was determined to be 29.8 ac-ft.

FIGURE A-2
HIGHLAND INFLOW HYDROGRAPH
50-YEAR EVENT



Hydrogr2
4/15/98

FIGURE A-3
HIGHLAND DETENTION BASIN RECOMMENDED STORAGE VOLUME
50-YEAR EVENT



Hydrogr2
4/15/98

Campbell Avenue Detention Basin Volume Analyses

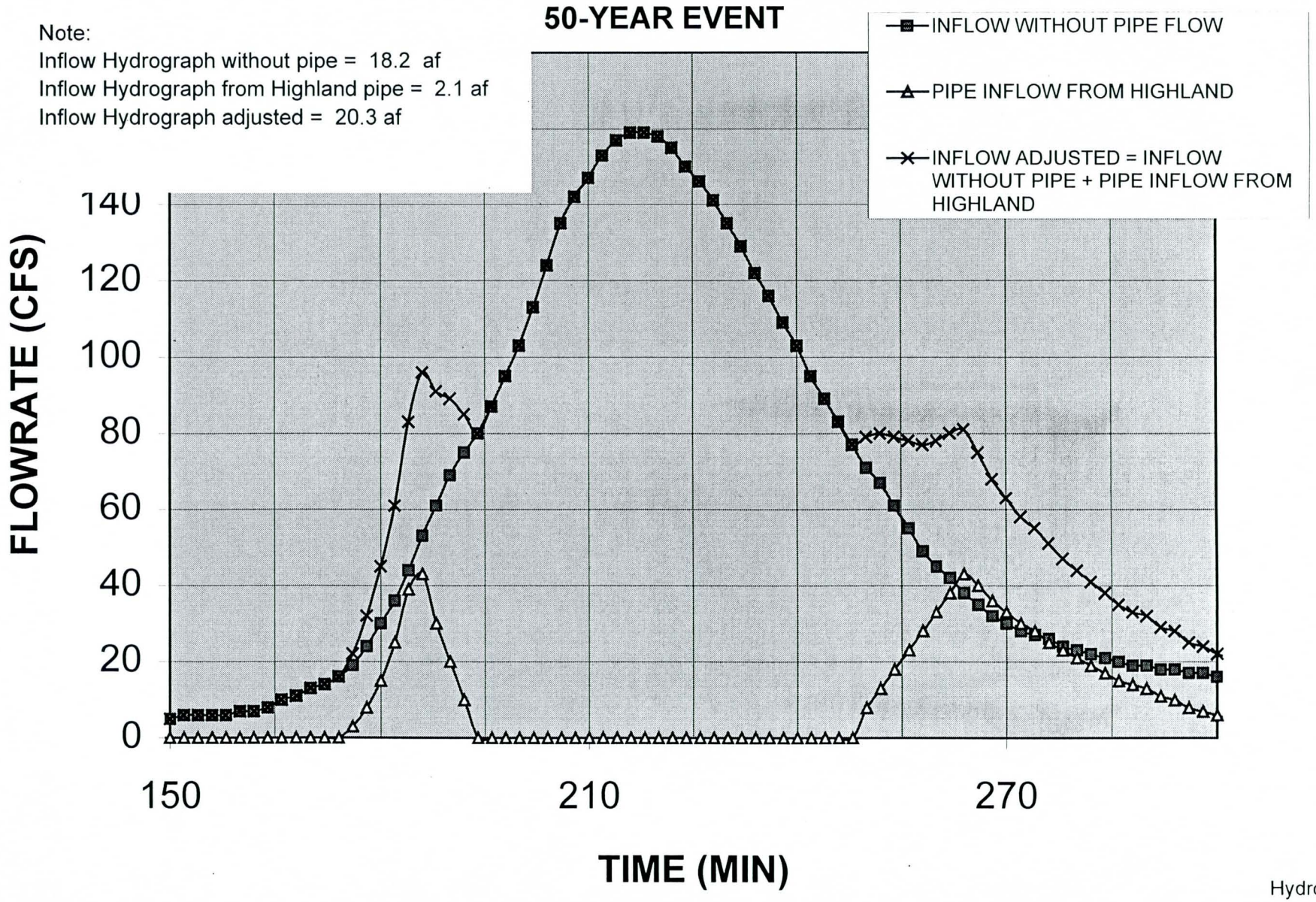
The required storage volume at Campbell Avenue was determined by the following procedure. The inflow hydrograph was developed in the HEC-1 model (BN & HNTB TR-20 models converted to HEC-1) and the routed outflow hydrograph from the Highland Avenue detention basin. Figure A-4 shows the 50-year 24-hour inflow hydrograph at Campbell Avenue. The capacity of the 18th Street storm drain was determined to be approximately 125 cfs. Engineering judgement was utilized to determine the capacity of the pipe at various locations. The team decided to allow an pipe capacity of 43 cfs at Highland Avenue, 86 cfs at Campbell Avenue, and 125 cfs at Glenrosa Avenue (i.e., 1/3 of the capacity of the pipe enters at each basin location).

The design team determined that the 18th Street storm drain capacity would be exceeded during storm events with return intervals in excess of 2 years. Therefore, little if any flow could enter the pipe during a significant portion of the storm. Engineering judgement was utilized to determine the pipe flow characteristics. The pipe would probably pass the rising limb of the flood hydrograph (up to 86 cfs). Then the capacity of the pipe would degrade to zero as the hydraulic grade line in the storm drain increases. The inflow pipe capacity would increase near the end of the receding limb (up to 86 cfs) and pass the remaining portion of the hydrograph. Figure A-5 shows the offsite inflow hydrograph at Campbell Avenue and the outflow hydrograph for the 18th Street storm drain at Campbell Avenue. The inflow hydrograph at Campbell includes all of the flow from the watershed without any inflow entering the Squaw Peak Parkway. All flow along 18th Street was assumed to be captured by the Highland detention basin (except for flow contained in the 18th Street storm drain).

The difference between the area under each curve is the total required storage volume for the Campbell Avenue detention basin. The total required storage volume was determined to be approximately 10.2 ac-ft. This basin was sized assuming no outflow from the basin. This is a conservative approach, as outflow from the basin during a storm event would reduce the required storage volume.

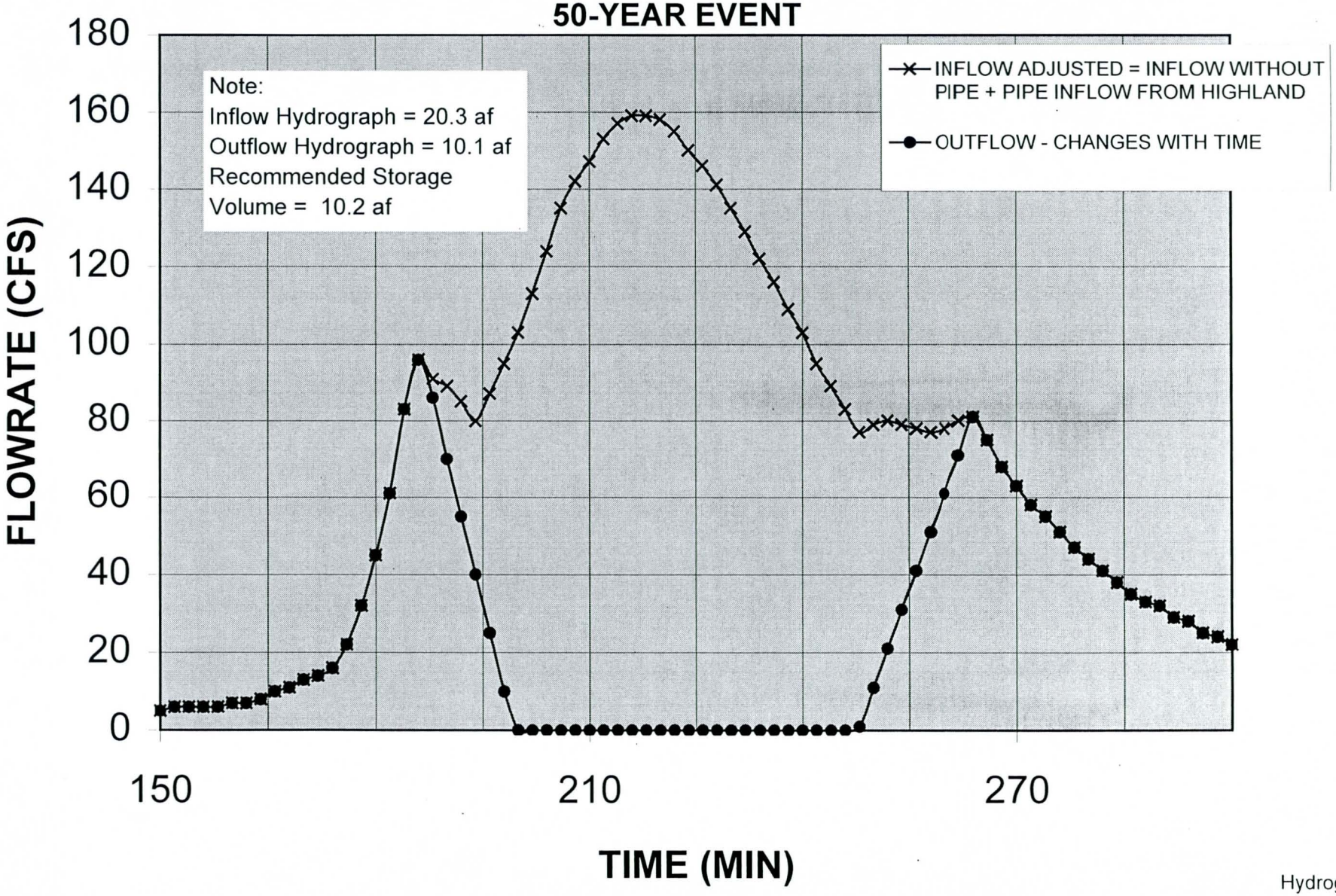
FIGURE A-4
CAMPBELL INFLOW HYDROGRAPHS
50-YEAR EVENT

Note:
Inflow Hydrograph without pipe = 18.2 af
Inflow Hydrograph from Highland pipe = 2.1 af
Inflow Hydrograph adjusted = 20.3 af



Hydrogr2
4/15/98

FIGURE A-5
CAMPBELL DETENTION BASIN RECOMMENDED STORAGE VOLUME
50-YEAR EVENT



Hydrogr2
4/15/98

Glenrosa Avenue Detention Basin Volume Analyses

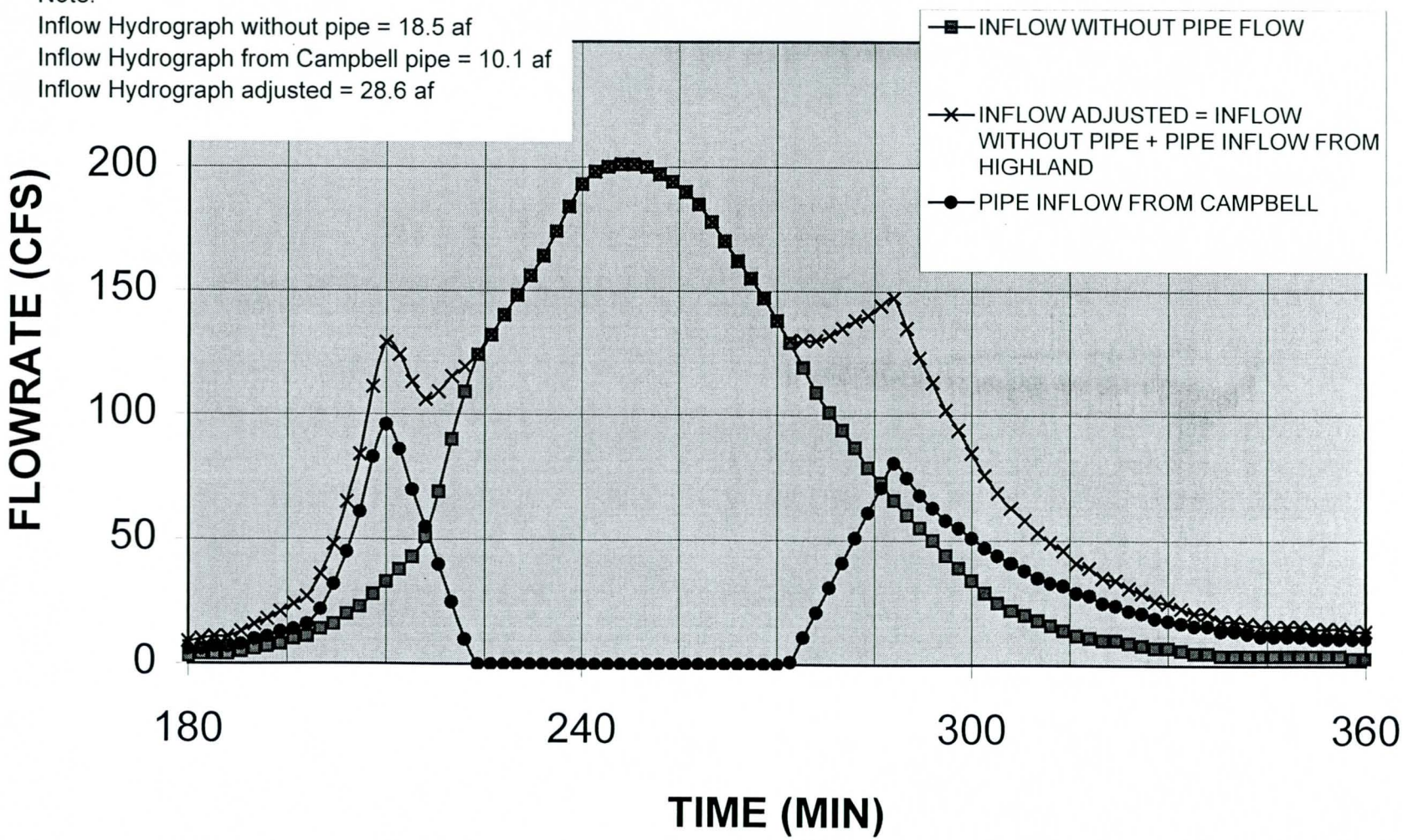
The required storage volume at Glenrosa Avenue was determined by the following procedure. The inflow hydrograph was developed in the HEC-1 model (BN & HNTB TR-20 models converted to HEC-1) and the routed outflow hydrograph from the Campbell Avenue detention basin. Figure A-6 shows the inflow hydrograph for the 50-year, 24-hour event. The capacity of the 18th Street storm drain was determined to be approximately 125 cfs. Engineering judgement was utilized to determine the capacity of the pipe at various locations. The team decided to allow an pipe capacity of 43 cfs at Highland Avenue, 86 cfs at Campbell Avenue, and 125 cfs at Glenrosa Avenue (i.e., 1/3 of the capacity of the pipe enters at each basin location).

The design team determined that the 18th Street storm drain capacity would be exceeded during storm events with return intervals in excess of 2 years. Therefore, little if any flow could enter the pipe during a large portion of the storm. Engineering judgement was utilized to determine the pipe flow characteristics. The pipe would probably pass the rising limb of the flood hydrograph (up to 125 cfs). Then the capacity of the pipe would degrade to zero as the hydraulic grade line in the storm drain increases. The pipe flow would increase near the end of the receding limb (up to 125 cfs) and pass the remaining portion of the hydrograph. Figure A-7 shows the offsite inflow hydrograph at Glenrosa Avenue and the outflow hydrograph for the 18th Street storm drain. The inflow hydrograph at Glenrosa includes all of the flow from the watershed without any inflow entering the Squaw Peak Parkway. All flows along 18th Street are assumed to be captured by the Highland Avenue and Campbell Avenue detention basins, except for those routed in the 18th Street storm drain.

The difference between the area under each curve is the total required storage volume for the Glenrosa Avenue detention basin. The total required storage volume was determined to be approximately 14.3 ac-ft. This basin was sized assuming no outflow from the basin. This is a conservative approach, as outflow from the basin during a storm event would reduce the required storage volume.

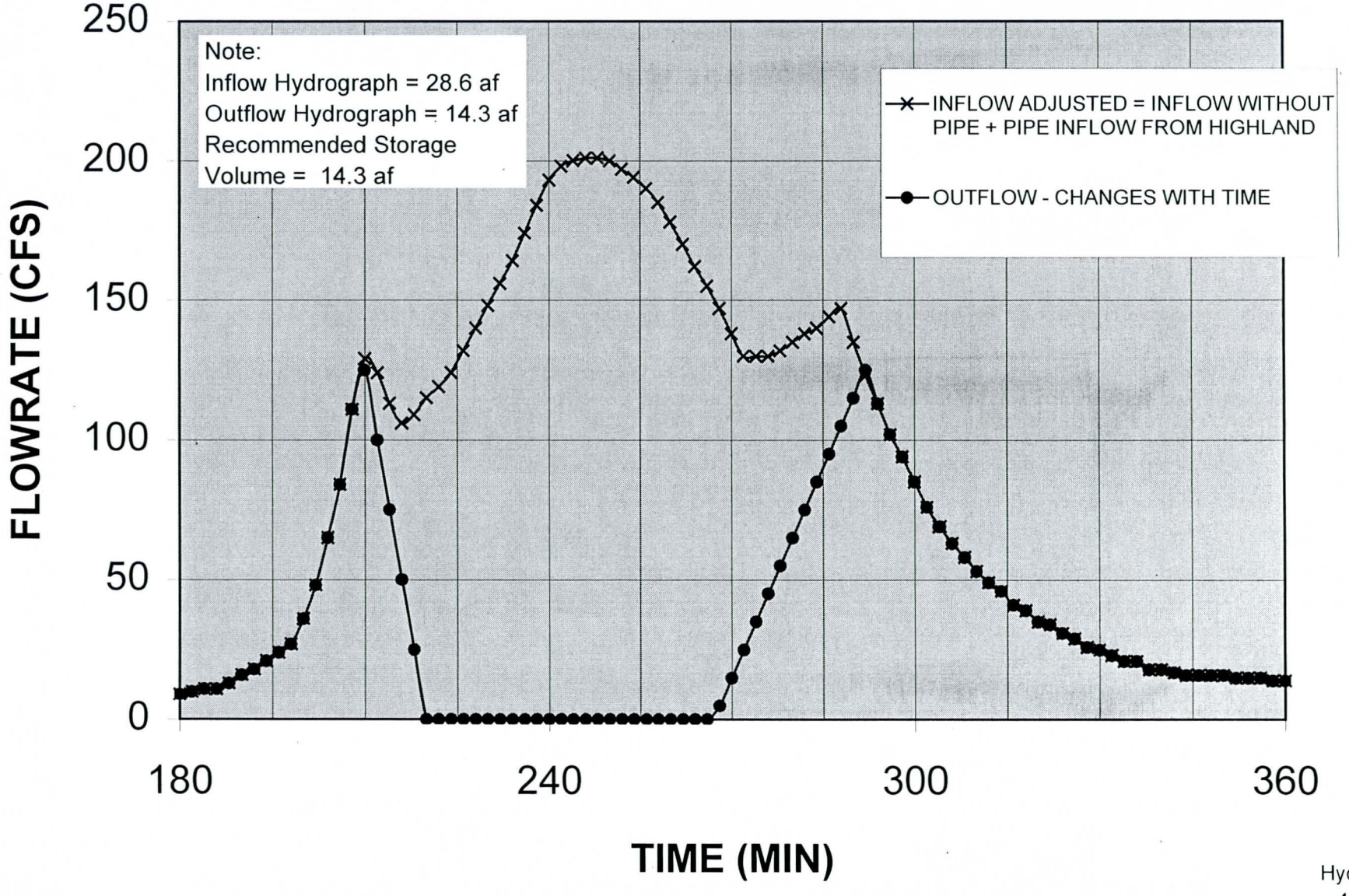
FIGURE A-6
GLENROSA INFLOW HYDROGRAPHS
50-YEAR EVENT

Note:
Inflow Hydrograph without pipe = 18.5 af
Inflow Hydrograph from Campbell pipe = 10.1 af
Inflow Hydrograph adjusted = 28.6 af



Hydrogr2
4/15/98

FIGURE A-7
GLENROSA DETENTION BASIN RECOMMENDED STORAGE VOLUME
50-YEAR EVENT



Hydrogr2
4/15/98

PREMIER
ENGINEERING CORPORATION

SHEET NO 1 OF
JOB NUMBER 9714

TITLE SR51
SUBJECT Basin Volumes
MADE BY MAL DATE 9/14/98 CHECKED BY DATE

Purpose: Determine volumes for various detention basins for SR51 Project.

Option 1A - Highland - Park

Detention Volume Required: 19.3 af - offsite
10.5 af - onsite
$\boxed{29.8 \text{ af}}$ total volume

Park Area = 1200' x 500' + 150' x 150' = 14.3 acre
Average Ponded Depth = 2'
Volume Provided = $\boxed{28.6 \text{ acre-ft}}$ ~ close to requirement - assume area would be adequate to provide required volume.
Note: 2.1' assumed depth meets requirement.

Homes Removed = 49 + 1 large lot on SE corner of Highland & 18th St.

PREMIER
ENGINEERING CORPORATION

SHEET NO 2 OF
JOB NUMBER 9714

TITLE SR51

SUBJECT Basin Volumes

MADE BY MAL DATE 4/14/98 CHECKED BY DATE

Option 1A – Campbell – Park

Detention volume required = 10.3 af – offsite

Park Area = 600' x 600' = 8.26 af

Avg Depth = 2'

Volume Provided = 16.5 af

Homes Removed = 39

PREMIER
ENGINEERING CORPORATION

SHEET NO 3 OF
JOB NUMBER 9714

TITLE SRSI
SUBJECT Basin Volumes
MADE BY MAL DATE 4/14/98 CHECKED BY DATE

Option 1A - Glenrosa - Park

Detention Volume Required = 14.3 af - offsite

Park Area = 600' x 600' = 8.26 af

Avg Depth = 2'

Volume = 16.5 af

Homes Removed = 40

PREMIER
ENGINEERING CORPORATION

SHEET NO 4 OF
JOB NUMBER 9714

TITLE SR51
SUBJECT Basin Volumes
MADE BY MAC DATE 4/14/98 CHECKED BY DATE

Option 1B – Highland – Walled Basin

Detention Volume Required = 19.3 af offsite
10.5 af onsite
29.8 af total volume

Detention Volume Provided =

8.3 af – assuming Option 2A volume calcs
8.6 af – assuming Option 5B volume calcs
16.9 af → 12.9 af required between Meadowbrook & Coolidge

Total Basin Area = 60,000 ft² → R/W Area = 80,000 ft²
Flat Area = 20,000 ft²
Sloped Area = 40,000 ft²

Set WSE = 1144'

Set Basin FL = 1131 (N), 1129 (S) > Avg Depth = 14'

Volume Provided = 20000.(14) + 40000 (7) = 12.9 af
+ 8.3 af - Option 2A
+ 8.6 af - Option 5B
29.8 af

Homes Removed = 8

Note: Option 1B at Highland assumes the following 3 basins are all connected to provide detention for both offsite & onsite flows @ 18th & Highland

1) Highland Buffer Zone with 6' walls – Option 2A
2) Highland Ave Pump Station with walls – Option 5B
3) Basin Between Meadowbrook & Coolidge – 4:1 slopes

PREMIER
ENGINEERING CORPORATION

SHEET NO 5 OF
JOB NUMBER 9714

TITLE SR51

SUBJECT

MADE BY MAL DATE 4/14/98 CHECKED BY DATE

Option 1B - Campbell-Walled Basin

Detention Volume Required = 10.3 af

Detention Volume Provided =

Total Basin Area = 260' x 280' = 72,800 ft²
Flat Area = 160' x 180' = 28,800 ft²
Sloped Area = = 44,000 ft²

Set WSE = 1141'

Set Basin FL = 1130' NE Corner, 1128 SW Corner > Avg Depth = 12'

Volume = 28800(12) + 44000(6) = 14 af

R/W Area = 290' x 310' = 89,900 ft²

PREMIER
ENGINEERING CORPORATION

SHEET NO 6 OF
JOB NUMBER 9714

TITLE SR51

SUBJECT

MADE BY MR DATE 4/14/98 CHECKED BY DATE

Option 1B- Glenrosa Basin - Walled Basin

~~Detention~~ Volume Required = 14.3 af - offsite

Detention Volume Provided =

Total Basin Area = 350' x 260' = 91000 ft²
Flat Area = 250' x 160' = 40000 ft²
Sloped Area = = 51000 ft²

Set WSE = 1137'

Set Basin FL = 1126 (NE), 1124 (SW) > Avg Depth = 12'

Volume Provided = 40000(12) + 51000(6) = 18 af

R/W Area = 380' x 290' = 110,200 ft²

Alternatives 2A and 2B

PREMIER
ENGINEERING CORPORATION

Options 2A & 2B

SHEET NO 1 OF 1
JOB NUMBER 9714

TITLE SRC51

SUBJECT Highland Buffer Zone Basin Return Frequency

MADE BY MM DATE 4/13/98 CHECKED BY GH DATE 4/16/98

Purpose - Determine return period frequencies for 2 basins proposed for Highland Buffer Zone:
1) 3:1 Slopes = 5.3 af
2) 3:1 Slopes N side, 6' wall S side = 8.3 af

Knowns - for 50-year event, required storage @ Highland = 19.3 af (refer to hydrogr2.xls)

25-year event = 12.1 af (refer to hydrog3.xls)
10-year event = 3.8 af "

Analysis - Interpolate between known values of recurrence intervals - use log values for storage values.

1) 3:1 Slopes - 5.3 af Storage

$$\left(\frac{\log 3.8 - \log 5.3}{\log 3.8 - \log 12.1}\right)(25-10) + 10 = 14.3 \text{ years}$$

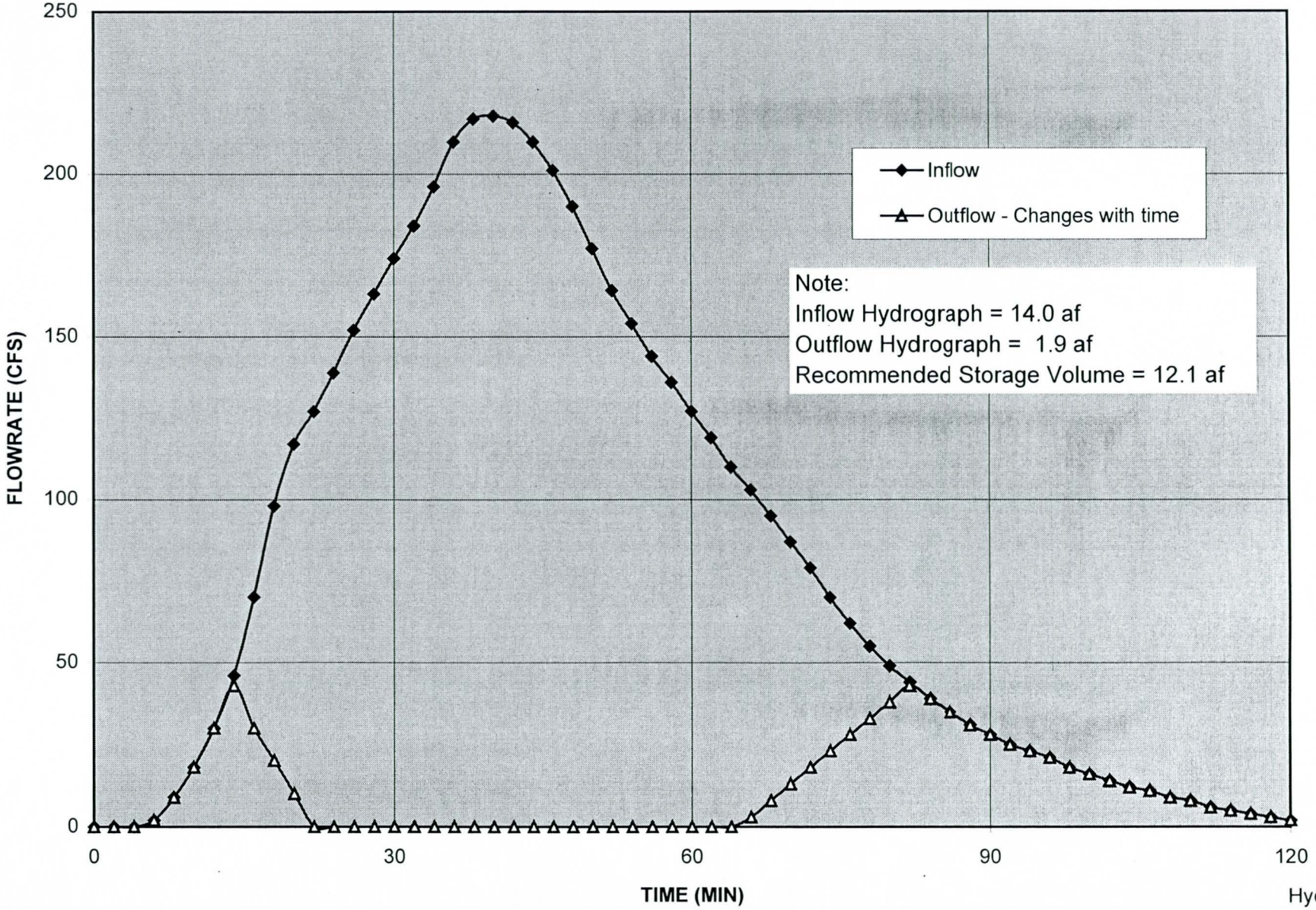
$\approx$ 14 years

2. 3:1 Slopes - 8.3 af Storage

$$\frac{\log 3.8 - \log 8.3}{\log 3.8 - \log 12.1}(25-10) + 10 = 20.1 \text{ years}$$

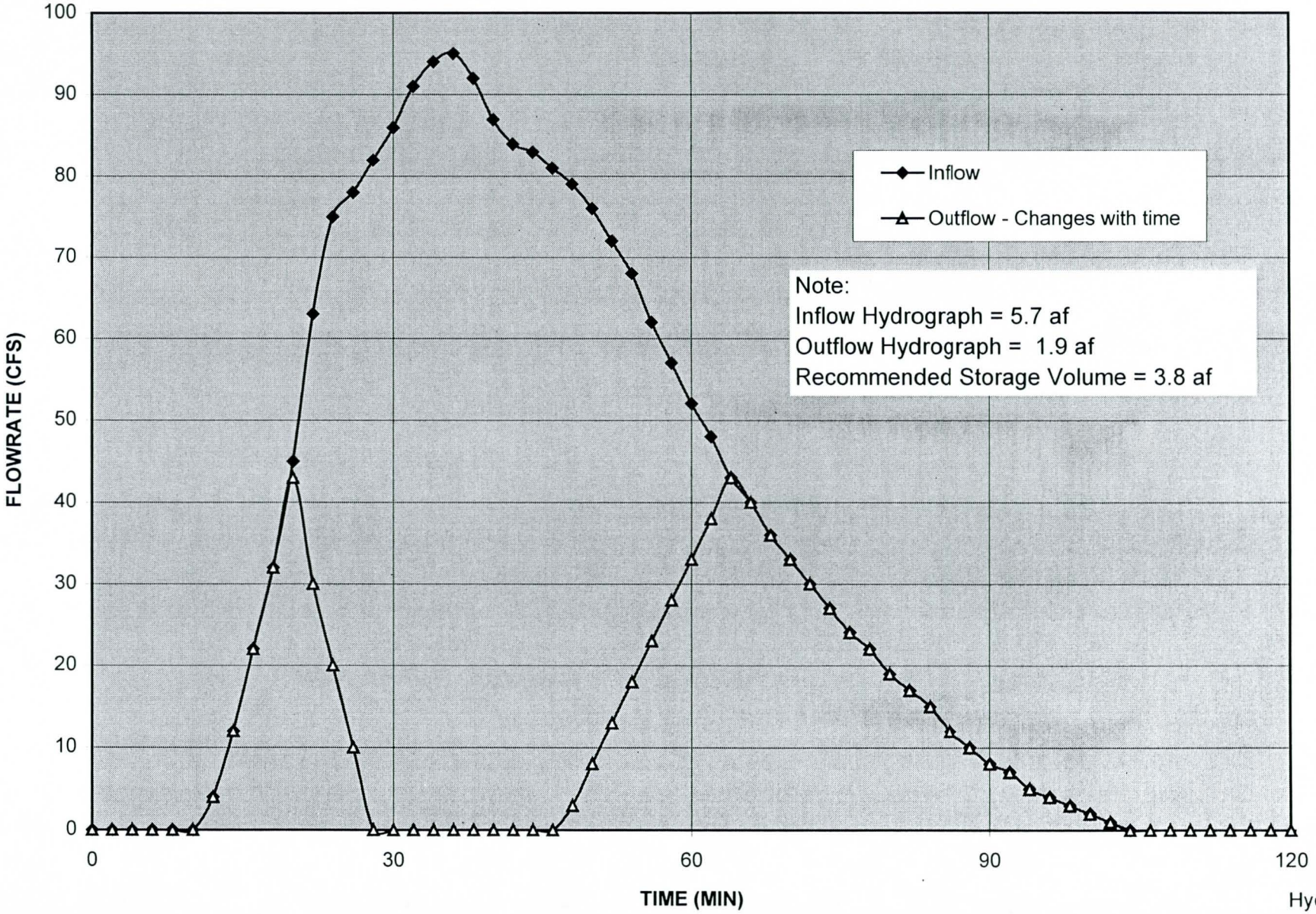
= 20 years

HIGHLAND DETENTION BASIN STORAGE VOLUME
25-YEAR EVENT



Hydrogr3
4/16/98

HIGHLAND DETENTION BASIN STORAGE VOLUME
10-YEAR EVENT



Hydrogr3
4/16/98

PREMIER
ENGINEERING CORPORATION

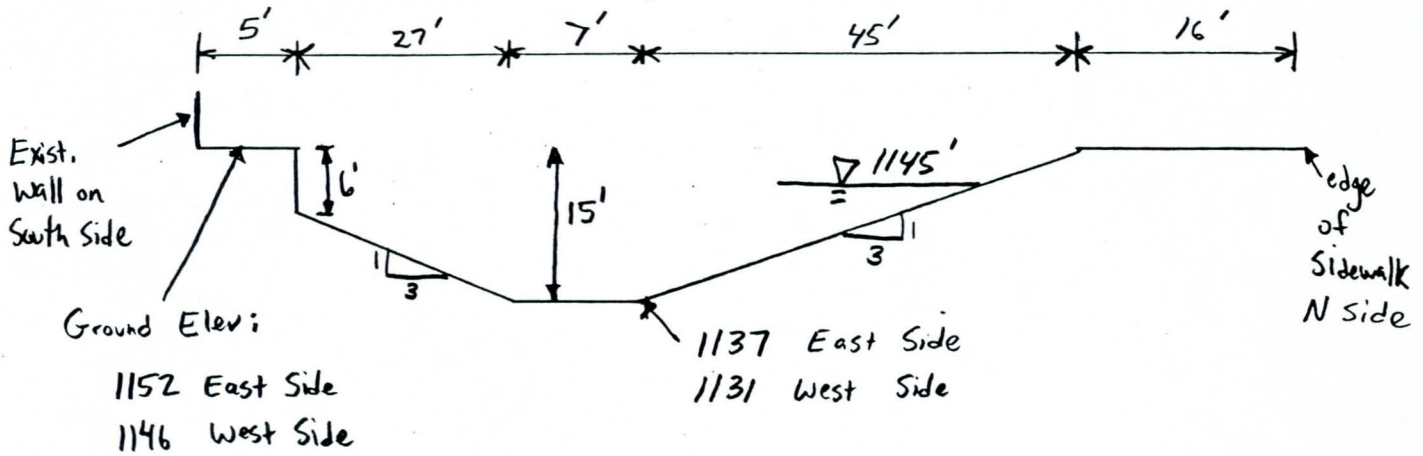
SHEET NO 7 OF ____
JOB NUMBER 9714

TITLE SR51
SUBJECT Basin Volumes
MADE BY MAL DATE 4/14/98 CHECKED BY ____ DATE ____

Option 2A - Highland Buffer Zone - with 6' walls

Volume Provided = **8.6 af**

Assume 3:1 side slopes - North side
6' Retaining wall South side



End Areas:

East Section = $8' \times 7' + \left[\frac{1}{2}(8 \times 24)\right] 2 = 248\ ft^2$

West Section = $14' \times 7' + 1/2(14 \times 42) + 1/2(9 \times 27) + 5 \times 27 = 648.5\ ft^2$

Basin Length = 900 LF - Assume 5' offsets from ends

$$\text{Volume} = (900 - 10 - (15 \times 3)2)\left(\frac{248 + 648.5}{2}\right) + \left(\frac{248 + 0}{2} \times 24'\right) + \left(\frac{648.5 + 0}{2} \times 42'\right)$$

$$= 375{,}195\ ft^3 = \boxed{8.6\ af}$$

PREMIER
ENGINEERING CORPORATION

SHEET NO 8 OF
JOB NUMBER 9714

TITLE SR51

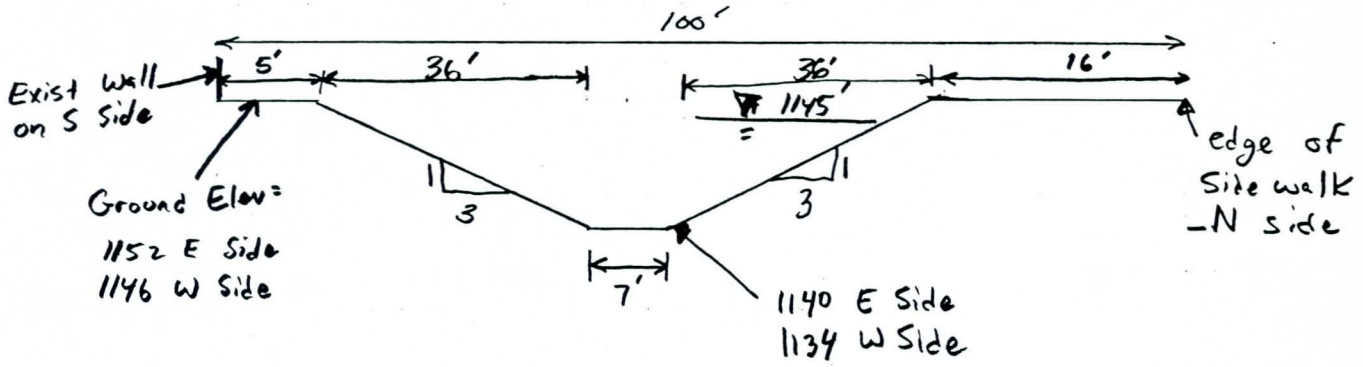
SUBJECT Basin Volumes

MADE BY MAL DATE 4/14/98 CHECKED BY DATE

Option 2B - Highland Buffer Zone - 3:1 Slopes

Volume Provided = **5.3 af**

Assume - 3:1 side slopes



End Area:

East Section = $\frac{1}{2}(7+37)\,5' = 110\ ft^2$

West Section = $\frac{1}{2}(7+73)\,11' = 440\ ft^2$

Basin Length = 900' - Assume 5' offsets from ends

$$Volume = (900 - 10 - (12 \times 3)2) \times \left(\frac{110+440}{2}\right) + \left(\frac{110+0}{2}\right) \times 5 \times 3 + \left(\frac{440+0}{2}\right) \times 11 \times 3$$

$= 233035\ ft^2$

$= \boxed{5.3\ af}$

Alternative 4

PARSONS BRINCKERHOFF COMPUTATION SHEET

Subject: Colter St. Detention Basin Restriction Plate

Page 1 of 1

Made by AJH

Date 4/5/98

Checked by

Date

Size hole under plate:

Total storage for 100 yr storm = 25 af

Required discharge rate to drain in 36 hrs = 25 (43560) / 36 (60 min) (60 sec) = 3 cfs

Assume average discharge is 2/3 peak discharge

→ need peak rate of 3 (3/2) = 12 cfs

Peak discharge condition:

Basin WSE = 1152.5

See attached HYS printout -

without backwater effects, outflow is between 40 and 54 cfs > 12 cfs ✓ ok

CURRENT DATE: 04-08-1998
CURRENT TIME: 16:04:50

FILE DATE: 04-08-1998
FILE NAME: RESTRICT

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.0

CULVERT NO.	SITE DATA: INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1136.31	1134.90	230.00	1 RCP	2.00	2.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (cfs) FILE: RESTRICT DATE: 04-08-1998

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1137.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1137.27	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1137.79	8.0	8.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1138.22	12.0	12.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1138.69	16.0	16.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1139.25	20.0	20.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1139.94	24.0	24.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1140.79	28.0	28.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1141.76	32.0	32.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1145.00	36.0	36.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1146.88	40.0	40.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1155.00	54.0	54.0	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: RESTRICT DATE: 04-08-1998

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1137.00	0.000	0.00	0.00	0.00
1137.27	0.000	4.00	0.00	0.00
1137.79	0.000	8.00	0.00	0.00
1138.22	0.000	12.00	0.00	0.00
1138.69	0.000	16.00	0.00	0.00
1139.25	0.000	20.00	0.00	0.00
1139.94	0.000	24.00	0.00	0.00
1140.79	0.000	28.00	0.00	0.00
1141.76	0.000	32.00	0.00	0.00
1145.00	0.000	36.00	0.00	0.00
1146.88	0.000	40.00	0.00	0.00

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 04-08-1998 FILE DATE: 04-08-1998
CURRENT TIME: 16:04:50 FILE NAME: RESTRICT

PERFORMANCE CURVE FOR CULVERT 1 - 1(2.00 (ft) BY 2.00 (ft)) RCP

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1137.00	0.00	0.69	0-NF	0.00	0.00	0.00	2.10	0.00	0.00
4.00	1137.27	0.96	0.96	1-S1f	0.62	0.69	0.80	2.10	3.41	0.00
8.00	1137.79	1.48	1.48	1-S1f	0.90	1.01	1.20	2.10	4.06	0.00
12.00	1138.22	1.91	1.91	1-S1f	1.15	1.24	1.40	2.10	5.11	0.00
16.00	1138.69	2.38	2.28	4-FFt	1.40	1.44	1.40	2.10	6.83	0.00
20.00	1139.25	2.94	2.94	3-M1f	1.75	1.60	2.00	2.10	6.37	0.00
24.00	1139.94	3.63	3.36	3-M1f	2.00	1.72	2.00	2.10	7.64	0.00
28.00	1140.79	4.48	3.85	3-M1f	2.00	1.84	2.00	2.10	8.91	0.00
32.00	1141.76	5.45	4.42	3-M1f	2.00	1.96	2.00	2.10	10.19	0.00
36.00	1145.00	6.55	8.69	4-FFt	2.00	2.00	2.00	2.10	11.46	0.00
40.00	1146.88	7.77	10.57	4-FFt	2.00	2.00	2.00	2.10	12.73	0.00

El. inlet face invert 1136.31 ft El. outlet invert 1134.90 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	1136.31 ft
OUTLET STATION	230.00 ft
OUTLET ELEVATION	1134.90 ft
NUMBER OF BARRELS	1
SLOPE (V/H)	0.0061
CULVERT LENGTH ALONG SLOPE	230.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	2.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE WITH HEADWALL
INLET DEPRESSION	NONE

CURRENT DATE: 04-08-1998 FILE DATE: 04-08-1998
CURRENT TIME: 16:04:50 FILE NAME: RESTRICT

ÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ TAILWATER ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄ
ÄÄ

CONSTANT WATER SURFACE ELEVATION
1137.00

ÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ ROADWAY OVERTOPPING DATA ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄ

ROADWAY SURFACE	PAVED
EMBANKMENT TOP WIDTH	50.00 ft
CREST LENGTH	50.00 ft
OVERTOPPING CREST ELEVATION	1155.00 ft

ÄÄ

SECTION 6.2 ON-SITE SOLUTIONS/ALTERNATIVES

Alternatives 5A and 5B
Pump Station Detention Basin
- **Runoff Volume Calculations**
- **Detention Capacity Calculations**

Alternative 6
On-Site Detention Vaults
- **Storm Hydrograph**
- **Pump Station Routing-**
  - **HOV Lanes and 25-Year Detention Vaults**

Alternatives 8 and 9
Optimize Pump On/Off Settings &
Increase Size of Nuisance Pump
- **Pump Station Routing-**
  - **2–Year Existing Condition**
  - **10, 25 and 50-Year HOV Condition**
  - **Worst Case Cycling**

Alternatives 10A and 10B
- **Inlet Calculations**
- **Before and After Winstorm Models, 10-Year Storm**

Alternatives 5A and 5B

PARSONS BRINCKERHOFF COMPUTATION SHEET

Subject: Pump Station Detention Basin Storm 101

Page ___ of ___

Made by: L.E.F.

Date: 4/12/93

Checked by: ___

Date: ___

50 yr Existing

A = 3.93
Cw = 0.81

$V = 2.45 \left(\frac{0.81}{0.90}\right) = \underline{\underline{9.99 \text{ af}}}$

25 yr Existing

$V = 9.12 \left(\frac{0.81}{0.90}\right) = \underline{\underline{8.21 \text{ af}}}$

10 yr Existing

$V = \left(\frac{0.85}{0.90}\right) 7.27 = \underline{\underline{6.87 \text{ af}}}$

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page 3 of

Made by EH

Date 2/13/95

Checked by

Date

Subject Pump Station Detention Basin Storm Vol.

Storms -

50 yr w/ HOV

Area = 38.93 ac
C_w = 0.91
P = 3.54 in (50 yr 24 hr)

$V = 38.93\,(0.91)\left(\frac{3.54}{12}\right) = \underline{\underline{10.45\ aF}}$

25 yr w/ HOV

Same CA as 50 yr
P = 3.09

$V = 10.45\left(\frac{3.09}{3.54}\right) = \underline{\underline{9.12\ aF}}$

10 yr w/ HOV

A = 38.93
C = 0.90
P = 2.49 in

$V = 38.93\,(0.90)\left(\frac{2.49}{12}\right) = \underline{7.27\ aF}$

SR-51 Drainage Assessment
Indian School Rd. to Bethany Home Rd.

Pump Station Routing
Highland Pump Station

25 Year Inflow Hydrograph (W/HOV & VAULTS)
Using GRAPHICAL HYDROGRAPH

25YHVPVN.out, 04-01-98
PB Phx., BY R.JORDAN

****

INPUT DATA FOR PUMP STATION ROUTING

Delta Time (routing interval) = .002 Hrs.(.12 min or 7.2 sec)

Frequency Existing 25 Year w/HOV, VAULTS, & NEW pump on/off settings

INFLOW HYDROGRAPH

hec1 time	time	Q (cfs)
0200	0.0	5
0230	0.5	7
0242	0.7	18
0300	1.0	59
	1.074	112
	1.296	112
	1.46	56.5
	1.64	39
	1.82	16
0400	2.000	7

STAGE-STORAGE/DISCHARGE CURVE

Elev.	Storage CuFt	Outflow cfs
97.5	0	12
106	7548	17.83
111	11988	22.95
113.5	14208	25.85
116	16428	28.07
120	19980	30.75
122	38056	32.09
124	141432	33.42
127	455796	34.98

PUMP	ON	OFF
1	108	106
2	110	108
3	112	110
4	114	112

Gen Set	On
1	106
2	108

****

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.00	5.00	0.00	0.00	0.00	0.00	0.01	0.00
0.00	5.01	36.03	0.00	0.00	0.00	36.04	97.54
0.00	5.02	72.12	0.00	0.00	0.00	72.13	97.58
0.01	5.02	108.26	0.00	0.00	0.00	108.27	97.62
0.01	5.03	144.46	0.00	0.00	0.00	144.47	97.66
0.01	5.04	180.72	0.00	0.00	0.00	180.73	97.70
0.01	5.05	217.04	0.00	0.00	0.00	217.05	97.74
0.01	5.06	253.41	0.00	0.00	0.00	253.42	97.79
0.02	5.06	289.84	0.00	0.00	0.00	289.85	97.83
0.02	5.07	326.33	0.00	0.00	0.00	326.34	97.87
0.02	5.08	362.88	0.00	0.00	0.00	362.89	97.91
0.02	5.09	399.48	0.00	0.00	0.00	399.49	97.95
0.02	5.10	436.15	0.00	0.00	0.00	436.16	97.99
0.03	5.10	472.87	0.00	0.00	0.00	472.88	98.03
0.03	5.11	509.64	0.00	0.00	0.00	509.65	98.07
0.03	5.12	546.48	0.00	0.00	0.00	546.49	98.12
0.03	5.13	583.37	0.00	0.00	0.00	583.38	98.16
0.03	5.14	620.32	0.00	0.00	0.00	620.33	98.20
0.04	5.14	657.33	0.00	0.00	0.00	657.34	98.24
0.04	5.15	694.40	0.00	0.00	0.00	694.41	98.28
0.04	5.16	731.52	0.00	0.00	0.00	731.53	98.32
0.04	5.17	768.70	0.00	0.00	0.00	768.71	98.37
0.04	5.18	805.94	0.00	0.00	0.00	805.95	98.41
0.05	5.18	843.24	0.00	0.00	0.00	843.25	98.45
0.05	5.19	880.59	0.00	0.00	0.00	880.60	98.49
0.05	5.20	918.00	0.00	0.00	0.00	918.01	98.53
0.05	5.21	955.47	0.00	0.00	0.00	955.48	98.58
0.05	5.22	993.00	0.00	0.00	0.00	993.01	98.62
0.06	5.22	1030.58	0.00	0.00	0.00	1030.59	98.66
0.06	5.23	1068.22	0.00	0.00	0.00	1068.23	98.70
0.06	5.24	1105.92	0.00	0.00	0.00	1105.93	98.75
0.06	5.25	1143.68	0.00	0.00	0.00	1143.69	98.79
0.06	5.26	1181.49	0.00	0.00	0.00	1181.50	98.83
0.07	5.26	1219.36	0.00	0.00	0.00	1219.37	98.87
0.07	5.27	1257.29	0.00	0.00	0.00	1257.30	98.92
0.07	5.28	1295.28	0.00	0.00	0.00	1295.29	98.96
0.07	5.29	1333.32	0.00	0.00	0.00	1333.33	99.00
0.07	5.30	1371.43	0.00	0.00	0.00	1371.44	99.04
0.08	5.30	1409.59	0.00	0.00	0.00	1409.60	99.09
0.08	5.31	1447.80	0.00	0.00	0.00	1447.82	99.13
0.08	5.32	1486.08	0.00	0.00	0.00	1486.09	99.17
0.08	5.33	1524.41	0.00	0.00	0.00	1524.42	99.22
0.08	5.34	1562.80	0.00	0.00	0.00	1562.81	99.26
0.09	5.34	1601.25	0.00	0.00	0.00	1601.26	99.30
0.09	5.35	1639.76	0.00	0.00	0.00	1639.77	99.35
0.09	5.36	1678.32	0.00	0.00	0.00	1678.33	99.39
0.09	5.37	1716.94	0.00	0.00	0.00	1716.95	99.43
0.09	5.38	1755.62	0.00	0.00	0.00	1755.63	99.48
0.10	5.38	1794.36	0.00	0.00	0.00	1794.37	99.52
0.10	5.39	1833.15	0.00	0.00	0.00	1833.16	99.56
0.10	5.40	1872.00	0.00	0.00	0.00	1872.01	99.61
0.10	5.41	1910.91	0.00	0.00	0.00	1910.92	99.65
0.10	5.42	1949.88	0.00	0.00	0.00	1949.89	99.70
0.11	5.42	1988.90	0.00	0.00	0.00	1988.91	99.74
0.11	5.43	2027.98	0.00	0.00	0.00	2027.99	99.78
0.11	5.44	2067.12	0.00	0.00	0.00	2067.13	99.83
0.11	5.45	2106.32	0.00	0.00	0.00	2106.33	99.87
0.11	5.46	2145.57	0.00	0.00	0.00	2145.58	99.92
0.12	5.46	2184.88	0.00	0.00	0.00	2184.89	99.96

HRS	CFS	CUFT		CFS	CUFT	CUFT	FT
0.31	6.22	6182.18	0.00	0.00	0.00	6182.19	104.46
0.31	6.23	6227.02	0.00	0.00	0.00	6227.03	104.51
0.31	6.24	6271.92	0.00	0.00	0.00	6271.93	104.56
0.31	6.25	6316.88	0.00	0.00	0.00	6316.89	104.61
0.31	6.26	6361.89	0.00	0.00	0.00	6361.90	104.66
0.32	6.26	6406.96	0.00	0.00	0.00	6406.97	104.72
0.32	6.27	6452.09	0.00	0.00	0.00	6452.10	104.77
0.32	6.28	6497.28	0.00	0.00	0.00	6497.29	104.82
0.32	6.29	6542.53	0.00	0.00	0.00	6542.53	104.87
0.32	6.30	6587.83	0.00	0.00	0.00	6587.84	104.92
0.33	6.30	6633.19	0.00	0.00	0.00	6633.20	104.97
0.33	6.31	6678.60	0.00	0.00	0.00	6678.61	105.02
0.33	6.32	6724.08	0.00	0.00	0.00	6724.09	105.07
0.33	6.33	6769.61	0.00	0.00	0.00	6769.62	105.12
0.33	6.34	6815.20	0.00	0.00	0.00	6815.21	105.17
0.34	6.34	6860.85	0.00	0.00	0.00	6860.86	105.23
0.34	6.35	6906.56	0.00	0.00	0.00	6906.57	105.28
0.34	6.36	6952.32	0.00	0.00	0.00	6952.33	105.33
0.34	6.37	6998.14	0.00	0.00	0.00	6998.15	105.38
0.34	6.38	7044.02	0.00	0.00	0.00	7044.03	105.43
0.35	6.38	7089.95	0.00	0.00	0.00	7089.96	105.48
0.35	6.39	7135.95	0.00	0.00	0.00	7135.96	105.54
0.35	6.40	7182.00	0.00	0.00	0.00	7182.01	105.59
0.35	6.41	7228.11	0.00	0.00	0.00	7228.12	105.64
0.35	6.42	7274.28	0.00	0.00	0.00	7274.28	105.69
0.36	6.42	7320.50	0.00	0.00	0.00	7320.51	105.74
0.36	6.43	7366.78	0.00	0.00	0.00	7366.79	105.80
0.36	6.44	7413.12	0.00	0.00	0.00	7413.13	105.85
0.36	6.45	7459.52	0.00	0.00	0.00	7459.53	105.90
0.36	6.46	7505.97	0.00	0.00	0.00	7505.98	105.95
0.37	6.46	7552.48	0.00	0.00	0.00	7552.49	106.01
0.37	6.47	7599.05	0.00	0.00	0.00	7599.06	106.06
0.37	6.48	7645.68	0.00	0.00	0.00	7645.69	106.11
0.37	6.49	7692.37	0.00	0.00	0.00	7692.38	106.16
0.37	6.50	7739.11	0.00	0.00	0.00	7739.12	106.22
0.38	6.50	7785.91	0.00	0.00	0.00	7785.92	106.27
0.38	6.51	7832.77	0.00	0.00	0.00	7832.78	106.32
0.38	6.52	7879.68	0.00	0.00	0.00	7879.69	106.37
0.38	6.53	7926.65	0.00	0.00	0.00	7926.66	106.43
0.38	6.54	7973.68	0.00	0.00	0.00	7973.69	106.48
0.39	6.54	8020.77	0.00	0.00	0.00	8020.78	106.53
0.39	6.55	8067.92	0.00	0.00	0.00	8067.93	106.59
0.39	6.56	8115.12	0.00	0.00	0.00	8115.13	106.64
0.39	6.57	8162.38	0.00	0.00	0.00	8162.39	106.69
0.39	6.58	8209.70	0.00	0.00	0.00	8209.71	106.75
0.40	6.58	8257.08	0.00	0.00	0.00	8257.09	106.80
0.40	6.59	8304.51	0.00	0.00	0.00	8304.52	106.85
0.40	6.60	8352.00	0.00	0.00	0.00	8352.01	106.91
0.40	6.61	8399.55	0.00	0.00	0.00	8399.56	106.96
0.40	6.62	8447.16	0.00	0.00	0.00	8447.17	107.01
0.41	6.62	8494.82	0.00	0.00	0.00	8494.83	107.07
0.41	6.63	8542.54	0.00	0.00	0.00	8542.55	107.12
0.41	6.64	8590.32	0.00	0.00	0.00	8590.33	107.17
0.41	6.65	8638.16	0.00	0.00	0.00	8638.17	107.23
0.41	6.66	8686.05	0.00	0.00	0.00	8686.06	107.28
0.42	6.66	8734.00	0.00	0.00	0.00	8734.01	107.34
0.42	6.67	8782.01	0.00	0.00	0.00	8782.02	107.39
0.42	6.68	8830.08	0.00	0.00	0.00	8830.09	107.44
0.42	6.69	8878.21	0.00	0.00	0.00	8878.22	107.50
0.42	6.70	8926.39	0.00	0.00	0.00	8926.40	107.55
0.43	6.70	8974.63	0.00	0.00	0.00	8974.64	107.61
0.43	6.71	9022.93	0.00	0.00	0.00	9022.94	107.66
0.43	6.72	9071.28	0.00	0.00	0.00	9071.29	107.72
0.43	6.73	9119.70	0.00	0.00	0.00	9119.71	107.77
0.43	6.74	9168.17	0.00	0.00	0.00	9168.18	107.82
0.44	6.74	9216.69	0.00	0.00	0.00	9216.70	107.88
0.44	6.75	9265.28	0.00	0.00	0.00	9265.29	107.93
0.44	6.76	9313.92	0.00	0.00	0.00	9313.93	107.99
0.44	6.77	9362.63	1.00	19.92	71.72	9255.05	108.04
0.44	6.78	9411.38	1.00	19.69	214.33	9197.07	107.82
0.45	6.78	9460.20	1.00	19.62	355.86	9104.35	107.75
0.45	6.79	9509.07	1.00	19.52	496.77	9012.31	107.65
0.45	6.80	9558.01	1.00	19.41	636.92	8921.09	107.55
0.45	6.81	9607.00	1.00	19.31	776.32	8830.68	107.44
0.45	6.82	9656.04	1.00	19.21	914.98	8741.08	107.34

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.46	6.82	9705.15	1.00	19.10	1052.89	8652.27	107.24
0.46	6.83	9754.31	1.00	19.00	1190.06	8564.26	107.14
0.46	6.84	9803.53	1.00	18.90	1326.51	8477.02	107.05
0.46	6.85	9852.80	1.00	18.80	1462.24	8390.57	106.95
0.46	6.86	9902.14	1.00	18.70	1597.25	8304.89	106.85
0.47	6.86	9951.53	1.00	18.60	1731.56	8219.98	106.76
0.47	6.87	10000.98	1.00	18.51	1865.16	8135.82	106.66
0.47	6.88	10050.48	1.00	18.41	1998.07	8052.42	106.57
0.47	6.89	10100.05	1.00	18.32	2130.29	7969.77	106.47
0.47	6.90	10149.67	1.00	18.22	2261.82	7887.86	106.38
0.48	6.90	10199.35	1.00	18.13	2392.68	7806.68	106.29
0.48	6.91	10249.09	1.00	18.04	2522.87	7726.23	106.20
0.48	6.92	10298.88	1.00	17.94	2652.39	7646.50	106.11
0.48	6.93	10348.74	1.00	17.85	2781.26	7567.49	106.02
0.48	6.94	10398.65	0.00	0.00	2909.55	7489.11	105.93
0.49	6.94	10448.61	0.00	0.00	2909.55	7539.08	105.99
0.49	6.95	10498.64	0.00	0.00	2909.55	7589.10	106.05
0.49	6.96	10548.72	0.00	0.00	2909.55	7639.18	106.10
0.49	6.97	10598.86	0.00	0.00	2909.55	7689.32	106.16

0.49	6.98	10649.06	0.00	0.00	2909.55	7739.52	106.22
0.50	6.98	10699.32	0.00	0.00	2909.55	7789.78	106.27
0.50	6.99	10749.63	0.00	0.00	2909.55	7840.09	106.33
0.50	7.00	10800.00	0.00	0.00	2909.55	7890.46	106.39
0.50	7.11	10850.80	0.00	0.00	2909.55	7941.26	106.44
0.50	7.22	10902.39	0.00	0.00	2909.55	7992.85	106.50
0.51	7.33	10954.77	0.00	0.00	2909.55	8045.23	106.56
0.51	7.44	11007.94	0.00	0.00	2909.55	8098.40	106.62
0.51	7.55	11061.90	0.00	0.00	2909.55	8152.36	106.68
0.51	7.66	11116.66	0.00	0.00	2909.55	8207.12	106.74
0.51	7.77	11172.20	0.00	0.00	2909.55	8262.67	106.80
0.52	7.88	11228.54	0.00	0.00	2909.55	8319.01	106.87
0.52	7.99	11285.68	0.00	0.00	2909.55	8376.14	106.93
0.52	8.10	11343.60	0.00	0.00	2909.55	8434.06	107.00
0.52	8.21	11402.32	0.00	0.00	2909.55	8492.78	107.06
0.52	8.32	11461.82	0.00	0.00	2909.55	8552.29	107.13
0.53	8.43	11522.12	0.00	0.00	2909.55	8612.59	107.20
0.53	8.54	11583.22	0.00	0.00	2909.55	8673.68	107.27
0.53	8.65	11645.10	0.00	0.00	2909.55	8735.56	107.34
0.53	8.76	11707.78	0.00	0.00	2909.55	8798.24	107.41
0.53	8.87	11771.24	0.00	0.00	2909.55	8861.70	107.48
0.54	8.98	11835.50	0.00	0.00	2909.55	8925.96	107.55
0.54	9.09	11900.55	0.00	0.00	2909.55	8991.02	107.63
0.54	9.20	11966.40	0.00	0.00	2909.55	9056.86	107.70
0.54	9.31	12033.03	0.00	0.00	2909.55	9123.50	107.77
0.54	9.42	12100.46	0.00	0.00	2909.55	9190.92	107.85
0.55	9.53	12168.68	0.00	0.00	2909.55	9259.14	107.93
0.55	9.64	12237.69	1.00	19.88	2981.13	9220.79	108.00
0.55	9.75	12307.50	1.00	19.67	3123.53	9183.97	107.80
0.55	9.86	12378.09	1.00	19.63	3265.05	9113.05	107.76
0.55	9.97	12449.48	1.00	19.55	3406.13	9043.36	107.68
0.56	10.08	12521.66	1.00	19.48	3546.63	8975.04	107.61
0.56	10.19	12594.63	1.00	19.40	3686.58	8908.06	107.53
0.56	10.30	12668.40	1.00	19.32	3825.97	8842.43	107.46
0.56	10.41	12742.95	1.00	19.25	3964.82	8778.14	107.38
0.56	10.52	12818.30	1.00	19.18	4103.15	8715.16	107.31
0.57	10.63	12894.44	1.00	19.10	4240.96	8653.49	107.24
0.57	10.74	12971.37	1.00	19.03	4378.26	8593.12	107.18
0.57	10.85	13049.09	1.00	18.97	4515.07	8534.04	107.11
0.57	10.96	13127.61	1.00	18.90	4651.39	8476.23	107.04
0.57	11.07	13206.92	1.00	18.83	4787.23	8419.70	106.98
0.58	11.18	13287.02	1.00	18.77	4922.61	8364.41	106.92
0.58	11.29	13367.91	1.00	18.71	5057.54	8310.38	106.86
0.58	11.40	13449.59	1.00	18.65	5192.03	8257.58	106.80
0.58	11.51	13532.07	1.00	18.59	5326.08	8206.00	106.74
0.58	11.62	13615.33	1.00	18.53	5459.70	8155.64	106.68
0.59	11.73	13699.39	1.00	18.47	5592.92	8106.49	106.63
0.59	11.84	13784.25	1.00	18.42	5725.73	8058.53	106.57
0.59	11.95	13869.89	1.00	18.36	5858.15	8011.75	106.52
0.59	12.06	13956.32	1.00	18.31	5990.18	7966.15	106.47
0.59	12.17	14043.55	1.00	18.26	6121.84	7921.72	106.42
0.60	12.28	14131.57	1.00	18.21	6253.14	7878.44	106.37
0.60	12.39	14220.38	1.00	18.16	6384.08	7836.31	106.32
0.60	12.50	14309.99	1.00	18.11	6514.68	7795.32	106.28
0.60	12.61	14400.39	1.00	18.07	6644.94	7755.45	106.23
0.60	12.72	14491.57	1.00	18.02	6774.88	7716.71	106.19

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.61	12.83	14583.55	1.00	17.98	6904.50	7679.07	106.15
0.61	12.94	14676.33	1.00	17.94	7033.81	7642.53	106.11
0.61	13.05	14769.89	1.00	17.90	7162.82	7607.08	106.07
0.61	13.16	14864.25	1.00	17.86	7291.54	7572.72	106.03
0.61	13.27	14959.40	0.00	0.00	7419.99	7539.41	105.99
0.62	13.38	15055.34	0.00	0.00	7419.99	7635.35	106.10
0.62	13.49	15152.07	0.00	0.00	7419.99	7732.09	106.21
0.62	13.60	15249.59	0.00	0.00	7419.99	7829.61	106.32
0.62	13.71	15347.91	0.00	0.00	7419.99	7927.93	106.43
0.62	13.82	15447.02	0.00	0.00	7419.99	8027.04	106.54
0.63	13.93	15546.92	0.00	0.00	7419.99	8126.94	106.65
0.63	14.04	15647.61	0.00	0.00	7419.99	8227.63	106.77
0.63	14.15	15749.10	0.00	0.00	7419.99	8329.11	106.88
0.63	14.26	15851.37	0.00	0.00	7419.99	8431.39	106.99
0.63	14.37	15954.44	0.00	0.00	7419.99	8534.46	107.11
0.64	14.48	16058.30	0.00	0.00	7419.99	8638.32	107.23
0.64	14.59	16162.95	0.00	0.00	7419.99	8742.97	107.35
0.64	14.70	16268.40	0.00	0.00	7419.99	8848.41	107.46
0.64	14.81	16374.63	0.00	0.00	7419.99	8954.65	107.58
0.64	14.92	16481.66	0.00	0.00	7419.99	9061.68	107.70
0.65	15.03	16589.48	0.00	0.00	7419.99	9169.50	107.83
0.65	15.14	16698.09	0.00	0.00	7419.99	9278.11	107.95
0.65	15.25	16807.50	1.00	19.95	7491.82	9279.78	108.07
0.65	15.36	16917.69	1.00	19.79	7634.88	9282.82	107.91
0.65	15.47	17028.68	1.00	19.79	7777.38	9251.31	107.92
0.66	15.58	17140.46	1.00	19.76	7919.77	9220.70	107.88
0.66	15.69	17253.03	1.00	19.72	8061.91	9191.14	107.85
0.66	15.80	17366.40	1.00	19.69	8203.81	9162.60	107.82
0.66	15.91	17480.55	1.00	19.66	8345.47	9135.09	107.79
0.66	16.02	17595.50	1.00	19.63	8486.91	9108.60	107.76
0.67	16.13	17711.24	1.00	19.60	8628.14	9083.11	107.73
0.67	16.24	17827.77	1.00	19.57	8769.15	9058.63	107.70
0.67	16.35	17945.09	1.00	19.54	8909.97	9035.13	107.67
0.67	16.46	18063.21	1.00	19.52	9050.60	9012.62	107.65
0.67	16.57	18182.12	1.00	19.49	9191.04	8991.09	107.62
0.68	16.68	18301.82	1.00	19.47	9331.31	8970.51	107.60
0.68	16.79	18422.31	1.00	19.45	9471.41	8950.90	107.58
0.68	16.90	18543.59	1.00	19.43	9611.36	8932.24	107.56
0.68	17.01	18665.67	1.00	19.41	9751.15	8914.53	107.54
0.68	17.12	18788.54	1.00	19.39	9890.80	8897.74	107.52

0.69	17.23	18912.20	1.00	19.37	10030.32	8881.89	107.50
0.69	17.34	19036.65	1.00	19.35	10169.70	8866.95	107.48
0.69	17.45	19161.89	1.00	19.33	10308.97	8852.93	107.47
0.69	17.56	19287.93	1.00	19.32	10448.12	8839.81	107.45
0.69	17.67	19414.75	1.00	19.31	10587.17	8827.59	107.44
0.70	17.78	19542.37	1.00	19.29	10726.12	8816.26	107.43
0.70	17.89	19670.79	1.00	19.28	10864.98	8805.81	107.42
0.70	18.00	19799.99	1.00	19.27	11003.76	8796.24	107.41
0.70	18.27	19930.57	1.00	19.26	11142.46	8788.12	107.40
0.70	18.55	20063.13	1.00	19.25	11281.11	8782.03	107.39
0.71	18.82	20197.65	1.00	19.25	11419.71	8777.94	107.38
0.71	19.09	20334.13	1.00	19.25	11558.29	8775.86	107.38
0.71	19.37	20472.59	1.00	19.25	11696.86	8775.74	107.38
0.71	19.64	20613.01	1.00	19.25	11835.43	8777.59	107.38
0.71	19.91	20755.40	1.00	19.25	11974.03	8781.39	107.39
0.72	20.19	20899.76	1.00	19.26	12112.67	8787.11	107.40
0.72	20.46	21046.09	1.00	19.27	12251.36	8794.74	107.40
0.72	20.73	21194.39	1.00	19.28	12390.12	8804.27	107.41
0.72	21.01	21344.65	1.00	19.29	12528.98	8815.69	107.43
0.72	21.28	21496.89	1.00	19.31	12667.93	8828.97	107.44
0.73	21.55	21651.09	1.00	19.32	12807.00	8844.09	107.46
0.73	21.83	21807.25	1.00	19.34	12946.21	8861.06	107.48
0.73	22.10	21965.39	1.00	19.37	13085.56	8879.84	107.50
0.73	22.37	22125.49	1.00	19.39	13225.08	8900.43	107.52
0.73	22.65	22287.57	1.00	19.42	13364.77	8922.80	107.55
0.74	22.92	22451.61	1.00	19.44	13504.66	8946.95	107.58
0.74	23.19	22617.61	1.00	19.47	13644.76	8972.87	107.60
0.74	23.47	22785.59	1.00	19.50	13785.08	9000.52	107.64
0.74	23.74	22955.53	1.00	19.54	13925.63	9029.91	107.67
0.74	24.01	23127.45	1.00	19.57	14066.44	9061.02	107.70
0.75	24.29	23301.33	1.00	19.61	14207.51	9093.83	107.74
0.75	24.56	23477.18	1.00	19.65	14348.86	9128.32	107.78
0.75	24.83	23654.99	1.00	19.69	14490.51	9164.49	107.82
0.75	25.11	23834.77	1.00	19.74	14632.46	9202.32	107.86
0.75	25.38	24016.53	1.00	19.78	14774.73	9241.80	107.91
0.76	25.65	24200.25	1.00	19.83	14917.34	9282.92	107.95
0.76	25.93	24385.93	1.00	19.88	15060.29	9325.65	108.00
0.76	26.20	24573.59	1.00	19.93	15203.61	9369.99	108.05
0.76	26.47	24763.22	1.00	19.98	15347.30	9415.92	108.10
0.76	26.75	24954.81	1.00	20.04	15491.38	9463.43	108.16
0.77	27.02	25148.37	1.00	20.10	15635.86	9512.51	108.21
0.77	27.29	25343.90	1.00	20.15	15780.76	9563.15	108.27
0.77	27.57	25541.39	1.00	20.21	15926.08	9615.32	108.33
0.77	27.84	25740.86	1.00	20.28	16071.84	9669.03	108.39
0.77	28.11	25942.29	1.00	20.34	16218.05	9724.25	108.45
0.78	28.39	26145.69	1.00	20.40	16364.73	9780.97	108.51
0.78	28.66	26351.06	1.00	20.47	16511.89	9839.18	108.58
0.78	28.93	26558.39	1.00	20.54	16659.53	9898.87	108.65
0.78	29.21	26767.70	1.00	20.61	16807.68	9960.03	108.72
0.78	29.48	26978.97	1.00	20.68	16956.34	10022.64	108.79
0.79	29.75	27192.21	1.00	20.76	17105.52	10086.70	108.86
0.79	30.03	27407.42	1.00	20.83	17255.24	10152.18	108.93
0.79	30.30	27624.59	1.00	20.91	17405.52	10219.08	109.01
0.79	30.57	27843.74	1.00	20.99	17556.35	10287.39	109.08
0.79	30.85	28064.85	1.00	21.07	17707.76	10357.10	109.16
0.80	31.12	28287.93	1.00	21.15	17859.75	10428.19	109.24
0.80	31.39	28512.98	1.00	21.23	18012.34	10500.65	109.32
0.80	31.67	28739.99	1.00	21.32	18165.53	10574.47	109.41
0.80	31.94	28968.98	1.00	21.41	18319.35	10649.64	109.49
0.80	32.21	29199.93	1.00	21.49	18473.79	10726.15	109.58

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.81	32.49	29432.85	1.00	21.58	18628.87	10803.99	109.67
0.81	32.76	29667.74	1.00	21.68	18784.61	10883.14	109.76
0.81	33.03	29904.59	1.00	21.77	18941.01	10963.59	109.85
0.81	33.31	30143.42	2.00	43.73	19176.79	10887.94	109.94
0.81	33.58	30384.21	2.00	43.19	19489.69	10894.53	109.68
0.82	33.85	30626.97	2.00	43.22	19800.78	10826.20	109.69
0.82	34.13	30871.70	2.00	43.07	20111.40	10760.30	109.62
0.82	34.40	31118.39	2.00	42.92	20420.96	10697.45	109.55
0.82	34.67	31367.06	2.00	42.78	20729.49	10637.58	109.48
0.82	34.95	31617.69	2.00	42.65	21037.05	10580.65	109.41
0.83	35.22	31870.29	2.00	42.53	21343.69	10526.61	109.35
0.83	35.49	32124.86	2.00	42.41	21649.46	10475.41	109.30
0.83	35.77	32381.39	2.00	42.30	21954.40	10427.01	109.24
0.83	36.04	32639.90	2.00	42.19	22258.56	10381.35	109.19
0.83	36.31	32900.37	2.00	42.09	22561.98	10338.40	109.14
0.84	36.59	33162.81	2.00	42.00	22864.71	10298.11	109.10
0.84	36.86	33427.22	2.00	41.91	23166.80	10260.43	109.05
0.84	37.13	33693.59	2.00	41.83	23468.28	10225.32	109.01
0.84	37.41	33961.93	2.00	41.76	23769.20	10192.75	108.98
0.84	37.68	34232.25	2.00	41.69	24069.60	10162.66	108.94
0.85	37.95	34504.53	2.00	41.62	24369.51	10135.02	108.91
0.85	38.23	34778.77	2.00	41.57	24669.00	10109.79	108.88
0.85	38.50	35054.99	2.00	41.51	24968.08	10086.92	108.86
0.85	38.77	35333.17	2.00	41.47	25266.80	10066.39	108.83
0.85	39.05	35613.33	2.00	41.42	25565.20	10048.14	108.81
0.86	39.32	35895.45	2.00	41.39	25863.31	10032.14	108.80
0.86	39.59	36179.54	2.00	41.35	26161.18	10018.37	108.78
0.86	39.87	36465.59	2.00	41.33	26458.84	10006.77	108.77
0.86	40.14	36753.61	2.00	41.31	26756.32	9997.31	108.76
0.86	40.41	37043.61	2.00	41.29	27053.66	9989.96	108.75
0.87	40.69	37335.57	2.00	41.28	27350.90	9984.68	108.74
0.87	40.96	37629.50	2.00	41.27	27648.06	9981.45	108.74
0.87	41.23	37925.39	2.00	41.27	27945.19	9980.21	108.74
0.87	41.51	38223.26	2.00	41.27	28242.32	9980.95	108.74
0.87	41.78	38523.09	2.00	41.27	28539.47	9983.63	108.74
0.88	42.05	38824.89	2.00	41.29	28836.68	9988.21	108.75

0.88	42.33	39128.66	2.00	41.30	29133.99	9994.68	108.75
0.88	42.60	39434.39	2.00	41.32	29431.42	10002.98	108.76
0.88	42.87	39742.10	2.00	41.34	29729.00	10013.10	108.77
0.88	43.15	40051.77	2.00	41.37	30026.76	10025.01	108.79
0.89	43.42	40363.41	2.00	41.40	30324.74	10038.68	108.80
0.89	43.69	40677.02	2.00	41.44	30622.96	10054.07	108.82
0.89	43.97	40992.59	2.00	41.48	30921.45	10071.15	108.84
0.89	44.24	41310.13	2.00	41.52	31220.23	10089.91	108.86
.89	44.51	41629.65	2.00	41.57	31519.34	10110.31	108.88
.90	44.79	41951.13	2.00	41.62	31818.81	10132.33	108.91
0.90	45.06	42274.58	2.00	41.67	32118.65	10155.94	108.94
0.90	45.33	42599.99	2.00	41.73	32418.89	10181.11	108.96
0.90	45.61	42927.38	2.00	41.79	32719.57	10207.81	108.99
0.90	45.88	43256.73	2.00	41.86	33020.70	10236.03	109.03
0.91	46.15	43588.05	2.00	41.93	33322.32	10265.74	109.06
0.91	46.43	43921.34	2.00	42.00	33624.44	10296.91	109.09
0.91	46.70	44256.60	2.00	42.07	33927.09	10329.52	109.13
0.91	46.97	44593.82	2.00	42.15	34230.29	10363.54	109.17
0.91	47.25	44933.01	2.00	42.23	34534.07	10398.95	109.21
0.92	47.52	45274.17	2.00	42.32	34838.45	10435.73	109.25
0.92	47.79	45617.30	2.00	42.41	35143.45	10473.86	109.29
0.92	48.07	45962.40	2.00	42.50	35449.09	10513.32	109.34
0.92	48.34	46309.46	2.00	42.59	35755.40	10554.07	109.38
0.92	48.61	46658.49	2.00	42.69	36062.40	10596.10	109.43
0.93	48.89	47009.49	2.00	42.79	36370.10	10639.40	109.48
0.93	49.16	47362.46	2.00	42.89	36678.54	10683.93	109.53
0.93	49.43	47717.40	2.00	42.99	36987.72	10729.69	109.58
0.93	49.71	48074.30	2.00	43.10	37297.67	10776.64	109.63
0.93	49.98	48433.17	2.00	43.21	37608.42	10824.76	109.69
0.94	50.25	48794.01	2.00	43.33	37919.97	10874.05	109.74
0.94	50.53	49156.82	2.00	43.44	38232.35	10924.48	109.80
0.94	50.80	49521.60	2.00	43.56	38545.57	10976.03	109.86
0.94	51.07	49888.34	2.00	43.68	38859.66	11028.69	109.92
0.94	51.35	50257.05	2.00	43.81	39174.64	11082.42	109.98
0.95	51.62	50627.73	2.00	43.93	39490.51	11137.23	110.04
0.95	51.89	51000.38	2.00	44.06	39807.31	11193.08	110.10
0.95	52.17	51374.99	2.00	44.19	40125.04	11249.97	110.17
0.95	52.44	51751.58	2.00	44.33	40443.72	11307.87	110.23
0.95	52.71	52130.13	2.00	44.46	40763.37	11366.77	110.30

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.96	52.99	52510.65	2.00	44.60	41084.01	11426.65	110.37
0.96	53.26	52893.14	2.00	44.74	41405.65	11487.49	110.43
0.96	53.53	53277.60	2.00	44.89	41728.31	11549.29	110.50
0.96	53.81	53664.02	2.00	45.03	42052.01	11612.02	110.58
0.96	54.08	54052.41	2.00	45.18	42376.75	11675.67	110.65
0.97	54.35	54442.77	2.00	45.33	42702.56	11740.22	110.72
0.97	54.63	54835.10	2.00	45.48	43029.45	11805.66	110.79
.97	54.90	55229.40	2.00	45.63	43357.43	11871.98	110.87
.97	55.17	55625.66	2.00	45.78	43686.51	11939.16	110.94
0.97	55.45	56023.89	2.00	45.95	44016.74	12007.16	111.02
0.98	55.72	56424.09	2.00	46.13	44348.20	12075.90	111.10
0.98	55.99	56826.26	2.00	46.31	44680.96	12145.32	111.18
0.98	56.27	57230.40	2.00	46.49	45015.03	12215.38	111.25
0.98	56.54	57636.50	2.00	46.67	45350.42	12286.09	111.33
0.98	56.81	58044.57	2.00	46.86	45687.15	12357.43	111.41
0.99	57.09	58454.61	2.00	47.05	46025.23	12429.39	111.50
0.99	57.36	58866.62	2.00	47.24	46364.67	12501.96	111.58
0.99	57.63	59280.60	2.00	47.43	46705.47	12575.14	111.66
0.99	57.91	59696.54	2.00	47.62	47047.66	12648.89	111.74
0.99	58.18	60114.45	3.00	71.72	47477.31	12508.05	111.83
1.00	58.45	60534.33	3.00	70.51	47989.37	12544.98	111.48
1.00	58.73	60956.18	3.00	70.69	48497.69	12458.50	111.53
1.00	59.00	61379.99	3.00	70.35	49005.42	12374.58	111.43
1.00	60.39	61809.82	3.00	70.05	49510.89	12298.94	111.35
1.00	61.79	62249.68	3.00	69.81	50014.38	12235.31	111.27
1.01	63.18	62699.58	3.00	69.60	50516.24	12183.35	111.22
1.01	64.58	63159.53	3.00	69.44	51016.80	12142.74	111.17
1.01	65.97	63629.52	3.00	69.33	51516.37	12113.16	111.14
1.01	67.37	64109.55	3.00	69.25	52015.26	12094.30	111.12
1.01	68.76	64599.63	3.00	69.22	52513.76	12085.88	111.11
1.02	70.16	65099.74	3.00	69.23	53012.17	12087.59	111.11
1.02	71.55	65609.90	3.00	69.27	53510.76	12099.15	111.12
1.02	72.95	66130.10	3.00	69.35	54009.82	12120.30	111.15
1.02	74.34	66660.35	3.00	69.47	54509.60	12150.76	111.18
1.02	75.74	67200.63	3.00	69.63	55010.37	12190.27	111.22
1.03	77.13	67750.96	3.00	69.82	55512.37	12238.59	111.28
1.03	78.53	68311.32	3.00	70.04	56015.87	12295.47	111.34
1.03	79.92	68881.74	3.00	70.30	56521.08	12360.67	111.42
1.03	81.32	69462.19	3.00	70.58	57028.25	12433.95	111.50
1.03	82.71	70052.68	3.00	70.90	57537.60	12515.10	111.59
1.04	84.11	70653.22	3.00	71.25	58049.34	12603.89	111.69
1.04	85.50	71263.80	3.00	71.63	58563.69	12700.12	111.80
1.04	86.89	71884.43	3.00	72.03	59080.86	12803.58	111.91
1.04	88.29	72515.09	3.00	72.46	59601.05	12914.05	112.04
1.04	89.68	73155.79	3.00	72.92	60124.45	13031.35	112.17
1.05	91.08	73806.54	3.00	73.41	60651.25	13155.30	112.31
1.05	92.47	74467.33	3.00	73.92	61181.64	13285.70	112.46
1.05	93.87	75138.16	3.00	74.46	61715.80	13422.38	112.61
1.05	95.26	75819.04	3.00	75.02	62253.90	13565.15	112.77
1.05	96.66	76509.96	3.00	75.60	62796.11	13713.85	112.94
.06	98.05	77210.91	3.00	76.20	63342.60	13868.33	113.11
.06	99.45	77921.91	3.00	76.83	63893.53	14028.40	113.29
1.06	100.84	78642.96	3.00	77.48	64449.07	14193.90	113.48
1.06	102.24	79374.04	3.00	78.01	65008.85	14365.21	113.67
1.06	103.63	80115.16	4.00	104.73	65666.71	14259.96	113.87
1.07	105.03	80866.34	4.00	103.59	66416.65	14449.70	113.55
1.07	106.42	81627.55	4.00	104.41	67165.44	14462.12	113.78

1.07	107.82	82398.80	4.00	104.47	67917.40	14481.41	113.80
1.07	109.21	83180.10	4.00	104.59	68670.01	14510.10	113.83
1.07	110.61	83971.43	4.00	104.74	69423.58	14547.86	113.88
1.08	112.00	84772.81	4.00	104.92	70178.36	14594.46	113.93
1.08	112.00	85579.21	4.00	105.12	70934.54	14644.68	113.99
1.08	112.00	86385.61	4.00	105.32	71692.15	14693.48	114.04
1.08	112.00	87192.01	4.00	105.51	72451.13	14740.89	114.09
1.08	112.00	87998.41	4.00	105.69	73211.46	14786.96	114.15
.09	112.00	88804.81	4.00	105.87	73973.10	14831.71	114.20
.09	112.00	89611.21	4.00	106.05	74736.02	14875.20	114.25
1.09	112.00	90417.60	4.00	106.22	75500.16	14917.45	114.29
1.09	112.00	91224.00	4.00	106.38	76265.51	14958.50	114.34
1.09	112.00	92030.40	4.00	106.54	77032.02	14998.39	114.38
1.10	112.00	92836.80	4.00	106.69	77799.66	15037.15	114.43
1.10	112.00	93643.19	4.00	106.85	78568.40	15074.81	114.47
1.10	112.00	94449.59	4.00	106.99	79338.21	15111.39	114.51
1.10	112.00	95255.99	4.00	107.13	80109.06	15146.94	114.55
1.10	112.00	96062.39	4.00	107.27	80880.93	15181.48	114.59

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.11	112.00	96868.79	4.00	107.41	81653.76	15215.04	114.63
1.11	112.00	97675.19	4.00	107.54	82427.55	15247.65	114.66
1.11	112.00	98481.59	4.00	107.66	83202.27	15279.33	114.70
1.11	112.00	99287.99	4.00	107.79	83977.88	15310.11	114.73
1.11	112.00	%100094.40	4.00	107.91	84754.38	15340.02	114.77
1.12	112.00	%100900.80	4.00	108.02	85531.71	15369.08	114.80
1.12	112.00	%101707.20	4.00	108.13	86309.88	15397.32	114.83
1.12	112.00	%102513.60	4.00	108.24	87088.84	15424.74	114.86
1.12	112.00	%103320.00	4.00	108.35	87868.59	15451.40	114.89
1.12	112.00	%104126.40	4.00	108.45	88649.09	15477.30	114.92
1.13	112.00	%104932.80	4.00	108.56	89430.32	15502.46	114.95
1.13	112.00	%105739.20	4.00	108.65	90212.28	15526.91	114.98
1.13	112.00	%106545.60	4.00	108.75	90994.91	15550.67	115.01
1.13	112.00	%107352.00	4.00	108.84	91778.24	15573.74	115.03
1.13	112.00	%108158.40	4.00	108.93	92562.21	15596.17	115.06
1.14	112.00	%108964.80	4.00	109.02	93346.82	15617.96	115.08
1.14	112.00	%109771.20	4.00	109.10	94132.05	15639.13	115.11
1.14	112.00	%110577.60	4.00	109.18	94917.88	15659.70	115.13
1.14	112.00	%111384.00	4.00	109.26	95704.29	15679.68	115.15
1.14	112.00	%112190.40	4.00	109.34	96491.28	15699.10	115.17
1.15	112.00	%112996.80	4.00	109.42	97278.81	15717.96	115.19
1.15	112.00	%113803.20	4.00	109.49	98066.88	15736.29	115.21
1.15	112.00	%114609.60	4.00	109.56	98855.46	15754.10	115.23
1.15	112.00	%115416.00	4.00	109.63	99644.56	15771.41	115.25
1.15	112.00	%116222.40	4.00	109.70	%100434.10	15788.22	115.27
1.16	112.00	%117028.80	4.00	109.76	%101224.20	15804.56	115.29
1.16	112.00	%117835.20	4.00	109.83	%102014.70	15820.43	115.31
1.16	112.00	%118641.60	4.00	109.89	%102805.70	15835.85	115.33
.6	112.00	%119448.00	4.00	109.95	%103597.10	15850.84	115.34
.6	112.00	%120254.40	4.00	110.01	%104389.00	15865.40	115.36
1.17	112.00	%121060.70	4.00	110.06	%105181.20	15879.55	115.38
1.17	112.00	%121867.10	4.00	110.12	%105973.90	15893.29	115.39
1.17	112.00	%122673.50	4.00	110.17	%106766.90	15906.64	115.41
1.17	112.00	%123479.90	4.00	110.22	%107560.30	15919.62	115.42
1.17	112.00	%124286.30	4.00	110.27	%108354.10	15932.23	115.44
1.18	112.00	%125092.70	4.00	110.32	%109148.30	15944.48	115.45
1.18	112.00	%125899.10	4.00	110.37	%109942.80	15956.38	115.46
1.18	112.00	%126705.50	4.00	110.42	%110737.60	15967.94	115.48
1.18	112.00	%127511.90	4.00	110.46	%111532.80	15979.17	115.49
1.18	112.00	%128318.30	4.00	110.51	%112328.30	15990.09	115.50
1.19	112.00	%129124.70	4.00	110.55	%113124.00	16000.70	115.51
1.19	112.00	%129931.10	4.00	110.59	%113920.10	16011.00	115.52
1.19	112.00	%130737.50	4.00	110.63	%114716.50	16021.02	115.54
1.19	112.00	%131543.90	4.00	110.67	%115513.20	16030.74	115.55
1.19	112.00	%132350.30	4.00	110.71	%116310.10	16040.21	115.56
1.20	112.00	%133156.70	4.00	110.74	%117107.40	16049.39	115.57
1.20	112.00	%133963.10	4.00	110.78	%117904.80	16058.32	115.58
1.20	112.00	%134769.60	4.00	110.81	%118702.60	16066.99	115.59
1.20	112.00	%135576.00	4.00	110.85	%119500.50	16075.42	115.60
1.20	112.00	%136382.40	4.00	110.88	%120298.80	16083.61	115.61

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.21	112.00	%137188.80	4.00	110.91	%121097.20	16091.57	115.61
1.21	112.00	%137995.20	4.00	110.94	%121895.90	16099.29	115.62
1.21	112.00	%138801.60	4.00	110.97	%122694.80	16106.80	115.63
1.21	112.00	%139608.00	4.00	111.00	%123493.90	16114.10	115.64
1.21	112.00	%140414.40	4.00	111.03	%124293.20	16121.18	115.65
1.22	112.00	%141220.80	4.00	111.06	%125092.70	16128.07	115.66
1.22	112.00	%142027.20	4.00	111.09	%125892.50	16134.75	115.66
1.22	112.00	%142833.60	4.00	111.11	%126692.40	16141.25	115.67
1.22	112.00	%143640.00	4.00	111.14	%127492.50	16147.57	115.68
1.22	112.00	%144446.40	4.00	111.16	%128292.70	16153.70	115.69
1.23	112.00	%145252.80	4.00	111.19	%129093.20	16159.66	115.69
1.23	112.00	%146059.20	4.00	111.21	%129893.80	16165.45	115.70
1.23	112.00	%146865.60	4.00	111.23	%130694.60	16171.07	115.70
1.23	112.00	%147672.10	4.00	111.25	%131495.50	16176.54	115.71
1.23	112.00	%148478.50	4.00	111.27	%132296.60	16181.85	115.72
1.24	112.00	%149284.90	4.00	111.30	%133097.90	16187.01	115.72
24	112.00	%150091.30	4.00	111.32	%133899.30	16192.03	115.73
24	112.00	%150897.70	4.00	111.33	%134700.80	16196.89	115.73
.24	112.00	%151704.10	4.00	111.35	%135502.50	16201.62	115.74
1.24	112.00	%152510.50	4.00	111.37	%136304.30	16206.21	115.74
1.25	112.00	%153316.90	4.00	111.39	%137106.20	16210.68	115.75
1.25	112.00	%154123.30	4.00	111.41	%137908.30	16215.01	115.75
1.25	112.00	%154929.70	4.00	111.42	%138710.50	16219.23	115.76
1.25	112.00	%155736.10	4.00	111.44	%139512.80	16223.32	115.76

1.25	112.00	%156542.50	4.00	111.46	%140315.20	16227.29	115.77
1.26	112.00	%157348.90	4.00	111.47	%141117.80	16231.15	115.77
1.26	112.00	%158155.30	4.00	111.49	%141920.40	16234.90	115.78
1.26	112.00	%158961.70	4.00	111.50	%142723.20	16238.54	115.78
1.26	112.00	%159768.10	4.00	111.52	%143526.10	16242.09	115.78
1.26	112.00	%160574.60	4.00	111.53	%144329.00	16245.53	115.79
1.27	112.00	%161381.00	4.00	111.54	%145132.10	16248.87	115.79
1.27	112.00	%162187.40	4.00	111.56	%145935.30	16252.12	115.80
1.27	112.00	%162993.80	4.00	111.57	%146738.50	16255.28	115.80
1.27	112.00	%163800.20	4.00	111.58	%147541.90	16258.34	115.80
1.27	112.00	%164606.60	4.00	111.59	%148345.30	16261.32	115.81
1.28	112.00	%165413.00	4.00	111.60	%149148.80	16264.21	115.81
1.28	112.00	%166219.40	4.00	111.62	%149952.40	16267.03	115.81
1.28	112.00	%167025.80	4.00	111.63	%150756.10	16269.76	115.82
1.28	112.00	%167832.20	4.00	111.64	%151559.80	16272.42	115.82
1.28	112.00	%168638.60	4.00	111.65	%152363.60	16274.99	115.82
1.29	112.00	%169445.00	4.00	111.66	%153167.50	16277.49	115.82
1.29	112.00	%170251.40	4.00	111.67	%153971.50	16279.93	115.83
1.29	112.00	%171057.80	4.00	111.68	%154775.60	16282.29	115.83
1.29	112.00	%171864.20	4.00	111.69	%155579.70	16284.59	115.83
1.29	112.00	%172670.60	4.00	111.70	%156383.80	16286.82	115.84
1.30	112.00	%173477.10	4.00	111.70	%157188.10	16288.99	115.84
1.30	112.00	%174283.50	4.00	111.71	%157992.40	16291.10	115.84
1.30	111.33	%175087.50	4.00	111.71	%158796.70	16290.78	115.84
1.30	110.67	%175886.70	4.00	111.69	%159600.90	16285.73	115.83
1.30	110.00	%176681.10	4.00	111.65	%160405.00	16276.10	115.82
1.31	109.33	%177470.70	4.00	111.60	%161208.70	16261.99	115.81
1.31	108.67	%178255.50	4.00	111.52	%162011.90	16243.57	115.79
1.31	108.00	%179035.50	4.00	111.43	%162814.50	16220.95	115.76
1.31	107.33	%179810.70	4.00	111.32	%163616.40	16194.23	115.73
1.31	106.67	%180581.10	4.00	111.20	%164417.50	16163.54	115.70
1.32	106.00	%181346.70	4.00	111.06	%165217.70	16128.99	115.66
1.32	105.33	%182107.50	4.00	110.91	%166016.80	16090.70	115.61
1.32	104.67	%182863.50	4.00	110.74	%166814.70	16048.76	115.57
1.32	104.00	%183614.70	4.00	110.56	%167611.40	16003.29	115.52
1.32	103.33	%184361.10	4.00	110.36	%168406.70	15954.39	115.46
1.33	102.67	%185102.70	4.00	110.15	%169200.60	15902.12	115.40
1.33	102.00	%185839.50	4.00	109.93	%169992.90	15846.60	115.34
1.33	101.33	%186571.50	4.00	109.70	%170783.50	15787.95	115.27
1.33	100.67	%187298.70	4.00	109.45	%171572.50	15726.21	115.20
1.33	100.00	%188021.10	4.00	109.19	%172359.60	15661.51	115.13
1.34	99.33	%188738.70	4.00	108.92	%173144.80	15593.90	115.05
1.34	98.67	%189451.50	4.00	108.64	%173928.00	15523.48	114.98
1.34	98.00	%190159.50	4.00	108.35	%174709.10	15450.32	114.89
1.34	97.33	%190862.70	4.00	108.04	%175488.10	15374.53	114.81
1.34	96.67	%191561.10	4.00	107.73	%176264.90	15296.15	114.72
1.35	96.00	%192254.70	4.00	107.41	%177039.40	15215.24	114.63
1.35	95.33	%192943.50	4.00	107.07	%177811.60	15131.92	114.53
1.35	94.67	%193627.50	4.00	106.73	%178581.30	15046.21	114.44
1.35	94.00	%194306.70	4.00	106.38	%179348.40	14958.23	114.34
1.35	93.33	%194981.10	4.00	106.02	%180113.10	14868.01	114.24

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.36	92.67	%195650.70	4.00	105.65	%180875.10	14775.60	114.13
1.36	92.00	%196315.50	4.00	105.27	%181634.40	14681.09	114.03
1.36	91.33	%196975.50	4.00	104.88	%182390.90	14584.53	113.92
1.36	90.67	%197630.70	4.00	104.49	%183144.70	14485.98	113.81
1.36	90.00	%198281.10	4.00	104.09	%183895.60	14385.49	113.69
1.37	89.33	%198926.70	4.00	103.68	%184643.60	14283.12	113.58
1.37	88.67	%199567.50	4.00	103.22	%185388.40	14179.07	113.46
1.37	88.00	%200203.50	4.00	102.67	%186129.60	14073.87	113.34
1.37	87.33	%200834.70	4.00	102.11	%186866.80	13967.87	113.22
1.37	86.67	%201461.10	4.00	101.55	%187600.00	13861.09	113.10
1.38	86.00	%202082.70	4.00	100.99	%188329.10	13753.54	112.98
1.38	85.33	%202699.50	4.00	100.42	%189054.20	13645.24	112.86
1.38	84.67	%203311.50	4.00	99.85	%189775.20	13536.24	112.74
1.38	84.00	%203918.70	4.00	99.28	%190492.10	13426.56	112.61
1.38	83.33	%204521.10	4.00	98.71	%191204.90	13316.21	112.49
1.39	82.67	%205118.70	4.00	98.13	%191913.50	13205.21	112.36
1.39	82.00	%205711.50	4.00	97.54	%192617.90	13093.60	112.24
1.39	81.33	%206299.50	4.00	96.96	%193318.10	12981.40	112.11
1.39	80.67	%206882.70	3.00	72.28	%194014.00	12955.37	111.98
1.39	80.00	%207461.10	3.00	72.85	%194536.50	12924.60	112.15
1.40	79.33	%208034.70	3.00	72.70	%195060.40	12974.24	112.11
1.40	78.67	%208603.50	3.00	72.88	%195584.50	13018.98	112.16
1.40	78.00	%209167.50	3.00	73.03	%196109.70	13057.73	112.20
1.40	77.33	%209726.70	3.00	73.16	%196636.00	13090.67	112.24
1.40	76.67	%210281.10	3.00	73.26	%197163.10	13117.96	112.27
1.41	76.00	%210830.70	3.00	73.35	%197690.90	13139.74	112.29
1.41	75.33	%211375.50	3.00	73.41	%198219.30	13156.20	112.31
1.41	74.67	%211915.50	3.00	73.46	%198748.00	13167.46	112.32
1.41	74.00	%212450.70	3.00	73.48	%199277.00	13173.68	112.33
1.41	73.33	%212981.10	3.00	73.49	%199806.10	13174.99	112.33
1.42	72.67	%213506.70	3.00	73.47	%200335.10	13171.53	112.33
1.42	72.00	%214027.50	3.00	73.44	%200864.00	13163.43	112.32
1.42	71.33	%214543.50	3.00	73.39	%201392.60	13150.82	112.31
1.42	70.67	%215054.70	3.00	73.33	%201920.80	13133.84	112.29
1.42	70.00	%215561.10	3.00	73.24	%202448.50	13112.60	112.26
1.43	69.33	%216062.70	3.00	73.14	%202975.50	13087.21	112.23
1.43	68.67	%216559.50	3.00	73.03	%203501.70	13057.79	112.20
1.43	68.00	%217051.50	3.00	72.90	%204027.00	13024.46	112.16
1.43	67.33	%217538.70	3.00	72.75	%204551.40	12987.32	112.12
1.43	66.67	%218021.10	3.00	72.59	%205074.60	12946.49	112.08
1.44	66.00	%218498.70	3.00	72.42	%205596.60	12902.06	112.03
1.44	65.33	%218971.50	3.00	72.23	%206117.40	12854.12	111.97
1.44	64.67	%219439.50	3.00	72.03	%206636.70	12802.79	111.91
1.44	64.00	%219902.70	3.00	71.81	%207154.50	12748.15	111.85
1.44	63.33	%220361.10	3.00	71.59	%207670.80	12690.31	111.79

1.45	62.67	%220814.70	3.00	71.35	%208185.40	12629.32	111.72
1.45	62.00	%221263.50	3.00	71.10	%208698.20	12565.31	111.65
1.45	61.33	%221707.50	3.00	70.84	%209209.10	12498.34	111.57
1.45	60.67	%222146.70	3.00	70.56	%209718.20	12428.51	111.49
1.45	60.00	%222581.10	3.00	70.28	%210225.20	12355.89	111.41
1.46	59.33	%223010.70	3.00	69.98	%210730.10	12280.54	111.33
1.46	58.67	%223435.50	3.00	69.68	%211232.90	12202.56	111.24
1.46	58.00	%223855.50	3.00	69.36	%211733.50	12122.03	111.15
1.46	57.79	%224272.30	3.00	69.04	%212231.70	12040.62	111.06
1.46	57.58	%224687.60	3.00	68.74	%212727.70	11959.92	110.96
1.47	57.37	%225101.40	3.00	68.46	%213221.70	11879.78	110.87
1.47	57.16	%225513.70	3.00	68.19	%213713.60	11800.10	110.78
1.47	56.94	%225924.50	3.00	67.92	%214203.60	11720.90	110.70
1.47	56.73	%226333.70	3.00	67.64	%214691.60	11642.12	110.61
1.47	56.52	%226741.40	3.00	67.37	%215177.60	11563.79	110.52
1.48	56.31	%227147.60	3.00	67.10	%215661.70	11485.89	110.43
1.48	56.10	%227552.30	3.00	66.83	%216143.90	11408.40	110.34
1.48	55.89	%227955.50	3.00	66.57	%216624.20	11331.31	110.26
1.48	55.68	%228357.10	3.00	66.30	%217102.50	11254.62	110.17
1.48	55.47	%228757.20	3.00	66.04	%217578.90	11178.32	110.08
1.49	55.26	%229155.80	2.00	43.85	%218053.50	11155.01	110.00
1.49	55.04	%229552.90	2.00	44.16	%218370.30	11182.62	110.15
1.49	54.83	%229948.50	2.00	44.22	%218688.50	11260.03	110.18
1.49	54.62	%230342.50	2.00	44.39	%219007.40	11335.09	110.26
1.49	54.41	%230735.00	2.00	44.56	%219327.70	11407.39	110.34
1.50	54.20	%231126.00	2.00	44.72	%219649.00	11476.99	110.42
1.50	53.99	%231515.50	2.00	44.87	%219971.60	11543.95	110.50
1.50	53.78	%231903.50	2.00	45.02	%220295.20	11608.28	110.57
1.50	53.57	%232289.90	2.00	45.16	%220619.90	11670.04	110.64
1.50	53.36	%232674.80	2.00	45.30	%220945.50	11729.29	110.71

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.51	53.14	%233058.20	2.00	45.43	%221272.20	11786.06	110.77
1.51	52.93	%233440.10	2.00	45.56	%221599.70	11840.37	110.83
1.51	52.72	%233820.50	2.00	45.68	%221928.20	11892.29	110.89
1.51	52.51	%234199.30	2.00	45.79	%222257.50	11941.85	110.95
1.51	52.30	%234576.60	2.00	45.90	%222587.50	11989.09	111.00
1.52	52.09	%234952.40	2.00	46.02	%222918.40	12033.99	111.05
1.52	51.88	%235326.70	2.00	46.13	%223250.20	12076.56	111.10
1.52	51.67	%235699.50	2.00	46.23	%223582.70	12116.82	111.14
1.52	51.46	%236070.70	2.00	46.33	%223915.90	12154.82	111.19
1.52	51.24	%236440.40	2.00	46.43	%224249.80	12190.62	111.23
1.53	51.03	%236808.60	2.00	46.51	%224584.40	12224.24	111.26
1.53	50.82	%237175.30	2.00	46.60	%224919.60	12255.74	111.30
1.53	50.61	%237540.50	2.00	46.67	%225255.30	12285.14	111.33
1.53	50.40	%237904.10	2.00	46.74	%225591.60	12312.48	111.36
1.53	50.19	%238266.20	2.00	46.81	%225928.40	12337.81	111.39
1.54	49.98	%238626.80	2.00	46.87	%226265.70	12361.15	111.42
1.54	49.77	%238985.90	2.00	46.93	%226603.40	12382.56	111.44
1.54	49.56	%239343.50	2.00	46.98	%226941.40	12402.06	111.46
1.54	49.34	%239699.50	2.00	47.02	%227279.80	12419.70	111.48
1.54	49.13	%240054.00	2.00	47.06	%227618.50	12435.49	111.50
1.55	48.92	%240407.00	2.00	47.10	%227957.50	12449.49	111.52
1.55	48.71	%240758.50	2.00	47.13	%228296.80	12461.73	111.53
1.55	48.50	%241108.50	2.00	47.16	%228636.20	12472.23	111.54
1.55	48.29	%241456.90	2.00	47.18	%228975.90	12481.03	111.55
1.55	48.08	%241803.80	2.00	47.20	%229315.70	12488.15	111.56
1.56	47.87	%242149.20	2.00	47.22	%229655.60	12493.65	111.57
1.56	47.66	%242493.10	2.00	47.23	%229995.60	12497.53	111.57
1.56	47.44	%242835.50	2.00	47.23	%230335.70	12499.82	111.57
1.56	47.23	%243176.30	2.00	47.23	%230675.70	12500.59	111.58
1.56	47.02	%243515.60	2.00	47.23	%231015.80	12499.82	111.57
1.57	46.81	%243853.40	2.00	47.23	%231355.90	12497.56	111.57
1.57	46.60	%244189.70	2.00	47.22	%231695.90	12493.84	111.57
1.57	46.39	%244524.50	2.00	47.20	%232035.80	12488.68	111.56
1.57	46.18	%244857.70	2.00	47.19	%232375.60	12482.10	111.55
1.57	45.97	%245189.40	2.00	47.17	%232715.30	12474.15	111.55
1.58	45.76	%245519.60	2.00	47.14	%233054.80	12464.85	111.54
1.58	45.54	%245848.30	2.00	47.11	%233394.10	12454.23	111.52
1.58	45.33	%246175.50	2.00	47.08	%233733.20	12442.28	111.51
1.58	45.12	%246501.10	2.00	47.05	%234072.10	12429.04	111.49
1.58	44.91	%246825.20	2.00	47.01	%234410.70	12414.56	111.48
1.59	44.70	%247147.80	2.00	46.97	%234749.00	12398.82	111.46
1.59	44.49	%247468.90	2.00	46.92	%235087.00	12381.89	111.44
1.59	44.28	%247788.50	2.00	46.88	%235424.70	12363.76	111.42
1.59	44.07	%248106.50	2.00	46.83	%235762.10	12344.46	111.40
1.59	43.86	%248423.00	2.00	46.77	%236099.00	12324.01	111.38
1.60	43.64	%248738.00	2.00	46.72	%236435.60	12302.45	111.35
1.60	43.43	%249051.50	2.00	46.66	%236771.70	12279.78	111.33
1.60	43.22	%249363.50	2.00	46.60	%237107.50	12256.01	111.30
1.60	43.01	%249673.90	2.00	46.53	%237442.70	12231.18	111.27
1.60	42.80	%249982.80	2.00	46.46	%237777.50	12205.32	111.24
1.61	42.59	%250290.20	2.00	46.39	%238111.80	12178.45	111.21
1.61	42.38	%250596.10	2.00	46.32	%238445.60	12150.56	111.18
1.61	42.17	%250900.50	2.00	46.25	%238778.80	12121.68	111.15
1.61	41.96	%251203.30	2.00	46.17	%239111.50	12091.84	111.12
1.61	41.74	%251504.60	2.00	46.09	%239443.60	12061.04	111.08
1.62	41.53	%251804.40	2.00	46.00	%239775.10	12029.31	111.04
1.62	41.32	%252102.70	2.00	45.92	%240106.00	11996.67	111.01
1.62	41.11	%252399.50	2.00	45.84	%240436.40	11963.10	110.97
1.62	40.90	%252694.70	2.00	45.76	%240766.10	11928.59	110.93
1.62	40.69	%252988.40	2.00	45.68	%241095.30	11893.14	110.89
1.63	40.48	%253280.60	2.00	45.59	%241423.90	11856.76	110.85
1.63	40.27	%253571.30	2.00	45.51	%241751.80	11819.48	110.81
1.63	40.06	%253860.50	2.00	45.42	%242079.20	11781.29	110.77
1.63	39.84	%254148.10	2.00	45.33	%242405.90	11742.23	110.72
1.63	39.63	%254434.20	2.00	45.24	%242731.90	11702.31	110.68
1.64	39.42	%254718.80	2.00	45.14	%243057.30	11661.53	110.63

1.64	39.21	%255001.90	2.00	45.05	%243382.00	11619.92	110.58
1.64	39.00	%255283.50	2.00	44.95	%243706.00	11577.48	110.54
1.64	38.74	%255563.30	2.00	44.85	%244029.30	11534.07	110.49
1.64	38.49	%255841.40	2.00	44.75	%244351.80	11489.57	110.44
1.65	38.23	%256117.60	2.00	44.64	%244673.60	11443.98	110.39
1.65	37.98	%256392.00	2.00	44.53	%244994.70	11397.31	110.33
1.65	37.72	%256664.50	2.00	44.42	%245314.90	11349.57	110.28
1.65	37.47	%256935.20	2.00	44.31	%245634.40	11300.81	110.22
1.65	37.21	%257204.00	2.00	44.20	%245953.00	11251.01	110.17

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.66	36.96	%257471.00	2.00	44.08	%246270.80	11200.21	110.11
1.66	36.70	%257736.20	2.00	43.96	%246587.70	11148.42	110.05
1.66	36.44	%257999.50	2.00	43.84	%246903.80	11095.65	109.99
1.66	36.19	%258261.00	2.00	43.72	%247219.00	11041.95	109.93
1.66	35.93	%258520.60	2.00	43.59	%247533.30	10987.29	109.87
1.67	35.68	%258778.40	2.00	43.46	%247846.70	10931.71	109.81
1.67	35.42	%259034.30	2.00	43.33	%248159.10	10875.21	109.75
1.67	35.17	%259288.50	2.00	43.20	%248470.60	10817.84	109.68
1.67	34.91	%259540.70	2.00	43.06	%248781.20	10759.57	109.62
1.67	34.66	%259791.20	2.00	42.93	%249090.70	10700.45	109.55
1.68	34.40	%260039.80	2.00	42.79	%249399.30	10640.46	109.48
1.68	34.14	%260286.50	2.00	42.65	%249706.90	10579.65	109.41
1.68	33.89	%260531.50	2.00	42.51	%250013.50	10518.01	109.34
1.68	33.63	%260774.50	2.00	42.36	%250319.00	10455.56	109.27
1.68	33.38	%261015.80	2.00	42.22	%250623.50	10392.31	109.20
1.69	33.12	%261255.20	2.00	42.07	%250926.90	10328.28	109.13
1.69	32.87	%261492.70	2.00	41.92	%251229.30	10263.48	109.06
1.69	32.61	%261728.50	2.00	41.77	%251530.60	10197.92	108.98
1.69	32.36	%261962.30	2.00	41.62	%251830.70	10131.60	108.91
1.69	32.10	%262194.40	2.00	41.46	%252129.80	10064.57	108.83
1.70	31.84	%262424.60	2.00	41.30	%252427.80	9996.81	108.76
1.70	31.59	%262653.00	2.00	41.15	%252724.60	9928.35	108.68
1.70	31.33	%262879.50	2.00	40.99	%253020.30	9859.20	108.60
1.70	31.08	%263104.20	2.00	40.83	%253314.80	9789.35	108.52
1.70	30.82	%263327.00	2.00	40.66	%253608.20	9718.84	108.44
1.71	30.57	%263548.00	2.00	40.50	%253900.40	9647.65	108.36
1.71	30.31	%263767.20	2.00	40.33	%254191.40	9575.81	108.28
1.71	30.06	%263984.50	2.00	40.17	%254481.20	9503.32	108.20
1.71	29.80	%264200.00	2.00	40.00	%254769.80	9430.20	108.12
1.71	29.54	%264413.60	2.00	39.83	%255057.10	9356.45	108.04
1.72	29.29	%264625.40	1.00	19.83	%255343.30	9305.91	107.95
1.72	29.03	%264835.40	1.00	19.93	%255486.40	9348.95	108.05
1.72	28.78	%265043.50	1.00	19.98	%255630.10	9413.39	108.10
1.72	28.52	%265249.80	1.00	20.05	%255774.20	9475.54	108.17
1.72	28.27	%265454.20	1.00	20.12	%255918.90	9535.35	108.24
1.73	28.01	%265656.80	1.00	20.19	%256064.00	9592.84	108.30
1.73	27.76	%265857.50	1.00	20.25	%256209.50	9648.01	108.36
1.73	27.50	%266056.50	1.00	20.31	%256355.60	9700.89	108.42
1.73	27.24	%266253.50	1.00	20.37	%256502.00	9751.53	108.48
1.73	26.99	%266448.80	1.00	20.43	%256648.90	9799.90	108.54
1.74	26.73	%266642.20	1.00	20.48	%256796.20	9846.04	108.59
1.74	26.48	%266833.80	1.00	20.53	%256943.80	9889.96	108.64
1.74	26.22	%267023.50	1.00	20.58	%257091.80	9931.70	108.68
1.74	25.97	%267211.40	1.00	20.62	%257240.10	9971.24	108.73
1.74	25.71	%267397.40	1.00	20.67	%257388.80	10008.64	108.77
1.75	25.46	%267581.60	1.00	20.71	%257537.70	10043.87	108.81
1.75	25.20	%267764.00	1.00	20.75	%257687.00	10077.01	108.85
1.75	24.94	%267944.50	1.00	20.78	%257836.50	10108.04	108.88
1.75	24.69	%268123.20	1.00	20.82	%257986.20	10136.98	108.92
1.75	24.43	%268300.00	1.00	20.85	%258136.20	10163.84	108.95
1.76	24.18	%268475.00	1.00	20.87	%258286.40	10188.65	108.97
1.76	23.92	%268648.20	1.00	20.90	%258436.80	10211.42	109.00
1.76	23.67	%268819.50	1.00	20.92	%258587.30	10232.15	109.02
1.76	23.41	%268989.00	1.00	20.95	%258738.10	10250.89	109.04
1.76	23.16	%269156.60	1.00	20.97	%258889.00	10267.62	109.06
1.77	22.90	%269322.40	1.00	20.98	%259040.00	10282.42	109.08
1.77	22.64	%269486.40	1.00	21.00	%259191.10	10295.26	109.09
1.77	22.39	%269648.50	1.00	21.01	%259342.30	10306.15	109.11
1.77	22.13	%269808.80	1.00	21.02	%259493.70	10315.12	109.12
1.77	21.88	%269967.20	1.00	21.03	%259645.00	10322.18	109.12
1.78	21.62	%270123.80	1.00	21.03	%259796.50	10327.35	109.13
1.78	21.37	%270278.50	1.00	21.04	%259947.90	10330.64	109.13
1.78	21.11	%270431.50	1.00	21.04	%260099.40	10332.06	109.13
1.78	20.86	%270582.50	1.00	21.04	%260250.90	10331.67	109.13
1.78	20.60	%270731.80	1.00	21.04	%260402.40	10329.45	109.13
1.79	20.34	%270879.20	1.00	21.03	%260553.80	10325.40	109.13
1.79	20.09	%271024.80	1.00	21.03	%260705.20	10319.56	109.12
1.79	19.83	%271168.50	1.00	21.02	%260856.60	10311.92	109.11
1.79	19.58	%271310.40	1.00	21.01	%261007.90	10302.51	109.10
1.79	19.32	%271450.40	1.00	20.99	%261159.10	10291.34	109.09
1.80	19.07	%271588.60	1.00	20.98	%261310.20	10278.43	109.07
1.80	18.81	%271725.00	1.00	20.96	%261461.10	10263.82	109.06
1.80	18.56	%271859.50	1.00	20.94	%261612.00	10247.49	109.04
1.80	18.30	%271992.20	1.00	20.92	%261762.70	10229.46	109.02
1.80	18.04	%272123.00	1.00	20.90	%261913.30	10209.74	109.00

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.81	17.79	%272252.00	1.00	20.87	%262063.70	10188.35	108.97
1.81	17.53	%272379.20	1.00	20.85	%262213.90	10165.32	108.95
1.81	17.28	%272504.50	1.00	20.82	%262363.90	10140.64	108.92
1.81	17.02	%272628.00	1.00	20.79	%262513.60	10114.32	108.89
1.81	16.77	%272749.60	1.00	20.76	%262663.20	10086.39	108.86
1.82	16.51	%272869.40	1.00	20.72	%262812.50	10056.89	108.82
1.82	16.26	%272987.40	1.00	20.69	%262961.60	10025.79	108.79
1.82	16.00	%273103.50	1.00	20.65	%263110.40	9993.10	108.75

1.82	15.90	%273218.30	1.00	20.61	%263258.90	9959.42	108.72
1.82	15.80	%273332.50	1.00	20.57	%263407.20	9925.29	108.68
1.83	15.70	%273445.90	1.00	20.53	%263555.10	9890.73	108.64
1.83	15.60	%273558.50	1.00	20.49	%263702.80	9855.73	108.60
1.83	15.50	%273670.50	1.00	20.45	%263850.20	9820.32	108.56
1.83	15.40	%273781.80	1.00	20.41	%263997.30	9784.48	108.52
1.83	15.30	%273892.30	1.00	20.37	%264144.10	9748.23	108.48
1.84	15.20	%274002.10	1.00	20.32	%264290.60	9711.54	108.44
.84	15.10	%274111.20	1.00	20.28	%264436.80	9674.45	108.39
.84	15.00	%274219.60	1.00	20.24	%264582.60	9636.95	108.35
1.84	14.90	%274327.20	1.00	20.19	%264728.20	9599.01	108.31
1.84	14.80	%274434.10	1.00	20.15	%264873.50	9560.67	108.27
1.85	14.70	%274540.30	1.00	20.11	%265018.40	9521.92	108.22
1.85	14.60	%274645.80	1.00	20.06	%265163.00	9482.79	108.18
1.85	14.50	%274750.50	1.00	20.02	%265307.30	9443.26	108.13
1.85	14.40	%274854.50	1.00	19.97	%265451.20	9403.35	108.09
1.85	14.30	%274957.90	1.00	19.92	%265594.80	9363.04	108.04
1.86	14.20	%275060.50	1.00	19.88	%265738.10	9322.35	108.00
1.86	14.10	%275162.30	1.00	19.83	%265881.00	9281.29	107.95
1.86	14.00	%275263.50	1.00	19.78	%266023.60	9239.85	107.90
1.86	13.90	%275363.90	1.00	19.73	%266165.90	9198.04	107.86
1.86	13.80	%275463.60	1.00	19.68	%266307.80	9155.85	107.81
1.87	13.70	%275562.60	1.00	19.63	%266449.30	9113.32	107.76
1.87	13.60	%275660.90	1.00	19.59	%266590.50	9070.42	107.71
1.87	13.50	%275758.50	1.00	19.54	%266731.40	9027.14	107.67
1.87	13.40	%275855.30	1.00	19.49	%266871.80	8983.51	107.62
1.87	13.30	%275951.50	1.00	19.43	%267012.00	8939.51	107.57
1.88	13.20	%276046.90	1.00	19.38	%267151.70	8895.17	107.52
1.88	13.10	%276141.50	1.00	19.33	%267291.10	8850.48	107.47
1.88	13.00	%276235.50	1.00	19.28	%267430.10	8805.45	107.42
1.88	12.90	%276328.80	1.00	19.23	%267568.70	8760.07	107.36
1.88	12.80	%276421.30	1.00	19.17	%267707.00	8714.35	107.31
1.89	12.70	%276513.10	1.00	19.12	%267844.80	8668.29	107.26
1.89	12.60	%276604.20	1.00	19.07	%267982.30	8621.92	107.21
1.89	12.50	%276694.60	1.00	19.01	%268119.40	8575.20	107.16
1.89	12.40	%276784.20	1.00	18.96	%268256.10	8528.10	107.10
1.89	12.30	%276873.10	1.00	18.91	%268392.40	8480.70	107.05
1.90	12.20	%276961.30	1.00	18.85	%268528.30	8432.98	107.00
1.90	12.10	%277048.80	1.00	18.79	%268663.90	8384.92	106.94
1.90	12.00	%277135.50	1.00	18.74	%268799.00	8336.54	106.89
1.90	11.90	%277221.50	1.00	18.68	%268933.70	8287.85	106.83
1.90	11.80	%277306.90	1.00	18.63	%269068.00	8238.85	106.78
1.91	11.70	%277391.50	1.00	18.57	%269201.90	8189.54	106.72
1.91	11.60	%277475.30	1.00	18.51	%269335.40	8139.92	106.67
1.91	11.50	%277558.50	1.00	18.45	%269468.50	8089.98	106.61
1.91	11.40	%277640.90	1.00	18.40	%269601.20	8039.76	106.55
1.91	11.30	%277722.60	1.00	18.34	%269733.40	7989.23	106.50
1.92	11.20	%277803.60	1.00	18.28	%269865.20	7938.42	106.44
1.92	11.10	%277883.90	1.00	18.22	%269996.60	7887.29	106.38
1.92	11.00	%277963.50	1.00	18.16	%270127.60	7835.89	106.32
2	10.90	%278042.30	1.00	18.10	%270258.20	7784.17	106.27
2	10.80	%278120.50	1.00	18.04	%270388.30	7732.17	106.21
1.93	10.70	%278197.90	1.00	17.98	%270518.00	7679.89	106.15
1.93	10.60	%278274.50	1.00	17.92	%270647.20	7627.32	106.09
1.93	10.50	%278350.50	1.00	17.86	%270776.00	7574.48	106.03
1.93	10.40	%278425.80	0.00	0.00	%270904.50	7521.32	105.97
1.93	10.30	%278500.30	0.00	0.00	%270904.50	7595.85	106.05
1.94	10.20	%278574.10	0.00	0.00	%270904.50	7669.67	106.14
1.94	10.10	%278647.20	0.00	0.00	%270904.50	7742.76	106.22
1.94	10.00	%278719.60	0.00	0.00	%270904.50	7815.14	106.30
1.94	9.90	%278791.20	0.00	0.00	%270904.50	7886.76	106.38
1.94	9.80	%278862.10	0.00	0.00	%270904.50	7957.67	106.46
1.95	9.70	%278932.30	0.00	0.00	%270904.50	8027.85	106.54
1.95	9.60	%279001.80	0.00	0.00	%270904.50	8097.32	106.62
1.95	9.50	%279070.50	0.00	0.00	%270904.50	8166.07	106.70
1.95	9.40	%279138.50	0.00	0.00	%270904.50	8234.10	106.77
1.95	9.30	%279205.90	0.00	0.00	%270904.50	8301.42	106.85

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.96	9.20	%279272.50	0.00	0.00	%270904.50	8368.01	106.92
1.96	9.10	%279338.30	0.00	0.00	%270904.50	8433.89	107.00
1.96	9.00	%279403.50	0.00	0.00	%270904.50	8499.04	107.07
1.96	8.90	%279467.90	0.00	0.00	%270904.50	8563.48	107.14
1.96	8.80	%279531.60	0.00	0.00	%270904.50	8627.20	107.22
1.97	8.70	%279594.60	0.00	0.00	%270904.50	8690.20	107.29
1.97	8.60	%279656.90	0.00	0.00	%270904.50	8752.48	107.36
1.97	8.50	%279718.50	0.00	0.00	%270904.50	8814.04	107.43
1.97	8.40	%279779.30	0.00	0.00	%270904.50	8874.89	107.49
1.97	8.30	%279839.50	0.00	0.00	%270904.50	8935.01	107.56
1.98	8.20	%279898.90	0.00	0.00	%270904.50	8994.42	107.63
1.98	8.10	%279957.50	0.00	0.00	%270904.50	9053.10	107.69
1.98	8.00	%280015.50	0.00	0.00	%270904.50	9111.07	107.76
1.98	7.90	%280072.80	0.00	0.00	%270904.50	9168.32	107.82
1.98	7.80	%280129.30	0.00	0.00	%270904.50	9224.85	107.89
1.99	7.70	%280185.10	0.00	0.00	%270904.50	9280.67	107.95
1.99	7.60	%280240.20	1.00	19.89	%270976.10	9228.33	108.01
1.99	7.50	%280294.60	1.00	19.67	%271118.50	9176.10	107.79
1.99	7.40	%280348.20	1.00	19.61	%271259.90	9088.35	107.73
1.99	7.30	%280401.10	1.00	19.50	%271400.70	9000.45	107.64
2.00	7.20	%280453.30	1.00	19.40	%271540.70	8912.57	107.54
00	7.10	%280504.80	1.00	19.30	%271680.10	8824.70	107.44

****

EXPLANATION AND SUMMARY OF RUN

1.0 THE #1 PUMP RUNS FROM .650 HRS. UNTIL 1.930 HRS. THERE IS MINOR CYCLING WITH THE #1 PUMP ON THE RISING AND FALLING LEGS OF THE 25 YEAR (W/HOV) INFLOW HYDROGRAPH. SEE CYCLING CHECK RUNS FOR

MORE INFORMATION ON THE CYCLING OF THE #1 PUMP. CYCLING IS NOT A PROBLEM WITH THIS RUN.

2.0 THE #2 PUMP DOES NOT CYCLE ON THE RISING OR FALLING LEGS OF THE INFLOW HYDROGRAPH; RUNNING FROM ABOUT .812 HRS. TO 1.716 HRS.

3.0 THE #3 PUMP DOES NOT CYCLE AND RUNS FROM .992 HRS. TO 1.486 HRS.

4.0 THE # 4 PUMP DOES NOT CYCLE AND RUNS FROM 1.064 HRS. TO 1.390 HRS.

5.0 THE PEAK OUTFLOW DURING THIS RUN IS 111.71 CFS AT ELEVATION 115.84 (i.e. 1115.84).

.0 ONLY THE SIGNIFICANT PORTIONS OF THE OUTPUT WAS PRINTED, SEE FILE 25YHVPVN.OUT ON CD FOR COMPLETE OUTPUT.

7.0 THE COMPLETE FALLING LEG OF THE HYDROGRAPH WAS NOT INCLUDED AS ITS ONLY INTEREST WOULD BE FOR CYCLING, AND THE CONSTANT INFLOW OF .5 OF THE OUTFLOW (USED IN THE CYCLING CHECK RUNS) WITH THE NEW PUMP ON/OFF SETTINGS WOULD BE OF MORE INTEREST.

NOTE:

THIS PROGRAM DOES NOT ITERATE THE PUMP OUTFLOW RATES OR DURATIONS DURING THE ROUTING INTERVAL (i.e. 7.2 SEC.). THEREFORE THE WATER SURFACE ELEVATION IN THE WET WELL IS ONLY APPROXIMATE. THE MAXIMUM ERROR IN PUMPED FLOW SHOULD NOT EXCEED ONE HALF THE PEAK FLOW FROM ONE PUMP FOR THE ROUTING INTERVAL OR IN THIS CASE:

((111.71/4)/2) * 7.2 = 100.54 CUBIC FEET
WHICH CORRESPONDS TO A WET WELL ELEVATION OF
ABOUT +/- .11 FEET (i.e. 5 FEET IN THE WET WELL
CORRESPONDS TO 4440 CUBIC FEET, THEREFORE 101
CUBIC FEET IS ABOUT .11 FEET)

Alternatives 8 and 9

PROGRAM INPUT DATA

SR-51 Drainage Assessment
Indian School Road to
Bethany Home Road

Pump Station Routing
Delta T = .002 Hrs.
FILE 2YEXPSN.OUT

FREQUENCY	2YR

Exist	~~HOV~~

INFLOW HYDROGRAPH

Hec1 Time	Time	Q (cfs)
0200	0	2
0230	.5	3
0242	.6	6
0300	1.0	20
0306	1.1	43
0310	1.167	59
0314	1.233	64
0326	1.433	33
0344	1.733	10
0400	2.000	3

STAGE - STORAGE/DISCHARGE RELATIONSHIP

Elev	Storage CuFt	Q cfs
97.5	0	12
106	7548	17.83
111	11988	22.95
113.5	14208	25.85
116	16428	28.07
120	19980	30.75
122	38056	32.09
124	141432	33.42
127	455796	34.48

1ST GEN SET ON 106
2ND GEN SET ON 108

PUMP	ON	OFF
1	108	106
2	110	108
3	112	110
4	114	112

FILE CONVENTION: 2YEXPSN.OUT

2YR FREQUENCY

EXISTING CONDITIONS

HIGHLAND PUMP STATION

NEW ON/OFF ELEVATIONS

3/24/98

SR-51 Drainage Assessment
Indian School Rd. to Bethany Home Rd.

Pump Station Routing
Highland Pump Station

2 Year Inflow Hydrograph (existing)
Using HEC1 Files pump2.dat & pump2.out

2YEXPSN.OUT, 03-24-98
PB Phx., BY R.JORDAN

****

INPUT DATA FOR PUMP STATION ROUTING

Delta Time (routing interval) = .002 Hrs.(.12 min or 7.2 sec)

Frequency Existing 2-Year w/ new pump on/off settings

INFLOW HYDROGRAPH

hec1 time	time	Q (cfs)
0200	0.0	2
0230	0.5	3
0242	0.6	6
0300	1.0	20
0306	1.1	43
0310	1.167	59
0314	1.233	64
0326	1.433	33
0344	1.733	10
0400	2.000	3

STAGE-STORAGE/DISCHARGE CURVE

Elev.	Storage CuFt	Outflow cfs
97.5	0	12
106	7548	17.83
111	11988	22.95
113.5	14208	25.85
116	16428	28.07
120	19980	30.75
122	38056	32.09
124	141432	33.42
127	455796	34.98

PUMP	ON	OFF
1	108	106
2	110	108
3	112	110
4	114	112

Gen Set	On
1	106
2	110

****

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.00	2.00	0.00	0.00	0.00	0.00	0.01	0.00
0.00	2.00	14.41	0.00	0.00	0.00	14.42	97.52
0.00	2.01	28.86	0.00	0.00	0.00	28.87	97.53
0.01	2.01	43.33	0.00	0.00	0.00	43.34	97.55
0.01	2.02	57.83	0.00	0.00	0.00	57.84	97.57
0.01	2.02	72.36	0.00	0.00	0.00	72.37	97.58
0.01	2.02	86.92	0.00	0.00	0.00	86.93	97.60
0.01	2.03	101.51	0.00	0.00	0.00	101.52	97.61
0.02	2.03	116.12	0.00	0.00	0.00	116.13	97.63
0.02	2.04	130.77	0.00	0.00	0.00	130.78	97.65
0.02	2.04	145.44	0.00	0.00	0.00	145.45	97.66
0.02	2.04	160.14	0.00	0.00	0.00	160.15	97.68
0.02	2.05	174.87	0.00	0.00	0.00	174.88	97.70
0.03	2.05	189.63	0.00	0.00	0.00	189.64	97.71
0.03	2.06	204.42	0.00	0.00	0.00	204.43	97.73
0.03	2.06	219.24	0.00	0.00	0.00	219.25	97.75
0.03	2.06	234.09	0.00	0.00	0.00	234.10	97.76
0.03	2.07	248.96	0.00	0.00	0.00	248.97	97.78
0.04	2.07	263.87	0.00	0.00	0.00	263.88	97.80
0.04	2.08	278.80	0.00	0.00	0.00	278.81	97.81
0.04	2.08	293.76	0.00	0.00	0.00	293.77	97.83
0.04	2.08	308.75	0.00	0.00	0.00	308.76	97.85
0.04	2.09	323.77	0.00	0.00	0.00	323.78	97.86
0.05	2.09	338.82	0.00	0.00	0.00	338.83	97.88
0.05	2.10	353.89	0.00	0.00	0.00	353.90	97.90
0.05	2.10	369.00	0.00	0.00	0.00	369.01	97.92
0.05	2.10	384.13	0.00	0.00	0.00	384.14	97.93
0.05	2.11	399.30	0.00	0.00	0.00	399.31	97.95
0.06	2.11	414.49	0.00	0.00	0.00	414.50	97.97
0.06	2.12	429.71	0.00	0.00	0.00	429.72	97.98
0.06	2.12	444.96	0.00	0.00	0.00	444.97	98.00
0.06	2.12	460.24	0.00	0.00	0.00	460.25	98.02
0.06	2.13	475.55	0.00	0.00	0.00	475.56	98.04
0.07	2.13	490.88	0.00	0.00	0.00	490.89	98.05
0.07	2.14	506.25	0.00	0.00	0.00	506.26	98.07
0.07	2.14	521.64	0.00	0.00	0.00	521.65	98.09
0.07	2.14	537.06	0.00	0.00	0.00	537.07	98.10
0.07	2.15	552.51	0.00	0.00	0.00	552.52	98.12
0.08	2.15	567.99	0.00	0.00	0.00	568.00	98.14
0.08	2.16	583.50	0.00	0.00	0.00	583.51	98.16
0.08	2.16	599.04	0.00	0.00	0.00	599.05	98.17
0.08	2.16	614.61	0.00	0.00	0.00	614.62	98.19
0.08	2.17	630.20	0.00	0.00	0.00	630.21	98.21
0.09	2.17	645.83	0.00	0.00	0.00	645.84	98.23
0.09	2.18	661.48	0.00	0.00	0.00	661.49	98.24
0.09	2.18	677.16	0.00	0.00	0.00	677.17	98.26
0.09	2.18	692.87	0.00	0.00	0.00	692.88	98.28
0.09	2.19	708.61	0.00	0.00	0.00	708.62	98.30
0.10	2.19	724.38	0.00	0.00	0.00	724.39	98.32
0.10	2.20	740.17	0.00	0.00	0.00	740.18	98.33
0.10	2.20	756.00	0.00	0.00	0.00	756.01	98.35
0.10	2.20	771.85	0.00	0.00	0.00	771.86	98.37
TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.10	2.21	787.74	0.00	0.00	0.00	787.75	98.39
0.11	2.21	803.65	0.00	0.00	0.00	803.66	98.41

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.71	9.71	9117.47	0.00	0.00	0.00	9117.48	107.77
0.71	9.78	9187.63	0.00	0.00	0.00	9187.64	107.85
0.71	9.85	9258.30	0.00	0.00	0.00	9258.31	107.93
0.71	9.92	9329.47	1.00	19.88	71.58	9222.11	108.01
0.71	9.99	9401.15	1.00	19.68	214.01	9187.15	107.81
0.72	10.06	9473.33	1.00	19.64	355.56	9117.78	107.77
0.72	10.13	9546.01	1.00	19.56	496.68	9049.34	107.69
0.72	10.20	9619.20	1.00	19.48	637.24	8981.97	107.61
0.72	10.27	9692.89	1.00	19.41	777.24	8915.66	107.54
0.72	10.34	9767.09	1.00	19.33	916.70	8850.40	107.47
0.73	10.41	9841.79	1.00	19.26	1055.62	8786.18	107.39
0.73	10.48	9916.99	1.00	19.18	1194.01	8722.99	107.32
0.73	10.55	9992.70	1.00	19.11	1331.88	8660.83	107.25
0.73	10.62	10068.91	1.00	19.04	1469.24	8599.68	107.18
0.73	10.69	10145.63	1.00	18.97	1606.10	8539.54	107.12
0.74	10.76	10222.85	1.00	18.90	1742.46	8480.40	107.05
0.74	10.83	10300.57	1.00	18.84	1878.33	8422.25	106.98
0.74	10.90	10378.80	1.00	18.77	2013.73	8365.08	106.92
0.74	10.97	10457.53	1.00	18.71	2148.65	8308.89	106.86
0.74	11.04	10536.77	1.00	18.64	2283.12	8253.66	106.79
0.75	11.11	10616.51	1.00	18.58	2417.12	8199.40	106.73
0.75	11.18	10696.75	1.00	18.52	2550.68	8146.08	106.67
0.75	11.25	10777.50	1.00	18.46	2683.81	8093.71	106.61
0.75	11.32	10858.75	1.00	18.40	2816.50	8042.27	106.56
0.75	11.39	10940.51	1.00	18.34	2948.76	7991.76	106.50
0.76	11.46	11022.77	1.00	18.28	3080.62	7942.16	106.44
0.76	11.53	11105.53	1.00	18.23	3212.06	7893.48	106.39
0.76	11.60	11188.80	1.00	18.17	3343.11	7845.71	106.33
0.76	11.67	11272.57	1.00	18.12	3473.76	7798.83	106.28
0.76	11.74	11356.85	1.00	18.07	3604.02	7752.84	106.23
0.77	11.81	11441.63	1.00	18.01	3733.91	7707.73	106.18
0.77	11.88	11526.91	1.00	17.96	3863.42	7663.50	106.13
0.77	11.95	11612.70	1.00	17.91	3992.58	7620.14	106.08
0.77	12.02	11698.99	1.00	17.86	4121.37	7577.63	106.03
0.77	12.09	11785.79	0.00	0.00	4249.84	7535.96	105.99
0.78	12.16	11873.09	0.00	0.00	4249.84	7623.26	106.08
0.78	12.23	11960.89	0.00	0.00	4249.84	7711.07	106.18
0.78	12.30	12049.20	0.00	0.00	4249.84	7799.37	106.28
0.78	12.37	12138.01	0.00	0.00	4249.84	7888.19	106.38
0.78	12.44	12227.33	0.00	0.00	4249.84	7977.50	106.48
0.79	12.51	12317.15	0.00	0.00	4249.84	8067.32	106.58
0.79	12.58	12407.48	0.00	0.00	4249.84	8157.65	106.69
0.79	12.65	12498.30	0.00	0.00	4249.84	8248.47	106.79
0.79	12.72	12589.64	0.00	0.00	4249.84	8339.81	106.89
0.79	12.79	12681.47	0.00	0.00	4249.84	8431.64	107.00
0.80	12.86	12773.81	0.00	0.00	4249.84	8523.98	107.10
0.80	12.93	12866.65	0.00	0.00	4249.84	8616.83	107.20
0.80	13.00	12960.00	0.00	0.00	4249.84	8710.17	107.31
0.80	13.07	13053.85	0.00	0.00	4249.84	8804.03	107.41
0.80	13.14	13148.21	0.00	0.00	4249.84	8898.38	107.52

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.81	13.21	13243.07	0.00	0.00	4249.84	8993.24	107.63
0.81	13.28	13338.44	0.00	0.00	4249.84	9088.61	107.73
0.81	13.35	13434.30	0.00	0.00	4249.84	9184.47	107.84
0.81	13.42	13530.68	0.00	0.00	4249.84	9280.85	107.95
0.81	13.49	13627.55	1.00	19.94	4321.62	9270.05	108.06
0.82	13.56	13724.93	1.00	19.76	4464.55	9260.39	107.89
0.82	13.63	13822.82	1.00	19.75	4606.81	9216.01	107.88
0.82	13.70	13921.20	1.00	19.70	4748.85	9172.36	107.83
0.82	13.77	14020.09	1.00	19.65	4890.53	9129.57	107.78
0.82	13.84	14119.49	1.00	19.61	5031.86	9087.64	107.73
0.83	13.91	14219.39	1.00	19.56	5172.85	9046.55	107.69
0.83	13.98	14319.80	1.00	19.51	5313.50	9006.31	107.64
0.83	14.05	14420.70	1.00	19.47	5453.82	8966.90	107.60
0.83	14.12	14522.12	1.00	19.42	5593.81	8928.31	107.55
0.83	14.19	14624.03	1.00	19.38	5733.49	8890.55	107.51
0.84	14.26	14726.45	1.00	19.34	5872.86	8853.61	107.47
0.84	14.33	14829.38	1.00	19.29	6011.92	8817.47	107.43
0.84	14.40	14932.80	1.00	19.25	6150.69	8782.13	107.39
0.84	14.47	15036.74	1.00	19.21	6289.16	8747.58	107.35
0.84	14.54	15141.17	1.00	19.17	6427.36	8713.82	107.31
0.85	14.61	15246.11	1.00	19.14	6565.27	8680.85	107.28
0.85	14.68	15351.56	1.00	19.10	6702.92	8648.65	107.24
0.85	14.75	15457.50	1.00	19.06	6840.30	8617.21	107.20
0.85	14.82	15563.96	1.00	19.03	6977.42	8586.54	107.17
0.85	14.89	15670.91	1.00	18.99	7114.30	8556.63	107.14
0.86	14.96	15778.37	1.00	18.96	7250.92	8527.46	107.10
0.86	15.03	15886.34	1.00	18.93	7387.31	8499.04	107.07
0.86	15.10	15994.80	1.00	18.89	7523.46	8471.35	107.04
0.86	15.17	16103.78	1.00	18.86	7659.39	8444.39	107.01
0.86	15.24	16213.25	1.00	18.83	7795.10	8418.16	106.98
0.87	15.31	16323.23	1.00	18.80	7930.59	8392.65	106.95
0.87	15.38	16433.72	1.00	18.78	8065.88	8367.85	106.92
0.87	15.45	16544.70	1.00	18.75	8200.96	8343.76	106.90
0.87	15.52	16656.20	1.00	18.72	8335.84	8320.36	106.87
0.87	15.59	16768.19	1.00	18.69	8470.53	8297.67	106.84
0.88	15.66	16880.69	1.00	18.67	8605.04	8275.66	106.82
0.88	15.73	16993.70	1.00	18.64	8739.37	8254.34	106.80
0.88	15.80	17107.20	1.00	18.62	8873.52	8233.69	106.77
0.88	15.87	17221.22	1.00	18.60	9007.50	8213.72	106.75
0.88	15.94	17335.73	1.00	18.58	9141.33	8194.42	106.73
0.89	16.01	17450.75	1.00	18.55	9274.99	8175.77	106.71
0.89	16.08	17566.27	1.00	18.53	9408.50	8157.78	106.69
0.89	16.15	17682.30	1.00	18.51	9541.86	8140.45	106.67

0.89	16.22	17798.83	1.00	18.49	9675.09	8123.76	106.65
0.89	16.29	17915.87	1.00	18.48	9808.17	8107.70	106.63
0.90	16.36	18033.41	1.00	18.46	9941.13	8092.29	106.61
0.90	16.43	18151.45	1.00	18.44	10073.96	8077.50	106.60
0.90	16.50	18270.00	1.00	18.42	10206.67	8063.34	106.58
0.90	16.57	18389.05	1.00	18.41	10339.27	8049.79	106.56

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.90	16.64	18508.61	1.00	18.39	10471.76	8036.86	106.55
0.91	16.71	18628.67	1.00	18.38	10604.14	8024.54	106.54
0.91	16.78	18749.24	1.00	18.37	10736.42	8012.83	106.52
0.91	16.85	18870.30	1.00	18.35	10868.61	8001.71	106.51
0.91	16.92	18991.88	1.00	18.34	11000.70	7991.18	106.50
0.91	16.99	19113.95	1.00	18.33	11132.71	7981.25	106.49
0.92	17.06	19236.53	1.00	18.32	11264.65	7971.90	106.48
0.92	17.13	19359.62	1.00	18.31	11396.50	7963.12	106.47
0.92	17.20	19483.20	1.00	18.30	11528.29	7954.93	106.46
0.92	17.27	19607.30	1.00	18.29	11660.01	7947.30	106.45
0.92	17.34	19731.89	1.00	18.28	11791.67	7940.23	106.44
0.93	17.41	19856.99	1.00	18.27	11923.27	7933.73	106.43
0.93	17.48	19982.59	1.00	18.27	12054.82	7927.78	106.43
0.93	17.55	20108.70	1.00	18.26	12186.33	7922.38	106.42
0.93	17.62	20235.31	1.00	18.26	12317.79	7917.53	106.42
0.93	17.69	20362.43	1.00	18.25	12449.21	7913.22	106.41
0.94	17.76	20490.05	1.00	18.25	12580.61	7909.45	106.41
0.94	17.83	20618.17	1.00	18.24	12711.97	7906.21	106.40
0.94	17.90	20746.80	1.00	18.24	12843.30	7903.51	106.40
0.94	17.97	20875.93	1.00	18.24	12974.62	7901.32	106.40
0.94	18.04	21005.57	1.00	18.24	13105.92	7899.66	106.40
0.95	18.11	21135.71	1.00	18.23	13237.21	7898.51	106.39
0.95	18.18	21266.35	1.00	18.23	13368.49	7897.87	106.39
0.95	18.25	21397.50	1.00	18.23	13499.77	7897.74	106.39
0.95	18.32	21529.16	1.00	18.23	13631.05	7898.12	106.39
0.95	18.39	21661.31	1.00	18.23	13762.33	7898.99	106.39
0.96	18.46	21793.97	1.00	18.24	13893.63	7900.35	106.40
0.96	18.53	21927.14	1.00	18.24	14024.93	7902.21	106.40
0.96	18.60	22060.80	1.00	18.24	14156.26	7904.56	106.40
0.96	18.67	22194.98	1.00	18.24	14287.60	7907.38	106.40
0.96	18.74	22329.65	1.00	18.25	14418.97	7910.69	106.41
0.97	18.81	22464.83	1.00	18.25	14550.37	7914.47	106.41
0.97	18.88	22600.51	1.00	18.26	14681.81	7918.72	106.42
0.97	18.95	22736.70	1.00	18.26	14813.28	7923.43	106.42
0.97	19.02	22873.39	1.00	18.27	14944.79	7928.61	106.43
0.97	19.09	23010.59	1.00	18.28	15076.35	7934.25	106.43
0.98	19.16	23148.29	1.00	18.28	15207.96	7940.34	106.44
0.98	19.23	23286.49	1.00	18.29	15339.61	7946.89	106.45
0.98	19.30	23425.20	1.00	18.30	15471.33	7953.88	106.46
0.98	19.37	23564.41	1.00	18.31	15603.10	7961.32	106.47
0.98	19.44	23704.13	1.00	18.32	15734.94	7969.20	106.47
0.99	19.51	23844.35	1.00	18.32	15866.85	7977.51	106.48
0.99	19.58	23985.08	1.00	18.34	15998.82	7986.26	106.49
0.99	19.65	24126.30	1.00	18.35	16130.87	7995.44	106.50
0.99	19.72	24268.04	1.00	18.36	16263.00	8005.04	106.51
0.99	19.79	24410.27	1.00	18.37	16395.21	8015.07	106.53
1.00	19.86	24553.01	1.00	18.38	16527.51	8025.52	106.54
1.00	19.93	24696.26	1.00	18.39	16659.89	8036.38	106.55
1.00	20.00	24840.01	1.00	18.41	16792.36	8047.65	106.56
1.00	20.46	24985.66	1.00	18.42	16924.94	8060.73	106.58
1.00	20.92	25134.63	1.00	18.44	17057.64	8077.00	106.60

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.01	21.38	25286.91	1.00	18.46	17190.49	8096.43	106.62
1.01	21.84	25442.50	1.00	18.49	17323.51	8119.00	106.64
1.01	22.30	25601.41	1.00	18.52	17456.73	8144.69	106.67
1.01	22.76	25763.62	1.00	18.55	17590.17	8173.46	106.70
1.01	23.22	25929.15	1.00	18.59	17723.87	8205.29	106.74
1.02	23.68	26097.99	1.00	18.63	17857.85	8240.15	106.78
1.02	24.14	26270.14	1.00	18.67	17992.13	8278.02	106.82
1.02	24.60	26445.61	1.00	18.72	18126.73	8318.89	106.87
1.02	25.06	26624.38	1.00	18.77	18261.69	8362.71	106.92
1.02	25.52	26806.47	1.00	18.82	18397.02	8409.46	106.97
1.03	25.98	26991.87	1.00	18.88	18532.75	8459.13	107.03
1.03	26.44	27180.58	1.00	18.94	18668.91	8511.69	107.08
1.03	26.90	27372.61	1.00	19.00	18805.51	8567.10	107.15
1.03	27.36	27567.94	1.00	19.07	18942.59	8625.36	107.21
1.03	27.82	27766.59	1.00	19.14	19080.16	8686.44	107.28
1.04	28.28	27968.55	1.00	19.22	19218.25	8750.31	107.35
1.04	28.74	28173.82	1.00	19.29	19356.89	8816.95	107.43
1.04	29.20	28382.41	1.00	19.37	19496.08	8886.33	107.51
1.04	29.66	28594.30	1.00	19.46	19635.87	8958.45	107.59
1.04	30.12	28809.51	1.00	19.54	19776.26	9033.26	107.67
1.05	30.58	29028.03	1.00	19.63	19917.29	9110.75	107.76
1.05	31.04	29249.86	1.00	19.72	20058.97	9190.90	107.85
1.05	31.50	29475.01	1.00	19.82	20201.33	9273.69	107.94
1.05	31.96	29703.47	1.00	19.92	20344.39	9359.09	108.04
1.05	32.42	29935.23	1.00	20.02	20488.16	9447.08	108.14
1.06	32.88	30170.31	1.00	20.12	20632.68	9537.64	108.24
1.06	33.34	30408.71	1.00	20.23	20777.96	9630.76	108.35
1.06	33.80	30650.41	1.00	20.34	20924.02	9726.40	108.45
1.06	34.26	30895.43	1.00	20.45	21070.89	9824.55	108.56
1.06	34.72	31143.76	1.00	20.57	21218.58	9925.18	108.68
1.07	35.18	31395.40	1.00	20.69	21367.12	10028.29	108.79
1.07	35.64	31650.35	1.00	20.81	21516.52	10133.83	108.91
1.07	36.10	31908.61	1.00	20.94	21666.82	10241.81	109.03
1.07	36.56	32170.19	1.00	21.06	21818.01	10352.18	109.16
1.07	37.02	32435.08	1.00	21.19	21970.14	10464.95	109.28

1.08	37.48	32703.27	1.00	21.33	22123.21	10580.08	109.41
1.08	37.94	32974.79	1.00	21.46	22277.24	10697.56	109.55
1.08	38.40	33249.61	1.00	21.60	22432.26	10817.36	109.68
1.08	38.86	33527.75	1.00	21.74	22588.29	10939.47	109.82
1.08	39.32	33809.20	2.00	43.77	22824.12	10906.31	109.96
1.09	39.78	34093.96	2.00	43.34	23137.69	10956.28	109.75
1.09	40.24	34382.03	2.00	43.46	23450.17	10931.87	109.81
1.09	40.70	34673.41	2.00	43.41	23762.92	10910.51	109.79
1.09	41.16	34968.11	2.00	43.37	24075.34	10892.78	109.77
1.09	41.62	35266.11	2.00	43.34	24387.49	10878.64	109.75
1.10	42.08	35567.43	2.00	43.31	24699.44	10868.01	109.74
1.10	42.54	35872.07	2.00	43.30	25011.24	10860.84	109.73
1.10	43.00	36180.01	2.00	43.29	25322.95	10857.07	109.72
1.10	43.48	36491.33	2.00	43.29	25634.63	10856.72	109.72
1.10	43.96	36806.09	2.00	43.29	25946.33	10859.78	109.73
1.11	44.43	37124.29	2.00	43.31	26258.10	10866.19	109.74
1.11	44.91	37445.92	2.00	43.33	26570.01	10875.92	109.75
1.11	45.39	37771.00	2.00	43.36	26882.11	10888.89	109.76
1.11	45.87	38099.51	2.00	43.40	27194.46	10905.06	109.78
1.11	46.34	38431.46	2.00	43.44	27507.09	10924.38	109.80
1.12	46.82	38766.85	2.00	43.50	27820.08	10946.79	109.83
1.12	47.30	39105.68	2.00	43.55	28133.46	10972.24	109.85
1.12	47.78	39447.95	2.00	43.62	28447.28	11000.68	109.89
1.12	48.25	39793.66	2.00	43.69	28761.61	11032.06	109.92
1.12	48.73	40142.80	2.00	43.77	29076.48	11066.33	109.96
1.13	49.21	40495.39	2.00	43.86	29391.94	11103.46	110.00
1.13	49.69	40851.41	2.00	43.95	29708.04	11143.38	110.05
1.13	50.16	41210.87	2.00	44.05	30024.83	11186.06	110.10
1.13	50.64	41573.77	2.00	44.15	30342.35	11231.44	110.15
1.13	51.12	41940.11	2.00	44.26	30660.64	11279.49	110.20
1.14	51.60	42309.89	2.00	44.38	30979.75	11330.15	110.26
1.14	52.07	42683.11	2.00	44.50	31299.73	11383.39	110.32
1.14	52.55	43059.77	2.00	44.63	31620.61	11439.17	110.38
1.14	53.03	43439.86	2.00	44.77	31942.44	11497.43	110.45
1.14	53.51	43823.40	2.00	44.91	32265.26	11558.15	110.51
1.15	53.99	44210.37	2.00	45.05	32589.10	11621.28	110.59
1.15	54.46	44600.78	2.00	45.20	32914.01	11686.78	110.66
1.15	54.94	44994.63	2.00	45.36	33240.03	11754.61	110.74
1.15	55.42	45391.92	2.00	45.52	33567.19	11824.74	110.81
1.15	55.90	45792.65	2.00	45.69	33895.54	11897.12	110.90
1.16	56.37	46196.82	2.00	45.86	34225.11	11971.72	110.98
1.16	56.85	46604.42	2.00	46.05	34555.99	12048.44	111.07
1.16	57.33	47015.46	2.00	46.26	34888.32	12127.15	111.15
1.16	57.81	47429.95	2.00	46.47	35222.15	12207.81	111.25
1.16	58.28	47847.87	2.00	46.69	35557.51	12290.37	111.34
1.17	58.76	48269.23	2.00	46.91	35894.45	12374.79	111.43
1.17	59.08	48693.44	2.00	47.13	36232.98	12460.48	111.53
1.17	59.23	49119.33	2.00	47.35	36573.12	12546.22	111.63
1.17	59.38	49546.32	2.00	47.58	36914.88	12631.45	111.72
1.17	59.53	49974.39	3.00	71.70	37344.26	12501.08	111.82
1.18	59.68	50403.55	3.00	70.52	37856.25	12547.31	111.48
1.18	59.83	50833.81	3.00	70.73	38364.75	12469.07	111.54
1.18	59.98	51265.15	3.00	70.42	38872.89	12392.27	111.45
1.18	60.14	51697.59	3.00	70.13	39378.88	12318.72	111.37
1.18	60.29	52131.12	3.00	69.86	39882.83	12248.29	111.29
1.19	60.44	52565.73	3.00	69.59	40384.85	12180.89	111.21
1.19	60.59	53001.44	3.00	69.34	40885.00	12116.45	111.14
1.19	60.74	53438.24	3.00	69.10	41383.38	12054.88	111.07
1.19	60.89	53876.14	3.00	68.87	41880.06	11996.09	111.01
1.19	61.05	54315.12	3.00	68.67	42375.20	11939.92	110.94
1.20	61.20	54755.19	3.00	68.49	42868.97	11886.23	110.88
1.20	61.35	55196.35	3.00	68.31	43361.44	11834.93	110.82
1.20	61.50	55638.61	3.00	68.14	43852.65	11785.96	110.77
1.20	61.65	56081.95	3.00	67.98	44342.69	11739.28	110.72
1.20	61.80	56526.39	3.00	67.83	44831.58	11694.82	110.67

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.21	61.95	56971.92	3.00	67.68	45319.40	11652.53	110.62
1.21	62.11	57418.53	3.00	67.54	45806.19	11612.36	110.57
1.21	62.26	57866.24	3.00	67.41	46292.00	11574.26	110.53
1.21	62.41	58315.05	3.00	67.28	46776.89	11538.17	110.49
1.21	62.56	58764.94	3.00	67.17	47260.90	11504.04	110.45
1.22	62.71	59215.92	3.00	67.05	47744.10	11471.83	110.42
1.22	62.86	59667.99	3.00	66.95	48226.51	11441.49	110.38
1.22	63.02	60121.15	3.00	66.85	48708.18	11412.98	110.35
1.22	63.17	60575.41	3.00	66.76	49189.17	11386.25	110.32
1.22	63.32	61030.75	3.00	66.67	49669.51	11361.25	110.29
1.23	63.47	61487.19	3.00	66.59	50149.26	11337.94	110.26
1.23	63.62	61944.72	3.00	66.52	50628.44	11316.29	110.24
1.23	63.77	62403.33	3.00	66.45	51107.10	11296.24	110.22
1.23	63.92	62863.05	3.00	66.38	51585.29	11277.77	110.20
1.23	63.84	63323.01	3.00	66.32	52063.02	11260.00	110.18
1.24	63.53	63781.58	3.00	66.26	52540.30	11241.29	110.16
1.24	63.23	64237.92	3.00	66.19	53017.10	11220.83	110.13
1.24	62.92	64692.02	3.00	66.11	53493.36	11198.67	110.11
1.24	62.60	65143.89	3.00	66.03	53969.05	11174.86	110.08
1.24	62.29	65593.53	3.00	65.94	54444.12	11149.42	110.05
1.25	61.98	66040.94	3.00	65.85	54918.54	11122.41	110.02
1.25	61.68	66486.12	2.00	43.83	55392.27	11146.46	109.99
1.25	61.37	66929.06	2.00	44.25	55709.35	11219.73	110.19
1.25	61.05	67369.78	2.00	44.40	56028.49	11341.29	110.27
1.25	60.74	67808.25	2.00	44.68	56349.19	11459.07	110.40
1.26	60.44	68244.50	2.00	44.94	56671.81	11572.71	110.53
1.26	60.13	68678.52	2.00	45.19	56996.28	11682.25	110.65
1.26	59.82	69110.30	2.00	45.44	57322.54	11787.77	110.77
1.26	59.50	69539.85	2.00	45.67	57650.51	11889.35	110.89
1.26	59.19	69967.18	2.00	45.89	57980.14	11987.04	111.00
1.27	58.89	70392.26	2.00	46.14	58311.46	12080.81	111.10

1.27	58.58	70815.12	2.00	46.37	58644.50	12170.63	111.20
1.27	58.26	71235.75	2.00	46.60	58979.20	12256.56	111.30
1.27	57.95	71654.13	2.00	46.81	59315.47	12338.67	111.39
1.27	57.64	72070.29	2.00	47.02	59653.26	12417.05	111.48
1.28	57.34	72484.22	2.00	47.21	59992.48	12491.75	111.57
1.28	57.02	72895.91	2.00	47.40	60333.07	12562.85	111.65
1.28	56.71	73305.38	2.00	47.57	60674.97	12630.42	111.72
1.28	56.40	73712.61	2.00	47.74	61018.11	12694.51	111.79
1.28	56.09	74117.61	3.00	71.85	61448.64	12539.65	111.86
1.29	55.79	74520.38	3.00	70.57	61961.34	12559.05	111.49
1.29	55.47	74920.91	3.00	70.66	62469.75	12451.17	111.52
1.29	55.16	75319.22	3.00	70.22	62976.93	12342.30	111.39
1.29	54.85	75715.29	3.00	69.80	63481.03	12234.28	111.27
1.29	54.55	76109.13	3.00	69.38	63982.08	12127.07	111.15
1.30	54.24	76500.75	3.00	68.96	64480.12	12020.63	111.03
1.30	53.92	76890.12	3.00	68.59	64975.30	11914.83	110.91
1.30	53.61	77277.26	3.00	68.22	65467.81	11809.46	110.80
1.30	53.30	77662.18	3.00	67.86	65957.70	11704.49	110.68
1.30	53.00	78044.85	3.00	67.50	66444.98	11599.89	110.56
1.31	52.69	78425.30	3.00	67.14	66929.66	11495.65	110.44
1.31	52.37	78803.52	3.00	66.78	67411.75	11391.78	110.33
1.31	52.06	79179.50	3.00	66.42	67891.25	11288.26	110.21
1.31	51.75	79553.25	3.00	66.06	68368.18	11185.08	110.09
1.31	51.45	79924.78	2.00	43.80	68842.55	11134.80	109.98
1.32	51.13	80294.06	2.00	44.05	69158.83	11135.24	110.10
1.32	50.82	80661.12	2.00	44.04	69475.98	11185.15	110.09
1.32	50.51	81025.94	2.00	44.15	69793.50	11232.46	110.15
1.32	50.21	81388.53	2.00	44.26	70111.78	11276.77	110.20
1.32	49.89	81748.90	2.00	44.35	70430.77	11318.14	110.24
1.33	49.58	82107.02	2.00	44.44	70750.43	11356.60	110.29
1.33	49.27	82462.91	2.00	44.52	71070.69	11392.24	110.33
1.33	48.96	82816.58	2.00	44.60	71391.53	11425.07	110.36
1.33	48.66	83168.01	2.00	44.67	71712.88	11455.14	110.40
1.33	48.34	83517.21	2.00	44.73	72034.72	11482.50	110.43
1.34	48.03	83864.18	2.00	44.79	72356.99	11507.21	110.46
1.34	47.72	84208.91	2.00	44.84	72679.65	11529.28	110.48
1.34	47.41	84551.42	2.00	44.88	73002.65	11548.79	110.50
1.34	47.11	84891.69	2.00	44.92	73325.95	11565.76	110.52
1.34	46.79	85229.74	2.00	44.96	73649.51	11580.24	110.54
1.35	46.48	85565.54	2.00	44.98	73973.30	11592.25	110.55
1.35	46.17	85899.12	2.00	45.01	74297.27	11601.86	110.56
1.35	45.87	86230.46	2.00	45.02	74621.38	11609.10	110.57
1.35	45.56	86559.57	2.00	45.03	74945.58	11614.00	110.58
1.35	45.24	86886.46	2.00	45.04	75269.85	11616.62	110.58
1.36	44.93	87211.10	2.00	45.04	75594.15	11616.97	110.58
1.36	44.62	87533.52	2.00	45.04	75918.43	11615.10	110.58
1.36	44.31	87853.71	2.00	45.03	76242.66	11611.06	110.57
1.36	44.00	88171.66	2.00	45.01	76566.81	11604.86	110.57
1.36	43.69	88487.38	2.00	44.99	76890.83	11596.56	110.56
1.37	43.38	88800.86	2.00	44.97	77214.71	11586.17	110.55
1.37	43.07	89112.12	2.00	44.94	77538.38	11573.74	110.53
1.37	42.76	89421.14	2.00	44.91	77861.85	11559.31	110.52
1.37	42.45	89727.93	2.00	44.87	78185.05	11542.89	110.50
1.37	42.14	90032.49	2.00	44.83	78507.96	11524.54	110.48
1.38	41.83	90334.82	2.00	44.78	78830.56	11504.28	110.45
1.38	41.52	90634.91	2.00	44.73	79152.80	11482.13	110.43
1.38	41.21	90932.78	2.00	44.67	79474.66	11458.14	110.40
1.38	40.90	91228.41	2.00	44.62	79796.10	11432.32	110.37
1.38	40.59	91521.81	2.00	44.55	80117.10	11404.72	110.34
1.39	40.28	91812.98	2.00	44.48	80437.63	11375.35	110.31
1.39	39.97	92101.91	2.00	44.41	80757.66	11344.27	110.27
1.39	39.66	92388.62	2.00	44.34	81077.16	11311.47	110.24
1.39	39.35	92673.09	2.00	44.26	81396.10	11277.00	110.20
1.39	39.04	92955.33	2.00	44.17	81714.45	11240.89	110.16
1.40	38.73	93235.34	2.00	44.09	82032.19	11203.16	110.11
1.40	38.42	93513.11	2.00	44.00	82349.29	11163.83	110.07
1.40	38.11	93788.66	2.00	43.90	82665.72	11122.95	110.02
1.40	37.80	94061.97	2.00	43.80	82981.46	11080.52	109.98
1.40	37.49	94333.05	2.00	43.70	83296.49	11036.57	109.93

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.41	37.18	94601.90	2.00	43.60	83610.77	10991.14	109.88
1.41	36.87	94868.52	2.00	43.49	83924.28	10944.24	109.82
1.41	36.56	95132.90	2.00	43.38	84237.01	10895.90	109.77
1.41	36.25	95395.05	2.00	43.26	84548.92	10846.14	109.71
1.41	35.94	95654.97	2.00	43.15	84859.99	10794.99	109.66
1.42	35.63	95912.66	2.00	43.02	85170.21	10742.46	109.60
1.42	35.32	96168.11	2.00	42.90	85479.53	10688.59	109.54
1.42	35.01	96421.34	2.00	42.77	85787.96	10633.39	109.47
1.42	34.70	96672.33	2.00	42.64	86095.44	10576.89	109.41
1.42	34.39	96921.09	2.00	42.51	86401.99	10519.10	109.34
1.43	34.08	97167.62	2.00	42.37	86707.57	10460.06	109.28
1.43	33.77	97411.91	2.00	42.23	87012.16	10399.77	109.21
1.43	33.46	97653.98	2.00	42.09	87315.74	10338.25	109.14
1.43	33.15	97893.81	2.00	41.95	87618.28	10275.53	109.07
1.43	32.92	98131.69	2.00	41.80	87919.78	10211.92	109.00
1.44	32.77	98368.18	2.00	41.65	88220.21	10147.98	108.93
1.44	32.62	98603.57	2.00	41.51	88519.59	10083.99	108.85
1.44	32.46	98837.86	2.00	41.36	88817.90	10019.97	108.78
1.44	32.31	99071.05	2.00	41.21	89115.15	9955.91	108.71
1.44	32.16	99303.12	2.00	41.06	89411.34	9891.80	108.64
1.45	32.00	99534.10	2.00	40.91	89706.46	9827.66	108.57
1.45	31.85	99763.98	2.00	40.77	90000.51	9763.48	108.49
1.45	31.70	99992.74	2.00	40.62	90293.49	9699.26	108.42
1.45	31.54	%100220.40	2.00	40.47	90585.41	9635.00	108.35
1.45	31.39	%100447.00	2.00	40.32	90876.27	9570.71	108.28
1.46	31.24	%100672.40	2.00	40.17	91166.06	9506.38	108.20
1.46	31.08	%100896.80	2.00	40.03	91454.78	9442.01	108.13

1.46	30.93	%101120.00	2.00	39.88	91742.42	9377.61	108.06
1.46	30.78	%101342.20	1.00	19.86	92029.00	9337.01	107.99
1.46	30.62	%101563.20	1.00	19.98	92172.44	9390.77	108.10
1.47	30.47	%101783.10	1.00	20.04	92316.53	9466.62	108.16
1.47	30.32	%102002.00	1.00	20.13	92461.14	9540.84	108.24
1.47	30.16	%102219.70	1.00	20.21	92606.36	9613.35	108.33
1.47	30.01	%102436.30	1.00	20.29	92752.18	9684.16	108.41
1.47	29.86	%102651.80	1.00	20.37	92898.57	9753.28	108.48
1.48	29.70	%102866.30	1.00	20.45	93045.53	9820.74	108.56
1.48	29.55	%103079.60	1.00	20.53	93193.05	9886.53	108.63
1.48	29.40	%103291.80	1.00	20.60	93341.10	9950.69	108.71
1.48	29.24	%103502.90	1.00	20.67	93489.68	10013.21	108.78
1.48	29.09	%103712.90	1.00	20.74	93638.78	10074.12	108.84
1.49	28.94	%103921.80	1.00	20.81	93788.37	10133.42	108.91
1.49	28.78	%104129.60	1.00	20.88	93938.44	10191.14	108.98
1.49	28.63	%104336.30	1.00	20.94	94089.00	10247.27	109.04
1.49	28.48	%104541.80	1.00	21.01	94240.01	10301.85	109.10
1.49	28.32	%104746.30	1.00	21.07	94391.47	10354.86	109.16
1.50	28.17	%104949.70	1.00	21.13	94543.36	10406.35	109.22
1.50	28.02	%105152.00	1.00	21.18	94695.68	10456.31	109.27

****

EXPLANATION AND SUMMARY OF RUN

1.0 THE #1 PUMP CYCLES ONLY TWICE ON THE RISING LEG OF THE 2 YR EXISTING HYDROGRAPH, RUNNING FROM .814 HRS. THRU THE DURATION OF THE OUTPUT SHOWN. SEE CYCLING RUN FOR A MORE DETAILED STUDY OF CYCLING OF THE #1 PUMP. CYCLING IS NOT A PROBLEM WITH THIS RUN

2.0 THE #2 PUMP RUNS FROM 1.084 HRS. UNTIL 1.466 HRS.

3.0 THE #3 PUMP CYCLES ONLY 2 TIMES, RUNNING FROM 1.178 HRS. TO 1.252 HRS. AND FROM 1.288 HRS. TO 1.318 HRS.

4.0 THE #4 PUMP DOES NOT RUN DURING THE 2 YR EXISTING STORM

5.0 THE PEAK OUTFLOW DURING THE 2 YR EXISTING STORM IS 71.70 CFS AT ELEVATION 111.82 (i.e. 1111.82). THE PEAK OUTFLOW IS ACTUALLY LARGER THAN THE PEAK INFLOW. THIS IS A RESULT OF THE PUMP ON-OFF SETTINGS WHICH WERE OPTIMIZED FOR THE 10 YEAR STORM AND FOR THE REDUCTION OF CYCLING DURING SMALL CONSTANT INFLOWS.

6.0 ONLY THE SIGNIFICANT PORTIONS OF THE OUTPUT WAS PRINTED, SEE FILE 2YREXSTPS.OUT ON CD FOR COMPLETE OUTPUT.

7.0 THE FALLING LEG OF THE HYDROGRAPH WAS NOT INCLUDED AS ITS ONLY INTEREST WOULD BE FOR CYCLING, AND THE CONSTANT INFLOW OF .5 OF THE OUTFLOW (USED IN THE CYCLING CHECK RUNS) WOULD CONTROL ANYWAY.

NOTE:

THIS PROGRAM DOES NOT ITERATE THE PUMP OUTFLOW RATES OR DURATIONS DURING THE ROUTING INTERVAL (i.e. 7.2 SEC.). THEREFORE THE WATER SURFACE ELEVATION IN THE WET WELL IS ONLY APPROXIMATE. THE MAXIMUM ERROR IN PUMPED FLOW CANNOT EXCEED ONE HALF THE PEAK FLOW FROM ONE PUMP FOR THE ROUTING INTERVAL OR IN THIS CASE:

((71.70/3)/2) * 7.2 = 86.04 CUBIC FEET
WHICH CORRESPONDS TO A WET WELL ELEVATION OF
ABOUT +/- .10 FEET (i.e. 5 FEET IN THE WET WELL
CORRESPONDS TO 4440 CUBIC FEET, THEREFORE 86
CUBIC FEET IS ABOUT .10 FEET)

PROGRAM INPUT DATA

SR-51 Drainage Assessment
Indian School Road to
Bethany Home Road

Pump Station Routing
Delta T = .002 Hrs.
FILE 10YHVPSN.OUT

FREQUENCY	10YR

~~Exist~~	HOV

INFLOW HYDROGRAPH

Hec1 Time	Time	Q (cfs)
2:00	0	4
2:30	.5	5
2:42	.7	13
3:00	1.0	46
3:06	1.1	98
3:10	1.167	118
3:14	1.233	106
3:26	1.433	43
3:44	1.733	11
4:00	2.0	5

STAGE - STORAGE/DISCHARGE RELATIONSHIP

Elev	Storage CuFt	Q cfs
97.5	0	12
106	7548	17.83
111	11988	22.95
113.5	14208	25.85
116	16428	28.07
120	19980	30.75
122	38056	32.09
124	141432	33.42
127	455796	34.96

1ST GEN SET ON 1106
2nd GEN SET ON 1108

PUMP	ON	OFF
1	1108	1106
2	1110	1108
3	1112	1110
4	1114	1112

PB

FILE CONVENTIONS: 10Y HV PSN.OUT

10YR FREQUENCY
WITH HOV LANES
HIGHLAND PUMP STATION
NEW ON-OFF SETTINGS

4-06-98

SR-51 Drainage Assessment
Indian School Rd. to Bethany Home Rd.

Pump Station Routing
Highland Pump Station

10 Year Inflow Hydrograph (W/HOV)
Using HEC1 Files pump2.dat & pump2.out

10YHVPSN.out, 03-25-98
PB Phx., BY R.JORDAN

****

INPUT DATA FOR PUMP STATION ROUTING

Delta Time (routing interval) = .002 Hrs.(.12 min or 7.2 sec)

Frequency 10 Year w/HOV &NEW pump on/off settings

INFLOW HYDROGRAPH

hec1 time	time	Q (cfs)
0200	0.0	4
0230	0.5	5
0242	0.6	13
0300	1.0	46
0306	1.1	98
0310	1.167	118
0314	1.233	106
0326	1.433	43
0344	1.733	11
0400	2.000	5

STAGE-STORAGE/DISCHARGE CURVE

Elev.	Storage CuFt	Outflow cfs
97.5	0	12
106	7548	17.83
111	11988	22.95
113.5	14208	25.85
116	16428	28.07
120	19980	30.75
122	38056	32.09
124	141432	33.42
127	455796	34.98

PUMP	ON	OFF
1	108	106
2	110	108
3	112	110
4	114	112

Gen Set	On
1	106
2	108

****

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.00	4.00	0.00	0.00	0.00	0.00	0.01	0.00
0.00	4.00	28.81	0.00	0.00	0.00	28.82	97.53
0.00	4.01	57.66	0.00	0.00	0.00	57.67	97.56
0.01	4.01	86.53	0.00	0.00	0.00	86.54	97.60
0.01	4.02	115.43	0.00	0.00	0.00	115.44	97.63
0.01	4.02	144.36	0.00	0.00	0.00	144.37	97.66
0.01	4.02	173.32	0.00	0.00	0.00	173.33	97.70
0.01	4.03	202.31	0.00	0.00	0.00	202.32	97.73
[illegible]	4.03	231.32	0.00	0.00	0.00	231.33	97.76
[illegible]	4.04	260.37	0.00	0.00	0.00	260.38	97.79
0.02	4.04	289.44	0.00	0.00	0.00	289.45	97.83
0.02	4.04	318.54	0.00	0.00	0.00	318.55	97.86
0.02	4.05	347.67	0.00	0.00	0.00	347.68	97.89
0.03	4.05	376.83	0.00	0.00	0.00	376.84	97.92
0.03	4.06	406.02	0.00	0.00	0.00	406.03	97.96
0.03	4.06	435.24	0.00	0.00	0.00	435.25	97.99
0.03	4.06	464.49	0.00	0.00	0.00	464.50	98.02
0.03	4.07	493.76	0.00	0.00	0.00	493.77	98.06
0.04	4.07	523.07	0.00	0.00	0.00	523.08	98.09
0.04	4.08	552.40	0.00	0.00	0.00	552.41	98.12
0.04	4.08	581.76	0.00	0.00	0.00	581.77	98.16
0.04	4.08	611.15	0.00	0.00	0.00	611.16	98.19
0.04	4.09	640.57	0.00	0.00	0.00	640.58	98.22
0.05	4.09	670.02	0.00	0.00	0.00	670.03	98.25
0.05	4.10	699.49	0.00	0.00	0.00	699.50	98.29
0.05	4.10	729.00	0.00	0.00	0.00	729.01	98.32
0.05	4.10	758.53	0.00	0.00	0.00	758.54	98.35
0.05	4.11	788.10	0.00	0.00	0.00	788.11	98.39
0.06	4.11	817.69	0.00	0.00	0.00	817.70	98.42
0.06	4.12	847.31	0.00	0.00	0.00	847.32	98.45
0.06	4.12	876.96	0.00	0.00	0.00	876.97	98.49
0.06	4.12	906.64	0.00	0.00	0.00	906.65	98.52
0.06	4.13	936.35	0.00	0.00	0.00	936.36	98.55
0.07	4.13	966.08	0.00	0.00	0.00	966.09	98.59
0.07	4.14	995.85	0.00	0.00	0.00	995.86	98.62
0.07	4.14	1025.64	0.00	0.00	0.00	1025.65	98.66
0.07	4.14	1055.46	0.00	0.00	0.00	1055.47	98.69
0.07	4.15	1085.31	0.00	0.00	0.00	1085.32	98.72
0.08	4.15	1115.19	0.00	0.00	0.00	1115.20	98.76
0.08	4.16	1145.10	0.00	0.00	0.00	1145.11	98.79
0.08	4.16	1175.04	0.00	0.00	0.00	1175.05	98.82
0.08	4.16	1205.01	0.00	0.00	0.00	1205.02	98.86
0.08	4.17	1235.00	0.00	0.00	0.00	1235.01	98.89
0.09	4.17	1265.03	0.00	0.00	0.00	1265.04	98.92
0.09	4.18	1295.08	0.00	0.00	0.00	1295.09	98.96
0.09	4.18	1325.16	0.00	0.00	0.00	1325.17	98.99
0.09	4.18	1355.27	0.00	0.00	0.00	1355.28	99.03
0.09	4.19	1385.41	0.00	0.00	0.00	1385.42	99.06
0.10	4.19	1415.58	0.00	0.00	0.00	1415.59	99.09
0.10	4.20	1445.77	0.00	0.00	0.00	1445.78	99.13
[illegible]	4.20	1476.00	0.00	0.00	0.00	1476.01	99.16
[illegible]	4.20	1506.25	0.00	0.00	0.00	1506.26	99.20
[illegible]	4.21	1536.54	0.00	0.00	0.00	1536.55	99.23
TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.11	4.21	1566.85	0.00	0.00	0.00	1566.86	99.26

0.49	4.98	7956.23	0.00	0.00	0.00	7956.24	106.46
0.49	4.99	7992.13	0.00	0.00	0.00	7992.14	106.50
0.50	4.99	8028.06	0.00	0.00	0.00	8028.07	106.54
0.50	5.00	8064.02	0.00	0.00	0.00	8064.03	106.58
0.50	5.00	8100.00	0.00	0.00	0.00	8100.01	106.62
0.50	5.08	8136.29	0.00	0.00	0.00	8136.30	106.66
0.50	5.16	8173.15	0.00	0.00	0.00	8173.16	106.70
0.51	5.24	8210.59	0.00	0.00	0.00	8210.60	106.75
0.51	5.32	8248.61	0.00	0.00	0.00	8248.62	106.79
0.51	5.40	8287.20	0.00	0.00	0.00	8287.21	106.83
0.51	5.48	8326.37	0.00	0.00	0.00	8326.38	106.88
0.51	5.56	8366.11	0.00	0.00	0.00	8366.12	106.92
0.52	5.64	8406.43	0.00	0.00	0.00	8406.44	106.97
0.52	5.72	8447.33	0.00	0.00	0.00	8447.34	107.01
0.52	5.80	8488.80	0.00	0.00	0.00	8488.81	107.06
0.52	5.88	8530.85	0.00	0.00	0.00	8530.86	107.11
0.52	5.96	8573.47	0.00	0.00	0.00	8573.48	107.15
0.53	6.04	8616.67	0.00	0.00	0.00	8616.68	107.20
0.53	6.12	8660.45	0.00	0.00	0.00	8660.46	107.25
0.53	6.20	8704.80	0.00	0.00	0.00	8704.81	107.30
0.53	6.28	8749.73	0.00	0.00	0.00	8749.74	107.35
0.53	6.36	8795.23	0.00	0.00	0.00	8795.24	107.40
0.54	6.44	8841.31	0.00	0.00	0.00	8841.32	107.46
0.54	6.52	8887.97	0.00	0.00	0.00	8887.98	107.51
0.54	6.60	8935.20	0.00	0.00	0.00	8935.21	107.56
0.54	6.68	8983.01	0.00	0.00	0.00	8983.02	107.62
0.54	6.76	9031.39	0.00	0.00	0.00	9031.40	107.67
0.55	6.84	9080.35	0.00	0.00	0.00	9080.36	107.73
0.55	6.92	9129.89	0.00	0.00	0.00	9129.90	107.78
0.55	7.00	9180.00	0.00	0.00	0.00	9180.01	107.84
0.55	7.08	9230.69	0.00	0.00	0.00	9230.70	107.89
0.55	7.16	9281.95	0.00	0.00	0.00	9281.96	107.95

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.56	7.24	9333.79	1.00	19.89	71.60	9226.40	108.01
0.56	7.32	9386.21	1.00	19.66	213.98	9172.23	107.79
0.56	7.40	9439.20	1.00	19.60	355.33	9083.88	107.73
0.56	7.48	9492.77	1.00	19.50	496.09	8996.69	107.63
0.56	7.56	9546.91	1.00	19.40	636.14	8910.79	107.53
0.57	7.64	9601.63	1.00	19.30	775.47	8826.17	107.44
0.57	7.72	9656.93	1.00	19.21	914.11	8742.82	107.35
0.57	7.80	9712.80	1.00	19.11	1052.07	8660.74	107.25
0.57	7.88	9769.25	1.00	19.02	1189.34	8579.91	107.16
0.57	7.96	9826.27	1.00	18.93	1325.96	8500.33	107.07
0.58	8.04	9883.87	1.00	18.84	1461.91	8421.97	106.98
0.58	8.12	9942.05	1.00	18.75	1597.22	8344.84	106.90
0.58	8.20	10000.80	1.00	18.66	1731.90	8268.92	106.81
0.58	8.28	10060.13	1.00	18.57	1865.94	8194.19	106.73
0.58	8.36	10120.03	1.00	18.49	1999.38	8120.67	106.64
0.59	8.44	10180.51	1.00	18.41	2132.21	8048.32	106.56
0.59	8.52	10241.57	1.00	18.32	2264.44	7977.14	106.48
0.59	8.60	10303.20	1.00	18.24	2396.08	7907.13	106.40
0.59	8.68	10365.41	1.00	18.16	2527.15	7838.27	106.33
0.59	8.76	10428.19	1.00	18.09	2657.66	7770.55	106.25
0.60	8.84	10491.55	1.00	18.01	2787.60	7703.96	106.18
0.60	8.92	10555.49	1.00	17.93	2917.00	7638.50	106.10
0.60	9.00	10620.00	1.00	17.86	3045.86	7574.15	106.03
0.60	9.08	10685.09	0.00	0.00	3174.24	7510.86	105.96
0.60	9.16	10750.75	0.00	0.00	3174.24	7576.53	106.03
0.61	9.24	10816.99	0.00	0.00	3174.24	7642.77	106.11
0.61	9.32	10883.81	0.00	0.00	3174.24	7709.58	106.18
0.61	9.40	10951.20	0.00	0.00	3174.24	7776.97	106.26
0.61	9.48	11019.17	0.00	0.00	3174.24	7844.94	106.33
0.61	9.56	11087.71	0.00	0.00	3174.24	7913.49	106.41
0.62	9.64	11156.83	0.00	0.00	3174.24	7982.61	106.49
0.62	9.72	11226.53	0.00	0.00	3174.24	8052.30	106.57
0.62	9.80	11296.80	0.00	0.00	3174.24	8122.58	106.65
0.62	9.88	11367.65	0.00	0.00	3174.24	8193.42	106.73
0.62	9.96	11439.07	0.00	0.00	3174.24	8264.85	106.81
0.63	10.04	11511.07	0.00	0.00	3174.24	8336.85	106.89
0.63	10.12	11583.65	0.00	0.00	3174.24	8409.42	106.97
0.63	10.20	11656.80	0.00	0.00	3174.24	8482.58	107.05
0.63	10.28	11730.53	0.00	0.00	3174.24	8556.30	107.14
0.63	10.36	11804.83	0.00	0.00	3174.24	8630.61	107.22
0.64	10.44	11879.71	0.00	0.00	3174.24	8705.49	107.30
0.64	10.52	11955.17	0.00	0.00	3174.24	8780.94	107.39
0.64	10.60	12031.20	0.00	0.00	3174.24	8856.97	107.47
0.64	10.68	12107.81	0.00	0.00	3174.24	8933.58	107.56
0.64	10.76	12184.99	0.00	0.00	3174.24	9010.77	107.65
0.65	10.84	12262.75	0.00	0.00	3174.24	9088.53	107.73
0.65	10.92	12341.09	0.00	0.00	3174.24	9166.86	107.82
0.65	11.00	12420.00	0.00	0.00	3174.24	9245.77	107.91
0.65	11.08	12499.49	1.00	19.88	3245.80	9217.91	108.00
0.65	11.16	12579.55	1.00	19.68	3388.23	9191.34	107.81
0.66	11.24	12660.19	1.00	19.65	3529.85	9130.36	107.78
0.66	11.32	12741.41	1.00	19.59	3671.11	9070.31	107.71
0.66	11.40	12823.20	1.00	19.52	3811.88	9011.34	107.65
0.66	11.48	12905.57	1.00	19.45	3952.16	8953.42	107.58
0.66	11.56	12988.51	1.00	19.38	4091.97	8896.56	107.52
0.67	11.64	13072.03	1.00	19.32	4231.30	8840.74	107.46
0.67	11.72	13156.13	1.00	19.26	4370.18	8785.96	107.39
0.67	11.80	13240.80	1.00	19.20	4508.61	8732.20	107.33
0.67	11.88	13326.05	1.00	19.13	4646.60	8679.46	107.27
0.67	11.96	13411.87	1.00	19.07	4784.15	8627.73	107.22
0.68	12.04	13498.27	1.00	19.02	4921.28	8577.00	107.16
0.68	12.12	13585.25	1.00	18.96	5057.99	8527.27	107.10
0.68	12.20	13672.80	1.00	18.90	5194.29	8478.52	107.05
0.68	12.28	13760.93	1.00	18.85	5330.19	8430.74	106.99

0.68	12.36	13849.63	1.00	18.79	5465.70	8383.94	106.94
0.69	12.44	13938.91	1.00	18.74	5600.83	8338.10	106.89
0.69	12.52	14028.77	1.00	18.69	5735.57	8293.21	106.84
0.69	12.60	14119.20	1.00	18.64	5869.95	8249.26	106.79
0.69	12.68	14210.21	1.00	18.59	6003.97	8206.25	106.74
0.69	12.76	14301.79	1.00	18.54	6137.63	8164.17	106.69
0.70	12.84	14393.95	1.00	18.49	6270.95	8123.01	106.65
0.70	12.92	14486.69	1.00	18.45	6403.93	8082.77	106.60
0.70	13.00	14580.00	1.00	18.40	6536.58	8043.43	106.56
0.70	13.22	14674.39	1.00	18.36	6668.91	8005.49	106.51
0.70	13.44	14770.37	1.00	18.32	6800.94	7969.44	106.47

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.71	13.66	14867.93	1.00	18.28	6932.67	7935.27	106.44
0.71	13.88	14967.07	1.00	18.24	7064.12	7902.96	106.40
0.71	14.10	15067.80	1.00	18.20	7195.32	7872.49	106.37
0.71	14.32	15170.11	1.00	18.17	7326.27	7843.86	106.33
0.71	14.54	15274.01	1.00	18.14	7456.98	7817.04	106.30
0.72	14.76	15379.49	1.00	18.11	7587.49	7792.01	106.27
0.72	14.98	15486.56	1.00	18.08	7717.79	7768.77	106.25
0.72	15.20	15595.20	1.00	18.06	7847.91	7747.30	106.22
0.72	15.42	15705.44	1.00	18.04	7977.86	7727.59	106.20
0.72	15.64	15817.25	1.00	18.02	8107.65	7709.62	106.18
0.73	15.86	15930.65	1.00	18.00	8237.29	7693.37	106.16
0.73	16.08	16045.64	1.00	17.98	8366.81	7678.83	106.15
0.73	16.30	16162.21	1.00	17.97	8496.22	7665.99	106.13
0.73	16.52	16280.36	1.00	17.95	8625.53	7654.84	106.12
0.73	16.74	16400.09	1.00	17.94	8754.75	7645.35	106.11
0.74	16.96	16521.41	1.00	17.93	8883.90	7637.53	106.10
0.74	17.18	16644.32	1.00	17.93	9012.99	7631.34	106.09
0.74	17.40	16768.81	1.00	17.92	9142.04	7626.78	106.09
0.74	17.62	16894.88	1.00	17.92	9271.05	7623.84	106.09
0.74	17.84	17022.54	1.00	17.92	9400.05	7622.49	106.08
0.75	18.06	17151.78	1.00	17.92	9529.04	7622.74	106.08
0.75	18.28	17282.60	1.00	17.92	9658.05	7624.56	106.09
0.75	18.50	17415.01	1.00	17.92	9787.07	7627.95	106.09
0.75	18.72	17549.00	1.00	17.93	9916.13	7632.88	106.10
0.75	18.94	17684.58	1.00	17.94	10045.23	7639.35	106.10
0.76	19.16	17821.74	1.00	17.94	10174.40	7647.35	106.11
0.76	19.38	17960.48	1.00	17.96	10303.64	7656.85	106.12
0.76	19.60	18100.81	1.00	17.97	10432.96	7667.86	106.13
0.76	19.82	18242.72	1.00	17.98	10562.38	7680.35	106.15
0.76	20.04	18386.22	1.00	18.00	10691.91	7694.32	106.16
0.77	20.26	18531.30	1.00	18.02	10821.56	7709.74	106.18
0.77	20.48	18677.96	1.00	18.04	10951.35	7726.62	106.20
0.77	20.70	18826.21	1.00	18.06	11081.28	7744.94	106.22
0.77	20.92	18976.04	1.00	18.08	11211.37	7764.68	106.24
0.77	21.14	19127.46	1.00	18.10	11341.63	7785.83	106.27
0.78	21.36	19280.46	1.00	18.13	11472.08	7808.39	106.29
0.78	21.58	19435.04	1.00	18.16	11602.71	7832.34	106.32
0.78	21.80	19591.21	1.00	18.19	11733.55	7857.67	106.35
0.78	22.02	19748.96	1.00	18.22	11864.61	7884.36	106.38
0.78	22.24	19908.30	1.00	18.25	11995.89	7912.42	106.41
0.79	22.46	20069.22	1.00	18.28	12127.41	7941.82	106.44
0.79	22.68	20231.72	1.00	18.32	12259.18	7972.55	106.48
0.79	22.90	20395.81	1.00	18.36	12391.21	8004.60	106.51
0.79	23.12	20561.48	1.00	18.39	12523.52	8037.97	106.55
0.79	23.34	20728.74	1.00	18.43	12656.10	8072.64	106.59
0.80	23.56	20897.58	1.00	18.48	12788.98	8108.60	106.63
0.80	23.78	21068.00	1.00	18.52	12922.17	8145.84	106.67
0.80	24.00	21240.01	1.00	18.56	13055.66	8184.36	106.72
0.80	24.22	21413.60	1.00	18.61	13189.49	8224.13	106.76
0.80	24.44	21588.78	1.00	18.66	13323.64	8265.14	106.81
0.81	24.66	21765.54	1.00	18.71	13458.15	8307.40	106.85
0.81	24.88	21943.88	1.00	18.76	13593.00	8350.89	106.90
0.81	25.10	22123.81	1.00	18.81	13728.23	8395.59	106.95
0.81	25.32	22305.32	1.00	18.86	13863.83	8441.50	107.01
0.81	25.54	22488.42	1.00	18.91	13999.82	8488.61	107.06
0.82	25.76	22673.10	1.00	18.97	14136.20	8536.90	107.11
0.82	25.98	22859.36	1.00	19.03	14272.99	8586.38	107.17
0.82	26.20	23047.21	1.00	19.09	14410.20	8637.02	107.23
0.82	26.42	23236.64	1.00	19.15	14547.83	8688.82	107.28
0.82	26.64	23427.65	1.00	19.21	14685.89	8741.77	107.34
0.83	26.86	23620.25	1.00	19.27	14824.40	8795.86	107.40
0.83	27.08	23814.44	1.00	19.33	14963.37	8851.08	107.47
0.83	27.30	24010.20	1.00	19.40	15102.79	8907.42	107.53
0.83	27.52	24207.56	1.00	19.46	15242.69	8964.87	107.60
0.83	27.74	24406.49	1.00	19.53	15383.07	9023.43	107.66
0.84	27.96	24607.01	1.00	19.60	15523.95	9083.07	107.73
0.84	28.18	24809.11	1.00	19.67	15665.32	9143.81	107.80
0.84	28.40	25012.80	1.00	19.74	15807.20	9205.61	107.87
0.84	28.62	25218.07	1.00	19.81	15949.59	9268.49	107.94
0.84	28.84	25424.93	1.00	19.89	16092.52	9332.42	108.01
0.85	29.06	25633.37	1.00	19.96	16235.98	9397.40	108.08
0.85	29.28	25843.39	1.00	20.04	16379.98	9463.42	108.16
0.85	29.50	26055.00	1.00	20.12	16524.54	9530.47	108.23
0.85	29.72	26268.19	1.00	20.19	16669.65	9598.55	108.31
0.85	29.94	26482.97	1.00	20.27	16815.34	9667.64	108.39

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.86	30.16	26699.33	1.00	20.35	16961.60	9737.73	108.47
0.86	30.38	26917.27	1.00	20.44	17108.45	9808.83	108.55
0.86	30.60	27136.80	1.00	20.52	17255.89	9880.91	108.63
0.86	30.82	27357.91	1.00	20.60	17403.94	9953.98	108.71
0.86	31.04	27580.60	1.00	20.69	17552.60	10028.02	108.79
0.87	31.26	27804.88	1.00	20.78	17701.87	10103.02	108.88

0.87	31.48	28030.75	1.00	20.86	17851.77	10178.98	108.96
0.87	31.70	28258.19	1.00	20.95	18002.31	10255.89	109.05
0.87	31.92	28487.22	1.00	21.04	18153.49	10333.74	109.14
0.87	32.14	28717.84	1.00	21.13	18305.32	10412.53	109.23
0.88	32.36	28950.04	1.00	21.22	18457.81	10492.24	109.32
0.88	32.58	29183.82	1.00	21.32	18610.96	10572.87	109.41
0.88	32.80	29419.19	1.00	21.41	18764.79	10654.41	109.50
0.88	33.02	29656.14	1.00	21.51	18919.30	10736.85	109.59
0.88	33.24	29894.68	1.00	21.60	19074.49	10820.19	109.68
0.89	33.46	30134.79	1.00	21.70	19230.38	10904.42	109.78
0.89	33.68	30376.50	1.00	21.80	19386.98	10989.53	109.88
0.89	33.90	30619.78	2.00	43.79	19623.11	10917.85	109.97
0.89	34.12	30864.66	2.00	43.27	19936.55	10928.12	109.72
0.89	34.34	31111.11	2.00	43.30	20248.21	10862.91	109.73
0.90	34.56	31359.15	2.00	43.16	20559.47	10799.69	109.66
0.90	34.78	31608.77	2.00	43.02	20869.69	10739.09	109.59
0.90	35.00	31859.98	2.00	42.88	21178.93	10681.06	109.53
0.90	35.22	32112.78	2.00	42.75	21487.23	10625.56	109.46
0.90	35.44	32367.15	2.00	42.63	21794.62	10572.54	109.40
0.91	35.66	32623.11	2.00	42.52	22101.16	10521.97	109.35
0.91	35.88	32880.66	2.00	42.40	22406.87	10473.80	109.29
0.91	36.10	33139.79	2.00	42.30	22711.81	10427.99	109.24
0.91	36.32	33400.50	2.00	42.20	23016.00	10384.51	109.19
0.91	36.54	33662.79	2.00	42.10	23319.49	10343.31	109.15
0.92	36.76	33926.67	2.00	42.01	23622.31	10304.37	109.10
0.92	36.98	34192.14	2.00	41.93	23924.51	10267.64	109.06
0.92	37.20	34459.18	2.00	41.85	24226.12	10233.08	109.02
0.92	37.42	34727.82	2.00	41.77	24527.17	10200.66	108.99
0.92	37.64	34998.03	2.00	41.71	24827.69	10170.35	108.95
0.93	37.86	35269.83	2.00	41.64	25127.74	10142.11	108.92
0.93	38.08	35543.22	2.00	41.58	25427.33	10115.90	108.89
0.93	38.30	35818.18	2.00	41.52	25726.50	10091.70	108.86
0.93	38.52	36094.74	2.00	41.47	26025.28	10069.46	108.84
0.93	38.74	36372.87	2.00	41.43	26323.72	10049.17	108.82
0.94	38.96	36652.59	2.00	41.38	26621.83	10030.77	108.79
0.94	39.18	36933.90	2.00	41.35	26919.65	10014.26	108.78
0.94	39.40	37216.78	2.00	41.31	27217.21	9999.58	108.76
0.94	39.62	37501.26	2.00	41.28	27514.55	9986.72	108.74
0.94	39.84	37787.31	2.00	41.26	27811.68	9975.64	108.73
0.95	40.06	38074.95	2.00	41.23	28108.65	9966.31	108.72
0.95	40.28	38364.17	2.00	41.22	28405.47	9958.71	108.71
0.95	40.50	38654.98	2.00	41.20	28702.19	9952.81	108.71
0.95	40.72	38947.37	2.00	41.19	28998.82	9948.57	108.70
0.95	40.94	39241.35	2.00	41.19	29295.39	9945.97	108.70
0.96	41.16	39536.91	2.00	41.19	29591.93	9944.99	108.70
0.96	41.38	39834.05	2.00	41.19	29888.47	9945.59	108.70
0.96	41.60	40132.78	2.00	41.19	30185.03	9947.76	108.70
0.96	41.82	40433.09	2.00	41.20	30481.64	9951.46	108.71
0.96	42.04	40734.99	2.00	41.21	30778.33	9956.67	108.71
0.97	42.26	41038.47	2.00	41.23	31075.11	9963.36	108.72
0.97	42.48	41343.53	2.00	41.25	31372.02	9971.52	108.73
0.97	42.70	41650.18	2.00	41.27	31669.08	9981.11	108.74
0.97	42.92	41958.41	2.00	41.29	31966.30	9992.12	108.75
0.97	43.14	42268.23	2.00	41.32	32263.72	10004.51	108.76
0.98	43.36	42579.62	2.00	41.35	32561.36	10018.27	108.78
0.98	43.58	42892.61	2.00	41.39	32859.24	10033.38	108.80
0.98	43.80	43207.17	2.00	41.43	33157.38	10049.81	108.82
0.98	44.02	43523.33	2.00	41.47	33455.80	10067.54	108.84
0.98	44.24	43841.06	2.00	41.51	33754.52	10086.55	108.86
0.99	44.46	44160.38	2.00	41.56	34053.58	10106.81	108.88
0.99	44.68	44481.28	2.00	41.61	34352.98	10128.31	108.90
0.99	44.90	44803.77	2.00	41.66	34652.74	10151.04	108.93
0.99	45.12	45127.84	2.00	41.72	34952.90	10174.95	108.96
0.99	45.34	45453.50	2.00	41.77	35253.46	10200.05	108.99
1.00	45.56	45780.74	2.00	41.83	35554.45	10226.30	109.01
1.00	45.78	46109.56	2.00	41.90	35855.88	10253.69	109.05
1.00	46.00	46439.97	2.00	41.96	36157.78	10282.19	109.08
1.00	47.04	46774.91	2.00	42.04	36460.18	10314.74	109.11
1.00	48.08	47117.35	2.00	42.13	36763.18	10354.17	109.16

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.01	49.12	47467.27	2.00	42.24	37066.90	10400.38	109.21
1.01	50.16	47824.67	2.00	42.36	37371.43	10453.25	109.27
1.01	51.20	48189.57	2.00	42.49	37676.90	10512.68	109.34
1.01	52.24	48561.95	2.00	42.65	37983.41	10578.55	109.41
1.01	53.28	48941.82	2.00	42.81	38291.06	10650.77	109.49
1.02	54.32	49329.18	2.00	42.99	38599.97	10729.23	109.58
1.02	55.36	49724.03	2.00	43.19	38910.22	10813.82	109.68
1.02	56.40	50126.37	2.00	43.40	39221.94	10904.44	109.78
1.02	57.44	50536.19	2.00	43.62	39535.20	11000.99	109.89
1.02	58.48	50953.50	2.00	43.86	39850.12	11103.39	110.00
1.03	59.52	51378.30	2.00	44.11	40166.79	11211.52	110.12
1.03	60.56	51810.59	2.00	44.37	40485.30	11325.30	110.25
1.03	61.60	52250.37	2.00	44.64	40805.74	11444.64	110.39
1.03	62.64	52697.64	2.00	44.93	41128.22	11569.43	110.53
1.03	63.68	53152.39	2.00	45.23	41452.80	11699.60	110.67
1.04	64.72	53614.63	2.00	45.54	41779.60	11835.04	110.83
1.04	65.76	54084.35	2.00	45.87	42108.68	11975.69	110.98
1.04	66.80	54561.57	2.00	46.24	42440.28	12121.30	111.15
1.04	67.84	55046.27	2.00	46.64	42774.65	12271.63	111.32
1.04	68.88	55538.46	2.00	47.04	43111.90	12426.58	111.49
1.05	69.92	56038.14	2.00	47.46	43452.10	12586.06	111.67
1.05	70.96	56545.31	3.00	71.83	43881.53	12534.49	111.86
1.05	72.00	57059.97	3.00	70.98	44395.65	12664.33	111.61
1.05	73.04	57582.11	3.00	71.53	44908.68	12673.44	111.77
1.05	74.08	58111.74	3.00	71.58	45423.87	12687.89	111.78
1.06	75.12	58648.87	3.00	71.66	45939.53	12709.34	111.81
1.06	76.16	59193.48	3.00	71.77	46455.90	12737.58	111.84

1.06	77.20	59745.57	3.00	71.91	46973.16	12772.42	111.88
1.06	78.24	60305.16	3.00	72.07	47491.49	12813.67	111.93
1.06	79.28	60872.23	3.00	72.26	48011.08	12861.16	111.98
1.07	80.32	61446.79	3.00	72.47	48532.08	12914.71	112.04
1.07	81.36	62028.83	3.00	72.70	49054.69	12974.16	112.11
1.07	82.40	62618.37	3.00	72.96	49579.05	13039.33	112.18
1.07	83.44	63215.39	3.00	73.23	50105.32	13110.08	112.26
1.07	84.48	63819.90	3.00	73.53	50633.67	13186.24	112.35
1.08	85.52	64431.90	3.00	73.85	51164.25	13267.67	112.44
1.08	86.56	65051.39	3.00	74.19	51697.19	13354.21	112.53
1.08	87.60	65678.37	3.00	74.55	52232.64	13445.74	112.64
1.08	88.64	66312.83	3.00	74.93	52770.75	13542.09	112.75
1.08	89.68	66954.78	3.00	75.32	53311.64	13643.15	112.86
1.09	90.72	67604.22	3.00	75.74	53855.44	13748.79	112.98
1.09	91.76	68261.15	3.00	76.17	54402.29	13858.87	113.10
1.09	92.80	68925.56	3.00	76.62	54952.31	13973.27	113.23
1.09	93.84	69597.47	3.00	77.08	55505.62	14091.87	113.37
1.09	94.88	70276.86	3.00	77.56	56062.33	14214.55	113.50
1.10	95.92	70963.75	3.00	77.94	56622.14	14341.62	113.65
1.10	96.96	71658.11	4.00	104.45	57278.74	14191.37	113.80
1.10	98.00	72359.97	4.00	103.05	58025.73	14334.25	113.42
1.10	98.60	73067.72	4.00	103.75	58770.19	14297.54	113.60
1.10	99.19	73779.77	4.00	103.60	59516.64	14263.14	113.56
1.11	99.79	74496.11	4.00	103.48	60262.14	14233.99	113.52
1.11	100.39	75216.76	4.00	103.38	61006.85	14209.92	113.50
1.11	100.99	75941.71	4.00	103.28	61750.84	14190.88	113.47
1.11	101.58	76670.95	4.00	103.21	62494.20	14176.76	113.46
1.11	102.18	77404.49	4.00	103.16	63237.12	14167.38	113.45
1.12	102.78	78142.32	4.00	103.13	63979.77	14162.56	113.44
1.12	103.37	78884.46	4.00	103.13	64722.33	14162.15	113.44
1.12	103.97	79630.90	4.00	103.15	65464.94	14165.97	113.45
1.12	104.57	80381.63	4.00	103.19	66207.78	14173.86	113.46
1.12	105.16	81136.66	4.00	103.25	66951.00	14185.68	113.47
1.13	105.76	81896.00	4.00	103.34	67694.72	14201.28	113.49
1.13	106.36	82659.63	4.00	103.43	68439.08	14220.56	113.51
1.13	106.96	83427.56	4.00	103.52	69184.10	14243.47	113.53
1.13	107.55	84199.78	4.00	103.63	69929.82	14269.97	113.56
1.13	108.15	84976.31	4.00	103.75	70676.36	14299.96	113.60
1.14	108.75	85757.12	4.00	103.88	71423.81	14333.32	113.64
1.14	109.34	86542.25	4.00	104.03	72172.28	14369.99	113.68
1.14	109.94	87331.68	4.00	104.19	72921.84	14409.85	113.72
1.14	110.54	88125.39	4.00	104.36	73672.60	14452.81	113.77
1.14	111.13	88923.41	4.00	104.54	74424.63	14498.78	113.82
1.15	111.73	89725.72	4.00	104.74	75178.04	14547.69	113.88
1.15	112.33	90532.34	4.00	104.94	75932.90	14599.46	113.93
1.15	112.93	91343.25	4.00	105.16	76689.28	14653.99	114.00
1.15	113.52	92158.46	4.00	105.39	77447.27	14711.21	114.06
1.15	114.12	92977.97	4.00	105.63	78206.95	14771.03	114.13

TIME S	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.16	114.72	93801.78	4.00	105.88	78968.38	14833.41	114.20
1.16	115.31	94629.89	4.00	106.14	79731.65	14898.25	114.27
1.16	115.91	95462.30	4.00	106.41	80496.82	14965.49	114.35
1.16	116.51	96299.00	4.00	106.69	81263.96	15035.05	114.43
1.16	117.10	97140.00	4.00	106.97	82033.13	15106.88	114.51
1.17	117.70	97985.31	4.00	107.27	82804.41	15180.91	114.59
1.17	117.82	98833.18	4.00	107.57	83577.82	15255.36	114.67
1.17	117.45	99680.16	4.00	107.85	84353.34	15326.83	114.75
1.17	117.09	%100524.50	4.00	108.12	85130.84	15393.69	114.83
1.17	116.73	%101366.30	4.00	108.37	85910.21	15456.07	114.90
1.18	116.36	%102205.40	4.00	108.60	86691.31	15514.09	114.96
1.18	116.00	%103041.90	4.00	108.82	87474.02	15567.89	115.03
1.18	115.64	%103875.80	4.00	109.02	88258.22	15617.58	115.08
1.18	115.27	%104707.10	4.00	109.20	89043.79	15663.28	115.13
1.18	114.91	%105535.70	4.00	109.37	89830.62	15705.11	115.18
1.19	114.55	%106361.80	4.00	109.52	90618.60	15743.17	115.22
1.19	114.18	%107185.20	4.00	109.66	91407.62	15777.57	115.26
1.19	113.82	%108006.00	4.00	109.78	92197.59	15808.40	115.30
1.19	113.45	%108824.20	4.00	109.89	92988.39	15835.78	115.33
1.19	113.09	%109639.70	4.00	109.98	93779.93	15859.80	115.35
1.20	112.73	%110452.70	4.00	110.07	94572.12	15880.56	115.38
1.20	112.36	%111263.00	4.00	110.14	95364.86	15898.14	115.40
1.20	112.00	%112070.70	4.00	110.20	96158.06	15912.65	115.41
1.20	111.64	%112875.80	4.00	110.24	96951.64	15924.17	115.43
1.20	111.27	%113678.30	4.00	110.28	97745.51	15932.78	115.44
1.21	110.91	%114478.10	4.00	110.30	98539.58	15938.56	115.44
1.21	110.55	%115275.40	4.00	110.31	99333.78	15941.59	115.45
1.21	110.18	%116070.00	4.00	110.31	%100128.00	15941.96	115.45
1.21	109.82	%116862.00	4.00	110.30	%100922.30	15939.74	115.44
1.21	109.45	%117651.40	4.00	110.29	%101716.40	15935.00	115.44
1.22	109.09	%118438.10	4.00	110.26	%102510.30	15927.82	115.43
1.22	108.73	%119222.30	4.00	110.22	%103304.00	15918.25	115.42
1.22	108.36	%120003.80	4.00	110.17	%104097.40	15906.38	115.41
1.22	108.00	%120782.70	4.00	110.11	%104890.50	15892.26	115.39
1.22	107.64	%121559.00	4.00	110.05	%105683.00	15875.96	115.37
1.23	107.27	%122332.70	4.00	109.98	%106475.10	15857.55	115.35
1.23	106.91	%123103.70	4.00	109.89	%107266.70	15837.07	115.33
1.23	106.55	%123872.20	4.00	109.80	%108057.60	15814.60	115.30
1.23	106.18	%124638.00	4.00	109.71	%108847.80	15790.19	115.28
1.23	105.68	%125400.70	4.00	109.60	%109637.30	15763.41	115.25
1.24	105.05	%126159.40	4.00	109.48	%110426.00	15733.39	115.21
1.24	104.43	%126913.50	4.00	109.34	%111213.70	15699.75	115.17
1.24	103.80	%127663.10	4.00	109.20	%112000.50	15662.60	115.13
1.24	103.16	%128408.10	4.00	109.03	%112786.10	15622.03	115.09
1.24	102.53	%129148.70	4.00	108.86	%113570.50	15578.15	115.04
1.25	101.91	%129884.60	4.00	108.67	%114353.60	15531.03	114.98
1.25	101.28	%130616.10	4.00	108.47	%115135.30	15480.78	114.93
1.25	100.65	%131343.00	4.00	108.26	%115915.50	15427.49	114.87

1.25	100.01	%132065.40	4.00	108.03	%116694.20	15371.24	114.80
1.25	99.38	%132783.20	4.00	107.79	%117471.10	15312.11	114.74
1.26	98.76	%133496.50	4.00	107.55	%118246.40	15250.18	114.67
1.26	98.13	%134205.30	4.00	107.29	%119019.80	15185.54	114.59
1.26	97.50	%134909.50	4.00	107.02	%119791.30	15118.27	114.52
1.26	96.86	%135609.20	4.00	106.74	%120560.80	15048.44	114.44
1.26	96.23	%136304.40	4.00	106.45	%121328.30	14976.11	114.36
1.27	95.60	%136995.00	4.00	106.15	%122093.60	14901.37	114.27
1.27	94.98	%137681.10	4.00	105.84	%122856.80	14824.28	114.19
1.27	94.34	%138362.60	4.00	105.53	%123617.80	14744.90	114.10
1.27	93.71	%139039.70	4.00	105.20	%124376.40	14663.31	114.01
1.27	93.08	%139712.10	4.00	104.86	%125132.60	14579.57	113.91
1.28	92.46	%140380.10	4.00	104.52	%125886.40	14493.71	113.82
1.28	91.82	%141043.50	4.00	104.17	%126637.70	14405.83	113.72
1.28	91.19	%141702.40	4.00	103.81	%127386.40	14315.98	113.62
1.28	90.56	%142356.70	4.00	103.44	%128132.50	14224.19	113.51
1.28	89.94	%143006.50	4.00	102.97	%128875.60	14130.91	113.41
1.29	89.31	%143651.80	4.00	102.47	%129615.20	14036.59	113.30
1.29	88.67	%144292.50	4.00	101.97	%130351.20	13941.32	113.19
1.29	88.04	%144928.70	4.00	101.47	%131083.60	13845.12	113.08
1.29	87.41	%145560.30	4.00	100.96	%131812.30	13748.03	112.97
1.29	86.78	%146187.50	4.00	100.45	%132537.40	13650.07	112.86
1.30	86.16	%146810.00	4.00	99.93	%133258.80	13551.28	112.75
1.30	85.52	%147428.10	4.00	99.41	%133976.40	13451.68	112.64
1.30	84.89	%148041.60	4.00	98.89	%134690.30	13351.31	112.53
1.30	84.26	%148650.60	4.00	98.36	%135400.40	13250.18	112.41
1.30	83.63	%149255.00	4.00	97.83	%136106.70	13148.34	112.30

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.31	83.01	%149854.90	4.00	97.29	%136809.10	13045.81	112.18
1.31	82.37	%150450.30	4.00	96.75	%137507.70	12942.62	112.07
1.31	81.74	%151041.10	3.00	72.16	%138202.40	12925.37	111.95
1.31	81.11	%151627.40	3.00	72.76	%138724.10	12903.35	112.12
1.31	80.49	%152209.20	3.00	72.65	%139247.50	12961.65	112.09
1.32	79.85	%152786.40	3.00	72.86	%139771.40	13015.04	112.15
1.32	79.22	%153359.10	3.00	73.05	%140296.60	13062.46	112.21
1.32	78.59	%153927.20	3.00	73.21	%140823.10	13104.10	112.25
1.32	77.96	%154490.90	3.00	73.35	%141350.80	13140.10	112.29
1.32	77.33	%155049.90	3.00	73.47	%141879.30	13170.64	112.33
1.33	76.70	%155604.50	3.00	73.57	%142408.60	13195.84	112.36
1.33	76.07	%156154.50	3.00	73.65	%142938.60	13215.87	112.38
1.33	75.44	%156700.00	3.00	73.71	%143469.10	13230.87	112.40
1.33	74.81	%157240.90	3.00	73.75	%143999.90	13240.98	112.41
1.33	74.18	%157777.30	3.00	73.77	%144531.00	13246.34	112.41
1.34	73.55	%158309.20	3.00	73.77	%145062.10	13247.07	112.41
1.34	72.92	%158836.50	3.00	73.75	%145593.20	13243.31	112.41
1.34	72.29	%159359.30	3.00	73.72	%146124.10	13235.18	112.40
1.34	71.66	%159877.50	3.00	73.67	%146654.70	13222.81	112.39
1.34	71.03	%160391.30	3.00	73.61	%147185.00	13206.31	112.37
1.35	70.40	%160900.40	3.00	73.53	%147714.70	13185.79	112.34
1.35	69.77	%161405.10	3.00	73.43	%148243.70	13161.37	112.32
1.35	69.14	%161905.20	3.00	73.32	%148772.10	13133.15	112.29
1.35	68.52	%162400.80	3.00	73.20	%149299.50	13101.24	112.25
1.35	67.88	%162891.80	3.00	73.06	%149826.10	13065.76	112.21
1.36	67.25	%163378.30	3.00	72.91	%150351.50	13026.79	112.17
1.36	66.62	%163860.30	3.00	72.74	%150875.90	12984.43	112.12
1.36	65.99	%164337.70	3.00	72.56	%151399.00	12938.78	112.07
1.36	65.36	%164810.60	3.00	72.37	%151920.70	12889.92	112.01
1.36	64.73	%165279.00	3.00	72.17	%152441.00	12837.95	111.95
1.37	64.10	%165742.80	3.00	71.95	%152959.90	12782.95	111.89
1.37	63.47	%166202.10	3.00	71.72	%153477.10	12724.99	111.83
1.37	62.84	%166656.80	3.00	71.49	%153992.70	12664.18	111.76
1.37	62.21	%167107.10	3.00	71.24	%154506.50	12600.60	111.69
1.37	61.58	%167552.70	3.00	70.98	%155018.40	12534.32	111.61
1.38	60.95	%167993.90	3.00	70.71	%155528.50	12465.40	111.53
1.38	60.32	%168430.50	3.00	70.43	%156036.60	12393.93	111.45
1.38	59.69	%168862.60	3.00	70.14	%156542.60	12319.98	111.37
1.38	59.06	%169290.10	3.00	69.84	%157046.50	12243.60	111.28
1.38	58.43	%169713.10	3.00	69.53	%157548.20	12164.89	111.20
1.39	57.80	%170131.60	3.00	69.21	%158047.70	12083.89	111.10
1.39	57.17	%170545.50	3.00	68.89	%158544.90	12000.65	111.01
1.39	56.54	%170954.90	3.00	68.59	%159039.80	11915.14	110.91
1.39	55.91	%171359.70	3.00	68.28	%159532.50	11827.26	110.82
1.39	55.28	%171760.10	3.00	67.97	%160023.00	11737.06	110.71
1.40	54.65	%172155.80	3.00	67.65	%160511.30	11644.59	110.61
1.40	54.02	%172547.10	3.00	67.32	%160997.20	11549.93	110.50
1.40	53.39	%172933.80	3.00	66.99	%161480.70	11453.12	110.39
1.40	52.76	%173316.00	3.00	66.65	%161961.80	11354.20	110.28
1.40	52.13	%173693.60	3.00	66.30	%162440.40	11253.23	110.17
1.41	51.50	%174066.70	3.00	65.94	%162916.50	11150.28	110.05
1.41	50.87	%174435.30	2.00	43.72	%163389.90	11097.83	109.94
1.41	50.24	%174799.30	2.00	43.96	%163705.60	11093.78	110.05
1.41	49.61	%175158.80	2.00	43.93	%164022.00	11136.87	110.04
1.41	48.98	%175513.80	2.00	44.02	%164338.60	11175.18	110.08
1.42	48.35	%175864.20	2.00	44.10	%164655.80	11208.37	110.12
1.42	47.72	%176210.10	2.00	44.16	%164973.60	11236.51	110.15
1.42	47.09	%176551.40	2.00	44.22	%165291.80	11259.70	110.18
1.42	46.46	%176888.30	2.00	44.26	%165610.30	11277.99	110.20
1.42	45.83	%177220.50	2.00	44.29	%165929.10	11291.49	110.21
1.43	45.20	%177548.30	2.00	44.31	%166248.00	11300.28	110.22
1.43	44.57	%177871.50	2.00	44.32	%166567.10	11304.40	110.23
1.43	43.94	%178190.20	2.00	44.32	%166886.20	11303.96	110.23
1.43	43.31	%178504.30	2.00	44.31	%167205.30	11299.04	110.22
1.43	42.89	%178814.60	2.00	44.29	%167524.20	11290.43	110.21
1.44	42.68	%179122.70	2.00	44.26	%167843.00	11279.71	110.20
1.44	42.47	%179429.20	2.00	44.24	%168161.60	11267.65	110.19
1.44	42.25	%179734.20	2.00	44.20	%168480.00	11254.24	110.17
1.44	42.04	%180037.70	2.00	44.17	%168798.10	11239.54	110.16

1.44	41.83	%180339.60	2.00	44.13	%169116.00	11223.57	110.14
1.45	41.61	%180640.00	2.00	44.09	%169433.70	11206.34	110.12
1.45	41.40	%180938.80	2.00	44.05	%169751.00	11187.85	110.10
1.45	41.19	%181236.10	2.00	44.01	%170068.00	11168.15	110.08
1.45	40.97	%181531.90	2.00	43.96	%170384.70	11147.26	110.05
1.45	40.76	%181826.20	2.00	43.91	%170701.00	11125.18	110.03

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.46	40.55	%182118.90	2.00	43.85	%171016.90	11101.95	110.00
1.46	40.33	%182410.00	2.00	43.80	%171332.50	11077.57	109.97
1.46	40.12	%182699.70	2.00	43.74	%171647.60	11052.07	109.94
1.46	39.91	%182987.80	2.00	43.68	%171962.30	11025.46	109.91
1.46	39.69	%183274.30	2.00	43.61	%172276.60	10997.78	109.88
1.47	39.48	%183559.40	2.00	43.55	%172590.30	10969.03	109.85
1.47	39.27	%183842.80	2.00	43.48	%172903.60	10939.21	109.82
1.47	39.05	%184124.80	2.00	43.41	%173216.40	10908.39	109.78
1.47	38.84	%184405.20	2.00	43.33	%173528.70	10876.54	109.75
1.47	38.63	%184684.10	2.00	43.26	%173840.40	10843.68	109.71
1.48	38.41	%184961.40	2.00	43.18	%174151.60	10809.85	109.67
1.48	38.20	%185237.20	2.00	43.10	%174462.20	10775.06	109.63
1.48	37.99	%185511.50	2.00	43.02	%174772.20	10739.31	109.59
1.48	37.77	%185784.20	2.00	42.93	%175081.60	10702.62	109.55
1.48	37.56	%186055.40	2.00	42.85	%175390.40	10665.03	109.51
1.49	37.35	%186325.10	2.00	42.76	%175698.60	10626.51	109.47
1.49	37.13	%186593.20	2.00	42.67	%176006.10	10587.10	109.42
1.49	36.92	%186859.80	2.00	42.57	%176313.00	10546.84	109.38
1.49	36.71	%187124.90	2.00	42.48	%176619.20	10505.71	109.33
1.49	36.49	%187388.40	2.00	42.38	%176924.70	10463.73	109.28
1.50	36.28	%187650.40	2.00	42.28	%177229.50	10420.92	109.23
1.50	36.07	%187910.80	2.00	42.18	%177533.60	10377.29	109.18
1.50	35.85	%188169.70	2.00	42.08	%177836.90	10332.85	109.13
1.50	35.64	%188427.10	2.00	41.98	%178139.50	10287.64	109.08
1.50	35.43	%188683.00	2.00	41.87	%178441.30	10241.64	109.03
1.51	35.21	%188937.30	2.00	41.76	%178742.40	10194.85	108.98
1.51	35.00	%189190.00	2.00	41.65	%179042.70	10147.34	108.93
1.51	34.79	%189441.30	2.00	41.54	%179342.20	10099.07	108.87
1.51	34.57	%189691.00	2.00	41.43	%179640.90	10050.09	108.82
1.51	34.36	%189939.10	2.00	41.31	%179938.70	10000.39	108.76
1.52	34.15	%190185.70	2.00	41.20	%180235.80	9949.98	108.70
1.52	33.93	%190430.80	2.00	41.08	%180532.00	9898.89	108.65
1.52	33.72	%190674.40	2.00	40.96	%180827.30	9847.09	108.59
1.52	33.51	%190916.40	2.00	40.84	%181121.80	9794.64	108.53
1.52	33.29	%191156.90	2.00	40.72	%181415.40	9741.53	108.47
1.53	33.08	%191395.80	2.00	40.59	%181708.10	9687.76	108.41
1.53	32.87	%191633.20	2.00	40.47	%181999.90	9633.35	108.35
1.53	32.65	%191869.10	2.00	40.34	%182290.80	9578.32	108.29
1.53	32.44	%192103.40	2.00	40.21	%182580.80	9522.68	108.22
1.53	32.23	%192336.20	2.00	40.08	%182869.80	9466.42	108.16
[illegible]4	32.01	%192567.50	2.00	39.95	%183157.90	9409.57	108.10
[illegible]4	31.80	%192797.20	2.00	39.82	%183445.10	9352.14	108.03
1.54	31.59	%193025.40	1.00	19.84	%183731.30	9317.93	107.97
1.54	31.37	%193252.10	1.00	19.97	%183874.60	9377.46	108.09
1.54	31.16	%193477.20	1.00	20.03	%184018.60	9458.59	108.15
1.55	30.95	%193700.80	1.00	20.12	%184163.20	9537.60	108.24
1.55	30.73	%193922.80	1.00	20.21	%184308.40	9614.43	108.33
1.55	30.52	%194143.40	1.00	20.30	%184454.30	9689.10	108.41
1.55	30.31	%194362.30	1.00	20.38	%184600.70	9761.62	108.49
1.55	30.09	%194579.80	1.00	20.46	%184747.80	9832.01	108.57
1.56	29.88	%194795.70	1.00	20.54	%184895.40	9900.29	108.65
1.56	29.67	%195010.00	1.00	20.62	%185043.60	9966.49	108.72
1.56	29.45	%195222.90	1.00	20.69	%185192.30	10030.60	108.80
1.56	29.24	%195434.20	1.00	20.76	%185341.50	10092.65	108.87
1.56	29.03	%195643.90	1.00	20.83	%185491.30	10152.67	108.93
1.57	28.81	%195852.10	1.00	20.90	%185641.50	10210.65	109.00
1.57	28.60	%196058.80	1.00	20.96	%185792.20	10266.62	109.06
1.57	28.39	%196264.00	1.00	21.03	%185943.40	10320.60	109.12
1.57	28.17	%196467.60	1.00	21.09	%186095.00	10372.60	109.18
1.57	27.96	%196669.70	1.00	21.14	%186247.00	10422.65	109.24
1.58	27.75	%196870.20	1.00	21.20	%186399.50	10470.76	109.29
1.58	27.53	%197069.20	1.00	21.25	%186552.30	10516.95	109.34
1.58	27.32	%197266.70	1.00	21.30	%186705.50	10561.21	109.39
1.58	27.11	%197462.60	1.00	21.35	%186859.10	10603.59	109.44
1.58	26.89	%197657.10	1.00	21.40	%187013.00	10644.09	109.49
1.59	26.68	%197849.90	1.00	21.44	%187167.20	10682.71	109.53
1.59	26.47	%198041.20	1.00	21.49	%187321.80	10719.49	109.57
1.59	26.25	%198231.00	1.00	21.53	%187476.60	10754.45	109.61
1.59	26.04	%198419.30	1.00	21.57	%187631.70	10787.56	109.65
1.59	25.83	%198606.00	1.00	21.60	%187787.10	10818.87	109.68

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.60	25.61	%198791.20	1.00	21.64	%187942.80	10848.40	109.72
1.60	25.40	%198974.80	1.00	21.67	%188098.70	10876.15	109.75
1.60	25.19	%199156.90	1.00	21.70	%188254.80	10902.15	109.78
1.60	24.97	%199337.50	1.00	21.73	%188411.10	10926.40	109.80
1.60	24.76	%199516.60	1.00	21.75	%188567.60	10948.93	109.83
1.61	24.55	%199694.10	1.00	21.78	%188724.40	10969.73	109.85
1.61	24.33	%199870.00	1.00	21.80	%188881.20	10988.84	109.87
1.61	24.12	%200044.50	1.00	21.82	%189038.20	11006.26	109.89
[illegible]61	23.91	%200217.40	2.00	43.67	%189274.00	10864.78	109.91
[illegible]61	23.69	%200388.70	2.00	42.98	%189585.90	10802.79	109.58
[illegible].62	23.48	%200558.60	2.00	42.84	%189894.90	10663.65	109.51
1.62	23.27	%200726.80	2.00	42.52	%190202.20	10524.62	109.35
1.62	23.05	%200893.60	2.00	42.20	%190507.20	10386.35	109.19
1.62	22.84	%201058.80	2.00	41.89	%190810.00	10248.85	109.04
1.62	22.63	%201222.50	2.00	41.57	%191110.40	10112.10	108.89
1.63	22.41	%201384.60	2.00	41.26	%191408.60	9976.06	108.73

1.63	22.20	%201545.20	2.00	40.94	%191704.50	9840.74	108.58
1.63	21.99	%201704.30	2.00	40.63	%191998.20	9706.14	108.43
1.63	21.77	%201861.90	2.00	40.33	%192289.60	9572.21	108.28
1.63	21.56	%202017.90	2.00	40.02	%192578.90	9438.98	108.13
1.64	21.35	%202172.30	1.00	19.86	%192865.90	9330.24	107.98
1.64	21.13	%202325.20	1.00	19.90	%193009.00	9316.23	108.02
1.64	20.92	%202476.60	1.00	19.88	%193152.20	9324.43	108.00
1.64	20.71	%202626.50	1.00	19.89	%193295.40	9331.14	108.01
1.64	20.49	%202774.80	1.00	19.89	%193438.60	9336.24	108.01
1.65	20.28	%202921.60	1.00	19.90	%193581.80	9339.79	108.02
1.65	20.07	%203066.80	1.00	19.90	%193725.10	9341.78	108.02
1.65	19.85	%203210.60	1.00	19.90	%193868.30	9342.23	108.02
1.65	19.64	%203352.70	1.00	19.90	%194011.60	9341.14	108.02
1.65	19.43	%203493.40	1.00	19.89	%194154.90	9338.53	108.02
1.66	19.21	%203632.50	1.00	19.89	%194298.10	9334.42	108.01
1.66	19.00	%203770.00	1.00	19.88	%194441.30	9328.79	108.01
1.66	18.79	%203906.10	1.00	19.88	%194584.40	9321.70	108.00
1.66	18.57	%204040.60	1.00	19.87	%194727.40	9313.14	107.99
1.66	18.36	%204173.50	1.00	19.85	%194870.40	9303.10	107.98
1.67	18.15	%204304.90	1.00	19.84	%195013.30	9291.64	107.96
1.67	17.93	%204434.80	1.00	19.83	%195156.10	9278.73	107.95
1.67	17.72	%204563.20	1.00	19.81	%195298.80	9264.40	107.93
1.67	17.51	%204690.00	1.00	19.79	%195441.40	9248.65	107.91
1.67	17.29	%204815.30	1.00	19.77	%195583.80	9231.51	107.90
1.68	17.08	%204939.00	1.00	19.75	%195726.10	9212.98	107.87
1.68	16.87	%205061.20	1.00	19.73	%195868.20	9193.07	107.85
1.68	16.65	%205181.90	1.00	19.70	%196010.10	9171.81	107.83
1.68	16.44	%205301.10	1.00	19.68	%196151.90	9149.18	107.80
1.68	16.23	%205418.60	1.00	19.65	%196293.40	9125.21	107.78
1.69	16.01	%205534.70	1.00	19.62	%196434.80	9099.92	107.75
1.69	15.80	%205649.20	1.00	19.59	%196575.90	9073.31	107.72
1.69	15.59	%205762.20	1.00	19.56	%196716.90	9045.37	107.69
1.69	15.37	%205873.70	1.00	19.52	%196857.60	9016.14	107.65
1.69	15.16	%205983.60	1.00	19.49	%196998.00	8985.62	107.62
1.70	14.95	%206092.00	1.00	19.45	%197138.20	8953.84	107.58
1.70	14.73	%206198.80	1.00	19.41	%197278.10	8920.78	107.55
1.70	14.52	%206304.10	1.00	19.37	%197417.70	8886.46	107.51
1.70	14.31	%206407.90	1.00	19.33	%197557.00	8850.90	107.47
1.70	14.09	%206510.20	1.00	19.29	%197696.10	8814.10	107.43
1.71	13.88	%206610.90	1.00	19.25	%197834.80	8776.07	107.38
1.71	13.67	%206710.00	1.00	19.20	%197973.20	8736.84	107.34
1.71	13.45	%206807.70	1.00	19.15	%198111.30	8696.39	107.29
1.71	13.24	%206903.80	1.00	19.11	%198249.00	8654.74	107.25
1.71	13.03	%206998.30	1.00	19.06	%198386.40	8611.92	107.20
1.72	12.81	%207091.40	1.00	19.01	%198523.40	8567.92	107.15
1.72	12.60	%207182.80	1.00	18.95	%198660.10	8522.74	107.10
1.72	12.39	%207272.80	1.00	18.90	%198796.40	8476.42	107.05
1.72	12.17	%207361.20	1.00	18.85	%198932.30	8428.95	106.99
1.72	11.96	%207448.10	1.00	18.79	%199067.80	8380.34	106.94
1.73	11.75	%207533.40	1.00	18.73	%199202.80	8330.60	106.88
1.73	11.53	%207617.20	1.00	18.67	%199337.50	8279.76	106.82
1.73	11.32	%207699.50	1.00	18.61	%199471.70	8227.79	106.77
1.73	11.11	%207780.20	1.00	18.55	%199605.50	8174.73	106.71
1.73	10.98	%207859.70	1.00	18.49	%199738.90	8120.87	106.64
1.74	10.93	%207938.60	1.00	18.43	%199871.80	8066.84	106.58
1.74	10.89	%208017.20	1.00	18.37	%200004.20	8012.93	106.52
1.74	10.84	%208095.40	1.00	18.30	%200136.30	7959.15	106.46
1.74	10.80	%208173.30	1.00	18.24	%200267.80	7905.49	106.40
1.74	10.75	%208250.90	1.00	18.18	%200398.90	7851.95	106.34
1.75	10.71	%208328.10	1.00	18.12	%200529.60	7798.54	106.28
1.75	10.66	%208405.10	1.00	18.06	%200659.90	7745.24	106.22
1.75	10.62	%208481.70	1.00	18.00	%200789.60	7692.06	106.16
1.75	10.57	%208558.00	1.00	17.93	%200919.00	7638.99	106.10
1.75	10.53	%208633.90	1.00	17.87	%201047.90	7586.06	106.04

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.76	10.48	%208709.60	0.00	0.00	%201176.40	7533.21	105.98
1.76	10.44	%208784.90	0.00	0.00	%201176.40	7608.53	106.07
1.76	10.39	%208859.90	0.00	0.00	%201176.40	7683.53	106.15
1.76	10.35	%208934.60	0.00	0.00	%201176.40	7758.20	106.24
1.76	10.30	%209008.90	0.00	0.00	%201176.40	7832.54	106.32
1.77	10.26	%209082.90	0.00	0.00	%201176.40	7906.56	106.40
1.77	10.21	%209156.60	0.00	0.00	%201176.40	7980.26	106.49
1.77	10.17	%209230.00	0.00	0.00	%201176.40	8053.64	106.57
1.77	10.12	%209303.10	0.00	0.00	%201176.40	8126.68	106.65
1.77	10.08	%209375.80	0.00	0.00	%201176.40	8199.42	106.73
1.78	10.03	%209448.20	0.00	0.00	%201176.40	8271.82	106.82
1.78	9.99	%209520.30	0.00	0.00	%201176.40	8343.90	106.90
1.78	9.94	%209592.00	0.00	0.00	%201176.40	8415.65	106.98
1.78	9.90	%209663.50	0.00	0.00	%201176.40	8487.09	107.06
1.78	9.85	%209734.60	0.00	0.00	%201176.40	8558.20	107.14
1.79	9.81	%209805.40	0.00	0.00	%201176.40	8628.98	107.22
1.79	9.76	%209875.80	0.00	0.00	%201176.40	8699.45	107.30
1.79	9.72	%209946.00	0.00	0.00	%201176.40	8769.59	107.38
1.79	9.67	%210015.80	0.00	0.00	%201176.40	8839.40	107.45
1.79	9.63	%210085.30	0.00	0.00	%201176.40	8908.89	107.53
1.80	9.58	%210154.40	0.00	0.00	%201176.40	8978.06	107.61
1.80	9.54	%210223.30	0.00	0.00	%201176.40	9046.90	107.69
1.80	9.49	%210291.80	0.00	0.00	%201176.40	9115.42	107.77
1.80	9.45	%210360.00	0.00	0.00	%201176.40	9183.62	107.84
1.80	9.40	%210427.90	0.00	0.00	%201176.40	9251.49	107.92
1.81	9.36	%210495.40	0.00	0.00	%201176.40	9319.04	107.99
1.81	9.31	%210562.70	1.00	19.95	%201248.20	9278.55	108.07
1.81	9.27	%210629.60	1.00	19.74	%201391.10	9238.49	107.86
1.81	9.22	%210696.10	1.00	19.69	%201533.00	9163.12	107.82
1.81	9.18	%210762.40	1.00	19.61	%201674.50	9087.90	107.73
1.82	9.13	%210828.30	1.00	19.52	%201815.30	9012.99	107.65
1.82	9.09	%210893.90	1.00	19.43	%201955.60	8938.37	107.57

1.82	9.04	%210959.20	1.00	19.35	%202095.20	8864.04	107.48
1.82	9.00	%211024.20	1.00	19.26	%202234.20	8790.01	107.40
1.82	8.96	%211088.80	1.00	19.18	%202372.60	8716.28	107.32
1.83	8.91	%211153.10	1.00	19.09	%202510.30	8642.82	107.23
1.83	8.87	%211217.10	1.00	19.01	%202647.50	8569.65	107.15
1.83	8.82	%211280.80	1.00	18.92	%202784.00	8496.78	107.07
1.83	8.78	%211344.10	1.00	18.84	%202920.00	8424.17	106.99
1.83	8.73	%211407.20	1.00	18.76	%203055.30	8351.84	106.90
1.84	8.69	%211469.90	1.00	18.67	%203190.10	8279.79	106.82
1.84	8.64	%211532.20	1.00	18.59	%203324.20	8208.01	106.74
1.84	8.60	%211594.30	1.00	18.51	%203457.80	8136.49	106.66
1.84	8.55	%211656.00	1.00	18.43	%203590.80	8065.24	106.58
1.84	8.51	%211717.40	1.00	18.34	%203723.10	7994.28	106.50
1.85	8.46	%211778.50	1.00	18.26	%203854.90	7923.57	106.42
1.85	8.42	%211839.20	1.00	18.18	%203986.10	7853.12	106.34
1.85	8.37	%211899.70	1.00	18.10	%204116.70	7782.95	106.26
1.85	8.33	%211959.80	1.00	18.02	%204246.80	7713.03	106.19
1.85	8.28	%212019.60	1.00	17.94	%204376.20	7643.35	106.11
1.86	8.24	%212079.00	1.00	17.86	%204505.10	7573.93	106.03
1.86	8.19	%212138.20	0.00	0.00	%204633.40	7504.71	105.95
1.86	8.15	%212197.00	0.00	0.00	%204633.40	7563.53	106.02
1.86	8.10	%212255.50	0.00	0.00	%204633.40	7622.01	106.08
1.86	8.06	%212313.60	0.00	0.00	%204633.40	7680.18	106.15
1.87	8.01	%212371.50	0.00	0.00	%204633.40	7738.03	106.21
1.87	7.97	%212429.00	0.00	0.00	%204633.40	7795.54	106.28
1.87	7.92	%212486.20	0.00	0.00	%204633.40	7852.74	106.34
1.87	7.88	%212543.10	0.00	0.00	%204633.40	7909.62	106.41
1.87	7.83	%212599.60	0.00	0.00	%204633.40	7966.17	106.47
1.88	7.79	%212655.80	0.00	0.00	%204633.40	8022.39	106.53
1.88	7.74	%212711.70	0.00	0.00	%204633.40	8078.29	106.60
1.88	7.70	%212767.30	0.00	0.00	%204633.40	8133.87	106.66
1.88	7.65	%212822.60	0.00	0.00	%204633.40	8189.12	106.72
1.88	7.61	%212877.50	0.00	0.00	%204633.40	8244.06	106.78
1.89	7.56	%212932.10	0.00	0.00	%204633.40	8298.67	106.85
1.89	7.52	%212986.40	0.00	0.00	%204633.40	8352.95	106.91
1.89	7.47	%213040.30	0.00	0.00	%204633.40	8406.90	106.97
1.89	7.43	%213094.00	0.00	0.00	%204633.40	8460.54	107.03
1.89	7.38	%213147.30	0.00	0.00	%204633.40	8513.85	107.09
1.90	7.34	%213200.30	0.00	0.00	%204633.40	8566.84	107.15
1.90	7.29	%213253.00	0.00	0.00	%204633.40	8619.51	107.21
1.90	7.25	%213305.30	0.00	0.00	%204633.40	8671.85	107.27
1.90	7.20	%213357.30	0.00	0.00	%204633.40	8723.87	107.32
1.90	7.16	%213409.00	0.00	0.00	%204633.40	8775.56	107.38

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.91	7.11	%213460.40	0.00	0.00	%204633.40	8826.93	107.44
1.91	7.07	%213511.40	0.00	0.00	%204633.40	8877.98	107.50
1.91	7.02	%213562.10	0.00	0.00	%204633.40	8928.70	107.55
1.91	6.98	%213612.50	0.00	0.00	%204633.40	8979.10	107.61
1.91	6.93	%213662.60	0.00	0.00	%204633.40	9029.18	107.67
1.92	6.89	%213712.40	0.00	0.00	%204633.40	9078.93	107.72
1.92	6.84	%213761.80	0.00	0.00	%204633.40	9128.35	107.78
1.92	6.80	%213810.90	0.00	0.00	%204633.40	9177.46	107.83
1.92	6.75	%213859.70	0.00	0.00	%204633.40	9226.24	107.89
1.92	6.71	%213908.10	0.00	0.00	%204633.40	9274.70	107.94
1.93	6.66	%213956.30	0.00	0.00	%204633.40	9322.84	108.00
1.93	6.62	%214004.10	1.00	19.93	%204705.20	9263.02	108.05
1.93	6.57	%214051.60	1.00	19.70	%204847.90	9203.71	107.82
1.93	6.53	%214098.70	1.00	19.63	%204989.40	9109.29	107.76
1.93	6.48	%214145.60	1.00	19.52	%205130.40	9015.18	107.65
1.94	6.44	%214192.10	1.00	19.41	%205270.60	8921.53	107.55
1.94	6.39	%214238.30	1.00	19.31	%205410.00	8828.32	107.44
1.94	6.35	%214284.20	1.00	19.20	%205548.60	8735.57	107.34
1.94	6.30	%214329.70	1.00	19.09	%205686.40	8643.28	107.23
1.94	6.26	%214374.90	1.00	18.99	%205823.50	8551.40	107.13
1.95	6.21	%214419.80	1.00	18.88	%205959.90	8459.98	107.03
1.95	6.17	%214464.40	1.00	18.78	%206095.40	8368.99	106.92
1.95	6.12	%214508.70	1.00	18.67	%206230.20	8278.43	106.82
1.95	6.08	%214552.60	1.00	18.57	%206364.30	8188.29	106.72
1.95	6.03	%214596.20	1.00	18.46	%206497.60	8098.59	106.62
1.96	5.99	%214639.50	1.00	18.36	%206630.20	8009.29	106.52
1.96	5.94	%214682.40	1.00	18.26	%206762.00	7920.42	106.42
1.96	5.90	%214725.10	1.00	18.16	%206893.10	7831.96	106.32
1.96	5.85	%214767.40	1.00	18.06	%207023.50	7743.92	106.22
1.96	5.81	%214809.40	1.00	17.95	%207153.10	7656.26	106.12
1.97	5.76	%214851.00	1.00	17.85	%207282.00	7569.01	106.02
1.97	5.72	%214892.40	0.00	0.00	%207346.30	7546.07	105.93
1.97	5.67	%214933.40	0.00	0.00	%207346.30	7587.09	106.04
1.97	5.63	%214974.10	0.00	0.00	%207346.30	7627.78	106.09
1.97	5.58	%215014.40	0.00	0.00	%207346.30	7668.15	106.14
1.98	5.54	%215054.50	0.00	0.00	%207346.30	7708.20	106.18
1.98	5.49	%215094.20	0.00	0.00	%207346.30	7747.92	106.23
1.98	5.45	%215133.60	0.00	0.00	%207346.30	7787.31	106.27
1.98	5.40	%215172.70	0.00	0.00	%207346.30	7826.39	106.31
1.98	5.36	%215211.40	0.00	0.00	%207346.30	7865.14	106.36
1.99	5.31	%215249.80	0.00	0.00	%207346.30	7903.56	106.40
1.99	5.27	%215288.00	0.00	0.00	%207346.30	7941.67	106.44
1.99	5.22	%215325.70	0.00	0.00	%207346.30	7979.45	106.49
1.99	5.18	%215363.20	0.00	0.00	%207346.30	8016.90	106.53
1.99	5.13	%215400.30	0.00	0.00	%207346.30	8054.03	106.57
2.00	5.09	%215437.10	0.00	0.00	%207346.30	8090.84	106.61
2.00	5.04	%215473.60	0.00	0.00	%207346.30	8127.32	106.65

****

EXPLANATION AND SUMMARY OF RUN

1.0 THE #1 PUMP RUNS FROM .652 HRS. TO 1.856 HRS. THERE IS MINOR CYCLING OF THE #1 PUMP ON THE RISING AND FALLING LEGS OF THE

10 YEAR INFLOW HYDROGRAPH, HOWEVER CYCLING IS NOT A PROBLEM IN THIS RUN. SEE CYCLING CHECK RUN FOR MORE INFORMATION ON CYCLING OF THE #1 PUMP.

2.0 #2 PUMP RUNS FROM .892 HRS. UNTIL 1.538 HRS. THERE IS NO CYCLING OF THE #2 PUMPS ON THE RISING LEG OF OF THE INFLOW HYDROGRAPH. THE #2 PUMP CYCLES ONLY ONCE ON THE FALLING LEG OF THE HYDROGRAPH.

3.0 THE #3 PUMP DOES NOT CYCLE;RUNNING FROM 1.048 HRS. TO 1.408 HRS.

4.0 THE #4 PUMP DOES NOT CYCLE ; RUNNING FROM 1.098 HRS. TO 1.308 HRS.

5.0 THE PEAK OUTFLOW DURING THIS RUN IS 110.31 CFS AT ELEVATION 115.45 (i.e. 1115.45).

6.0 ONLY THE SIGNIFICANT PORTIONS OF THE OUTPUT WAS PRINTED, SEE FILE 10YEXPSE.OUT ON CD FOR COMPLETE OUTPUT.

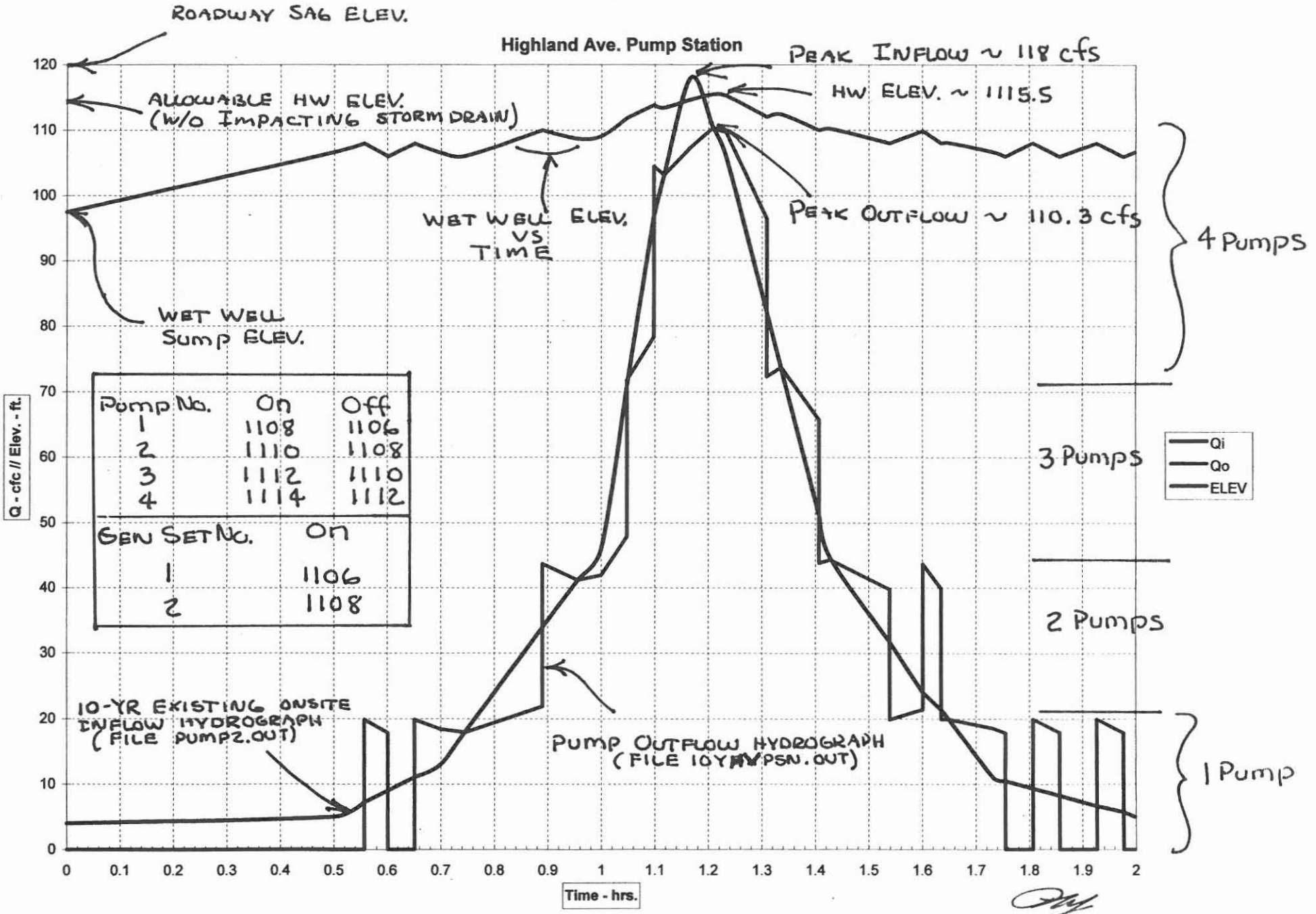
7.0 THE FALLING LEG OF THE HYDROGRAPH WAS NOT INCLUDED AS ITS ONLY INTEREST WOULD BE FOR CYCLING, AND THE CONSTANT INFLOW OF .5 OF THE OUTFLOW (USED IN THE CYCLING CHECK RUNS) WOULD BE OF MORE INTEREST.

8.0 SEE THE PLOT WHICH FOLLOWS FOR MORE DETAIL OF THE PUMP OPERATIONS.

NOTE:

THIS PROGRAM DOES NOT ITERATE THE PUMP OUTFLOW RATES OR DURATIONS DURING THE ROUTING INTERVAL (i.e. 7.2 SEC.). THEREFORE THE WATER SURFACE ELEVATION IN THE WET WELL IS ONLY APPROXIMATE. THE MAXIMUM ERROR IN PUMPED FLOW SHOULD NOT EXCEED ONE HALF THE PEAK FLOW FROM ONE PUMP FOR THE ROUTING INTERVAL OR IN THIS CASE:

((110.31/4)/2) * 7.2 = 99.28 CUBIC FEET
WHICH CORRESPONDS TO A WET WELL ELEVATION OF
ABOUT +/- .11 FEET (i.e. 5 FEET IN THE WET WELL
CORRESPONDS TO 4440 CUBIC FEET, THEREFORE 99
CUBIC FEET IS ABOUT .11 FEET)



Pump No.	On	Off
1	1108	1106
2	1110	1108
3	1112	1110
4	1114	1112

GEN SET No.	On
1	1106
2	1108

3-29-98

HIGHLAND AVE. PUMP STATION
SR-51 DRAINAGE ASSESSMENT
INDIAN SCHOOL RD. TO BETHANY HOME RD.

EXISTING 10 YR
NEW ON/OFF
3/29/98
R. JORDAN

Data from file 10YEXPSN.OUT

TIME	Qi	Qo	ELEV
0	4	0	97.5
0.5	5	0	106.62
0.557	7.2	0	107.98
0.557	7.2	19.89	107.98
0.601	9.04	17.86	105.99
0.601	9.04	0	105.99
0.651	11.04	0	107.96
0.651	11.04	19.89	107.96
0.7	13	18.4	106.56
0.746	18.06	17.92	106.08
0.89	33.9	21.9	109.97
0.89	33.9	43.7	109.97
0.956	41.16	41.19	108.7
1	46	41.96	109.08
1.048	70.96	47.91	111.86
1.048	70.96	71.83	111.86
1.098	96.96	78.34	113.8
1.098	96.96	104.45	113.8
1.117	103.08	103.13	113.44
1.167	118	107.42	114.63
1.208	110.55	110.31	115.45
1.233	105.93	109.65	115.26
1.309	82.05	96.48	112.01
1.309	82.05	72.36	112.01
1.336	73.55	73.77	112.41
1.407	51.19	65.76	110
1.407	51.19	43.84	110
1.428	44.57	44.32	110.23
1.539	31.7	39.75	108
1.539	31.7	19.88	108

1.601	24.02	21.43	109.9
1.601	24.02	43.66	109.9
1.635	21.4	39.87	108.02
1.635	21.4	19.94	108.02
1.65	19.85	19.9	108.06
1.733	11	18.52	106.67
1.755	10.5	17.84	106.01
1.755	10.5	0	106.01
1.807	9.34	0	108.03
1.807	9.34	19.95	108.03
1.857	8.22	17.9	105.99
1.857	8.22	0	105.99
1.927	6.64	0	108.02
1.927	6.64	19.93	108.02
1.977	5.74	17.85	105.97
1.977	5.74	0	105.97
1.998	5.04	0	106.65

Inflow Hydrograph

PROGRAM INPUT DATA

SR-51 Drainage Assessment
Indian School Road to
Bethany Home Road

Pump Station Routing
Delta T = .002 Hrs.
FILE 25YHVPSN.OUT

FREQUENCY	25

~~Exist~~	HOV

INFLOW HYDROGRAPH

Hec1 Time	Time	Q (cfs)
2:00	0	5
2:30	.5	7
2:42	.7	18
3:00	1.0	59
3:06	1.1	127
3:10	1.167	153
3:14	1.233	136
3:26	1.433	55
3:44	1.733	15
3:00	2.0	7

STAGE - STORAGE/DISCHARGE RELATIONSHIP

Elev	Storage CuFt	Q cfs
97.5	0	12
106	7548	17.83
111	11988	22.95
113.5	14208	25.85
116	16428	28.07
120	19980	30.75
122	38056	32.09
124	141432	33.42
127	455796	34.98

1ST GEN SET ON 1106
2nd GEN SET ON 1108

PUMP	ON	OFF
1	108	106
2	110	108
3	112	110
4	114	112

PB

FILE CONVENTION: 25YHVPSN.OUT

NEW ON/OFF SETTINGS

4/1/98

25YR FREQUENCY

WITH HOV LANES

HIGHLAND PUMP STATION

SR-51 Drainage Assessment
Indian School Rd. to Bethany Home Rd.

Pump Station Routing
Highland Pump Station

25 Year Inflow Hydrograph (W/HOV)
Using HEC1 Files pump2.dat & pump2.out

25YHVPSN.out, 03-30-98
PB Phx., BY R.JORDAN

****

INPUT DATA FOR PUMP STATION ROUTING

Delta Time (routing interval) = .002 Hrs.(.12 min or 7.2 sec)

Frequency 25 Year w/hov & NEW pump on/off settings

INFLOW HYDROGRAPH

hec1 time	time	Q (cfs)
0200	0.0	5
0230	0.5	7
0242	0.6	18
0300	1.0	59
0306	1.1	127
0310	1.167	153
0314	1.233	136
0326	1.433	55
0344	1.733	15
0400	2.000	7
0430	2.5	5

STAGE-STORAGE/DISCHARGE CURVE

Elev.	Storage CuFt	Outflow cfs
97.5	0	12
106	7548	17.83
111	11988	22.95
113.5	14208	25.85
116	16428	28.07
120	19980	30.75
122	38056	32.09
124	141432	33.42
127	455796	34.98

PUMP	ON	OFF
1	108	106
2	110	108
3	112	110
4	114	112

Gen Set	On
1	106
2	108

****

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.00	5.00	0.00	0.00	0.00	0.00	0.01	0.00
0.00	5.01	36.03	0.00	0.00	0.00	36.04	97.54
0.00	5.02	72.12	0.00	0.00	0.00	72.13	97.58
0.01	5.02	108.26	0.00	0.00	0.00	108.27	97.62
0.01	5.03	144.46	0.00	0.00	0.00	144.47	97.66
0.01	5.04	180.72	0.00	0.00	0.00	180.73	97.70
0.01	5.05	217.04	0.00	0.00	0.00	217.05	97.74
0.01	5.06	253.41	0.00	0.00	0.00	253.42	97.79
[illegible]2	5.06	289.84	0.00	0.00	0.00	289.85	97.83
[illegible]2	5.07	326.33	0.00	0.00	0.00	326.34	97.87
0.02	5.08	362.88	0.00	0.00	0.00	362.89	97.91
0.02	5.09	399.48	0.00	0.00	0.00	399.49	97.95
0.02	5.10	436.15	0.00	0.00	0.00	436.16	97.99
0.03	5.10	472.87	0.00	0.00	0.00	472.88	98.03
0.03	5.11	509.64	0.00	0.00	0.00	509.65	98.07
0.03	5.12	546.48	0.00	0.00	0.00	546.49	98.12
0.03	5.13	583.37	0.00	0.00	0.00	583.38	98.16
0.03	5.14	620.32	0.00	0.00	0.00	620.33	98.20
0.04	5.14	657.33	0.00	0.00	0.00	657.34	98.24
0.04	5.15	694.40	0.00	0.00	0.00	694.41	98.28
0.04	5.16	731.52	0.00	0.00	0.00	731.53	98.32
0.04	5.17	768.70	0.00	0.00	0.00	768.71	98.37
0.04	5.18	805.94	0.00	0.00	0.00	805.95	98.41
0.05	5.18	843.24	0.00	0.00	0.00	843.25	98.45
0.05	5.19	880.59	0.00	0.00	0.00	880.60	98.49
0.05	5.20	918.00	0.00	0.00	0.00	918.01	98.53
0.05	5.21	955.47	0.00	0.00	0.00	955.48	98.58
0.05	5.22	993.00	0.00	0.00	0.00	993.01	98.62
0.06	5.22	1030.58	0.00	0.00	0.00	1030.59	98.66
0.06	5.23	1068.22	0.00	0.00	0.00	1068.23	98.70
0.06	5.24	1105.92	0.00	0.00	0.00	1105.93	98.75
0.06	5.25	1143.68	0.00	0.00	0.00	1143.69	98.79
0.06	5.26	1181.49	0.00	0.00	0.00	1181.50	98.83
0.07	5.26	1219.36	0.00	0.00	0.00	1219.37	98.87
0.07	5.27	1257.29	0.00	0.00	0.00	1257.30	98.92
0.07	5.28	1295.28	0.00	0.00	0.00	1295.29	98.96
0.07	5.29	1333.32	0.00	0.00	0.00	1333.33	99.00
0.07	5.30	1371.43	0.00	0.00	0.00	1371.44	99.04
0.08	5.30	1409.59	0.00	0.00	0.00	1409.60	99.09
0.08	5.31	1447.80	0.00	0.00	0.00	1447.82	99.13
0.08	5.32	1486.08	0.00	0.00	0.00	1486.09	99.17
0.08	5.33	1524.41	0.00	0.00	0.00	1524.42	99.22
0.08	5.34	1562.80	0.00	0.00	0.00	1562.81	99.26
0.09	5.34	1601.25	0.00	0.00	0.00	1601.26	99.30
0.09	5.35	1639.76	0.00	0.00	0.00	1639.77	99.35
0.09	5.36	1678.32	0.00	0.00	0.00	1678.33	99.39
0.09	5.37	1716.94	0.00	0.00	0.00	1716.95	99.43
0.09	5.38	1755.62	0.00	0.00	0.00	1755.63	99.48
0.10	5.38	1794.36	0.00	0.00	0.00	1794.37	99.52
0.10	5.39	1833.15	0.00	0.00	0.00	1833.16	99.56
[illegible]10	5.40	1872.00	0.00	0.00	0.00	1872.01	99.61
[illegible]10	5.41	1910.91	0.00	0.00	0.00	1910.92	99.65
[illegible].10	5.42	1949.88	0.00	0.00	0.00	1949.89	99.70
0.11	5.42	1988.90	0.00	0.00	0.00	1988.91	99.74
0.11	5.43	2027.98	0.00	0.00	0.00	2027.99	99.78
0.11	5.44	2067.12	0.00	0.00	0.00	2067.13	99.83
0.11	5.45	2106.32	0.00	0.00	0.00	2106.33	99.87
0.11	5.46	2145.57	0.00	0.00	0.00	2145.58	99.92

0.40	6.59	8304.51	0.00	0.00	0.00	8304.52	106.85
0.40	6.60	8352.00	0.00	0.00	0.00	8352.01	106.91
0.40	6.61	8399.55	0.00	0.00	0.00	8399.56	106.96
0.40	6.62	8447.16	0.00	0.00	0.00	8447.17	107.01
0.41	6.62	8494.82	0.00	0.00	0.00	8494.83	107.07
0.41	6.63	8542.54	0.00	0.00	0.00	8542.55	107.12
0.41	6.64	8590.32	0.00	0.00	0.00	8590.33	107.17
0.41	6.65	8638.16	0.00	0.00	0.00	8638.17	107.23
0.41	6.66	8686.05	0.00	0.00	0.00	8686.06	107.28
0.42	6.66	8734.00	0.00	0.00	0.00	8734.01	107.34
0.42	6.67	8782.01	0.00	0.00	0.00	8782.02	107.39
0.42	6.68	8830.08	0.00	0.00	0.00	8830.09	107.44
0.42	6.69	8878.21	0.00	0.00	0.00	8878.22	107.50
0.42	6.70	8926.39	0.00	0.00	0.00	8926.40	107.55
0.43	6.70	8974.63	0.00	0.00	0.00	8974.64	107.61
0.43	6.71	9022.93	0.00	0.00	0.00	9022.94	107.66
0.43	6.72	9071.28	0.00	0.00	0.00	9071.29	107.72
0.43	6.73	9119.70	0.00	0.00	0.00	9119.71	107.77
0.43	6.74	9168.17	0.00	0.00	0.00	9168.18	107.82
0.44	6.74	9216.69	0.00	0.00	0.00	9216.70	107.88
0.44	6.75	9265.28	0.00	0.00	0.00	9265.29	107.93
0.44	6.76	9313.92	0.00	0.00	0.00	9313.93	107.99
0.44	6.77	9362.63	1.00	19.92	71.72	9255.05	108.04
0.44	6.78	9411.38	1.00	19.69	214.33	9197.07	107.82
0.45	6.78	9460.20	1.00	19.62	355.86	9104.35	107.75
0.45	6.79	9509.07	1.00	19.52	496.77	9012.31	107.65
0.45	6.80	9558.01	1.00	19.41	636.92	8921.09	107.55
0.45	6.81	9607.00	1.00	19.31	776.32	8830.68	107.44
0.45	6.82	9656.04	1.00	19.21	914.98	8741.08	107.34

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.46	6.82	9705.15	1.00	19.10	1052.89	8652.27	107.24
0.46	6.83	9754.31	1.00	19.00	1190.06	8564.26	107.14
0.46	6.84	9803.53	1.00	18.90	1326.51	8477.02	107.05
0.46	6.85	9852.80	1.00	18.80	1462.24	8390.57	106.95
0.46	6.86	9902.14	1.00	18.70	1597.25	8304.89	106.85
0.47	6.86	9951.53	1.00	18.60	1731.56	8219.98	106.76
0.47	6.87	10000.98	1.00	18.51	1865.16	8135.82	106.66
0.47	6.88	10050.48	1.00	18.41	1998.07	8052.42	106.57
0.47	6.89	10100.05	1.00	18.32	2130.29	7969.77	106.47
0.47	6.90	10149.67	1.00	18.22	2261.82	7887.86	106.38
0.48	6.90	10199.35	1.00	18.13	2392.68	7806.68	106.29
0.48	6.91	10249.09	1.00	18.04	2522.87	7726.23	106.20
0.48	6.92	10298.88	1.00	17.94	2652.39	7646.50	106.11
0.48	6.93	10348.74	1.00	17.85	2781.26	7567.49	106.02
0.48	6.94	10398.65	0.00	0.00	2909.55	7489.11	105.93
0.49	6.94	10448.61	0.00	0.00	2909.55	7539.08	105.99
0.49	6.95	10498.64	0.00	0.00	2909.55	7589.10	106.05
0.49	6.96	10548.72	0.00	0.00	2909.55	7639.18	106.10
0.49	6.97	10598.86	0.00	0.00	2909.55	7689.32	106.16
0.49	6.98	10649.06	0.00	0.00	2909.55	7739.52	106.22
0.50	6.98	10699.32	0.00	0.00	2909.55	7789.78	106.27
0.50	6.99	10749.63	0.00	0.00	2909.55	7840.09	106.33
0.50	7.00	10800.00	0.00	0.00	2909.55	7890.46	106.39
0.50	7.11	10850.80	0.00	0.00	2909.55	7941.26	106.44
0.50	7.22	10902.39	0.00	0.00	2909.55	7992.85	106.50
0.51	7.33	10954.77	0.00	0.00	2909.55	8045.23	106.56
0.51	7.44	11007.94	0.00	0.00	2909.55	8098.40	106.62
0.51	7.55	11061.90	0.00	0.00	2909.55	8152.36	106.68
0.51	7.66	11116.66	0.00	0.00	2909.55	8207.12	106.74
0.51	7.77	11172.20	0.00	0.00	2909.55	8262.67	106.80
0.52	7.88	11228.54	0.00	0.00	2909.55	8319.01	106.87
0.52	7.99	11285.68	0.00	0.00	2909.55	8376.14	106.93
0.52	8.10	11343.60	0.00	0.00	2909.55	8434.06	107.00
0.52	8.21	11402.32	0.00	0.00	2909.55	8492.78	107.06
0.52	8.32	11461.82	0.00	0.00	2909.55	8552.29	107.13
0.53	8.43	11522.12	0.00	0.00	2909.55	8612.59	107.20
0.53	8.54	11583.22	0.00	0.00	2909.55	8673.68	107.27
0.53	8.65	11645.10	0.00	0.00	2909.55	8735.56	107.34
0.53	8.76	11707.78	0.00	0.00	2909.55	8798.24	107.41
0.53	8.87	11771.24	0.00	0.00	2909.55	8861.70	107.48
0.54	8.98	11835.50	0.00	0.00	2909.55	8925.96	107.55
0.54	9.09	11900.55	0.00	0.00	2909.55	8991.02	107.63
0.54	9.20	11966.40	0.00	0.00	2909.55	9056.86	107.70
0.54	9.31	12033.03	0.00	0.00	2909.55	9123.50	107.77
0.54	9.42	12100.46	0.00	0.00	2909.55	9190.92	107.85
0.55	9.53	12168.68	0.00	0.00	2909.55	9259.14	107.93
0.55	9.64	12237.69	1.00	19.88	2981.13	9220.79	108.00
0.55	9.75	12307.50	1.00	19.67	3123.53	9183.97	107.80
0.55	9.86	12378.09	1.00	19.63	3265.05	9113.05	107.76
0.55	9.97	12449.48	1.00	19.55	3406.13	9043.36	107.68

0.56	10.08	12521.66	1.00	19.48	3546.63	8975.04	107.61
0.56	10.19	12594.63	1.00	19.40	3686.58	8908.06	107.53
0.56	10.30	12668.40	1.00	19.32	3825.97	8842.43	107.46
0.56	10.41	12742.95	1.00	19.25	3964.82	8778.14	107.38
0.56	10.52	12818.30	1.00	19.18	4103.15	8715.16	107.31
0.57	10.63	12894.44	1.00	19.10	4240.96	8653.49	107.24
0.57	10.74	12971.37	1.00	19.03	4378.26	8593.12	107.18
0.57	10.85	13049.09	1.00	18.97	4515.07	8534.04	107.11
0.57	10.96	13127.61	1.00	18.90	4651.39	8476.23	107.04
0.57	11.07	13206.92	1.00	18.83	4787.23	8419.70	106.98
0.58	11.18	13287.02	1.00	18.77	4922.61	8364.41	106.92
0.58	11.29	13367.91	1.00	18.71	5057.54	8310.38	106.86
0.58	11.40	13449.59	1.00	18.65	5192.03	8257.58	106.80
0.58	11.51	13532.07	1.00	18.59	5326.08	8206.00	106.74
0.58	11.62	13615.33	1.00	18.53	5459.70	8155.64	106.68
0.59	11.73	13699.39	1.00	18.47	5592.92	8106.49	106.63
0.59	11.84	13784.25	1.00	18.42	5725.73	8058.53	106.57
0.59	11.95	13869.89	1.00	18.36	5858.15	8011.75	106.52
0.59	12.06	13956.32	1.00	18.31	5990.18	7966.15	106.47
0.59	12.17	14043.55	1.00	18.26	6121.84	7921.72	106.42
0.60	12.28	14131.57	1.00	18.21	6253.14	7878.44	106.37
0.60	12.39	14220.38	1.00	18.16	6384.08	7836.31	106.32
0.60	12.50	14309.99	1.00	18.11	6514.68	7795.32	106.28
0.60	12.61	14400.39	1.00	18.07	6644.94	7755.45	106.23
0.60	12.72	14491.57	1.00	18.02	6774.88	7716.71	106.19

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.61	12.83	14583.55	1.00	17.98	6904.50	7679.07	106.15
0.61	12.94	14676.33	1.00	17.94	7033.81	7642.53	106.11
0.61	13.05	14769.89	1.00	17.90	7162.82	7607.08	106.07
0.61	13.16	14864.25	1.00	17.86	7291.54	7572.72	106.03
0.61	13.27	14959.40	0.00	0.00	7419.99	7539.41	105.99
0.62	13.38	15055.34	0.00	0.00	7419.99	7635.35	106.10
0.62	13.49	15152.07	0.00	0.00	7419.99	7732.09	106.21
0.62	13.60	15249.59	0.00	0.00	7419.99	7829.61	106.32
0.62	13.71	15347.91	0.00	0.00	7419.99	7927.93	106.43
0.62	13.82	15447.02	0.00	0.00	7419.99	8027.04	106.54
0.63	13.93	15546.92	0.00	0.00	7419.99	8126.94	106.65
0.63	14.04	15647.61	0.00	0.00	7419.99	8227.63	106.77
0.63	14.15	15749.10	0.00	0.00	7419.99	8329.11	106.88
0.63	14.26	15851.37	0.00	0.00	7419.99	8431.39	106.99
0.63	14.37	15954.44	0.00	0.00	7419.99	8534.46	107.11
0.64	14.48	16058.30	0.00	0.00	7419.99	8638.32	107.23
0.64	14.59	16162.95	0.00	0.00	7419.99	8742.97	107.35
0.64	14.70	16268.40	0.00	0.00	7419.99	8848.41	107.46
0.64	14.81	16374.63	0.00	0.00	7419.99	8954.65	107.58
0.64	14.92	16481.66	0.00	0.00	7419.99	9061.68	107.70
0.65	15.03	16589.48	0.00	0.00	7419.99	9169.50	107.83
0.65	15.14	16698.09	0.00	0.00	7419.99	9278.11	107.95
0.65	15.25	16807.50	1.00	19.95	7491.82	9279.78	108.07
0.65	15.36	16917.69	1.00	19.79	7634.88	9282.82	107.91
0.65	15.47	17028.68	1.00	19.79	7777.38	9251.31	107.92
0.66	15.58	17140.46	1.00	19.76	7919.77	9220.70	107.88
0.66	15.69	17253.03	1.00	19.72	8061.91	9191.14	107.85
0.66	15.80	17366.40	1.00	19.69	8203.81	9162.60	107.82
0.66	15.91	17480.55	1.00	19.66	8345.47	9135.09	107.79
0.66	16.02	17595.50	1.00	19.63	8486.91	9108.60	107.76
0.67	16.13	17711.24	1.00	19.60	8628.14	9083.11	107.73
0.67	16.24	17827.77	1.00	19.57	8769.15	9058.63	107.70
0.67	16.35	17945.09	1.00	19.54	8909.97	9035.13	107.67
0.67	16.46	18063.21	1.00	19.52	9050.60	9012.62	107.65
0.67	16.57	18182.12	1.00	19.49	9191.04	8991.09	107.62
0.68	16.68	18301.82	1.00	19.47	9331.31	8970.51	107.60
0.68	16.79	18422.31	1.00	19.45	9471.41	8950.90	107.58
0.68	16.90	18543.59	1.00	19.43	9611.36	8932.24	107.56
0.68	17.01	18665.67	1.00	19.41	9751.15	8914.53	107.54
0.68	17.12	18788.54	1.00	19.39	9890.80	8897.74	107.52
0.69	17.23	18912.20	1.00	19.37	10030.32	8881.89	107.50
0.69	17.34	19036.65	1.00	19.35	10169.70	8866.95	107.48
0.69	17.45	19161.89	1.00	19.33	10308.97	8852.93	107.47
0.69	17.56	19287.93	1.00	19.32	10448.12	8839.81	107.45
0.69	17.67	19414.75	1.00	19.31	10587.17	8827.59	107.44
0.70	17.78	19542.37	1.00	19.29	10726.12	8816.26	107.43
0.70	17.89	19670.79	1.00	19.28	10864.98	8805.81	107.42
0.70	18.00	19799.99	1.00	19.27	11003.76	8796.24	107.41
0.70	18.27	19930.57	1.00	19.26	11142.46	8788.12	107.40
0.70	18.55	20063.13	1.00	19.25	11281.11	8782.03	107.39
0.71	18.82	20197.65	1.00	19.25	11419.71	8777.94	107.38
0.71	19.09	20334.13	1.00	19.25	11558.29	8775.86	107.38
0.71	19.37	20472.59	1.00	19.25	11696.86	8775.74	107.38
0.71	19.64	20613.01	1.00	19.25	11835.43	8777.59	107.38

0.71	19.91	20755.40	1.00	19.25	11974.03	8781.39	107.39
0.72	20.19	20899.76	1.00	19.26	12112.67	8787.11	107.40
0.72	20.46	21046.09	1.00	19.27	12251.36	8794.74	107.40
0.72	20.73	21194.39	1.00	19.28	12390.12	8804.27	107.41
0.72	21.01	21344.65	1.00	19.29	12528.98	8815.69	107.43
0.72	21.28	21496.89	1.00	19.31	12667.93	8828.97	107.44
0.73	21.55	21651.09	1.00	19.32	12807.00	8844.09	107.46
0.73	21.83	21807.25	1.00	19.34	12946.21	8861.06	107.48
0.73	22.10	21965.39	1.00	19.37	13085.56	8879.84	107.50
0.73	22.37	22125.49	1.00	19.39	13225.08	8900.43	107.52
0.73	22.65	22287.57	1.00	19.42	13364.77	8922.80	107.55
0.74	22.92	22451.61	1.00	19.44	13504.66	8946.95	107.58
0.74	23.19	22617.61	1.00	19.47	13644.76	8972.87	107.60
0.74	23.47	22785.59	1.00	19.50	13785.08	9000.52	107.64
0.74	23.74	22955.53	1.00	19.54	13925.63	9029.91	107.67
0.74	24.01	23127.45	1.00	19.57	14066.44	9061.02	107.70
0.75	24.29	23301.33	1.00	19.61	14207.51	9093.83	107.74
0.75	24.56	23477.18	1.00	19.65	14348.86	9128.32	107.78
0.75	24.83	23654.99	1.00	19.69	14490.51	9164.49	107.82
0.75	25.11	23834.77	1.00	19.74	14632.46	9202.32	107.86
0.75	25.38	24016.53	1.00	19.78	14774.73	9241.80	107.91

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.76	25.65	24200.25	1.00	19.83	14917.34	9282.92	107.95
0.76	25.93	24385.93	1.00	19.88	15060.29	9325.65	108.00
0.76	26.20	24573.59	1.00	19.93	15203.61	9369.99	108.05
0.76	26.47	24763.22	1.00	19.98	15347.30	9415.92	108.10
0.76	26.75	24954.81	1.00	20.04	15491.38	9463.43	108.16
0.77	27.02	25148.37	1.00	20.10	15635.86	9512.51	108.21
0.77	27.29	25343.90	1.00	20.15	15780.76	9563.15	108.27
0.77	27.57	25541.39	1.00	20.21	15926.08	9615.32	108.33
0.77	27.84	25740.86	1.00	20.28	16071.84	9669.03	108.39
0.77	28.11	25942.29	1.00	20.34	16218.05	9724.25	108.45
0.78	28.39	26145.69	1.00	20.40	16364.73	9780.97	108.51
0.78	28.66	26351.06	1.00	20.47	16511.89	9839.18	108.58
0.78	28.93	26558.39	1.00	20.54	16659.53	9898.87	108.65
0.78	29.21	26767.70	1.00	20.61	16807.68	9960.03	108.72
0.78	29.48	26978.97	1.00	20.68	16956.34	10022.64	108.79
0.79	29.75	27192.21	1.00	20.76	17105.52	10086.70	108.86
0.79	30.03	27407.42	1.00	20.83	17255.24	10152.18	108.93
0.79	30.30	27624.59	1.00	20.91	17405.52	10219.08	109.01
0.79	30.57	27843.74	1.00	20.99	17556.35	10287.39	109.08
0.79	30.85	28064.85	1.00	21.07	17707.76	10357.10	109.16
0.80	31.12	28287.93	1.00	21.15	17859.75	10428.19	109.24
0.80	31.39	28512.98	1.00	21.23	18012.34	10500.65	109.32
0.80	31.67	28739.99	1.00	21.32	18165.53	10574.47	109.41
0.80	31.94	28968.98	1.00	21.41	18319.35	10649.64	109.49
0.80	32.21	29199.93	1.00	21.49	18473.79	10726.15	109.58
0.81	32.49	29432.85	1.00	21.58	18628.87	10803.99	109.67
0.81	32.76	29667.74	1.00	21.68	18784.61	10883.14	109.76
0.81	33.03	29904.59	1.00	21.77	18941.01	10963.59	109.85
0.81	33.31	30143.42	2.00	43.73	19176.79	10887.94	109.94
0.81	33.58	30384.21	2.00	43.19	19489.69	10894.53	109.68
0.82	33.85	30626.97	2.00	43.22	19800.78	10826.20	109.69
0.82	34.13	30871.70	2.00	43.07	20111.40	10760.30	109.62
0.82	34.40	31118.39	2.00	42.92	20420.96	10697.45	109.55
0.82	34.67	31367.06	2.00	42.78	20729.49	10637.58	109.48
0.82	34.95	31617.69	2.00	42.65	21037.05	10580.65	109.41
0.83	35.22	31870.29	2.00	42.53	21343.69	10526.61	109.35
0.83	35.49	32124.86	2.00	42.41	21649.46	10475.41	109.30
0.83	35.77	32381.39	2.00	42.30	21954.40	10427.01	109.24
0.83	36.04	32639.90	2.00	42.19	22258.56	10381.35	109.19
0.83	36.31	32900.37	2.00	42.09	22561.98	10338.40	109.14
0.84	36.59	33162.81	2.00	42.00	22864.71	10298.11	109.10
0.84	36.86	33427.22	2.00	41.91	23166.80	10260.43	109.05
0.84	37.13	33693.59	2.00	41.83	23468.28	10225.32	109.01
0.84	37.41	33961.93	2.00	41.76	23769.20	10192.75	108.98
0.84	37.68	34232.25	2.00	41.69	24069.60	10162.66	108.94
0.85	37.95	34504.53	2.00	41.62	24369.51	10135.02	108.91
0.85	38.23	34778.77	2.00	41.57	24669.00	10109.79	108.88
0.85	38.50	35054.99	2.00	41.51	24968.08	10086.92	108.86
0.85	38.77	35333.17	2.00	41.47	25266.80	10066.39	108.83
0.85	39.05	35613.33	2.00	41.42	25565.20	10048.14	108.81
0.86	39.32	35895.45	2.00	41.39	25863.31	10032.14	108.80
0.86	39.59	36179.54	2.00	41.35	26161.18	10018.37	108.78
0.86	39.87	36465.59	2.00	41.33	26458.84	10006.77	108.77
0.86	40.14	36753.61	2.00	41.31	26756.32	9997.31	108.76
0.86	40.41	37043.61	2.00	41.29	27053.66	9989.96	108.75
0.87	40.69	37335.57	2.00	41.28	27350.90	9984.68	108.74
0.87	40.96	37629.50	2.00	41.27	27648.06	9981.45	108.74
0.87	41.23	37925.39	2.00	41.27	27945.19	9980.21	108.74

0.87	41.51	38223.26	2.00	41.27	28242.32	9980.95	108.74
0.87	41.78	38523.09	2.00	41.27	28539.47	9983.63	108.74
0.88	42.05	38824.89	2.00	41.29	28836.68	9988.21	108.75
0.88	42.33	39128.66	2.00	41.30	29133.99	9994.68	108.75
0.88	42.60	39434.39	2.00	41.32	29431.42	10002.98	108.76
0.88	42.87	39742.10	2.00	41.34	29729.00	10013.10	108.77
0.88	43.15	40051.77	2.00	41.37	30026.76	10025.01	108.79
0.89	43.42	40363.41	2.00	41.40	30324.74	10038.68	108.80
0.89	43.69	40677.02	2.00	41.44	30622.96	10054.07	108.82
0.89	43.97	40992.59	2.00	41.48	30921.45	10071.15	108.84
0.89	44.24	41310.13	2.00	41.52	31220.23	10089.91	108.86
0.89	44.51	41629.65	2.00	41.57	31519.34	10110.31	108.88
0.90	44.79	41951.13	2.00	41.62	31818.81	10132.33	108.91
0.90	45.06	42274.58	2.00	41.67	32118.65	10155.94	108.94
0.90	45.33	42599.99	2.00	41.73	32418.89	10181.11	108.96
0.90	45.61	42927.38	2.00	41.79	32719.57	10207.81	108.99
0.90	45.88	43256.73	2.00	41.86	33020.70	10236.03	109.03

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.91	46.15	43588.05	2.00	41.93	33322.32	10265.74	109.06
0.91	46.43	43921.34	2.00	42.00	33624.44	10296.91	109.09
0.91	46.70	44256.60	2.00	42.07	33927.09	10329.52	109.13
0.91	46.97	44593.82	2.00	42.15	34230.29	10363.54	109.17
0.91	47.25	44933.01	2.00	42.23	34534.07	10398.95	109.21
0.92	47.52	45274.17	2.00	42.32	34838.45	10435.73	109.25
0.92	47.79	45617.30	2.00	42.41	35143.45	10473.86	109.29
0.92	48.07	45962.40	2.00	42.50	35449.09	10513.32	109.34
0.92	48.34	46309.46	2.00	42.59	35755.40	10554.07	109.38
0.92	48.61	46658.49	2.00	42.69	36062.40	10596.10	109.43
0.93	48.89	47009.49	2.00	42.79	36370.10	10639.40	109.48
0.93	49.16	47362.46	2.00	42.89	36678.54	10683.93	109.53
0.93	49.43	47717.40	2.00	42.99	36987.72	10729.69	109.58
0.93	49.71	48074.30	2.00	43.10	37297.67	10776.64	109.63
0.93	49.98	48433.17	2.00	43.21	37608.42	10824.76	109.69
0.94	50.25	48794.01	2.00	43.33	37919.97	10874.05	109.74
0.94	50.53	49156.82	2.00	43.44	38232.35	10924.48	109.80
0.94	50.80	49521.60	2.00	43.56	38545.57	10976.03	109.86
0.94	51.07	49888.34	2.00	43.68	38859.66	11028.69	109.92
0.94	51.35	50257.05	2.00	43.81	39174.64	11082.42	109.98
0.95	51.62	50627.73	2.00	43.93	39490.51	11137.23	110.04
0.95	51.89	51000.38	2.00	44.06	39807.31	11193.08	110.10
0.95	52.17	51374.99	2.00	44.19	40125.04	11249.97	110.17
0.95	52.44	51751.58	2.00	44.33	40443.72	11307.87	110.23
0.95	52.71	52130.13	2.00	44.46	40763.37	11366.77	110.30
0.96	52.99	52510.65	2.00	44.60	41084.01	11426.65	110.37
0.96	53.26	52893.14	2.00	44.74	41405.65	11487.49	110.43
0.96	53.53	53277.60	2.00	44.89	41728.31	11549.29	110.50
0.96	53.81	53664.02	2.00	45.03	42052.01	11612.02	110.58
0.96	54.08	54052.41	2.00	45.18	42376.75	11675.67	110.65
0.97	54.35	54442.77	2.00	45.33	42702.56	11740.22	110.72
0.97	54.63	54835.10	2.00	45.48	43029.45	11805.66	110.79
0.97	54.90	55229.40	2.00	45.63	43357.43	11871.98	110.87
0.97	55.17	55625.66	2.00	45.78	43686.51	11939.16	110.94
0.97	55.45	56023.89	2.00	45.95	44016.74	12007.16	111.02
0.98	55.72	56424.09	2.00	46.13	44348.20	12075.90	111.10
0.98	55.99	56826.26	2.00	46.31	44680.96	12145.32	111.18
0.98	56.27	57230.40	2.00	46.49	45015.03	12215.38	111.25
0.98	56.54	57636.50	2.00	46.67	45350.42	12286.09	111.33
0.98	56.81	58044.57	2.00	46.86	45687.15	12357.43	111.41
0.99	57.09	58454.61	2.00	47.05	46025.23	12429.39	111.50
0.99	57.36	58866.62	2.00	47.24	46364.67	12501.96	111.58
0.99	57.63	59280.60	2.00	47.43	46705.47	12575.14	111.66
0.99	57.91	59696.54	2.00	47.62	47047.66	12648.89	111.74
0.99	58.18	60114.45	3.00	71.72	47477.31	12508.05	111.83
1.00	58.45	60534.33	3.00	70.51	47989.37	12544.98	111.48
1.00	58.73	60956.18	3.00	70.69	48497.69	12458.50	111.53
1.00	59.00	61379.99	3.00	70.35	49005.42	12374.58	111.43
1.00	60.36	61809.69	3.00	70.05	49510.88	12298.82	111.35
1.00	61.72	62249.18	3.00	69.80	50014.37	12234.82	111.27
1.01	63.08	62698.46	3.00	69.60	50516.21	12182.26	111.21
1.01	64.44	63157.53	3.00	69.44	51016.73	12140.81	111.17
1.01	65.80	63626.39	3.00	69.32	51516.23	12110.17	111.13
1.01	67.16	64105.05	3.00	69.24	52015.01	12090.05	111.11
1.01	68.52	64593.50	3.00	69.20	52513.37	12080.14	111.10
1.02	69.88	65091.74	3.00	69.20	53011.60	12080.15	111.10
1.02	71.24	65599.77	3.00	69.24	53509.96	12089.82	111.11
1.02	72.60	66117.59	3.00	69.31	54008.72	12108.88	111.13
1.02	73.96	66645.21	3.00	69.42	54508.15	12137.07	111.16
1.02	75.32	67182.61	3.00	69.57	55008.49	12174.13	111.21
1.03	76.68	67729.81	3.00	69.74	55510.01	12219.82	111.26
1.03	78.04	68286.81	3.00	69.96	56012.93	12273.89	111.32

1.03	79.40	68853.59	3.00	70.20	56517.49	12336.10	111.39
1.03	80.76	69430.16	3.00	70.48	57023.92	12406.25	111.47
1.03	82.12	70016.53	3.00	70.78	57532.44	12484.10	111.55
1.04	83.48	70612.69	3.00	71.11	58043.26	12569.44	111.65
1.04	84.84	71218.65	3.00	71.48	58556.60	12662.06	111.75
1.04	86.20	71834.38	3.00	71.87	59072.64	12761.76	111.87
1.04	87.56	72459.93	3.00	72.29	59591.59	12868.34	111.99
1.04	88.92	73095.25	3.00	72.73	60113.65	12981.62	112.11
1.05	90.28	73740.37	3.00	73.20	60638.99	13101.39	112.25
1.05	91.64	74395.28	3.00	73.69	61167.80	13227.50	112.39
1.05	93.00	75059.99	3.00	74.21	61700.25	13359.75	112.54
1.05	94.36	75734.49	3.00	74.75	62236.52	13497.98	112.70
1.05	95.72	76418.78	3.00	75.32	62776.77	13642.02	112.86

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.06	97.08	77112.85	3.00	75.90	63321.16	13791.70	113.03
1.06	98.44	77816.73	3.00	76.51	63869.86	13946.88	113.20
1.06	99.80	78530.40	3.00	77.14	64423.01	14107.39	113.38
1.06	101.16	79253.85	3.00	77.74	64980.58	14273.28	113.57
1.06	102.52	79987.10	4.00	104.34	65636.04	14163.26	113.76
1.07	103.88	80730.13	4.00	103.12	66382.87	14347.28	113.44
1.07	105.24	81482.97	4.00	103.98	67128.40	14354.58	113.66
1.07	106.60	82245.60	4.00	104.02	67877.18	14368.42	113.67
1.07	107.96	83018.01	4.00	104.11	68626.46	14391.56	113.70
1.07	109.32	83800.22	4.00	104.24	69376.53	14423.70	113.74
1.08	110.68	84592.22	4.00	104.40	70127.66	14464.57	113.78
1.08	112.04	85394.01	4.00	104.60	70880.08	14513.94	113.84
1.08	113.40	86205.59	4.00	104.83	71634.04	14571.57	113.90
1.08	114.76	87026.97	4.00	105.10	72389.78	14637.20	113.98
1.08	116.12	87858.14	4.00	105.39	73147.53	14710.63	114.06
1.09	117.48	88699.10	4.00	105.71	73907.49	14791.63	114.15
1.09	118.84	89549.85	4.00	106.07	74669.90	14879.97	114.25
1.09	120.20	90410.40	4.00	106.45	75434.94	14975.47	114.36
1.09	121.56	91280.74	4.00	106.86	76202.84	15077.91	114.47
1.09	122.92	92160.86	4.00	107.29	76973.78	15187.09	114.60
1.10	124.28	93050.78	4.00	107.76	77747.97	15302.82	114.73
1.10	125.64	93950.49	4.00	108.25	78525.58	15424.92	114.86
1.10	127.00	94860.00	4.00	108.76	79306.79	15553.22	115.01
1.10	127.78	95777.19	4.00	109.29	80091.75	15685.46	115.16
1.10	128.55	96699.98	4.00	109.82	80880.55	15819.44	115.31
1.11	129.33	97628.34	4.00	110.37	81673.23	15955.13	115.46
1.11	130.10	98562.31	4.00	110.92	82469.84	16092.48	115.62
1.11	130.88	99501.85	4.00	111.47	83270.44	16231.42	115.77
1.11	131.66	%100447.00	4.00	112.04	84075.08	16371.92	115.93
1.11	132.43	%101397.70	4.00	112.53	84883.51	16514.21	116.09
1.12	133.21	%102354.00	4.00	112.96	85695.28	16658.75	116.25
1.12	133.99	%103315.90	4.00	113.41	86510.21	16805.72	116.42
1.12	134.76	%104283.40	4.00	113.86	87328.35	16955.06	116.59
1.12	135.54	%105256.50	4.00	114.31	88149.78	17106.71	116.76
1.12	136.31	%106235.10	4.00	114.78	88974.52	17260.64	116.93
1.13	137.09	%107219.40	4.00	115.25	89802.62	17416.78	117.11
1.13	137.87	%108209.20	4.00	115.73	90634.15	17575.09	117.29
1.13	138.64	%109204.70	4.00	116.21	91469.13	17735.53	117.47
1.13	139.42	%110205.70	4.00	116.70	92307.62	17898.06	117.65
1.13	140.19	%111212.30	4.00	117.20	93149.68	18062.61	117.84
1.14	140.97	%112224.50	4.00	117.70	93995.32	18229.15	118.02
1.14	141.75	%113242.20	4.00	118.21	94844.60	18397.65	118.21
1.14	142.52	%114265.60	4.00	118.72	95697.57	18568.05	118.40
1.14	143.30	%115294.60	4.00	119.24	96554.26	18740.32	118.60
1.14	144.07	%116329.10	4.00	119.77	97414.71	18914.41	118.79
1.15	144.85	%117369.20	4.00	120.30	98278.96	19090.29	118.99
1.15	145.63	%118415.00	4.00	120.84	99147.06	19267.92	119.19
1.15	146.40	%119466.30	4.00	121.38	%100019.00	19447.25	119.39
1.15	147.18	%120523.20	4.00	121.93	%100894.90	19628.25	119.60
1.15	147.96	%121585.70	4.00	122.48	%101774.80	19810.86	119.81

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.16	148.73	%122653.70	4.00	123.00	%102658.60	19995.17	120.00
1.16	149.51	%123727.40	4.00	123.06	%103544.40	20183.00	120.02
1.16	150.28	%124806.60	4.00	123.12	%104430.60	20376.01	120.04
1.16	151.06	%125891.50	4.00	123.18	%105317.30	20574.19	120.07
1.16	151.84	%126981.90	4.00	123.24	%106204.40	20777.53	120.09
1.17	152.61	%128077.90	4.00	123.30	%107091.90	20986.02	120.11
1.17	152.74	%129177.20	4.00	123.36	%107979.90	21197.32	120.13
1.17	152.23	%130275.10	4.00	123.42	%108868.30	21406.79	120.16
1.17	151.71	%131369.30	4.00	123.48	%109757.20	21612.11	120.18
1.17	151.20	%132459.70	4.00	123.54	%110646.50	21813.28	120.20
1.18	150.68	%133546.50	4.00	123.60	%111536.20	22010.32	120.22
1.18	150.17	%134629.50	4.00	123.66	%112426.30	22203.23	120.25

1.18	149.65	%135708.90	4.00	123.72	%113316.90	22392.03	120.27
1.18	149.14	%136784.50	4.00	123.77	%114207.80	22576.72	120.29
1.18	148.62	%137856.40	4.00	123.82	%115099.10	22757.31	120.31
1.19	148.11	%138924.70	4.00	123.88	%115990.90	22933.81	120.33
1.19	147.59	%139989.20	4.00	123.93	%116883.00	23106.24	120.35
1.19	147.08	%141050.00	4.00	123.98	%117775.40	23274.58	120.36
1.19	146.56	%142107.10	4.00	124.03	%118668.20	23438.87	120.38
1.19	146.05	%143160.40	4.00	124.07	%119561.40	23599.09	120.40
1.20	145.53	%144210.10	4.00	124.12	%120454.90	23755.27	120.42
1.20	145.02	%145256.10	4.00	124.16	%121348.70	23907.42	120.43
1.20	144.50	%146298.30	4.00	124.21	%122242.80	24055.53	120.45
1.20	143.98	%147336.90	4.00	124.25	%123137.30	24199.62	120.47
1.20	143.47	%148371.70	4.00	124.29	%124032.00	24339.71	120.48
1.21	142.95	%149402.90	4.00	124.33	%124927.10	24475.78	120.50
1.21	142.44	%150430.30	4.00	124.37	%125822.40	24607.86	120.51
1.21	141.92	%151454.00	4.00	124.41	%126718.00	24735.95	120.53
1.21	141.41	%152474.00	4.00	124.45	%127613.90	24860.07	120.54
1.21	140.89	%153490.30	4.00	124.48	%128510.10	24980.21	120.55
1.22	140.38	%154502.90	4.00	124.52	%129406.50	25096.39	120.57
1.22	139.86	%155511.70	4.00	124.55	%130303.10	25208.63	120.58
1.22	139.35	%156516.90	4.00	124.58	%131200.00	25316.90	120.59
1.22	138.83	%157518.30	4.00	124.61	%132097.10	25421.25	120.60
1.22	138.32	%158516.10	4.00	124.64	%132994.40	25521.67	120.61
1.23	137.80	%159510.10	4.00	124.67	%133892.00	25618.17	120.62
1.23	137.29	%160500.40	4.00	124.70	%134789.70	25710.76	120.63
1.23	136.77	%161487.10	4.00	124.73	%135687.60	25799.46	120.64
1.23	136.26	%162470.00	4.00	124.75	%136585.70	25884.26	120.65
1.23	135.59	%163448.60	4.00	124.77	%137484.00	25964.64	120.66
1.24	134.78	%164422.00	4.00	124.80	%138382.50	26039.56	120.67
1.24	133.98	%165389.60	4.00	124.82	%139281.10	26108.48	120.68
1.24	133.17	%166351.30	4.00	124.84	%140179.80	26171.43	120.68
1.24	132.35	%167307.10	4.00	124.85	%141078.70	26228.43	120.69
1.24	131.54	%168257.20	4.00	124.87	%141977.70	26279.48	120.70
1.25	130.73	%169201.40	4.00	124.88	%142876.80	26324.59	120.70
1.25	129.93	%170139.80	4.00	124.89	%143776.00	26363.78	120.71
1.25	129.12	%171072.30	4.00	124.90	%144675.30	26397.06	120.71
1.25	128.30	%171999.00	4.00	124.91	%145574.60	26424.45	120.71
1.25	127.49	%172919.90	4.00	124.92	%146474.00	26445.95	120.72
1.26	126.69	%173834.90	4.00	124.92	%147373.40	26461.57	120.72
1.26	125.88	%174744.20	4.00	124.92	%148272.80	26471.34	120.72
1.26	125.07	%175647.60	4.00	124.93	%149172.30	26475.26	120.72
1.26	124.25	%176545.10	4.00	124.93	%150071.80	26473.34	120.72
1.26	123.44	%177436.80	4.00	124.92	%150971.20	26465.60	120.72
1.27	122.64	%178322.70	4.00	124.92	%151870.70	26452.06	120.72
1.27	121.83	%179202.80	4.00	124.91	%152770.10	26432.73	120.71
1.27	121.01	%180077.00	4.00	124.91	%153669.40	26407.60	120.71
1.27	120.20	%180945.40	4.00	124.90	%154568.70	26376.71	120.71
1.27	119.39	%181807.90	4.00	124.89	%155467.90	26340.06	120.70
1.28	118.59	%182664.70	4.00	124.87	%156367.00	26297.67	120.70
1.28	117.77	%183515.60	4.00	124.86	%157266.10	26249.53	120.69
1.28	116.96	%184360.60	4.00	124.84	%158165.00	26195.67	120.69
1.28	116.15	%185199.90	4.00	124.83	%159063.80	26136.09	120.68
1.28	115.34	%186033.30	4.00	124.81	%159962.50	26070.82	120.67
1.29	114.54	%186860.80	4.00	124.78	%160861.00	25999.85	120.67
1.29	113.72	%187682.60	4.00	124.76	%161759.40	25923.21	120.66
1.29	112.91	%188498.50	4.00	124.74	%162657.60	25840.92	120.65
1.29	112.10	%189308.60	4.00	124.71	%163555.60	25752.98	120.64
1.29	111.30	%190112.80	4.00	124.68	%164453.40	25659.39	120.63
1.30	110.49	%190911.20	4.00	124.65	%165351.00	25560.17	120.62
1.30	109.67	%191703.80	4.00	124.62	%166248.40	25455.34	120.61
1.30	108.86	%192490.50	4.00	124.59	%167145.60	25344.92	120.59
1.30	108.05	%193271.40	4.00	124.56	%168042.50	25228.90	120.58
1.30	107.25	%194046.50	4.00	124.52	%168939.20	25107.31	120.57
1.31	106.44	%194815.80	4.00	124.48	%169835.60	24980.15	120.55
1.31	105.62	%195579.20	4.00	124.44	%170731.70	24847.45	120.54
1.31	104.81	%196336.80	4.00	124.40	%171627.60	24709.18	120.52
1.31	104.00	%197088.50	4.00	124.36	%172523.10	24565.39	120.51
1.31	103.20	%197834.40	4.00	124.32	%173418.40	24416.07	120.49
1.32	102.38	%198574.50	4.00	124.27	%174313.30	24261.26	120.47
1.32	101.57	%199308.80	4.00	124.22	%175207.80	24100.95	120.46
1.32	100.76	%200037.20	4.00	124.17	%176102.10	23935.15	120.44
1.32	99.95	%200759.80	4.00	124.12	%176995.90	23763.89	120.42
1.32	99.14	%201476.60	4.00	124.07	%177889.40	23587.17	120.40
1.33	98.33	%202187.50	4.00	124.02	%178782.50	23404.98	120.38
1.33	97.52	%202892.60	4.00	123.96	%179675.20	23217.35	120.36
1.33	96.71	%203591.80	4.00	123.90	%180567.50	23024.31	120.34
1.33	95.91	%204285.30	4.00	123.84	%181459.40	22825.85	120.31
1.33	95.09	%204972.90	4.00	123.78	%182350.90	22622.00	120.29
1.34	94.28	%205654.60	4.00	123.72	%183241.90	22412.75	120.27
1.34	93.47	%206330.60	4.00	123.66	%184132.50	22198.12	120.25
1.34	92.66	%207000.70	4.00	123.59	%185022.60	21978.14	120.22
1.34	91.85	%207664.90	4.00	123.53	%185912.20	21752.78	120.20
1.34	91.04	%208323.40	4.00	123.46	%186801.30	21522.07	120.17

1.35	90.23	%208976.00	4.00	123.39	%187690.00	21286.04	120.14
1.35	89.42	%209622.80	4.00	123.32	%188578.10	21044.70	120.12
1.35	88.61	%210263.70	4.00	123.24	%189465.70	20798.03	120.09
1.35	87.81	%210898.80	4.00	123.17	%190352.80	20546.06	120.06
1.35	86.99	%211528.10	4.00	123.09	%191239.30	20288.81	120.03
1.36	86.18	%212151.60	4.00	123.01	%192125.30	20026.28	120.01
1.36	85.37	%212769.20	4.00	122.33	%193008.50	19760.65	119.75
1.36	84.56	%213381.00	4.00	121.52	%193886.40	19494.57	119.45
1.36	83.75	%213986.90	4.00	120.72	%194758.40	19228.46	119.15
1.36	82.94	%214587.00	4.00	119.91	%195624.70	18962.31	118.85
1.37	82.13	%215181.30	4.00	119.11	%196485.20	18696.10	118.55
1.37	81.32	%215769.80	4.00	118.31	%197339.90	18429.85	118.25
1.37	80.51	%216352.40	4.00	117.50	%198188.80	18163.56	117.95
1.37	79.70	%216929.20	4.00	116.70	%199032.00	17897.21	117.65
1.37	78.89	%217500.10	4.00	115.90	%199869.30	17630.82	117.35
1.38	78.08	%218065.30	4.00	115.09	%200700.90	17364.39	117.05
1.38	77.27	%218624.60	4.00	114.29	%201526.60	17097.92	116.75
1.38	76.46	%219178.00	4.00	113.48	%202346.60	16831.40	116.45
1.38	75.65	%219725.70	4.00	112.68	%203160.80	16564.84	116.15
1.38	74.84	%220267.50	4.00	111.74	%203968.70	16298.71	115.85
1.39	74.03	%220803.40	4.00	110.68	%204769.50	16033.95	115.55
1.39	73.22	%221333.60	4.00	109.63	%205562.60	15770.98	115.25
1.39	72.41	%221857.90	4.00	108.58	%206348.10	15509.71	114.96
1.39	71.60	%222376.30	4.00	107.55	%207126.20	15250.12	114.67
1.39	70.79	%222889.00	4.00	106.51	%207896.80	14992.14	114.38
1.40	69.98	%223395.80	4.00	105.49	%208660.10	14735.73	114.09
1.40	69.17	%223896.70	4.00	104.47	%209415.90	14480.84	113.80
1.40	68.36	%224391.90	4.00	103.46	%210164.50	14227.45	113.52
1.40	67.55	%224881.20	4.00	102.16	%210904.70	13976.56	113.23
1.40	66.74	%225364.70	4.00	100.86	%211635.50	13729.17	112.95

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.41	65.93	%225842.30	4.00	99.59	%212357.20	13485.18	112.68
1.41	65.12	%226314.10	4.00	98.33	%213069.70	13244.49	112.41
1.41	64.31	%226780.10	4.00	97.09	%213773.20	13006.96	112.14
1.41	63.50	%227240.30	3.00	71.90	%214467.80	12858.76	111.88
1.41	62.69	%227694.60	3.00	72.00	%214985.80	12708.76	111.90
1.42	61.88	%228143.10	3.00	71.39	%215502.00	12641.04	111.73
1.42	61.07	%228585.70	3.00	71.12	%216015.10	12570.67	111.65
1.42	60.26	%229022.60	3.00	70.83	%216526.10	12496.48	111.57
1.42	59.45	%229453.50	3.00	70.52	%217035.00	12418.59	111.48
1.42	58.64	%229878.70	3.00	70.20	%217541.60	12337.12	111.39
1.43	57.83	%230298.00	3.00	69.87	%218045.90	12252.18	111.29
1.43	57.02	%230711.50	3.00	69.53	%218547.70	12163.85	111.19
1.43	56.21	%231119.20	3.00	69.17	%219047.00	12072.21	111.09
1.43	55.40	%231521.00	3.00	68.80	%219543.70	11977.35	110.98
1.43	54.87	%231918.00	3.00	68.47	%220037.80	11880.18	110.87
1.44	54.60	%232312.10	3.00	68.13	%220529.60	11782.53	110.77
1.44	54.33	%232704.20	3.00	67.79	%221018.90	11685.37	110.66
1.44	54.07	%233094.50	3.00	67.46	%221505.80	11588.70	110.55
1.44	53.80	%233482.80	3.00	67.13	%221990.30	11492.51	110.44
1.44	53.53	%233869.20	3.00	66.79	%222472.40	11396.81	110.33
1.45	53.27	%234253.70	3.00	66.46	%222952.10	11301.56	110.22
1.45	53.00	%234636.20	3.00	66.14	%223429.50	11206.76	110.12
1.45	52.73	%235016.90	3.00	65.81	%223904.50	11112.39	110.01
1.45	52.47	%235395.60	2.00	43.66	%224377.20	11070.82	109.90
1.45	52.20	%235772.40	2.00	43.92	%224692.50	11079.93	110.03
1.46	51.93	%236147.30	2.00	43.94	%225008.80	11138.51	110.04
1.46	51.67	%236520.20	2.00	44.07	%225325.60	11194.65	110.11
1.46	51.40	%236891.30	2.00	44.19	%225643.30	11247.96	110.17
1.46	51.13	%237260.40	2.00	44.31	%225961.90	11298.49	110.22
1.46	50.87	%237627.60	2.00	44.42	%226281.30	11346.29	110.28
1.47	50.60	%237992.90	2.00	44.52	%226601.50	11391.40	110.33
1.47	50.33	%238356.20	2.00	44.62	%226922.40	11433.85	110.37
1.47	50.07	%238717.70	2.00	44.71	%227244.00	11473.70	110.42
1.47	49.80	%239077.20	2.00	44.80	%227566.20	11510.98	110.46
1.47	49.53	%239434.80	2.00	44.88	%227889.00	11545.74	110.50
1.48	49.27	%239790.50	2.00	44.95	%228212.40	11578.06	110.54
1.48	49.00	%240144.20	2.00	45.02	%228536.30	11607.93	110.57
1.48	48.73	%240496.10	2.00	45.08	%228860.70	11635.40	110.60
1.48	48.47	%240846.00	2.00	45.14	%229185.50	11660.51	110.63
1.48	48.20	%241194.00	2.00	45.19	%229510.70	11683.31	110.66
1.49	47.93	%241540.10	2.00	45.24	%229836.30	11703.82	110.68
1.49	47.67	%241884.20	2.00	45.28	%230162.20	11722.09	110.70
1.49	47.40	%242226.50	2.00	45.32	%230488.30	11738.15	110.72
1.49	47.13	%242566.80	2.00	45.35	%230814.70	11752.04	110.73
1.49	46.87	%242905.20	2.00	45.38	%231141.40	11763.81	110.75
1.50	46.60	%243241.70	2.00	45.40	%231468.20	11773.48	110.76
1.50	46.33	%243576.20	2.00	45.42	%231795.20	11781.09	110.77
1.50	46.07	%243908.90	2.00	45.43	%232122.20	11786.67	110.77
1.50	45.80	%244239.60	2.00	45.44	%232449.40	11790.24	110.78

1.50	45.53	%244568.40	2.00	45.44	%232776.50	11791.85	110.78
1.51	45.27	%244895.30	2.00	45.44	%233103.70	11791.53	110.78
1.51	45.00	%245220.20	2.00	45.44	%233430.90	11789.31	110.77
1.51	44.73	%245543.30	2.00	45.43	%233758.00	11785.23	110.77
1.51	44.47	%245864.40	2.00	45.42	%234085.10	11779.31	110.76
1.51	44.20	%246183.60	2.00	45.40	%234412.00	11771.59	110.75
1.52	43.93	%246500.90	2.00	45.38	%234738.80	11762.09	110.74
1.52	43.67	%246816.20	2.00	45.35	%235065.40	11750.84	110.73
1.52	43.40	%247129.70	2.00	45.32	%235391.80	11737.87	110.72
1.52	43.13	%247441.20	2.00	45.29	%235718.00	11723.20	110.70
1.52	42.87	%247750.80	2.00	45.25	%236043.90	11706.87	110.68
1.53	42.60	%248058.50	2.00	45.21	%236369.60	11688.92	110.66
1.53	42.33	%248364.20	2.00	45.16	%236694.90	11669.35	110.64
1.53	42.07	%248668.10	2.00	45.11	%237019.90	11648.21	110.62
1.53	41.80	%248970.00	2.00	45.06	%237344.50	11625.51	110.59
1.53	41.53	%249270.00	2.00	45.00	%237668.70	11601.28	110.56
1.54	41.27	%249568.10	2.00	44.95	%237992.60	11575.53	110.53
1.54	41.00	%249864.20	2.00	44.88	%238315.90	11548.31	110.50
1.54	40.73	%250158.50	2.00	44.82	%238638.90	11519.62	110.47
1.54	40.47	%250450.80	2.00	44.75	%238961.30	11489.49	110.44
1.54	40.20	%250741.20	2.00	44.67	%239283.20	11457.98	110.40
1.55	39.93	%251029.70	2.00	44.60	%239604.60	11425.07	110.36
1.55	39.67	%251316.20	2.00	44.52	%239925.40	11390.81	110.33
1.55	39.40	%251600.90	2.00	44.44	%240245.70	11355.20	110.29
1.55	39.13	%251883.60	2.00	44.35	%240565.30	11318.28	110.24
1.55	38.87	%252164.40	2.00	44.26	%240884.30	11280.06	110.20

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.56	38.60	%252443.30	2.00	44.17	%241202.70	11240.56	110.16
1.56	38.33	%252720.20	2.00	44.08	%241520.40	11199.81	110.11
1.56	38.07	%252995.30	2.00	43.98	%241837.40	11157.84	110.06
1.56	37.80	%253268.40	2.00	43.88	%242153.70	11114.65	110.02
1.56	37.53	%253539.60	2.00	43.78	%242469.30	11070.26	109.97
1.57	37.27	%253808.90	2.00	43.68	%242784.20	11024.70	109.91
1.57	37.00	%254076.20	2.00	43.57	%243098.30	10977.98	109.86
1.57	36.73	%254341.70	2.00	43.46	%243411.60	10930.12	109.81
1.57	36.47	%254605.20	2.00	43.34	%243724.00	10881.15	109.75
1.57	36.20	%254866.80	2.00	43.23	%244035.70	10831.09	109.70
1.58	35.93	%255126.50	2.00	43.11	%244346.50	10779.95	109.64
1.58	35.67	%255384.20	2.00	42.99	%244656.50	10727.74	109.58
1.58	35.40	%255640.10	2.00	42.87	%244965.60	10674.49	109.52
1.58	35.13	%255894.00	2.00	42.74	%245273.80	10620.21	109.46
1.58	34.87	%256146.00	2.00	42.62	%245581.10	10564.93	109.40
1.59	34.60	%256396.10	2.00	42.49	%245887.40	10508.65	109.33
1.59	34.33	%256644.20	2.00	42.35	%246192.90	10451.39	109.27
1.59	34.07	%256890.50	2.00	42.22	%246497.30	10393.17	109.20
1.59	33.80	%257134.80	2.00	42.08	%246800.80	10333.99	109.14
1.59	33.53	%257377.20	2.00	41.94	%247103.30	10273.90	109.07
1.60	33.27	%257617.70	2.00	41.80	%247404.80	10212.90	109.00
1.60	33.00	%257856.20	2.00	41.66	%247705.20	10150.99	108.93
1.60	32.73	%258092.90	2.00	41.52	%248004.70	10088.20	108.86
1.60	32.47	%258327.60	2.00	41.37	%248303.10	10024.53	108.79
1.60	32.20	%258560.40	2.00	41.22	%248600.40	9960.01	108.71
1.61	31.93	%258791.30	2.00	41.07	%248896.60	9894.65	108.64
1.61	31.67	%259020.20	2.00	40.92	%249191.80	9828.45	108.57
1.61	31.40	%259247.30	2.00	40.76	%249485.80	9761.45	108.49
1.61	31.13	%259472.40	2.00	40.61	%249778.70	9693.65	108.41
1.61	30.87	%259695.60	2.00	40.45	%250070.50	9625.06	108.34
1.62	30.60	%259916.90	2.00	40.29	%250361.20	9555.70	108.26
1.62	30.33	%260136.20	2.00	40.13	%250650.70	9485.57	108.18
1.62	30.07	%260353.70	2.00	39.96	%250939.00	9414.70	108.10
1.62	29.80	%260569.20	2.00	39.80	%251226.10	9343.07	108.02
1.62	29.53	%260782.80	1.00	19.82	%251512.10	9294.51	107.94
1.63	29.27	%260994.50	1.00	19.92	%251655.10	9339.35	108.04
1.63	29.00	%261204.20	1.00	19.97	%251798.70	9405.49	108.09
1.63	28.73	%261412.10	1.00	20.05	%251942.80	9469.28	108.16
1.63	28.47	%261618.00	1.00	20.12	%252087.40	9530.62	108.23
1.63	28.20	%261822.00	1.00	20.18	%252232.50	9589.54	108.30
1.64	27.93	%262024.10	1.00	20.25	%252378.00	9646.06	108.36
1.64	27.67	%262224.20	1.00	20.31	%252524.00	9700.20	108.42
1.64	27.40	%262422.50	1.00	20.37	%252670.50	9751.99	108.48
1.64	27.13	%262618.80	1.00	20.43	%252817.40	9801.43	108.54
1.64	26.87	%262813.20	1.00	20.48	%252964.70	9848.56	108.59
1.65	26.60	%263005.70	1.00	20.53	%253112.30	9893.37	108.64
1.65	26.33	%263196.20	1.00	20.58	%253260.30	9935.92	108.69
1.65	26.07	%263384.90	1.00	20.63	%253408.70	9976.18	108.73
1.65	25.80	%263571.60	1.00	20.67	%253557.40	10014.21	108.78
1.65	25.53	%263756.40	1.00	20.71	%253706.40	10050.03	108.82
1.66	25.27	%263939.30	1.00	20.75	%253855.70	10083.62	108.86
1.66	25.00	%264120.20	1.00	20.79	%254005.20	10115.03	108.89
1.66	24.73	%264299.30	1.00	20.82	%254155.00	10144.24	108.92

1.66	24.47	%264476.40	1.00	20.85	%254305.10	10171.32	108.95
1.66	24.20	%264651.60	1.00	20.88	%254455.30	10196.26	108.98
1.67	23.93	%264824.90	1.00	20.91	%254605.80	10219.09	109.01
1.67	23.67	%264996.20	1.00	20.93	%254756.40	10239.82	109.03
1.67	23.40	%265165.70	1.00	20.96	%254907.20	10258.46	109.05
1.67	23.13	%265333.20	1.00	20.97	%255058.20	10275.04	109.07
1.67	22.87	%265498.80	1.00	20.99	%255209.20	10289.56	109.09
1.68	22.60	%265662.50	1.00	21.01	%255360.40	10302.06	109.10
1.68	22.33	%265824.20	1.00	21.02	%255511.70	10312.53	109.11
1.68	22.07	%265984.10	1.00	21.03	%255663.10	10321.01	109.12
1.68	21.80	%266142.00	1.00	21.03	%255814.50	10327.49	109.13
1.68	21.53	%266298.00	1.00	21.04	%255966.00	10332.03	109.13
1.69	21.27	%266452.10	1.00	21.04	%256117.50	10334.62	109.14
1.69	21.00	%266604.20	1.00	21.04	%256269.00	10335.26	109.14
1.69	20.73	%266754.50	1.00	21.04	%256420.50	10333.99	109.14
1.69	20.47	%266902.80	1.00	21.04	%256572.00	10330.82	109.13
1.69	20.20	%267049.20	1.00	21.03	%256723.40	10325.78	109.13
1.70	19.93	%267193.70	1.00	21.02	%256874.80	10318.84	109.12
1.70	19.67	%267336.20	1.00	21.01	%257026.20	10310.06	109.11
1.70	19.40	%267476.90	1.00	21.00	%257177.50	10299.42	109.10
1.70	19.13	%267615.60	1.00	20.99	%257328.60	10286.96	109.08
1.70	18.87	%267752.40	1.00	20.97	%257479.70	10272.71	109.07

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.71	18.60	%267887.30	1.00	20.95	%257630.60	10256.67	109.05
1.71	18.33	%268020.20	1.00	20.93	%257781.40	10238.85	109.03
1.71	18.07	%268151.30	1.00	20.91	%257932.00	10219.24	109.01
1.71	17.80	%268280.40	1.00	20.89	%258082.50	10197.90	108.98
1.71	17.53	%268407.60	1.00	20.86	%258232.80	10174.81	108.96
1.72	17.27	%268532.90	1.00	20.83	%258382.90	10150.01	108.93
1.72	17.00	%268656.20	1.00	20.80	%258532.70	10123.53	108.90
1.72	16.73	%268777.70	1.00	20.77	%258682.40	10095.32	108.87
1.72	16.47	%268897.20	1.00	20.73	%258831.80	10065.45	108.83
1.72	16.20	%269014.80	1.00	20.70	%258980.90	10033.90	108.80
1.73	15.93	%269130.50	1.00	20.66	%259129.80	10000.71	108.76
1.73	15.67	%269244.20	1.00	20.62	%259278.40	9965.87	108.72
1.73	15.40	%269356.10	1.00	20.58	%259426.70	9929.42	108.68
1.73	15.13	%269466.00	1.00	20.53	%259574.70	9891.34	108.64
1.73	14.97	%269574.40	1.00	20.49	%259722.30	9852.04	108.59
1.74	14.91	%269681.90	1.00	20.44	%259869.70	9812.26	108.55
1.74	14.85	%269789.00	1.00	20.39	%260016.70	9772.39	108.50
1.74	14.79	%269895.80	1.00	20.35	%260163.30	9732.43	108.46
1.74	14.73	%270002.00	1.00	20.30	%260309.70	9692.37	108.41
1.74	14.67	%270107.90	1.00	20.26	%260455.70	9652.20	108.37
1.75	14.61	%270213.30	1.00	20.21	%260601.40	9611.93	108.32
1.75	14.55	%270318.30	1.00	20.16	%260746.70	9571.56	108.28
1.75	14.49	%270422.80	1.00	20.12	%260891.70	9531.12	108.23
1.75	14.43	%270527.00	1.00	20.07	%261036.40	9490.57	108.19
1.75	14.37	%270630.60	1.00	20.02	%261180.70	9449.93	108.14
1.76	14.31	%270733.90	1.00	19.98	%261324.70	9409.18	108.10
1.76	14.25	%270836.70	1.00	19.93	%261468.40	9368.34	108.05
1.76	14.19	%270939.10	1.00	19.88	%261611.70	9327.43	108.00
1.76	14.13	%271041.10	1.00	19.83	%261754.70	9286.42	107.96
1.76	14.07	%271142.60	1.00	19.79	%261897.30	9245.31	107.91
1.77	14.01	%271243.70	1.00	19.74	%262039.60	9204.10	107.86
1.77	13.95	%271344.40	1.00	19.69	%262181.50	9162.82	107.82
1.77	13.89	%271444.60	1.00	19.64	%262323.10	9121.45	107.77
1.77	13.83	%271544.40	1.00	19.60	%262464.40	9080.01	107.72
1.77	13.77	%271643.80	1.00	19.55	%262605.30	9038.48	107.68
1.78	13.71	%271742.70	1.00	19.50	%262745.90	8996.85	107.63
1.78	13.65	%271841.20	1.00	19.45	%262886.10	8955.14	107.58
1.78	13.59	%271939.30	1.00	19.40	%263026.00	8913.32	107.54
1.78	13.53	%272036.90	1.00	19.36	%263165.50	8871.45	107.49
1.78	13.47	%272134.10	1.00	19.31	%263304.70	8829.48	107.44
1.79	13.41	%272230.90	1.00	19.26	%263443.50	8787.42	107.40
1.79	13.35	%272327.30	1.00	19.21	%263582.00	8745.26	107.35
1.79	13.29	%272423.20	1.00	19.16	%263720.10	8703.04	107.30
1.79	13.23	%272518.70	1.00	19.11	%263857.90	8660.76	107.25
1.79	13.17	%272613.70	1.00	19.06	%263995.40	8618.39	107.21
1.80	13.11	%272708.40	1.00	19.02	%264132.50	8575.92	107.16
1.80	13.05	%272802.50	1.00	18.97	%264269.20	8533.39	107.11
1.80	12.99	%272896.30	1.00	18.92	%264405.50	8490.76	107.06
1.80	12.93	%272989.60	1.00	18.87	%264541.60	8448.07	107.01
1.80	12.87	%273082.50	1.00	18.82	%264677.20	8405.32	106.97
1.81	12.81	%273175.00	1.00	18.77	%264812.50	8362.48	106.92
1.81	12.75	%273267.00	1.00	18.72	%264947.50	8319.54	106.87
1.81	12.69	%273358.60	1.00	18.67	%265082.10	8276.54	106.82
1.81	12.63	%273449.80	1.00	18.62	%265216.40	8233.48	106.77
1.81	12.57	%273540.60	1.00	18.57	%265350.20	8190.35	106.72
1.82	12.51	%273630.90	1.00	18.52	%265483.80	8147.14	106.67
1.82	12.45	%273720.80	1.00	18.47	%265616.90	8103.85	106.63

1.82	12.39	%273810.20	1.00	18.42	%265749.70	8060.48	106.58
1.82	12.33	%273899.20	1.00	18.37	%265882.20	8017.07	106.53
1.82	12.27	%273987.80	1.00	18.32	%266014.30	7973.57	106.48
1.83	12.21	%274076.00	1.00	18.27	%266146.00	7930.01	106.43
1.83	12.15	%274163.70	1.00	18.22	%266277.40	7886.35	106.38
1.83	12.09	%274251.00	1.00	18.17	%266408.40	7842.64	106.33
1.83	12.03	%274337.80	1.00	18.12	%266539.00	7798.85	106.28
1.83	11.97	%274424.30	1.00	18.07	%266669.30	7755.01	106.23
1.84	11.91	%274510.30	1.00	18.02	%266799.20	7711.10	106.18
1.84	11.85	%274595.80	1.00	17.97	%266928.70	7667.14	106.13
1.84	11.79	%274681.00	1.00	17.92	%267057.90	7623.07	106.08
1.84	11.73	%274765.60	1.00	17.87	%267186.70	7578.95	106.03
1.84	11.67	%274849.90	0.00	0.00	%267315.20	7534.76	105.98
1.85	11.61	%274933.80	0.00	0.00	%267315.20	7618.60	106.08
1.85	11.55	%275017.20	0.00	0.00	%267315.20	7702.01	106.17
1.85	11.49	%275100.10	0.00	0.00	%267315.20	7784.98	106.27
1.85	11.43	%275182.70	0.00	0.00	%267315.20	7867.51	106.36
1.85	11.37	%275264.80	0.00	0.00	%267315.20	7949.64	106.45

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.86	11.31	%275346.50	0.00	0.00	%267315.20	8031.32	106.54
1.86	11.25	%275427.70	0.00	0.00	%267315.20	8112.57	106.64
1.86	11.19	%275508.50	0.00	0.00	%267315.20	8193.39	106.73
1.86	11.13	%275588.90	0.00	0.00	%267315.20	8273.76	106.82
1.86	11.07	%275668.90	0.00	0.00	%267315.20	8353.73	106.91
1.87	11.01	%275748.40	0.00	0.00	%267315.20	8433.26	107.00
1.87	10.96	%275827.50	0.00	0.00	%267315.20	8512.35	107.09
1.87	10.90	%275906.20	0.00	0.00	%267315.20	8591.01	107.17
1.87	10.84	%275984.40	0.00	0.00	%267315.20	8669.23	107.26
1.87	10.78	%276062.20	0.00	0.00	%267315.20	8747.04	107.35
1.88	10.72	%276139.60	0.00	0.00	%267315.20	8824.42	107.44
1.88	10.66	%276216.50	0.00	0.00	%267315.20	8901.35	107.52
1.88	10.60	%276293.00	0.00	0.00	%267315.20	8977.85	107.61
1.88	10.54	%276369.10	0.00	0.00	%267315.20	9053.92	107.70
1.88	10.48	%276444.70	0.00	0.00	%267315.20	9129.54	107.78
1.89	10.42	%276519.90	0.00	0.00	%267315.20	9204.76	107.87
1.89	10.36	%276594.70	0.00	0.00	%267315.20	9279.54	107.95
1.89	10.30	%276669.00	1.00	19.91	%267386.90	9246.35	108.03
1.89	10.24	%276743.00	1.00	19.71	%267529.50	9213.48	107.83
1.89	10.18	%276816.40	1.00	19.67	%267671.30	9145.17	107.80
1.90	10.12	%276889.50	1.00	19.59	%267812.60	9076.89	107.72
1.90	10.06	%276962.10	1.00	19.51	%267953.40	9008.73	107.64
1.90	10.00	%277034.30	1.00	19.44	%268093.60	8940.70	107.57
1.90	9.94	%277106.00	1.00	19.36	%268233.30	8872.79	107.49
1.90	9.88	%277177.40	1.00	19.28	%268372.40	8805.01	107.42
1.91	9.82	%277248.30	1.00	19.20	%268510.90	8737.39	107.34
1.91	9.76	%277318.70	1.00	19.12	%268648.90	8669.89	107.26
1.91	9.70	%277388.80	1.00	19.05	%268786.30	8602.51	107.19
1.91	9.64	%277458.40	1.00	18.97	%268923.10	8535.26	107.11
1.91	9.58	%277527.50	1.00	18.89	%269059.40	8468.14	107.04
1.92	9.52	%277596.30	1.00	18.81	%269195.10	8401.14	106.96
1.92	9.46	%277664.60	1.00	18.74	%269330.30	8334.26	106.89
1.92	9.40	%277732.50	1.00	18.66	%269465.00	8267.51	106.81
1.92	9.34	%277799.90	1.00	18.58	%269599.00	8200.89	106.73
1.92	9.28	%277866.90	1.00	18.51	%269732.50	8134.35	106.66
1.93	9.22	%277933.50	1.00	18.43	%269865.50	8067.98	106.59
1.93	9.16	%277999.60	1.00	18.35	%269997.90	8001.73	106.51
1.93	9.10	%278065.40	1.00	18.28	%270129.80	7935.57	106.44
1.93	9.04	%278130.60	1.00	18.20	%270261.10	7869.54	106.36
1.93	8.98	%278195.50	1.00	18.12	%270391.90	7803.60	106.29
1.94	8.92	%278259.90	1.00	18.05	%270522.10	7737.82	106.21
1.94	8.86	%278323.90	1.00	17.97	%270651.80	7672.14	106.14
1.94	8.80	%278387.50	1.00	17.90	%270780.90	7606.57	106.07
1.94	8.74	%278450.60	0.00	0.00	%270909.50	7541.10	105.99
1.94	8.68	%278513.30	0.00	0.00	%270909.50	7603.79	106.06
1.95	8.62	%278575.50	0.00	0.00	%270909.50	7666.04	106.13
1.95	8.56	%278637.40	0.00	0.00	%270909.50	7727.89	106.20
1.95	8.50	%278698.80	0.00	0.00	%270909.50	7789.29	106.27
1.95	8.44	%278759.80	0.00	0.00	%270909.50	7850.26	106.34
1.95	8.38	%278820.30	0.00	0.00	%270909.50	7910.79	106.41
1.96	8.32	%278880.40	0.00	0.00	%270909.50	7970.89	106.48
1.96	8.26	%278940.10	0.00	0.00	%270909.50	8030.57	106.54
1.96	8.20	%278999.30	0.00	0.00	%270909.50	8089.82	106.61
1.96	8.14	%279058.10	0.00	0.00	%270909.50	8148.64	106.68
1.96	8.08	%279116.50	0.00	0.00	%270909.50	8207.01	106.74
1.97	8.02	%279174.50	0.00	0.00	%270909.50	8264.95	106.81
1.97	7.96	%279232.00	0.00	0.00	%270909.50	8322.48	106.87
1.97	7.90	%279289.10	0.00	0.00	%270909.50	8379.57	106.94
1.97	7.84	%279345.70	0.00	0.00	%270909.50	8436.23	107.00
1.97	7.78	%279402.00	0.00	0.00	%270909.50	8492.45	107.06
1.98	7.72	%279457.70	0.00	0.00	%270909.50	8548.23	107.13

1.98	7.66	%279513.10	0.00	0.00	%270909.50	8603.60	107.19
1.98	7.60	%279568.00	0.00	0.00	%270909.50	8658.54	107.25
1.98	7.54	%279622.50	0.00	0.00	%270909.50	8713.04	107.31
1.98	7.48	%279676.60	0.00	0.00	%270909.50	8767.10	107.37
1.99	7.42	%279730.20	0.00	0.00	%270909.50	8820.73	107.43
1.99	7.36	%279783.50	0.00	0.00	%270909.50	8873.95	107.49
1.99	7.30	%279836.20	0.00	0.00	%270909.50	8926.73	107.55
1.99	7.24	%279888.60	0.00	0.00	%270909.50	8979.07	107.61
1.99	7.18	%279940.50	0.00	0.00	%270909.50	9030.98	107.67
2.00	7.12	%279992.00	0.00	0.00	%270909.50	9082.45	107.73
2.00	7.06	%280043.00	0.00	0.00	%270909.50	9133.51	107.79

****

WARNING ------ THE ROADWAY HAS 0.72 FEET OF PONDED WATER ---------WARNING

****

****

WARNING ------ THE MAXIMUM CAPACITY OF THE ONSITE STORM DRAIN ----WARNING
WARNING ------ IS 118 CFS WHILE THE PEAK INFLOW IS 153 CFS -------WARNING

****

EXPLANATION AND SUMMARY OF RUN

1.0 THE #1 PUMP RUNS FROM .640 HRS. UNTIL 1.844 HRS. THERE IS MINOR CYCLING WITH THE #1 PUMP ON THE RISING AND FALLING LEGS OF THE 25 YEAR (W/HOV) INFLOW HYDROGRAPH. SEE CYCLING CHECK RUNS FOR MORE INFORMATION ON THE CYCLING OF THE #1 PUMP. CYCLING IS NOT A PROBLEM WITH THIS RUN.

2.0 THE #2 PUMP DOES NOT CYCLE ON THE RISING OR FALLING LEGS OF THE INFLOW HYDROGRAPH; RUNNING FROM ABOUT .812 HRS. TO 1.622 HRS.

3.0 THE #3 PUMP DOES NOT CYCLE AND RUNS FROM .994 HRS. TO 1.452 HRS.

4.0 THE # 4 PUMP DOES NOT CYCLE AND RUNS FROM 1.064 HRS. TO 1.412 HRS.

5.0 THE PEAK OUTFLOW DURING THIS RUN IS 124.93 CFS AT ELEVATION 120.72 (i.e. 1120.72).

6.0 ONLY THE SIGNIFICANT PORTIONS OF THE OUTPUT WAS PRINTED, SEE FILE 25YHVPSN.OUT ON CD FOR COMPLETE OUTPUT.

7.0 THE COMPLETE FALLING LEG OF THE HYDROGRAPH WAS NOT INCLUDED AS ITS ONLY INTEREST WOULD BE FOR CYCLING, AND THE CONSTANT INFLOW OF .5 OF THE OUTFLOW (USED IN THE CYCLING CHECK RUNS) WITH THE NEW PUMP ON/OFF SETTINGS WOULD BE OF MORE INTEREST.

NOTE:

THIS PROGRAM DOES NOT ITERATE THE PUMP OUTFLOW RATES OR DURATIONS DURING THE ROUTING INTERVAL (i.e. 7.2 SEC.). THEREFORE THE WATER SURFACE ELEVATION IN THE WET WELL IS ONLY APPROXIMATE. THE MAXIMUM ERROR IN PUMPED FLOW SHOULD NOT EXCEED ONE HALF THE PEAK FLOW FROM ONE PUMP FOR THE ROUTING INTERVAL OR IN THIS CASE:

((124.93/4)/2) * 7.2 = 112.44 CUBIC FEET
WHICH CORRESPONDS TO A WET WELL ELEVATION OF
ABOUT +/- .13 FEET (i.e. 5 FEET IN THE WET WELL
CORRESPONDS TO 4440 CUBIC FEET, THEREFORE 112
CUBIC FEET IS ABOUT .13 FEET)

PROGRAM INPUT DATA

SR-51 Drainage Assessment
Indian School Road to
Bethany Home Road

Pump Station Routing
Delta T = .002 Hrs.
ALE 50YHVPSN.OUT

FREQUENCY	50

~~Exist~~	HOV

INFLOW HYDROGRAPH

Hec1 Time	Time	Q (cfs)
2:00	0	6
2:30	.5	9
2:42	.7	21
3:00	1.0	71
3:06	1.1	146
3:10	1.167	176
3:14	1.233	158
3:26	1.433	65
3:44	1.733	18
4:00	2.0	8
4:30	2.5	5

STAGE - STORAGE/DISCHARGE RELATIONSHIP

Elev	Storage CuFt	Q cfs
97.5	0	12
106	7548	17.83
111	11988	22.95
113.5	14208	25.85
116	16428	28.07
120	19980	30.75
122	38056	32.09
124	141432	33.42
127	455796	34.98

1st GEN SET ON 1106
2nd GEN SET ON 1108

PUMP	ON	OFF
1	108	106
2	110	108
3	112	110
4	114	112

PB

FILE CONVENTION:

50Y HV PSN.OUT

50YR FREQUENCY

WITH HOV LANES

HIGHLAND PUMP STATION

NEW ON/OFF SETTINGS 3-30-98

SR-51 Drainage Assessment
Indian School Rd. to Bethany Home Rd.

Pump Station Routing
Highland Pump Station

50 Year Inflow Hydrograph (W/HOV)
Using HEC1 Files pump2.dat & pump2.out

50YHVPSN.out, 03-30-98
PB Phx., BY R.JORDAN

****

INPUT DATA FOR PUMP STATION ROUTING

Delta Time (routing interval) = .002 Hrs.(.12 min or 7.2 sec)

Frequency 50 Year w/HOV & NEW pump on/off settings

INFLOW HYDROGRAPH

hec1 time	time	Q (cfs)
0200	0.0	6
0230	0.5	9
0242	0.7	21
0300	1.0	71
0306	1.1	146
0310	1.167	176
0314	1.233	158
0326	1.433	65
0344	1.733	18
0400	2.000	8
0430	2.5	5

STAGE-STORAGE/DISCHARGE CURVE

Elev.	Storage CuFt	Outflow cfs
97.5	0	12
106	7548	17.83
111	11988	22.95
113.5	14208	25.85
116	16428	28.07
120	19980	30.75
122	38056	32.09
124	141432	33.42
127	455796	34.98

PUMP	ON	OFF
1	108	106
2	110	108
3	112	110
4	114	112

Gen Set	On
1	106
2	108

****

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.00	6.00	0.00	0.00	0.00	0.00	0.01	0.00
0.00	6.01	43.24	0.00	0.00	0.00	43.25	97.55
0.00	6.02	86.57	0.00	0.00	0.00	86.58	97.60
0.01	6.04	129.99	0.00	0.00	0.00	130.00	97.65
0.01	6.05	173.49	0.00	0.00	0.00	173.50	97.70
0.01	6.06	217.08	0.00	0.00	0.00	217.09	97.74
0.01	6.07	260.76	0.00	0.00	0.00	260.77	97.79
0.01	6.08	304.52	0.00	0.00	0.00	304.53	97.84
0.02	6.10	348.36	0.00	0.00	0.00	348.37	97.89
0.02	6.11	392.30	0.00	0.00	0.00	392.31	97.94
0.02	6.12	436.32	0.00	0.00	0.00	436.33	97.99
0.02	6.13	480.43	0.00	0.00	0.00	480.44	98.04
0.02	6.14	524.62	0.00	0.00	0.00	524.63	98.09
0.03	6.16	568.90	0.00	0.00	0.00	568.91	98.14
0.03	6.17	613.27	0.00	0.00	0.00	613.28	98.19
0.03	6.18	657.72	0.00	0.00	0.00	657.73	98.24
0.03	6.19	702.26	0.00	0.00	0.00	702.27	98.29
0.03	6.20	746.88	0.00	0.00	0.00	746.89	98.34
0.04	6.22	791.60	0.00	0.00	0.00	791.61	98.39
0.04	6.23	836.40	0.00	0.00	0.00	836.41	98.44
0.04	6.24	881.28	0.00	0.00	0.00	881.29	98.49
0.04	6.25	926.25	0.00	0.00	0.00	926.26	98.54
0.04	6.26	971.31	0.00	0.00	0.00	971.32	98.59
0.05	6.28	1016.45	0.00	0.00	0.00	1016.46	98.64
0.05	6.29	1061.68	0.00	0.00	0.00	1061.69	98.70
0.05	6.30	1107.00	0.00	0.00	0.00	1107.01	98.75
0.05	6.31	1152.40	0.00	0.00	0.00	1152.41	98.80
0.05	6.32	1197.89	0.00	0.00	0.00	1197.90	98.85
0.06	6.34	1243.47	0.00	0.00	0.00	1243.48	98.90
0.06	6.35	1289.13	0.00	0.00	0.00	1289.14	98.95
0.06	6.36	1334.88	0.00	0.00	0.00	1334.89	99.00
0.06	6.37	1380.72	0.00	0.00	0.00	1380.73	99.05
0.06	6.38	1426.64	0.00	0.00	0.00	1426.65	99.11
0.07	6.40	1472.64	0.00	0.00	0.00	1472.65	99.16
0.07	6.41	1518.74	0.00	0.00	0.00	1518.75	99.21
0.07	6.42	1564.92	0.00	0.00	0.00	1564.93	99.26
0.07	6.43	1611.19	0.00	0.00	0.00	1611.20	99.31
0.07	6.44	1657.54	0.00	0.00	0.00	1657.55	99.37
0.08	6.46	1703.98	0.00	0.00	0.00	1703.99	99.42
0.08	6.47	1750.51	0.00	0.00	0.00	1750.52	99.47
0.08	6.48	1797.12	0.00	0.00	0.00	1797.13	99.52
0.08	6.49	1843.82	0.00	0.00	0.00	1843.83	99.58
0.08	6.50	1890.61	0.00	0.00	0.00	1890.62	99.63
0.09	6.52	1937.48	0.00	0.00	0.00	1937.49	99.68
0.09	6.53	1984.44	0.00	0.00	0.00	1984.45	99.73
0.09	6.54	2031.48	0.00	0.00	0.00	2031.49	99.79
0.09	6.55	2078.61	0.00	0.00	0.00	2078.62	99.84
0.09	6.56	2125.83	0.00	0.00	0.00	2125.84	99.89
0.10	6.58	2173.13	0.00	0.00	0.00	2173.14	99.95
0.10	6.59	2220.52	0.00	0.00	0.00	2220.53	100.00
0.10	6.60	2268.00	0.00	0.00	0.00	2268.01	100.05
0.10	6.61	2315.56	0.00	0.00	0.00	2315.57	100.11
0.10	6.62	2363.21	0.00	0.00	0.00	2363.22	100.16

0.55	11.76	15218.93	0.00	0.00	6828.46	8390.48	106.95
0.55	11.88	15304.03	0.00	0.00	6828.46	8475.58	107.04
0.55	12.00	15390.00	0.00	0.00	6828.46	8561.55	107.14
0.55	12.12	15476.83	0.00	0.00	6828.46	8648.38	107.24
0.55	12.24	15564.53	0.00	0.00	6828.46	8736.08	107.34
0.56	12.36	15653.09	0.00	0.00	6828.46	8824.64	107.44
0.56	12.48	15742.51	0.00	0.00	6828.46	8914.06	107.54
0.56	12.60	15832.80	0.00	0.00	6828.46	9004.35	107.64
0.56	12.72	15923.95	0.00	0.00	6828.46	9095.50	107.74
0.56	12.84	16015.97	0.00	0.00	6828.46	9187.52	107.85
0.57	12.96	16108.85	0.00	0.00	6828.46	9280.40	107.95
0.57	13.08	16202.59	1.00	19.94	6900.23	9266.49	108.06
0.57	13.20	16297.20	1.00	19.76	7043.12	9254.09	107.88
0.57	13.32	16392.67	1.00	19.74	7185.31	9207.37	107.87
0.57	13.44	16489.01	1.00	19.69	7327.28	9161.74	107.82
0.58	13.56	16586.21	1.00	19.64	7468.86	9117.35	107.77
0.58	13.68	16684.27	1.00	19.59	7610.09	9074.19	107.72
0.58	13.80	16783.20	1.00	19.54	7750.96	9032.25	107.67
0.58	13.92	16882.99	1.00	19.49	7891.49	8991.52	107.63
0.58	14.04	16983.65	1.00	19.45	8031.68	8951.98	107.58
0.59	14.16	17085.17	1.00	19.40	8171.55	8913.63	107.54
0.59	14.28	17187.55	1.00	19.36	8311.11	8876.45	107.50
0.59	14.40	17290.80	1.00	19.32	8450.36	8840.45	107.46
0.59	14.52	17394.91	1.00	19.28	8589.32	8805.60	107.42
0.59	14.64	17499.89	1.00	19.24	8728.00	8771.90	107.38
0.60	14.76	17605.73	1.00	19.20	8866.40	8739.34	107.34
0.60	14.88	17712.43	1.00	19.17	9004.53	8707.91	107.31
0.60	15.00	17820.00	1.00	19.13	9142.41	8677.60	107.27
0.60	15.12	17928.43	1.00	19.10	9280.04	8648.40	107.24
0.60	15.24	18037.73	1.00	19.07	9417.44	8620.30	107.21
0.61	15.36	18147.89	1.00	19.04	9554.60	8593.30	107.18
0.61	15.48	18258.91	1.00	19.01	9691.55	8567.38	107.15
0.61	15.60	18370.80	1.00	18.98	9828.28	8542.53	107.12
0.61	15.72	18483.55	1.00	18.95	9964.81	8518.75	107.09
0.61	15.84	18597.17	1.00	18.92	10101.15	8496.03	107.07
0.62	15.96	18711.65	1.00	18.90	10237.31	8474.35	107.04
0.62	16.08	18826.99	1.00	18.87	10373.29	8453.72	107.02
0.62	16.20	18943.20	1.00	18.85	10509.10	8434.11	107.00
0.62	16.32	19060.27	1.00	18.83	10644.75	8415.53	106.98
0.62	16.44	19178.21	1.00	18.81	10780.26	8397.96	106.96
0.63	16.56	19297.01	1.00	18.79	10915.62	8381.40	106.94
0.63	16.68	19416.67	1.00	18.77	11050.85	8365.84	106.92
0.63	16.80	19537.20	1.00	18.76	11185.95	8351.26	106.90
0.63	16.92	19658.59	1.00	18.74	11320.94	8337.67	106.89
0.63	17.04	19780.85	1.00	18.73	11455.82	8325.05	106.87
0.64	17.16	19903.97	1.00	18.71	11590.59	8313.39	106.86
0.64	17.28	20027.95	1.00	18.70	11725.28	8302.69	106.85
0.64	17.40	20152.80	1.00	18.69	11859.88	8292.94	106.84
0.64	17.52	20278.51	1.00	18.68	11994.40	8284.13	106.83
0.64	17.64	20405.09	1.00	18.67	12128.85	8276.25	106.82
0.65	17.76	20532.53	1.00	18.66	12263.24	8269.30	106.81
0.65	17.88	20660.83	1.00	18.65	12397.58	8263.26	106.81
0.65	18.00	20790.00	1.00	18.65	12531.87	8258.14	106.80
0.65	18.12	20920.03	1.00	18.64	12666.12	8253.92	106.79
0.65	18.24	21050.93	1.00	18.64	12800.34	8250.60	106.79

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.66	18.36	21182.69	1.00	18.64	12934.54	8248.16	106.79
0.66	18.48	21315.31	1.00	18.64	13068.72	8246.60	106.79
0.66	18.60	21448.80	1.00	18.63	13202.89	8245.92	106.79
0.66	18.72	21583.15	1.00	18.63	13337.06	8246.10	106.79
0.66	18.84	21718.37	1.00	18.64	13471.24	8247.14	106.79
0.67	18.96	21854.45	1.00	18.64	13605.42	8249.04	106.79
0.67	19.08	21991.39	1.00	18.64	13739.63	8251.78	106.79
0.67	19.20	22129.20	1.00	18.65	13873.86	8255.35	106.80
0.67	19.32	22267.87	1.00	18.65	14008.12	8259.76	106.80
0.67	19.44	22407.41	1.00	18.66	14142.43	8264.99	106.81
0.68	19.56	22547.81	1.00	18.66	14276.78	8271.04	106.81
0.68	19.68	22689.07	1.00	18.67	14411.19	8277.90	106.82
0.68	19.80	22831.20	1.00	18.68	14545.65	8285.56	106.83
0.68	19.92	22974.19	1.00	18.69	14680.18	8294.02	106.84
0.68	20.04	23118.05	1.00	18.70	14814.79	8303.27	106.85
0.69	20.16	23262.77	1.00	18.71	14949.48	8313.30	106.86
0.69	20.28	23408.35	1.00	18.72	15084.25	8324.12	106.87
0.69	20.40	23554.80	1.00	18.74	15219.11	8335.70	106.89
0.69	20.52	23702.11	1.00	18.75	15354.08	8348.05	106.90
0.69	20.64	23850.29	1.00	18.77	15489.15	8361.15	106.92
0.70	20.76	23999.33	1.00	18.78	15624.33	8375.01	106.93
0.70	20.88	24149.23	1.00	18.80	15759.63	8389.61	106.95
0.70	21.00	24300.00	1.00	18.82	15895.06	8404.95	106.96
0.70	21.33	24452.40	1.00	18.84	16030.62	8421.80	106.98
0.70	21.67	24607.20	1.00	18.86	16166.32	8440.89	107.01
0.71	22.00	24764.40	1.00	18.88	16302.20	8462.21	107.03
0.71	22.33	24924.00	1.00	18.91	16438.26	8485.75	107.06
0.71	22.67	25086.00	1.00	18.94	16574.53	8511.48	107.08
0.71	23.00	25250.40	1.00	18.97	16711.02	8539.39	107.12
0.71	23.33	25417.20	1.00	19.01	16847.75	8569.47	107.15
0.72	23.67	25586.40	1.00	19.04	16984.74	8601.68	107.19
0.72	24.00	25758.00	1.00	19.08	17122.00	8636.01	107.22
0.72	24.33	25932.00	1.00	19.13	17259.56	8672.45	107.27
0.72	24.67	26108.40	1.00	19.17	17397.43	8710.98	107.31
0.72	25.00	26287.20	1.00	19.22	17535.62	8751.59	107.36
0.73	25.33	26468.40	1.00	19.27	17674.17	8794.24	107.40
0.73	25.67	26652.00	1.00	19.32	17813.07	8838.94	107.45
0.73	26.00	26838.00	1.00	19.37	17952.36	8885.65	107.51
0.73	26.33	27026.40	1.00	19.43	18092.04	8934.37	107.56
0.73	26.67	27217.20	1.00	19.49	18232.13	8985.08	107.62
0.74	27.00	27410.40	1.00	19.55	18372.66	9037.75	107.68

0.74	27.33	27606.00	1.00	19.61	18513.63	9092.39	107.74
0.74	27.67	27804.00	1.00	19.68	18655.06	9148.95	107.80
0.74	28.00	28004.40	1.00	19.74	18796.97	9207.45	107.87
0.74	28.33	28207.20	1.00	19.81	18939.37	9267.84	107.94
0.75	28.67	28412.40	1.00	19.88	19082.28	9330.13	108.01
0.75	29.00	28620.00	1.00	19.96	19225.72	9394.30	108.08
0.75	29.33	28830.00	1.00	20.03	19369.69	9460.32	108.15
0.75	29.67	29042.40	1.00	20.11	19514.23	9528.19	108.23
0.75	30.00	29257.20	1.00	20.19	19659.33	9597.88	108.31
0.76	30.33	29474.40	1.00	20.28	19805.02	9669.39	108.39
0.76	30.67	29694.00	1.00	20.36	19951.31	9742.70	108.47
0.76	31.00	29916.00	1.00	20.45	20098.22	9817.80	108.56
0.76	31.33	30140.40	1.00	20.54	20245.75	9894.66	108.64
0.76	31.67	30367.20	1.00	20.63	20393.94	9973.28	108.73
0.77	32.00	30596.40	1.00	20.72	20542.78	10053.63	108.82
0.77	32.33	30828.00	1.00	20.81	20692.30	10135.71	108.91
0.77	32.67	31062.00	1.00	20.91	20842.50	10219.51	109.01
0.77	33.00	31298.40	1.00	21.01	20993.41	10305.00	109.10
0.77	33.33	31537.20	1.00	21.11	21145.04	10392.17	109.20
0.78	33.67	31778.40	1.00	21.21	21297.40	10481.02	109.30
0.78	34.00	32022.00	1.00	21.32	21450.50	10571.51	109.40
0.78	34.33	32268.00	1.00	21.42	21604.36	10663.65	109.51
0.78	34.67	32516.40	1.00	21.53	21758.99	10757.42	109.61
0.78	35.00	32767.20	1.00	21.64	21914.40	10852.81	109.72
0.79	35.33	33020.40	1.00	21.75	22070.62	10949.80	109.83
0.79	35.67	33276.01	2.00	43.73	22306.36	10890.94	109.94
0.79	36.00	33534.01	2.00	43.24	22619.46	10914.55	109.70
0.79	36.33	33794.40	2.00	43.30	22931.02	10863.39	109.73
0.79	36.67	34057.20	2.00	43.19	23242.41	10814.81	109.68
0.80	37.00	34322.40	2.00	43.09	23553.01	10769.40	109.63
0.80	37.33	34590.01	2.00	42.99	23862.88	10727.13	109.58
0.80	37.67	34860.01	2.00	42.90	24172.08	10687.94	109.53
0.80	38.00	35132.40	2.00	42.82	24480.65	10651.77	109.49
0.80	38.33	35407.20	2.00	42.74	24788.64	10618.57	109.46

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.81	38.67	35684.40	2.00	42.67	25096.11	10588.31	109.42
0.81	39.00	35964.01	2.00	42.61	25403.10	10560.92	109.39
0.81	39.33	36246.01	2.00	42.55	25709.66	10536.36	109.36
0.81	39.67	36530.40	2.00	42.50	26015.83	10514.58	109.34
0.81	40.00	36817.20	2.00	42.46	26321.66	10495.55	109.32
0.82	40.33	37106.40	2.00	42.42	26627.20	10479.21	109.30
0.82	40.67	37398.01	2.00	42.39	26932.50	10465.52	109.28
0.82	41.00	37692.01	2.00	42.36	27237.58	10454.43	109.27
0.82	41.33	37988.40	2.00	42.34	27542.50	10445.91	109.26
0.82	41.67	38287.20	2.00	42.33	27847.31	10439.91	109.26
0.83	42.00	38588.40	2.00	42.32	28152.03	10436.39	109.25
0.83	42.33	38892.01	2.00	42.32	28456.71	10435.30	109.25
0.83	42.67	39198.01	2.00	42.32	28761.40	10436.61	109.25
0.83	43.00	39506.40	2.00	42.33	29066.13	10440.28	109.26
0.83	43.33	39817.20	2.00	42.34	29370.94	10446.28	109.26
0.84	43.67	40130.40	2.00	42.36	29675.86	10454.55	109.27
0.84	44.00	40446.01	2.00	42.38	29980.95	10465.07	109.28
0.84	44.33	40764.01	2.00	42.41	30286.22	10477.79	109.30
0.84	44.67	41084.40	2.00	42.45	30591.73	10492.69	109.31
0.84	45.00	41407.20	2.00	42.49	30897.50	10509.72	109.33
0.85	45.33	41732.40	2.00	42.53	31203.57	10528.85	109.36
0.85	45.67	42060.01	2.00	42.58	31509.97	10550.04	109.38
0.85	46.00	42390.01	2.00	42.63	31816.75	10573.27	109.41
0.85	46.33	42722.40	2.00	42.69	32123.92	10598.49	109.43
0.85	46.67	43057.21	2.00	42.76	32431.53	10625.68	109.46
0.86	47.00	43394.40	2.00	42.82	32739.61	10654.80	109.50
0.86	47.33	43734.01	2.00	42.89	33048.19	10685.83	109.53
0.86	47.67	44076.01	2.00	42.97	33357.30	10718.72	109.57
0.86	48.00	44420.40	2.00	43.05	33666.97	10753.44	109.61
0.86	48.33	44767.21	2.00	43.13	33977.23	10789.98	109.65
0.87	48.67	45116.40	2.00	43.22	34288.11	10828.30	109.69
0.87	49.00	45468.01	2.00	43.31	34599.65	10868.37	109.74
0.87	49.33	45822.01	2.00	43.41	34911.86	10910.15	109.78
0.87	49.67	46178.40	2.00	43.51	35224.79	10953.63	109.83
0.87	50.00	46537.21	2.00	43.62	35538.44	10998.77	109.88
0.88	50.33	46898.40	2.00	43.72	35852.86	11045.55	109.94
0.88	50.67	47262.01	2.00	43.84	36168.08	11093.94	109.99
0.88	51.00	47628.01	2.00	43.95	36484.10	11143.91	110.05
0.88	51.33	47996.40	2.00	44.07	36800.97	11195.44	110.11
0.88	51.67	48367.21	2.00	44.19	37118.71	11248.50	110.17
0.89	52.00	48740.40	2.00	44.32	37437.35	11303.07	110.23
0.89	52.33	49116.01	2.00	44.45	37756.90	11359.12	110.29
0.89	52.67	49494.01	2.00	44.58	38077.39	11416.63	110.36
0.89	53.00	49874.40	2.00	44.72	38398.85	11475.57	110.42
0.89	53.33	50257.21	2.00	44.85	38721.30	11535.92	110.49
0.90	53.67	50642.40	2.00	45.00	39044.76	11597.65	110.56
0.90	54.00	51030.01	2.00	45.14	39369.26	11660.75	110.63
0.90	54.33	51420.01	2.00	45.29	39694.82	11725.19	110.70
0.90	54.67	51812.40	2.00	45.44	40021.46	11790.95	110.78
0.90	55.00	52207.21	2.00	45.60	40349.20	11858.01	110.85
0.91	55.33	52604.40	2.00	45.75	40678.07	11926.35	110.93
0.91	55.67	53004.01	2.00	45.92	41008.08	11995.93	111.01
0.91	56.00	53406.01	2.00	46.10	41339.35	12066.67	111.09
0.91	56.33	53810.40	2.00	46.29	41671.95	12138.46	111.17
0.91	56.67	54217.21	2.00	46.48	42005.92	12211.30	111.25
0.92	57.00	54626.40	2.00	46.67	42341.26	12285.15	111.33
0.92	57.33	55038.01	2.00	46.87	42678.01	12360.01	111.42
0.92	57.67	55452.01	2.00	47.07	43016.17	12435.85	111.50
0.92	58.00	55868.40	2.00	47.27	43355.76	12512.65	111.59
0.92	58.33	56287.21	2.00	47.47	43696.82	12590.40	111.68
0.93	58.67	56708.40	2.00	47.68	44039.33	12669.08	111.77
0.93	59.00	57132.01	3.00	71.82	44469.53	12533.20	111.85

0.93	59.33	57558.01	3.00	70.63	44982.38	12575.64	111.51
0.93	59.67	57986.40	3.00	70.83	45491.64	12494.78	111.57
0.93	60.00	58417.21	3.00	70.52	46000.48	12416.73	111.48
0.94	60.33	58850.40	3.00	70.23	46507.16	12343.25	111.40
0.94	60.67	59286.01	3.00	69.96	47011.83	12274.19	111.32
0.94	61.00	59724.01	3.00	69.70	47514.61	12209.40	111.25
0.94	61.33	60164.40	3.00	69.47	48015.62	12148.79	111.18
0.94	61.67	60607.21	3.00	69.24	48514.98	12092.23	111.11
0.95	62.00	61052.40	3.00	69.04	49012.80	12039.61	111.05
0.95	62.33	61500.01	3.00	68.85	49509.19	11990.82	111.00
0.95	62.67	61950.01	3.00	68.69	50004.33	11945.68	110.95
0.95	63.00	62402.40	3.00	68.55	50498.40	11904.02	110.90
0.95	63.33	62857.21	3.00	68.42	50991.47	11865.75	110.86

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.96	63.67	63314.40	3.00	68.30	51483.63	11830.79	110.82
0.96	64.00	63774.01	3.00	68.19	51974.96	11799.06	110.78
0.96	64.33	64236.01	3.00	68.09	52465.54	11770.48	110.75
0.96	64.67	64700.40	3.00	68.00	52955.44	11744.97	110.72
0.96	65.00	65167.21	3.00	67.92	53444.75	11722.46	110.70
0.97	65.33	65636.41	3.00	67.85	53933.54	11702.88	110.68
0.97	65.67	66108.01	3.00	67.80	54421.87	11686.15	110.66
0.97	66.00	66582.01	3.00	67.75	54909.83	11672.19	110.64
0.97	66.33	67058.41	3.00	67.71	55397.46	11660.96	110.63
0.97	66.67	67537.21	3.00	67.68	55884.85	11652.36	110.62
0.98	67.00	68018.41	3.00	67.66	56372.07	11646.35	110.61
0.98	67.33	68502.01	3.00	67.65	56859.15	11642.87	110.61
0.98	67.67	68988.01	3.00	67.64	57346.19	11641.83	110.61
0.98	68.00	69476.41	3.00	67.65	57833.23	11643.19	110.61
0.98	68.33	69967.21	3.00	67.66	58320.33	11646.89	110.61
0.99	68.67	70460.41	3.00	67.68	58807.55	11652.87	110.62
0.99	69.00	70956.01	3.00	67.71	59294.95	11661.07	110.63
0.99	69.33	71454.01	3.00	67.74	59782.58	11671.44	110.64
0.99	69.67	71954.41	3.00	67.79	60270.49	11683.92	110.65
0.99	70.00	72457.21	3.00	67.84	60758.74	11698.47	110.67
1.00	70.33	72962.41	3.00	67.90	61247.39	11715.03	110.69
1.00	70.67	73470.01	3.00	67.96	61736.46	11733.56	110.71
1.00	71.00	73980.01	3.00	68.03	62226.02	11754.00	110.73
1.00	72.50	74496.61	3.00	68.12	62716.17	11780.46	110.76
1.00	74.00	75024.01	3.00	68.25	63207.09	11816.93	110.80
1.01	75.50	75562.21	3.00	68.41	63699.05	11863.18	110.86
1.01	77.00	76111.21	3.00	68.60	64192.27	11918.96	110.92
1.01	78.50	76671.01	3.00	68.82	64686.99	11984.03	110.99
1.01	80.00	77241.61	3.00	69.11	65183.56	12058.06	111.07
1.01	81.50	77823.01	3.00	69.43	65682.32	12140.70	111.17
1.02	83.00	78415.21	3.00	69.79	66183.53	12231.69	111.27
1.02	84.50	79018.21	3.00	70.18	66687.43	12330.80	111.38
1.02	86.00	79632.01	3.00	70.60	67194.23	12437.79	111.50
1.02	87.50	80256.61	3.00	71.05	67704.16	12552.46	111.63
1.02	89.00	80892.01	3.00	71.53	68217.43	12674.60	111.77
1.03	90.50	81538.21	3.00	72.03	68734.24	12803.99	111.91
1.03	92.00	82195.21	3.00	72.57	69254.80	12940.42	112.07
1.03	93.50	82863.01	3.00	73.13	69779.31	13083.71	112.23
1.03	95.00	83541.61	3.00	73.72	70307.96	13233.67	112.40
1.03	96.50	84231.01	3.00	74.33	70840.93	13390.10	112.57
1.04	98.00	84931.21	3.00	74.97	71378.40	13552.83	112.76
1.04	99.50	85642.21	3.00	75.63	71920.54	13721.68	112.95
1.04	101.00	86364.01	3.00	76.31	72467.53	13896.49	113.14
1.04	102.50	87096.61	3.00	77.02	73019.55	14077.07	113.35
1.04	104.00	87840.01	3.00	77.71	73576.58	14263.44	113.56
1.05	105.50	88594.21	4.00	104.38	74232.10	14174.24	113.78
1.05	107.00	89359.21	4.00	103.29	74979.69	14379.53	113.48
1.05	108.50	90135.01	4.00	104.19	75726.60	14408.42	113.72
1.05	110.00	90921.61	4.00	104.32	76477.26	14444.36	113.76
1.05	111.50	91719.01	4.00	104.51	77229.05	14489.97	113.81
1.06	113.00	92527.21	4.00	104.73	77982.28	14544.94	113.87
1.06	114.50	93346.21	4.00	104.98	78737.24	14608.99	113.95
1.06	116.00	94176.01	4.00	105.27	79494.16	14681.86	114.03
1.06	117.50	95016.61	4.00	105.60	80253.30	14763.32	114.12
1.06	119.00	95868.01	4.00	105.96	81014.91	14853.11	114.22
1.07	120.50	96730.21	4.00	106.35	81779.22	14951.00	114.33
1.07	122.00	97603.21	4.00	106.77	82546.46	15056.76	114.45
1.07	123.50	98487.01	4.00	107.23	83316.86	15170.16	114.58
1.07	125.00	99381.61	4.00	107.71	84090.63	15290.99	114.71
1.07	126.50	%100287.00	4.00	108.22	84867.99	15419.03	114.86
1.08	128.00	%101203.20	4.00	108.76	85649.12	15554.10	115.01
1.08	129.50	%102130.20	4.00	109.33	86434.25	15695.97	115.17
1.08	131.00	%103068.00	4.00	109.92	87223.56	15844.46	115.34
1.08	132.50	%104016.60	4.00	110.54	88017.24	15999.39	115.51
1.08	134.00	%104976.00	4.00	111.19	88815.47	16160.55	115.69
1.09	135.50	%105946.20	4.00	111.86	89618.44	16327.78	115.88
1.09	137.00	%106927.20	4.00	112.49	90426.09	16501.13	116.08
1.09	138.50	%107919.00	4.00	113.03	91237.96	16681.06	116.28
1.09	140.00	%108921.60	4.00	113.59	92053.81	16867.82	116.49
1.09	141.50	%109935.00	4.00	114.18	92873.78	17061.24	116.71
1.10	143.00	%110959.20	4.00	114.78	93698.03	17261.19	116.93
1.10	144.50	%111994.20	4.00	115.40	94526.69	17467.53	117.17
1.10	146.00	%113040.00	4.00	116.05	95359.91	17680.10	117.40
1.10	146.90	%114094.40	4.00	116.70	96197.79	17896.65	117.65
1.10	147.79	%115155.30	4.00	117.36	97040.39	18114.92	117.89

ME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.11	148.69	%116222.60	4.00	118.02	97887.75	18334.89	118.14
1.11	149.58	%117296.40	4.00	118.69	98739.91	18556.49	118.39
1.11	150.48	%118376.60	4.00	119.36	99596.90	18779.72	118.64
1.11	151.37	%119463.30	4.00	120.04	%100458.80	19004.53	118.90

1.11	152.27	%120556.40	4.00	120.72	%101325.50	19230.88	119.15
1.12	153.16	%121655.90	4.00	121.41	%102197.20	19458.74	119.41
1.12	154.06	%122762.00	4.00	122.11	%103073.90	19688.07	119.67
1.12	154.96	%123874.40	4.00	122.81	%103955.60	19918.80	119.93
1.12	155.85	%124993.30	4.00	123.05	%104840.70	20152.59	120.02
1.12	156.75	%126118.70	4.00	123.12	%105727.00	20391.71	120.05
1.13	157.64	%127250.50	4.00	123.19	%106613.70	20636.77	120.07
1.13	158.54	%128388.70	4.00	123.27	%107501.00	20887.74	120.10
1.13	159.43	%129533.40	4.00	123.35	%108388.80	21144.63	120.13
1.13	160.33	%130684.50	4.00	123.42	%109277.10	21407.40	120.16
1.13	161.22	%131842.10	4.00	123.50	%110166.10	21676.06	120.19
1.14	162.12	%133006.10	4.00	123.58	%111055.60	21950.57	120.22
1.14	163.01	%134176.60	4.00	123.67	%111945.70	22230.95	120.25
1.14	163.91	%135353.60	4.00	123.75	%112836.40	22517.18	120.28
1.14	164.81	%136536.90	4.00	123.84	%113727.70	22809.22	120.31
1.14	165.70	%137726.80	4.00	123.93	%114619.70	23107.09	120.35
1.15	166.60	%138923.10	4.00	124.02	%115512.30	23410.77	120.38
1.15	167.49	%140125.80	4.00	124.11	%116405.60	23720.23	120.41
1.15	168.39	%141334.90	4.00	124.20	%117299.50	24035.48	120.45
1.15	169.28	%142550.60	4.00	124.30	%118194.10	24356.50	120.48
1.15	170.18	%143772.60	4.00	124.39	%119089.40	24683.28	120.52
1.16	171.07	%145001.10	4.00	124.49	%119985.40	25015.80	120.56
1.16	171.97	%146236.10	4.00	124.59	%120882.10	25354.06	120.59
1.16	172.87	%147477.50	4.00	124.70	%121779.50	25698.03	120.63
1.16	173.76	%148725.40	4.00	124.80	%122677.70	26047.71	120.67
1.16	174.66	%149979.70	4.00	124.90	%123576.60	26403.07	120.71
1.17	175.55	%151240.40	4.00	125.01	%124476.30	26764.13	120.75
1.17	175.73	%152505.00	4.00	125.12	%125376.80	27128.27	120.79
1.17	175.18	%153768.30	4.00	125.23	%126278.00	27490.28	120.83
1.17	174.64	%155027.60	4.00	125.33	%127180.00	27847.61	120.87
1.17	174.09	%156283.10	4.00	125.44	%128082.80	28200.26	120.91
1.18	173.55	%157534.60	4.00	125.54	%128986.30	28548.22	120.95
1.18	173.00	%158782.10	4.00	125.64	%129890.60	28891.53	120.99
1.18	172.45	%160025.80	4.00	125.74	%130795.60	29230.18	121.02
1.18	171.91	%161265.50	4.00	125.84	%131701.30	29564.18	121.06
1.18	171.36	%162501.20	4.00	125.94	%132607.70	29893.56	121.10
1.19	170.82	%163733.10	4.00	126.04	%133514.80	30218.31	121.13
1.19	170.27	%164961.00	4.00	126.13	%134422.60	30538.43	121.17
1.19	169.73	%166185.00	4.00	126.22	%135331.10	30853.95	121.20
1.19	169.18	%167405.10	4.00	126.32	%136240.20	31164.89	121.24
1.19	168.64	%168621.20	4.00	126.41	%137150.00	31471.21	121.27
1.20	168.09	%169833.50	4.00	126.50	%138060.50	31772.98	121.30
1.20	167.55	%171041.80	4.00	126.58	%138971.60	32070.18	121.34
1.20	167.00	%172246.10	4.00	126.67	%139883.30	32362.82	121.37
1.20	166.45	%173446.60	4.00	126.76	%140795.60	32650.92	121.40
1.20	165.91	%174643.10	4.00	126.84	%141708.60	32934.48	121.43
1.21	165.36	%175835.60	4.00	126.92	%142622.10	33213.51	121.46
1.21	164.82	%177024.30	4.00	127.01	%143536.30	33488.03	121.49
1.21	164.27	%178209.00	4.00	127.09	%144451.00	33758.03	121.52
1.21	163.73	%179389.80	4.00	127.16	%145366.30	34023.53	121.55
1.21	163.18	%180566.70	4.00	127.24	%146282.20	34284.54	121.58
1.22	162.64	%181739.70	4.00	127.32	%147198.60	34541.09	121.61
1.22	162.09	%182908.70	4.00	127.39	%148115.50	34793.15	121.64
1.22	161.55	%184073.80	4.00	127.47	%149033.00	35040.76	121.67
1.22	161.00	%185234.90	4.00	127.54	%149951.00	35283.90	121.69
1.22	160.45	%186392.20	4.00	127.61	%150869.60	35522.61	121.72
1.23	159.91	%187545.50	4.00	127.68	%151788.60	35756.89	121.75
1.23	159.36	%188694.90	4.00	127.75	%152708.10	35986.73	121.77
1.23	158.82	%189840.30	4.00	127.81	%153628.10	36212.17	121.80
1.23	158.27	%190981.80	4.00	127.88	%154548.60	36433.22	121.82
1.23	157.53	%192118.70	4.00	127.94	%155469.60	36649.17	121.84
1.24	156.60	%193249.60	4.00	128.00	%156391.00	36858.67	121.87
1.24	155.68	%194373.90	4.00	128.06	%157312.80	37061.03	121.89
1.24	154.75	%195491.40	4.00	128.12	%158235.10	37256.26	121.91
1.24	153.81	%196602.20	4.00	128.18	%159157.80	37444.39	121.93
1.24	152.88	%197706.30	4.00	128.23	%160080.90	37625.43	121.95
1.25	151.95	%198803.70	4.00	128.28	%161004.30	37799.40	121.97
1.25	151.03	%199894.50	4.00	128.33	%161928.20	37966.31	121.99
1.25	150.10	%200978.50	4.00	128.36	%162852.30	38126.23	122.00
1.25	149.16	%202055.80	4.00	128.37	%163776.50	38279.33	122.00
1.25	148.23	%203126.50	4.00	128.38	%164700.80	38425.67	122.01

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.26	147.30	%204190.40	4.00	128.39	%165625.20	38565.25	122.01
1.26	146.38	%205247.70	4.00	128.39	%166549.60	38698.09	122.01
1.26	145.45	%206298.20	4.00	128.40	%167474.00	38824.18	122.01
1.26	144.51	%207342.10	4.00	128.41	%168398.50	38943.54	122.02
1.26	143.58	%208379.20	4.00	128.41	%169323.10	39056.15	122.02
1.27	142.66	%209409.70	4.00	128.42	%170247.70	39162.04	122.02
1.27	141.73	%210433.50	4.00	128.42	%171172.30	39261.18	122.02
1.27	140.79	%211450.50	4.00	128.43	%172096.90	39353.61	122.03
1.27	139.86	%212460.90	4.00	128.43	%173021.60	39439.29	122.03
1.27	138.94	%213464.60	4.00	128.44	%173946.40	39518.26	122.03
1.28	138.01	%214461.60	4.00	128.44	%174871.10	39590.50	122.03
1.28	137.07	%215451.90	4.00	128.44	%175795.90	39656.01	122.03
1.28	136.14	%216435.50	4.00	128.45	%176720.70	39714.81	122.03
1.28	135.21	%217412.40	4.00	128.45	%177645.50	39766.89	122.03
1.28	134.28	%218382.60	4.00	128.45	%178570.30	39812.26	122.03
1.29	133.36	%219346.10	4.00	128.45	%179495.10	39850.92	122.03
1.29	132.42	%220302.90	4.00	128.45	%180420.00	39882.87	122.04
1.29	131.49	%221253.00	4.00	128.46	%181344.90	39908.11	122.04
1.29	130.56	%222196.40	4.00	128.46	%182269.80	39926.65	122.04
1.29	129.64	%223133.10	4.00	128.46	%183194.60	39938.48	122.04
1.30	128.71	%224063.20	4.00	128.46	%184119.50	39943.62	122.04
1.30	127.77	%224986.50	4.00	128.46	%185044.40	39942.06	122.04
1.30	126.84	%225903.10	4.00	128.46	%185969.30	39933.79	122.04
1.30	125.91	%226813.00	4.00	128.46	%186894.20	39918.84	122.04
1.30	124.99	%227716.30	4.00	128.45	%187819.10	39897.20	122.04

1.31	124.06	%228612.80	4.00	128.45	%188744.00	39868.87	122.04
1.31	123.12	%229502.70	4.00	128.45	%189668.80	39833.86	122.03
1.31	122.19	%230385.80	4.00	128.45	%190593.70	39792.17	122.03
1.31	121.26	%231262.30	4.00	128.45	%191518.50	39743.79	122.03
1.31	120.34	%232132.00	4.00	128.44	%192443.30	39688.75	122.03
1.32	119.40	%232995.10	4.00	128.44	%193368.10	39627.03	122.03
1.32	118.47	%233851.50	4.00	128.44	%194292.90	39558.64	122.03
1.32	117.54	%234701.20	4.00	128.43	%195217.60	39483.58	122.03
1.32	116.61	%235544.10	4.00	128.43	%196142.30	39401.84	122.03
1.32	115.68	%236380.40	4.00	128.42	%197067.00	39313.45	122.02
1.33	114.75	%237210.00	4.00	128.42	%197991.60	39218.39	122.02
1.33	113.82	%238032.90	4.00	128.41	%198916.20	39116.67	122.02
1.33	112.89	%238849.10	4.00	128.41	%199840.80	39008.29	122.02
1.33	111.97	%239658.60	4.00	128.40	%200765.30	38893.26	122.02
1.33	111.03	%240461.40	4.00	128.40	%201689.80	38771.58	122.01
1.34	110.10	%241257.50	4.00	128.39	%202614.20	38643.25	122.01
1.34	109.17	%242046.90	4.00	128.38	%203538.60	38508.26	122.01
1.34	108.24	%242829.60	4.00	128.38	%204462.90	38366.65	122.01
1.34	107.32	%243605.60	4.00	128.37	%205387.20	38218.39	122.00
1.34	106.38	%244374.90	4.00	128.36	%206311.40	38063.48	122.00
1.35	105.45	%245137.50	4.00	128.31	%207235.50	37902.08	121.98
1.35	104.52	%245893.50	4.00	128.26	%208159.20	37734.31	121.96
1.35	103.59	%246642.70	4.00	128.21	%209082.50	37560.23	121.95
1.35	102.67	%247385.20	4.00	128.16	%210005.40	37379.83	121.93
1.35	101.73	%248121.10	4.00	128.10	%210928.00	37193.12	121.90
1.36	100.80	%248850.20	4.00	128.05	%211850.10	37000.12	121.88
1.36	99.87	%249572.70	4.00	127.99	%212771.80	36800.86	121.86
1.36	98.94	%250288.40	4.00	127.93	%213693.10	36595.31	121.84
1.36	98.01	%250997.50	4.00	127.86	%214614.00	36383.53	121.81
1.36	97.08	%251699.80	4.00	127.80	%215534.40	36165.50	121.79
1.37	96.15	%252395.50	4.00	127.73	%216454.30	35941.23	121.77
1.37	95.22	%253084.50	4.00	127.66	%217373.70	35710.76	121.74
1.37	94.29	%253766.70	4.00	127.59	%218292.70	35474.09	121.71
1.37	93.36	%254442.30	4.00	127.52	%219211.10	35231.25	121.69
1.37	92.43	%255111.20	4.00	127.45	%220129.00	34982.23	121.66
1.38	91.50	%255773.40	4.00	127.37	%221046.30	34727.06	121.63
1.38	90.57	%256428.90	4.00	127.30	%221963.10	34465.73	121.60
1.38	89.64	%257077.70	4.00	127.22	%222879.40	34198.29	121.57
1.38	88.71	%257719.70	4.00	127.13	%223795.00	33924.73	121.54
1.38	87.78	%258355.20	4.00	127.05	%224710.10	33645.06	121.51
1.39	86.85	%258983.90	4.00	126.97	%225624.60	33359.29	121.48
1.39	85.92	%259605.90	4.00	126.88	%226538.40	33067.45	121.45
1.39	84.99	%260221.20	4.00	126.79	%227451.70	32769.54	121.42
1.39	84.06	%260829.80	4.00	126.70	%228364.20	32465.57	121.38
1.39	83.13	%261431.70	4.00	126.61	%229276.20	32155.57	121.35
1.40	82.20	%262026.90	4.00	126.52	%230187.40	31839.54	121.31
1.40	81.27	%262615.50	4.00	126.42	%231098.00	31517.48	121.28
1.40	80.34	%263197.30	4.00	126.32	%232007.90	31189.45	121.24
1.40	79.41	%263772.40	4.00	126.22	%232917.00	30855.40	121.20
1.40	78.48	%264340.90	4.00	126.12	%233825.50	30515.39	121.17

ME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.41	77.55	%264902.60	4.00	126.02	%234733.20	30169.42	121.13
1.41	76.62	%265457.70	4.00	125.92	%235640.20	29817.50	121.09
1.41	75.69	%266006.00	4.00	125.81	%236546.40	29459.62	121.05
1.41	74.76	%266547.70	4.00	125.70	%237451.90	29095.82	121.01
1.41	73.83	%267082.60	4.00	125.59	%238356.50	28726.12	120.97
1.42	72.90	%267610.90	4.00	125.48	%239260.40	28350.50	120.93
1.42	71.97	%268132.50	4.00	125.37	%240163.50	27969.00	120.88
1.42	71.04	%268647.30	4.00	125.25	%241065.70	27581.64	120.84
1.42	70.11	%269155.50	4.00	125.14	%241967.10	27188.42	120.80
1.42	69.18	%269657.00	4.00	125.02	%242867.70	26789.32	120.75
1.43	68.25	%270151.80	4.00	124.90	%243767.40	26384.40	120.71
1.43	67.32	%270639.90	4.00	124.78	%244666.20	25973.67	120.66
1.43	66.39	%271121.30	4.00	124.65	%245564.20	25557.12	120.62
1.43	65.46	%271596.00	4.00	124.53	%246461.20	25134.75	120.57
1.43	64.84	%272065.10	4.00	124.40	%247357.40	24707.73	120.52
1.44	64.53	%272530.80	4.00	124.27	%248252.60	24278.25	120.48
1.44	64.22	%272994.30	4.00	124.15	%249146.90	23847.43	120.43
1.44	63.90	%273455.50	4.00	124.02	%250040.30	23415.26	120.38
1.44	63.59	%273914.50	4.00	123.89	%250932.80	22981.76	120.33
1.44	63.28	%274371.20	4.00	123.76	%251824.30	22546.93	120.28
1.45	62.96	%274825.70	4.00	123.63	%252714.90	22110.79	120.24
1.45	62.65	%275277.90	4.00	123.50	%253604.60	21673.32	120.19
1.45	62.34	%275727.90	4.00	123.37	%254493.40	21234.51	120.14
1.45	62.02	%276175.50	4.00	123.24	%255381.20	20794.39	120.09
1.45	61.71	%276621.00	4.00	123.11	%256268.00	20352.96	120.04
1.46	61.40	%277064.20	4.00	122.79	%257153.30	19910.92	119.92
1.46	61.08	%277505.10	4.00	121.45	%258032.50	19472.59	119.42
1.46	60.77	%277943.80	4.00	120.15	%258902.30	19041.49	118.94
1.46	60.46	%278380.20	4.00	118.87	%259762.80	18617.40	118.46
1.46	60.14	%278814.40	4.00	117.61	%260614.20	18200.20	117.99
1.47	59.83	%279246.30	4.00	116.38	%261456.50	17789.74	117.53
1.47	59.52	%279675.90	4.00	115.16	%262290.00	17385.89	117.07
1.47	59.20	%280103.30	4.00	113.96	%263114.90	16988.48	116.63
1.47	58.89	%280528.50	4.00	112.78	%263931.10	16597.35	116.19
1.47	58.58	%280951.30	4.00	111.40	%264738.10	16213.20	115.75
1.48	58.26	%281372.00	4.00	109.89	%265534.80	15837.17	115.33
1.48	57.95	%281790.30	4.00	108.42	%266320.70	15469.60	114.91
1.48	57.64	%282206.50	4.00	106.99	%267096.20	15110.26	114.51
1.48	57.32	%282620.30	4.00	105.58	%267861.50	14758.85	114.11
1.48	57.01	%283031.90	4.00	104.21	%268616.70	14415.20	113.73
1.49	56.70	%283441.20	4.00	102.70	%269361.60	14079.67	113.35
1.49	56.38	%283848.30	4.00	100.99	%270094.90	13753.48	112.98
1.49	56.07	%284253.20	4.00	99.34	%270816.00	13437.14	112.62
1.49	55.76	%284655.70	4.00	97.73	%271525.50	13130.23	112.28
1.49	55.44	%285056.00	3.00	72.13	%272223.60	12919.01	111.94
1.50	55.13	%285454.10	3.00	72.01	%272742.50	12711.60	111.91

1.50	54.82	%285849.90	3.00	71.20	%273258.10	12591.85	111.67
1.50	54.50	%286243.50	3.00	70.74	%273769.00	12474.45	111.54
1.50	54.19	%286634.80	3.00	70.29	%274276.70	12358.04	111.41
1.50	53.88	%287023.80	3.00	69.83	%274781.20	12242.64	111.28
1.51	53.56	%287410.60	3.00	69.39	%275282.40	12128.23	111.15
1.51	53.25	%287795.10	3.00	68.94	%275780.30	12014.79	111.03
1.51	52.94	%288177.40	3.00	68.54	%276275.30	11902.14	110.90
1.51	52.62	%288557.40	3.00	68.15	%276767.40	11790.07	110.77
1.51	52.31	%288935.20	3.00	67.77	%277256.70	11678.51	110.65
1.52	52.00	%289310.70	3.00	67.38	%277743.20	11567.45	110.52
1.52	51.68	%289683.90	3.00	67.00	%278227.00	11456.92	110.40
1.52	51.37	%290054.90	3.00	66.62	%278708.00	11346.89	110.27
1.52	51.06	%290423.70	3.00	66.24	%279186.40	11237.32	110.15
1.52	50.74	%290790.10	3.00	65.87	%279662.00	11128.20	110.03
1.53	50.43	%291154.40	2.00	43.66	%280134.80	11071.93	109.91
1.53	50.12	%291516.30	2.00	43.89	%280450.00	11066.32	110.02
1.53	49.80	%291876.00	2.00	43.87	%280766.00	11110.10	110.01
1.53	49.49	%292233.50	2.00	43.97	%281082.20	11151.35	110.06
1.53	49.18	%292588.70	2.00	44.06	%281399.00	11189.67	110.10
1.54	48.86	%292941.60	2.00	44.14	%281716.50	11225.10	110.14
1.54	48.55	%293292.30	2.00	44.21	%282034.60	11257.73	110.18
1.54	48.24	%293640.80	2.00	44.28	%282353.20	11287.57	110.21
1.54	47.92	%293987.00	2.00	44.34	%282672.30	11314.70	110.24
1.54	47.61	%294330.90	2.00	44.40	%282991.70	11339.14	110.27
1.55	47.30	%294672.50	2.00	44.45	%283311.60	11360.92	110.29
1.55	46.98	%295011.90	2.00	44.49	%283631.80	11380.10	110.31
1.55	46.67	%295349.10	2.00	44.53	%283952.30	11396.76	110.33
1.55	46.36	%295684.00	2.00	44.57	%284273.10	11410.92	110.35
1.55	46.04	%296016.60	2.00	44.59	%284594.00	11422.57	110.36
1.56	45.73	%296347.00	2.00	44.61	%284915.20	11431.79	110.37
1.56	45.42	%296675.10	2.00	44.63	%285236.50	11438.64	110.38
1.56	45.10	%297001.00	2.00	44.64	%285557.90	11443.14	110.38
1.56	44.79	%297324.60	2.00	44.65	%285879.30	11445.32	110.39
1.56	44.48	%297646.00	2.00	44.65	%286200.70	11445.26	110.39
1.57	44.16	%297965.10	2.00	44.64	%286522.20	11442.92	110.38
1.57	43.85	%298281.90	2.00	44.63	%286843.50	11438.39	110.38
1.57	43.54	%298596.50	2.00	44.61	%287164.80	11431.70	110.37
1.57	43.22	%298908.90	2.00	44.59	%287486.00	11422.89	110.36
1.57	42.91	%299219.00	2.00	44.57	%287807.00	11412.01	110.35
1.58	42.60	%299526.80	2.00	44.54	%288127.70	11399.04	110.34
1.58	42.28	%299832.30	2.00	44.50	%288448.30	11384.04	110.32
1.58	41.97	%300135.60	2.00	44.46	%288768.60	11367.07	110.30
1.58	41.66	%300436.70	2.00	44.42	%289088.60	11348.14	110.28
1.58	41.34	%300735.50	2.00	44.37	%289408.20	11327.29	110.25
1.59	41.03	%301032.00	2.00	44.32	%289727.50	11304.51	110.23
1.59	40.72	%301326.30	2.00	44.26	%290046.50	11279.89	110.20
1.59	40.40	%301618.40	2.00	44.20	%290364.90	11253.45	110.17
1.59	40.09	%301908.10	2.00	44.14	%290683.00	11225.20	110.14
1.59	39.78	%302195.70	2.00	44.07	%291000.50	11195.20	110.11
1.60	39.46	%302480.90	2.00	44.00	%291317.50	11163.42	110.07
1.60	39.15	%302763.90	2.00	43.92	%291634.00	11129.92	110.03
1.60	38.84	%303044.70	2.00	43.84	%291949.90	11094.76	109.99
1.60	38.52	%303323.20	2.00	43.75	%292265.20	11057.95	109.95
1.60	38.21	%303599.40	2.00	43.66	%292579.90	11019.51	109.91

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.61	37.90	%303873.40	2.00	43.57	%292894.00	10979.45	109.86
1.61	37.58	%304145.10	2.00	43.47	%293207.30	10937.79	109.82
1.61	37.27	%304414.60	2.00	43.38	%293520.00	10894.60	109.77
1.61	36.96	%304681.80	2.00	43.27	%293831.90	10849.89	109.72
1.61	36.64	%304946.80	2.00	43.17	%294143.10	10803.67	109.66
1.62	36.33	%305209.50	2.00	43.06	%294453.50	10755.98	109.61
1.62	36.02	%305469.90	2.00	42.94	%294763.10	10706.82	109.56
1.62	35.70	%305728.10	2.00	42.83	%295071.90	10656.26	109.50
1.62	35.39	%305984.00	2.00	42.71	%295379.80	10604.29	109.44
1.62	35.08	%306237.70	2.00	42.58	%295686.80	10550.95	109.38
1.63	34.76	%306489.20	2.00	42.46	%295993.00	10496.23	109.32
1.63	34.45	%306738.30	2.00	42.33	%296298.20	10440.17	109.26
1.63	34.14	%306985.20	2.00	42.20	%296602.50	10382.79	109.19
1.63	33.82	%307229.90	2.00	42.06	%296905.80	10324.14	109.12
1.63	33.51	%307472.30	2.00	41.92	%297208.10	10264.20	109.06
1.64	33.20	%307712.50	2.00	41.78	%297509.40	10203.04	108.99
1.64	32.88	%307950.30	2.00	41.64	%297809.70	10140.60	108.92
1.64	32.57	%308186.00	2.00	41.49	%298109.00	10076.98	108.85
1.64	32.26	%308419.30	2.00	41.34	%298407.20	10012.17	108.77
1.64	31.94	%308650.50	2.00	41.19	%298704.30	9946.20	108.70
1.65	31.63	%308879.30	2.00	41.03	%299000.30	9879.07	108.62
1.65	31.32	%309105.90	2.00	40.88	%299295.10	9810.79	108.55
1.65	31.00	%309330.30	2.00	40.72	%299588.90	9741.42	108.47
1.65	30.69	%309552.40	2.00	40.55	%299881.40	9670.95	108.39
1.65	30.38	%309772.20	2.00	40.39	%300172.80	9599.42	108.31
1.66	30.06	%309989.80	2.00	40.22	%300463.00	9526.82	108.23
1.66	29.75	%310205.10	2.00	40.05	%300752.00	9453.17	108.14
1.66	29.44	%310418.20	2.00	39.88	%301039.70	9378.48	108.06
1.66	29.12	%310629.00	1.00	19.85	%301326.20	9326.61	107.97
1.66	28.81	%310837.50	1.00	19.96	%301469.50	9368.04	108.08
1.67	28.50	%311043.90	1.00	20.00	%301613.40	9430.51	108.12
1.67	28.18	%311247.90	1.00	20.07	%301757.60	9490.32	108.19
1.67	27.87	%311449.70	1.00	20.14	%301902.40	9547.35	108.25
1.67	27.56	%311649.20	1.00	20.20	%302047.50	9601.70	108.31
1.67	27.24	%311846.50	1.00	20.26	%302193.20	9653.35	108.37
1.68	26.93	%312041.50	1.00	20.31	%302339.20	9702.32	108.43
1.68	26.62	%312234.30	1.00	20.37	%302485.70	9748.67	108.48
1.68	26.30	%312424.80	1.00	20.42	%302632.50	9792.35	108.53
1.68	25.99	%312613.10	1.00	20.47	%302779.70	9833.42	108.57
1.68	25.68	%312799.10	1.00	20.51	%302927.20	9871.92	108.62
1.69	25.36	%312982.80	1.00	20.55	%303075.00	9907.85	108.66
1.69	25.05	%313164.30	1.00	20.59	%303223.10	9941.26	108.69

1.69	24.74	%313343.50	1.00	20.63	%303371.50	9972.10	108.73
1.69	24.42	%313520.50	1.00	20.66	%303520.10	10000.45	108.76
1.69	24.11	%313695.20	1.00	20.69	%303668.90	10026.32	108.79
1.70	23.80	%313867.70	1.00	20.71	%303818.00	10049.73	108.82
1.70	23.48	%314037.90	1.00	20.74	%303967.20	10070.73	108.84
1.70	23.17	%314205.90	1.00	20.76	%304116.60	10089.26	108.86
1.70	22.86	%314371.50	1.00	20.78	%304266.10	10105.42	108.88
1.70	22.54	%314535.00	1.00	20.79	%304415.80	10119.20	108.90
1.71	22.23	%314696.20	1.00	20.81	%304565.60	10130.60	108.91
1.71	21.92	%314855.10	1.00	20.82	%304715.40	10139.70	108.92
1.71	21.60	%315011.80	1.00	20.83	%304865.30	10146.48	108.93
1.71	21.29	%315166.20	1.00	20.83	%305015.30	10150.92	108.93
1.71	20.98	%315318.40	1.00	20.83	%305165.30	10153.07	108.93
1.72	20.66	%315468.30	1.00	20.83	%305315.30	10152.98	108.93
1.72	20.35	%315615.90	1.00	20.83	%305465.30	10150.64	108.93
1.72	20.04	%315761.30	1.00	20.83	%305615.30	10146.07	108.93
1.72	19.72	%315904.50	1.00	20.82	%305765.20	10139.29	108.92
1.72	19.41	%316045.30	1.00	20.81	%305915.00	10130.32	108.91
1.73	19.10	%316184.00	1.00	20.79	%306064.80	10119.17	108.90
1.73	18.78	%316320.30	1.00	20.78	%306214.50	10105.89	108.88
1.73	18.47	%316454.50	1.00	20.76	%306364.00	10090.48	108.86
1.73	18.16	%316586.30	1.00	20.74	%306513.40	10072.92	108.84
1.73	17.96	%316716.30	1.00	20.72	%306662.60	10053.70	108.82
1.74	17.89	%316845.40	1.00	20.70	%306811.70	10033.67	108.80
1.74	17.81	%316973.90	1.00	20.67	%306960.70	10013.26	108.78
1.74	17.74	%317101.90	1.00	20.65	%307109.40	9992.48	108.75
1.74	17.66	%317229.30	1.00	20.62	%307258.00	9971.32	108.73
1.74	17.59	%317356.20	1.00	20.60	%307406.40	9949.82	108.70
1.75	17.51	%317482.60	1.00	20.57	%307554.60	9927.98	108.68
1.75	17.44	%317608.40	1.00	20.55	%307702.70	9905.76	108.65
1.75	17.36	%317733.70	1.00	20.52	%307850.50	9883.20	108.63
1.75	17.29	%317858.50	1.00	20.50	%307998.20	9860.29	108.60
1.75	17.21	%317982.70	1.00	20.47	%308145.60	9837.04	108.58
1.76	17.14	%318106.30	1.00	20.44	%308292.90	9813.42	108.55
1.76	17.06	%318229.50	1.00	20.41	%308440.00	9789.45	108.52
1.76	16.99	%318352.00	1.00	20.39	%308586.90	9765.17	108.50
1.76	16.91	%318474.10	1.00	20.36	%308733.60	9740.54	108.47
1.76	16.84	%318595.60	1.00	20.33	%308880.00	9715.57	108.44
1.77	16.76	%318716.60	1.00	20.30	%309026.30	9690.29	108.41
1.77	16.69	%318837.00	1.00	20.27	%309172.40	9664.67	108.38
1.77	16.61	%318956.90	1.00	20.24	%309318.20	9638.73	108.35
1.77	16.54	%319076.30	1.00	20.21	%309463.80	9612.45	108.32
1.77	16.46	%319195.10	1.00	20.18	%309609.20	9585.85	108.29
1.78	16.39	%319313.40	1.00	20.15	%309754.40	9558.95	108.26
1.78	16.31	%319431.10	1.00	20.12	%309899.40	9531.73	108.23
1.78	16.24	%319548.30	1.00	20.09	%310044.10	9504.20	108.20
1.78	16.16	%319665.00	1.00	20.05	%310188.60	9476.35	108.17
1.78	16.09	%319781.10	1.00	20.02	%310332.90	9448.20	108.14
1.79	16.01	%319896.60	1.00	19.99	%310476.90	9419.73	108.11
1.79	15.94	%320011.70	1.00	19.95	%310620.70	9390.98	108.08
1.79	15.87	%320126.20	1.00	19.92	%310764.30	9361.92	108.04
1.79	15.79	%320240.10	1.00	19.89	%310907.60	9332.57	108.01
1.79	15.72	%320353.50	1.00	19.85	%311050.60	9302.92	107.98
1.80	15.64	%320466.40	1.00	19.82	%311193.50	9272.98	107.94
1.80	15.57	%320578.80	1.00	19.78	%311336.00	9242.76	107.91
1.80	15.49	%320690.60	1.00	19.75	%311478.30	9212.26	107.87
1.80	15.42	%320801.80	1.00	19.71	%311620.40	9181.45	107.84
1.80	15.34	%320912.50	1.00	19.68	%311762.20	9150.35	107.80
1.81	15.27	%321022.70	1.00	19.64	%311903.80	9118.98	107.77
1.81	15.19	%321132.40	1.00	19.60	%312045.00	9087.35	107.73
1.81	15.12	%321241.50	1.00	19.57	%312186.10	9055.42	107.70
1.81	15.04	%321350.00	1.00	19.53	%312326.80	9023.23	107.66
1.81	14.97	%321458.10	1.00	19.49	%312467.30	8990.76	107.62
1.82	14.89	%321565.60	1.00	19.46	%312607.50	8958.04	107.59
1.82	14.82	%321672.50	1.00	19.42	%312747.50	8925.04	107.55
1.82	14.74	%321778.90	1.00	19.38	%312887.10	8891.79	107.51
1.82	14.67	%321884.80	1.00	19.34	%313026.50	8858.26	107.48
1.82	14.59	%321990.10	1.00	19.30	%313165.70	8824.48	107.44
1.83	14.52	%322094.90	1.00	19.26	%313304.50	8790.42	107.40
1.83	14.44	%322199.20	1.00	19.22	%313443.00	8756.14	107.36
1.83	14.37	%322302.90	1.00	19.18	%313581.30	8721.60	107.32
1.83	14.29	%322406.10	1.00	19.14	%313719.30	8686.82	107.28
1.83	14.22	%322508.70	1.00	19.10	%313857.00	8651.76	107.24
1.84	14.14	%322610.80	1.00	19.06	%313994.40	8616.45	107.20
1.84	14.07	%322712.40	1.00	19.02	%314131.50	8580.92	107.16
1.84	13.99	%322813.40	1.00	18.98	%314268.30	8545.14	107.12
1.84	13.92	%322913.90	1.00	18.94	%314404.80	8509.10	107.08
1.84	13.84	%323013.80	1.00	18.90	%314541.00	8472.85	107.04
1.85	13.77	%323113.20	1.00	18.85	%314676.90	8436.35	107.00
1.85	13.69	%323212.00	1.00	18.81	%314812.50	8399.60	106.96
1.85	13.62	%323310.40	1.00	18.77	%314947.70	8362.64	106.92
1.85	13.54	%323408.10	1.00	18.73	%315082.70	8325.45	106.88
1.85	13.47	%323505.40	1.00	18.68	%315217.40	8288.01	106.83
1.86	13.39	%323602.10	1.00	18.64	%315351.80	8250.32	106.79
1.86	13.32	%323698.20	1.00	18.60	%315485.80	8212.42	106.75
1.86	13.24	%323793.90	1.00	18.55	%315619.50	8174.32	106.70
1.86	13.17	%323889.00	1.00	18.51	%315753.00	8136.01	106.66
1.86	13.09	%323983.50	1.00	18.46	%315886.00	8097.45	106.62
1.87	13.02	%324077.50	1.00	18.42	%316018.80	8058.67	106.57
1.87	12.94	%324171.00	1.00	18.37	%316151.30	8019.70	106.53
1.87	12.87	%324263.90	1.00	18.33	%316283.40	7980.51	106.49
1.87	12.79	%324356.30	1.00	18.28	%316415.20	7941.07	106.44
1.87	12.72	%324448.10	1.00	18.24	%316546.70	7901.45	106.40
1.88	12.64	%324539.40	1.00	18.19	%316677.80	7861.60	106.35
1.88	12.57	%324630.20	1.00	18.15	%316808.60	7821.57	106.31
1.88	12.49	%324720.40	1.00	18.10	%316939.10	7781.32	106.26
1.88	12.42	%324810.10	1.00	18.05	%317069.30	7740.85	106.22
1.88	12.34	%324899.30	1.00	18.01	%317199.10	7700.20	106.17
1.89	12.27	%324987.90	1.00	17.96	%317328.50	7659.35	106.13
1.89	12.19	%325076.00	1.00	17.91	%317457.70	7618.29	106.08

2.49	5.08	%340593.20	0.00	0.00	%332491.20	8102.01	106.62
2.49	5.07	%340629.80	0.00	0.00	%332491.20	8138.57	106.67
2.49	5.06	%340666.30	0.00	0.00	%332491.20	8175.04	106.71
2.49	5.05	%340702.60	0.00	0.00	%332491.20	8211.42	106.75
2.49	5.04	%340739.00	0.00	0.00	%332491.20	8247.73	106.79
2.50	5.02	%340775.20	0.00	0.00	%332491.20	8283.95	106.83
2.50	5.01	%340811.30	0.00	0.00	%332491.20	8320.07	106.87

****
ARNING ------ THE ROADWAY HAS 2.04 FEET OF PONDED WATER ---------WARNING
****
****
WARNING ------ THE MAXIMUM CAPACITY OF THE ONSITE STORM DRAIN ----WARNING
WARNING ------ IS 128 CFS WHILE THE PEAK INFLOW IS 176 CFS -------WARNING
****

EXPLANATION AND SUMMARY OF RUN

1.0 THE #1 PUMP RUNS FROM .573 HRS. UNTIL 1.897 HRS. THERE IS MINOR CYCLING WITH THE #1 PUMP ON THE RISING AND FALLING LEGS OF THE 50 YEAR (W/HOV) INFLOW HYDROGRAPH. SEE CYCLING CHECK RUNS FOR MORE INFORMATION ON THE CYCLING OF THE #1 PUMP. CYCLING IS NOT A PROBLEM WITH THIS RUN.

2.0 THE #2 PUMP DOES NOT CYCLE ON THE RISING OR FALLING LEGS OF THE INFLOW HYDROGRAPH; RUNNING FROM ABOUT .793 HRS. TO 1.665 HRS.

3.0 THE #3 PUMP DOES NOT CYCLE AND RUNS FROM .933 HRS. TO 1.529 HRS.

4.0 THE # 4 PUMP DOES NOT CYCLE AND RUNS FROM 1.049 HRS. TO 1.493 HRS.

5.0 THE PEAK OUTFLOW DURING THIS RUN IS 128.5 CFS AT ELEVATION 122.04 (i.e. 1122.04).

6.0 ONLY THE SIGNIFICANT PORTIONS OF THE OUTPUT WAS PRINTED, SEE FILE 50YHVPSN.OUT ON CD FOR COMPLETE OUTPUT.

7.0 THE COMPLETE FALLING LEG OF THE HYDROGRAPH WAS NOT INCLUDED AS ITS ONLY INTEREST WOULD BE FOR CYCLING, AND THE CONSTANT INFLOW OF .5 OF THE OUTFLOW (USED IN THE CYCLING CHECK RUNS) WITH THE NEW PUMP ON/OFF SETTINGS WOULD BE OF MORE INTEREST.

NOTE:

THIS PROGRAM DOES NOT ITERATE THE PUMP OUTFLOW RATES OR DURATIONS DURING THE ROUTING INTERVAL (i.e. 7.2 SEC.). THEREFORE THE WATER SURFACE ELEVATION IN THE WET WELL IS ONLY APPROXIMATE. THE MAXIMUM ERROR IN PUMPED FLOW SHOULD NOT EXCEED ONE HALF THE PEAK FLOW FROM ONE PUMP FOR THE ROUTING INTERVAL OR IN THIS CASE:

((128.46/4)/2) * 7.2 = 115.64 CUBIC FEET
WHICH CORRESPONDS TO A WET WELL ELEVATION OF
ABOUT +/- .13 FEET (i.e. 5 FEET IN THE WET WELL
CORRESPONDS TO 4440 CUBIC FEET, THEREFORE 116
CUBIC FEET IS ABOUT .13 FEET)

PROGRAM INPUT DATA

SR-51 Drainage Assessment
Indian School Road to
Bethany Home Road

Pump Station Routing
Delta T = .002 Hrs.
FILE CYCLEPSN.OUT

FREQUENCY N/A

~~Exist~~ ~~HOV~~

CONSTANT FLOW

INFLOW HYDROGRAPH

Hec1 Time	Time	Q (cfs)
	0	9.5
	1.0	9.5
	2.0	9.5

STAGE - STORAGE/DISCHARGE RELATIONSHIP

Elev	Storage CuFt	Q cfs	
97.5	0	12	
106.0	7548	~~22.95~~	17.83
111	11988	22.95	
113.5	14208	25.85	
116	16428	28.07	
120	19980	30.75	
122	38056	32.09	
124	141432	33.42	
127	455796	34.98	

PUMP	ON	OFF
1	108	106
2	110	108
3	112	110
4	114	112

PB

FILE CONVENTIONS:

Pump STATION @ HIGHLAND
OUTPUT FILE

CYCLEPSN.OUT)

FOR CYCLING

NEW ON OFF SETTING 4-01-98

SR-51 Drainage Assessment
Indian School Rd. to Bethany Home Rd.

Pump Station Routing
Highland Pump Station

Inflow Hydrograph
CONSTANT INFLOW = .5 AVE. OUTFLOW

CYCLEPSN.OUT, 4-06-98
PB Phx., BY R.JORDAN

****

INPUT DATA FOR PUMP STATION ROUTING

Delta Time (routing interval) = .002 Hrs.(.12 min or 7.2 sec)

Frequency NA(ie constant) with new on/off settings

INFLOW HYDROGRAPH

hec1 time	time	Q (cfs)
	0.0	9.5
	0.5	9.5
	0.6	9.5
	1.0	9.5
	1.1	9.5
	1.167	9.5
	1.233	9.5
	1.433	9.5
	1.733	9.5
	2.000	9.5

STAGE-STORAGE/DISCHARGE CURVE

Elev.	Storage CuFt	Outflow cfs
97.5	0	12
106	7548	17.83
111	11988	22.95
113.5	14208	25.85
116	16428	28.07
120	19980	30.75
122	38056	32.09
124	141432	33.42
127	455796	34.98

PUMP	ON	OFF
1	108	106
2	110	108
3	112	110
4	114	112

Gen Set	On
1	106
2	110

****

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.00	9.50	0.00	0.00	0.00	0.00	0.01	0.00
0.00	9.50	68.40	0.00	0.00	0.00	68.41	97.58
0.00	9.50	136.80	0.00	0.00	0.00	136.81	97.65
0.01	9.50	205.20	0.00	0.00	0.00	205.21	97.73
0.01	9.50	273.60	0.00	0.00	0.00	273.61	97.81
0.01	9.50	342.00	0.00	0.00	0.00	342.01	97.89
0.01	9.50	410.40	0.00	0.00	0.00	410.41	97.96
0.01	9.50	478.80	0.00	0.00	0.00	478.81	98.04
0.02	9.50	547.20	0.00	0.00	0.00	547.21	98.12
0.02	9.50	615.60	0.00	0.00	0.00	615.61	98.19
0.02	9.50	684.00	0.00	0.00	0.00	684.01	98.27
0.02	9.50	752.40	0.00	0.00	0.00	752.41	98.35
0.02	9.50	820.80	0.00	0.00	0.00	820.81	98.42
0.03	9.50	889.20	0.00	0.00	0.00	889.21	98.50
0.03	9.50	957.60	0.00	0.00	0.00	957.61	98.58
0.03	9.50	1026.00	0.00	0.00	0.00	1026.01	98.66
0.03	9.50	1094.40	0.00	0.00	0.00	1094.41	98.73
0.03	9.50	1162.80	0.00	0.00	0.00	1162.81	98.81
0.04	9.50	1231.20	0.00	0.00	0.00	1231.21	98.89
0.04	9.50	1299.60	0.00	0.00	0.00	1299.61	98.96
0.04	9.50	1368.00	0.00	0.00	0.00	1368.01	99.04
0.04	9.50	1436.40	0.00	0.00	0.00	1436.41	99.12
0.04	9.50	1504.80	0.00	0.00	0.00	1504.81	99.19
0.05	9.50	1573.20	0.00	0.00	0.00	1573.21	99.27
0.05	9.50	1641.60	0.00	0.00	0.00	1641.61	99.35
0.05	9.50	1710.00	0.00	0.00	0.00	1710.01	99.43
0.05	9.50	1778.40	0.00	0.00	0.00	1778.41	99.50
0.05	9.50	1846.80	0.00	0.00	0.00	1846.81	99.58
0.06	9.50	1915.20	0.00	0.00	0.00	1915.21	99.66
0.06	9.50	1983.60	0.00	0.00	0.00	1983.61	99.73
0.06	9.50	2052.00	0.00	0.00	0.00	2052.01	99.81
0.06	9.50	2120.40	0.00	0.00	0.00	2120.41	99.89
0.06	9.50	2188.80	0.00	0.00	0.00	2188.81	99.96
0.07	9.50	2257.20	0.00	0.00	0.00	2257.21	100.04
0.07	9.50	2325.60	0.00	0.00	0.00	2325.61	100.12
0.07	9.50	2394.00	0.00	0.00	0.00	2394.01	100.20
0.07	9.50	2462.40	0.00	0.00	0.00	2462.41	100.27
0.07	9.50	2530.80	0.00	0.00	0.00	2530.81	100.35
0.08	9.50	2599.20	0.00	0.00	0.00	2599.21	100.43
0.08	9.50	2667.60	0.00	0.00	0.00	2667.61	100.50
0.08	9.50	2736.00	0.00	0.00	0.00	2736.01	100.58
0.08	9.50	2804.40	0.00	0.00	0.00	2804.41	100.66
0.08	9.50	2872.80	0.00	0.00	0.00	2872.81	100.74

0.24	9.50	8344.79	0.00	0.00	0.00	8344.80	106.90
0.25	9.50	8413.19	0.00	0.00	0.00	8413.20	106.97
0.25	9.50	8481.59	0.00	0.00	0.00	8481.60	107.05
0.25	9.50	8549.99	0.00	0.00	0.00	8550.00	107.13
0.25	9.50	8618.39	0.00	0.00	0.00	8618.40	107.21
0.25	9.50	8686.80	0.00	0.00	0.00	8686.81	107.28
0.26	9.50	8755.20	0.00	0.00	0.00	8755.21	107.36
0.26	9.50	8823.60	0.00	0.00	0.00	8823.61	107.44
0.26	9.50	8892.00	0.00	0.00	0.00	8892.01	107.51
0.26	9.50	8960.40	0.00	0.00	0.00	8960.41	107.59
0.26	9.50	9028.80	0.00	0.00	0.00	9028.81	107.67
0.27	9.50	9097.20	0.00	0.00	0.00	9097.21	107.74
0.27	9.50	9165.60	0.00	0.00	0.00	9165.61	107.82
0.27	9.50	9234.00	0.00	0.00	0.00	9234.01	107.90
0.27	9.50	9302.40	0.00	0.00	0.00	9302.41	107.98
0.27	9.50	9370.80	1.00	19.93	71.76	9263.18	108.05
0.28	9.50	9439.20	1.00	19.72	214.51	9224.70	107.85
0.28	9.50	9507.60	1.00	19.68	356.35	9151.26	107.81
0.28	9.50	9576.00	1.00	19.59	497.73	9078.28	107.72
0.28	9.50	9644.40	1.00	19.51	638.51	9005.90	107.64
0.28	9.50	9712.80	1.00	19.43	778.69	8934.12	107.56
0.29	9.50	9781.20	1.00	19.35	918.28	8862.93	107.48
0.29	9.50	9849.60	1.00	19.26	1057.28	8792.34	107.40
0.29	9.50	9918.00	1.00	19.18	1195.69	8722.32	107.32
0.29	9.50	9986.40	1.00	19.10	1333.53	8652.89	107.24
0.29	9.50	10054.80	1.00	19.02	1470.79	8584.03	107.17
0.30	9.50	10123.20	1.00	18.95	1607.48	8515.73	107.09
0.30	9.50	10191.60	1.00	18.87	1743.61	8448.01	107.01
0.30	9.50	10260.00	1.00	18.79	1879.17	8380.84	106.94
0.30	9.50	10328.40	1.00	18.71	2014.19	8314.23	106.86
0.30	9.50	10396.81	1.00	18.64	2148.65	8248.17	106.79

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.31	9.50	10465.21	1.00	18.56	2282.56	8182.65	106.71
0.31	9.50	10533.61	1.00	18.49	2415.94	8117.68	106.64
0.31	9.50	10602.01	1.00	18.41	2548.77	8053.24	106.57
0.31	9.50	10670.41	1.00	18.34	2681.07	7989.34	106.50
0.31	9.50	10738.81	1.00	18.27	2812.85	7925.97	106.43
0.32	9.50	10807.21	1.00	18.19	2944.10	7863.12	106.35
0.32	9.50	10875.61	1.00	18.12	3074.83	7800.79	106.28
0.32	9.50	10944.01	1.00	18.05	3205.05	7738.97	106.21
0.32	9.50	11012.41	1.00	17.98	3334.75	7677.67	106.15
0.32	9.50	11080.81	1.00	17.91	3463.95	7616.87	106.08
0.33	9.50	11149.21	1.00	17.84	3592.65	7556.57	106.01
0.33	9.50	11217.61	0.00	0.00	3720.91	7496.71	105.94
0.33	9.50	11286.01	0.00	0.00	3720.91	7565.11	106.02
0.33	9.50	11354.41	0.00	0.00	3720.91	7633.51	106.10
0.33	9.50	11422.81	0.00	0.00	3720.91	7701.91	106.17
0.34	9.50	11491.21	0.00	0.00	3720.91	7770.31	106.25
0.34	9.50	11559.61	0.00	0.00	3720.91	7838.71	106.33
0.34	9.50	11628.01	0.00	0.00	3720.91	7907.11	106.40
0.34	9.50	11696.41	0.00	0.00	3720.91	7975.51	106.48
0.34	9.50	11764.81	0.00	0.00	3720.91	8043.91	106.56
0.35	9.50	11833.21	0.00	0.00	3720.91	8112.31	106.64
0.35	9.50	11901.61	0.00	0.00	3720.91	8180.71	106.71
0.35	9.50	11970.01	0.00	0.00	3720.91	8249.11	106.79
0.35	9.50	12038.41	0.00	0.00	3720.91	8317.51	106.87
0.35	9.50	12106.82	0.00	0.00	3720.91	8385.91	106.94
0.36	9.50	12175.22	0.00	0.00	3720.91	8454.31	107.02
0.36	9.50	12243.62	0.00	0.00	3720.91	8522.71	107.10
0.36	9.50	12312.02	0.00	0.00	3720.91	8591.11	107.17
0.36	9.50	12380.42	0.00	0.00	3720.91	8659.51	107.25
0.36	9.50	12448.82	0.00	0.00	3720.91	8727.91	107.33
0.37	9.50	12517.22	0.00	0.00	3720.91	8796.31	107.41
0.37	9.50	12585.62	0.00	0.00	3720.91	8864.71	107.48
0.37	9.50	12654.02	0.00	0.00	3720.91	8933.11	107.56
0.37	9.50	12722.42	0.00	0.00	3720.91	9001.51	107.64
0.37	9.50	12790.82	0.00	0.00	3720.91	9069.92	107.71
0.38	9.50	12859.22	0.00	0.00	3720.91	9138.32	107.79
0.38	9.50	12927.62	0.00	0.00	3720.91	9206.72	107.87
0.38	9.50	12996.02	0.00	0.00	3720.91	9275.12	107.94
0.38	9.50	13064.42	1.00	19.90	3792.56	9236.05	108.02
0.38	9.50	13132.82	1.00	19.69	3935.08	9197.75	107.82
0.39	9.50	13201.22	1.00	19.65	4076.70	9124.53	107.78
0.39	9.50	13269.62	1.00	19.56	4217.86	9051.77	107.69
0.39	9.50	13338.02	1.00	19.48	4358.42	8979.61	107.61
0.39	9.50	13406.42	1.00	19.40	4498.39	8908.05	107.53
0.39	9.50	13474.82	1.00	19.32	4637.76	8837.07	107.45
0.40	9.50	13543.22	1.00	19.24	4776.54	8766.69	107.37
0.40	9.50	13611.62	1.00	19.15	4914.74	8696.89	107.29
0.40	9.50	13680.02	1.00	19.07	5052.37	8627.66	107.22

0.40	9.50	13748.42	1.00	19.00	5189.42	8559.01	107.14
0.40	9.50	13816.82	1.00	18.92	5325.91	8490.93	107.06
0.41	9.50	13885.23	1.00	18.84	5461.83	8423.40	106.99
0.41	9.50	13953.63	1.00	18.76	5597.19	8356.44	106.91
0.41	9.50	14022.03	1.00	18.69	5732.00	8290.03	106.84
0.41	9.50	14090.43	1.00	18.61	5866.26	8224.17	106.76
0.41	9.50	14158.83	1.00	18.53	5999.98	8158.85	106.69
0.42	9.50	14227.23	1.00	18.46	6133.16	8094.08	106.61
0.42	9.50	14295.63	1.00	18.39	6265.80	8029.84	106.54
0.42	9.50	14364.03	1.00	18.31	6397.91	7966.13	106.47
0.42	9.50	14432.43	1.00	18.24	6529.49	7902.95	106.40
0.42	9.50	14500.83	1.00	18.17	6660.55	7840.29	106.33
0.43	9.50	14569.23	1.00	18.10	6791.10	7778.14	106.26
0.43	9.50	14637.63	1.00	18.02	6921.12	7716.51	106.19
0.43	9.50	14706.03	1.00	17.95	7050.64	7655.40	106.12
0.43	9.50	14774.43	1.00	17.88	7179.66	7594.78	106.05
0.43	9.50	14842.83	0.00	0.00	7308.19	7534.65	105.98
0.44	9.50	14911.23	0.00	0.00	7308.19	7603.05	106.06
0.44	9.50	14979.63	0.00	0.00	7308.19	7671.45	106.14
0.44	9.50	15048.03	0.00	0.00	7308.19	7739.85	106.22
0.44	9.50	15116.43	0.00	0.00	7308.19	7808.25	106.29
0.44	9.50	15184.83	0.00	0.00	7308.19	7876.65	106.37
0.45	9.50	15253.23	0.00	0.00	7308.19	7945.05	106.45
0.45	9.50	15321.63	0.00	0.00	7308.19	8013.45	106.52
0.45	9.50	15390.03	0.00	0.00	7308.19	8081.86	106.60
0.45	9.50	15458.43	0.00	0.00	7308.19	8150.26	106.68
0.45	9.50	15526.83	0.00	0.00	7308.19	8218.66	106.76

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.46	9.50	15595.24	0.00	0.00	7308.19	8287.06	106.83
0.46	9.50	15663.64	0.00	0.00	7308.19	8355.46	106.91
0.46	9.50	15732.04	0.00	0.00	7308.19	8423.86	106.99
0.46	9.50	15800.44	0.00	0.00	7308.19	8492.26	107.06
0.46	9.50	15868.84	0.00	0.00	7308.19	8560.66	107.14
0.47	9.50	15937.24	0.00	0.00	7308.19	8629.06	107.22
0.47	9.50	16005.64	0.00	0.00	7308.19	8697.46	107.29
0.47	9.50	16074.04	0.00	0.00	7308.19	8765.86	107.37
0.47	9.50	16142.44	0.00	0.00	7308.19	8834.26	107.45
0.47	9.50	16210.84	0.00	0.00	7308.19	8902.66	107.53
0.48	9.50	16279.24	0.00	0.00	7308.19	8971.06	107.60
0.48	9.50	16347.64	0.00	0.00	7308.19	9039.46	107.68
0.48	9.50	16416.04	0.00	0.00	7308.19	9107.86	107.76
0.48	9.50	16484.44	0.00	0.00	7308.19	9176.26	107.83
0.48	9.50	16552.84	0.00	0.00	7308.19	9244.66	107.91
0.49	9.50	16621.24	0.00	0.00	7308.19	9313.06	107.99
0.49	9.50	16689.64	1.00	19.94	7379.99	9273.76	108.06
0.49	9.50	16758.04	1.00	19.73	7522.83	9235.22	107.86
0.49	9.50	16826.44	1.00	19.69	7664.76	9161.69	107.82
0.49	9.50	16894.84	1.00	19.61	7806.23	9088.63	107.73
0.50	9.50	16963.24	1.00	19.52	7947.09	9016.16	107.65
0.50	9.50	17031.64	1.00	19.44	8087.36	8944.30	107.57
0.50	9.50	17100.04	1.00	19.36	8227.03	8873.03	107.49
0.50	9.50	17168.44	1.00	19.28	8366.11	8802.35	107.41
0.50	9.50	17236.84	1.00	19.20	8504.60	8732.25	107.33
0.51	9.50	17305.24	1.00	19.12	8642.52	8662.73	107.26
0.51	9.50	17373.65	1.00	19.04	8779.86	8593.79	107.18
0.51	9.50	17442.05	1.00	18.96	8916.64	8525.42	107.10
0.51	9.50	17510.45	1.00	18.88	9052.84	8457.61	107.02
0.51	9.50	17578.85	1.00	18.80	9188.49	8390.37	106.95
0.52	9.50	17647.25	1.00	18.72	9323.58	8323.68	106.87
0.52	9.50	17715.65	1.00	18.65	9458.12	8257.54	106.80
0.52	9.50	17784.05	1.00	18.57	9592.11	8191.94	106.72
0.52	9.50	17852.45	1.00	18.50	9725.56	8126.89	106.65
0.52	9.50	17920.85	1.00	18.42	9858.47	8062.38	106.58
0.53	9.50	17989.25	1.00	18.35	9990.85	7998.40	106.51
0.53	9.50	18057.65	1.00	18.28	10122.70	7934.96	106.44
0.53	9.50	18126.05	1.00	18.20	10254.03	7872.03	106.36
0.53	9.50	18194.45	1.00	18.13	10384.83	7809.63	106.29
0.53	9.50	18262.85	1.00	18.06	10515.12	7747.74	106.22
0.54	9.50	18331.25	1.00	17.99	10644.90	7686.36	106.16
0.54	9.50	18399.65	1.00	17.92	10774.17	7625.49	106.09
0.54	9.50	18468.05	1.00	17.85	10902.94	7565.13	106.02
0.54	9.50	18536.45	0.00	0.00	11031.26	7505.20	105.95
0.54	9.50	18604.85	0.00	0.00	11031.26	7573.60	106.03
0.55	9.50	18673.25	0.00	0.00	11031.26	7642.00	106.11
0.55	9.50	18741.65	0.00	0.00	11031.26	7710.40	106.18
0.55	9.50	18810.05	0.00	0.00	11031.26	7778.80	106.26
0.55	9.50	18878.45	0.00	0.00	11031.26	7847.20	106.34
0.55	9.50	18946.85	0.00	0.00	11031.26	7915.60	106.41
0.56	9.50	19015.25	0.00	0.00	11031.26	7984.00	106.49
0.56	9.50	19083.65	0.00	0.00	11031.26	8052.40	106.57

0.56	9.50	19152.06	0.00	0.00	11031.26	8120.80	106.65
0.56	9.50	19220.46	0.00	0.00	11031.26	8189.20	106.72
0.56	9.50	19288.86	0.00	0.00	11031.26	8257.60	106.80
0.57	9.50	19357.26	0.00	0.00	11031.26	8326.00	106.88
0.57	9.50	19425.66	0.00	0.00	11031.26	8394.40	106.95
0.57	9.50	19494.06	0.00	0.00	11031.26	8462.81	107.03
0.57	9.50	19562.46	0.00	0.00	11031.26	8531.21	107.11
0.57	9.50	19630.86	0.00	0.00	11031.26	8599.61	107.18
0.58	9.50	19699.26	0.00	0.00	11031.26	8668.01	107.26
0.58	9.50	19767.66	0.00	0.00	11031.26	8736.41	107.34
0.58	9.50	19836.06	0.00	0.00	11031.26	8804.81	107.42
0.58	9.50	19904.46	0.00	0.00	11031.26	8873.21	107.49
0.58	9.50	19972.86	0.00	0.00	11031.26	8941.61	107.57
0.59	9.50	20041.26	0.00	0.00	11031.26	9010.01	107.65
0.59	9.50	20109.66	0.00	0.00	11031.26	9078.41	107.72
0.59	9.50	20178.06	0.00	0.00	11031.26	9146.81	107.80
0.59	9.50	20246.46	0.00	0.00	11031.26	9215.21	107.88
0.59	9.50	20314.86	0.00	0.00	11031.26	9283.61	107.95
0.60	9.50	20383.26	1.00	19.91	11102.94	9244.49	108.03
0.60	9.50	20451.66	1.00	19.70	11245.54	9206.14	107.83
0.60	9.50	20520.06	1.00	19.66	11387.23	9132.85	107.78
0.60	9.50	20588.46	1.00	19.57	11528.46	9060.02	107.70
0.60	9.50	20656.86	1.00	19.49	11669.08	8987.79	107.62

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.61	9.50	20725.26	1.00	19.41	11809.11	8916.16	107.54
0.61	9.50	20793.66	1.00	19.33	11948.55	8845.12	107.46
0.61	9.50	20862.07	1.00	19.24	12087.40	8774.67	107.38
0.61	9.50	20930.47	1.00	19.16	12225.67	8704.80	107.30
0.61	9.50	20998.87	1.00	19.08	12363.36	8635.51	107.22
0.62	9.50	21067.27	1.00	19.00	12500.48	8566.80	107.15
0.62	9.50	21135.67	1.00	18.93	12637.03	8498.65	107.07
0.62	9.50	21204.07	1.00	18.85	12773.02	8431.06	106.99
0.62	9.50	21272.47	1.00	18.77	12908.44	8364.03	106.92
0.62	9.50	21340.87	1.00	18.69	13043.32	8297.56	106.84
0.63	9.50	21409.27	1.00	18.62	13177.64	8231.64	106.77
0.63	9.50	21477.67	1.00	18.54	13311.42	8166.26	106.70
0.63	9.50	21546.07	1.00	18.47	13444.66	8101.42	106.62
0.63	9.50	21614.47	1.00	18.39	13577.36	8037.12	106.55
0.63	9.50	21682.87	1.00	18.32	13709.53	7973.35	106.48
0.64	9.50	21751.27	1.00	18.25	13841.17	7910.11	106.41
0.64	9.50	21819.67	1.00	18.17	13972.29	7847.39	106.34
0.64	9.50	21888.07	1.00	18.10	14102.89	7785.19	106.27
0.64	9.50	21956.47	1.00	18.03	14232.98	7723.50	106.20
0.64	9.50	22024.87	1.00	17.96	14362.56	7662.33	106.13
0.65	9.50	22093.27	1.00	17.89	14491.63	7601.65	106.06
0.65	9.50	22161.67	0.00	0.00	14620.21	7541.48	105.99
0.65	9.50	22230.07	0.00	0.00	14620.21	7609.88	106.07
0.65	9.50	22298.47	0.00	0.00	14620.21	7678.28	106.15
0.65	9.50	22366.87	0.00	0.00	14620.21	7746.68	106.22
0.66	9.50	22435.27	0.00	0.00	14620.21	7815.08	106.30
0.66	9.50	22503.68	0.00	0.00	14620.21	7883.48	106.38
0.66	9.50	22572.08	0.00	0.00	14620.21	7951.88	106.45
0.66	9.50	22640.48	0.00	0.00	14620.21	8020.28	106.53
0.66	9.50	22708.88	0.00	0.00	14620.21	8088.68	106.61
0.67	9.50	22777.28	0.00	0.00	14620.21	8157.08	106.69
0.67	9.50	22845.68	0.00	0.00	14620.21	8225.48	106.76
0.67	9.50	22914.08	0.00	0.00	14620.21	8293.88	106.84
0.67	9.50	22982.48	0.00	0.00	14620.21	8362.28	106.92
0.67	9.50	23050.88	0.00	0.00	14620.21	8430.68	106.99
0.68	9.50	23119.28	0.00	0.00	14620.21	8499.08	107.07
0.68	9.50	23187.68	0.00	0.00	14620.21	8567.48	107.15
0.68	9.50	23256.08	0.00	0.00	14620.21	8635.88	107.23
0.68	9.50	23324.48	0.00	0.00	14620.21	8704.28	107.30
0.68	9.50	23392.88	0.00	0.00	14620.21	8772.68	107.38
0.69	9.50	23461.28	0.00	0.00	14620.21	8841.08	107.46
0.69	9.50	23529.68	0.00	0.00	14620.21	8909.48	107.53
0.69	9.50	23598.08	0.00	0.00	14620.21	8977.88	107.61
0.69	9.50	23666.48	0.00	0.00	14620.21	9046.28	107.69
0.69	9.50	23734.88	0.00	0.00	14620.21	9114.68	107.76
0.70	9.50	23803.28	0.00	0.00	14620.21	9183.09	107.84
0.70	9.50	23871.68	0.00	0.00	14620.21	9251.49	107.92
0.70	9.50	23940.08	0.00	0.00	14620.21	9319.89	108.00
0.70	9.50	24008.48	1.00	19.95	14692.03	9280.54	108.07
0.70	9.50	24076.88	1.00	19.74	14834.93	9241.96	107.87
0.71	9.50	24145.28	1.00	19.70	14976.92	9168.38	107.82
0.71	9.50	24213.68	1.00	19.61	15118.44	9095.25	107.74
0.71	9.50	24282.09	1.00	19.53	15259.36	9022.73	107.66
0.71	9.50	24350.49	1.00	19.45	15399.68	8950.82	107.58
0.71	9.50	24418.89	1.00	19.37	15539.40	8879.49	107.50
0.72	9.50	24487.29	1.00	19.28	15678.54	8808.76	107.42

0.72	9.50	24555.69	1.00	19.20	15817.09	8738.61	107.34
0.72	9.50	24624.09	1.00	19.12	15955.06	8669.04	107.26
0.72	9.50	24692.49	1.00	19.04	16092.45	8600.04	107.18
0.72	9.50	24760.89	1.00	18.96	16229.28	8531.62	107.11
0.73	9.50	24829.29	1.00	18.89	16365.54	8463.76	107.03
0.73	9.50	24897.69	1.00	18.81	16501.23	8396.47	106.96
0.73	9.50	24966.09	1.00	18.73	16636.37	8329.72	106.88
0.73	9.50	25034.49	1.00	18.65	16770.96	8263.54	106.81
0.73	9.50	25102.89	1.00	18.58	16905.01	8197.89	106.73
0.74	9.50	25171.29	1.00	18.50	17038.51	8132.79	106.66
0.74	9.50	25239.69	1.00	18.43	17171.47	8068.23	106.59
0.74	9.50	25308.09	1.00	18.36	17303.90	8004.21	106.51
0.74	9.50	25376.49	1.00	18.28	17435.79	7940.71	106.44
0.74	9.50	25444.89	1.00	18.21	17567.17	7877.73	106.37
0.75	9.50	25513.29	1.00	18.14	17698.02	7815.28	106.30
0.75	9.50	25581.69	1.00	18.07	17828.35	7753.35	106.23
0.75	9.50	25650.09	1.00	18.00	17958.18	7691.92	106.16
0.75	9.50	25718.49	1.00	17.93	18087.49	7631.01	106.09
0.75	9.50	25786.89	1.00	17.86	18216.31	7570.60	106.03

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.76	9.50	25855.29	0.00	0.00	18344.67	7510.63	105.96
0.76	9.50	25923.69	0.00	0.00	18344.67	7579.03	106.03
0.76	9.50	25992.10	0.00	0.00	18344.67	7647.43	106.11
0.76	9.50	26060.50	0.00	0.00	18344.67	7715.83	106.19
0.76	9.50	26128.90	0.00	0.00	18344.67	7784.23	106.27
0.77	9.50	26197.30	0.00	0.00	18344.67	7852.64	106.34
0.77	9.50	26265.70	0.00	0.00	18344.67	7921.04	106.42
0.77	9.50	26334.10	0.00	0.00	18344.67	7989.44	106.50
0.77	9.50	26402.50	0.00	0.00	18344.67	8057.84	106.57
0.77	9.50	26470.90	0.00	0.00	18344.67	8126.24	106.65
0.78	9.50	26539.30	0.00	0.00	18344.67	8194.64	106.73
0.78	9.50	26607.70	0.00	0.00	18344.67	8263.04	106.81
0.78	9.50	26676.10	0.00	0.00	18344.67	8331.44	106.88
0.78	9.50	26744.50	0.00	0.00	18344.67	8399.84	106.96
0.78	9.50	26812.90	0.00	0.00	18344.67	8468.24	107.04
0.79	9.50	26881.30	0.00	0.00	18344.67	8536.64	107.11
0.79	9.50	26949.70	0.00	0.00	18344.67	8605.04	107.19
0.79	9.50	27018.10	0.00	0.00	18344.67	8673.44	107.27
0.79	9.50	27086.50	0.00	0.00	18344.67	8741.84	107.34
0.79	9.50	27154.90	0.00	0.00	18344.67	8810.24	107.42
0.80	9.50	27223.30	0.00	0.00	18344.67	8878.64	107.50
0.80	9.50	27291.70	0.00	0.00	18344.67	8947.04	107.58
0.80	9.50	27360.10	0.00	0.00	18344.67	9015.44	107.65
0.80	9.50	27428.50	0.00	0.00	18344.67	9083.84	107.73
0.80	9.50	27496.90	0.00	0.00	18344.67	9152.24	107.81
0.81	9.50	27565.30	0.00	0.00	18344.67	9220.64	107.88
0.81	9.50	27633.70	0.00	0.00	18344.67	9289.04	107.96
0.81	9.50	27702.10	1.00	19.92	18416.37	9249.89	108.04
0.81	9.50	27770.51	1.00	19.71	18559.01	9211.50	107.83
0.81	9.50	27838.91	1.00	19.66	18700.74	9138.17	107.79
0.82	9.50	27907.31	1.00	19.58	18842.02	9065.30	107.71
0.82	9.50	27975.71	1.00	19.50	18982.69	8993.03	107.63
0.82	9.50	28044.11	1.00	19.41	19122.76	8921.35	107.55
0.82	9.50	28112.51	1.00	19.33	19262.24	8850.27	107.47
0.82	9.50	28180.91	1.00	19.25	19401.14	8779.78	107.39
0.83	9.50	28249.31	1.00	19.17	19539.45	8709.87	107.31
0.83	9.50	28317.71	1.00	19.09	19677.18	8640.54	107.23
0.83	9.50	28386.11	1.00	19.01	19814.34	8571.78	107.15
0.83	9.50	28454.51	1.00	18.93	19950.93	8503.59	107.08
0.83	9.50	28522.91	1.00	18.85	20086.96	8435.96	107.00
0.84	9.50	28591.31	1.00	18.78	20222.42	8368.89	106.92
0.84	9.50	28659.71	1.00	18.70	20357.34	8302.38	106.85
0.84	9.50	28728.11	1.00	18.62	20491.70	8236.42	106.77
0.84	9.50	28796.51	1.00	18.55	20625.52	8171.00	106.70
0.84	9.50	28864.91	1.00	18.47	20758.80	8106.12	106.63
0.85	9.50	28933.31	1.00	18.40	20891.54	8041.78	106.56
0.85	9.50	29001.71	1.00	18.33	21023.75	7977.97	106.48
0.85	9.50	29070.11	1.00	18.25	21155.43	7914.69	106.41
0.85	9.50	29138.51	1.00	18.18	21286.59	7851.94	106.34
0.85	9.50	29206.91	1.00	18.11	21417.23	7789.70	106.27
0.86	9.50	29275.31	1.00	18.04	21547.35	7727.97	106.20
0.86	9.50	29343.71	1.00	17.97	21676.96	7666.76	106.13
0.86	9.50	29412.11	1.00	17.90	21806.07	7606.05	106.07
0.86	9.50	29480.51	0.00	0.00	21934.68	7545.84	106.00
0.86	9.50	29548.92	0.00	0.00	21934.68	7614.24	106.07
0.87	9.50	29617.32	0.00	0.00	21934.68	7682.64	106.15
0.87	9.50	29685.72	0.00	0.00	21934.68	7751.05	106.23
0.87	9.50	29754.12	0.00	0.00	21934.68	7819.45	106.31
0.87	9.50	29822.52	0.00	0.00	21934.68	7887.85	106.38
0.87	9.50	29890.92	0.00	0.00	21934.68	7956.25	106.46

0.88	9.50	29959.32	0.00	0.00	21934.68	8024.65	106.54
0.88	9.50	30027.72	0.00	0.00	21934.68	8093.05	106.61
0.88	9.50	30096.12	0.00	0.00	21934.68	8161.45	106.69
0.88	9.50	30164.52	0.00	0.00	21934.68	8229.85	106.77
0.88	9.50	30232.92	0.00	0.00	21934.68	8298.25	106.84
0.89	9.50	30301.32	0.00	0.00	21934.68	8366.65	106.92
0.89	9.50	30369.72	0.00	0.00	21934.68	8435.05	107.00
0.89	9.50	30438.12	0.00	0.00	21934.68	8503.45	107.08
0.89	9.50	30506.52	0.00	0.00	21934.68	8571.85	107.15
0.89	9.50	30574.92	0.00	0.00	21934.68	8640.25	107.23
0.90	9.50	30643.32	0.00	0.00	21934.68	8708.65	107.31
0.90	9.50	30711.72	0.00	0.00	21934.68	8777.05	107.38
0.90	9.50	30780.12	0.00	0.00	21934.68	8845.45	107.46
0.90	9.50	30848.52	0.00	0.00	21934.68	8913.85	107.54
0.90	9.50	30916.92	0.00	0.00	21934.68	8982.25	107.62

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
0.91	9.50	30985.32	0.00	0.00	21934.68	9050.65	107.69
0.91	9.50	31053.72	0.00	0.00	21934.68	9119.05	107.77
0.91	9.50	31122.12	0.00	0.00	21934.68	9187.45	107.85
0.91	9.50	31190.52	0.00	0.00	21934.68	9255.85	107.92
0.91	9.50	31258.93	1.00	19.88	22006.24	9216.91	108.00
0.92	9.50	31327.33	1.00	19.67	22148.61	9178.72	107.80
0.92	9.50	31395.73	1.00	19.63	22290.07	9105.66	107.75
0.92	9.50	31464.13	1.00	19.54	22431.08	9033.06	107.67
0.92	9.50	31532.53	1.00	19.46	22571.48	8961.05	107.59
0.92	9.50	31600.93	1.00	19.38	22711.29	8889.64	107.51
0.93	9.50	31669.33	1.00	19.30	22850.51	8818.83	107.43
0.93	9.50	31737.73	1.00	19.21	22989.14	8748.59	107.35
0.93	9.50	31806.13	1.00	19.13	23127.20	8678.94	107.27
0.93	9.50	31874.53	1.00	19.05	23264.67	8609.87	107.20
0.93	9.50	31942.93	1.00	18.98	23401.58	8541.36	107.12
0.94	9.50	32011.33	1.00	18.90	23537.92	8473.42	107.04
0.94	9.50	32079.73	1.00	18.82	23673.70	8406.04	106.97
0.94	9.50	32148.13	1.00	18.74	23808.92	8339.22	106.89
0.94	9.50	32216.53	1.00	18.67	23943.59	8272.96	106.82
0.94	9.50	32284.93	1.00	18.59	24077.70	8207.24	106.74
0.95	9.50	32353.33	1.00	18.51	24211.28	8142.06	106.67
0.95	9.50	32421.73	1.00	18.44	24344.32	8077.42	106.60
0.95	9.50	32490.13	1.00	18.37	24476.82	8013.32	106.52
0.95	9.50	32558.53	1.00	18.29	24608.79	7949.75	106.45
0.95	9.50	32626.93	1.00	18.22	24740.24	7886.70	106.38
0.96	9.50	32695.33	1.00	18.15	24871.17	7824.18	106.31
0.96	9.50	32763.73	1.00	18.08	25001.58	7762.17	106.24
0.96	9.50	32832.13	1.00	18.01	25131.47	7700.67	106.17
0.96	9.50	32900.53	1.00	17.94	25260.86	7639.68	106.10
0.96	9.50	32968.93	1.00	17.87	25389.75	7579.19	106.03
0.97	9.50	33037.33	0.00	0.00	25518.17	7519.17	105.97
0.97	9.50	33105.73	0.00	0.00	25518.17	7587.57	106.04
0.97	9.50	33174.13	0.00	0.00	25518.17	7655.97	106.12
0.97	9.50	33242.52	0.00	0.00	25518.17	7724.36	106.20
0.97	9.50	33310.92	0.00	0.00	25518.17	7792.76	106.28
0.98	9.50	33379.32	0.00	0.00	25518.17	7861.16	106.35
0.98	9.50	33447.72	0.00	0.00	25518.17	7929.56	106.43
0.98	9.50	33516.12	0.00	0.00	25518.17	7997.96	106.51
0.98	9.50	33584.52	0.00	0.00	25518.17	8066.36	106.58
0.98	9.50	33652.92	0.00	0.00	25518.17	8134.75	106.66
0.99	9.50	33721.31	0.00	0.00	25518.17	8203.15	106.74
0.99	9.50	33789.71	0.00	0.00	25518.17	8271.55	106.81
0.99	9.50	33858.11	0.00	0.00	25518.17	8339.95	106.89
0.99	9.50	33926.51	0.00	0.00	25518.17	8408.35	106.97
0.99	9.50	33994.91	0.00	0.00	25518.17	8476.75	107.05
1.00	9.50	34063.31	0.00	0.00	25518.17	8545.14	107.12
1.00	9.50	34131.70	0.00	0.00	25518.17	8613.54	107.20
1.00	9.50	34200.10	0.00	0.00	25518.17	8681.94	107.28
1.00	9.50	34268.50	0.00	0.00	25518.17	8750.34	107.35
1.00	9.50	34336.90	0.00	0.00	25518.17	8818.74	107.43
1.01	9.50	34405.30	0.00	0.00	25518.17	8887.14	107.51
1.01	9.50	34473.70	0.00	0.00	25518.17	8955.54	107.59
1.01	9.50	34542.10	0.00	0.00	25518.17	9023.93	107.66
1.01	9.50	34610.49	0.00	0.00	25518.17	9092.33	107.74
1.01	9.50	34678.89	0.00	0.00	25518.17	9160.73	107.82
1.02	9.50	34747.29	0.00	0.00	25518.17	9229.13	107.89
1.02	9.50	34815.69	0.00	0.00	25518.17	9297.53	107.97
1.02	9.50	34884.09	1.00	19.93	25589.91	9258.32	108.05
1.02	9.50	34952.49	1.00	19.72	25732.62	9219.88	107.84
1.02	9.50	35020.88	1.00	19.67	25874.42	9146.47	107.80
1.03	9.50	35089.28	1.00	19.59	26015.76	9073.53	107.72
1.03	9.50	35157.68	1.00	19.51	26156.50	9001.19	107.64
1.03	9.50	35226.08	1.00	19.42	26296.64	8929.45	107.56
1.03	9.50	35294.48	1.00	19.34	26436.19	8858.30	107.48

1.03	9.50	35362.88	1.00	19.26	26575.15	8787.73	107.40
1.04	9.50	35431.27	1.00	19.18	26713.53	8717.76	107.32
1.04	9.50	35499.67	1.00	19.10	26851.33	8648.36	107.24
1.04	9.50	35568.07	1.00	19.02	26988.55	8579.53	107.16
1.04	9.50	35636.47	1.00	18.94	27125.20	8511.28	107.08
1.04	9.50	35704.87	1.00	18.86	27261.29	8443.58	107.01
1.05	9.50	35773.27	1.00	18.79	27396.83	8376.45	106.93
1.05	9.50	35841.67	1.00	18.71	27531.80	8309.87	106.86
1.05	9.50	35910.06	1.00	18.63	27666.23	8243.85	106.78
1.05	9.50	35978.46	1.00	18.56	27800.11	8178.37	106.71
1.05	9.50	36046.86	1.00	18.48	27933.44	8113.43	106.64

TIME HRS	INFLOW CFS	SUMIN CUFT	#PUMPS	OUTFLOW CFS	SUMOUT CUFT	STORAGE CUFT	ELEV FT
1.06	9.50	36115.26	1.00	18.41	28066.25	8049.02	106.56
1.06	9.50	36183.66	1.00	18.33	28198.51	7985.15	106.49
1.06	9.50	36252.06	1.00	18.26	28330.25	7921.81	106.42
1.06	9.50	36320.45	1.00	18.19	28461.47	7858.99	106.35
1.06	9.50	36388.85	1.00	18.12	28592.17	7796.70	106.28
1.07	9.50	36457.25	1.00	18.05	28722.35	7734.91	106.21
1.07	9.50	36525.65	1.00	17.97	28852.02	7673.64	106.14
1.07	9.50	36594.05	1.00	17.90	28981.18	7612.87	106.07
1.07	9.50	36662.45	1.00	17.84	29109.85	7552.61	106.00
1.07	9.50	36730.85	0.00	0.00	29238.09	7492.77	105.94
1.08	9.50	36799.24	0.00	0.00	29238.09	7561.17	106.01
1.08	9.50	36867.64	0.00	0.00	29238.09	7629.56	106.09
1.08	9.50	36936.04	0.00	0.00	29238.09	7697.96	106.17
1.08	9.50	37004.44	0.00	0.00	29238.09	7766.36	106.25
1.08	9.50	37072.84	0.00	0.00	29238.09	7834.76	106.32
1.09	9.50	37141.24	0.00	0.00	29238.09	7903.16	106.40
1.09	9.50	37209.63	0.00	0.00	29238.09	7971.56	106.48
1.09	9.50	37278.03	0.00	0.00	29238.09	8039.96	106.55
1.09	9.50	37346.43	0.00	0.00	29238.09	8108.35	106.63
1.09	9.50	37414.83	0.00	0.00	29238.09	8176.75	106.71
1.10	9.50	37483.23	0.00	0.00	29238.09	8245.15	106.79
1.10	9.50	37551.63	0.00	0.00	29238.09	8313.55	106.86
1.10	9.50	37620.02	0.00	0.00	29238.09	8381.95	106.94
1.10	9.50	37688.42	0.00	0.00	29238.09	8450.35	107.02
1.10	9.50	37756.82	0.00	0.00	29238.09	8518.74	107.09
1.11	9.50	37825.22	0.00	0.00	29238.09	8587.14	107.17
1.11	9.50	37893.62	0.00	0.00	29238.09	8655.54	107.25
1.11	9.50	37962.02	0.00	0.00	29238.09	8723.94	107.32
1.11	9.50	38030.42	0.00	0.00	29238.09	8792.34	107.40
1.11	9.50	38098.81	0.00	0.00	29238.09	8860.74	107.48
1.12	9.50	38167.21	0.00	0.00	29238.09	8929.14	107.56
1.12	9.50	38235.61	0.00	0.00	29238.09	8997.53	107.63
1.12	9.50	38304.01	0.00	0.00	29238.09	9065.93	107.71
1.12	9.50	38372.41	0.00	0.00	29238.09	9134.33	107.79
1.12	9.50	38440.81	0.00	0.00	29238.09	9202.73	107.86
1.13	9.50	38509.20	0.00	0.00	29238.09	9271.13	107.94
1.13	9.50	38577.60	1.00	19.90	29309.71	9232.09	108.02
1.13	9.50	38646.00	1.00	19.69	29452.21	9193.80	107.81
1.13	9.50	38714.40	1.00	19.64	29593.79	9120.62	107.77
1.13	9.50	38782.80	1.00	19.56	29734.92	9047.89	107.69
1.14	9.50	38851.20	1.00	19.48	29875.45	8975.76	107.61
1.14	9.50	38919.60	1.00	19.39	30015.38	8904.22	107.53
1.14	9.50	38987.99	1.00	19.31	30154.72	8833.28	107.45
1.14	9.50	39056.39	1.00	19.23	30293.47	8762.93	107.37
1.14	9.50	39124.79	1.00	19.15	30431.65	8693.15	107.29
1.15	9.50	39193.19	1.00	19.07	30569.24	8623.96	107.21
1.15	9.50	39261.59	1.00	18.99	30706.26	8555.34	107.13
1.15	9.50	39329.99	1.00	18.91	30842.72	8487.28	107.06
1.15	9.50	39398.38	1.00	18.83	30978.61	8419.79	106.98
1.15	9.50	39466.78	1.00	18.76	31113.94	8352.85	106.91
1.16	9.50	39535.18	1.00	18.68	31248.72	8286.47	106.83
1.16	9.50	39603.58	1.00	18.61	31382.96	8220.63	106.76
1.16	9.50	39671.98	1.00	18.53	31516.64	8155.34	106.68
1.16	9.50	39740.38	1.00	18.46	31649.79	8090.59	106.61
1.16	9.50	39808.77	1.00	18.38	31782.40	8026.38	106.54
1.17	9.50	39877.17	1.00	18.31	31914.49	7962.70	106.47
1.17	9.50	39945.57	1.00	18.24	32046.04	7899.54	106.40
1.17	9.50	40013.97	1.00	18.16	32177.07	7836.91	106.33
1.17	9.50	40082.37	1.00	18.09	32307.59	7774.79	106.26
1.17	9.50	40150.77	1.00	18.02	32437.59	7713.19	106.19
1.18	9.50	40219.17	1.00	17.95	32567.08	7652.09	106.12
1.18	9.50	40287.56	1.00	17.88	32696.07	7591.51	106.05
1.18	9.50	40355.96	0.00	0.00	32824.58	7531.40	105.98
1.18	9.50	40424.36	0.00	0.00	32824.58	7599.80	106.06
1.18	9.50	40492.76	0.00	0.00	32824.58	7668.19	106.14
1.19	9.50	40561.16	0.00	0.00	32824.58	7736.59	106.21
1.19	9.50	40629.56	0.00	0.00	32824.58	7804.99	106.29
1.19	9.50	40697.95	0.00	0.00	32824.58	7873.39	106.37

1.19	9.50	40766.35	0.00	0.00	32824.58	7941.79	106.44
1.19	9.50	40834.75	0.00	0.00	32824.58	8010.19	106.52
1.20	9.50	40903.15	0.00	0.00	32824.58	8078.58	106.60
1.20	9.50	40971.55	0.00	0.00	32824.58	8146.98	106.67
1.20	9.50	41039.95	0.00	0.00	32824.58	8215.38	106.75
1.20	9.50	41108.35	0.00	0.00	32824.58	8283.78	106.83
1.20	9.50	41176.74	0.00	0.00	32824.58	8352.18	106.91
1.21	9.50	41245.14	0.00	0.00	32824.58	8420.58	106.98
1.21	9.50	41313.54	0.00	0.00	32824.58	8488.97	107.06
1.21	9.50	41381.94	0.00	0.00	32824.58	8557.37	107.14
1.21	9.50	41450.34	0.00	0.00	32824.58	8625.77	107.21
1.21	9.50	41518.74	0.00	0.00	32824.58	8694.17	107.29
1.22	9.50	41587.13	0.00	0.00	32824.58	8762.57	107.37
1.22	9.50	41655.53	0.00	0.00	32824.58	8830.97	107.44
1.22	9.50	41723.93	0.00	0.00	32824.58	8899.37	107.52
1.22	9.50	41792.33	0.00	0.00	32824.58	8967.76	107.60
1.22	9.50	41860.73	0.00	0.00	32824.58	9036.16	107.68
1.23	9.50	41929.13	0.00	0.00	32824.58	9104.56	107.75
1.23	9.50	41997.53	0.00	0.00	32824.58	9172.96	107.83
1.23	9.50	42065.92	0.00	0.00	32824.58	9241.36	107.91
1.23	9.50	42134.32	0.00	0.00	32824.58	9309.76	107.98
1.23	9.50	42202.72	1.00	19.94	32896.36	9270.48	108.06
1.24	9.50	42271.12	1.00	19.73	33039.17	9231.96	107.86
1.24	9.50	42339.52	1.00	19.69	33181.08	9158.45	107.81
1.24	9.50	42407.92	1.00	19.60	33322.52	9085.41	107.73
1.24	9.50	42476.32	1.00	19.52	33463.35	9012.97	107.65
1.24	9.50	42544.71	1.00	19.44	33603.59	8941.13	107.57
1.25	9.50	42613.11	1.00	19.35	33743.24	8869.89	107.49
1.25	9.50	42681.51	1.00	19.27	33882.29	8799.23	107.41
1.25	9.50	42749.91	1.00	19.19	34020.76	8729.15	107.33
1.25	9.50	42818.31	1.00	19.11	34158.65	8659.66	107.25
1.25	9.50	42886.71	1.00	19.03	34295.97	8590.74	107.17
1.26	9.50	42955.10	1.00	18.95	34432.72	8522.40	107.10
1.26	9.50	43023.50	1.00	18.88	34568.90	8454.61	107.02
1.26	9.50	43091.90	1.00	18.80	34704.52	8387.39	106.94
1.26	9.50	43160.30	1.00	18.72	34839.59	8320.72	106.87
1.26	9.50	43228.70	1.00	18.64	34974.10	8254.60	106.80
1.27	9.50	43297.10	1.00	18.57	35108.07	8189.03	106.72
1.27	9.50	43365.49	1.00	18.49	35241.50	8124.01	106.65
1.27	9.50	43433.89	1.00	18.42	35374.38	8059.52	106.58
1.27	9.50	43502.29	1.00	18.35	35506.74	7995.56	106.50
1.27	9.50	43570.69	1.00	18.27	35638.57	7932.13	106.43
1.28	9.50	43639.09	1.00	18.20	35769.87	7869.23	106.36
1.28	9.50	43707.49	1.00	18.13	35900.65	7806.85	106.29
1.28	9.50	43775.89	1.00	18.06	36030.92	7744.98	106.22
1.28	9.50	43844.28	1.00	17.99	36160.67	7683.62	106.15
1.28	9.50	43912.68	1.00	17.92	36289.92	7622.78	106.08
1.29	9.50	43981.08	1.00	17.85	36418.66	7562.43	106.02
1.29	9.50	44049.48	0.00	0.00	36546.97	7502.52	105.95
1.29	9.50	44117.88	0.00	0.00	36546.97	7570.92	106.03
1.29	9.50	44186.28	0.00	0.00	36546.97	7639.32	106.10
1.29	9.50	44254.67	0.00	0.00	36546.97	7707.72	106.18
1.30	9.50	44323.07	0.00	0.00	36546.97	7776.12	106.26
1.30	9.50	44391.47	0.00	0.00	36546.97	7844.51	106.33
1.30	9.50	44459.87	0.00	0.00	36546.97	7912.91	106.41
1.30	9.50	44528.27	0.00	0.00	36546.97	7981.31	106.49
1.30	9.50	44596.67	0.00	0.00	36546.97	8049.71	106.56
1.31	9.50	44665.07	0.00	0.00	36546.97	8118.11	106.64
1.31	9.50	44733.46	0.00	0.00	36546.97	8186.51	106.72
1.31	9.50	44801.86	0.00	0.00	36546.97	8254.90	106.80
1.31	9.50	44870.26	0.00	0.00	36546.97	8323.30	106.87
1.31	9.50	44938.66	0.00	0.00	36546.97	8391.70	106.95
1.32	9.50	45007.06	0.00	0.00	36546.97	8460.10	107.03
1.32	9.50	45075.46	0.00	0.00	36546.97	8528.50	107.10
1.32	9.50	45143.85	0.00	0.00	36546.97	8596.90	107.18
1.32	9.50	45212.25	0.00	0.00	36546.97	8665.30	107.26
1.32	9.50	45280.65	0.00	0.00	36546.97	8733.69	107.34
1.33	9.50	45349.05	0.00	0.00	36546.97	8802.09	107.41
1.33	9.50	45417.45	0.00	0.00	36546.97	8870.49	107.49
1.33	9.50	45485.85	0.00	0.00	36546.97	8938.89	107.57
1.33	9.50	45554.24	0.00	0.00	36546.97	9007.29	107.64
1.33	9.50	45622.64	0.00	0.00	36546.97	9075.69	107.72
1.34	9.50	45691.04	0.00	0.00	36546.97	9144.08	107.80
1.34	9.50	45759.44	0.00	0.00	36546.97	9212.48	107.87
1.34	9.50	45827.84	0.00	0.00	36546.97	9280.88	107.95
1.34	9.50	45896.24	1.00	19.91	36618.63	9241.78	108.03
1.34	9.50	45964.64	1.00	19.70	36761.20	9203.44	107.82
1.35	9.50	46033.03	1.00	19.65	36902.87	9130.17	107.78
1.35	9.50	46101.43	1.00	19.57	37044.08	9057.37	107.70
1.35	9.50	46169.83	1.00	19.49	37184.68	8985.16	107.62
1.35	9.50	46238.23	1.00	19.40	37324.69	8913.55	107.54
1.35	9.50	46306.63	1.00	19.32	37464.11	8842.53	107.46
1.36	9.50	46375.03	1.00	19.24	37602.93	8772.10	107.38

1.36	9.50	46443.42	1.00	19.16	37741.18	8702.25	107.30
1.36	9.50	46511.82	1.00	19.08	37878.85	8632.98	107.22
1.36	9.50	46580.22	1.00	19.00	38015.95	8564.28	107.14
1.36	9.50	46648.62	1.00	18.92	38152.47	8496.15	107.07
1.37	9.50	46717.02	1.00	18.85	38288.44	8428.59	106.99
1.37	9.50	46785.42	1.00	18.77	38423.85	8361.58	106.92
1.37	9.50	46853.82	1.00	18.69	38558.70	8295.13	106.84
1.37	9.50	46922.21	1.00	18.62	38693.00	8229.22	106.77
1.37	9.50	46990.61	1.00	18.54	38826.76	8163.86	106.69
1.38	9.50	47059.01	1.00	18.47	38959.98	8099.04	106.62
1.38	9.50	47127.41	1.00	18.39	39092.66	8034.76	106.55
1.38	9.50	47195.81	1.00	18.32	39224.81	7971.00	106.48
1.38	9.50	47264.21	1.00	18.24	39356.44	7907.78	106.40
1.38	9.50	47332.60	1.00	18.17	39487.54	7845.07	106.33
1.39	9.50	47401.00	1.00	18.10	39618.12	7782.89	106.26
1.39	9.50	47469.40	1.00	18.03	39748.19	7721.22	106.19
1.39	9.50	47537.80	1.00	17.96	39877.75	7660.06	106.13
1.39	9.50	47606.20	1.00	17.89	40006.80	7599.41	106.06
1.39	9.50	47674.60	0.00	0.00	40135.36	7539.24	105.99
1.40	9.50	47742.99	0.00	0.00	40135.36	7607.64	106.07
1.40	9.50	47811.39	0.00	0.00	40135.36	7676.04	106.14
1.40	9.50	47879.79	0.00	0.00	40135.36	7744.44	106.22
1.40	9.50	47948.19	0.00	0.00	40135.36	7812.84	106.30
1.40	9.50	48016.59	0.00	0.00	40135.36	7881.24	106.38
1.41	9.50	48084.99	0.00	0.00	40135.36	7949.64	106.45
1.41	9.50	48153.39	0.00	0.00	40135.36	8018.03	106.53
1.41	9.50	48221.78	0.00	0.00	40135.36	8086.43	106.61
1.41	9.50	48290.18	0.00	0.00	40135.36	8154.83	106.68
1.41	9.50	48358.58	0.00	0.00	40135.36	8223.23	106.76
1.42	9.50	48426.98	0.00	0.00	40135.36	8291.63	106.84
1.42	9.50	48495.38	0.00	0.00	40135.36	8360.03	106.91
1.42	9.50	48563.78	0.00	0.00	40135.36	8428.42	106.99
1.42	9.50	48632.17	0.00	0.00	40135.36	8496.82	107.07
1.42	9.50	48700.57	0.00	0.00	40135.36	8565.22	107.15
1.43	9.50	48768.97	0.00	0.00	40135.36	8633.62	107.22
1.43	9.50	48837.37	0.00	0.00	40135.36	8702.02	107.30
1.43	9.50	48905.77	0.00	0.00	40135.36	8770.42	107.38
1.43	9.50	48974.17	0.00	0.00	40135.36	8838.81	107.45
1.43	9.50	49042.57	0.00	0.00	40135.36	8907.21	107.53
1.44	9.50	49110.96	0.00	0.00	40135.36	8975.61	107.61
1.44	9.50	49179.36	0.00	0.00	40135.36	9044.01	107.68
1.44	9.50	49247.76	0.00	0.00	40135.36	9112.41	107.76
1.44	9.50	49316.16	0.00	0.00	40135.36	9180.81	107.84
1.44	9.50	49384.56	0.00	0.00	40135.36	9249.21	107.92
1.45	9.50	49452.96	0.00	0.00	40135.36	9317.60	107.99
1.45	9.50	49521.35	1.00	19.95	40207.18	9278.28	108.07
1.45	9.50	49589.75	1.00	19.74	40350.06	9239.71	107.86
1.45	9.50	49658.15	1.00	19.70	40492.02	9166.14	107.82
1.45	9.50	49726.55	1.00	19.61	40633.52	9093.03	107.74
1.46	9.50	49794.95	1.00	19.53	40774.43	9020.53	107.66
1.46	9.50	49863.35	1.00	19.44	40914.73	8948.63	107.58
1.46	9.50	49931.74	1.00	19.36	41054.43	8877.32	107.50
1.46	9.50	50000.14	1.00	19.28	41193.55	8806.60	107.42
1.46	9.50	50068.54	1.00	19.20	41332.08	8736.47	107.34
1.47	9.50	50136.94	1.00	19.12	41470.04	8666.91	107.26
1.47	9.50	50205.34	1.00	19.04	41607.42	8597.93	107.18
1.47	9.50	50273.74	1.00	18.96	41744.22	8529.52	107.11
1.47	9.50	50342.14	1.00	18.88	41880.47	8461.68	107.03
1.47	9.50	50410.53	1.00	18.81	42016.15	8394.40	106.95
1.48	9.50	50478.93	1.00	18.73	42151.27	8327.67	106.88
1.48	9.50	50547.33	1.00	18.65	42285.85	8261.49	106.80
1.48	9.50	50615.73	1.00	18.58	42419.87	8195.87	106.73
1.48	9.50	50684.13	1.00	18.50	42553.35	8130.78	106.66
1.48	9.50	50752.53	1.00	18.43	42686.30	8066.24	106.58
1.49	9.50	50820.92	1.00	18.35	42818.71	8002.22	106.51
1.49	9.50	50889.32	1.00	18.28	42950.59	7938.74	106.44
1.49	9.50	50957.72	1.00	18.21	43081.95	7875.78	106.37
1.49	9.50	51026.12	1.00	18.14	43212.78	7813.35	106.30
1.49	9.50	51094.52	1.00	18.06	43343.10	7751.42	106.23
1.50	9.50	51162.92	1.00	17.99	43472.91	7690.01	106.16
1.50	9.50	51231.32	1.00	17.92	43602.21	7629.11	106.09
1.50	9.50	51299.71	1.00	17.85	43731.01	7568.71	106.02
1.50	9.50	51368.11	0.00	0.00	43859.36	7508.76	105.96
1.50	9.50	51436.51	0.00	0.00	43859.36	7577.16	106.03
1.51	9.50	51504.91	0.00	0.00	43859.36	7645.56	106.11
1.51	9.50	51573.31	0.00	0.00	43859.36	7713.96	106.19
1.51	9.50	51641.71	0.00	0.00	43859.36	7782.35	106.26
1.51	9.50	51710.10	0.00	0.00	43859.36	7850.75	106.34
1.51	9.50	51778.50	0.00	0.00	43859.36	7919.15	106.42
1.52	9.50	51846.90	0.00	0.00	43859.36	7987.55	106.49
1.52	9.50	51915.30	0.00	0.00	43859.36	8055.95	106.57
1.52	9.50	51983.70	0.00	0.00	43859.36	8124.35	106.65
1.52	9.50	52052.10	0.00	0.00	43859.36	8192.74	106.73

1.52	9.50	52120.49	0.00	0.00	43859.36	8261.14	106.80
1.53	9.50	52188.89	0.00	0.00	43859.36	8329.54	106.88
1.53	9.50	52257.29	0.00	0.00	43859.36	8397.94	106.96
1.53	9.50	52325.69	0.00	0.00	43859.36	8466.34	107.03
1.53	9.50	52394.09	0.00	0.00	43859.36	8534.74	107.11
1.53	9.50	52462.49	0.00	0.00	43859.36	8603.14	107.19
1.54	9.50	52530.89	0.00	0.00	43859.36	8671.53	107.27
1.54	9.50	52599.28	0.00	0.00	43859.36	8739.93	107.34
1.54	9.50	52667.68	0.00	0.00	43859.36	8808.33	107.42
1.54	9.50	52736.08	0.00	0.00	43859.36	8876.73	107.50
1.54	9.50	52804.48	0.00	0.00	43859.36	8945.13	107.57
1.55	9.50	52872.88	0.00	0.00	43859.36	9013.53	107.65
1.55	9.50	52941.28	0.00	0.00	43859.36	9081.92	107.73
1.55	9.50	53009.67	0.00	0.00	43859.36	9150.32	107.80
1.55	9.50	53078.07	0.00	0.00	43859.36	9218.72	107.88
1.55	9.50	53146.47	0.00	0.00	43859.36	9287.12	107.96
1.56	9.50	53214.87	1.00	19.91	43931.05	9247.98	108.04
1.56	9.50	53283.27	1.00	19.70	44073.68	9209.60	107.83
1.56	9.50	53351.67	1.00	19.66	44215.40	9136.28	107.79
1.56	9.50	53420.07	1.00	19.58	44356.65	9063.42	107.71
1.56	9.50	53488.46	1.00	19.49	44497.31	8991.16	107.62
1.57	9.50	53556.86	1.00	19.41	44637.37	8919.50	107.54
1.57	9.50	53625.26	1.00	19.33	44776.83	8848.44	107.46
1.57	9.50	53693.66	1.00	19.25	44915.71	8777.96	107.38
1.57	9.50	53762.06	1.00	19.17	45054.01	8708.06	107.31
1.57	9.50	53830.46	1.00	19.09	45191.73	8638.74	107.23
1.58	9.50	53898.85	1.00	19.01	45328.87	8569.99	107.15
1.58	9.50	53967.25	1.00	18.93	45465.45	8501.81	107.07
1.58	9.50	54035.65	1.00	18.85	45601.46	8434.20	107.00
1.58	9.50	54104.05	1.00	18.77	45736.91	8367.15	106.92
1.58	9.50	54172.45	1.00	18.70	45871.81	8300.65	106.85
1.59	9.50	54240.85	1.00	18.62	46006.16	8234.70	106.77
1.59	9.50	54309.24	1.00	18.55	46139.96	8169.29	106.70
1.59	9.50	54377.64	1.00	18.47	46273.23	8104.43	106.63
1.59	9.50	54446.04	1.00	18.40	46405.95	8040.10	106.55
1.59	9.50	54514.44	1.00	18.32	46538.15	7976.30	106.48
1.60	9.50	54582.84	1.00	18.25	46669.82	7913.03	106.41
1.60	9.50	54651.24	1.00	18.18	46800.96	7850.29	106.34
1.60	9.50	54719.64	1.00	18.11	46931.58	7788.06	106.27
1.60	9.50	54788.03	1.00	18.04	47061.69	7726.35	106.20
1.60	9.50	54856.43	1.00	17.96	47191.30	7665.15	106.13
1.61	9.50	54924.83	1.00	17.89	47320.39	7604.45	106.06
1.61	9.50	54993.23	0.00	0.00	47448.99	7544.25	106.00
1.61	9.50	55061.63	0.00	0.00	47448.99	7612.65	106.07
1.61	9.50	55130.03	0.00	0.00	47448.99	7681.05	106.15
1.61	9.50	55198.42	0.00	0.00	47448.99	7749.45	106.23
1.62	9.50	55266.82	0.00	0.00	47448.99	7817.85	106.30
1.62	9.50	55335.22	0.00	0.00	47448.99	7886.24	106.38
1.62	9.50	55403.62	0.00	0.00	47448.99	7954.64	106.46
1.62	9.50	55472.02	0.00	0.00	47448.99	8023.04	106.53
1.62	9.50	55540.42	0.00	0.00	47448.99	8091.44	106.61
1.63	9.50	55608.82	0.00	0.00	47448.99	8159.84	106.69
1.63	9.50	55677.21	0.00	0.00	47448.99	8228.24	106.77
1.63	9.50	55745.61	0.00	0.00	47448.99	8296.64	106.84
1.63	9.50	55814.01	0.00	0.00	47448.99	8365.03	106.92
1.63	9.50	55882.41	0.00	0.00	47448.99	8433.43	107.00
1.64	9.50	55950.81	0.00	0.00	47448.99	8501.83	107.07
1.64	9.50	56019.21	0.00	0.00	47448.99	8570.23	107.15
1.64	9.50	56087.60	0.00	0.00	47448.99	8638.63	107.23
1.64	9.50	56156.00	0.00	0.00	47448.99	8707.03	107.31
1.64	9.50	56224.40	0.00	0.00	47448.99	8775.42	107.38
1.65	9.50	56292.80	0.00	0.00	47448.99	8843.82	107.46
1.65	9.50	56361.20	0.00	0.00	47448.99	8912.22	107.54
1.65	9.50	56429.60	0.00	0.00	47448.99	8980.62	107.61
1.65	9.50	56497.99	0.00	0.00	47448.99	9049.02	107.69
1.65	9.50	56566.39	0.00	0.00	47448.99	9117.42	107.77
1.66	9.50	56634.79	0.00	0.00	47448.99	9185.81	107.84
1.66	9.50	56703.19	0.00	0.00	47448.99	9254.21	107.92
1.66	9.50	56771.59	0.00	0.00	47448.99	9322.61	108.00
1.66	9.50	56839.99	1.00	19.96	47520.83	9283.25	108.08
1.66	9.50	56908.39	1.00	19.74	47663.75	9244.65	107.87
1.67	9.50	56976.78	1.00	19.70	47805.76	9171.04	107.83
1.67	9.50	57045.18	1.00	19.62	47947.30	9097.89	107.75
1.67	9.50	57113.58	1.00	19.53	48088.24	9025.35	107.66
1.67	9.50	57181.98	1.00	19.45	48228.58	8953.40	107.58
1.67	9.50	57250.38	1.00	19.37	48368.33	8882.06	107.50
1.68	9.50	57318.78	1.00	19.29	48507.49	8811.30	107.42
1.68	9.50	57387.17	1.00	19.21	48646.06	8741.13	107.34
1.68	9.50	57455.57	1.00	19.13	48784.05	8671.53	107.26
1.68	9.50	57523.97	1.00	19.05	48921.46	8602.52	107.19
1.68	9.50	57592.37	1.00	18.97	49058.31	8534.07	107.11
1.69	9.50	57660.77	1.00	18.89	49194.58	8466.19	107.03
1.69	9.50	57729.17	1.00	18.81	49330.30	8398.87	106.96

1.69	9.50	57797.57	1.00	18.73	49465.46	8332.11	106.88
1.69	9.50	57865.96	1.00	18.66	49600.07	8265.90	106.81
1.69	9.50	57934.36	1.00	18.58	49734.14	8200.24	106.73
1.70	9.50	58002.76	1.00	18.51	49867.65	8135.12	106.66
1.70	9.50	58071.16	1.00	18.43	50000.64	8070.53	106.59
1.70	9.50	58139.56	1.00	18.36	50133.08	8006.49	106.52
1.70	9.50	58207.96	1.00	18.29	50265.00	7942.97	106.44
1.70	9.50	58276.35	1.00	18.21	50396.39	7879.97	106.37
1.71	9.50	58344.75	1.00	18.14	50527.26	7817.50	106.30
1.71	9.50	58413.15	1.00	18.07	50657.62	7755.55	106.23
1.71	9.50	58481.55	1.00	18.00	50787.46	7694.10	106.16
1.71	9.50	58549.95	1.00	17.93	50916.79	7633.17	106.10
1.71	9.50	58618.35	1.00	17.86	51045.62	7572.74	106.03
1.72	9.50	58686.74	0.00	0.00	51174.00	7512.76	105.96
1.72	9.50	58755.14	0.00	0.00	51174.00	7581.15	106.04
1.72	9.50	58823.54	0.00	0.00	51174.00	7649.55	106.11
1.72	9.50	58891.94	0.00	0.00	51174.00	7717.95	106.19
1.72	9.50	58960.34	0.00	0.00	51174.00	7786.35	106.27
1.73	9.50	59028.74	0.00	0.00	51174.00	7854.75	106.35
1.73	9.50	59097.14	0.00	0.00	51174.00	7923.15	106.42
1.73	9.50	59165.53	0.00	0.00	51174.00	7991.55	106.50
1.73	9.50	59233.93	0.00	0.00	51174.00	8059.94	106.58
1.73	9.50	59302.33	0.00	0.00	51174.00	8128.34	106.65
1.74	9.50	59370.73	0.00	0.00	51174.00	8196.74	106.73
1.74	9.50	59439.13	0.00	0.00	51174.00	8265.14	106.81
1.74	9.50	59507.53	0.00	0.00	51174.00	8333.54	106.88
1.74	9.50	59575.92	0.00	0.00	51174.00	8401.94	106.96
1.74	9.50	59644.32	0.00	0.00	51174.00	8470.33	107.04
1.75	9.50	59712.72	0.00	0.00	51174.00	8538.73	107.12
1.75	9.50	59781.12	0.00	0.00	51174.00	8607.13	107.19
1.75	9.50	59849.52	0.00	0.00	51174.00	8675.53	107.27
1.75	9.50	59917.92	0.00	0.00	51174.00	8743.93	107.35
1.75	9.50	59986.32	0.00	0.00	51174.00	8812.33	107.42
1.76	9.50	60054.71	0.00	0.00	51174.00	8880.72	107.50
1.76	9.50	60123.11	0.00	0.00	51174.00	8949.12	107.58
1.76	9.50	60191.51	0.00	0.00	51174.00	9017.52	107.65
1.76	9.50	60259.91	0.00	0.00	51174.00	9085.92	107.73
1.76	9.50	60328.31	0.00	0.00	51174.00	9154.32	107.81
1.77	9.50	60396.71	0.00	0.00	51174.00	9222.72	107.89
1.77	9.50	60465.10	0.00	0.00	51174.00	9291.12	107.96
1.77	9.50	60533.50	1.00	19.92	51245.71	9251.95	108.04
1.77	9.50	60601.90	1.00	19.71	51388.37	9213.55	107.83
1.77	9.50	60670.30	1.00	19.67	51530.12	9140.19	107.79
1.78	9.50	60738.70	1.00	19.58	51671.41	9067.30	107.71
1.78	9.50	60807.10	1.00	19.50	51812.10	8995.01	107.63
1.78	9.50	60875.49	1.00	19.42	51952.19	8923.32	107.55
1.78	9.50	60943.89	1.00	19.33	52091.68	8852.22	107.47
1.78	9.50	61012.29	1.00	19.25	52230.59	8781.71	107.39
1.79	9.50	61080.69	1.00	19.17	52368.92	8711.78	107.31
1.79	9.50	61149.09	1.00	19.09	52506.67	8642.43	107.23
1.79	9.50	61217.49	1.00	19.01	52643.85	8573.65	107.15
1.79	9.50	61285.89	1.00	18.93	52780.45	8505.44	107.08
1.79	9.50	61354.28	1.00	18.86	52916.49	8437.80	107.00
1.80	9.50	61422.68	1.00	18.78	53051.98	8370.71	106.93
1.80	9.50	61491.08	1.00	18.70	53186.91	8304.18	106.85
1.80	9.50	61559.48	1.00	18.63	53321.29	8238.20	106.78
1.80	9.50	61627.88	1.00	18.55	53455.12	8172.77	106.70
1.80	9.50	61696.28	1.00	18.48	53588.41	8107.87	106.63
1.81	9.50	61764.67	1.00	18.40	53721.17	8043.52	106.56
1.81	9.50	61833.07	1.00	18.33	53853.39	7979.69	106.49
1.81	9.50	61901.47	1.00	18.25	53985.08	7916.40	106.41
1.81	9.50	61969.87	1.00	18.18	54116.26	7853.62	106.34
1.81	9.50	62038.27	1.00	18.11	54246.91	7791.37	106.27
1.82	9.50	62106.67	1.00	18.04	54377.05	7729.63	106.20
1.82	9.50	62175.07	1.00	17.97	54506.67	7668.40	106.14
1.82	9.50	62243.46	1.00	17.90	54635.80	7607.68	106.07
1.82	9.50	62311.86	0.00	0.00	54764.42	7547.46	106.00
1.82	9.50	62380.26	0.00	0.00	54764.42	7615.85	106.08
1.83	9.50	62448.66	0.00	0.00	54764.42	7684.25	106.15
1.83	9.50	62517.06	0.00	0.00	54764.42	7752.65	106.23
1.83	9.50	62585.46	0.00	0.00	54764.42	7821.05	106.31
1.83	9.50	62653.85	0.00	0.00	54764.42	7889.45	106.38
1.83	9.50	62722.25	0.00	0.00	54764.42	7957.85	106.46
1.84	9.50	62790.65	0.00	0.00	54764.42	8026.24	106.54
1.84	9.50	62859.05	0.00	0.00	54764.42	8094.64	106.62
1.84	9.50	62927.45	0.00	0.00	54764.42	8163.04	106.69
1.84	9.50	62995.85	0.00	0.00	54764.42	8231.44	106.77
1.84	9.50	63064.24	0.00	0.00	54764.42	8299.84	106.85
1.85	9.50	63132.64	0.00	0.00	54764.42	8368.24	106.92
1.85	9.50	63201.04	0.00	0.00	54764.42	8436.64	107.00
1.85	9.50	63269.44	0.00	0.00	54764.42	8505.03	107.08
1.85	9.50	63337.84	0.00	0.00	54764.42	8573.43	107.15
1.85	9.50	63406.24	0.00	0.00	54764.42	8641.83	107.23

1.86	9.50	63474.64	0.00	0.00	54764.42	8710.23	107.31
1.86	9.50	63543.03	0.00	0.00	54764.42	8778.63	107.39
1.86	9.50	63611.43	0.00	0.00	54764.42	8847.03	107.46
1.86	9.50	63679.83	0.00	0.00	54764.42	8915.42	107.54
1.86	9.50	63748.23	0.00	0.00	54764.42	8983.82	107.62
1.87	9.50	63816.63	0.00	0.00	54764.42	9052.22	107.69
1.87	9.50	63885.03	0.00	0.00	54764.42	9120.62	107.77
1.87	9.50	63953.42	0.00	0.00	54764.42	9189.02	107.85
1.87	9.50	64021.82	0.00	0.00	54764.42	9257.42	107.93
1.87	9.50	64090.22	1.00	19.88	54835.98	9218.46	108.00
1.88	9.50	64158.62	1.00	19.67	54978.37	9180.26	107.80
1.88	9.50	64227.02	1.00	19.63	55119.84	9107.19	107.76
1.88	9.50	64295.42	1.00	19.54	55260.86	9034.57	107.67
1.88	9.50	64363.82	1.00	19.46	55401.28	8962.55	107.59
1.88	9.50	64432.21	1.00	19.38	55541.10	8891.13	107.51
1.89	9.50	64500.61	1.00	19.30	55680.33	8820.30	107.43
1.89	9.50	64569.01	1.00	19.22	55818.97	8750.05	107.35
1.89	9.50	64637.41	1.00	19.14	55957.04	8680.38	107.27
1.89	9.50	64705.81	1.00	19.06	56094.53	8611.29	107.20
1.89	9.50	64774.21	1.00	18.98	56231.44	8542.77	107.12
1.90	9.50	64842.60	1.00	18.90	56367.80	8474.82	107.04
1.90	9.50	64911.00	1.00	18.82	56503.58	8407.43	106.97
1.90	9.50	64979.40	1.00	18.74	56638.82	8340.60	106.89
1.90	9.50	65047.80	1.00	18.67	56773.49	8274.31	106.82
1.90	9.50	65116.20	1.00	18.59	56907.63	8208.58	106.74
1.91	9.50	65184.60	1.00	18.52	57041.21	8143.39	106.67
1.91	9.50	65252.99	1.00	18.44	57174.26	8078.74	106.60
1.91	9.50	65321.39	1.00	18.37	57306.78	8014.63	106.53
1.91	9.50	65389.79	1.00	18.29	57438.76	7951.04	106.45
1.91	9.50	65458.19	1.00	18.22	57570.22	7887.98	106.38
1.92	9.50	65526.59	1.00	18.15	57701.15	7825.44	106.31
1.92	9.50	65594.99	1.00	18.08	57831.57	7763.42	106.24
1.92	9.50	65663.38	1.00	18.01	57961.48	7701.92	106.17
1.92	9.50	65731.78	1.00	17.94	58090.88	7640.92	106.10
1.92	9.50	65800.18	1.00	17.87	58219.77	7580.42	106.04
1.93	9.50	65868.58	0.00	0.00	58348.21	7520.39	105.97
1.93	9.50	65936.98	0.00	0.00	58348.21	7588.78	106.05
1.93	9.50	66005.38	0.00	0.00	58348.21	7657.18	106.12
1.93	9.50	66073.78	0.00	0.00	58348.21	7725.58	106.20
1.93	9.50	66142.18	0.00	0.00	58348.21	7793.98	106.28
1.94	9.50	66210.57	0.00	0.00	58348.21	7862.38	106.35
1.94	9.50	66278.97	0.00	0.00	58348.21	7930.78	106.43
1.94	9.50	66347.37	0.00	0.00	58348.21	7999.17	106.51
1.94	9.50	66415.77	0.00	0.00	58348.21	8067.57	106.59
1.94	9.50	66484.16	0.00	0.00	58348.21	8135.97	106.66
1.95	9.50	66552.56	0.00	0.00	58348.21	8204.37	106.74
1.95	9.50	66620.96	0.00	0.00	58348.21	8272.77	106.82
1.95	9.50	66689.36	0.00	0.00	58348.21	8341.17	106.89
1.95	9.50	66757.76	0.00	0.00	58348.21	8409.56	106.97
1.95	9.50	66826.16	0.00	0.00	58348.21	8477.96	107.05
1.96	9.50	66894.56	0.00	0.00	58348.21	8546.36	107.12
1.96	9.50	66962.96	0.00	0.00	58348.21	8614.76	107.20
1.96	9.50	67031.35	0.00	0.00	58348.21	8683.16	107.28
1.96	9.50	67099.75	0.00	0.00	58348.21	8751.56	107.36
1.96	9.50	67168.15	0.00	0.00	58348.21	8819.96	107.43
1.97	9.50	67236.55	0.00	0.00	58348.21	8888.35	107.51
1.97	9.50	67304.95	0.00	0.00	58348.21	8956.75	107.59
1.97	9.50	67373.35	0.00	0.00	58348.21	9025.15	107.66
1.97	9.50	67441.75	0.00	0.00	58348.21	9093.55	107.74
1.97	9.50	67510.15	0.00	0.00	58348.21	9161.95	107.82
1.98	9.50	67578.54	0.00	0.00	58348.21	9230.35	107.89
1.98	9.50	67646.94	0.00	0.00	58348.21	9298.74	107.97
1.98	9.50	67715.34	1.00	19.93	58419.94	9259.53	108.05
1.98	9.50	67783.74	1.00	19.72	58562.67	9221.08	107.84
1.98	9.50	67852.13	1.00	19.67	58704.48	9147.67	107.80
1.99	9.50	67920.53	1.00	19.59	58845.83	9074.71	107.72
1.99	9.50	67988.93	1.00	19.51	58986.58	9002.36	107.64
1.99	9.50	68057.33	1.00	19.42	59126.73	8930.61	107.56
1.99	9.50	68125.73	1.00	19.34	59266.29	8859.45	107.48
1.99	9.50	68194.13	1.00	19.26	59405.26	8788.88	107.40
2.00	9.50	68262.53	1.00	19.18	59543.65	8718.89	107.32
2.00	9.50	68330.93	1.00	19.10	59681.46	8649.48	107.24

****

EXPLANATION AND SUMMARY OF RUN

1.0 THE #1 PUMP CYCLES 8 TIMES IN ABOUT 45 MIN. SEE PLOT WHICH FOLLOWS.
2.0 ONLY THE SIGNIFICANT PORTIONS OF THE OUTPUT WAS PRINTED, SEE FILE CYCLEPSN.OUT ON CD FOR COMPLETE OUTPUT.

NOTE:THIS PROGRAM DOES NOT ITERATE THE PUMP OUTFLOW RATES OR DURATIONS DURING THE ROUTING INTERVAL (i.e. 7.2 SEC.). THEREFORE THE WATER SURFACE ELEVATION IN THE WET WELL IS ONLY APPROXIMATE. THE

MAXIMUM ERROR IN PUMPED FLOW CANNOT EXCEED ONE HALF THE PEAK FLOW FROM ONE PUMP FOR THE ROUTING INTERVAL OR IN THIS CASE:

((19.95)/2) * 7.2 = 71.82 CUBIC FEET
WHICH CORRESPONDS TO A WET WELL ELEVATION OF
ABOUT +/- .08 FEET (i.e. 5 FEET IN THE WET WELL
CORRESPONDS TO 4440 CUBIC FEET, THEREFORE 72
CUBIC FEET IS ABOUT .08 FEET)

HIGHLAND AVE. PUMP STATION
SR-51 DRAINAGE ASSESSMENT
INDIAN SCHOOL RD. TO BETHANY HOME RD.

CONSTANT INFLOW
NEW ON/OFF
4/2/98
R. JORDAN

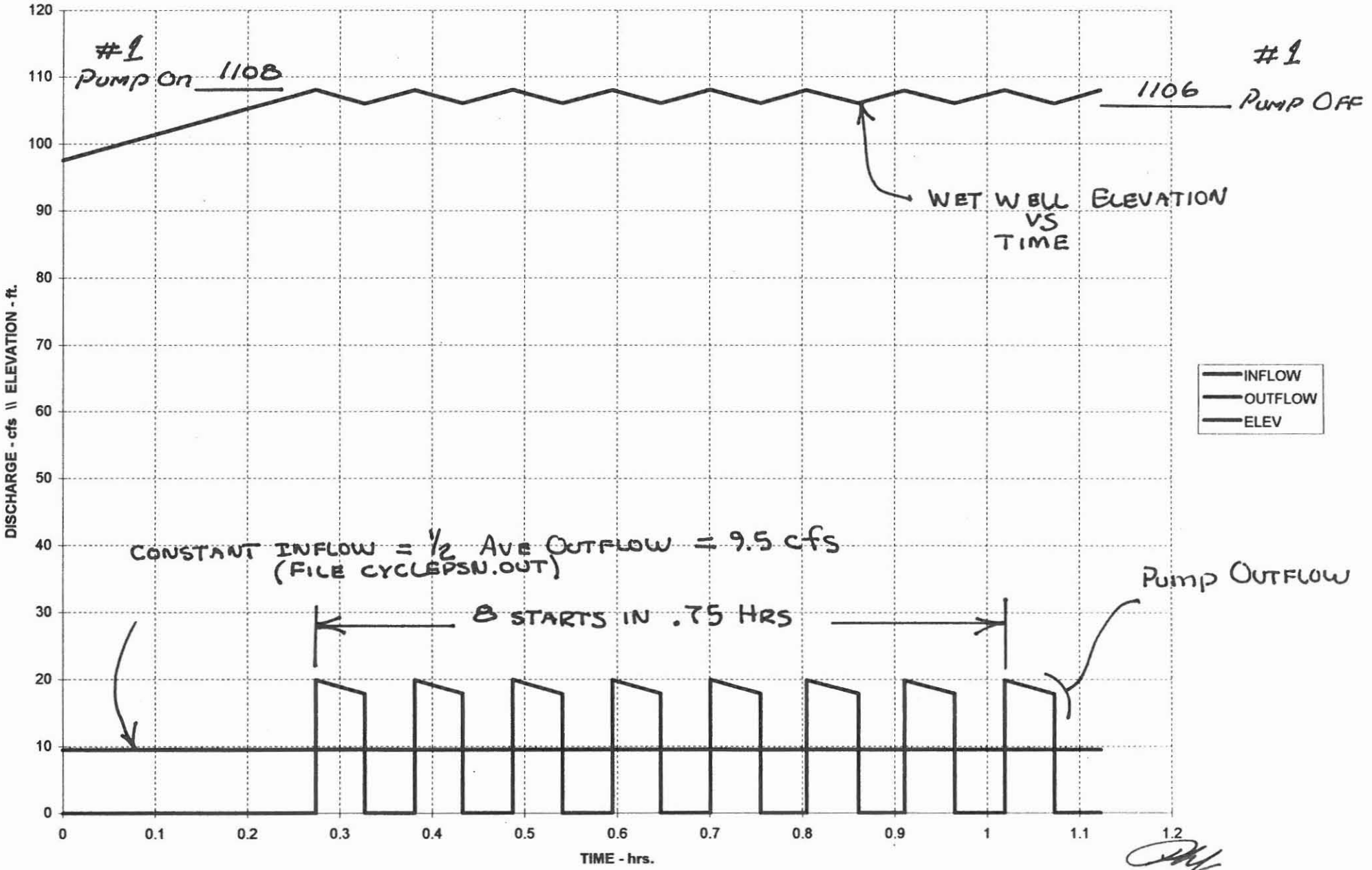
Data from file CYCLEPSN.OUT

TIME	INFLOW	OUTFLOW	ELEV
0	9.5	0	97.5
0.1	9.5	0	101.35
0.15	9.5	0	103.28
0.2	9.5	0	105.2
0.25	9.5	0	107.13
0.274	9.5	0	108.05
0.274	9.5	19.93	108.05
0.327	9.5	17.84	105.98
0.327	9.5	0	105.98
0.381	9.5	0	107.98
0.381	9.5	19.9	107.98
0.433	9.5	17.88	106.01
0.433	9.5	0	106.01
0.487	9.5	0	108.03
0.487	9.5	19.94	108.03
0.541	9.5	17.85	105.99
0.541	9.5	0	105.99
0.595	9.5	0	107.99
0.595	9.5	19.91	107.99
0.647	9.5	17.89	106.03
0.647	9.5	0	106.03
0.701	9.5	0	108.04
0.701	9.5	19.95	108.04
0.755	9.5	17.86	106
0.755	9.5	0	106
0.805	9.5	0	108
0.805	9.5	19.92	108
0.861	9.5	17.9	106.04
0.861	9.5	0	106.04
0.911	9.5	0	107.96

0.911	9.5	19.88	107.96
0.965	9.5	17.87	106
0.965	9.5	0	106
1.019	9.5	0	108.01
1.019	9.5	19.93	108.01
1.073	9.5	17.84	105.97
1.073	9.5	0	105.97
1.123	9.5	0	108

Shee Chart 2

HIGHLAND PUMP STATION



4-2-98

Alternatives 10A and 10B

PARSONS BRINCKERHOFF COMPUTATION SHEET

Page ____ of ____

Made by ____

Date ____

Checked by ____

Date ____

Subject: Repipe Inlets to On-site Storm Drain

Inlet	Location	Q_{10} Total	Q_{10} Intercepted	CB Inv
I15	NB off-Ramp	3.3	1.6	33.94
I16	NB off Ramp	2.8	2.8	33.52
I17	SB on-Ramp	7.6	2.8	26.26
I14	Area Drain	0.6	0.6	33.65

Tie in @ I700 @ 152+50, Invert = 27.74

∴ I17 is too low – NG!

Connect I15 (w I14) and I16 w/ 24" pipe → Q = 5cfs

Use Winsturm to model excess flow –
Use 10yr HOU model

Results show slight increase in HGL
but impact is minor ✓ OK

∴ Repipe I15 + I4 ←
Manhole + flapgate @ I17

ADOT / HEC-12

JOB: SR51 DRAINAGE ASSESSMENT

Pink input is place holder information or not verified		Capture ratios:	80%	50%
Inlet number:	I14	I15	I16	I17
Return Period	10	10	10	10
HYDROLOGY COMPUTATION:	138+34	138+34	10+80	11+25
Structure location station (ft):	SPP	SPP	NB RAMP	SB RAMP
Paved Area (acres)	0.00	0.54	0.47	1.06
Pavement Runoff Coefficient	0.95	0.95	0.95	0.95
Landscaped Area (acres)	0.18	0.30	0.25	0.95
Landscape Runoff Coefficient	0.70	0.70	0.70	0.70
Contributing watershed area (acres):	0.18	0.84	0.72	2.01
Composite Runoff Coefficient "C":	0.70	0.86	0.86	0.83
Time of Concentration (0.167 hr minimum)	10	10	10	10
Precipitation intensity (in/hr):	4.56	4.56	4.56	4.56
Subarea discharge Q (cfs):	0.57	3.29	2.83	7.62
Previous by-pass flow (cfs):	0.00	0.02	1.69	0.00
Upstream inlet(s) contributing by-pass	None	I112	I15	I14
Discharge added by operator:	—	—	—	—
Total discharge Q (cfs):	0.57	3.31	4.52	7.62
SHOULDER AND GUTTER CONFIGURATION:	Area Drain			
Manning's n:	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0031	0.0100	NA	NA
Inlet type (1=grate, 2=side opening or slotted):	1	1	1	1
Longitudinal profile (1=on-grade, 2=sag):	2	1	2	2
Gutter Configuration (1=freeway or roll, 2=vertical):	1	1	1	1
Inlet description:	N(sgl)	N(dbl)	N(dbl)	N(dbl)
Grate width:	2	2	2	2
Grate length:	3.0	6.0	6.0	6.0
Pavement cross-slope (Sx):	0.000	0.020	0.020	0.020
Width of gutter from flowline (ft):	0.00	1.50	0.00	0.00
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (Sw=Sw-Sx)	0.000	0.056	0.020	0.020
Flooded Width from flowline (ft): before inlet	NA	10.71	NA	NA
Depth at flowline (ft): before inlet	0.00	0.27	0.00	0.00
Water cross-area (sq.ft): before inlet	0.00	1.29	0.00	0.00
Velocity V for total discharge (fps): before inlet	0.00	2.56	0.00	0.00
Ratio of gutter depression flow to total Q (Eod):	100.0%	41.9%	100.0%	100.0%
Equivalent cross-slope (Se):	0.000	0.035	0.020	0.020
GRATE INLETS ON-GRADE:				
Ratio of grate frontal flow to total flow:	—	33.2%	—	—
Inlet frontal flow in cfs (Qw):	—	1.10	—	—
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	—	10.30	—	—
Fraction of frontal flow intercepted (Rf):	—	100.0%	—	—
Side flow in cfs (Qs):	—	2.21	—	—
Effective grate length w/clogging:	—	3.00	—	—
Fraction of side flow interception (Rs):	—	23.5%	—	—
Grate Efficiency (E):	—	48.9%	—	—
Total flow intercepted (cfs):	—	1.62	—	—
Grate flow-by (cfs):	—	1.69	—	—
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:				
Length required for total interception (ft): w/o clogging	—	—	—	—
Length of inlet provided L (ft):				
Interception for length L (cfs):	—	—	—	—
Efficiency for length L:	—	—	—	—
Slotted drain or side opening flow-by (cfs):	—	—	—	—
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:				
Head available for weir flow at sag (ft):	0.5		0.33	0.33
Capacity of grate in a sag (3-sided weir) in cfs:	—	—	2.84	2.84
Capacity of grate in a sag (4-sided weir):	0.57	—	—	—
Length provided of curb-opening inlet at sag:				
Capacity of curb-opening inlet in a sag (weir) in cfs:	Grate	—	Grate	Grate
INFLOW Q FOR CATCH BASIN	0.57	1.62	2.84	2.84

Design by: AJH

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 1
Tue Nov 18 08:26:11 1997

JOB CONTROL : CONT
JOB SECTION : SEC
JOB NUMBER : JOB
PROJECT DESCRIPTION : SR51 DRAINAGE ASSESSMENT
ANALYSYS FREQUENCY : 10 Year
MEASUREMENT UNITS: Input ENGLISH Output ENGLISH

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 300	0.990	0.183	2.00	10.00	4.556	0.000	0.825
I 323	0.990	0.325	2.00	10.00	4.556	0.000	1.466
I 700	0.990	0.660	2.00	10.00	4.556	0.000	2.977
I 701	0.990	0.481	2.00	10.00	4.556	0.000	2.169
I 702	0.990	0.724	2.00	10.00	4.556	0.000	3.265
I 703	0.990	0.697	2.00	10.00	4.556	0.000	3.143
I 704	0.990	1.444	2.00	10.00	4.556	0.000	6.512
I 705	0.990	0.115	2.00	10.00	4.556	0.000	0.519
I 706	0.990	0.336	2.00	10.00	4.556	0.000	1.515
I 707	0.990	0.307	2.00	10.00	4.556	0.000	1.385
I 708	0.990	0.278	2.00	10.00	4.556	0.000	1.254
I 709	0.990	0.278	2.00	10.00	4.556	0.000	1.254
I 710	0.990	0.643	2.00	10.00	4.556	0.000	2.900
I 711	0.990	0.345	2.00	10.00	4.556	0.000	1.556
I 712	0.990	0.422	2.00	10.00	4.556	0.000	1.903
I 713	0.990	0.413	2.00	10.00	4.556	0.000	1.863
I 714	0.990	0.470	2.00	10.00	4.556	0.000	2.120
I 715	0.990	0.480	2.00	10.00	4.556	0.000	2.165
I 716	0.990	0.470	2.00	10.00	4.556	0.000	2.120
I 717	0.990	0.880	2.00	10.00	4.556	0.000	3.969
I 718	0.990	0.422	2.00	10.00	4.556	0.000	1.903
I 719	0.990	0.422	2.00	10.00	4.556	0.000	1.903
I 720	0.990	0.933	2.00	10.00	4.556	0.000	4.208
I 721	0.990	0.451	2.00	10.00	4.556	0.000	2.034
I 722	0.990	0.451	2.00	10.00	4.556	0.000	2.034
I 723	0.990	0.518	2.00	10.00	4.556	0.000	2.336
I 724	0.990	0.384	2.00	10.00	4.556	0.000	1.732
I 725	0.990	0.384	2.00	10.00	4.556	0.000	1.732
I 726	0.990	1.331	2.00	10.00	4.556	0.000	6.003
I 727	0.990	0.297	2.00	10.00	4.556	0.000	1.339
I 728	0.990	0.317	2.00	10.00	4.556	0.000	1.430
I 729	0.990	1.173	2.00	10.00	4.556	0.000	5.290
I 730	0.990	0.393	2.00	10.00	4.556	0.000	1.772
I 731	0.990	0.393	2.00	10.00	4.556	0.000	1.772
I 732	0.990	0.317	2.00	10.00	4.556	0.000	1.430
I 733	0.990	0.573	2.00	10.00	4.556	0.000	2.584
I 734	0.990	0.317	2.00	10.00	4.556	0.000	1.430
I 735	0.990	0.637	2.00	10.00	4.556	0.000	2.873
I 736	0.990	0.921	2.00	10.00	4.556	0.000	4.154
I 737	0.990	0.999	2.00	10.00	4.556	0.000	4.505
I 738	0.990	0.221	2.00	10.00	4.556	0.000	0.997
I 739	0.990	0.839	2.00	10.00	4.556	0.000	3.784
I 740	0.990	0.675	2.00	10.00	4.556	0.000	3.044
I 741	0.990	0.618	2.00	10.00	4.556	0.000	2.787
I 742	0.990	0.982	2.00	10.00	4.556	0.000	4.429
I 743	0.990	0.413	2.00	10.00	4.556	0.000	1.863
I 744	0.990	0.400	2.00	10.00	4.556	0.000	1.804
I 745	0.990	0.086	2.00	10.00	4.556	0.000	0.388
I 746	0.990	0.432	2.00	10.00	4.556	0.000	1.948
I 747	0.990	0.451	2.00	10.00	4.556	0.000	2.034
I 748	0.990	0.413	2.00	10.00	4.556	0.000	1.863

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 2
Tue Nov 18 08:26:11 1997

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 749	0.990	0.393	2.00	10.00	4.556	0.000	1.772
I 750	0.990	0.470	2.00	10.00	4.556	0.000	2.120
I 751	0.990	0.499	2.00	10.00	4.556	0.000	2.250
I 752	0.990	0.192	2.00	10.00	4.556	0.000	0.866
I 753	0.990	0.432	2.00	10.00	4.556	0.000	1.948
I 754	0.990	0.686	2.00	10.00	4.556	0.000	3.094
I 755	0.990	0.249	2.00	10.00	4.556	0.000	1.123
I 756	0.990	0.460	2.00	10.00	4.556	0.000	2.075
I 757	0.990	0.096	2.00	10.00	4.556	0.000	0.433
I 758	0.990	0.192	2.00	10.00	4.556	0.000	0.866
I 759	0.990	0.307	2.00	10.00	4.556	0.000	1.385
I 760	0.990	0.259	2.00	10.00	4.556	0.000	1.168
I 761	0.990	0.453	2.00	10.00	4.556	0.000	2.043
I 762	0.990	0.202	2.00	10.00	4.556	0.000	0.911
I 763	0.990	0.336	2.00	10.00	4.556	0.000	1.515
I 764	0.990	0.489	2.00	10.00	4.556	0.000	2.205
I 765	0.990	0.413	2.00	10.00	4.556	0.000	1.863
I 766	0.990	0.125	2.00	10.00	4.556	0.000	0.564
I 767	0.990	0.382	2.00	10.00	4.556	0.000	1.723
I 768	0.990	0.086	2.00	10.00	4.556	0.000	0.388

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 3
Tue Nov 18 08:26:12 1997

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I300	0.990	0.183	10.00	4.556	0.000	0.825
I323	0.990	0.325	10.00	4.556	0.000	1.466
I700	0.990	1.141	10.00	4.556	0.000	5.146
J700	0.990	1.141	10.00	4.556	0.000	5.146
I701	0.990	0.481	10.00	4.556	0.000	2.169
J701	0.990	2.562	10.00	4.556	0.000	11.555
I702	0.990	1.421	10.00	4.556	0.000	6.409
J702	0.990	33.835	15.42	3.691	0.000	123.622
I703	0.990	0.697	10.00	4.556	0.000	3.143
I704	0.990	1.444	10.00	4.556	0.000	6.512
J704	0.990	29.829	15.20	3.718	0.000	109.802
I705	0.990	0.115	10.00	4.556	0.000	0.519
J705	0.990	29.378	14.91	3.756	0.000	109.233
I706	0.990	0.451	10.00	4.556	0.000	2.034
I707	0.990	0.863	10.00	4.556	0.000	3.892
I708	0.990	0.556	10.00	4.556	0.000	2.508
I709	0.990	0.278	10.00	4.556	0.000	1.254
I710	0.990	28.515	14.66	3.790	0.000	106.980
I711	0.990	0.345	10.00	4.556	0.000	1.556
J711	0.990	16.984	10.01	4.554	0.000	76.575
I712	0.990	0.422	10.00	4.556	0.000	1.903
J712	0.990	16.984	10.01	4.554	0.000	76.575
I713	0.990	27.527	14.14	3.861	0.000	105.208
J713	0.990	14.354	10.00	4.556	0.000	64.736
I714	0.990	0.950	10.00	4.556	0.000	4.284
J714	0.990	12.434	10.00	4.556	0.000	56.077
I715	0.990	0.480	10.00	4.556	0.000	2.165
J715	0.990	0.486	10.00	4.556	0.000	2.192
I716	0.990	26.692	13.42	3.963	0.000	104.724
J716	0.990	4.735	10.00	4.556	0.000	21.355
I717	0.990	0.880	10.00	4.556	0.000	3.969
I718	0.990	24.392	12.30	4.138	0.000	99.913
I719	0.990	0.422	10.00	4.556	0.000	1.903
I720	0.990	23.548	11.70	4.238	0.000	98.808
I721	0.990	1.745	10.00	4.556	0.000	7.870
I722	0.990	1.294	10.00	4.556	0.000	5.836
I723	0.990	0.843	10.00	4.556	0.000	3.802
I724	0.990	20.870	11.01	4.362	0.000	90.117
I725	0.990	0.384	10.00	4.556	0.000	1.732
I726	0.990	20.102	10.55	4.447	0.000	88.506
I727	0.990	18.771	10.48	4.461	0.000	82.893
I728	0.990	1.490	10.00	4.556	0.000	6.720
I729	0.990	1.173	10.00	4.556	0.000	5.290
I730	0.990	16.984	10.01	4.554	0.000	76.575
I731	0.990	0.393	10.00	4.556	0.000	1.772
I732	0.990	16.198	10.00	4.556	0.000	73.053
I733	0.990	0.573	10.00	4.556	0.000	2.584
I734	0.990	0.954	10.00	4.556	0.000	4.303
I735	0.990	0.637	10.00	4.556	0.000	2.873
I736	0.990	0.921	10.00	4.556	0.000	4.154
I737	0.990	0.999	10.00	4.556	0.000	4.505

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 4
Tue Nov 18 08:26:12 1997

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I738	0.990	0.221	10.00	4.556	0.000	0.997
I739	0.990	0.839	10.00	4.556	0.000	3.784
I740	0.990	11.374	10.00	4.556	0.000	51.297
I741	0.990	10.699	10.00	4.556	0.000	48.252
I742	0.990	0.982	10.00	4.556	0.000	4.429
I743	0.990	9.099	10.00	4.556	0.000	41.036
I744	0.990	0.400	10.00	4.556	0.000	1.804
I745	0.990	0.086	10.00	4.556	0.000	0.388
I746	0.990	8.017	10.00	4.556	0.000	36.157
I747	0.990	0.864	10.00	4.556	0.000	3.897
I748	0.990	0.413	10.00	4.556	0.000	1.863
I749	0.990	6.721	10.00	4.556	0.000	30.312
I750	0.990	0.470	10.00	4.556	0.000	2.120
I751	0.990	5.858	10.00	4.556	0.000	26.419
I752	0.990	0.624	10.00	4.556	0.000	2.814
I753	0.990	0.432	10.00	4.556	0.000	1.948
I754	0.990	0.686	10.00	4.556	0.000	3.094
I755	0.990	0.709	10.00	4.556	0.000	3.198
I756	0.990	0.460	10.00	4.556	0.000	2.075
I757	0.990	3.340	10.00	4.556	0.000	15.063
I758	0.990	0.192	10.00	4.556	0.000	0.866
I759	0.990	3.052	10.00	4.556	0.000	13.764
I760	0.990	0.259	10.00	4.556	0.000	1.168
I761	0.990	0.655	10.00	4.556	0.000	2.954
I762	0.990	0.202	10.00	4.556	0.000	0.911
I763	0.990	1.831	10.00	4.556	0.000	8.258
I764	0.990	0.902	10.00	4.556	0.000	4.068
I765	0.990	0.413	10.00	4.556	0.000	1.863
I766	0.990	0.593	10.00	4.556	0.000	2.674
I767	0.990	0.382	10.00	4.556	0.000	1.723
I768	0.990	0.086	10.00	4.556	0.000	0.388

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 5
Tue Nov 18 08:26:12 1997

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
300	I300	I743	1145.010	1144.610	Circ	1	n/a	1.250	6.00	6.682	0.012
323	I323	I723	1134.110	1125.040	Circ	1	n/a	1.250	31.00	30.597	0.012
333	I727	I726	1112.850	1112.480	Circ	1	n/a	3.000	50.00	0.740	0.012
336	J712	J711	1126.340	1113.690	Circ	1	n/a	3.000	48.00	27.320	0.012
337	I730	J712	1127.720	1126.340	Circ	1	n/a	3.000	186.00	0.742	0.012
700	I700	J700	1128.600	1127.990	Circ	1	n/a	1.250	54.00	1.130	0.012
701	I701	I700	1129.170	1128.700	Circ	1	n/a	1.250	68.50	0.686	0.012
702	J700	J701	1127.740	1119.310	Circ	1	n/a	1.500	305.00	2.765	0.012
703	I702	J701	1122.000	1119.450	Circ	1	n/a	1.250	90.00	2.834	0.012
704	I703	I702	1122.190	1120.940	Circ	1	n/a	1.250	55.00	2.273	0.012
705	J701	J702	1119.310	1114.100	Circ	1	n/a	1.500	189.00	2.758	0.012
706	J702	J703	1103.280	1103.150	Circ	1	n/a	4.000	46.00	0.283	0.012
707	I704	J702	1118.970	1114.360	Circ	1	n/a	1.250	56.00	8.260	0.012
708	J704	J702	1103.660	1103.380	Circ	1	n/a	4.000	117.00	0.239	0.012
709	I706	J704	1117.060	1104.040	Circ	1	n/a	1.250	79.00	16.710	0.012
710	I705	I706	1118.500	1117.560	Circ	1	n/a	1.250	10.00	9.442	0.012
711	J705	J704	1104.030	1103.660	Circ	1	n/a	4.000	155.00	0.239	0.012
712	I707	J705	1116.790	1105.410	Circ	1	n/a	1.250	50.00	23.373	0.012
713	I708	I707	1117.570	1116.950	Circ	1	n/a	1.250	26.00	2.385	0.012
714	I709	I708	1118.400	1117.820	Circ	1	n/a	1.250	26.00	2.231	0.012
715	I710	J705	1104.350	1104.030	Circ	1	n/a	4.000	134.00	0.239	0.012
716	I711	I710	1115.560	1107.510	Circ	1	n/a	1.250	20.00	43.969	0.012
717	I713	I710	1104.890	1104.500	Circ	1	n/a	4.000	268.00	0.146	0.012
718	I712	I713	1119.420	1117.870	Circ	1	n/a	1.250	51.00	3.041	0.012
720	I716	I713	1105.620	1104.890	Circ	1	n/a	4.000	366.00	0.199	0.012
721	I714	I716	1120.590	1117.760	Circ	1	n/a	1.250	98.00	2.889	0.012
722	I715	I714	1120.890	1120.690	Circ	1	n/a	1.250	11.00	1.818	0.012
723	I717	I716	1119.480	1105.620	Circ	1	n/a	1.250	20.00	96.125	0.012
724	I718	I716	1106.720	1105.620	Circ	1	n/a	4.000	550.00	0.200	0.012
725	I719	I718	1122.200	1120.700	Circ	1	n/a	1.250	98.00	1.531	0.012
726	I720	I718	1108.900	1107.220	Circ	1	n/a	3.500	381.00	0.441	0.012
727	I721	I720	1121.960	1120.300	Circ	1	n/a	1.250	10.00	16.834	0.012
728	I722	I721	1123.960	1122.210	Circ	1	n/a	1.250	100.00	1.750	0.012
729	I723	I722	1125.040	1124.210	Circ	1	n/a	1.250	25.00	3.322	0.012
730	I724	I720	1110.660	1108.900	Circ	1	n/a	3.500	400.00	0.440	0.012
731	I725	I724	1125.850	1123.950	Circ	1	n/a	1.250	98.00	1.939	0.012
732	I726	I724	1112.230	1110.910	Circ	1	n/a	3.250	300.00	0.440	0.012
733	I728	I727	1127.560	1126.560	Circ	1	n/a	1.250	98.00	1.020	0.012
734	I729	I728	1127.890	1127.660	Circ	1	n/a	1.250	10.00	2.301	0.012
735	J711	I727	1113.660	1112.850	Circ	1	n/a	3.000	117.00	0.692	0.012
736	I731	I730	1130.560	1129.160	Circ	1	n/a	1.250	98.00	1.429	0.012
737	I732	I730	1130.560	1127.970	Circ	1	n/a	2.750	350.00	0.740	0.012
738	I733	I732	1137.450	1131.310	Circ	1	n/a	1.250	64.00	9.638	0.012
739	I734	I732	1132.620	1131.310	Circ	1	n/a	1.250	108.00	1.213	0.012
740	I735	I734	1137.020	1133.120	Circ	1	n/a	1.250	88.00	4.436	0.012
741	J713	I732	1131.990	1131.310	Circ	1	n/a	2.750	285.00	0.239	0.012
742	I736	J713	1134.170	1132.740	Circ	1	n/a	1.250	29.00	4.937	0.012
743	I737	J713	1134.540	1132.740	Circ	1	n/a	1.250	165.00	1.091	0.012
744	J714	J713	1133.020	1131.990	Circ	1	n/a	2.750	206.00	0.500	0.012
745	I738	J714	1136.210	1134.520	Circ	1	n/a	1.250	23.00	7.368	0.012
746	I739	J714	1136.210	1134.520	Circ	1	n/a	1.250	154.00	1.097	0.012

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 6
Tue Nov 18 08:26:12 1997

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
747	I740	J714	1134.400	1130.520	Circ	1	n/a	2.500	113.00	3.436	0.012
748	I741	I740	1138.170	1134.400	Circ	1	n/a	2.500	334.00	1.129	0.012
749	I742	I741	1140.510	1138.920	Circ	1	n/a	1.250	153.00	1.039	0.012
750	I743	I741	1143.360	1138.170	Circ	1	n/a	2.500	273.00	1.901	0.012
751	J715	I743	1145.780	1144.610	Circ	1	n/a	1.250	85.00	1.377	0.012
752	I744	J715	1146.790	1145.780	Circ	1	n/a	1.250	65.00	1.554	0.012
753	I745	J715	1147.000	1145.780	Circ	1	n/a	1.250	57.00	2.141	0.012
754	I746	I743	1147.590	1144.360	Circ	1	n/a	2.500	255.00	1.267	0.012
755	I747	I746	1155.720	1154.400	Circ	1	n/a	1.250	75.00	1.760	0.012
756	I748	I747	1157.220	1155.720	Circ	1	n/a	1.250	16.00	9.416	0.012
757	I749	I746	1148.900	1147.990	Circ	1	n/a	2.000	300.00	0.303	0.012
758	I750	I749	1165.870	1163.360	Circ	1	n/a	1.250	90.00	2.790	0.012
759	I751	I749	1149.790	1148.900	Circ	1	n/a	2.000	300.00	0.297	0.012
760	I752	I751	1169.180	1150.160	Circ	1	n/a	1.250	54.00	37.634	0.012
761	I753	I752	1170.560	1169.280	Circ	1	n/a	1.250	16.00	8.026	0.012
762	J716	I751	1150.470	1149.780	Circ	1	n/a	2.000	300.00	0.230	0.012
763	I754	J716	1169.000	1150.470	Circ	1	n/a	1.250	43.00	47.755	0.012
764	I755	J716	1169.430	1150.930	Circ	1	n/a	1.250	153.00	12.181	0.012
765	I756	I755	1169.930	1169.430	Circ	1	n/a	1.250	10.00	5.006	0.012
766	I757	J716	1150.890	1150.550	Circ	1	n/a	2.000	115.00	0.296	0.012
767	I758	I757	1170.780	1168.020	Circ	1	n/a	1.250	30.00	9.239	0.012
768	I759	I757	1151.780	1150.890	Circ	1	n/a	2.000	300.00	0.297	0.012
769	I760	I759	1179.530	1163.730	Circ	1	n/a	1.250	56.00	29.409	0.012
770	I761	I759	1164.880	1163.820	Circ	1	n/a	1.250	127.00	0.835	0.012
771	I762	I761	1177.880	1164.980	Circ	1	n/a	1.250	38.00	36.091	0.012
772	I763	I759	1152.660	1151.780	Circ	1	n/a	2.000	300.00	0.293	0.012
773	I764	I763	1160.490	1159.890	Circ	1	n/a	1.250	60.00	1.000	0.012
774	I765	I764	1161.090	1160.490	Circ	1	n/a	1.250	60.00	1.000	0.012
775	I766	I763	1153.030	1152.660	Circ	1	n/a	2.000	125.00	0.296	0.012
776	I767	I766	1159.150	1159.000	Circ	1	n/a	1.250	8.00	1.875	0.012
777	I768	I766	1159.730	1159.490	Circ	1	n/a	1.250	60.00	0.400	0.012

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 7
Tue Nov 18 08:26:12 1997

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (fps)	Velocity Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
300	1165.987	1165.983	0.01	0.182	1.250	7.46	0.67	0.825	18.089	0.004
323	1134.425	1134.400	0.04	0.167	1.250	15.15	1.19	1.466	38.710	0.011
333	1139.940	1139.068	1.32	3.000	3.000	12.04	11.73	82.893	62.158	0.214
336	1142.340	1141.619	1.12	0.916	3.000	41.86	10.83	76.575	377.675	0.182
337	1144.794	1142.340	1.12	3.000	3.000	11.12	10.83	76.575	62.240	0.365
700	1129.697	1128.472	0.54	0.765	0.765	6.54	6.54	5.146	7.438	0.332
701	1129.796	1129.697	0.10	0.531	0.997	4.36	2.07	2.169	5.797	0.033
702	1128.472	1123.353	0.20	0.535	1.500	9.11	2.91	5.146	18.922	0.198
703	1124.447	1123.353	0.84	0.657	1.250	9.80	5.22	6.409	11.782	0.339
704	1124.609	1124.447	0.20	0.467	1.250	7.51	2.56	3.143	10.551	0.051
705	1123.353	1121.005	1.03	0.847	1.500	11.24	6.54	11.555	18.897	0.399
706	1121.005	1115.000	0.63	4.000	4.000	10.10	9.84	123.622	82.726	5.715
707	1121.709	1121.005	0.87	0.490	1.250	14.64	5.31	6.512	20.113	0.219
708	1121.825	1121.005	0.50	4.000	4.000	8.97	8.74	109.802	76.126	0.237
709	1121.926	1121.825	0.08	0.226	1.250	13.49	1.66	2.034	28.606	0.034
710	1121.928	1121.926	0.01	0.133	1.250	7.33	0.42	0.519	21.503	0.001
711	1122.824	1121.825	0.49	4.000	4.000	8.92	8.69	109.233	76.030	0.235
712	1123.104	1122.824	0.31	0.286	1.250	18.47	3.17	3.892	33.833	0.125
713	1123.189	1123.104	0.13	0.410	1.250	7.16	2.04	2.508	10.808	0.052
714	1123.205	1123.189	0.03	0.292	1.250	5.75	1.02	1.254	10.454	0.008
715	1123.570	1122.824	0.47	4.000	4.000	8.74	8.51	106.980	76.045	0.113
716	1123.592	1123.570	0.05	0.156	1.250	17.47	1.27	1.556	46.404	0.012
717	1124.904	1123.570	0.46	4.000	4.000	8.59	8.37	105.208	59.363	0.109
718	1124.960	1124.904	0.07	0.334	1.250	7.25	1.55	1.903	12.203	0.019
720	1126.670	1124.904	0.45	4.000	4.000	8.56	8.33	104.724	69.497	0.108
721	1127.189	1126.670	0.37	0.519	1.250	8.90	3.49	4.284	11.895	0.152
722	1127.223	1127.189	0.10	0.408	1.250	6.23	1.76	2.165	9.437	0.024
723	1126.815	1126.670	0.32	0.204	1.250	30.22	3.23	3.969	68.612	0.081
724	1129.134	1126.670	0.41	4.000	4.000	8.16	7.95	99.913	69.593	0.196
725	1129.225	1129.134	0.07	0.399	1.250	5.65	1.55	1.903	8.658	0.019
726	1132.593	1129.134	0.82	3.500	3.500	10.54	10.27	98.808	72.376	0.328
727	1133.231	1132.593	1.26	0.447	1.250	19.92	6.41	7.870	28.712	0.511
728	1134.207	1133.231	0.70	0.719	1.250	7.98	4.76	5.836	9.258	0.281
729	1134.400	1134.207	0.30	0.468	1.250	9.05	3.10	3.802	12.755	0.119
730	1135.600	1132.593	0.68	3.500	3.500	9.62	9.37	90.117	72.299	0.273
731	1135.676	1135.600	0.06	0.357	1.250	6.01	1.41	1.732	9.745	0.015
732	1139.068	1135.600	0.98	3.250	3.250	10.95	10.67	88.506	59.334	0.531
733	1141.217	1139.940	0.92	0.971	1.250	6.57	5.48	6.720	7.069	0.373
734	1141.418	1141.217	0.57	0.624	1.250	8.64	4.31	5.290	10.615	0.144
735	1141.619	1139.940	1.12	3.000	3.000	11.12	10.83	76.575	60.122	0.365
736	1144.873	1144.794	0.06	0.391	1.250	5.41	1.44	1.772	8.365	0.016
737	1150.955	1144.794	1.63	2.750	2.750	12.63	12.30	73.053	49.287	0.470
738	1151.077	1150.955	0.14	0.291	1.250	11.85	2.11	2.584	21.726	0.034
739	1151.516	1150.955	0.38	0.669	1.250	6.44	3.51	4.303	7.708	0.153
740	1151.707	1151.516	0.17	0.374	1.250	9.30	2.34	2.873	14.740	0.043
741	1154.963	1150.955	1.28	2.750	2.750	11.19	10.90	64.736	27.986	0.369
742	1155.154	1154.963	0.35	0.441	1.250	10.74	3.38	4.154	15.549	0.089
743	1155.752	1154.963	0.41	0.710	1.250	6.26	3.67	4.505	7.310	0.105
744	1157.352	1154.963	0.96	2.750	2.750	9.69	9.44	56.077	40.513	0.416
745	1157.362	1157.352	0.02	0.194	1.250	8.25	0.81	0.997	18.995	0.005
746	1157.877	1157.352	0.29	0.637	1.250	6.02	3.08	3.784	7.331	0.074

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 8
Tue Nov 18 08:26:12 1997

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
747	1159.198	1157.352	1.33	1.429	2.500	17.68	10.45	51.297	82.363	0.339
748	1163.437	1159.198	1.18	2.107	2.500	10.93	9.83	48.252	47.211	0.300
749	1164.151	1163.437	0.40	0.715	1.250	6.11	3.61	4.429	7.134	0.101
750	1165.983	1163.437	0.85	1.498	2.500	13.37	8.36	41.036	61.273	0.217
751	1166.106	1165.983	0.10	0.441	1.250	5.67	1.79	2.192	8.211	0.040
752	1166.166	1166.106	0.07	0.386	1.250	5.60	1.47	1.804	8.724	0.017
753	1166.109	1166.106	0.00	0.166	1.250	4.01	0.32	0.388	10.239	0.001
754	1168.093	1165.983	0.66	1.576	2.500	11.09	7.37	36.157	50.012	0.422
755	1168.451	1168.093	0.31	0.566	1.250	7.22	3.18	3.897	9.285	0.125
756	1168.480	1168.451	0.07	0.249	1.250	10.75	1.52	1.863	21.475	0.018
757	1173.551	1168.093	1.53	2.000	2.000	9.91	9.65	30.312	13.498	0.868
758	1173.656	1173.551	0.09	0.361	1.250	7.22	1.73	2.120	11.689	0.023
759	1177.697	1173.551	1.16	2.000	2.000	8.64	8.41	26.419	13.349	0.659
760	1177.849	1177.697	0.16	0.217	1.250	19.81	2.29	2.814	42.931	0.065
761	1177.881	1177.849	0.08	0.265	1.250	10.29	1.59	1.948	19.825	0.020
762	1180.405	1177.697	0.76	2.000	2.000	6.98	6.80	21.355	11.753	0.431
763	1180.539	1180.405	0.20	0.215	1.250	22.12	2.52	3.094	48.360	0.049
764	1180.809	1180.405	0.21	0.305	1.250	13.74	2.61	3.198	24.424	0.084
765	1180.840	1180.809	0.09	0.307	1.250	8.82	1.69	2.075	15.658	0.022
766	1181.054	1180.405	0.38	2.000	2.000	4.92	4.79	15.063	13.326	0.214
767	1181.063	1181.054	0.02	0.172	1.250	8.44	0.71	0.866	21.271	0.004
768	1182.180	1181.054	0.32	1.700	2.000	4.84	4.38	13.764	13.349	0.179
769	1182.202	1182.180	0.03	0.151	1.250	14.00	0.95	1.168	37.951	0.007
770	1182.478	1182.180	0.18	0.596	1.250	5.12	2.41	2.954	6.394	0.072
771	1182.489	1182.478	0.02	0.128	1.250	13.92	0.74	0.911	42.041	0.004
772	1182.584	1182.180	0.11	1.143	2.000	4.45	2.63	8.258	13.273	0.064
773	1182.923	1182.584	0.34	0.683	1.250	5.93	3.31	4.068	6.998	0.137
774	1182.984	1182.923	0.07	0.440	1.250	4.83	1.52	1.863	6.998	0.018
775	1182.611	1182.584	0.01	0.608	2.000	3.31	0.85	2.674	13.334	0.017
776	1182.631	1182.611	0.06	0.358	1.250	5.92	1.40	1.723	9.583	0.015
777	1182.614	1182.611	0.00	0.250	1.250	2.22	0.32	0.388	4.426	0.001

Computation Messages

---

*Warning: Discharge decreased downstream Junction J712 - previous intensity used
*Warning: Discharge decreased downstream Junction J711 - previous intensity used
*Warning: Run - 712 - Upstream Hydraulic Gradeline = 1123.10 - Exceeds Critical Elevation = 1120.79
*Warning: Run - 715 - Upstream Hydraulic Gradeline = 1123.57 - Exceeds Critical Elevation = 1119.30
*Warning: Run - 717 - Upstream Hydraulic Gradeline = 1124.90 - Exceeds Critical Elevation = 1120.37
*Warning: Run - 726 - Upstream Hydraulic Gradeline = 1132.59 - Exceeds Critical Elevation = 1127.46
*Warning: Run - 333 - Upstream Hydraulic Gradeline = 1139.94 - Exceeds Critical Elevation = 1131.06
*Warning: Run - 337 - Upstream Hydraulic Gradeline = 1144.79 - Exceeds Critical Elevation = 1133.56
*Warning: Run - 747 - Upstream Hydraulic Gradeline = 1159.20 - Exceeds Critical Elevation = 1139.85
*Warning: Run - 754 - Upstream Hydraulic Gradeline = 1168.09 - Exceeds Critical Elevation = 1157.94
*Warning: Run - 766 - Upstream Hydraulic Gradeline = 1181.05 - Exceeds Critical Elevation = 1173.04
*Warning: Run - 775 - Upstream Hydraulic Gradeline = 1182.61 - Exceeds Critical Elevation = 1162.28
*Computation: Run = 300 - Pipe Flowing Full
*Computation: Run = 323 - Pipe Flowing Full
*Computation: Run = 333 - Insufficient Capacity
*Computation: Run = 336 - Pipe Flowing Full
*Computation: Run = 337 - Insufficient Capacity
*Computation: Run = 702 - Pipe Flowing Full
*Computation: Run = 703 - Pipe Flowing Full
*Computation: Run = 704 - Pipe Flowing Full
*Computation: Run = 705 - Pipe Flowing Full
*Computation: Run = 706 - Insufficient Capacity
*Computation: Run = 707 - Pipe Flowing Full
*Computation: Run = 708 - Insufficient Capacity
*Computation: Run = 709 - Pipe Flowing Full
*Computation: Run = 710 - Pipe Flowing Full
*Computation: Run = 711 - Insufficient Capacity
*Computation: Run = 712 - Pipe Flowing Full
*Computation: Run = 713 - Pipe Flowing Full
*Computation: Run = 714 - Pipe Flowing Full
*Computation: Run = 715 - Insufficient Capacity
*Computation: Run = 716 - Pipe Flowing Full
*Computation: Run = 717 - Insufficient Capacity
*Computation: Run = 718 - Pipe Flowing Full
*Computation: Run = 720 - Insufficient Capacity
*Computation: Run = 721 - Pipe Flowing Full
*Computation: Run = 722 - Pipe Flowing Full
*Computation: Run = 723 - Pipe Flowing Full
*Computation: Run = 724 - Insufficient Capacity
*Computation: Run = 725 - Pipe Flowing Full
*Computation: Run = 726 - Insufficient Capacity
*Computation: Run = 727 - Pipe Flowing Full
*Computation: Run = 728 - Pipe Flowing Full
*Computation: Run = 729 - Pipe Flowing Full
*Computation: Run = 730 - Insufficient Capacity
*Computation: Run = 731 - Pipe Flowing Full
*Computation: Run = 732 - Insufficient Capacity
*Computation: Run = 733 - Pipe Flowing Full

```
*Computation: Run = 734 - Pipe Flowing Full
*Computation: Run = 735 - Insufficient Capacity
*Computation: Run = 736 - Pipe Flowing Full
*Computation: Run = 737 - Insufficient Capacity
*Computation: Run = 738 - Pipe Flowing Full
*Computation: Run = 739 - Pipe Flowing Full
*Computation: Run = 740 - Pipe Flowing Full
*Computation: Run = 741 - Insufficient Capacity
*Computation: Run = 742 - Pipe Flowing Full
*Computation: Run = 743 - Pipe Flowing Full
*Computation: Run = 744 - Insufficient Capacity
*Computation: Run = 745 - Pipe Flowing Full
*Computation: Run = 746 - Pipe Flowing Full
*Computation: Run = 747 - Pipe Flowing Full
*Computation: Run = 748 - Insufficient Capacity
*Computation: Run = 749 - Pipe Flowing Full
*Computation: Run = 750 - Pipe Flowing Full
*Computation: Run = 751 - Pipe Flowing Full
*Computation: Run = 752 - Pipe Flowing Full
*Computation: Run = 753 - Pipe Flowing Full
*Computation: Run = 754 - Pipe Flowing Full
*Computation: Run = 755 - Pipe Flowing Full
*Computation: Run = 756 - Pipe Flowing Full
*Computation: Run = 757 - Insufficient Capacity
*Computation: Run = 758 - Pipe Flowing Full
*Computation: Run = 759 - Insufficient Capacity
*Computation: Run = 760 - Pipe Flowing Full
*Computation: Run = 761 - Pipe Flowing Full
*Computation: Run = 762 - Insufficient Capacity
*Computation: Run = 763 - Pipe Flowing Full
*Computation: Run = 764 - Pipe Flowing Full
*Computation: Run = 765 - Pipe Flowing Full
*Computation: Run = 766 - Insufficient Capacity
*Computation: Run = 767 - Pipe Flowing Full
*Computation: Run = 768 - Insufficient Capacity
*Computation: Run = 769 - Pipe Flowing Full
*Computation: Run = 770 - Pipe Flowing Full
*Computation: Run = 771 - Pipe Flowing Full
*Computation: Run = 772 - Pipe Flowing Full
*Computation: Run = 773 - Pipe Flowing Full
*Computation: Run = 774 - Pipe Flowing Full
*Computation: Run = 775 - Pipe Flowing Full
*Computation: Run = 776 - Pipe Flowing Full
*Computation: Run = 777 - Pipe Flowing Full

NORMAL Completion of WinStorm.
```

On-Site Storm Drain
Repipe Highland Ramp Inlets to On-Site Storm Drain
10-year Storm w/ HOV Lanes

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 1
Fri Apr 10 07:04:38 1998

JOB CONTROL : CONT
JOB SECTION : SEC
JOB NUMBER : JOB
PROJECT DESCRIPTION : SR51 DRAINAGE ASSESSMENT
ANALYSYS FREQUENCY : 10 Year
MEASUREMENT UNITS: Input ENGLISH Output ENGLISH

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 16	0.000	0.000	0.00	0.00	0.000	5.000	5.000 ← Ramp Inlets Added
I 300	0.990	0.183	2.00	10.00	4.556	0.000	0.825
I 323	0.990	0.325	2.00	10.00	4.556	0.000	1.466
I 700	0.990	0.660	2.00	10.00	4.556	0.000	2.977
I 701	0.990	0.481	2.00	10.00	4.556	0.000	2.169
I 702	0.990	0.724	2.00	10.00	4.556	0.000	3.265
I 703	0.990	0.697	2.00	10.00	4.556	0.000	3.143
I 704	0.990	1.444	2.00	10.00	4.556	0.000	6.512
I 705	0.990	0.115	2.00	10.00	4.556	0.000	0.519
I 706	0.990	0.336	2.00	10.00	4.556	0.000	1.515
I 707	0.990	0.307	2.00	10.00	4.556	0.000	1.385
I 708	0.990	0.278	2.00	10.00	4.556	0.000	1.254
I 709	0.990	0.278	2.00	10.00	4.556	0.000	1.254
I 710	0.990	0.643	2.00	10.00	4.556	0.000	2.900
I 711	0.990	0.345	2.00	10.00	4.556	0.000	1.556
I 712	0.990	0.422	2.00	10.00	4.556	0.000	1.903
I 713	0.990	0.413	2.00	10.00	4.556	0.000	1.863
I 714	0.990	0.470	2.00	10.00	4.556	0.000	2.120
I 715	0.990	0.480	2.00	10.00	4.556	0.000	2.165
I 716	0.990	0.470	2.00	10.00	4.556	0.000	2.120
I 717	0.990	0.880	2.00	10.00	4.556	0.000	3.969
I 718	0.990	0.422	2.00	10.00	4.556	0.000	1.903
I 719	0.990	0.422	2.00	10.00	4.556	0.000	1.903
I 720	0.990	0.933	2.00	10.00	4.556	0.000	4.208
I 721	0.990	0.451	2.00	10.00	4.556	0.000	2.034
I 722	0.990	0.451	2.00	10.00	4.556	0.000	2.034
I 723	0.990	0.518	2.00	10.00	4.556	0.000	2.336
I 724	0.990	0.384	2.00	10.00	4.556	0.000	1.732
I 725	0.990	0.384	2.00	10.00	4.556	0.000	1.732
I 726	0.990	1.331	2.00	10.00	4.556	0.000	6.003
I 727	0.990	0.297	2.00	10.00	4.556	0.000	1.339
I 728	0.990	0.317	2.00	10.00	4.556	0.000	1.430
I 729	0.990	1.173	2.00	10.00	4.556	0.000	5.290
I 730	0.990	0.393	2.00	10.00	4.556	0.000	1.772
I 731	0.990	0.393	2.00	10.00	4.556	0.000	1.772
I 732	0.990	0.317	2.00	10.00	4.556	0.000	1.430
I 733	0.990	0.573	2.00	10.00	4.556	0.000	2.584

On-Site Storm Drain
Repipe Highland Ramp Inlets to On-Site Storm Drain
10-year Storm w/ HOV Lanes

I 734	0.990	0.317	2.00	10.00	4.556	0.000	1.430
I 735	0.990	0.637	2.00	10.00	4.556	0.000	2.873
I 736	0.990	0.921	2.00	10.00	4.556	0.000	4.154
I 737	0.990	0.999	2.00	10.00	4.556	0.000	4.505
I 738	0.990	0.221	2.00	10.00	4.556	0.000	0.997
I 739	0.990	0.839	2.00	10.00	4.556	0.000	3.784
I 740	0.990	0.675	2.00	10.00	4.556	0.000	3.044
I 741	0.990	0.618	2.00	10.00	4.556	0.000	2.787
I 742	0.990	0.982	2.00	10.00	4.556	0.000	4.429
I 743	0.990	0.413	2.00	10.00	4.556	0.000	1.863
I 744	0.990	0.400	2.00	10.00	4.556	0.000	1.804
I 745	0.990	0.086	2.00	10.00	4.556	0.000	0.388
I 746	0.990	0.432	2.00	10.00	4.556	0.000	1.948
I 747	0.990	0.451	2.00	10.00	4.556	0.000	2.034

On-Site Storm Drain
Repipe Highland Ramp Inlets to On-Site Storm Drain
10-year Storm w/ HOV Lanes

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 748	0.990	0.413	2.00	10.00	4.556	0.000	1.863
I 749	0.990	0.393	2.00	10.00	4.556	0.000	1.772
I 750	0.990	0.470	2.00	10.00	4.556	0.000	2.120
I 751	0.990	0.499	2.00	10.00	4.556	0.000	2.250
I 752	0.990	0.192	2.00	10.00	4.556	0.000	0.866
I 753	0.990	0.432	2.00	10.00	4.556	0.000	1.948
I 754	0.990	0.686	2.00	10.00	4.556	0.000	3.094
I 755	0.990	0.249	2.00	10.00	4.556	0.000	1.123
I 756	0.990	0.460	2.00	10.00	4.556	0.000	2.075
I 757	0.990	0.096	2.00	10.00	4.556	0.000	0.433
I 758	0.990	0.192	2.00	10.00	4.556	0.000	0.866
I 759	0.990	0.307	2.00	10.00	4.556	0.000	1.385
I 760	0.990	0.259	2.00	10.00	4.556	0.000	1.168
I 761	0.990	0.453	2.00	10.00	4.556	0.000	2.043
I 762	0.990	0.202	2.00	10.00	4.556	0.000	0.911
I 763	0.990	0.336	2.00	10.00	4.556	0.000	1.515
I 764	0.990	0.489	2.00	10.00	4.556	0.000	2.205
I 765	0.990	0.413	2.00	10.00	4.556	0.000	1.863
I 766	0.990	0.125	2.00	10.00	4.556	0.000	0.564
I 767	0.990	0.382	2.00	10.00	4.556	0.000	1.723
I 768	0.990	0.086	2.00	10.00	4.556	0.000	0.388

On-Site Storm Drain
Repipe Highland Ramp Inlets to On-Site Storm Drain
10-year Storm w/ HOV Lanes

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I16	0.000	0.000	0.00	0.000	5.000	5.000
I300	0.990	0.183	10.00	4.556	0.000	0.825
I323	0.990	0.325	10.00	4.556	0.000	1.466
I700	0.990	1.141	10.00	4.556	0.000	5.146
J700	0.990	1.141	10.00	4.556	5.000	10.146
I701	0.990	0.481	10.00	4.556	0.000	2.169
J701	0.990	2.562	10.00	4.556	5.000	16.555
I702	0.990	1.421	10.00	4.556	0.000	6.409
J702	0.990	33.835	15.42	3.691	5.000	128.622
I703	0.990	0.697	10.00	4.556	0.000	3.143
I704	0.990	1.444	10.00	4.556	0.000	6.512
J704	0.990	29.829	15.20	3.718	0.000	109.802
I705	0.990	0.115	10.00	4.556	0.000	0.519
J705	0.990	29.378	14.91	3.756	0.000	109.233
I706	0.990	0.451	10.00	4.556	0.000	2.034
I707	0.990	0.863	10.00	4.556	0.000	3.892
I708	0.990	0.556	10.00	4.556	0.000	2.508
I709	0.990	0.278	10.00	4.556	0.000	1.254
I710	0.990	28.515	14.66	3.790	0.000	106.980
I711	0.990	0.345	10.00	4.556	0.000	1.556
J711	0.990	16.984	10.01	4.554	0.000	76.575
I712	0.990	0.422	10.00	4.556	0.000	1.903
J712	0.990	16.984	10.01	4.554	0.000	76.575
I713	0.990	27.527	14.14	3.861	0.000	105.208
J713	0.990	14.354	10.00	4.556	0.000	64.736
I714	0.990	0.950	10.00	4.556	0.000	4.284
J714	0.990	12.434	10.00	4.556	0.000	56.077
I715	0.990	0.480	10.00	4.556	0.000	2.165
J715	0.990	0.486	10.00	4.556	0.000	2.192
I716	0.990	26.692	13.42	3.963	0.000	104.724
J716	0.990	4.735	10.00	4.556	0.000	21.355
I717	0.990	0.880	10.00	4.556	0.000	3.969
I718	0.990	24.392	12.30	4.138	0.000	99.913
I719	0.990	0.422	10.00	4.556	0.000	1.903
I720	0.990	23.548	11.70	4.238	0.000	98.808
I721	0.990	1.745	10.00	4.556	0.000	7.870
I722	0.990	1.294	10.00	4.556	0.000	5.836
I723	0.990	0.843	10.00	4.556	0.000	3.802
I724	0.990	20.870	11.01	4.362	0.000	90.117
I725	0.990	0.384	10.00	4.556	0.000	1.732
I726	0.990	20.102	10.55	4.447	0.000	88.506
I727	0.990	18.771	10.48	4.461	0.000	82.893
I728	0.990	1.490	10.00	4.556	0.000	6.720

On-Site Storm Drain
Repipe Highland Ramp Inlets to On-Site Storm Drain
10-year Storm w/ HOV Lanes

I729	0.990	1.173	10.00	4.556	0.000	5.290
I730	0.990	16.984	10.01	4.554	0.000	76.575
I731	0.990	0.393	10.00	4.556	0.000	1.772
I732	0.990	16.198	10.00	4.556	0.000	73.053
I733	0.990	0.573	10.00	4.556	0.000	2.584
I734	0.990	0.954	10.00	4.556	0.000	4.303
I735	0.990	0.637	10.00	4.556	0.000	2.873
I736	0.990	0.921	10.00	4.556	0.000	4.154

On-Site Storm Drain
Repipe Highland Ramp Inlets to On-Site Storm Drain
10-year Storm w/ HOV Lanes

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I737	0.990	0.999	10.00	4.556	0.000	4.505
I738	0.990	0.221	10.00	4.556	0.000	0.997
I739	0.990	0.839	10.00	4.556	0.000	3.784
I740	0.990	11.374	10.00	4.556	0.000	51.297
I741	0.990	10.699	10.00	4.556	0.000	48.252
I742	0.990	0.982	10.00	4.556	0.000	4.429
I743	0.990	9.099	10.00	4.556	0.000	41.036
I744	0.990	0.400	10.00	4.556	0.000	1.804
I745	0.990	0.086	10.00	4.556	0.000	0.388
I746	0.990	8.017	10.00	4.556	0.000	36.157
I747	0.990	0.864	10.00	4.556	0.000	3.897
I748	0.990	0.413	10.00	4.556	0.000	1.863
I749	0.990	6.721	10.00	4.556	0.000	30.312
I750	0.990	0.470	10.00	4.556	0.000	2.120
I751	0.990	5.858	10.00	4.556	0.000	26.419
I752	0.990	0.624	10.00	4.556	0.000	2.814
I753	0.990	0.432	10.00	4.556	0.000	1.948
I754	0.990	0.686	10.00	4.556	0.000	3.094
I755	0.990	0.709	10.00	4.556	0.000	3.198
I756	0.990	0.460	10.00	4.556	0.000	2.075
I757	0.990	3.340	10.00	4.556	0.000	15.063
I758	0.990	0.192	10.00	4.556	0.000	0.866
I759	0.990	3.052	10.00	4.556	0.000	13.764
I760	0.990	0.259	10.00	4.556	0.000	1.168
I761	0.990	0.655	10.00	4.556	0.000	2.954
I762	0.990	0.202	10.00	4.556	0.000	0.911
I763	0.990	1.831	10.00	4.556	0.000	8.258
I764	0.990	0.902	10.00	4.556	0.000	4.068
I765	0.990	0.413	10.00	4.556	0.000	1.863
I766	0.990	0.593	10.00	4.556	0.000	2.674
I767	0.990	0.382	10.00	4.556	0.000	1.723
I768	0.990	0.086	10.00	4.556	0.000	0.388

On-Site Storm Drain
Repipe Highland Ramp Inlets to On-Site Storm Drain
10-year Storm w/ HOV Lanes

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
300	I300	I743	1145.010	1144.610	Circ	1	n/a	1.250	6.00	6.682	0.012
323	I323	I723	1134.110	1125.040	Circ	1	n/a	1.250	31.00	30.597	0.012
333	I727	I726	1112.850	1112.480	Circ	1	n/a	3.000	50.00	0.740	0.012
336	J712	J711	1126.340	1113.690	Circ	1	n/a	3.000	48.00	27.320	0.012
337	I730	J712	1127.720	1126.340	Circ	1	n/a	3.000	186.00	0.742	0.012
500	I16	J700	1133.520	1128.000	Circ	1	n/a	2.000	320.00	1.725	0.013
700	I700	J700	1128.600	1127.990	Circ	1	n/a	1.250	54.00	1.130	0.012
701	I701	I700	1129.170	1128.700	Circ	1	n/a	1.250	68.50	0.686	0.012
702	J700	J701	1127.740	1119.310	Circ	1	n/a	1.500	305.00	2.765	0.012
703	I702	J701	1122.000	1119.450	Circ	1	n/a	1.250	90.00	2.834	0.012
704	I703	I702	1122.190	1120.940	Circ	1	n/a	1.250	55.00	2.273	0.012
705	J701	J702	1119.310	1114.100	Circ	1	n/a	1.500	189.00	2.758	0.012
706	J702	J703	1103.280	1103.150	Circ	1	n/a	4.000	46.00	0.283	0.012
707	I704	J702	1118.970	1114.360	Circ	1	n/a	1.250	56.00	8.260	0.012
708	J704	J702	1103.660	1103.380	Circ	1	n/a	4.000	117.00	0.239	0.012
709	I706	J704	1117.060	1104.040	Circ	1	n/a	1.250	79.00	16.710	0.012
710	I705	I706	1118.500	1117.560	Circ	1	n/a	1.250	10.00	9.442	0.012
711	J705	J704	1104.030	1103.660	Circ	1	n/a	4.000	155.00	0.239	0.012
712	I707	J705	1116.790	1105.410	Circ	1	n/a	1.250	50.00	23.373	0.012
713	I708	I707	1117.570	1116.950	Circ	1	n/a	1.250	26.00	2.385	0.012
714	I709	I708	1118.400	1117.820	Circ	1	n/a	1.250	26.00	2.231	0.012
715	I710	J705	1104.350	1104.030	Circ	1	n/a	4.000	134.00	0.239	0.012
716	I711	I710	1115.560	1107.510	Circ	1	n/a	1.250	20.00	43.969	0.012
717	I713	I710	1104.890	1104.500	Circ	1	n/a	4.000	268.00	0.146	0.012
718	I712	I713	1119.420	1117.870	Circ	1	n/a	1.250	51.00	3.041	0.012
720	I716	I713	1105.620	1104.890	Circ	1	n/a	4.000	366.00	0.199	0.012
721	I714	I716	1120.590	1117.760	Circ	1	n/a	1.250	98.00	2.889	0.012
722	I715	I714	1120.890	1120.690	Circ	1	n/a	1.250	11.00	1.818	0.012
723	I717	I716	1119.480	1105.620	Circ	1	n/a	1.250	20.00	96.125	0.012
724	I718	I716	1106.720	1105.620	Circ	1	n/a	4.000	550.00	0.200	0.012
725	I719	I718	1122.200	1120.700	Circ	1	n/a	1.250	98.00	1.531	0.012
726	I720	I718	1108.900	1107.220	Circ	1	n/a	3.500	381.00	0.441	0.012
727	I721	I720	1121.960	1120.300	Circ	1	n/a	1.250	10.00	16.834	0.012
728	I722	I721	1123.960	1122.210	Circ	1	n/a	1.250	100.00	1.750	0.012
729	I723	I722	1125.040	1124.210	Circ	1	n/a	1.250	25.00	3.322	0.012
730	I724	I720	1110.660	1108.900	Circ	1	n/a	3.500	400.00	0.440	0.012
731	I725	I724	1125.850	1123.950	Circ	1	n/a	1.250	98.00	1.939	0.012
732	I726	I724	1112.230	1110.910	Circ	1	n/a	3.250	300.00	0.440	0.012
733	I728	I727	1127.560	1126.560	Circ	1	n/a	1.250	98.00	1.020	0.012
734	I729	I728	1127.890	1127.660	Circ	1	n/a	1.250	10.00	2.301	0.012
735	J711	I727	1113.660	1112.850	Circ	1	n/a	3.000	117.00	0.692	0.012
736	I731	I730	1130.560	1129.160	Circ	1	n/a	1.250	98.00	1.429	0.012
737	I732	I730	1130.560	1127.970	Circ	1	n/a	2.750	350.00	0.740	0.012

On-Site Storm Drain
Repipe Highland Ramp Inlets to On-Site Storm Drain
10-year Storm w/ HOV Lanes

738	I733	I732	1137.450	1131.310	Circ	1	n/a	1.250	64.00	9.638	0.012
739	I734	I732	1132.620	1131.310	Circ	1	n/a	1.250	108.00	1.213	0.012
740	I735	I734	1137.020	1133.120	Circ	1	n/a	1.250	88.00	4.436	0.012
741	J713	I732	1131.990	1131.310	Circ	1	n/a	2.750	285.00	0.239	0.012
742	I736	J713	1134.170	1132.740	Circ	1	n/a	1.250	29.00	4.937	0.012
743	I737	J713	1134.540	1132.740	Circ	1	n/a	1.250	165.00	1.091	0.012
744	J714	J713	1133.020	1131.990	Circ	1	n/a	2.750	206.00	0.500	0.012
745	I738	J714	1136.210	1134.520	Circ	1	n/a	1.250	23.00	7.368	0.012

On-Site Storm Drain
Repipe Highland Ramp Inlets to On-Site Storm Drain
10-year Storm w/ HOV Lanes

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
746	I739	J714	1136.210	1134.520	Circ	1	n/a	1.250	154.00	1.097	0.012
747	I740	J714	1134.400	1130.520	Circ	1	n/a	2.500	113.00	3.436	0.012
748	I741	I740	1138.170	1134.400	Circ	1	n/a	2.500	334.00	1.129	0.012
749	I742	I741	1140.510	1138.920	Circ	1	n/a	1.250	153.00	1.039	0.012
750	I743	I741	1143.360	1138.170	Circ	1	n/a	2.500	273.00	1.901	0.012
751	J715	I743	1145.780	1144.610	Circ	1	n/a	1.250	85.00	1.377	0.012
752	I744	J715	1146.790	1145.780	Circ	1	n/a	1.250	65.00	1.554	0.012
753	I745	J715	1147.000	1145.780	Circ	1	n/a	1.250	57.00	2.141	0.012
754	I746	I743	1147.590	1144.360	Circ	1	n/a	2.500	255.00	1.267	0.012
755	I747	I746	1155.720	1154.400	Circ	1	n/a	1.250	75.00	1.760	0.012
756	I748	I747	1157.220	1155.720	Circ	1	n/a	1.250	16.00	9.416	0.012
757	I749	I746	1148.900	1147.990	Circ	1	n/a	2.000	300.00	0.303	0.012
758	I750	I749	1165.870	1163.360	Circ	1	n/a	1.250	90.00	2.790	0.012
759	I751	I749	1149.790	1148.900	Circ	1	n/a	2.000	300.00	0.297	0.012
760	I752	I751	1169.180	1150.160	Circ	1	n/a	1.250	54.00	37.634	0.012
761	I753	I752	1170.560	1169.280	Circ	1	n/a	1.250	16.00	8.026	0.012
762	J716	I751	1150.470	1149.780	Circ	1	n/a	2.000	300.00	0.230	0.012
763	I754	J716	1169.000	1150.470	Circ	1	n/a	1.250	43.00	47.755	0.012
764	I755	J716	1169.430	1150.930	Circ	1	n/a	1.250	153.00	12.181	0.012
765	I756	I755	1169.930	1169.430	Circ	1	n/a	1.250	10.00	5.006	0.012
766	I757	J716	1150.890	1150.550	Circ	1	n/a	2.000	115.00	0.296	0.012
767	I758	I757	1170.780	1168.020	Circ	1	n/a	1.250	30.00	9.239	0.012
768	I759	I757	1151.780	1150.890	Circ	1	n/a	2.000	300.00	0.297	0.012
769	I760	I759	1179.530	1163.730	Circ	1	n/a	1.250	56.00	29.409	0.012
770	I761	I759	1164.880	1163.820	Circ	1	n/a	1.250	127.00	0.835	0.012
771	I762	I761	1177.880	1164.980	Circ	1	n/a	1.250	38.00	36.091	0.012
772	I763	I759	1152.660	1151.780	Circ	1	n/a	2.000	300.00	0.293	0.012
773	I764	I763	1160.490	1159.890	Circ	1	n/a	1.250	60.00	1.000	0.012
774	I765	I764	1161.090	1160.490	Circ	1	n/a	1.250	60.00	1.000	0.012
775	I766	I763	1153.030	1152.660	Circ	1	n/a	2.000	125.00	0.296	0.012
776	I767	I766	1159.150	1159.000	Circ	1	n/a	1.250	8.00	1.875	0.012
777	I768	I766	1159.730	1159.490	Circ	1	n/a	1.250	60.00	0.400	0.012

On-Site Storm Drain
Repipe Highland Ramp Inlets to On-Site Storm Drain
10-year Storm w/ HOV Lanes

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
300	1166.483	1166.478	0.01	0.182	1.250	7.46	0.67	0.825	18.089	0.004
323	1134.921	1134.896	0.04	0.167	1.250	15.15	1.19	1.466	38.710	0.011
333	1140.436	1139.564	1.32	3.000	3.000	12.04	11.73	82.893	62.158	0.214
336	1142.836	1142.115	1.12	0.916	3.000	41.86	10.83	76.575	377.675	0.182
337	1145.290	1142.836	1.12	3.000	3.000	11.12	10.83	76.575	62.240	0.365
500	1134.075	1129.513	0.05	0.555	1.513	7.03	1.96	5.000	29.714	0.000
700	1129.941	1129.513	0.54	0.765	1.250	6.54	4.19	5.146	7.438	0.137
701	1130.031	1129.941	0.10	0.531	1.241	4.36	1.77	2.169	5.797	0.024
702	1129.513	1126.319	0.79	0.782	1.500	10.89	5.74	10.146	18.922	0.768
703	1127.413	1126.319	0.84	0.657	1.250	9.80	5.22	6.409	11.782	0.339
704	1127.575	1127.413	0.20	0.467	1.250	7.51	2.56	3.143	10.551	0.051
705	1126.319	1121.501	2.12	1.088	1.500	12.05	9.37	16.555	18.897	0.818
706	1121.501	1115.000	0.68	4.000	4.000	10.51	10.24	128.622	82.726	6.187
707	1122.205	1121.501	0.87	0.490	1.250	14.64	5.31	6.512	20.113	0.219
708	1122.321	1121.501	0.50	4.000	4.000	8.97	8.74	109.802	76.126	0.237
709	1122.422	1122.321	0.08	0.226	1.250	13.49	1.66	2.034	28.606	0.034
710	1122.424	1122.422	0.01	0.133	1.250	7.33	0.42	0.519	21.503	0.001
711	1123.320	1122.321	0.49	4.000	4.000	8.92	8.69	109.233	76.030	0.235
712	1123.599	1123.320	0.31	0.286	1.250	18.47	3.17	3.892	33.833	0.125
713	1123.685	1123.599	0.13	0.410	1.250	7.16	2.04	2.508	10.808	0.052
714	1123.701	1123.685	0.03	0.292	1.250	5.75	1.02	1.254	10.454	0.008
715	1124.066	1123.320	0.47	4.000	4.000	8.74	8.51	106.980	76.045	0.113
716	1124.088	1124.066	0.05	0.156	1.250	17.47	1.27	1.556	46.404	0.012
717	1125.400	1124.066	0.46	4.000	4.000	8.59	8.37	105.208	59.363	0.109
718	1125.456	1125.400	0.07	0.334	1.250	7.25	1.55	1.903	12.203	0.019
720	1127.165	1125.400	0.45	4.000	4.000	8.56	8.33	104.724	69.497	0.108
721	1127.684	1127.165	0.37	0.519	1.250	8.90	3.49	4.284	11.895	0.152
722	1127.719	1127.684	0.10	0.408	1.250	6.23	1.76	2.165	9.437	0.024
723	1127.311	1127.165	0.32	0.204	1.250	30.22	3.23	3.969	68.612	0.081
724	1129.629	1127.165	0.41	4.000	4.000	8.16	7.95	99.913	69.593	0.196
725	1129.720	1129.629	0.07	0.399	1.250	5.65	1.55	1.903	8.658	0.019
726	1133.088	1129.629	0.82	3.500	3.500	10.54	10.27	98.808	72.376	0.328
727	1133.726	1133.088	1.26	0.447	1.250	19.92	6.41	7.870	28.712	0.511
728	1134.703	1133.726	0.70	0.719	1.250	7.98	4.76	5.836	9.258	0.281
729	1134.896	1134.703	0.30	0.468	1.250	9.05	3.10	3.802	12.755	0.119
730	1136.096	1133.088	0.68	3.500	3.500	9.62	9.37	90.117	72.299	0.273
731	1136.171	1136.096	0.06	0.357	1.250	6.01	1.41	1.732	9.745	0.015
732	1139.564	1136.096	0.98	3.250	3.250	10.95	10.67	88.506	59.334	0.531
733	1141.712	1140.436	0.92	0.971	1.250	6.57	5.48	6.720	7.069	0.373
734	1141.914	1141.712	0.57	0.624	1.250	8.64	4.31	5.290	10.615	0.144
735	1142.115	1140.436	1.12	3.000	3.000	11.12	10.83	76.575	60.122	0.365
736	1145.369	1145.290	0.06	0.391	1.250	5.41	1.44	1.772	8.365	0.016
737	1151.451	1145.290	1.63	2.750	2.750	12.63	12.30	73.053	49.287	0.470

On-Site Storm Drain
Repipe Highland Ramp Inlets to On-Site Storm Drain
10-year Storm w/ HOV Lanes

738	1151.573	1151.451	0.14	0.291	1.250	11.85	2.11	2.584	21.726	0.034
739	1152.012	1151.451	0.38	0.669	1.250	6.44	3.51	4.303	7.708	0.153
740	1152.203	1152.012	0.17	0.374	1.250	9.30	2.34	2.873	14.740	0.043
741	1155.459	1151.451	1.28	2.750	2.750	11.19	10.90	64.736	27.986	0.369
742	1155.650	1155.459	0.35	0.441	1.250	10.74	3.38	4.154	15.549	0.089
743	1156.248	1155.459	0.41	0.710	1.250	6.26	3.67	4.505	7.310	0.105
744	1157.848	1155.459	0.96	2.750	2.750	9.69	9.44	56.077	40.513	0.416
745	1157.858	1157.848	0.02	0.194	1.250	8.25	0.81	0.997	18.995	0.005

On-Site Storm Drain
Repipe Highland Ramp Inlets to On-Site Storm Drain
10-year Storm w/ HOV Lanes

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	Hydraulic Gradeline DS Elev	Slope (%)	Depth Unif. (ft)	Depth Actual (ft)	Velocity Unif. (fps)	Velocity Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
746	1158.372	1157.848	0.29	0.637	1.250	6.02	3.08	3.784	7.331	0.074
747	1159.694	1157.848	1.33	1.429	2.500	17.68	10.45	51.297	82.363	0.339
748	1163.933	1159.694	1.18	2.107	2.500	10.93	9.83	48.252	47.211	0.300
749	1164.647	1163.933	0.40	0.715	1.250	6.11	3.61	4.429	7.134	0.101
750	1166.478	1163.933	0.85	1.498	2.500	13.37	8.36	41.036	61.273	0.217
751	1166.601	1166.478	0.10	0.441	1.250	5.67	1.79	2.192	8.211	0.040
752	1166.661	1166.601	0.07	0.386	1.250	5.60	1.47	1.804	8.724	0.017
753	1166.604	1166.601	0.00	0.166	1.250	4.01	0.32	0.388	10.239	0.001
754	1168.588	1166.478	0.66	1.576	2.500	11.09	7.37	36.157	50.012	0.422
755	1168.946	1168.588	0.31	0.566	1.250	7.22	3.18	3.897	9.285	0.125
756	1168.976	1168.946	0.07	0.249	1.250	10.75	1.52	1.863	21.475	0.018
757	1174.046	1168.588	1.53	2.000	2.000	9.91	9.65	30.312	13.498	0.868
758	1174.152	1174.046	0.09	0.361	1.250	7.22	1.73	2.120	11.689	0.023
759	1178.192	1174.046	1.16	2.000	2.000	8.64	8.41	26.419	13.349	0.659
760	1178.345	1178.192	0.16	0.217	1.250	19.81	2.29	2.814	42.931	0.065
761	1178.377	1178.345	0.08	0.265	1.250	10.29	1.59	1.948	19.825	0.020
762	1180.901	1178.192	0.76	2.000	2.000	6.98	6.80	21.355	11.753	0.431
763	1181.034	1180.901	0.20	0.215	1.250	22.12	2.52	3.094	48.360	0.049
764	1181.305	1180.901	0.21	0.305	1.250	13.74	2.61	3.198	24.424	0.084
765	1181.336	1181.305	0.09	0.307	1.250	8.82	1.69	2.075	15.658	0.022
766	1181.550	1180.901	0.38	2.000	2.000	4.92	4.79	15.063	13.326	0.214
767	1181.558	1181.550	0.02	0.172	1.250	8.44	0.71	0.866	21.271	0.004
768	1182.675	1181.550	0.32	1.700	2.000	4.84	4.38	13.764	13.349	0.179
769	1182.698	1182.675	0.03	0.151	1.250	14.00	0.95	1.168	37.951	0.007
770	1182.974	1182.675	0.18	0.596	1.250	5.12	2.41	2.954	6.394	0.072
771	1182.984	1182.974	0.02	0.128	1.250	13.92	0.74	0.911	42.041	0.004
772	1183.080	1182.675	0.11	1.143	2.000	4.45	2.63	8.258	13.273	0.064
773	1183.419	1183.080	0.34	0.683	1.250	5.93	3.31	4.068	6.998	0.137
774	1183.479	1183.419	0.07	0.440	1.250	4.83	1.52	1.863	6.998	0.018
775	1183.107	1183.080	0.01	0.608	2.000	3.31	0.85	2.674	13.334	0.017
776	1183.127	1183.107	0.06	0.358	1.250	5.92	1.40	1.723	9.583	0.015
777	1183.109	1183.107	0.00	0.250	1.250	2.22	0.32	0.388	4.426	0.001

On-Site Storm Drain
Repipe Highland Ramp Inlets to On-Site Storm Drain
10-year Storm w/ HOV Lanes

Computation Messages

---

*Warning: Decreasing Conduit Size - Downstream Run 702 was adjusted.
*Warning: Discharge decreased downstream Junction J712 - previous intensity used
*Warning: Discharge decreased downstream Junction J711 - previous intensity used
*Warning: Run - 712 - Upstream Hydraulic Gradeline = 1123.60 - Exceeds Critical Elevation = 1120.79 was 1123.10
*Warning: Run - 715 - Upstream Hydraulic Gradeline = 1124.07 - Exceeds Critical Elevation = 1119.30 was 1123.57
*Warning: Run - 717 - Upstream Hydraulic Gradeline = 1125.40 - Exceeds Critical Elevation = 1120.37 was 1124.90
*Warning: Run - 726 - Upstream Hydraulic Gradeline = 1133.09 - Exceeds Critical Elevation = 1127.46 was 1132.59
*Warning: Run - 333 - Upstream Hydraulic Gradeline = 1140.44 - Exceeds Critical Elevation = 1131.06 was 1139.94
*Warning: Run - 337 - Upstream Hydraulic Gradeline = 1145.29 - Exceeds Critical Elevation = 1133.56 was 1144.79
*Warning: Run - 747 - Upstream Hydraulic Gradeline = 1159.69 - Exceeds Critical Elevation = 1139.85 was 1159.20
*Warning: Run - 754 - Upstream Hydraulic Gradeline = 1168.59 - Exceeds Critical Elevation = 1157.94 was 1168.02
*Warning: Run - 766 - Upstream Hydraulic Gradeline = 1181.55 - Exceeds Critical Elevation = 1173.04 was 1181.05
*Warning: Run - 775 - Upstream Hydraulic Gradeline = 1183.11 - Exceeds Critical Elevation = 1162.28 was 1182.61
*Computation: Run = 300 - Pipe Flowing Full
*Computation: Run = 323 - Pipe Flowing Full
*Computation: Run = 333 - Insufficient Capacity
*Computation: Run = 336 - Pipe Flowing Full
*Computation: Run = 337 - Insufficient Capacity
*Computation: Run = 700 - Pipe Flowing Full
*Computation: Run = 701 - Pipe Flowing Full
*Computation: Run = 702 - Pipe Flowing Full
*Computation: Run = 703 - Pipe Flowing Full
*Computation: Run = 704 - Pipe Flowing Full
*Computation: Run = 705 - Pipe Flowing Full
*Computation: Run = 706 - Insufficient Capacity
*Computation: Run = 707 - Pipe Flowing Full
*Computation: Run = 708 - Insufficient Capacity
*Computation: Run = 709 - Pipe Flowing Full
*Computation: Run = 710 - Pipe Flowing Full
*Computation: Run = 711 - Insufficient Capacity
*Computation: Run = 712 - Pipe Flowing Full
*Computation: Run = 713 - Pipe Flowing Full
*Computation: Run = 714 - Pipe Flowing Full
*Computation: Run = 715 - Insufficient Capacity
*Computation: Run = 716 - Pipe Flowing Full
*Computation: Run = 717 - Insufficient Capacity
*Computation: Run = 718 - Pipe Flowing Full

On-Site Storm Drain
Repipe Highland Ramp Inlets to On-Site Storm Drain
10-year Storm w/ HOV Lanes

```
*Computation: Run = 720 - Insufficient Capacity
*Computation: Run = 721 - Pipe Flowing Full
*Computation: Run = 722 - Pipe Flowing Full
*Computation: Run = 723 - Pipe Flowing Full
*Computation: Run = 724 - Insufficient Capacity
*Computation: Run = 725 - Pipe Flowing Full
*Computation: Run = 726 - Insufficient Capacity
*Computation: Run = 727 - Pipe Flowing Full
*Computation: Run = 728 - Pipe Flowing Full
*Computation: Run = 729 - Pipe Flowing Full
*Computation: Run = 730 - Insufficient Capacity
*Computation: Run = 731 - Pipe Flowing Full
*Computation: Run = 732 - Insufficient Capacity
*Computation: Run = 733 - Pipe Flowing Full
*Computation: Run = 734 - Pipe Flowing Full
*Computation: Run = 735 - Insufficient Capacity
*Computation: Run = 736 - Pipe Flowing Full
*Computation: Run = 737 - Insufficient Capacity
*Computation: Run = 738 - Pipe Flowing Full
*Computation: Run = 739 - Pipe Flowing Full
*Computation: Run = 740 - Pipe Flowing Full
*Computation: Run = 741 - Insufficient Capacity
*Computation: Run = 742 - Pipe Flowing Full
*Computation: Run = 743 - Pipe Flowing Full
*Computation: Run = 744 - Insufficient Capacity
*Computation: Run = 745 - Pipe Flowing Full
*Computation: Run = 746 - Pipe Flowing Full
*Computation: Run = 747 - Pipe Flowing Full
*Computation: Run = 748 - Insufficient Capacity
*Computation: Run = 749 - Pipe Flowing Full
*Computation: Run = 750 - Pipe Flowing Full
*Computation: Run = 751 - Pipe Flowing Full
*Computation: Run = 752 - Pipe Flowing Full
*Computation: Run = 753 - Pipe Flowing Full
*Computation: Run = 754 - Pipe Flowing Full
*Computation: Run = 755 - Pipe Flowing Full
*Computation: Run = 756 - Pipe Flowing Full
*Computation: Run = 757 - Insufficient Capacity
*Computation: Run = 758 - Pipe Flowing Full
*Computation: Run = 759 - Insufficient Capacity
*Computation: Run = 760 - Pipe Flowing Full
*Computation: Run = 761 - Pipe Flowing Full
*Computation: Run = 762 - Insufficient Capacity
*Computation: Run = 763 - Pipe Flowing Full
*Computation: Run = 764 - Pipe Flowing Full
*Computation: Run = 765 - Pipe Flowing Full
*Computation: Run = 766 - Insufficient Capacity
*Computation: Run = 767 - Pipe Flowing Full
*Computation: Run = 768 - Insufficient Capacity
*Computation: Run = 769 - Pipe Flowing Full
*Computation: Run = 770 - Pipe Flowing Full
*Computation: Run = 771 - Pipe Flowing Full
*Computation: Run = 772 - Pipe Flowing Full
*Computation: Run = 773 - Pipe Flowing Full
*Computation: Run = 774 - Pipe Flowing Full
```

On-Site Storm Drain
Repipe Highland Ramp Inlets to On-Site Storm Drain
10-year Storm w/ HOV Lanes

*Computation: Run = 776 - Pipe Flowing Full
*Computation: Run = 777 - Pipe Flowing Full

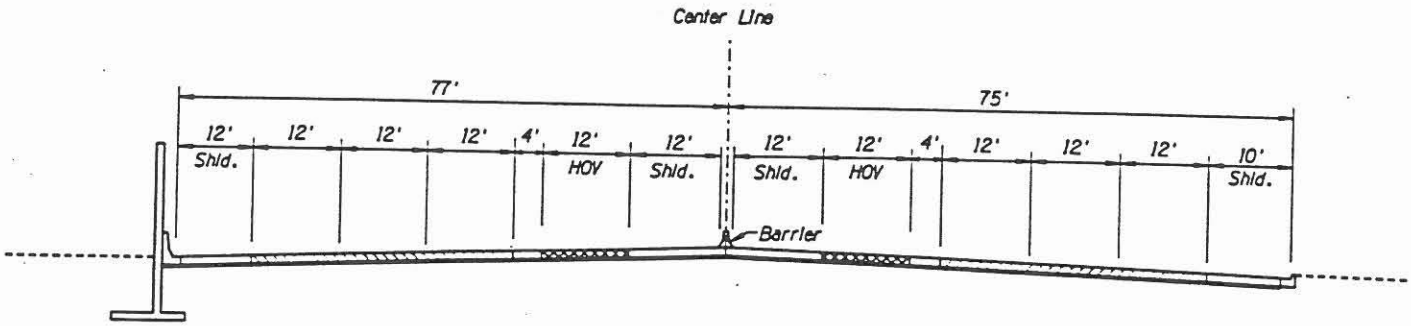
NORMAL Completion of WinStorm.

SECTION 7.1 HOV OVERVIEW

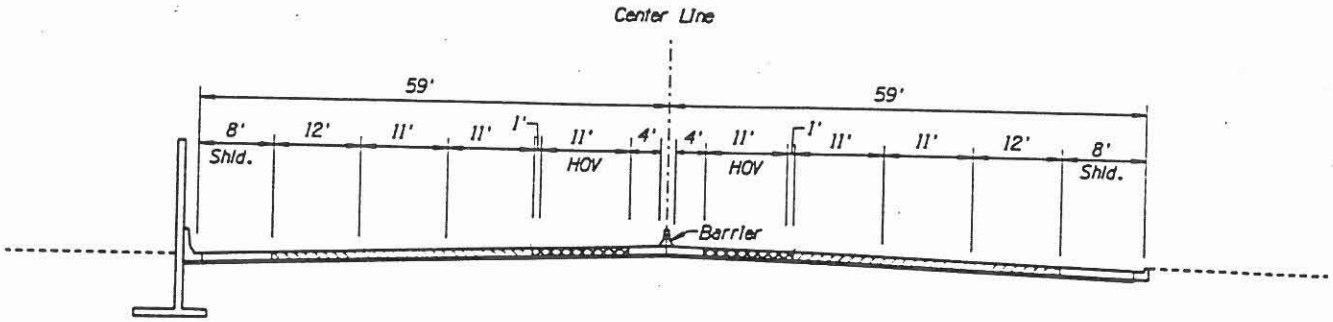
Proposed HOV Lane Configurations

Concept 1
Left Side HOV Lane

Figure 3



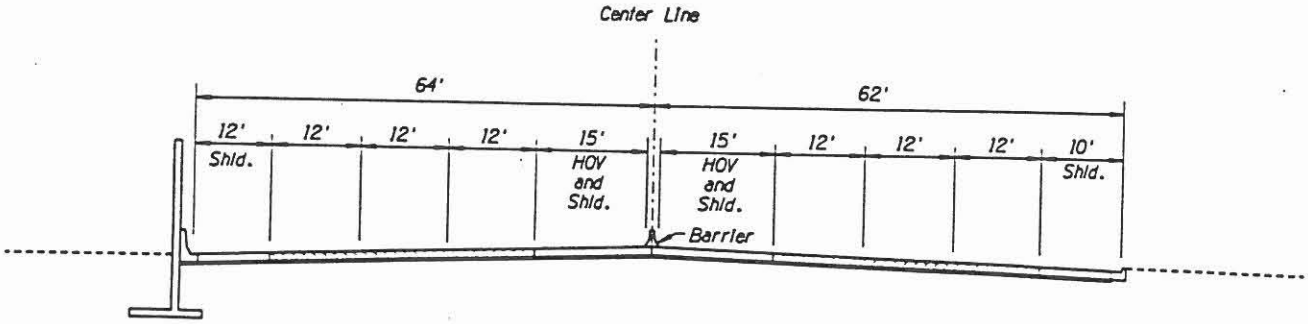
CONCEPT 1 – LEFT SIDE HOV LANE
FULL STANDARD



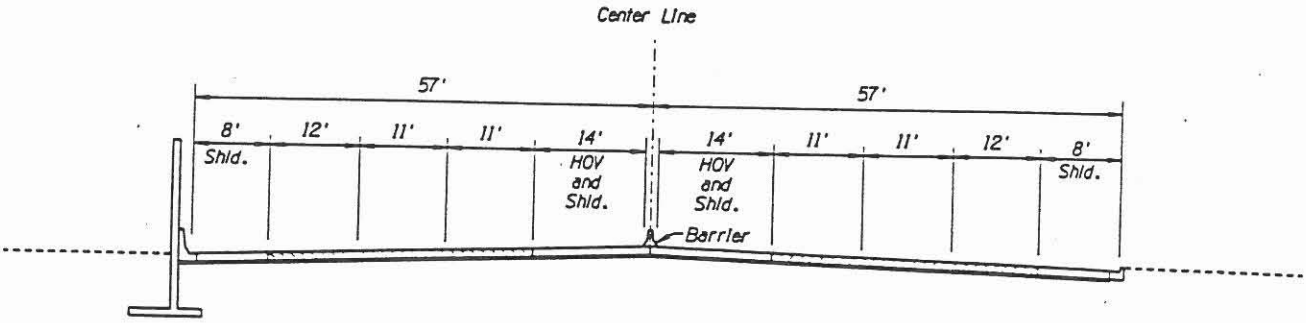
CONCEPT 1 – LEFT SIDE HOV LANE
MINIMUM NON-STANDARD

Reprinted with permission
Stanley Consultants, Inc.
S.R. 51 HOV Study
Alternatives Selection Report

Concept 2
Left Side HOV Lane
(Shoulder Usage)
Figure 4



CONCEPT 2 – LEFT SIDE HOV LANE (SHOULDER USAGE)
FULL STANDARD



CONCEPT 2 – LEFT SIDE HOV LANE (SHOULDER USAGE)
MINIMUM NON-STANDARD

Reprinted with permission
Stanley Consultants, Inc.
S.R. 51 HOV Study
Alternatives Selection Report

SECTION 7.2 HOV IMPACT ON ON-SITE STORM DRAIN

On-Site Storm Drain

Winstorm Models- 10, 25 and 50-Year Storms

Inlet Calculations- 10-Year and 50- Year Storms

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 1
Wed Apr 15 07:54:10 1998

JOB CONTROL : CONT
JOB SECTION : SEC
JOB NUMBER : JOB
PROJECT DESCRIPTION : SR51 DRAINAGE ASSESSMENT
ANALYSYS FREQUENCY : 10 Year
MEASUREMENT UNITS: Input ENGLISH Output ENGLISH

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 300	0.990	0.183	2.00	10.00	4.556	0.000	0.825
I 323	0.990	0.325	2.00	10.00	4.556	0.000	1.466
I 700	0.990	0.660	2.00	10.00	4.556	0.000	2.977
I 701	0.990	0.481	2.00	10.00	4.556	0.000	2.169
I 702	0.990	0.724	2.00	10.00	4.556	0.000	3.265
I 703	0.990	0.697	2.00	10.00	4.556	0.000	3.143
I 704	0.990	1.444	2.00	10.00	4.556	0.000	6.512
I 705	0.990	0.115	2.00	10.00	4.556	0.000	0.519
I 706	0.990	0.336	2.00	10.00	4.556	0.000	1.515
I 707	0.990	0.307	2.00	10.00	4.556	0.000	1.385
I 708	0.990	0.278	2.00	10.00	4.556	0.000	1.254
I 709	0.990	0.278	2.00	10.00	4.556	0.000	1.254
I 710	0.990	0.643	2.00	10.00	4.556	0.000	2.900
I 711	0.990	0.345	2.00	10.00	4.556	0.000	1.556
I 712	0.990	0.422	2.00	10.00	4.556	0.000	1.903
I 713	0.990	0.413	2.00	10.00	4.556	0.000	1.863
I 714	0.990	0.470	2.00	10.00	4.556	0.000	2.120
I 715	0.990	0.480	2.00	10.00	4.556	0.000	2.165
I 716	0.990	0.470	2.00	10.00	4.556	0.000	2.120
I 717	0.990	0.880	2.00	10.00	4.556	0.000	3.969
I 718	0.990	0.422	2.00	10.00	4.556	0.000	1.903
I 719	0.990	0.422	2.00	10.00	4.556	0.000	1.903
I 720	0.990	0.933	2.00	10.00	4.556	0.000	4.208
I 721	0.990	0.451	2.00	10.00	4.556	0.000	2.034
I 722	0.990	0.451	2.00	10.00	4.556	0.000	2.034
I 723	0.990	0.518	2.00	10.00	4.556	0.000	2.336
I 724	0.990	0.384	2.00	10.00	4.556	0.000	1.732
I 725	0.990	0.384	2.00	10.00	4.556	0.000	1.732
I 726	0.990	1.331	2.00	10.00	4.556	0.000	6.003
I 727	0.990	0.297	2.00	10.00	4.556	0.000	1.339
I 728	0.990	0.317	2.00	10.00	4.556	0.000	1.430
I 729	0.990	1.173	2.00	10.00	4.556	0.000	5.290
I 730	0.990	0.393	2.00	10.00	4.556	0.000	1.772
I 731	0.990	0.393	2.00	10.00	4.556	0.000	1.772
I 732	0.990	0.317	2.00	10.00	4.556	0.000	1.430
I 733	0.990	0.573	2.00	10.00	4.556	0.000	2.584
I 734	0.990	0.317	2.00	10.00	4.556	0.000	1.430
I 735	0.990	0.637	2.00	10.00	4.556	0.000	2.873
I 736	0.990	0.921	2.00	10.00	4.556	0.000	4.154

I 737	0.990	0.999	2.00	10.00	4.556	0.000	4.505
I 738	0.990	0.221	2.00	10.00	4.556	0.000	0.997
I 739	0.990	0.839	2.00	10.00	4.556	0.000	3.784
I 740	0.990	0.675	2.00	10.00	4.556	0.000	3.044
I 741	0.990	0.618	2.00	10.00	4.556	0.000	2.787
I 742	0.990	0.982	2.00	10.00	4.556	0.000	4.429
I 743	0.990	0.413	2.00	10.00	4.556	0.000	1.863
I 744	0.990	0.400	2.00	10.00	4.556	0.000	1.804
I 745	0.990	0.086	2.00	10.00	4.556	0.000	0.388
I 746	0.990	0.432	2.00	10.00	4.556	0.000	1.948
I 747	0.990	0.451	2.00	10.00	4.556	0.000	2.034
I 748	0.990	0.413	2.00	10.00	4.556	0.000	1.863

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 2
Wed Apr 15 07:54:10 1998

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 749	0.990	0.393	2.00	10.00	4.556	0.000	1.772
I 750	0.990	0.470	2.00	10.00	4.556	0.000	2.120
I 751	0.990	0.499	2.00	10.00	4.556	0.000	2.250
I 752	0.990	0.192	2.00	10.00	4.556	0.000	0.866
I 753	0.990	0.432	2.00	10.00	4.556	0.000	1.948
I 754	0.990	0.686	2.00	10.00	4.556	0.000	3.094
I 755	0.990	0.249	2.00	10.00	4.556	0.000	1.123
I 756	0.990	0.460	2.00	10.00	4.556	0.000	2.075
I 757	0.990	0.096	2.00	10.00	4.556	0.000	0.433
I 758	0.990	0.192	2.00	10.00	4.556	0.000	0.866
I 759	0.990	0.307	2.00	10.00	4.556	0.000	1.385
I 760	0.990	0.259	2.00	10.00	4.556	0.000	1.168
I 761	0.990	0.453	2.00	10.00	4.556	0.000	2.043
I 762	0.990	0.202	2.00	10.00	4.556	0.000	0.911
I 763	0.990	0.336	2.00	10.00	4.556	0.000	1.515
I 764	0.990	0.489	2.00	10.00	4.556	0.000	2.205
I 765	0.990	0.413	2.00	10.00	4.556	0.000	1.863
I 766	0.990	0.125	2.00	10.00	4.556	0.000	0.564
I 767	0.990	0.382	2.00	10.00	4.556	0.000	1.723
I 768	0.990	0.086	2.00	10.00	4.556	0.000	0.388

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 3
Wed Apr 15 07:54:11 1998

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I300	0.990	0.183	10.00	4.556	0.000	0.825
I323	0.990	0.325	10.00	4.556	0.000	1.466
I700	0.990	1.141	10.00	4.556	0.000	5.146
J700	0.990	1.141	10.00	4.556	0.000	5.146
I701	0.990	0.481	10.00	4.556	0.000	2.169
J701	0.990	2.562	10.00	4.556	0.000	11.555
I702	0.990	1.421	10.00	4.556	0.000	6.409
J702	0.990	33.835	15.42	3.691	0.000	123.622
I703	0.990	0.697	10.00	4.556	0.000	3.143
I704	0.990	1.444	10.00	4.556	0.000	6.512
J704	0.990	29.829	15.20	3.718	0.000	109.802
I705	0.990	0.115	10.00	4.556	0.000	0.519
J705	0.990	29.378	14.91	3.756	0.000	109.233
I706	0.990	0.451	10.00	4.556	0.000	2.034
I707	0.990	0.863	10.00	4.556	0.000	3.892
I708	0.990	0.556	10.00	4.556	0.000	2.508
I709	0.990	0.278	10.00	4.556	0.000	1.254
I710	0.990	28.515	14.66	3.790	0.000	106.980
I711	0.990	0.345	10.00	4.556	0.000	1.556
J711	0.990	16.984	10.01	4.554	0.000	76.575
I712	0.990	0.422	10.00	4.556	0.000	1.903
J712	0.990	16.984	10.01	4.554	0.000	76.575
I713	0.990	27.527	14.14	3.861	0.000	105.208
J713	0.990	14.354	10.00	4.556	0.000	64.736
I714	0.990	0.950	10.00	4.556	0.000	4.284
J714	0.990	12.434	10.00	4.556	0.000	56.077
I715	0.990	0.480	10.00	4.556	0.000	2.165
J715	0.990	0.486	10.00	4.556	0.000	2.192
I716	0.990	26.692	13.42	3.963	0.000	104.724
J716	0.990	4.735	10.00	4.556	0.000	21.355
I717	0.990	0.880	10.00	4.556	0.000	3.969
I718	0.990	24.392	12.30	4.138	0.000	99.913
I719	0.990	0.422	10.00	4.556	0.000	1.903
I720	0.990	23.548	11.70	4.238	0.000	98.808
I721	0.990	1.745	10.00	4.556	0.000	7.870
I722	0.990	1.294	10.00	4.556	0.000	5.836
I723	0.990	0.843	10.00	4.556	0.000	3.802
I724	0.990	20.870	11.01	4.362	0.000	90.117
I725	0.990	0.384	10.00	4.556	0.000	1.732
I726	0.990	20.102	10.55	4.447	0.000	88.506
I727	0.990	18.771	10.48	4.461	0.000	82.893
I728	0.990	1.490	10.00	4.556	0.000	6.720
I729	0.990	1.173	10.00	4.556	0.000	5.290
I730	0.990	16.984	10.01	4.554	0.000	76.575
I731	0.990	0.393	10.00	4.556	0.000	1.772

I732	0.990	16.198	10.00	4.556	0.000	73.053
I733	0.990	0.573	10.00	4.556	0.000	2.584
I734	0.990	0.954	10.00	4.556	0.000	4.303
I735	0.990	0.637	10.00	4.556	0.000	2.873
I736	0.990	0.921	10.00	4.556	0.000	4.154
I737	0.990	0.999	10.00	4.556	0.000	4.505

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 4
Wed Apr 15 07:54:11 1998

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I738	0.990	0.221	10.00	4.556	0.000	0.997
I739	0.990	0.839	10.00	4.556	0.000	3.784
I740	0.990	11.374	10.00	4.556	0.000	51.297
I741	0.990	10.699	10.00	4.556	0.000	48.252
I742	0.990	0.982	10.00	4.556	0.000	4.429
I743	0.990	9.099	10.00	4.556	0.000	41.036
I744	0.990	0.400	10.00	4.556	0.000	1.804
I745	0.990	0.086	10.00	4.556	0.000	0.388
I746	0.990	8.017	10.00	4.556	0.000	36.157
I747	0.990	0.864	10.00	4.556	0.000	3.897
I748	0.990	0.413	10.00	4.556	0.000	1.863
I749	0.990	6.721	10.00	4.556	0.000	30.312
I750	0.990	0.470	10.00	4.556	0.000	2.120
I751	0.990	5.858	10.00	4.556	0.000	26.419
I752	0.990	0.624	10.00	4.556	0.000	2.814
I753	0.990	0.432	10.00	4.556	0.000	1.948
I754	0.990	0.686	10.00	4.556	0.000	3.094
I755	0.990	0.709	10.00	4.556	0.000	3.198
I756	0.990	0.460	10.00	4.556	0.000	2.075
I757	0.990	3.340	10.00	4.556	0.000	15.063
I758	0.990	0.192	10.00	4.556	0.000	0.866
I759	0.990	3.052	10.00	4.556	0.000	13.764
I760	0.990	0.259	10.00	4.556	0.000	1.168
I761	0.990	0.655	10.00	4.556	0.000	2.954
I762	0.990	0.202	10.00	4.556	0.000	0.911
I763	0.990	1.831	10.00	4.556	0.000	8.258
I764	0.990	0.902	10.00	4.556	0.000	4.068
I765	0.990	0.413	10.00	4.556	0.000	1.863
I766	0.990	0.593	10.00	4.556	0.000	2.674
I767	0.990	0.382	10.00	4.556	0.000	1.723
I768	0.990	0.086	10.00	4.556	0.000	0.388

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 5
Wed Apr 15 07:54:11 1998

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
300	I300	I743	1145.010	1144.610	Circ	1	n/a	1.250	6.00	6.682	0.012
323	I323	I723	1134.110	1125.040	Circ	1	n/a	1.250	31.00	30.597	0.012
333	I727	I726	1112.850	1112.480	Circ	1	n/a	3.000	50.00	0.740	0.012
336	J712	J711	1126.340	1113.690	Circ	1	n/a	3.000	48.00	27.320	0.012
337	I730	J712	1127.720	1126.340	Circ	1	n/a	3.000	186.00	0.742	0.012
700	I700	J700	1128.600	1127.990	Circ	1	n/a	1.250	54.00	1.130	0.012
701	I701	I700	1129.170	1128.700	Circ	1	n/a	1.250	68.50	0.686	0.012
702	J700	J701	1127.740	1119.310	Circ	1	n/a	1.500	305.00	2.765	0.012
703	I702	J701	1122.000	1119.450	Circ	1	n/a	1.250	90.00	2.834	0.012
704	I703	I702	1122.190	1120.940	Circ	1	n/a	1.250	55.00	2.273	0.012
705	J701	J702	1119.310	1114.100	Circ	1	n/a	1.500	189.00	2.758	0.012
706	J702	J703	1103.280	1103.150	Circ	1	n/a	4.000	46.00	0.283	0.012
707	I704	J702	1118.970	1114.360	Circ	1	n/a	1.250	56.00	8.260	0.012
708	J704	J702	1103.660	1103.380	Circ	1	n/a	4.000	117.00	0.239	0.012
709	I706	J704	1117.060	1104.040	Circ	1	n/a	1.250	79.00	16.710	0.012
710	I705	I706	1118.500	1117.560	Circ	1	n/a	1.250	10.00	9.442	0.012
711	J705	J704	1104.030	1103.660	Circ	1	n/a	4.000	155.00	0.239	0.012
712	I707	J705	1116.790	1105.410	Circ	1	n/a	1.250	50.00	23.373	0.012
713	I708	I707	1117.570	1116.950	Circ	1	n/a	1.250	26.00	2.385	0.012
714	I709	I708	1118.400	1117.820	Circ	1	n/a	1.250	26.00	2.231	0.012
715	I710	J705	1104.350	1104.030	Circ	1	n/a	4.000	134.00	0.239	0.012
716	I711	I710	1115.560	1107.510	Circ	1	n/a	1.250	20.00	43.969	0.012
717	I713	I710	1104.890	1104.500	Circ	1	n/a	4.000	268.00	0.146	0.012
718	I712	I713	1119.420	1117.870	Circ	1	n/a	1.250	51.00	3.041	0.012
720	I716	I713	1105.620	1104.890	Circ	1	n/a	4.000	366.00	0.199	0.012
721	I714	I716	1120.590	1117.760	Circ	1	n/a	1.250	98.00	2.889	0.012
722	I715	I714	1120.890	1120.690	Circ	1	n/a	1.250	11.00	1.818	0.012
723	I717	I716	1119.480	1105.620	Circ	1	n/a	1.250	20.00	96.125	0.012
724	I718	I716	1106.720	1105.620	Circ	1	n/a	4.000	550.00	0.200	0.012
725	I719	I718	1122.200	1120.700	Circ	1	n/a	1.250	98.00	1.531	0.012
726	I720	I718	1108.900	1107.220	Circ	1	n/a	3.500	381.00	0.441	0.012
727	I721	I720	1121.960	1120.300	Circ	1	n/a	1.250	10.00	16.834	0.012
728	I722	I721	1123.960	1122.210	Circ	1	n/a	1.250	100.00	1.750	0.012
729	I723	I722	1125.040	1124.210	Circ	1	n/a	1.250	25.00	3.322	0.012
730	I724	I720	1110.660	1108.900	Circ	1	n/a	3.500	400.00	0.440	0.012
731	I725	I724	1125.850	1123.950	Circ	1	n/a	1.250	98.00	1.939	0.012
732	I726	I724	1112.230	1110.910	Circ	1	n/a	3.250	300.00	0.440	0.012
733	I728	I727	1127.560	1126.560	Circ	1	n/a	1.250	98.00	1.020	0.012
734	I729	I728	1127.890	1127.660	Circ	1	n/a	1.250	10.00	2.301	0.012
735	J711	I727	1113.660	1112.850	Circ	1	n/a	3.000	117.00	0.692	0.012
736	I731	I730	1130.560	1129.160	Circ	1	n/a	1.250	98.00	1.429	0.012
737	I732	I730	1130.560	1127.970	Circ	1	n/a	2.750	350.00	0.740	0.012
738	I733	I732	1137.450	1131.310	Circ	1	n/a	1.250	64.00	9.638	0.012
739	I734	I732	1132.620	1131.310	Circ	1	n/a	1.250	108.00	1.213	0.012
740	I735	I734	1137.020	1133.120	Circ	1	n/a	1.250	88.00	4.436	0.012

741	J713	I732	1131.990	1131.310	Circ	1	n/a	2.750	285.00	0.239	0.012
742	I736	J713	1134.170	1132.740	Circ	1	n/a	1.250	29.00	4.937	0.012
743	I737	J713	1134.540	1132.740	Circ	1	n/a	1.250	165.00	1.091	0.012
744	J714	J713	1133.020	1131.990	Circ	1	n/a	2.750	206.00	0.500	0.012
745	I738	J714	1136.210	1134.520	Circ	1	n/a	1.250	23.00	7.368	0.012
746	I739	J714	1136.210	1134.520	Circ	1	n/a	1.250	154.00	1.097	0.012

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 6
Wed Apr 15 07:54:11 1998

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
747	I740	J714	1134.400	1130.520	Circ	1	n/a	2.500	113.00	3.436	0.012
748	I741	I740	1138.170	1134.400	Circ	1	n/a	2.500	334.00	1.129	0.012
749	I742	I741	1140.510	1138.920	Circ	1	n/a	1.250	153.00	1.039	0.012
750	I743	I741	1143.360	1138.170	Circ	1	n/a	2.500	273.00	1.901	0.012
751	J715	I743	1145.780	1144.610	Circ	1	n/a	1.250	85.00	1.377	0.012
752	I744	J715	1146.790	1145.780	Circ	1	n/a	1.250	65.00	1.554	0.012
753	I745	J715	1147.000	1145.780	Circ	1	n/a	1.250	57.00	2.141	0.012
754	I746	I743	1147.590	1144.360	Circ	1	n/a	2.500	255.00	1.267	0.012
755	I747	I746	1155.720	1154.400	Circ	1	n/a	1.250	75.00	1.760	0.012
756	I748	I747	1157.220	1155.720	Circ	1	n/a	1.250	16.00	9.416	0.012
757	I749	I746	1148.900	1147.990	Circ	1	n/a	2.000	300.00	0.303	0.012
758	I750	I749	1165.870	1163.360	Circ	1	n/a	1.250	90.00	2.790	0.012
759	I751	I749	1149.790	1148.900	Circ	1	n/a	2.000	300.00	0.297	0.012
760	I752	I751	1169.180	1150.160	Circ	1	n/a	1.250	54.00	37.634	0.012
761	I753	I752	1170.560	1169.280	Circ	1	n/a	1.250	16.00	8.026	0.012
762	J716	I751	1150.470	1149.780	Circ	1	n/a	2.000	300.00	0.230	0.012
763	I754	J716	1169.000	1150.470	Circ	1	n/a	1.250	43.00	47.755	0.012
764	I755	J716	1169.430	1150.930	Circ	1	n/a	1.250	153.00	12.181	0.012
765	I756	I755	1169.930	1169.430	Circ	1	n/a	1.250	10.00	5.006	0.012
766	I757	J716	1150.890	1150.550	Circ	1	n/a	2.000	115.00	0.296	0.012
767	I758	I757	1170.780	1168.020	Circ	1	n/a	1.250	30.00	9.239	0.012
768	I759	I757	1151.780	1150.890	Circ	1	n/a	2.000	300.00	0.297	0.012
769	I760	I759	1179.530	1163.730	Circ	1	n/a	1.250	56.00	29.409	0.012
770	I761	I759	1164.880	1163.820	Circ	1	n/a	1.250	127.00	0.835	0.012
771	I762	I761	1177.880	1164.980	Circ	1	n/a	1.250	38.00	36.091	0.012
772	I763	I759	1152.660	1151.780	Circ	1	n/a	2.000	300.00	0.293	0.012
773	I764	I763	1160.490	1159.890	Circ	1	n/a	1.250	60.00	1.000	0.012
774	I765	I764	1161.090	1160.490	Circ	1	n/a	1.250	60.00	1.000	0.012
775	I766	I763	1153.030	1152.660	Circ	1	n/a	2.000	125.00	0.296	0.012
776	I767	I766	1159.150	1159.000	Circ	1	n/a	1.250	8.00	1.875	0.012
777	I768	I766	1159.730	1159.490	Circ	1	n/a	1.250	60.00	0.400	0.012

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 7
Wed Apr 15 07:54:11 1998

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
300	1165.987	1165.983	0.01	0.182	1.250	7.46	0.67	0.825	18.089	0.004
323	1134.425	1134.400	0.04	0.167	1.250	15.15	1.19	1.466	38.710	0.011
333	1139.940	1139.068	1.32	3.000	3.000	12.04	11.73	82.893	62.158	0.214
336	1142.340	1141.619	1.12	0.916	3.000	41.86	10.83	76.575	377.675	0.182
337	1144.794	1142.340	1.12	3.000	3.000	11.12	10.83	76.575	62.240	0.365
700	1129.697	1128.472	0.54	0.765	0.765	6.54	6.54	5.146	7.438	0.332
701	1129.796	1129.697	0.10	0.531	0.997	4.36	2.07	2.169	5.797	0.033
702	1128.472	1123.353	0.20	0.535	1.500	9.11	2.91	5.146	18.922	0.198
703	1124.447	1123.353	0.84	0.657	1.250	9.80	5.22	6.409	11.782	0.339
704	1124.609	1124.447	0.20	0.467	1.250	7.51	2.56	3.143	10.551	0.051
705	1123.353	1121.005	1.03	0.847	1.500	11.24	6.54	11.555	18.897	0.399
706	1121.005	1115.000	0.63	4.000	4.000	10.10	9.84	123.622	82.726	5.715
707	1121.709	1121.005	0.87	0.490	1.250	14.64	5.31	6.512	20.113	0.219
708	1121.825	1121.005	0.50	4.000	4.000	8.97	8.74	109.802	76.126	0.237
709	1121.926	1121.825	0.08	0.226	1.250	13.49	1.66	2.034	28.606	0.034
710	1121.928	1121.926	0.01	0.133	1.250	7.33	0.42	0.519	21.503	0.001
711	1122.824	1121.825	0.49	4.000	4.000	8.92	8.69	109.233	76.030	0.235
712	1123.104	1122.824	0.31	0.286	1.250	18.47	3.17	3.892	33.833	0.125
713	1123.189	1123.104	0.13	0.410	1.250	7.16	2.04	2.508	10.808	0.052
714	1123.205	1123.189	0.03	0.292	1.250	5.75	1.02	1.254	10.454	0.008
715	1123.570	1122.824	0.47	4.000	4.000	8.74	8.51	106.980	76.045	0.113
716	1123.592	1123.570	0.05	0.156	1.250	17.47	1.27	1.556	46.404	0.012
717	1124.904	1123.570	0.46	4.000	4.000	8.59	8.37	105.208	59.363	0.109
718	1124.960	1124.904	0.07	0.334	1.250	7.25	1.55	1.903	12.203	0.019
720	1126.670	1124.904	0.45	4.000	4.000	8.56	8.33	104.724	69.497	0.108
721	1127.189	1126.670	0.37	0.519	1.250	8.90	3.49	4.284	11.895	0.152
722	1127.223	1127.189	0.10	0.408	1.250	6.23	1.76	2.165	9.437	0.024
723	1126.815	1126.670	0.32	0.204	1.250	30.22	3.23	3.969	68.612	0.081
724	1129.134	1126.670	0.41	4.000	4.000	8.16	7.95	99.913	69.593	0.196
725	1129.225	1129.134	0.07	0.399	1.250	5.65	1.55	1.903	8.658	0.019
726	1132.593	1129.134	0.82	3.500	3.500	10.54	10.27	98.808	72.376	0.328
727	1133.231	1132.593	1.26	0.447	1.250	19.92	6.41	7.870	28.712	0.511
728	1134.207	1133.231	0.70	0.719	1.250	7.98	4.76	5.836	9.258	0.281
729	1134.400	1134.207	0.30	0.468	1.250	9.05	3.10	3.802	12.755	0.119
730	1135.600	1132.593	0.68	3.500	3.500	9.62	9.37	90.117	72.299	0.273
731	1135.676	1135.600	0.06	0.357	1.250	6.01	1.41	1.732	9.745	0.015
732	1139.068	1135.600	0.98	3.250	3.250	10.95	10.67	88.506	59.334	0.531
733	1141.217	1139.940	0.92	0.971	1.250	6.57	5.48	6.720	7.069	0.373
734	1141.418	1141.217	0.57	0.624	1.250	8.64	4.31	5.290	10.615	0.144
735	1141.619	1139.940	1.12	3.000	3.000	11.12	10.83	76.575	60.122	0.365
736	1144.873	1144.794	0.06	0.391	1.250	5.41	1.44	1.772	8.365	0.016
737	1150.955	1144.794	1.63	2.750	2.750	12.63	12.30	73.053	49.287	0.470
738	1151.077	1150.955	0.14	0.291	1.250	11.85	2.11	2.584	21.726	0.034
739	1151.516	1150.955	0.38	0.669	1.250	6.44	3.51	4.303	7.708	0.153
740	1151.707	1151.516	0.17	0.374	1.250	9.30	2.34	2.873	14.740	0.043

741	1154.963	1150.955	1.28	2.750	2.750	11.19	10.90	64.736	27.986	0.369
742	1155.154	1154.963	0.35	0.441	1.250	10.74	3.38	4.154	15.549	0.089
743	1155.752	1154.963	0.41	0.710	1.250	6.26	3.67	4.505	7.310	0.105
744	1157.352	1154.963	0.96	2.750	2.750	9.69	9.44	56.077	40.513	0.416
745	1157.362	1157.352	0.02	0.194	1.250	8.25	0.81	0.997	18.995	0.005
746	1157.877	1157.352	0.29	0.637	1.250	6.02	3.08	3.784	7.331	0.074

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 8
Wed Apr 15 07:54:11 1998

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
747	1159.198	1157.352	1.33	1.429	2.500	17.68	10.45	51.297	82.363	0.339
748	1163.437	1159.198	1.18	2.107	2.500	10.93	9.83	48.252	47.211	0.300
749	1164.151	1163.437	0.40	0.715	1.250	6.11	3.61	4.429	7.134	0.101
750	1165.983	1163.437	0.85	1.498	2.500	13.37	8.36	41.036	61.273	0.217
751	1166.106	1165.983	0.10	0.441	1.250	5.67	1.79	2.192	8.211	0.040
752	1166.166	1166.106	0.07	0.386	1.250	5.60	1.47	1.804	8.724	0.017
753	1166.109	1166.106	0.00	0.166	1.250	4.01	0.32	0.388	10.239	0.001
754	1168.093	1165.983	0.66	1.576	2.500	11.09	7.37	36.157	50.012	0.422
755	1168.451	1168.093	0.31	0.566	1.250	7.22	3.18	3.897	9.285	0.125
756	1168.480	1168.451	0.07	0.249	1.250	10.75	1.52	1.863	21.475	0.018
757	1173.551	1168.093	1.53	2.000	2.000	9.91	9.65	30.312	13.498	0.868
758	1173.656	1173.551	0.09	0.361	1.250	7.22	1.73	2.120	11.689	0.023
759	1177.697	1173.551	1.16	2.000	2.000	8.64	8.41	26.419	13.349	0.659
760	1177.849	1177.697	0.16	0.217	1.250	19.81	2.29	2.814	42.931	0.065
761	1177.881	1177.849	0.08	0.265	1.250	10.29	1.59	1.948	19.825	0.020
762	1180.405	1177.697	0.76	2.000	2.000	6.98	6.80	21.355	11.753	0.431
763	1180.539	1180.405	0.20	0.215	1.250	22.12	2.52	3.094	48.360	0.049
764	1180.809	1180.405	0.21	0.305	1.250	13.74	2.61	3.198	24.424	0.084
765	1180.840	1180.809	0.09	0.307	1.250	8.82	1.69	2.075	15.658	0.022
766	1181.054	1180.405	0.38	2.000	2.000	4.92	4.79	15.063	13.326	0.214
767	1181.063	1181.054	0.02	0.172	1.250	8.44	0.71	0.866	21.271	0.004
768	1182.180	1181.054	0.32	1.700	2.000	4.84	4.38	13.764	13.349	0.179
769	1182.202	1182.180	0.03	0.151	1.250	14.00	0.95	1.168	37.951	0.007
770	1182.478	1182.180	0.18	0.596	1.250	5.12	2.41	2.954	6.394	0.072
771	1182.489	1182.478	0.02	0.128	1.250	13.92	0.74	0.911	42.041	0.004
772	1182.584	1182.180	0.11	1.143	2.000	4.45	2.63	8.258	13.273	0.064
773	1182.923	1182.584	0.34	0.683	1.250	5.93	3.31	4.068	6.998	0.137
774	1182.984	1182.923	0.07	0.440	1.250	4.83	1.52	1.863	6.998	0.018
775	1182.611	1182.584	0.01	0.608	2.000	3.31	0.85	2.674	13.334	0.017
776	1182.631	1182.611	0.06	0.358	1.250	5.92	1.40	1.723	9.583	0.015
777	1182.614	1182.611	0.00	0.250	1.250	2.22	0.32	0.388	4.426	0.001

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 9
Wed Apr 15 07:54:11 1998

Computation Messages

---

*Warning: Discharge decreased downstream Junction J712 - previous intensity used
*Warning: Discharge decreased downstream Junction J711 - previous intensity used
*Warning: Run - 712 - Upstream Hydraulic Gradeline = 1123.10 - Exceeds Critical Elevation = 1120.79
*Warning: Run - 715 - Upstream Hydraulic Gradeline = 1123.57 - Exceeds Critical Elevation = 1119.30
*Warning: Run - 717 - Upstream Hydraulic Gradeline = 1124.90 - Exceeds Critical Elevation = 1120.37
*Warning: Run - 726 - Upstream Hydraulic Gradeline = 1132.59 - Exceeds Critical Elevation = 1127.46
*Warning: Run - 333 - Upstream Hydraulic Gradeline = 1139.94 - Exceeds Critical Elevation = 1131.06
*Warning: Run - 337 - Upstream Hydraulic Gradeline = 1144.79 - Exceeds Critical Elevation = 1133.56
*Warning: Run - 747 - Upstream Hydraulic Gradeline = 1159.20 - Exceeds Critical Elevation = 1139.85
*Warning: Run - 754 - Upstream Hydraulic Gradeline = 1168.09 - Exceeds Critical Elevation = 1157.94
*Warning: Run - 766 - Upstream Hydraulic Gradeline = 1181.05 - Exceeds Critical Elevation = 1173.04
*Warning: Run - 775 - Upstream Hydraulic Gradeline = 1182.61 - Exceeds Critical Elevation = 1162.28
*Computation: Run = 300 - Pipe Flowing Full
*Computation: Run = 323 - Pipe Flowing Full
*Computation: Run = 333 - Insufficient Capacity
*Computation: Run = 336 - Pipe Flowing Full
*Computation: Run = 337 - Insufficient Capacity
*Computation: Run = 702 - Pipe Flowing Full
*Computation: Run = 703 - Pipe Flowing Full
*Computation: Run = 704 - Pipe Flowing Full
*Computation: Run = 705 - Pipe Flowing Full
*Computation: Run = 706 - Insufficient Capacity
*Computation: Run = 707 - Pipe Flowing Full
*Computation: Run = 708 - Insufficient Capacity
*Computation: Run = 709 - Pipe Flowing Full
*Computation: Run = 710 - Pipe Flowing Full
*Computation: Run = 711 - Insufficient Capacity
*Computation: Run = 712 - Pipe Flowing Full
*Computation: Run = 713 - Pipe Flowing Full
*Computation: Run = 714 - Pipe Flowing Full
*Computation: Run = 715 - Insufficient Capacity
*Computation: Run = 716 - Pipe Flowing Full
*Computation: Run = 717 - Insufficient Capacity
*Computation: Run = 718 - Pipe Flowing Full
*Computation: Run = 720 - Insufficient Capacity
*Computation: Run = 721 - Pipe Flowing Full
*Computation: Run = 722 - Pipe Flowing Full

```
*Computation: Run = 723 - Pipe Flowing Full
*Computation: Run = 724 - Insufficient Capacity
*Computation: Run = 725 - Pipe Flowing Full
*Computation: Run = 726 - Insufficient Capacity
*Computation: Run = 727 - Pipe Flowing Full
*Computation: Run = 728 - Pipe Flowing Full
*Computation: Run = 729 - Pipe Flowing Full
*Computation: Run = 730 - Insufficient Capacity
*Computation: Run = 731 - Pipe Flowing Full
*Computation: Run = 732 - Insufficient Capacity
*Computation: Run = 733 - Pipe Flowing Full
*Computation: Run = 734 - Pipe Flowing Full
*Computation: Run = 735 - Insufficient Capacity
*Computation: Run = 736 - Pipe Flowing Full
*Computation: Run = 737 - Insufficient Capacity
*Computation: Run = 738 - Pipe Flowing Full
*Computation: Run = 739 - Pipe Flowing Full
*Computation: Run = 740 - Pipe Flowing Full
*Computation: Run = 741 - Insufficient Capacity
*Computation: Run = 742 - Pipe Flowing Full
*Computation: Run = 743 - Pipe Flowing Full
*Computation: Run = 744 - Insufficient Capacity
*Computation: Run = 745 - Pipe Flowing Full
*Computation: Run = 746 - Pipe Flowing Full
*Computation: Run = 747 - Pipe Flowing Full
*Computation: Run = 748 - Insufficient Capacity
*Computation: Run = 749 - Pipe Flowing Full
*Computation: Run = 750 - Pipe Flowing Full
*Computation: Run = 751 - Pipe Flowing Full
*Computation: Run = 752 - Pipe Flowing Full
*Computation: Run = 753 - Pipe Flowing Full
*Computation: Run = 754 - Pipe Flowing Full
*Computation: Run = 755 - Pipe Flowing Full
*Computation: Run = 756 - Pipe Flowing Full
*Computation: Run = 757 - Insufficient Capacity
*Computation: Run = 758 - Pipe Flowing Full
*Computation: Run = 759 - Insufficient Capacity
*Computation: Run = 760 - Pipe Flowing Full
*Computation: Run = 761 - Pipe Flowing Full
*Computation: Run = 762 - Insufficient Capacity
*Computation: Run = 763 - Pipe Flowing Full
*Computation: Run = 764 - Pipe Flowing Full
*Computation: Run = 765 - Pipe Flowing Full
*Computation: Run = 766 - Insufficient Capacity
*Computation: Run = 767 - Pipe Flowing Full
*Computation: Run = 768 - Insufficient Capacity
*Computation: Run = 769 - Pipe Flowing Full
*Computation: Run = 770 - Pipe Flowing Full
*Computation: Run = 771 - Pipe Flowing Full
*Computation: Run = 772 - Pipe Flowing Full
*Computation: Run = 773 - Pipe Flowing Full
*Computation: Run = 774 - Pipe Flowing Full
*Computation: Run = 775 - Pipe Flowing Full
*Computation: Run = 776 - Pipe Flowing Full
*Computation: Run = 777 - Pipe Flowing Full
```

NORMAL Completion of WinStorm.

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 1
Tue Nov 18 08:27:21 1997

JOB CONTROL : CONT
JOB SECTION : SEC
JOB NUMBER : JOB
PROJECT DESCRIPTION : SR51 DRAINAGE ASSESSMENT
ANALYSYS FREQUENCY : 25 Year
MEASUREMENT UNITS: Input ENGLISH Output ENGLISH

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 300	0.990	0.190	2.00	10.00	5.400	0.000	1.016
I 323	0.990	0.348	2.00	10.00	5.400	0.000	1.860
I 700	0.990	0.668	2.00	10.00	5.400	0.000	3.571
I 701	0.990	0.486	2.00	10.00	5.400	0.000	2.598
I 702	0.990	0.746	2.00	10.00	5.400	0.000	3.988
I 703	0.990	0.719	2.00	10.00	5.400	0.000	3.844
I 704	0.990	1.501	2.00	10.00	5.400	0.000	8.025
I 705	0.990	0.115	2.00	10.00	5.400	0.000	0.615
I 706	0.990	0.336	2.00	10.00	5.400	0.000	1.796
I 707	0.990	0.307	2.00	10.00	5.400	0.000	1.641
I 708	0.990	0.278	2.00	10.00	5.400	0.000	1.486
I 709	0.990	0.278	2.00	10.00	5.400	0.000	1.486
I 710	0.990	0.643	2.00	10.00	5.400	0.000	3.438
I 711	0.990	0.345	2.00	10.00	5.400	0.000	1.844
I 712	0.990	0.422	2.00	10.00	5.400	0.000	2.256
I 713	0.990	0.413	2.00	10.00	5.400	0.000	2.208
I 714	0.990	0.470	2.00	10.00	5.400	0.000	2.513
I 715	0.990	0.480	2.00	10.00	5.400	0.000	2.566
I 716	0.990	0.470	2.00	10.00	5.400	0.000	2.513
I 717	0.990	0.921	12.00	12.00	4.979	0.000	4.540
I 718	0.990	0.422	2.00	10.00	5.400	0.000	2.256
I 719	0.990	0.422	2.00	10.00	5.400	0.000	2.256
I 720	0.990	0.982	2.00	10.00	5.400	0.000	5.250
I 721	0.990	0.451	2.00	10.00	5.400	0.000	2.411
I 722	0.990	0.451	2.00	10.00	5.400	0.000	2.411
I 723	0.990	0.537	2.00	10.00	5.400	0.000	2.871
I 724	0.990	0.384	2.00	10.00	5.400	0.000	2.053
I 725	0.990	0.384	2.00	10.00	5.400	0.000	2.053
I 726	0.990	1.399	2.00	10.00	5.400	0.000	7.479
I 727	0.990	0.297	2.00	10.00	5.400	0.000	1.588
I 728	0.990	0.317	2.00	10.00	5.400	0.000	1.695
I 729	0.990	1.230	2.00	10.00	5.400	0.000	6.576
I 730	0.990	0.393	2.00	10.00	5.400	0.000	2.101
I 731	0.990	0.393	2.00	10.00	5.400	0.000	2.101
I 732	0.990	0.317	2.00	10.00	5.400	0.000	1.695
I 733	0.990	0.593	2.00	10.00	5.400	0.000	3.170
I 734	0.990	0.317	2.00	10.00	5.400	0.000	1.695
I 735	0.990	0.661	2.00	10.00	5.400	0.000	3.534
I 736	0.990	0.950	2.00	10.00	5.400	0.000	5.079
I 737	0.990	1.051	2.00	10.00	5.400	0.000	5.619
I 738	0.990	0.221	2.00	10.00	5.400	0.000	1.182
I 739	0.990	0.852	2.00	10.00	5.400	0.000	4.555
I 740	0.990	0.690	2.00	10.00	5.400	0.000	3.689
I 741	0.990	0.632	2.00	10.00	5.400	0.000	3.379
I 742	0.990	0.998	2.00	10.00	5.400	0.000	5.336

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 2
Tue Nov 18 08:27:21 1997

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 743	0.990	0.413	2.00	10.00	5.400	0.000	2.208
I 744	0.990	0.422	2.00	10.00	5.400	0.000	2.256
I 745	0.990	0.086	2.00	10.00	5.400	0.000	0.460
I 746	0.990	0.432	2.00	10.00	5.400	0.000	2.310
I 747	0.990	0.451	2.00	10.00	5.400	0.000	2.411
I 748	0.990	0.413	2.00	10.00	5.400	0.000	2.208
I 749	0.990	0.393	2.00	10.00	5.400	0.000	2.101
I 750	0.990	0.470	2.00	10.00	5.400	0.000	2.513
I 751	0.990	0.499	2.00	10.00	5.400	0.000	2.668
I 752	0.990	0.192	2.00	10.00	5.400	0.000	1.026
I 753	0.990	0.432	2.00	10.00	5.400	0.000	2.310
I 754	0.990	0.735	2.00	10.00	5.400	0.000	3.929
I 755	0.990	0.249	2.00	10.00	5.400	0.000	1.331
I 756	0.990	0.492	2.00	10.00	5.400	0.000	2.630
I 757	0.990	0.096	2.00	10.00	5.400	0.000	0.513
I 758	0.990	0.192	2.00	10.00	5.400	0.000	1.026
I 759	0.990	0.307	2.00	10.00	5.400	0.000	1.641
I 760	0.990	0.259	2.00	10.00	5.400	0.000	1.385
I 761	0.990	0.456	2.00	10.00	5.400	0.000	2.438
I 762	0.990	0.202	2.00	10.00	5.400	0.000	1.080
I 763	0.990	0.336	2.00	10.00	5.400	0.000	1.796
I 764	0.990	0.489	2.00	10.00	5.400	0.000	2.614
I 765	0.990	0.421	2.00	10.00	5.400	0.000	2.251
I 766	0.990	0.125	2.00	10.00	5.400	0.000	0.668
I 767	0.990	0.409	2.00	10.00	5.400	0.000	2.187
I 768	0.990	0.086	2.00	10.00	5.400	0.000	0.460

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 3
Tue Nov 18 08:27:22 1997

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I300	0.990	0.190	10.00	5.400	0.000	1.016
I323	0.990	0.348	10.00	5.400	0.000	1.860
I700	0.990	1.154	10.00	5.400	0.000	6.170
J700	0.990	1.154	10.00	5.400	0.000	6.170
I701	0.990	0.486	10.00	5.400	0.000	2.598
J701	0.990	2.619	10.00	5.400	0.000	14.002
I702	0.990	1.465	10.00	5.400	0.000	7.832
J702	0.990	34.537	13.56	4.700	0.000	160.698
I703	0.990	0.719	10.00	5.400	0.000	3.844
I704	0.990	1.501	10.00	5.400	0.000	8.025
J704	0.990	30.417	13.39	4.728	0.000	142.381
I705	0.990	0.115	10.00	5.400	0.000	0.615
J705	0.990	29.966	13.17	4.767	0.000	141.410
I706	0.990	0.451	10.00	5.400	0.000	2.411
I707	0.990	0.863	10.00	5.400	0.000	4.614
I708	0.990	0.556	10.00	5.400	0.000	2.972
I709	0.990	0.278	10.00	5.400	0.000	1.486
I710	0.990	29.103	12.97	4.801	0.000	138.333
I711	0.990	0.345	10.00	5.400	0.000	1.844
J711	0.990	17.315	10.00	5.400	0.000	92.569
I712	0.990	0.422	10.00	5.400	0.000	2.256
J712	0.990	17.315	10.00	5.400	0.000	92.569
I713	0.990	28.115	12.57	4.874	0.000	135.649
J713	0.990	14.641	10.00	5.400	0.000	78.274
I714	0.990	0.950	10.00	5.400	0.000	5.079
J714	0.990	12.640	10.00	5.400	0.000	67.576
I715	0.990	0.480	10.00	5.400	0.000	2.566
J715	0.990	0.508	10.00	5.400	0.000	2.716
I716	0.990	27.280	12.01	4.977	0.000	134.425
J716	0.990	4.854	10.00	5.400	0.000	25.950
I717	0.990	0.921	12.00	4.979	0.000	4.540
I718	0.990	24.939	10.95	5.191	0.000	128.158
I719	0.990	0.422	10.00	5.400	0.000	2.256
I720	0.990	24.095	10.48	5.292	0.000	126.246
I721	0.990	1.787	10.00	5.400	0.000	9.554
I722	0.990	1.336	10.00	5.400	0.000	7.143
I723	0.990	0.885	10.00	5.400	0.000	4.731
I724	0.990	21.326	10.00	5.400	0.000	114.013
I725	0.990	0.384	10.00	5.400	0.000	2.053
I726	0.990	20.558	10.00	5.400	0.000	109.907
I727	0.990	19.159	10.00	5.400	0.000	102.428
I728	0.990	1.547	10.00	5.400	0.000	8.271
I729	0.990	1.230	10.00	5.400	0.000	6.576
I730	0.990	17.315	10.00	5.400	0.000	92.569
I731	0.990	0.393	10.00	5.400	0.000	2.101
I732	0.990	16.529	10.00	5.400	0.000	88.367
I733	0.990	0.593	10.00	5.400	0.000	3.170
I734	0.990	0.978	10.00	5.400	0.000	5.229
I735	0.990	0.661	10.00	5.400	0.000	3.534
I736	0.990	0.950	10.00	5.400	0.000	5.079
I737	0.990	1.051	10.00	5.400	0.000	5.619

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 4
Tue Nov 18 08:27:22 1997

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I738	0.990	0.221	10.00	5.400	0.000	1.182
I739	0.990	0.852	10.00	5.400	0.000	4.555
I740	0.990	11.567	10.00	5.400	0.000	61.840
I741	0.990	10.877	10.00	5.400	0.000	58.151
I742	0.990	0.998	10.00	5.400	0.000	5.336
I743	0.990	9.247	10.00	5.400	0.000	49.436
I744	0.990	0.422	10.00	5.400	0.000	2.256
I745	0.990	0.086	10.00	5.400	0.000	0.460
I746	0.990	8.136	10.00	5.400	0.000	43.497
I747	0.990	0.864	10.00	5.400	0.000	4.619
I748	0.990	0.413	10.00	5.400	0.000	2.208
I749	0.990	6.840	10.00	5.400	0.000	36.568
I750	0.990	0.470	10.00	5.400	0.000	2.513
I751	0.990	5.977	10.00	5.400	0.000	31.954
I752	0.990	0.624	10.00	5.400	0.000	3.336
I753	0.990	0.432	10.00	5.400	0.000	2.310
I754	0.990	0.735	10.00	5.400	0.000	3.929
I755	0.990	0.741	10.00	5.400	0.000	3.962
I756	0.990	0.492	10.00	5.400	0.000	2.630
I757	0.990	3.378	10.00	5.400	0.000	18.059
I758	0.990	0.192	10.00	5.400	0.000	1.026
I759	0.990	3.090	10.00	5.400	0.000	16.520
I760	0.990	0.259	10.00	5.400	0.000	1.385
I761	0.990	0.658	10.00	5.400	0.000	3.518
I762	0.990	0.202	10.00	5.400	0.000	1.080
I763	0.990	1.866	10.00	5.400	0.000	9.976
I764	0.990	0.910	10.00	5.400	0.000	4.865
I765	0.990	0.421	10.00	5.400	0.000	2.251
I766	0.990	0.620	10.00	5.400	0.000	3.315
I767	0.990	0.409	10.00	5.400	0.000	2.187
I768	0.990	0.086	10.00	5.400	0.000	0.460

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 5
Tue Nov 18 08:27:22 1997

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
300	I300	I743	1145.010	1144.610	Circ	1	n/a	1.250	6.00	6.682	0.012
323	I323	I723	1134.110	1125.040	Circ	1	n/a	1.250	31.00	30.597	0.012
333	I727	I726	1112.850	1112.480	Circ	1	n/a	3.000	50.00	0.740	0.012
336	J712	J711	1126.340	1113.690	Circ	1	n/a	3.000	48.00	27.320	0.012
337	I730	J712	1127.720	1126.340	Circ	1	n/a	3.000	186.00	0.742	0.012
700	I700	J700	1128.600	1127.990	Circ	1	n/a	1.250	54.00	1.130	0.012
701	I701	I700	1129.170	1128.700	Circ	1	n/a	1.250	68.50	0.686	0.012
702	J700	J701	1127.740	1119.310	Circ	1	n/a	1.500	305.00	2.765	0.012
703	I702	J701	1122.000	1119.450	Circ	1	n/a	1.250	90.00	2.834	0.012
704	I703	I702	1122.190	1120.940	Circ	1	n/a	1.250	55.00	2.273	0.012
705	J701	J702	1119.310	1114.100	Circ	1	n/a	1.500	189.00	2.758	0.012
706	J702	J703	1103.280	1103.150	Circ	1	n/a	4.000	46.00	0.283	0.012
707	I704	J702	1118.970	1114.360	Circ	1	n/a	1.250	56.00	8.260	0.012
708	J704	J702	1103.660	1103.380	Circ	1	n/a	4.000	117.00	0.239	0.012
709	I706	J704	1117.060	1104.040	Circ	1	n/a	1.250	79.00	16.710	0.012
710	I705	I706	1118.500	1117.560	Circ	1	n/a	1.250	10.00	9.442	0.012
711	J705	J704	1104.030	1103.660	Circ	1	n/a	4.000	155.00	0.239	0.012
712	I707	J705	1116.790	1105.410	Circ	1	n/a	1.250	50.00	23.373	0.012
713	I708	I707	1117.570	1116.950	Circ	1	n/a	1.250	26.00	2.385	0.012
714	I709	I708	1118.400	1117.820	Circ	1	n/a	1.250	26.00	2.231	0.012
715	I710	J705	1104.350	1104.030	Circ	1	n/a	4.000	134.00	0.239	0.012
716	I711	I710	1115.560	1107.510	Circ	1	n/a	1.250	20.00	43.969	0.012
717	I713	I710	1104.890	1104.500	Circ	1	n/a	4.000	268.00	0.146	0.012
718	I712	I713	1119.420	1117.870	Circ	1	n/a	1.250	51.00	3.041	0.012
720	I716	I713	1105.620	1104.890	Circ	1	n/a	4.000	366.00	0.199	0.012
721	I714	I716	1120.590	1117.760	Circ	1	n/a	1.250	98.00	2.889	0.012
722	I715	I714	1120.890	1120.690	Circ	1	n/a	1.250	11.00	1.818	0.012
723	I717	I716	1119.480	1105.620	Circ	1	n/a	1.250	20.00	96.125	0.012
724	I718	I716	1106.720	1105.620	Circ	1	n/a	4.000	550.00	0.200	0.012
725	I719	I718	1122.200	1120.700	Circ	1	n/a	1.250	98.00	1.531	0.012
726	I720	I718	1108.900	1107.220	Circ	1	n/a	3.500	381.00	0.441	0.012
727	I721	I720	1121.960	1120.300	Circ	1	n/a	1.250	10.00	16.834	0.012
728	I722	I721	1123.960	1122.210	Circ	1	n/a	1.250	100.00	1.750	0.012
729	I723	I722	1125.040	1124.210	Circ	1	n/a	1.250	25.00	3.322	0.012
730	I724	I720	1110.660	1108.900	Circ	1	n/a	3.500	400.00	0.440	0.012
731	I725	I724	1125.850	1123.950	Circ	1	n/a	1.250	98.00	1.939	0.012
732	I726	I724	1112.230	1110.910	Circ	1	n/a	3.250	300.00	0.440	0.012
733	I728	I727	1127.560	1126.560	Circ	1	n/a	1.250	98.00	1.020	0.012
734	I729	I728	1127.890	1127.660	Circ	1	n/a	1.250	10.00	2.301	0.012
735	J711	I727	1113.660	1112.850	Circ	1	n/a	3.000	117.00	0.692	0.012
736	I731	I730	1130.560	1129.160	Circ	1	n/a	1.250	98.00	1.429	0.012
737	I732	I730	1130.560	1127.970	Circ	1	n/a	2.750	350.00	0.740	0.012
738	I733	I732	1137.450	1131.310	Circ	1	n/a	1.250	64.00	9.638	0.012
739	I734	I732	1132.620	1131.310	Circ	1	n/a	1.250	108.00	1.213	0.012
740	I735	I734	1137.020	1133.120	Circ	1	n/a	1.250	88.00	4.436	0.012
741	J713	I732	1131.990	1131.310	Circ	1	n/a	2.750	285.00	0.239	0.012
742	I736	J713	1134.170	1132.740	Circ	1	n/a	1.250	29.00	4.937	0.012
743	I737	J713	1134.540	1132.740	Circ	1	n/a	1.250	165.00	1.091	0.012
744	J714	J713	1133.020	1131.990	Circ	1	n/a	2.750	206.00	0.500	0.012
745	I738	J714	1136.210	1134.520	Circ	1	n/a	1.250	23.00	7.368	0.012
746	I739	J714	1136.210	1134.520	Circ	1	n/a	1.250	154.00	1.097	0.012

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 6
Tue Nov 18 08:27:22 1997

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
747	I740	J714	1134.400	1130.520	Circ	1	n/a	2.500	113.00	3.436	0.012
748	I741	I740	1138.170	1134.400	Circ	1	n/a	2.500	334.00	1.129	0.012
749	I742	I741	1140.510	1138.920	Circ	1	n/a	1.250	153.00	1.039	0.012
750	I743	I741	1143.360	1138.170	Circ	1	n/a	2.500	273.00	1.901	0.012
751	J715	I743	1145.780	1144.610	Circ	1	n/a	1.250	85.00	1.377	0.012
752	I744	J715	1146.790	1145.780	Circ	1	n/a	1.250	65.00	1.554	0.012
753	I745	J715	1147.000	1145.780	Circ	1	n/a	1.250	57.00	2.141	0.012
754	I746	I743	1147.590	1144.360	Circ	1	n/a	2.500	255.00	1.267	0.012
755	I747	I746	1155.720	1154.400	Circ	1	n/a	1.250	75.00	1.760	0.012
756	I748	I747	1157.220	1155.720	Circ	1	n/a	1.250	16.00	9.416	0.012
757	I749	I746	1148.900	1147.990	Circ	1	n/a	2.000	300.00	0.303	0.012
758	I750	I749	1165.870	1163.360	Circ	1	n/a	1.250	90.00	2.790	0.012
759	I751	I749	1149.790	1148.900	Circ	1	n/a	2.000	300.00	0.297	0.012
760	I752	I751	1169.180	1150.160	Circ	1	n/a	1.250	54.00	37.634	0.012
761	I753	I752	1170.560	1169.280	Circ	1	n/a	1.250	16.00	8.026	0.012
762	J716	I751	1150.470	1149.780	Circ	1	n/a	2.000	300.00	0.230	0.012
763	I754	J716	1169.000	1150.470	Circ	1	n/a	1.250	43.00	47.755	0.012
764	I755	J716	1169.430	1150.930	Circ	1	n/a	1.250	153.00	12.181	0.012
765	I756	I755	1169.930	1169.430	Circ	1	n/a	1.250	10.00	5.006	0.012
766	I757	J716	1150.890	1150.550	Circ	1	n/a	2.000	115.00	0.296	0.012
767	I758	I757	1170.780	1168.020	Circ	1	n/a	1.250	30.00	9.239	0.012
768	I759	I757	1151.780	1150.890	Circ	1	n/a	2.000	300.00	0.297	0.012
769	I760	I759	1179.530	1163.730	Circ	1	n/a	1.250	56.00	29.409	0.012
770	I761	I759	1164.880	1163.820	Circ	1	n/a	1.250	127.00	0.835	0.012
771	I762	I761	1177.880	1164.980	Circ	1	n/a	1.250	38.00	36.091	0.012
772	I763	I759	1152.660	1151.780	Circ	1	n/a	2.000	300.00	0.293	0.012
773	I764	I763	1160.490	1159.890	Circ	1	n/a	1.250	60.00	1.000	0.012
774	I765	I764	1161.090	1160.490	Circ	1	n/a	1.250	60.00	1.000	0.012
775	I766	I763	1153.030	1152.660	Circ	1	n/a	2.000	125.00	0.296	0.012
776	I767	I766	1159.150	1159.000	Circ	1	n/a	1.250	8.00	1.875	0.012
777	I768	I766	1159.730	1159.490	Circ	1	n/a	1.250	60.00	0.400	0.012

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 7
Tue Nov 18 08:27:22 1997

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
300	1186.368	1186.361	0.02	0.201	1.250	7.99	0.83	1.016	18.089	0.005
323	1139.639	1139.599	0.07	0.186	1.250	16.22	1.52	1.860	38.710	0.018
333	1148.390	1147.059	2.01	3.000	3.000	14.88	14.49	102.428	62.158	0.326
336	1151.898	1150.844	1.64	1.012	3.000	44.10	13.10	92.569	377.675	0.267
337	1155.484	1151.898	1.64	3.000	3.000	13.44	13.10	92.569	62.240	0.533
700	1129.826	1128.614	0.78	0.870	0.870	6.76	6.76	6.170	7.438	0.355
701	1129.959	1129.826	0.14	0.586	1.126	4.60	2.23	2.598	5.797	0.039
702	1128.614	1121.216	0.29	0.590	1.500	9.57	3.49	6.170	18.922	0.284
703	1125.150	1121.216	1.25	0.744	1.250	10.28	6.38	7.832	11.782	2.405
704	1125.392	1125.150	0.30	0.522	1.250	7.91	3.13	3.844	10.551	0.076
705	1121.216	1117.770	1.51	0.962	1.500	11.69	7.92	14.002	18.897	0.585
706	1117.770	1115.500	1.07	4.000	4.000	13.13	12.79	160.698	82.726	1.779
707	1119.851	1117.770	1.32	0.549	1.250	15.48	6.54	8.025	20.113	0.332
708	1119.148	1117.770	0.84	4.000	4.000	11.63	11.33	142.381	76.126	0.399
709	1119.290	1119.148	0.12	0.246	1.250	14.10	1.96	2.411	28.606	0.048
710	1119.293	1119.290	0.01	0.145	1.250	7.71	0.50	0.615	21.503	0.002
711	1120.822	1119.148	0.83	4.000	4.000	11.55	11.25	141.410	76.030	0.394
712	1121.215	1120.822	0.43	0.312	1.250	19.22	3.76	4.614	33.833	0.176
713	1121.335	1121.215	0.18	0.448	1.250	7.52	2.42	2.972	10.808	0.073
714	1121.358	1121.335	0.05	0.318	1.250	6.03	1.21	1.486	10.454	0.011
715	1122.069	1120.822	0.79	4.000	4.000	11.30	11.01	138.333	76.045	0.188
716	1122.101	1122.069	0.07	0.170	1.250	18.32	1.50	1.844	46.404	0.018
717	1124.287	1122.069	0.76	4.000	4.000	11.08	10.79	135.649	59.363	0.181
718	1124.366	1124.287	0.10	0.364	1.250	7.59	1.84	2.256	12.203	0.026
720	1127.196	1124.287	0.75	4.000	4.000	10.98	10.70	134.425	69.497	0.178
721	1127.925	1127.196	0.53	0.570	1.250	9.31	4.14	5.079	11.895	0.213
722	1127.974	1127.925	0.13	0.445	1.250	6.54	2.09	2.566	9.437	0.034
723	1127.387	1127.196	0.42	0.218	1.250	31.48	3.70	4.540	68.612	0.106
724	1131.250	1127.196	0.68	4.000	4.000	10.47	10.20	128.158	69.593	0.323
725	1131.378	1131.250	0.10	0.435	1.250	5.94	1.84	2.256	8.658	0.026
726	1136.897	1131.250	1.34	3.500	3.500	13.47	13.12	126.246	72.376	0.535
727	1137.837	1136.897	1.86	0.496	1.250	21.07	7.79	9.554	28.712	0.753
728	1139.300	1137.837	1.04	0.825	1.250	8.32	5.82	7.143	9.258	0.421
729	1139.599	1139.300	0.46	0.527	1.250	9.63	3.86	4.731	12.755	0.185
730	1141.711	1136.897	1.09	3.500	3.500	12.17	11.85	114.013	72.299	0.436
731	1141.817	1141.711	0.09	0.389	1.250	6.29	1.67	2.053	9.745	0.022
732	1147.059	1141.711	1.51	3.250	3.250	13.60	13.25	109.907	59.334	0.818
733	1150.324	1148.390	1.40	1.250	1.250	6.92	6.74	8.271	7.069	0.565
734	1150.635	1150.324	0.88	0.712	1.250	9.10	5.36	6.576	10.615	0.223
735	1150.844	1148.390	1.64	3.000	3.000	13.44	13.10	92.569	60.122	0.533
736	1155.595	1155.484	0.09	0.427	1.250	5.67	1.71	2.101	8.365	0.023
737	1164.499	1155.484	2.38	2.750	2.750	15.27	14.88	88.367	49.287	0.688
738	1164.682	1164.499	0.21	0.322	1.250	12.68	2.58	3.170	21.726	0.052
739	1165.327	1164.499	0.56	0.756	1.250	6.74	4.26	5.229	7.708	0.226
740	1165.616	1165.327	0.26	0.417	1.250	9.86	2.88	3.534	14.740	0.064
741	1170.358	1164.499	1.87	2.750	2.750	13.53	13.18	78.274	27.986	0.540
742	1170.644	1170.358	0.53	0.491	1.250	11.34	4.14	5.079	15.549	0.133
743	1171.585	1170.358	0.64	0.820	1.250	6.58	4.58	5.619	7.310	0.163
744	1173.828	1170.358	1.39	2.750	2.750	11.68	11.38	67.576	40.513	0.603
745	1173.842	1173.828	0.03	0.211	1.250	8.58	0.96	1.182	18.995	0.007
746	1174.587	1173.828	0.42	0.715	1.250	6.28	3.71	4.555	7.331	0.107

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 8
Tue Nov 18 08:27:22 1997

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
747	1176.510	1173.828	1.94	1.617	2.500	18.41	12.60	61.840	82.363	0.493
748	1182.667	1176.510	1.71	2.500	2.500	12.16	11.85	58.151	47.211	0.436
749	1183.703	1182.667	0.58	0.806	1.250	6.38	4.35	5.336	7.134	0.147
750	1186.361	1182.667	1.24	1.704	2.500	13.87	10.07	49.436	61.273	0.315
751	1186.550	1186.361	0.15	0.495	1.250	6.01	2.21	2.716	8.211	0.061
752	1186.644	1186.550	0.10	0.434	1.250	5.96	1.84	2.256	8.724	0.026
753	1186.554	1186.550	0.00	0.180	1.250	4.23	0.37	0.460	10.239	0.002
754	1189.415	1186.361	0.96	1.805	2.500	11.46	8.86	43.497	50.012	0.610
755	1189.918	1189.415	0.44	0.623	1.250	7.56	3.76	4.619	9.285	0.176
756	1189.959	1189.918	0.10	0.271	1.250	11.24	1.80	2.208	21.475	0.025
757	1197.358	1189.415	2.23	2.000	2.000	11.95	11.64	36.568	13.498	1.263
758	1197.507	1197.358	0.13	0.393	1.250	7.61	2.05	2.513	11.689	0.033
759	1203.423	1197.358	1.70	2.000	2.000	10.44	10.17	31.954	13.349	0.965
760	1203.638	1203.423	0.23	0.235	1.250	20.89	2.72	3.336	42.931	0.092
761	1203.683	1203.638	0.11	0.288	1.250	10.83	1.88	2.310	19.825	0.028
762	1207.424	1203.423	1.12	2.000	2.000	8.48	8.26	25.950	11.753	0.636
763	1207.639	1207.424	0.32	0.241	1.250	23.61	3.20	3.929	48.360	0.080
764	1208.043	1207.424	0.32	0.341	1.250	14.66	3.23	3.962	24.424	0.130
765	1208.093	1208.043	0.14	0.346	1.250	9.46	2.14	2.630	15.658	0.036
766	1208.356	1207.424	0.54	2.000	2.000	5.90	5.75	18.059	13.326	0.308
767	1208.368	1208.356	0.02	0.187	1.250	8.95	0.84	1.026	21.271	0.005
768	1209.977	1208.356	0.45	2.000	2.000	5.40	5.26	16.520	13.349	0.258
769	1210.009	1209.977	0.04	0.163	1.250	14.60	1.13	1.385	37.951	0.010
770	1210.400	1209.977	0.25	0.660	1.250	5.36	2.87	3.518	6.394	0.102
771	1210.415	1210.400	0.02	0.138	1.250	14.54	0.88	1.080	42.041	0.006
772	1210.566	1209.977	0.17	1.290	2.000	4.66	3.18	9.976	13.273	0.094
773	1211.052	1210.566	0.48	0.770	1.250	6.14	3.96	4.865	6.998	0.195
774	1211.140	1211.052	0.10	0.488	1.250	5.07	1.83	2.251	6.998	0.026
775	1210.612	1210.566	0.02	0.674	2.000	3.56	1.06	3.315	13.334	0.026
776	1210.645	1210.612	0.10	0.407	1.250	6.32	1.78	2.187	9.583	0.025
777	1210.616	1210.612	0.00	0.273	1.250	2.33	0.37	0.460	4.426	0.001

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 9
Tue Nov 18 08:27:22 1997

Computation Messages

---

*Warning: Run - 712 - Upstream Hydraulic Gradeline = 1121.21 - Exceeds Critical Elevation = 1120.79
*Warning: Run - 715 - Upstream Hydraulic Gradeline = 1122.07 - Exceeds Critical Elevation = 1119.30
*Warning: Run - 717 - Upstream Hydraulic Gradeline = 1124.29 - Exceeds Critical Elevation = 1120.37
*Warning: Run - 726 - Upstream Hydraulic Gradeline = 1136.90 - Exceeds Critical Elevation = 1127.46
*Warning: Run - 333 - Upstream Hydraulic Gradeline = 1148.39 - Exceeds Critical Elevation = 1131.06
*Warning: Run - 337 - Upstream Hydraulic Gradeline = 1155.48 - Exceeds Critical Elevation = 1133.56
*Warning: Run - 747 - Upstream Hydraulic Gradeline = 1176.51 - Exceeds Critical Elevation = 1139.85
*Warning: Run - 754 - Upstream Hydraulic Gradeline = 1189.42 - Exceeds Critical Elevation = 1157.94
*Warning: Run - 766 - Upstream Hydraulic Gradeline = 1208.36 - Exceeds Critical Elevation = 1173.04
*Warning: Run - 775 - Upstream Hydraulic Gradeline = 1210.61 - Exceeds Critical Elevation = 1162.28
*Computation: Run = 300 - Pipe Flowing Full
*Computation: Run = 323 - Pipe Flowing Full
*Computation: Run = 333 - Insufficient Capacity
*Computation: Run = 336 - Pipe Flowing Full
*Computation: Run = 337 - Insufficient Capacity
*Computation: Run = 702 - Pipe Flowing Full
*Computation: Run = 703 - Pipe Flowing Full
*Computation: Run = 704 - Pipe Flowing Full
*Computation: Run = 705 - Pipe Flowing Full
*Computation: Run = 706 - Insufficient Capacity
*Computation: Run = 707 - Pipe Flowing Full
*Computation: Run = 708 - Insufficient Capacity
*Computation: Run = 709 - Pipe Flowing Full
*Computation: Run = 710 - Pipe Flowing Full
*Computation: Run = 711 - Insufficient Capacity
*Computation: Run = 712 - Pipe Flowing Full
*Computation: Run = 713 - Pipe Flowing Full
*Computation: Run = 714 - Pipe Flowing Full
*Computation: Run = 715 - Insufficient Capacity
*Computation: Run = 716 - Pipe Flowing Full
*Computation: Run = 717 - Insufficient Capacity
*Computation: Run = 718 - Pipe Flowing Full
*Computation: Run = 720 - Insufficient Capacity
*Computation: Run = 721 - Pipe Flowing Full
*Computation: Run = 722 - Pipe Flowing Full
*Computation: Run = 723 - Pipe Flowing Full
*Computation: Run = 724 - Insufficient Capacity
*Computation: Run = 725 - Pipe Flowing Full
*Computation: Run = 726 - Insufficient Capacity
*Computation: Run = 727 - Pipe Flowing Full
*Computation: Run = 728 - Pipe Flowing Full
*Computation: Run = 729 - Pipe Flowing Full
*Computation: Run = 730 - Insufficient Capacity
*Computation: Run = 731 - Pipe Flowing Full
*Computation: Run = 732 - Insufficient Capacity

```
*Computation: Run = 733 - Insufficient Capacity
*Computation: Run = 734 - Pipe Flowing Full
*Computation: Run = 735 - Insufficient Capacity
*Computation: Run = 736 - Pipe Flowing Full
*Computation: Run = 737 - Insufficient Capacity
*Computation: Run = 738 - Pipe Flowing Full
*Computation: Run = 739 - Pipe Flowing Full
*Computation: Run = 740 - Pipe Flowing Full
*Computation: Run = 741 - Insufficient Capacity
*Computation: Run = 742 - Pipe Flowing Full
*Computation: Run = 743 - Pipe Flowing Full
*Computation: Run = 744 - Insufficient Capacity
*Computation: Run = 745 - Pipe Flowing Full
*Computation: Run = 746 - Pipe Flowing Full
*Computation: Run = 747 - Pipe Flowing Full
*Computation: Run = 748 - Insufficient Capacity
*Computation: Run = 749 - Pipe Flowing Full
*Computation: Run = 750 - Pipe Flowing Full
*Computation: Run = 751 - Pipe Flowing Full
*Computation: Run = 752 - Pipe Flowing Full
*Computation: Run = 753 - Pipe Flowing Full
*Computation: Run = 754 - Pipe Flowing Full
*Computation: Run = 755 - Pipe Flowing Full
*Computation: Run = 756 - Pipe Flowing Full
*Computation: Run = 757 - Insufficient Capacity
*Computation: Run = 758 - Pipe Flowing Full
*Computation: Run = 759 - Insufficient Capacity
*Computation: Run = 760 - Pipe Flowing Full
*Computation: Run = 761 - Pipe Flowing Full
*Computation: Run = 762 - Insufficient Capacity
*Computation: Run = 763 - Pipe Flowing Full
*Computation: Run = 764 - Pipe Flowing Full
*Computation: Run = 765 - Pipe Flowing Full
*Computation: Run = 766 - Insufficient Capacity
*Computation: Run = 767 - Pipe Flowing Full
*Computation: Run = 768 - Insufficient Capacity
*Computation: Run = 769 - Pipe Flowing Full
*Computation: Run = 770 - Pipe Flowing Full
*Computation: Run = 771 - Pipe Flowing Full
*Computation: Run = 772 - Pipe Flowing Full
*Computation: Run = 773 - Pipe Flowing Full
*Computation: Run = 774 - Pipe Flowing Full
*Computation: Run = 775 - Pipe Flowing Full
*Computation: Run = 776 - Pipe Flowing Full
*Computation: Run = 777 - Pipe Flowing Full

NORMAL Completion of WinStorm.
```

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 1
Tue Nov 18 08:28:47 1997

JOB CONTROL : CONT
JOB SECTION : SEC
JOB NUMBER : JOB
PROJECT DESCRIPTION : SR51 DRAINAGE ASSESSMENT
ANALYSYS FREQUENCY : 50 Year
MEASUREMENT UNITS: Input ENGLISH Output ENGLISH

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 300	0.990	0.190	2.00	10.00	6.059	0.000	1.140
I 323	0.990	0.348	2.00	10.00	6.059	0.000	2.088
I 700	0.990	0.668	2.00	10.00	6.059	0.000	4.007
I 701	0.990	0.486	2.00	10.00	6.059	0.000	2.915
I 702	0.990	0.746	2.00	10.00	6.059	0.000	4.475
I 703	0.990	0.719	2.00	10.00	6.059	0.000	4.313
I 704	0.990	1.501	2.00	10.00	6.059	0.000	9.004
I 705	0.990	0.115	2.00	10.00	6.059	0.000	0.690
I 706	0.990	0.336	2.00	10.00	6.059	0.000	2.016
I 707	0.990	0.307	2.00	10.00	6.059	0.000	1.842
I 708	0.990	0.278	2.00	10.00	6.059	0.000	1.668
I 709	0.990	0.278	2.00	10.00	6.059	0.000	1.668
I 710	0.990	0.643	2.00	10.00	6.059	0.000	3.857
I 711	0.990	0.345	2.00	10.00	6.059	0.000	2.070
I 712	0.990	0.422	2.00	10.00	6.059	0.000	2.532
I 713	0.990	0.413	2.00	10.00	6.059	0.000	2.478
I 714	0.990	0.470	2.00	10.00	6.059	0.000	2.819
I 715	0.990	0.480	2.00	10.00	6.059	0.000	2.879
I 716	0.990	0.470	2.00	10.00	6.059	0.000	2.819
I 717	0.990	0.921	12.00	12.00	5.606	0.000	5.112
I 718	0.990	0.422	2.00	10.00	6.059	0.000	2.532
I 719	0.990	0.422	2.00	10.00	6.059	0.000	2.532
I 720	0.990	0.982	2.00	10.00	6.059	0.000	5.891
I 721	0.990	0.451	2.00	10.00	6.059	0.000	2.706
I 722	0.990	0.451	2.00	10.00	6.059	0.000	2.706
I 723	0.990	0.537	2.00	10.00	6.059	0.000	3.221
I 724	0.990	0.384	2.00	10.00	6.059	0.000	2.304
I 725	0.990	0.384	2.00	10.00	6.059	0.000	2.304
I 726	0.990	1.399	2.00	10.00	6.059	0.000	8.392
I 727	0.990	0.297	2.00	10.00	6.059	0.000	1.782
I 728	0.990	0.317	2.00	10.00	6.059	0.000	1.902
I 729	0.990	1.230	2.00	10.00	6.059	0.000	7.379
I 730	0.990	0.393	2.00	10.00	6.059	0.000	2.358
I 731	0.990	0.393	2.00	10.00	6.059	0.000	2.358
I 732	0.990	0.317	2.00	10.00	6.059	0.000	1.902
I 733	0.990	0.593	2.00	10.00	6.059	0.000	3.557
I 734	0.990	0.317	2.00	10.00	6.059	0.000	1.902
I 735	0.990	0.661	2.00	10.00	6.059	0.000	3.965
I 736	0.990	0.950	2.00	10.00	6.059	0.000	5.699

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 2
Tue Nov 18 08:28:47 1997

Runoff Computations

I.D.	C Value	Area (acres)	Tc (min)	Tc Used (min)	Intensity (in/hr)	Supply Q (cfs)	Total Q (cfs)
I 737	0.990	1.051	2.00	10.00	6.059	0.000	6.305
I 738	0.990	0.221	2.00	10.00	6.059	0.000	1.326
I 739	0.990	0.852	2.00	10.00	6.059	0.000	5.111
I 740	0.990	0.690	2.00	10.00	6.059	0.000	4.139
I 741	0.990	0.632	2.00	10.00	6.059	0.000	3.791
I 742	0.990	0.998	2.00	10.00	6.059	0.000	5.987
I 743	0.990	0.413	2.00	10.00	6.059	0.000	2.478
I 744	0.990	0.422	2.00	10.00	6.059	0.000	2.532
I 745	0.990	0.086	2.00	10.00	6.059	0.000	0.516
I 746	0.990	0.432	2.00	10.00	6.059	0.000	2.592
I 747	0.990	0.451	2.00	10.00	6.059	0.000	2.706
I 748	0.990	0.413	2.00	10.00	6.059	0.000	2.478
I 749	0.990	0.393	2.00	10.00	6.059	0.000	2.358
I 750	0.990	0.470	2.00	10.00	6.059	0.000	2.819
I 751	0.990	0.499	2.00	10.00	6.059	0.000	2.993
I 752	0.990	0.192	2.00	10.00	6.059	0.000	1.152
I 753	0.990	0.432	2.00	10.00	6.059	0.000	2.592
I 754	0.990	0.735	2.00	10.00	6.059	0.000	4.409
I 755	0.990	0.249	2.00	10.00	6.059	0.000	1.494
I 756	0.990	0.492	2.00	10.00	6.059	0.000	2.951
I 757	0.990	0.096	2.00	10.00	6.059	0.000	0.576
I 758	0.990	0.192	2.00	10.00	6.059	0.000	1.152
I 759	0.990	0.307	2.00	10.00	6.059	0.000	1.842
I 760	0.990	0.259	2.00	10.00	6.059	0.000	1.554
I 761	0.990	0.456	2.00	10.00	6.059	0.000	2.735
I 762	0.990	0.202	2.00	10.00	6.059	0.000	1.212
I 763	0.990	0.336	2.00	10.00	6.059	0.000	2.016
I 764	0.990	0.489	2.00	10.00	6.059	0.000	2.933
I 765	0.990	0.421	2.00	10.00	6.059	0.000	2.526
I 766	0.990	0.125	2.00	10.00	6.059	0.000	0.750
I 767	0.990	0.409	2.00	10.00	6.059	0.000	2.454
I 768	0.990	0.086	2.00	10.00	6.059	0.000	0.516

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 3
Tue Nov 18 08:28:48 1997

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I300	0.990	0.190	10.00	6.059	0.000	1.140
I323	0.990	0.348	10.00	6.059	0.000	2.088
I700	0.990	1.154	10.00	6.059	0.000	6.923
J700	0.990	1.154	10.00	6.059	0.000	6.923
I701	0.990	0.486	10.00	6.059	0.000	2.915
J701	0.990	2.619	10.00	6.059	0.000	15.711
I702	0.990	1.465	10.00	6.059	0.000	8.788
J702	0.990	34.537	13.38	5.335	0.000	182.422
I703	0.990	0.719	10.00	6.059	0.000	4.313
I704	0.990	1.501	10.00	6.059	0.000	9.004
J704	0.990	30.417	13.23	5.363	0.000	161.492
I705	0.990	0.115	10.00	6.059	0.000	0.690
J705	0.990	29.966	13.03	5.400	0.000	160.207
I706	0.990	0.451	10.00	6.059	0.000	2.706
I707	0.990	0.863	10.00	6.059	0.000	5.177
I708	0.990	0.556	10.00	6.059	0.000	3.335
I709	0.990	0.278	10.00	6.059	0.000	1.668
I710	0.990	29.103	12.86	5.434	0.000	156.560
I711	0.990	0.345	10.00	6.059	0.000	2.070
J711	0.990	17.315	10.00	6.059	0.000	103.871
I712	0.990	0.422	10.00	6.059	0.000	2.532
J712	0.990	17.315	10.00	6.059	0.000	103.871
I713	0.990	28.115	12.50	5.504	0.000	153.196
J713	0.990	14.641	10.00	6.059	0.000	87.830
I714	0.990	0.950	10.00	6.059	0.000	5.699
J714	0.990	12.640	10.00	6.059	0.000	75.826
I715	0.990	0.480	10.00	6.059	0.000	2.879
J715	0.990	0.508	10.00	6.059	0.000	3.047
I716	0.990	27.280	12.01	5.604	0.000	151.354
J716	0.990	4.854	10.00	6.059	0.000	29.119
I717	0.990	0.921	12.00	5.606	0.000	5.112
I718	0.990	24.939	10.22	6.006	0.000	148.281
I719	0.990	0.422	10.00	6.059	0.000	2.532
I720	0.990	24.095	10.00	6.059	0.000	144.544
I721	0.990	1.787	10.00	6.059	0.000	10.720
I722	0.990	1.336	10.00	6.059	0.000	8.015
I723	0.990	0.885	10.00	6.059	0.000	5.309
I724	0.990	21.326	10.00	6.059	0.000	127.933
I725	0.990	0.384	10.00	6.059	0.000	2.304
I726	0.990	20.558	10.00	6.059	0.000	123.325
I727	0.990	19.159	10.00	6.059	0.000	114.933
I728	0.990	1.547	10.00	6.059	0.000	9.280
I729	0.990	1.230	10.00	6.059	0.000	7.379
I730	0.990	17.315	10.00	6.059	0.000	103.871
I731	0.990	0.393	10.00	6.059	0.000	2.358
I732	0.990	16.529	10.00	6.059	0.000	99.156
I733	0.990	0.593	10.00	6.059	0.000	3.557
I734	0.990	0.978	10.00	6.059	0.000	5.867
I735	0.990	0.661	10.00	6.059	0.000	3.965
I736	0.990	0.950	10.00	6.059	0.000	5.699
I737	0.990	1.051	10.00	6.059	0.000	6.305

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 4
Tue Nov 18 08:28:48 1997

Cumulative Junction Discharge Computations

Node I.D.	Weighted C-Value	Cumulative Drainage Area (acres)	Cumulative Tc (min)	Intensity (in/hr)	Supplied Discharge (cfs)	Total Discharge (cfs)
I738	0.990	0.221	10.00	6.059	0.000	1.326
I739	0.990	0.852	10.00	6.059	0.000	5.111
I740	0.990	11.567	10.00	6.059	0.000	69.389
I741	0.990	10.877	10.00	6.059	0.000	65.250
I742	0.990	0.998	10.00	6.059	0.000	5.987
I743	0.990	9.247	10.00	6.059	0.000	55.472
I744	0.990	0.422	10.00	6.059	0.000	2.532
I745	0.990	0.086	10.00	6.059	0.000	0.516
I746	0.990	8.136	10.00	6.059	0.000	48.807
I747	0.990	0.864	10.00	6.059	0.000	5.183
I748	0.990	0.413	10.00	6.059	0.000	2.478
I749	0.990	6.840	10.00	6.059	0.000	41.032
I750	0.990	0.470	10.00	6.059	0.000	2.819
I751	0.990	5.977	10.00	6.059	0.000	35.855
I752	0.990	0.624	10.00	6.059	0.000	3.743
I753	0.990	0.432	10.00	6.059	0.000	2.592
I754	0.990	0.735	10.00	6.059	0.000	4.409
I755	0.990	0.741	10.00	6.059	0.000	4.445
I756	0.990	0.492	10.00	6.059	0.000	2.951
I757	0.990	3.378	10.00	6.059	0.000	20.264
I758	0.990	0.192	10.00	6.059	0.000	1.152
I759	0.990	3.090	10.00	6.059	0.000	18.537
I760	0.990	0.259	10.00	6.059	0.000	1.554
I761	0.990	0.658	10.00	6.059	0.000	3.947
I762	0.990	0.202	10.00	6.059	0.000	1.212
I763	0.990	1.866	10.00	6.059	0.000	11.194
I764	0.990	0.910	10.00	6.059	0.000	5.459
I765	0.990	0.421	10.00	6.059	0.000	2.526
I766	0.990	0.620	10.00	6.059	0.000	3.719
I767	0.990	0.409	10.00	6.059	0.000	2.454
I768	0.990	0.086	10.00	6.059	0.000	0.516

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 5
Tue Nov 18 08:28:48 1997

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
300	I300	I743	1145.010	1144.610	Circ	1	n/a	1.250	6.00	6.682	0.012
323	I323	I723	1134.110	1125.040	Circ	1	n/a	1.250	31.00	30.597	0.012
333	I727	I726	1112.850	1112.480	Circ	1	n/a	3.000	50.00	0.740	0.012
336	J712	J711	1126.340	1113.690	Circ	1	n/a	3.000	48.00	27.320	0.012
337	I730	J712	1127.720	1126.340	Circ	1	n/a	3.000	186.00	0.742	0.012
700	I700	J700	1128.600	1127.990	Circ	1	n/a	1.250	54.00	1.130	0.012
701	I701	I700	1129.170	1128.700	Circ	1	n/a	1.250	68.50	0.686	0.012
702	J700	J701	1127.740	1119.310	Circ	1	n/a	1.500	305.00	2.765	0.012
703	I702	J701	1122.000	1119.450	Circ	1	n/a	1.250	90.00	2.834	0.012
704	I703	I702	1122.190	1120.940	Circ	1	n/a	1.250	55.00	2.273	0.012
705	J701	J702	1119.310	1114.100	Circ	1	n/a	1.500	189.00	2.758	0.012
706	J702	J703	1103.280	1103.150	Circ	1	n/a	4.000	46.00	0.283	0.012
707	I704	J702	1118.970	1114.360	Circ	1	n/a	1.250	56.00	8.260	0.012
708	J704	J702	1103.660	1103.380	Circ	1	n/a	4.000	117.00	0.239	0.012
709	I706	J704	1117.060	1104.040	Circ	1	n/a	1.250	79.00	16.710	0.012
710	I705	I706	1118.500	1117.560	Circ	1	n/a	1.250	10.00	9.442	0.012
711	J705	J704	1104.030	1103.660	Circ	1	n/a	4.000	155.00	0.239	0.012
712	I707	J705	1116.790	1105.410	Circ	1	n/a	1.250	50.00	23.373	0.012
713	I708	I707	1117.570	1116.950	Circ	1	n/a	1.250	26.00	2.385	0.012
714	I709	I708	1118.400	1117.820	Circ	1	n/a	1.250	26.00	2.231	0.012
715	I710	J705	1104.350	1104.030	Circ	1	n/a	4.000	134.00	0.239	0.012
716	I711	I710	1115.560	1107.510	Circ	1	n/a	1.250	20.00	43.969	0.012
717	I713	I710	1104.890	1104.500	Circ	1	n/a	4.000	268.00	0.146	0.012
718	I712	I713	1119.420	1117.870	Circ	1	n/a	1.250	51.00	3.041	0.012
720	I716	I713	1105.620	1104.890	Circ	1	n/a	4.000	366.00	0.199	0.012
721	I714	I716	1120.590	1117.760	Circ	1	n/a	1.250	98.00	2.889	0.012
722	I715	I714	1120.890	1120.690	Circ	1	n/a	1.250	11.00	1.818	0.012
723	I717	I716	1119.480	1105.620	Circ	1	n/a	1.250	20.00	96.125	0.012
724	I718	I716	1106.720	1105.620	Circ	1	n/a	4.000	550.00	0.200	0.012
725	I719	I718	1122.200	1120.700	Circ	1	n/a	1.250	98.00	1.531	0.012
726	I720	I718	1108.900	1107.220	Circ	1	n/a	3.500	381.00	0.441	0.012
727	I721	I720	1121.960	1120.300	Circ	1	n/a	1.250	10.00	16.834	0.012
728	I722	I721	1123.960	1122.210	Circ	1	n/a	1.250	100.00	1.750	0.012
729	I723	I722	1125.040	1124.210	Circ	1	n/a	1.250	25.00	3.322	0.012
730	I724	I720	1110.660	1108.900	Circ	1	n/a	3.500	400.00	0.440	0.012
731	I725	I724	1125.850	1123.950	Circ	1	n/a	1.250	98.00	1.939	0.012
732	I726	I724	1112.230	1110.910	Circ	1	n/a	3.250	300.00	0.440	0.012
733	I728	I727	1127.560	1126.560	Circ	1	n/a	1.250	98.00	1.020	0.012
734	I729	I728	1127.890	1127.660	Circ	1	n/a	1.250	10.00	2.301	0.012
735	J711	I727	1113.660	1112.850	Circ	1	n/a	3.000	117.00	0.692	0.012
736	I731	I730	1130.560	1129.160	Circ	1	n/a	1.250	98.00	1.429	0.012
737	I732	I730	1130.560	1127.970	Circ	1	n/a	2.750	350.00	0.740	0.012
738	I733	I732	1137.450	1131.310	Circ	1	n/a	1.250	64.00	9.638	0.012
739	I734	I732	1132.620	1131.310	Circ	1	n/a	1.250	108.00	1.213	0.012
740	I735	I734	1137.020	1133.120	Circ	1	n/a	1.250	88.00	4.436	0.012
741	J713	I732	1131.990	1131.310	Circ	1	n/a	2.750	285.00	0.239	0.012
742	I736	J713	1134.170	1132.740	Circ	1	n/a	1.250	29.00	4.937	0.012
743	I737	J713	1134.540	1132.740	Circ	1	n/a	1.250	165.00	1.091	0.012
744	J714	J713	1133.020	1131.990	Circ	1	n/a	2.750	206.00	0.500	0.012
745	I738	J714	1136.210	1134.520	Circ	1	n/a	1.250	23.00	7.368	0.012
746	I739	J714	1136.210	1134.520	Circ	1	n/a	1.250	154.00	1.097	0.012

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 6
Tue Nov 18 08:28:48 1997

Conveyance Configuration Data

Run I.D.	Node I.D. US	Node I.D. DS	Flowline Elev. US	Flowline Elev. DS	Shape	#	Span (ft)	Rise (ft)	Length (ft)	Slope (%)	n
747	I740	J714	1134.400	1130.520	Circ	1	n/a	2.500	113.00	3.436	0.012
748	I741	I740	1138.170	1134.400	Circ	1	n/a	2.500	334.00	1.129	0.012
749	I742	I741	1140.510	1138.920	Circ	1	n/a	1.250	153.00	1.039	0.012
750	I743	I741	1143.360	1138.170	Circ	1	n/a	2.500	273.00	1.901	0.012
751	J715	I743	1145.780	1144.610	Circ	1	n/a	1.250	85.00	1.377	0.012
752	I744	J715	1146.790	1145.780	Circ	1	n/a	1.250	65.00	1.554	0.012
753	I745	J715	1147.000	1145.780	Circ	1	n/a	1.250	57.00	2.141	0.012
754	I746	I743	1147.590	1144.360	Circ	1	n/a	2.500	255.00	1.267	0.012
755	I747	I746	1155.720	1154.400	Circ	1	n/a	1.250	75.00	1.760	0.012
756	I748	I747	1157.220	1155.720	Circ	1	n/a	1.250	16.00	9.416	0.012
757	I749	I746	1148.900	1147.990	Circ	1	n/a	2.000	300.00	0.303	0.012
758	I750	I749	1165.870	1163.360	Circ	1	n/a	1.250	90.00	2.790	0.012
759	I751	I749	1149.790	1148.900	Circ	1	n/a	2.000	300.00	0.297	0.012
760	I752	I751	1169.180	1150.160	Circ	1	n/a	1.250	54.00	37.634	0.012
761	I753	I752	1170.560	1169.280	Circ	1	n/a	1.250	16.00	8.026	0.012
762	J716	I751	1150.470	1149.780	Circ	1	n/a	2.000	300.00	0.230	0.012
763	I754	J716	1169.000	1150.470	Circ	1	n/a	1.250	43.00	47.755	0.012
764	I755	J716	1169.430	1150.930	Circ	1	n/a	1.250	153.00	12.181	0.012
765	I756	I755	1169.930	1169.430	Circ	1	n/a	1.250	10.00	5.006	0.012
766	I757	J716	1150.890	1150.550	Circ	1	n/a	2.000	115.00	0.296	0.012
767	I758	I757	1170.780	1168.020	Circ	1	n/a	1.250	30.00	9.239	0.012
768	I759	I757	1151.780	1150.890	Circ	1	n/a	2.000	300.00	0.297	0.012
769	I760	I759	1179.530	1163.730	Circ	1	n/a	1.250	56.00	29.409	0.012
770	I761	I759	1164.880	1163.820	Circ	1	n/a	1.250	127.00	0.835	0.012
771	I762	I761	1177.880	1164.980	Circ	1	n/a	1.250	38.00	36.091	0.012
772	I763	I759	1152.660	1151.780	Circ	1	n/a	2.000	300.00	0.293	0.012
773	I764	I763	1160.490	1159.890	Circ	1	n/a	1.250	60.00	1.000	0.012
774	I765	I764	1161.090	1160.490	Circ	1	n/a	1.250	60.00	1.000	0.012
775	I766	I763	1153.030	1152.660	Circ	1	n/a	2.000	125.00	0.296	0.012
776	I767	I766	1159.150	1159.000	Circ	1	n/a	1.250	8.00	1.875	0.012
777	I768	I766	1159.730	1159.490	Circ	1	n/a	1.250	60.00	0.400	0.012

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 7
Tue Nov 18 08:28:48 1997

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
300	1205.578	1205.570	0.03	0.212	1.250	8.27	0.93	1.140	18.089	0.007
323	1146.743	1146.693	0.09	0.198	1.250	16.70	1.70	2.088	38.710	0.022
333	1157.761	1156.085	2.53	3.000	3.000	16.69	16.26	114.933	62.158	0.411
336	1162.178	1160.850	2.07	1.075	3.000	45.56	14.69	103.871	377.675	0.336
337	1166.693	1162.178	2.07	3.000	3.000	15.09	14.69	103.871	62.240	0.671
700	1129.922	1128.726	0.98	0.953	0.953	6.90	6.90	6.923	7.438	0.370
701	1130.086	1129.922	0.17	0.628	1.222	4.73	2.39	2.915	5.797	0.044
702	1128.726	1122.765	0.37	0.628	1.500	9.87	3.92	6.923	18.922	0.358
703	1127.213	1122.765	1.58	0.804	1.250	10.54	7.16	8.788	11.782	3.029
704	1127.518	1127.213	0.38	0.557	1.250	8.17	3.51	4.313	10.551	0.096
705	1122.765	1118.425	1.91	1.044	1.500	11.96	8.89	15.711	18.897	0.737
706	1118.425	1115.500	1.37	4.000	4.000	14.90	14.52	182.422	82.726	2.292
707	1119.974	1118.425	1.66	0.586	1.250	15.97	7.34	9.004	20.113	0.418
708	1120.198	1118.425	1.08	4.000	4.000	13.19	12.85	161.492	76.126	0.513
709	1120.377	1120.198	0.15	0.259	1.250	14.64	2.20	2.706	28.606	0.060
710	1120.380	1120.377	0.01	0.153	1.250	8.00	0.56	0.690	21.503	0.002
711	1122.346	1120.198	1.06	4.000	4.000	13.09	12.75	160.207	76.030	0.505
712	1122.841	1122.346	0.55	0.330	1.250	19.90	4.22	5.177	33.833	0.221
713	1122.992	1122.841	0.23	0.476	1.250	7.76	2.72	3.335	10.808	0.092
714	1123.021	1122.992	0.06	0.338	1.250	6.23	1.36	1.668	10.454	0.014
715	1123.944	1122.346	1.01	4.000	4.000	12.79	12.46	156.560	76.045	0.241
716	1123.984	1123.944	0.09	0.180	1.250	19.05	1.69	2.070	46.404	0.022
717	1126.773	1123.944	0.97	4.000	4.000	12.51	12.19	153.196	59.363	0.231
718	1126.872	1126.773	0.13	0.387	1.250	7.86	2.06	2.532	12.203	0.033
720	1130.461	1126.773	0.95	4.000	4.000	12.36	12.04	151.354	69.497	0.225
721	1131.379	1130.461	0.66	0.609	1.250	9.60	4.64	5.699	11.895	0.268
722	1131.440	1131.379	0.17	0.474	1.250	6.75	2.35	2.879	9.437	0.043
723	1130.702	1130.461	0.53	0.231	1.250	32.93	4.17	5.112	68.612	0.135
724	1135.888	1130.461	0.91	4.000	4.000	12.11	11.80	148.281	69.593	0.433
725	1136.049	1135.888	0.13	0.463	1.250	6.13	2.06	2.532	8.658	0.033
726	1143.291	1135.888	1.76	3.500	3.500	15.42	15.02	144.544	72.376	0.702
727	1144.474	1143.291	2.35	0.529	1.250	21.69	8.74	10.720	28.712	0.949
728	1146.316	1144.474	1.31	0.898	1.250	8.49	6.53	8.015	9.258	0.530
729	1146.693	1146.316	0.58	0.562	1.250	9.92	4.33	5.309	12.755	0.233
730	1149.351	1143.291	1.38	3.500	3.500	13.65	13.30	127.933	72.299	0.550
731	1149.485	1149.351	0.11	0.413	1.250	6.50	1.88	2.304	9.745	0.027
732	1156.085	1149.351	1.90	3.250	3.250	15.26	14.87	123.325	59.334	1.030
733	1160.195	1157.761	1.76	1.250	1.250	7.77	7.56	9.280	7.069	0.711
734	1160.588	1160.195	1.11	0.767	1.250	9.34	6.01	7.379	10.615	0.281
735	1160.850	1157.761	2.07	3.000	3.000	15.09	14.69	103.871	60.122	0.671
736	1166.833	1166.693	0.11	0.454	1.250	5.87	1.92	2.358	8.365	0.029
737	1178.043	1166.693	3.00	2.750	2.750	17.14	16.69	99.156	49.287	0.866
738	1178.274	1178.043	0.26	0.342	1.250	13.04	2.90	3.557	21.726	0.065
739	1179.086	1178.043	0.70	0.815	1.250	6.92	4.78	5.867	7.708	0.284
740	1179.450	1179.086	0.32	0.443	1.250	10.18	3.23	3.965	14.740	0.081
741	1185.421	1178.043	2.35	2.750	2.750	15.18	14.79	87.830	27.986	0.680
742	1185.781	1185.421	0.66	0.523	1.250	11.70	4.64	5.699	15.549	0.168
743	1186.965	1185.421	0.81	0.898	1.250	6.68	5.14	6.305	7.310	0.205
744	1189.789	1185.421	1.75	2.750	2.750	13.11	12.77	75.826	40.513	0.760
745	1189.806	1189.789	0.04	0.224	1.250	8.92	1.08	1.326	18.995	0.009
746	1190.745	1189.789	0.53	0.770	1.250	6.45	4.16	5.111	7.331	0.135

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 8
Tue Nov 18 08:28:48 1997

Conveyance Hydraulic Computations

Run	Hydraulic Gradeline US Elev	DS Elev	Slope (%)	Depth Unif. (ft)	Actual (ft)	Velocity Unif. (fps)	Actual (fps)	Q (cfs)	Cap (cfs)	Junc Loss (ft)
747	1193.166	1189.789	2.44	1.759	2.500	18.80	14.14	69.389	82.363	0.621
748	1200.918	1193.166	2.16	2.500	2.500	13.65	13.29	65.250	47.211	0.549
749	1202.223	1200.918	0.73	0.880	1.250	6.49	4.88	5.987	7.134	0.185
750	1205.570	1200.918	1.56	1.860	2.500	14.16	11.30	55.472	61.273	0.397
751	1205.807	1205.570	0.19	0.527	1.250	6.20	2.48	3.047	8.211	0.077
752	1205.926	1205.807	0.13	0.460	1.250	6.17	2.06	2.532	8.724	0.033
753	1205.813	1205.807	0.01	0.191	1.250	4.34	0.42	0.516	10.239	0.002
754	1209.415	1205.570	1.21	1.997	2.500	11.61	9.94	48.807	50.012	0.768
755	1210.048	1209.415	0.55	0.667	1.250	7.79	4.22	5.183	9.285	0.222
756	1210.099	1210.048	0.13	0.287	1.250	11.62	2.02	2.478	21.475	0.032
757	1219.416	1209.415	2.80	2.000	2.000	13.41	13.06	41.032	13.498	1.591
758	1219.603	1219.416	0.16	0.418	1.250	7.84	2.30	2.819	11.689	0.041
759	1227.052	1219.416	2.14	2.000	2.000	11.72	11.41	35.855	13.349	1.215
760	1227.322	1227.052	0.29	0.249	1.250	21.61	3.05	3.743	42.931	0.116
761	1227.379	1227.322	0.14	0.305	1.250	11.14	2.11	2.592	19.825	0.035
762	1232.089	1227.052	1.41	2.000	2.000	9.52	9.27	29.119	11.753	0.801
763	1232.360	1232.089	0.40	0.255	1.250	24.48	3.59	4.409	48.360	0.100
764	1232.869	1232.089	0.40	0.361	1.250	15.15	3.62	4.445	24.424	0.163
765	1232.932	1232.869	0.18	0.368	1.250	9.80	2.41	2.951	15.658	0.045
766	1233.263	1232.089	0.68	2.000	2.000	6.62	6.45	20.264	13.326	0.388
767	1233.278	1233.263	0.03	0.198	1.250	9.21	0.94	1.152	21.271	0.007
768	1235.304	1233.263	0.57	2.000	2.000	6.06	5.90	18.537	13.349	0.325
769	1235.344	1235.304	0.05	0.172	1.250	15.14	1.27	1.554	37.951	0.012
770	1235.837	1235.304	0.32	0.710	1.250	5.49	3.22	3.947	6.394	0.129
771	1235.856	1235.837	0.03	0.146	1.250	15.20	0.99	1.212	42.041	0.008
772	1236.047	1235.304	0.21	1.407	2.000	4.74	3.56	11.194	13.273	0.118
773	1236.658	1236.047	0.61	0.829	1.250	6.32	4.45	5.459	6.998	0.246
774	1236.769	1236.658	0.13	0.520	1.250	5.23	2.06	2.526	6.998	0.033
775	1236.105	1236.047	0.02	0.718	2.000	3.66	1.18	3.719	13.334	0.033
776	1236.146	1236.105	0.12	0.432	1.250	6.53	2.00	2.454	9.583	0.031
777	1236.106	1236.105	0.01	0.289	1.250	2.41	0.42	0.516	4.426	0.001

WinStorm TxDOT STORM DRAIN DESIGN Version 1.3 September 1997 PAGE 9
Tue Nov 18 08:28:48 1997

Computation Messages

```
*Warning: Run - 712  - Upstream Hydraulic Gradeline = 1122.84 - Exceeds Critical
Elevation = 1120.79
*Warning: Run - 715  - Upstream Hydraulic Gradeline = 1123.94 - Exceeds Critical
Elevation = 1119.30
*Warning: Run - 717  - Upstream Hydraulic Gradeline = 1126.77 - Exceeds Critical
Elevation = 1120.37
*Warning: Run - 726  - Upstream Hydraulic Gradeline = 1143.29 - Exceeds Critical
Elevation = 1127.46
*Warning: Run - 333  - Upstream Hydraulic Gradeline = 1157.76 - Exceeds Critical
Elevation = 1131.06
*Warning: Run - 337  - Upstream Hydraulic Gradeline = 1166.69 - Exceeds Critical
Elevation = 1133.56
*Warning: Run - 747  - Upstream Hydraulic Gradeline = 1193.17 - Exceeds Critical
Elevation = 1139.85
*Warning: Run - 754  - Upstream Hydraulic Gradeline = 1209.41 - Exceeds Critical
Elevation = 1157.94
*Warning: Run - 766  - Upstream Hydraulic Gradeline = 1233.26 - Exceeds Critical
Elevation = 1173.04
*Warning: Run - 775  - Upstream Hydraulic Gradeline = 1236.10 - Exceeds Critical
Elevation = 1162.28
*Computation: Run = 300 - Pipe Flowing Full
*Computation: Run = 323 - Pipe Flowing Full
*Computation: Run = 333 - Insufficient Capacity
*Computation: Run = 336 - Pipe Flowing Full
*Computation: Run = 337 - Insufficient Capacity
*Computation: Run = 701 - Pipe Flowing Full
*Computation: Run = 702 - Pipe Flowing Full
*Computation: Run = 703 - Pipe Flowing Full
*Computation: Run = 704 - Pipe Flowing Full
*Computation: Run = 705 - Pipe Flowing Full
*Computation: Run = 706 - Insufficient Capacity
*Computation: Run = 707 - Pipe Flowing Full
*Computation: Run = 708 - Insufficient Capacity
*Computation: Run = 709 - Pipe Flowing Full
*Computation: Run = 710 - Pipe Flowing Full
*Computation: Run = 711 - Insufficient Capacity
*Computation: Run = 712 - Pipe Flowing Full
*Computation: Run = 713 - Pipe Flowing Full
*Computation: Run = 714 - Pipe Flowing Full
*Computation: Run = 715 - Insufficient Capacity
*Computation: Run = 716 - Pipe Flowing Full
*Computation: Run = 717 - Insufficient Capacity
*Computation: Run = 718 - Pipe Flowing Full
*Computation: Run = 720 - Insufficient Capacity
*Computation: Run = 721 - Pipe Flowing Full
*Computation: Run = 722 - Pipe Flowing Full
*Computation: Run = 723 - Pipe Flowing Full
*Computation: Run = 724 - Insufficient Capacity
*Computation: Run = 725 - Pipe Flowing Full
*Computation: Run = 726 - Insufficient Capacity
*Computation: Run = 727 - Pipe Flowing Full
*Computation: Run = 728 - Pipe Flowing Full
*Computation: Run = 729 - Pipe Flowing Full
*Computation: Run = 730 - Insufficient Capacity
*Computation: Run = 731 - Pipe Flowing Full
```

```
*Computation: Run = 732 - Insufficient Capacity
*Computation: Run = 733 - Insufficient Capacity
*Computation: Run = 734 - Pipe Flowing Full
*Computation: Run = 735 - Insufficient Capacity
*Computation: Run = 736 - Pipe Flowing Full
*Computation: Run = 737 - Insufficient Capacity
*Computation: Run = 738 - Pipe Flowing Full
*Computation: Run = 739 - Pipe Flowing Full
*Computation: Run = 740 - Pipe Flowing Full
*Computation: Run = 741 - Insufficient Capacity
*Computation: Run = 742 - Pipe Flowing Full
*Computation: Run = 743 - Pipe Flowing Full
*Computation: Run = 744 - Insufficient Capacity
*Computation: Run = 745 - Pipe Flowing Full
*Computation: Run = 746 - Pipe Flowing Full
*Computation: Run = 747 - Pipe Flowing Full
*Computation: Run = 748 - Insufficient Capacity
*Computation: Run = 749 - Pipe Flowing Full
*Computation: Run = 750 - Pipe Flowing Full
*Computation: Run = 751 - Pipe Flowing Full
*Computation: Run = 752 - Pipe Flowing Full
*Computation: Run = 753 - Pipe Flowing Full
*Computation: Run = 754 - Pipe Flowing Full
*Computation: Run = 755 - Pipe Flowing Full
*Computation: Run = 756 - Pipe Flowing Full
*Computation: Run = 757 - Insufficient Capacity
*Computation: Run = 758 - Pipe Flowing Full
*Computation: Run = 759 - Insufficient Capacity
*Computation: Run = 760 - Pipe Flowing Full
*Computation: Run = 761 - Pipe Flowing Full
*Computation: Run = 762 - Insufficient Capacity
*Computation: Run = 763 - Pipe Flowing Full
*Computation: Run = 764 - Pipe Flowing Full
*Computation: Run = 765 - Pipe Flowing Full
*Computation: Run = 766 - Insufficient Capacity
*Computation: Run = 767 - Pipe Flowing Full
*Computation: Run = 768 - Insufficient Capacity
*Computation: Run = 769 - Pipe Flowing Full
*Computation: Run = 770 - Pipe Flowing Full
*Computation: Run = 771 - Pipe Flowing Full
*Computation: Run = 772 - Pipe Flowing Full
*Computation: Run = 773 - Pipe Flowing Full
*Computation: Run = 774 - Pipe Flowing Full
*Computation: Run = 775 - Pipe Flowing Full
*Computation: Run = 776 - Pipe Flowing Full
*Computation: Run = 777 - Pipe Flowing Full

NORMAL Completion of WinStorm.
```

ADOT HEC-12 — Pavement Spread Check for 10-yr Onsite Storm Drain w/ HOV Lanes

JOB: SR51 DRAINAGE ASSESSMENT — FILE: 10yrHOV.XLS — 10-yr with HOV Lanes

Superelevated section @ Luke reconfigured for median inlets only — Capture ratios: 80% 50%

Inlet number:	I700	I701	I702	I703	I704	I705	I706	I707	I708	I709	I710	I711	I712	I713	I714	I715	I716	I717	I718
Return Period	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
HYDROLOGY COMPUTATION:																			
Structure location station (ft):	152+40	152+40	155+35	155+35	156+88	158+35	158+35	159+90	160+23	160+55	161+25	161+40	164+32	164+00	168+03	167+85	168+03	167+85	173+20
Paved Area (acres)	0.57	0.42	0.43	0.41	0.68	0.12	0.35	0.32	0.29	0.29	0.67	0.36	0.44	0.43	0.49	0.50	0.49	0.32	0.44
Pavement Runoff Coefficient	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Landscaped Area (acres)	0.16	0.11	0.44	0.43	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81	0.00
Landscape Runoff Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Contributing watershed area (acres):	0.730	0.530	0.870	0.840	1.800	0.120	0.350	0.320	0.290	0.290	0.670	0.360	0.440	0.430	0.490	0.500	0.490	1.130	0.440
Composite Runoff Coefficient "C":	0.90	0.90	0.82	0.82	0.79	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.77	0.95
Time of Concentration (10 minute minimum)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation Intensity (in/hr):	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56
Subarea discharge Q (cfs):	2.98	2.17	3.26	3.15	6.51	0.52	1.51	1.38	1.26	1.26	2.90	1.56	1.90	1.86	2.12	2.16	2.12	3.97	1.90
Previous by-pass flow (cfs):	0.00	0.00	4.45	0.84	4.08	0.00	0.52	0.44	0.34	0.00	0.78	0.00	1.11	0.78	1.08	0.00	0.46	0.00	3.51
Upstream inlet(s) contributing by-pass	None	None	I700 I704/2	I701	I702 I704/2	None	I703 I705	I708 I706	I709	I712	I704, I713 I711/2	Grate Removed	I714	I716 I711/2	I715/2 I719	Grate Removed	I718 Paved	Grate I717/3 Removed	I721 2/3 Paved I717 Lndscp
Discharge added by operator:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—	
Total discharge Q (cfs):	2.98	2.17	7.72	3.99	7.34	0.52	2.03	1.82	1.60	1.26	3.68	1.56	3.02	2.64	3.20	2.16	2.58	3.97	5.41
SHOULDER AND GUTTER CONFIGURATION:						Area Drain					Grate Moved	Area Drain				Area Drain		Area Drain	
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0205	0.0205	0.0205	0.0205	0.0150	0.0000	0.0080	0.0000	0.0015	0.0030	0.0047	0.0000	0.0471	0.0471	0.0471	0.0000	0.0471	0.0000	0.0471
Inlet type (1=grate, 2=side opening or slotted):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Longitudinal profile (1=on-grade, 2=sag):	1	1	1	1	1	2	1	2	1	1	2	2	1	1	1	2	1	2	1
Gutter Configuration (1=freeway, 2=vertical):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Catch Basins in Grouped Inlets	1	1	1	2	3	1	2	1	1	1	2	2	2	2	2	1	2	1	2
Inlet description:	N(dbl)	N(dbl)	N(dbl)	2, N(dbl)	3, N(dbl)	N(dbl)	2, N(trp)	N(dbl)	N(dbl)	N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	N(dbl)	2, N(dbl)	N(dbl)	2, N(dbl)
Grate width:	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Grate length:	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Pavement cross-slope (Sx):	0.040	0.032	0.040	0.040	0.023	0.000	0.007	0.019	0.019	0.024	0.034	0.000	0.040	0.040	0.005	0.000	0.020	0.000	0.020
Width of gutter from flowline (ft):	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (Sw=Sw-Sx)	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056
Flooded Width from flowline (ft): before inlet	5.86	5.90	8.42	6.52	12.40	NA	17.21	NA	11.96	8.28	NA	NA	4.96	4.71	18.40	NA	7.01	NA	9.55
Depth at flowline (ft): before inlet	0.26	0.22	0.36	0.28	0.33	0.00	0.20	0.00	0.29	0.24	0.00	0.00	0.22	0.21	0.17	0.00	0.19	0.00	0.24
Water cross-area (sq.ft): before inlet	0.80	0.65	1.63	0.99	1.97	0.00	1.21	0.00	1.54	0.94	0.00	0.00	0.58	0.53	0.95	0.00	0.59	0.00	1.04
Velocity V for total discharge (fps): before inlet	3.74	3.34	4.74	4.03	3.72	0.00	1.68	0.00	1.04	1.33	0.00	0.00	5.16	5.00	3.39	0.00	4.40	0.00	5.19
Ratio of gutter depression flow to total Q (Eod):	60.8%	62.2%	47.2%	56.5%	36.5%	100.0%	33.0%	100.0%	38.4%	50.4%	100.0%	100.0%	67.6%	69.8%	34.8%	100.0%	59.0%	100.0%	46.1%
Equivalent cross-slope (Se):	0.049	0.046	0.047	0.049	0.035	0.056	0.023	0.056	0.033	0.040	0.056	0.056	0.051	0.051	0.023	0.056	0.041	0.056	0.036
GRATE INLETS ON-GRADE:																			
Ratio of grate frontal flow to total flow:	47.6%	49.6%	36.4%	43.9%	28.4%	—	27.2%	—	86.3%	40.1%	—	—	53.6%	55.6%	29.5%	—	48.3%	—	36.8%
Inlet frontal flow in cfs (Qw):	1.42	1.08	2.81	1.75	2.09	—	0.55	—	1.38	0.50	—	—	1.62	1.47	0.95	—	1.25	—	1.99
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	10.30	10.30	10.30	10.30	10.30	—	10.30	—	10.30	10.30	—	—	10.30	10.30	10.30	—	10.30	—	10.30
Fraction of frontal flow intercepted (Rf):	100.0%	100.0%	100.0%	100.0%	100.0%	—	100.0%	—	100.0%	100.0%	—	—	100.0%	100.0%	100.0%	—	100.0%	—	100.0%
Side flow in cfs (Qs):	1.56	1.09	4.91	2.23	5.25	—	1.48	—	0.22	0.75	—	—	1.40	1.17	2.26	—	1.34	—	3.42
Effective grate length w/clogging:	3.00	3.00	3.00	3.00	3.00	—	3.00	—	3.00	3.00	—	—	3.00	3.00	3.00	—	3.00	—	3.00
Fraction of side flow interception (Rs):	23.4%	23.1%	16.9%	21.4%	15.3%	—	19.5%	—	60.2%	54.2%	—	—	14.8%	15.6%	4.4%	—	10.4%	—	7.9%
Grate Efficiency (E):	59.9%	61.2%	47.1%	55.9%	39.4%	—	41.4%	—	94.5%	72.6%	—	—	60.5%	62.5%	32.7%	—	53.6%	—	41.8%
Total flow intercepted (cfs):	1.78	1.33	3.64	3.99	7.34	0.00	1.68	0.00	1.51	0.91	0.00	0.00	3.02	2.64	2.09	0.00	2.58	0.00	4.52
Grate flow-by (cfs):	1.19	0.84	4.08	0.00	0.00	—	0.35	—	0.09	0.34	—	—	0.00	0.00	1.11	—	0.00	—	0.89
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:																			
Length required for total interception (ft): w/o clogging	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Length of inlet provided L (ft):																			
Interception for length L (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Efficiency for length L:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slotted drain or side opening flow-by (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:																			
Head available for weir flow at sag (ft):						0.33		0.23			0.25	0.33				0.33		0.33	0.32
Capacity of grate in a sag (3-sided weir) in cfs:	—	—	—	—	—	—	—	1.65	—	—	3.68	—	—	—	—	—	—	—	5.41
Capacity of grate in a sag (4-sided weir):	—	—	—	—	—	0.52	—	—	—	—	—	1.56	—	—	—	2.16	—	3.97	—
Length provided of curb-opening inlet at sag:																			
Capacity of curb-opening inlet in a sag (weir) in cfs:	—	—	—	—	—	Grate	—	Grate	—	—	Grate	Grate	—	—	—	Grate	—	Grate	Grate
INFLOW Q FOR CATCH BASIN	1.78	1.33	3.64	3.99	7.34	0.52	1.68	1.65	1.51	0.91	3.68	1.56	3.02	2.64	2.09	2.16	2.58	3.97	5.41
Adjusted CA	0.660	0.481	0.724	0.697	1.444	0.115	0.336	0.307	0.278	0.278	0.643	0.345	0.422	0.413	0.470	0.480	0.470	0.880	0.422

Design by: AJH

ADOT HEC-12

JOB: SR51 DRAINAGE ASSESSMENT — 10-yr with HOV Lanes

Superelevated section @ Luke reconfigured for median inlets only

Inlet number:	I719	I720	I721	I722	I723	I323	I724	I725	I726	I727	I728	I729	I730	I731	I732	I733	I734	I735
Return Period	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
HYDROLOGY COMPUTATION:																		
Structure location station (ft):	173+20	177+15	177+33	177+33	177+00	177+00	181+00	181+00	184+15	184+83	184+83	184+50	188+00	188+00	191+50	Ramp 191+56	191+50	191+50
Paved Area (acres)	0.44	0.25	0.47	0.47	0.26	0.00	0.40	0.40	0.40	0.31	0.33	0.39	0.41	0.41	0.33	0.31	0.33	0.31
Pavement Runoff Coefficient	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Landscaped Area (acres)	0.00	0.98	0.00	0.00	0.38	0.46	0.00	0.00	1.34	0.00	0.00	1.13	0.00	0.00	0.00	0.39	0.00	0.48
Landscape Runoff Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Contributing watershed area (acres):	0.440	1.230	0.470	0.470	0.640	0.460	0.400	0.400	1.740	0.310	0.330	1.520	0.410	0.410	0.330	0.700	0.330	0.790
Composite Runoff Coefficient "C":	0.95	0.75	0.95	0.95	0.80	0.70	0.95	0.95	0.76	0.95	0.95	0.76	0.95	0.95	0.95	0.81	0.95	0.80
Time of Concentration (10 minute minimum)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation intensity (in/hr):	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56
Subarea discharge Q (cfs):	1.90	3.13	2.03	2.03	2.34	1.47	1.73	1.73	6.00	1.34	1.43	5.29	1.77	1.77	1.43	2.59	1.43	2.87
Previous by-pass flow (cfs):	1.08	0.00	0.54	0.56	0.00	0.00	7.57	5.28	Grate	3.45	3.09	Grate	3.00	2.65	0.00	0.00	0.00	0.00
Upstream inlet(s) contributing by-pass	I722 I715/2	Lndscp Only	I720, I724 Pvd I720/2	I725 Pvd I723/2	Grate Removed	None	I727	I728 I723	Removed	I730 I726/2	I729/2 I731	Removed	I732 I726/2	I734 I729/2	None	None	None	None
Discharge added by operator:	—	—	—	—	—	—	I720/2	I729/2	—	—	—		—	—	—	—	—	—
Total discharge Q (cfs):	2.99	3.13	2.58	2.60	2.34	1.47	9.30	7.01	6.00	4.79	4.52	5.29	4.78	4.42	1.43	2.59	1.43	2.87
SHOULDER AND GUTTER CONFIGURATION:		Area Drain			Area Drain	Area Drain						Area Drain						
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0471	0.0000	0.0471	0.0471	0.0000	0.0000	0.0471	0.0471	0.0000	0.0065	0.0065	0.0000	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073
Inlet type (1=grate, 2=side opening or slotted):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Longitudinal profile (1=on-grade, 2=sag):	1	2	1	1	2	2	1	1	2	1	1	2	1	1	1	1	1	1
Gutter Configuration (1=freeway, 2=vertical):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Catch Basins in Grouped Inlets	2	1	3	3	1	1	3	3	1	3	2	1	2	3	2	2	2	2
Inlet description:	2, N(dbl)	N(dbl)	3, N(dbl)	3, N(dbl)	2, N(dbl)	2, N(dbl)	3, N(dbl)	3, N(dbl)	N(dbl)	3, N(dbl)	2, N(dbl)	N(dbl)	2, N(dbl)	3, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)
Grate width:	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Grate length:	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Pavement cross-slope (Sx):	0.020	0.000	0.020	0.020	0.000	0.000	0.020	0.020	0.000	0.020	0.020	0.000	0.020	0.020	0.020	0.020	0.020	0.020
Width of gutter from flowline (ft):	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (S'w=Sw-Sx)	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056
Flooded Width from flowline (ft): before inlet	7.46	NA	7.00	7.03	NA	NA	11.87	10.60	NA	13.50	13.20	NA	13.18	12.78	8.09	10.32	8.09	10.77
Depth at flowline (ft): before inlet	0.20	0.00	0.19	0.19	0.00	0.00	0.29	0.27	0.00	0.32	0.32	0.00	0.32	0.31	0.22	0.26	0.22	0.27
Water cross-area (sq.ft): before inlet	0.66	0.00	0.59	0.59	0.00	0.00	1.58	1.27	0.00	2.02	1.93	0.00	1.93	1.82	0.76	1.21	0.76	1.31
Velocity V for total discharge (fps): before inlet	4.54	0.00	4.39	4.40	0.00	0.00	5.90	5.52	0.00	2.37	2.34	0.00	2.48	2.43	1.87	2.14	1.87	2.20
Ratio of gutter depression flow to total Q (Eod):	56.2%	100.0%	59.0%	58.9%	100.0%	100.0%	38.4%	42.3%	100.0%	34.5%	35.1%	100.0%	35.2%	36.1%	52.8%	43.3%	52.8%	41.8%
Equivalent cross-slope (Se):	0.040	0.056	0.041	0.041	0.056	0.056	0.034	0.035	0.056	0.032	0.032	0.056	0.033	0.033	0.039	0.035	0.039	0.035
GRATE INLETS ON-GRADE:																		
Ratio of grate frontal flow to total flow:	45.7%	—	48.3%	48.2%	—	—	30.2%	33.4%	—	26.9%	27.5%	—	27.5%	28.3%	42.6%	34.3%	42.6%	33.0%
Inlet frontal flow in cfs (Qw):	1.37	—	1.24	1.25	—	—	2.81	2.34	—	1.29	1.24	—	1.31	1.25	0.61	0.89	0.61	0.95
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	10.30	—	10.30	10.30	—	—	10.30	10.30	—	10.30	10.30	—	10.30	10.30	10.30	10.30	10.30	10.30
Fraction of frontal flow intercepted (Rf):	100.0%	—	100.0%	100.0%	—	—	100.0%	100.0%	—	100.0%	100.0%	—	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Side flow in cfs (Qs):	1.62	—	1.33	1.35	—	—	6.49	4.67	—	3.50	3.28	—	3.46	3.17	0.82	1.70	0.82	1.92
Effective grate length w/clogging:	3.00	—	3.00	3.00	—	—	3.00	3.00	—	3.00	3.00	—	3.00	3.00	3.00	3.00	3.00	3.00
Fraction of side flow interception (Rs):	9.9%	—	10.4%	10.4%	—	—	6.4%	7.2%	—	26.1%	26.6%	—	24.6%	25.2%	35.1%	29.7%	35.1%	28.8%
Grate Efficiency (E):	51.1%	—	53.7%	53.5%	—	—	34.7%	38.2%	—	46.0%	46.7%	—	45.3%	46.3%	62.8%	53.8%	62.8%	52.3%
Total flow intercepted (cfs):	2.99	0.00	2.58	2.60	0.00	0.00	9.30	7.01	0.00	4.79	4.23	0.00	4.33	4.42	1.43	2.59	1.43	2.87
Grate flow-by (cfs):	0.00	—	0.00	0.00	—	—	0.00	0.00	—	0.00	0.30	—	0.45	0.00	0.00	0.00	0.00	0.00
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:																		
Length required for total interception (ft): w/o clogging	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Length of inlet provided L (ft):																		
Interception for length L (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Efficiency for length L:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slotted drain or side opening flow-by (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:																		
Head available for weir flow at sag (ft):		0.33			0.33	0.5						0.33						
Capacity of grate in a sag (3-sided weir) in cfs:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Capacity of grate in a sag (4-sided weir):	—	3.13	—	—	2.34	1.47	—	—	—	—	—	4.55	—	—	—	—	—	—
Length provided of curb-opening inlet at sag:																		
Capacity of curb-opening inlet in a sag (weir) in cfs:	—	Grate	—	—	Grate	Grate	—	—	—	—	—	Grate	—	—	—	—	—	—
INFLOW Q FOR CATCH BASIN	2.99	3.13	2.58	2.60	2.34	1.47	9.30	7.01	0.00	4.79	4.23	4.55	4.33	4.42	1.43	2.59	1.43	2.87
Adjusted CA	0.422	0.933	0.451	0.451	0.518	0.325	0.384	0.384	1.331	0.297	0.317	1.173	0.393	0.393	0.317	0.573	0.317	0.637

Design by: AJH

ADOT HEC-12

JOB: SR51 DRAINAGE ASSESSMENT

10-yr with HOV Lanes

Superelevated section @ Luke reconfigured for median inlets only

Inlet number:	I736	I737	I738	I739	I740	I741	I742	I743	I300	I744	I745	I746	I747	I748	I749	I750	I751	I752
Return Period	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
HYDROLOGY COMPUTATION:																		
Structure location station (ft):	194+48	194+48	196+40	196+40	197+50	201+12	201+12	203+20	203+20	203+20	203+80	205+75	205+75	205+75	208+75	208+75	211+80	211+75
Paved Area (acres)	0.54	0.29	0.23	0.69	0.49	0.43	0.78	0.43	0.08	0.10	0.09	0.45	0.47	0.43	0.41	0.49	0.52	0.20
Pavement Runoff Coefficient	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Landscaped Area (acres)	0.57	1.02	0.00	0.25	0.29	0.29	0.33	0.00	0.15	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape Runoff Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Contributing watershed area (acres):	1.110	1.310	0.230	0.940	0.780	0.720	1.110	0.430	0.230	0.530	0.090	0.450	0.470	0.430	0.410	0.490	0.520	0.200
Composite Runoff Coefficient "C":	0.82	0.76	0.95	0.88	0.86	0.85	0.88	0.95	0.79	0.75	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Time of Concentration (10 minute minimum)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation intensity (in/hr):	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56
Subarea discharge Q (cfs):	4.15	4.51	1.00	3.78	3.05	2.79	4.43	1.86	0.82	1.80	0.39	1.95	2.03	1.86	1.77	2.12	2.25	0.87
Previous by-pass flow (cfs):	0.00	0.13	1.66	0.00	0.25	0.78	0.00	0.00	0.00	0.00	1.25	0.51	2.90	0.00	1.58	0.51	1.35	2.47
Upstream inlet(s) contributing by-pass	I733 I738	I735 I739	I740	I742	I741	I743 I746	I744, I745 & I748	None	None	None	I747	I749 I747/4	I748, I750 I747/4	Grate Removed	I751 I747/4	I752 I747/4	I754, I758 I752/2	I753,I755,I756 I52/2
Discharge added by operator:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total discharge Q (cfs):	4.15	4.64	2.65	3.78	3.29	3.57	4.43	1.86	0.82	1.80	1.64	2.46	2.37	1.86	3.35	2.63	3.60	2.90
SHOULDER AND GUTTER CONFIGURATION:									Area Drain	Area Drain	Area Drain		Barrier Inlet			Barrier Inlet		Barrier Inlet
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0000	0.0000	0.0075	0.0075	0.0085	0.0180	0.0180	0.0320	0.0000	0.0000	0.0000	0.0340	0.0340	0.0340	0.0220	0.0220	0.0100	0.0100
Inlet type (1=grate, 2=side opening or slotted):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Longitudinal profile (1=on-grade, 2=sag):	2	2	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1
Gutter Configuration (1=freeway, 2=vertical):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Catch Basins in Grouped Inlets	2	2	2	2	1	2	3	1	1	1	1	3	1	3	3	3	2	2
Inlet description:	2, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	N(dbl)	2, N(dbl)	3, N(dbl)	N(dbl)	N(dbl)	N(dbl)	N(dbl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(dbl)
Grate width:	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.00	2.00	2.00	2.00	2.00	2.00
Grate length:	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	3.0	3.0	3.0	3.0	3.0	3.0	6.0
Pavement cross-slope (Sx):	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.000	0.000	0.000	0.025	0.024	0.024	0.027	0.027	0.020	0.020
Width of gutter from flowline (ft):	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	2.50	2.50	2.50	2.50	2.50	2.50
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (S'w=Sw-Sx)	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.033	0.033	0.033	0.033	0.033	0.033
Flooded Width from flowline (ft): before inlet	NA	NA	10.38	11.96	11.04	9.80	10.70	6.61	NA	NA	NA	6.46	6.63	5.98	7.79	7.08	11.13	10.21
Depth at flowline (ft): before inlet	0.00	0.00	0.26	0.29	0.27	0.25	0.27	0.19	0.00	0.00	0.00	0.21	0.18	0.17	0.23	0.21	0.26	0.24
Water cross-area (sq.ft): before inlet	0.00	0.00	1.22	1.60	1.37	1.09	1.29	0.53	0.00	0.00	0.00	0.62	0.61	0.50	0.92	0.76	1.38	1.17
Velocity V for total discharge (fps): before inlet	0.00	0.00	2.18	2.37	2.40	3.26	3.43	3.52	0.00	0.00	0.00	3.99	3.91	3.70	3.67	3.46	2.61	2.48
Ratio of gutter depression flow to total Q (Eod):	100.0%	100.0%	43.1%	38.2%	40.9%	45.2%	42.0%	61.6%	100.0%	100.0%	100.0%	60.4%	76.1%	80.5%	68.1%	72.2%	55.2%	58.8%
Equivalent cross-slope (Se):	0.056	0.056	0.035	0.034	0.035	0.036	0.035	0.042	0.056	0.056	0.056	0.043	0.031	0.032	0.031	0.032	0.027	0.028
GRATE INLETS ON-GRADE:																		
Ratio of grate frontal flow to total flow:	—	—	34.1%	30.0%	32.3%	35.9%	33.2%	50.7%	—	—	—	48.8%	45.4%	49.2%	37.9%	40.9%	31.2%	33.8%
Inlet frontal flow in cfs (Qw):	—	—	0.90	1.14	1.06	1.28	1.47	0.94	—	—	—	1.20	1.08	0.92	1.27	1.08	1.13	0.98
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	—	—	10.30	10.30	10.30	10.30	10.30	10.30	—	—	—	6.85	6.85	6.85	6.85	6.85	6.85	10.30
Fraction of frontal flow intercepted (Rf):	—	—	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	—	—	—	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Side flow in cfs (Qs):	—	—	1.75	2.65	2.23	2.29	2.96	0.92	—	—	—	1.26	1.29	0.95	2.08	1.55	2.48	1.92
Effective grate length w/clogging:	—	—	3.00	3.00	3.00	3.00	3.00	3.00	—	—	—	1.50	1.50	1.50	1.50	1.50	1.50	3.00
Fraction of side flow interception (Rs):	—	—	29.2%	26.1%	25.6%	16.6%	15.4%	14.8%	—	—	—	3.4%	3.4%	3.8%	4.2%	4.7%	5.7%	24.5%
Grate Efficiency (E):	—	—	53.3%	48.3%	49.6%	46.5%	43.5%	58.0%	—	—	—	50.6%	47.3%	51.1%	40.5%	43.7%	35.1%	50.0%
Total flow intercepted (cfs):	0.00	0.00	2.65	3.66	1.63	3.32	4.43	1.08	0.00	0.00	0.00	2.46	1.12	1.86	3.35	2.63	2.53	2.90
Grate flow-by (cfs):	—	—	0.00	0.13	1.66	0.25	0.00	0.78	—	—	—	0.00	1.25	0.00	0.00	0.00	1.07	0.00
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:																		
Length required for total interception (ft): w/o clogging	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Length of inlet provided L (ft):																		
Interception for length L (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Efficiency for length L:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slotted drain or side opening flow-by (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:																		
Head available for weir flow at sag (ft):	0.27	0.29							0.33	0.33	0.33							
Capacity of grate in a sag (3-sided weir) in cfs:	4.15	4.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Capacity of grate in a sag (4-sided weir):	—	—	—	—	—	—	—	—	0.82	1.80	1.64	—	—	—	—	—	—	—
Length provided of curb-opening inlet at sag:																		
Capacity of curb-opening inlet in a sag (weir) in cfs:	Grate	Grate	—	—	—	—	—	—	Grate	Grate	Grate	—	—	—	—	—	—	—
INFLOW Q FOR CATCH BASIN	4.15	4.64	2.65	3.66	1.63	3.32	4.43	1.08	0.82	1.80	1.64	2.46	1.12	1.86	3.35	2.63	2.53	2.90
Adjusted CA	0.921	0.999	0.221	0.839	0.675	0.618	0.982	0.413	0.183	0.400	0.086	0.432	0.451	0.413	0.393	0.470	0.499	0.192

Design by: AJH

/ OT / HEC-12

JOB: SR51 DRAINAGE ASSESSMENT

10-yr with HOV Lanes

Superelevated section @ Luke reconfigured for median inlets only

Inlet number:	I753	I754	I755	I756	I757	I758	I759	I760	I761	I762	I763	I764	I765	I766	I767	I768
Return Period	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
HYDROLOGY COMPUTATION:			Ramp A	Ramp A		Ramp B		Ramp B		Ramp A						
Structure location station (ft):	211+75	214+00	14+25	14+25	215+40	65+37	218+40	68+36	218+40	18+37	221+40	221+40	221+40	222+60	222+60	222+65
Paved Area (acres)	0.45	0.00	0.26	0.00	0.10	0.20	0.32	0.27	0.42	0.21	0.35	0.51	0.32	0.13	0.00	0.09
Pavement Runoff Coefficient	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Landscaped Area (acres)	0.00	0.97	0.00	0.65	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.15	0.00	0.54	0.00
Landscape Runoff Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Contributing watershed area (acres):	**0.450**	**0.970**	**0.260**	**0.650**	**0.100**	**0.200**	**0.320**	**0.270**	**0.490**	**0.210**	**0.350**	**0.510**	**0.470**	**0.130**	**0.540**	**0.090**
Composite Runoff Coefficient "C":	0.95	0.70	0.95	0.70	0.95	0.95	0.95	0.95	0.91	0.95	0.95	0.95	0.87	0.95	0.70	0.95
Time of Concentration (10 minute minimum)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation intensity (in/hr):	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56
Subarea discharge Q (cfs):	1.95	3.09	1.13	2.07	0.43	0.87	1.38	1.17	2.04	0.91	1.51	2.21	1.86	0.56	1.72	0.39
Previous by-pass flow (cfs):	0.52	0.00	0.41	0.00	0.00	0.49	0.20	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00
Upstream inlet(s) contributing by-pass	Grate Removed	None	I762	None	None	I760	I757	None	None	None	I759	None	I761	I763 I767	None	I764
Discharge added by operator:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total discharge Q (cfs):	**2.47**	**3.09**	**1.53**	**2.07**	**0.43**	**1.35**	**1.59**	**1.17**	**2.04**	**0.91**	**1.51**	**2.21**	**2.10**	**0.56**	**1.72**	**0.39**
SHOULDER AND GUTTER CONFIGURATION:		Area Drain		Area Drain								Area Drain			Area Drain	Area Drain
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0100	0.0000	0.0032	0.0000	0.0045	0.0170	0.0142	0.0270	0.0142	0.0179	0.0295	0.0000	0.0295	0.0230	0.0000	0.0000
Inlet type (1=grate, 2=side opening or slotted):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Longitudinal profile (1=on-grade, 2=sag):	1	2	1	2	1	1	1	1	1	1	1	2	1	1	2	2
Gutter Configuration (1=freeway, 2=vertical):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Catch Basins in Grouped Inlets	2	1	2	2	1	1	3	1	2	1	3	1	2	3	1	1
Inlet description:	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)
Grate width:	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Grate length:	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Pavement cross-slope (Sx):	0.020	0.000	0.006	0.000	0.020	0.040	0.020	0.020	0.020	0.040	0.020	0.000	0.020	0.020	0.000	0.000
Width of gutter from flowline (ft):	2.50	2.50	2.50	2.50	0.00	2.50	2.50	2.50	2.50	2.50	2.50	0.00	2.50	2.50	2.50	2.50
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (Sw=Sw-Sx)	0.033	0.033	0.033	0.033	0.020	0.033	0.033	0.033	0.033	0.033	0.033	0.000	0.033	0.033	0.033	0.033
Flooded Width from flowline (ft): before inlet	**9.49**	**NA**	**20.77**	**NA**	**6.03**	**4.78**	**7.42**	**5.65**	**8.24**	**4.13**	**6.22**	**NA**	**7.15**	**4.16**	**NA**	**NA**
Depth at flowline (ft): before inlet	0.23	0.00	0.19	0.00	0.12	0.17	0.18	0.15	0.20	0.15	0.16	0.00	0.18	0.12	0.00	0.00
Water cross-area (sq.ft): before inlet	1.03	0.00	1.44	0.00	0.39	0.48	0.64	0.39	0.78	0.35	0.47	0.00	0.60	0.23	0.00	0.00
Velocity V for total discharge (fps): before inlet	2.40	0.00	1.07	0.00	1.12	2.80	2.47	2.97	2.62	2.57	3.25	0.00	3.50	2.40	0.00	0.00
Ratio of gutter depression flow to total Q (Eod):	61.8%	100.0%	40.8%	100.0%	3.6%	85.7%	72.9%	84.5%	68.2%	91.2%	80.6%	100.0%	74.5%	94.6%	100.0%	100.0%
Equivalent cross-slope (Se):	0.028	0.033	0.017	0.033	0.020	0.034	0.030	0.031	0.029	0.034	0.031	0.000	0.030	0.033	0.033	0.033
GRATE INLETS ON-GRADE:																
Ratio of grate frontal flow to total flow:	35.9%	—	26.9%	—	40.6%	45.1%	44.9%	56.2%	40.9%	49.5%	52.1%	—	46.3%	70.2%	—	—
Inlet frontal flow in cfs (Qw):	0.89	—	0.41	—	0.18	0.61	0.71	0.66	0.83	0.45	0.79	—	0.97	0.39	—	—
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	6.85	—	6.85	—	6.85	6.85	6.85	6.85	6.85	6.85	6.85	—	6.85	6.85	—	—
Fraction of frontal flow intercepted (Rf):	100.0%	—	100.0%	—	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	—	100.0%	100.0%	—	—
Side flow in cfs (Qs):	1.58	—	1.12	—	0.26	0.74	0.87	0.51	1.21	0.46	0.73	—	1.13	0.17	—	—
Effective grate length w/clogging:	1.50	—	1.50	—	1.50	1.50	1.50	1.50	1.50	1.50	1.50	—	1.50	1.50	—	—
Fraction of side flow interception (Rs):	6.6%	—	8.3%	—	21.6%	9.6%	6.2%	4.6%	5.7%	11.0%	3.9%	—	3.4%	6.6%	—	—
Grate Efficiency (E):	40.1%	—	32.9%	—	53.4%	50.4%	48.3%	58.2%	44.3%	55.1%	53.9%	—	48.1%	72.1%	—	—
Total flow intercepted (cfs):	**1.98**	**0.00**	**1.01**	**0.00**	**0.23**	**0.68**	**1.59**	**0.68**	**1.81**	**0.50**	**1.51**	**0.00**	**2.02**	**0.56**	**0.00**	**0.00**
Grate flow-by (cfs):	**0.49**	—	**0.52**	—	**0.20**	**0.67**	**0.00**	**0.49**	**0.23**	**0.41**	**0.00**	—	**0.08**	**0.00**	—	—
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:																
Length required for total interception (ft): w/o clogging	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Length of inlet provided L (ft):																
Interception for length L (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Efficiency for length L:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slotted drain or side opening flow-by (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:																
Head available for weir flow at sag (ft):		0.33		0.33	0.15							0.33			0.33	0.33
Capacity of grate in a sag (3-sided weir) in cfs:	—	—	—	—	**0.43**	—	—	—	—	—	—	—	—	—	—	—
Capacity of grate in a sag (4-sided weir):	—	2.84	—	2.07	—	—	—	—	—	—	—	2.21	—	—	1.72	0.39
Length provided of curb-opening inlet at sag:																
Capacity of curb-opening inlet in a sag (weir) in cfs:	—	Grate	—	Grate	Grate	—	—	—	—	—	—	Grate	—	—	Grate	Grate
INFLOW Q FOR CATCH BASIN	**1.98**	**2.84**	**1.01**	**2.07**	**0.43**	**0.68**	**1.59**	**0.68**	**1.81**	**0.50**	**1.51**	**2.21**	**2.02**	**0.56**	**1.72**	**0.39**
Adjusted CA	0.432	0.686	0.249	0.460	0.096	0.192	0.307	0.259	0.453	0.202	0.336	0.489	0.413	0.125	0.382	0.086

Design by: AJH

AD[illegible]T / HEC-12 — Pavement Spread Check [illegible] 50-yr Onsite Storm Drain w/ HOV Lanes

JOB: SR51 DRAINAGE ASSESSMENT — FILE: 50yrHOV.XLS — 50-yr with HOV Lanes

							Capture ratios:	80%	50%											
Inlet number:		I700	I701	I702	I703	I704	I705	I706	I707	I708	I709	I710	I711	I712	I713	I714	I715	I716	I717	I718
	Return Period	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
HYDROLOGY COMPUTATION:																				
Structure location station (ft):		152+40	152+40	155+35	155+35	156+88	158+35	158+35	159+90	160+23	160+55	161+25	161+40	164+32	164+00	168+03	167+85	168+03	167+85	173+20
Paved Area (acres)		0.57	0.42	0.43	0.41	0.68	0.12	0.35	0.32	0.29	0.29	0.67	0.36	0.44	0.43	0.49	0.50	0.49	0.32	0.44
Pavement Runoff Coefficient		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Landscaped Area (acres)		0.16	0.11	0.44	0.43	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81	0.00
Landscape Runoff Coefficient		0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Contributing watershed area (acres):		0.730	0.530	0.870	0.840	1.800	0.120	0.350	0.320	0.290	0.290	0.670	0.360	0.440	0.430	0.490	0.500	0.490	1.130	0.440
Composite Runoff Coefficient "C":		0.91	0.91	0.85	0.85	0.83	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.81	0.95
Time of Concentration (10 minute minimum)		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation intensity (in/hr):		6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06
Subarea discharge Q (cfs):		4.01	2.92	4.47	4.31	9.00	0.69	2.01	1.84	1.67	1.67	3.86	2.07	2.53	2.48	2.82	2.88	2.82	5.52	2.53
Previous by-pass flow (cfs):		0.00	0.00	1.78	1.26	3.14	0.00	0.00	0.52	0.52	0.00	0.00	0.97	0.86	0.00	0.00	0.00	0.00	0.00	0.00
Upstream inlet(s) contributing by-pass		None	None	I700	I701	I702	None	I703 I705	I708 I706	I709	I712	I704, I711 I713	I717	I714	I716	I715 I719	None	I718	None	I721
Discharge added by operator:		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total discharge Q (cfs):		4.01	2.92	6.25	5.58	12.14	0.69	2.01	2.36	2.19	1.67	3.86	3.05	3.40	2.48	2.82	2.88	2.82	5.52	2.53
SHOULDER AND GUTTER CONFIGURATION:							Area Drain						Area Drain				Area Drain		Area Drain	
Manning's n:		0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):		0.0205	0.0205	0.0205	0.0205	0.0150	0.0000	0.0080	0.0000	0.0015	0.0030	0.0047	0.0000	0.0471	0.0471	0.0471	0.0000	0.0471	0.0000	0.0471
Inlet type (1=grate, 2=side opening or slotted):		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Longitudinal profile (1=on-grade, 2=sag):		1	1	1	1	1	2	1	2	1	1	2	2	1	1	1	2	1	2	1
Gutter Configuration (1=freeway, 2=vertical):		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Catch Basins in Grouped Inlets		1	1	1	2	3	1	2	1	1	1	2	2	2	2	2	1	2	1	2
Inlet description:		N(dbl)	N(dbl)	N(dbl)	2, N(dbl)	3, N(dbl)	N(dbl)	2, N(trp)	N(dbl)	N(dbl)	N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	N(dbl)	2, N(dbl)	N(dbl)	2, N(dbl)
Grate width:		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Grate length:		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Pavement cross-slope (Sx):		0.040	0.032	0.040	0.040	0.023	0.000	0.007	0.019	0.019	0.024	0.034	0.000	0.040	0.040	0.005	0.000	0.020	0.000	0.020
Width of gutter from flowline (ft):		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Gutter depression from horizontal (ft):		0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (Sw=Sw-Sx)		0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056
Flooded Width from flowline (ft): before inlet		6.59	6.66	7.76	7.43	15.08	NA	17.15	NA	13.54	9.29	NA	NA	5.20	4.59	17.41	NA	7.28	NA	6.95
Depth at flowline (ft): before inlet		0.28	0.25	0.33	0.32	0.40	0.00	0.20	0.00	0.32	0.27	0.00	0.00	0.23	0.21	0.16	0.00	0.20	0.00	0.19
Water cross-area (sq.ft): before inlet		1.00	0.82	1.39	1.28	2.89	0.00	1.20	0.00	1.96	1.17	0.00	0.00	0.64	0.50	0.85	0.00	0.63	0.00	0.58
Velocity V for total discharge (fps): before inlet		4.02	3.58	4.50	4.37	4.21	0.00	1.68	0.00	1.12	1.42	0.00	0.00	5.31	4.92	3.30	0.00	4.48	0.00	4.38
Ratio of gutter depression flow to total Q (Eod):		56.2%	57.2%	50.0%	51.6%	31.0%	100.0%	33.1%	100.0%	34.5%	46.0%	100.0%	100.0%	65.6%	70.9%	37.0%	100.0%	57.3%	100.0%	59.3%
Equivalent cross-slope (Se):		0.049	0.045	0.048	0.048	0.033	0.056	0.023	0.056	0.032	0.038	0.056	0.056	0.050	0.051	0.024	0.056	0.040	0.056	0.041
GRATE INLETS ON-GRADE:																				
Ratio of grate frontal flow to total flow:		43.7%	45.2%	38.7%	39.9%	24.1%	—	27.3%	—	81.2%	36.3%	—	—	51.8%	56.6%	31.5%	—	46.7%	—	48.6%
Inlet frontal flow in cfs (Qw):		1.75	1.32	2.42	2.23	2.92	—	0.55	—	1.78	0.61	—	—	1.76	1.40	0.89	—	1.32	—	1.23
Vo for effective length (P-1-7/8, Chart 7 HEC 12):		10.30	10.30	10.30	10.30	10.30	—	10.30	—	10.30	10.30	—	—	10.30	10.30	10.30	—	10.30	—	10.30
Fraction of frontal flow intercepted (Rf):		100.0%	100.0%	100.0%	100.0%	100.0%	—	100.0%	—	100.0%	100.0%	—	—	100.0%	100.0%	100.0%	—	100.0%	—	100.0%
Side flow in cfs (Qs):		2.26	1.60	3.84	3.35	9.22	—	1.46	—	0.41	1.06	—	—	1.64	1.07	1.93	—	1.50	—	1.30
Effective grate length w/clogging:		3.00	3.00	3.00	3.00	3.00	—	3.00	—	3.00	3.00	—	—	3.00	3.00	3.00	—	3.00	—	3.00
Fraction of side flow interception (Rs):		21.2%	20.9%	18.2%	19.0%	12.6%	—	19.6%	—	56.9%	51.2%	—	—	14.2%	15.9%	4.6%	—	10.1%	—	10.5%
Grate Efficiency (E):		55.6%	56.7%	49.8%	51.3%	33.7%	—	41.5%	—	91.9%	68.9%	—	—	58.7%	63.6%	34.7%	—	52.1%	—	54.0%
Total flow intercepted (cfs):		2.23	1.65	3.12	5.58	12.14	0.00	1.67	0.00	2.01	1.15	0.00	0.00	3.40	2.48	1.96	0.00	2.82	0.00	2.53
Grate flow-by (cfs):		1.78	1.26	3.14	0.00	0.00	—	0.34	—	0.18	0.52	—	—	0.00	0.00	0.86	—	0.00	—	0.00
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:																				
Length required for total interception (ft): w/o clogging		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Length of inlet provided L (ft):																				
Interception for length L (cfs):		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Efficiency for length L:		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slotted drain or side opening flow-by (cfs):		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:																				
Head available for weir flow at sag (ft):							0.33		0.33			0.33	0.33				0.33		0.33	0.33
Capacity of grate in a sag (3-sided weir) in cfs:		—	—	—	—	—	—	—	2.36	—	—	2.84	—	—	—	—	—	—	—	2.53
Capacity of grate in a sag (4-sided weir):		—	—	—	—	—	0.69	—	—	—	—	—	3.05	—	—	—	2.88	—	4.55	—
Length provided of curb-opening inlet at sag:																				
Capacity of curb-opening inlet in a sag (weir) in cfs:		—	—	—	—	—	Grate	—	Grate	—	—	Grate	Grate	—	—	—	Grate	—	Grate	Grate
INFLOW Q FOR CATCH BASIN		2.23	1.65	3.12	5.58	12.14	0.69	1.67	2.36	2.01	1.15	2.84	3.05	3.40	2.48	1.96	2.88	2.82	4.55	2.53
Adjusted CA		0.668	0.486	0.746	0.719	1.501	0.115	0.336	0.307	0.278	0.278	0.643	0.345	0.422	0.413	0.470	0.480	0.470	0.921	0.422

Design by: AJH

5/4/98

AD(/ HEC-12

JOB: SR61 DRAINAGE ASSESSMENT

50-yr with HOV Lanes

Inlet number:	I719	I720	I721	I722	I723	I323	I724	I725	I726	I727	I728	I729	I730	I731	I732	I733	I734	I735
Return Period	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
HYDROLOGY COMPUTATION:																		
Structure location station (ft):	173+20	177+15	177+33	177+33	177+00	177+00	181+00	181+00	184+15	184+83	184+83	184+50	188+00	188+00	191+50	191+56	191+50	191+50
Paved Area (acres)	0.44	0.25	0.47	0.47	0.26	0.00	0.40	0.40	0.40	0.31	0.33	0.39	0.41	0.41	0.33	0.31	0.33	0.31
Pavement Runoff Coefficient	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Landscaped Area (acres)	0.00	0.98	0.00	0.00	0.38	0.46	0.00	0.00	1.34	0.00	0.00	1.13	0.00	0.00	0.00	0.39	0.00	0.48
Landscape Runoff Coefficient	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Contributing watershed area (acres):	0.440	1.230	0.470	0.470	0.640	0.460	0.400	0.400	1.740	0.310	0.330	1.520	0.410	0.410	0.330	0.700	0.330	0.790
Composite Runoff Coefficient "C":	0.95	0.79	0.95	0.95	0.83	0.75	0.95	0.95	0.80	0.95	0.95	0.80	0.95	0.95	0.95	0.84	0.95	0.83
Time of Concentration (10 minute minimum)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation Intensity (in/hr):	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06
Subarea discharge Q (cfs):	2.53	5.89	2.71	2.71	3.22	2.09	2.30	2.30	8.39	1.78	1.90	7.38	2.36	2.36	1.90	3.56	1.90	3.97
Previous by-pass flow (cfs):	0.00	0.00	1.34	0.00	0.00	0.00	3.84	0.37	0.00	0.00	2.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Upstream inlet(s) contributing by-pass	I722	None	I720 I724	I725 I723	None	None	I726 I727	I728	None	I730	I729 I731	None	I732	I734	None	None	None	None
Discharge added by operator:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total discharge Q (cfs):	2.53	5.89	4.05	2.71	3.22	2.09	6.15	2.67	8.39	1.78	4.73	7.38	2.36	2.36	1.90	3.56	1.90	3.97
SHOULDER AND GUTTER CONFIGURATION:		Area Drain			Area Drain	Area Drain			Area Drain			Area Drain						
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0471	0.0000	0.0471	0.0471	0.0000	0.0000	0.0471	0.0471	0.0000	0.0065	0.0065	0.0000	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073
Inlet type (1=grate, 2=side opening or slotted):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Longitudinal profile (1=on-grade, 2=sag):	1	2	1	1	2	2	1	1	2	1	1	2	1	1	1	1	1	1
Gutter Configuration (1=freeway, 2=vertical):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Catch Basins in Grouped Inlets	2	1	3	3	1	1	3	3	1	3	2	1	2	3	2	2	2	2
Inlet description:	2, N(dbl)	N(dbl)	3, N(dbl)	3, N(dbl)	2, N(dbl)	2, N(dbl)	3, N(dbl)	3, N(dbl)	N(dbl)	3, N(dbl)	2, N(dbl)	N(dbl)	2, N(dbl)	3, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)
Grate width:	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Grate length:	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Pavement cross-slope (Sx):	0.020	0.000	0.020	0.020	0.000	0.000	0.020	0.020	0.000	0.020	0.020	0.000	0.020	0.020	0.020	0.020	0.020	0.020
Width of gutter from flowline (ft):	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (S'w=Sw-Sx)	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056
Flooded Width from flowline (ft): before inlet	6.95	NA	8.48	7.15	NA	NA	10.06	7.11	NA	9.10	13.44	NA	9.95	9.95	9.11	11.73	9.11	12.25
Depth at flowline (ft): before inlet	0.19	0.00	0.22	0.20	0.00	0.00	0.25	0.20	0.00	0.24	0.32	0.00	0.25	0.25	0.24	0.29	0.24	0.30
Water cross-area (sq.ft): before inlet	0.58	0.00	0.83	0.61	0.00	0.00	1.15	0.60	0.00	0.95	2.00	0.00	1.13	1.13	0.95	1.54	0.95	1.67
Velocity V for total discharge (fps): before inlet	4.38	0.00	4.86	4.44	0.00	0.00	5.35	4.43	0.00	1.88	2.36	0.00	2.10	2.10	1.99	2.31	1.99	2.37
Ratio of gutter depression flow to total Q (Eod):	59.3%	100.0%	50.8%	58.1%	100.0%	100.0%	44.2%	58.3%	100.0%	48.0%	34.6%	100.0%	44.6%	44.6%	48.0%	38.8%	48.0%	37.4%
Equivalent cross-slope (Se):	0.041	0.056	0.038	0.041	0.056	0.056	0.036	0.041	0.056	0.037	0.032	0.056	0.036	0.036	0.037	0.034	0.037	0.033
GRATE INLETS ON-GRADE:																		
Ratio of grate frontal flow to total flow:	48.6%	—	40.9%	47.4%	—	—	35.1%	47.7%	—	38.4%	27.0%	—	35.4%	35.4%	38.4%	30.5%	38.4%	29.4%
Inlet frontal flow in cfs (Qw):	1.23	—	1.65	1.28	—	—	2.16	1.27	—	0.69	1.28	—	0.84	0.84	0.73	1.09	0.73	1.17
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	10.30	—	10.30	10.30	—	—	10.30	10.30	—	10.30	10.30	—	10.30	10.30	10.30	10.30	10.30	10.30
Fraction of frontal flow intercepted (Rf):	100.0%	—	100.0%	100.0%	—	—	100.0%	100.0%	—	100.0%	100.0%	—	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Side flow in cfs (Qs):	1.30	—	2.39	1.42	—	—	3.99	1.40	—	1.10	3.45	—	1.52	1.52	1.17	2.47	1.17	2.80
Effective grate length w/clogging:	3.00	—	3.00	3.00	—	—	3.00	3.00	—	3.00	3.00	—	3.00	3.00	3.00	3.00	3.00	3.00
Fraction of side flow interception (Rs):	10.5%	—	8.8%	10.2%	—	—	7.5%	10.3%	—	34.9%	26.2%	—	30.6%	30.6%	32.5%	27.0%	32.5%	26.1%
Grate Efficiency (E):	54.0%	—	46.1%	52.8%	—	—	40.0%	53.1%	—	59.9%	46.1%	—	55.2%	55.2%	58.4%	49.3%	58.4%	47.8%
Total flow intercepted (cfs):	2.53	0.00	4.05	2.71	0.00	0.00	6.15	2.67	0.00	1.78	4.36	0.00	2.36	2.36	1.90	3.51	1.90	3.79
Grate flow-by (cfs):	0.00	—	0.00	0.00	—	—	0.00	0.00	—	0.00	0.37	—	0.00	0.00	0.00	0.05	0.00	0.17
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:																		
Length required for total interception (ft): w/o clogging	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Length of inlet provided L (ft):																		
Interception for length L (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Efficiency for length L:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slotted drain or side opening flow-by (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:																		
Head available for weir flow at sag (ft):		0.33			0.33	0.5			0.33			0.33						
Capacity of grate in a sag (3-sided weir) in cfs:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Capacity of grate in a sag (4-sided weir):	—	4.55	—	—	3.22	2.09	—	—	4.55	—	—	4.55	—	—	—	—	—	—
Length provided of curb-opening inlet at sag:																		
Capacity of curb-opening inlet in a sag (weir) in cfs:	—	Grate	—	—	Grate	Grate	—	—	Grate	—	—	Grate	—	—	—	—	—	—
INFLOW Q FOR CATCH BASIN	2.53	4.55	4.05	2.71	3.22	2.09	6.15	2.67	4.55	1.78	4.36	4.55	2.36	2.36	1.90	3.51	1.90	3.79
Adjusted CA	0.422	0.982	0.451	0.451	0.537	0.348	0.384	0.384	1.399	0.297	0.317	1.230	0.393	0.393	0.317	0.593	0.317	0.661

Design by: AJH

A[illegible]T / HEC-12

JOB: SR51 DRAINAGE ASSESSMENT

50-yr with HOV Lanes

Inlet number:	I736	I737	I738	I739	I740	I741	I742	I743	I300	I744	I745	I746	I747	I748	I749	I750	I751
Return Period	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
HYDROLOGY COMPUTATION:																	
Structure location station (ft):	194+48	194+48	196+40	196+40	197+50	201+12	201+12	203+20	203+20	203+20	203+80	205+75	205+75	205+75	208+75	208+75	211+80
Paved Area (acres)	0.54	0.29	0.23	0.69	0.49	0.43	0.78	0.43	0.08	0.10	0.09	0.45	0.47	0.43	0.41	0.49	0.52
Pavement Runoff Coefficient	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Landscaped Area (acres)	0.57	1.02	0.00	0.25	0.29	0.29	0.33	0.00	0.15	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape Runoff Coefficient	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Contributing watershed area (acres):	1.110	1.310	0.230	0.940	0.780	0.720	1.110	0.430	0.230	0.530	0.090	0.450	0.470	0.430	0.410	0.490	0.520
Composite Runoff Coefficient "C":	0.85	0.79	0.95	0.90	0.88	0.87	0.89	0.95	0.82	0.79	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Time of Concentration (10 minute minimum)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Precipitation intensity (in/hr):	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06
Subarea discharge Q (cfs):	5.70	6.30	1.32	5.11	4.14	3.79	5.99	2.48	1.14	2.53	0.52	2.59	2.71	2.48	2.36	2.82	2.99
Previous by-pass flow (cfs):	0.27	0.76	2.76	0.00	0.80	1.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19	1.05	2.57
Upstream inlet(s) contributing by-pass	I733 I738	I735 I739	I740	I742	I741	I743 I746	I744, I745 & I748	None	None	None	I747	I749	I752	I750	I751	I753	I754 I758
Discharge added by operator:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total discharge Q (cfs):	5.97	7.06	4.09	5.11	4.94	4.96	5.99	2.48	1.14	2.53	0.52	2.59	2.71	2.48	4.55	3.87	5.56
SHOULDER AND GUTTER CONFIGURATION:									Area Drain	Area Drain	Area Drain		Area Drain				
Manning's n:	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Longitudinal slope S (ft/ft):	0.0000	0.0000	0.0075	0.0075	0.0085	0.0180	0.0180	0.0320	0.0000	0.0000	0.0000	0.0340	0.0000	0.0340	0.0220	0.0220	0.0100
Inlet type (1=grate, 2=side opening or slotted):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Longitudinal profile (1=on-grade, 2=sag):	2	2	1	1	1	1	1	1	2	2	2	1	2	1	1	1	1
Gutter Configuration (1=freeway, 2=vertical):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of Catch Basins in Grouped Inlets	2	2	2	2	1	2	3	1	1	1	1	3	1	3	3	3	2
Inlet description:	2, N(dbl)	2, N(dbl)	2, N(dbl)	2, N(dbl)	N(dbl)	2, N(dbl)	3, N(dbl)	N(dbl)	N(dbl)	N(dbl)	N(dbl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)	N(sgl)
Grate width:	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.00	2.00	2.00	2.00	2.00
Grate length:	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	3.0	3.0	3.0	3.0	3.0	3.0
Pavement cross-slope (Sx):	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.000	0.000	0.000	0.025	0.000	0.024	0.027	0.027	0.020
Width of gutter from flowline (ft):	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	2.50	2.50	2.50	2.50	2.50
Gutter depression from horizontal (ft):	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
Gutter cross-slope Sw: (S'w=Sw-Sx)	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.033	0.033	0.033	0.033	0.033
Flooded Width from flowline (ft): before inlet	NA	NA	12.33	13.46	12.97	11.19	12.06	7.48	NA	NA	NA	6.60	NA	6.72	8.77	8.24	13.20
Depth at flowline (ft): before inlet	0.00	0.00	0.30	0.32	0.31	0.28	0.29	0.20	0.00	0.00	0.00	0.21	0.00	0.19	0.25	0.24	0.30
Water cross-area (sq.ft): before inlet	0.00	0.00	1.70	2.01	1.87	1.41	1.63	0.66	0.00	0.00	0.00	0.64	0.00	0.63	1.15	1.02	1.92
Velocity V for total discharge (fps): before inlet	0.00	0.00	2.41	2.54	2.65	3.52	3.68	3.75	0.00	0.00	0.00	4.04	0.00	3.95	3.95	3.80	2.90
Ratio of gutter depression flow to total Q (Eod):	100.0%	100.0%	37.2%	34.5%	35.7%	40.4%	37.9%	56.1%	100.0%	100.0%	100.0%	59.4%	100.0%	75.4%	63.0%	65.7%	48.4%
Equivalent cross-slope (Se):	0.056	0.056	0.033	0.032	0.033	0.034	0.033	0.040	0.056	0.056	0.056	0.043	0.033	0.031	0.031	0.031	0.026
GRATE INLETS ON-GRADE:																	
Ratio of grate frontal flow to total flow:	—	—	29.2%	27.0%	27.9%	31.9%	29.8%	45.7%	—	—	—	48.0%	—	44.8%	34.4%	36.2%	26.8%
Inlet frontal flow in cfs (Qw):	—	—	1.19	1.38	1.38	1.58	1.78	1.13	—	—	—	1.24	—	1.11	1.57	1.40	1.49
Vo for effective length (P-1-7/8, Chart 7 HEC 12):	—	—	10.30	10.30	10.30	10.30	10.30	10.30	—	—	—	6.85	—	6.85	6.85	6.85	6.85
Fraction of frontal flow intercepted (Rf):	—	—	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	—	—	—	100.0%	—	100.0%	100.0%	100.0%	100.0%
Side flow in cfs (Qs):	—	—	2.89	3.73	3.56	3.38	4.21	1.35	—	—	—	1.35	—	1.37	2.99	2.47	4.07
Effective grate length w/clogging:	—	—	3.00	3.00	3.00	3.00	3.00	3.00	—	—	—	1.50	—	1.50	1.50	1.50	1.50
Fraction of side flow interception (Rs):	—	—	25.5%	23.7%	22.5%	14.7%	13.8%	13.4%	—	—	—	3.3%	—	3.3%	3.7%	4.0%	4.7%
Grate Efficiency (E):	—	—	47.3%	44.3%	44.1%	41.9%	39.4%	52.9%	—	—	—	49.7%	—	46.6%	36.9%	38.8%	30.3%
Total flow intercepted (cfs):	0.00	0.00	3.86	4.53	2.18	4.16	5.99	1.31	0.00	0.00	0.00	2.59	0.00	2.48	4.55	3.87	3.37
Grate flow-by (cfs):	—	—	0.22	0.58	2.76	0.80	0.00	1.16	—	—	—	0.00	—	0.00	0.00	0.00	2.19
SLOTTED DRAINS AND SIDE-OPENING INLETS ON-GRADE:																	
Length required for total interception (ft): w/o clogging	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Length of inlet provided L (ft):																	
Interception for length L (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Efficiency for length L:	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Slotted drain or side opening flow-by (cfs):	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
INTERCEPTION CAPACITY OF INLETS IN SAG LOCATION:																	
Head available for weir flow at sag (ft):	0.33	0.33							0.33	0.33	0.33		0.33				
Capacity of grate in a sag (3-sided weir) in cfs:	2.84	2.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Capacity of grate in a sag (4-sided weir):	—	—	—	—	—	—	—	—	1.14	2.53	0.52	—	2.71	—	—	—	—
Length provided of curb-opening inlet at sag:																	
Capacity of curb-opening inlet in a sag (weir) in cfs:	Grate	Grate	—	—	—	—	—	—	Grate	Grate	Grate	—	Grate	—	—	—	—
INFLOW Q FOR CATCH BASIN	2.84	2.84	3.86	4.53	2.18	4.16	5.99	1.31	1.14	2.53	0.52	2.59	2.71	2.48	4.55	3.87	3.37
Adjusted CA	0.950	1.051	0.221	0.852	0.690	0.632	0.998	0.413	0.190	0.422	0.086	0.432	0.451	0.413	0.393	0.470	0.499

Design by: AJH