Bohannan Huston

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Spatial Data
Advanced Technologies

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MEMORANDUM

DATE: December 13, 2016

TO: Gina Ross, PE, City of Albuquerque

FROM: Rifka Wine, PE RWW

SUBJECT: **South Broadway Hydraulic Analysis**

Background

This technical memorandum summarizes the hydraulic modeling analysis conducted by Bohannan Huston, Inc. (BHI) of the storm drain system between the South Broadway Detention Basin and the Commercial at Bell Pump Station in Albuquerque, New Mexico. The City of Albuquerque (City) has experienced flooding in the neighborhood to the south of the South Broadway Detention Basin. This project included a records research and field survey of the existing storm drains in the subject area. This technical memorandum then summarizes recommended improvements to the system to alleviate flooding in the area.

The storm drain system in this section of the city conveys stormwater generated on the streets above that enters the pipe network via a series of inlets which drains to the Bell Pump Station. The flow from the Bell Pump Station is then pumped to a 54-inch storm drain which discharges to the Rio Grande at Bridge Blvd, see Figure 1 - Existing System.

The South Broadway Detention Basin was modified in 2015, and with this reconstruction, the headwall at the southern edge of the pond (just above the pond's outlet) was raised by 1 foot to increase the storage capacity of the pond. Since that reconstruction, city personnel stated that they had received reports of street flooding during heavy rainfall events in subject area and believe the increased head on the pond was responsible for the flooding.

Hydrology

The hydrology used for this study was taken from the South Broadway DMP by URS, Inc. All flows are based on the 100-year, 24-hour storm event and assume fully developed conditions.

Hydraulic Analysis

As part of the modeling effort, BHI performed a field survey of the existing storm drain infrastructure in the project area, which included collecting rim and invert elevations for all applicable storm drain inlets and manholes along with sizes of inlets and pipes. BHI survey data was entered into a Civil 3D drawing, and this file was the basis for constructing the storm drain network for the area between Bell Pump Station and the South Broadway Detention Basin. The Civil 3D pipe network was then exported to Autodesk Storm and Sanitary Analysis 2016, which runs the EPA SWMM 5 engine, in order to perform the storm drain hydraulic modeling.

The survey data indicated the presence of adverse pipe slopes within the network, and as such the model needed to be run under dynamic wave settings (full use of the St. Venant flow equations) which can account for backflow and reverse flow conditions within the pipes. Initially the SWMM model was run using a constant flow (no inflow hydrographs) with the water level in the South Broadway Pond set at full depth. However, after subsequent analysis and additional discussion with the City, it was decided to use inflow hydrographs for both the flow into the South Broadway Pond (from other areas) and from the subject area that flows by gravity into the Bell Pump Station.

Existing Conditions Model Runs

Since the URS model did not supply sufficient detail in the subject area, BHI delineated contributing basins and flow paths for the area between Broadway Blvd. to the east, the South Broadway Detention Basin to the north, the railroad fence on the west boundary at Commercial Blvd, and Bell Ave. to the south. BHI used the Modified Rational Method in the COA DPM to compute 100-year hydrographs for import into SWMM. The Modified Rational Method calculations are included in Appendix A. The results of the SWMM model showed flooding occurred in a number of locations throughout the subject area (see Appendix C for the model results of the existing system). At locations where the hydraulic grade line came out of the ground, the model includes street links to route the flows. The locations where the hydraulic grade line came out of the ground (causing manhole covers to pop causing street and flooding outside of street) are shown in Figure 1 and summarized below:

- Manhole No. K14954 – Intersection of Commercial and Pacific
- Manhole No. K14945 – Intersection of Pacific and William
- Manhole No. K14952 – Intersection of Cromwell and William
- Manhole No. L14052 – William between Cromwell and Garfield
- Manhole No. L14053 – John between Cromwell and Garfield
- Manhole No. L14041 – Intersection of Garfield and Commercial

The inflow hydrograph from the existing South Broadway DMP SWMM model exceeded the stage-storage-discharge capacity of the existing pond and primary outlet. The emergency spillway was added to allow flow in excess of the pond capacity to be removed from the system via the rectangular, concrete-lined spillway. This emergency spillway flow causes some local flooding on Commercial, and mitigating this flooding is not included in the scope of this project.

Recommended Improvements

Drainage infrastructure improvements first attempted to alleviate flooding by increasing pipe sizes in the model as summarized in Table 1 below. However, after performing a number of iterations of varying pipe sizes, it became clear that pipe size adjustments alone could not eliminate all flooding areas.

Table 1: SWMM Model Scenarios

Model Scenario	Flap Gates?	Manholes Bolted?	Description	Junctions Flooded
Scenario #1	No	No	SD inlets added to MH K14944 and MH K14951.	K14954, DI #2046, K14941, K14952, L14052, L14053, L14042
Scenario #2	Yes	No	Flap gates added to DI #2046 and DI #2024.	K14954, DI #2046, K14941, K14952, L14052, L14053, L14042
Scenario #3	Yes	Yes	Same as Scenario #2 with K14954, K14945, K14944, K14951 and K14953 bolted down.	DI #2046, L14052, L14053, L14042, L14141, and L14143
Upsize #1	No	No	Same as Scenario #1 with links SDP11, SDP12, SDP13, SDP19, SDP25, SDP24, SDP7, SDP8 up-sized based on COA PDF.	DI #2046, L14042, L14051, L14052, and L14053
Upsize #2	No	No	Same as Upsize #1 with links SDP3, SDP4, and SDP5 upsized based on COA PDF.	DI #2046, L14042, L14051, L14052, and L14053
Upsize #3	No	No	Same as Option #1 with links SDP4, SDP5, SDP6, SDP7, and SDP8 upsized to 48".	L14042, L14052, and L14053
Upsize #4	No	No	Same as Upsize #3 with a 24" link along Cromwell connecting Commercial and William and link SDP27 upsized to 24".	L14042, L14052, and L14053

A number of additional scenarios were run that included additional ponding and additional storm drains. The final recommended solution is comprised of additional ponding and replacing some of the existing storm drain pipe as described below:

Proposed Detention Pond at South Broadway Park

An additional 3 ac-ft of storage was added to the system at South Broadway Park with an 18-inch storm drain outleting to the existing 36-inch storm drain at William and Lewis.

South Broadway Emergency Spillway Flow

This flow will pond behind an existing speed bump until the water surface elevation in the Detention Basin drops, and then flow can reenter the Detention Basin through a drop inlet and pipe which has a flap gate.

Storm Drain Pipe Upgrades

In addition, in order to remove all the flooding from the system, a small section of 18-inch existing storm drain at the intersection of Commercial and Garfield will need to be replaced with 24-inch storm drain, and the existing 12-inch John St will need to be replaced with 24-inch storm drain and lowered vertically between Cromwell and Garfield.

The recommended improvements are shown in Figure 2, and the SWMM model for the recommended improvements is included in Appendix C. A secondary outlet to the Detention Basin was initially added down John St, connecting to the existing 12-inch storm drain at John and Cromwell. A number of sizes were tried; however, this secondary outlet is not recommended. The improvements described above remove flooding from the streets downstream of the South Broadway Detention Basin. Additionally, if the Bell Pump Station failed, a significantly larger amount of water from the South Broadway Detention Basin would flood the project area.

Design Considerations

The following summarizes the invert elevations were modeled for new connections and provide guidance when the improvements are designed:

- Replacement 24-inch @ John and Cromwell: 4943.86 (DP1)
- Replacement 24-inch @ John and Garfield: 4942.28 (DP2)
- South Broadway Park Storage Bottom: 4941.5 (DP3)
- New 18-inch outlet @ South Broadway Park: 4941.5 (DP4)
- New 18-inch outlet @ William and Lewis: 4939.08 (DP5)

Conclusion

The improvements described above will remove flooding from the streets downstream of the South Broadway Detention Basin. These improvements do not mitigate flooding caused by overtopping of the South Broadway Detention Basin. Over two hours, 9 ac-ft of water overtops this facility.

REW/AQC/le

Attachments

Figure 1 – Existing System
Figure 2 – Recommended Improvements
Appendix A – Modified Rational Method Calculations
Appendix B – SWMM Model Input Data
Appendix C – SWMM Models

Coordinate System: NAD 1983 StatePlane New Mexico Central FIPS 3002 Feet
Projection: Transverse Mercator
Datum: North American 1983

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Figure 1: Existing System

0 75 150 300 Feet
1 in = 150 ft

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Author: gmaynard

December 2016

Coordinate System: NAD 1983 StatePlane New Mexico Central FIPS 3002 Feet
Projection: Transverse Mercator
Datum: North American 1983

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Figure 2: Recommended Improvements

0 75 150 300 Feet
1 in = 150 ft

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Author: gmaynard

December 2016

APPENDIX A
MODIFIED RATIONAL METHOD CALCULATIONS

South Broadway Detention Basin

SANTA FE

B1

B2

PACIFIC

B3

B4

JOHN

B5

CROMWELL

B6

BNSF RR

COMMERCIAL

B7

B8

BROADWAY

B6

GARFIELD

WILLIAM

GARFIELD

B9

B10

B11

LEWIS

BARELAS DITCH

B12

Bell Pump Station

JOHN

B13

BELL

Coordinate System: NAD 1983 StatePlane New Mexico Central FIPS 3002 Feet
Projection: Transverse Mercator
Datum: North American 1983

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Basin Map

0 75 150 300 Feet

1 in = 150 ft

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Author: gmaynard

December 2016

South Broadway SWMM Model

Proposed Developed Conditions Basin Data Table

This table is based on the DPM Section 22.2, Zone: 2

Basin ID	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages A	B	C	D	Q(100yr) (cfs/ac.)	Q(100yr) (CFS)	V(100yr) (inches)	$V_{(100yr-6hr)}$ (CF)	$V_{(100yr-24hr)}$ (CF)	Q(2yr) (cfs/ac.)	Q(2yr) (CFS)	WT E (inches)	$V_{(2yr-6hr)}$ (CF)	$V_{(2yr-24hr)}$ (CF)
CURRENT ONSITE BASINS																
B1	101391	2.33	0.0%	0.0%	20.0%	80.0%	4.39	*10.21*	*1.92*	*16239*	*18943*	1.61	*3.74*	*0.66*	*5593*	*6767*
B2	238638	5.48	0.0%	0.0%	50.0%	50.0%	3.92	*21.48*	*1.63*	*32316*	*36293*	1.23	*6.74*	*0.47*	*9347*	*11073*
B3	74360	1.71	0.0%	0.0%	60.0%	40.0%	3.76	*6.43*	*1.53*	*9456*	*10448*	1.10	*1.88*	*0.41*	*2516*	*2946*
B4	80904	1.86	0.0%	20.0%	30.0%	50.0%	3.75	*6.96*	*1.56*	*10484*	*11832*	1.13	*2.09*	*0.44*	*2993*	*3579*
B5	166316	3.82	0.0%	10.0%	40.0%	50.0%	3.83	*14.64*	*1.59*	*22037*	*24809*	1.18	*4.50*	*0.46*	*6334*	*7537*
B6	133318	3.06	0.0%	10.0%	40.0%	50.0%	3.83	*11.73*	*1.59*	*17665*	*19887*	1.18	*3.61*	*0.46*	*5077*	*6042*
B7	103914	2.39	0.0%	10.0%	40.0%	50.0%	3.83	*9.15*	*1.59*	*13769*	*15501*	1.18	*2.81*	*0.46*	*3957*	*4709*
B8	98935	2.27	0.0%	10.0%	40.0%	50.0%	3.83	*8.71*	*1.59*	*13109*	*14758*	1.18	*2.68*	*0.46*	*3768*	*4483*
B9	128439	2.95	0.0%	20.0%	30.0%	50.0%	3.75	*11.05*	*1.56*	*16644*	*18784*	1.13	*3.32*	*0.44*	*4752*	*5681*
B10	57119	1.31	0.0%	10.0%	40.0%	50.0%	3.83	*5.03*	*1.59*	*7568*	*8520*	1.18	*1.54*	*0.46*	*2175*	*2588*
B11	231926	5.32	0.0%	30.0%	40.0%	30.0%	3.35	*17.84*	*1.32*	*25551*	*27870*	0.82	*4.38*	*0.30*	*5856*	*6863*
B12	83856	1.93	0.0%	10.0%	50.0%	40.0%	3.68	*7.08*	*1.49*	*10419*	*11537*	1.05	*2.03*	*0.39*	*2746*	*3232*
B13	301213	6.91	0.0%	10.0%	40.0%	50.0%	3.83	*26.51*	*1.59*	*39911*	*44931*	1.18	*8.15*	*0.46*	*11471*	*13650*
TOTAL	**1800330**	**41.33**	**-**	**-**	**-**	**-**	**-**	***156.81***	**-**	***235166***	***264112***	**-**	***47.46***	**-**	***66587***	***79149***
CURRENT OFFSITE BASINS																
OS1	0	0.00	0.0%	0.0%	0.0%	0.0%	0.00	*0.00*	*0.00*	*0*	*0*	0.00	*0.00*	*0.00*	*0*	*0*
OS2	0	0.00	0.0%	0.0%	0.0%	0.0%	0.00	*0.00*	*0.00*	*0*	*0*	0.00	*0.00*	*0.00*	*0*	*0*
TOTAL	**0**	**0.00**	**-**	**-**	**-**	**-**	**-**	***0.00***	**-**	***0***	***0***	**-**	***0.00***	**-**	***0***	***0***

Basin ID	Area (ac)	Area Land Treatment D (ac)	Q_p (cfs)	t_c (hr)	Excess Precipitation (in.)	t_p (hr)	$t_p + 0.25*A_D/A_T$ (hr)	t_B (hr)
B1	2.33	1.86	10.21	0.2	1.92	0.21	0.41	0.72
B2	5.48	2.74	21.48	0.2	1.63	0.23	0.36	0.75
B3	1.71	0.68	6.43	0.2	1.53	0.24	0.34	0.75
B4	1.86	0.93	6.96	0.2	1.56	0.23	0.36	0.75
B5	3.82	1.91	14.64	0.2	1.59	0.23	0.36	0.75
B6	3.06	1.53	11.73	0.2	1.59	0.23	0.36	0.75
B7	2.39	1.19	9.15	0.2	1.59	0.23	0.36	0.75
B8	2.27	1.14	8.71	0.2	1.59	0.23	0.36	0.75
B9	2.95	1.47	11.05	0.2	1.56	0.23	0.36	0.75
B10	1.31	0.66	5.03	0.2	1.59	0.23	0.36	0.75
B11	5.32	1.60	17.84	0.2	1.32	0.25	0.32	0.76
B12	1.93	0.77	7.08	0.2	1.49	0.24	0.34	0.75
B13	6.91	3.46	26.51	0.2	1.59	0.23	0.36	0.75

Values from Sheet 2 "COA_DPM_100yr, 6-hr"

Auto-calculated

Assumes minimum t_c = 12 min. (0.2 hr)

APPENDIX B
SWMM MODEL INPUT DATA

Project Title: COA South Broadway Drainage Analysis

BHI Project #: 20160354

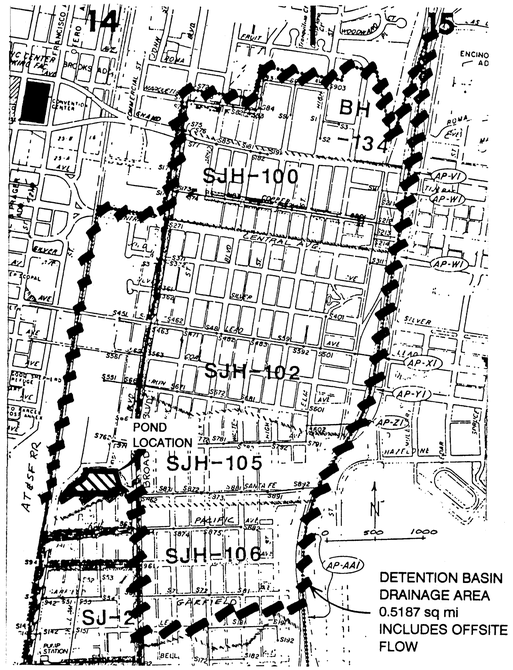
Document: Notes on General Assumptions for Pipe Network Layout

Date: 3-3-2016

Design Engineer: Cameron Herrington

Assumptions Made:

1. **Pipe SDP24** from SDMH42 to SDMH41 – Survey was unable to reach the pipe and did not record the invert at SDMH41. Solution was to obtain the pipe's slope (S=0.0012) from the record drawing (COA #08-541-54, Sheet 9) and to calculate the invert based on the centerline distance between the two manholes.
2. **Pipe SDP27** from SDMH943 to SDMH942 – Survey was unable to obtain the pipe invert at SDMH942. Solution was to obtain the pipe's slope (S=0.004) from the record drawing (COA #26-4165.90-93, Sheet 11) and to calculate the invert based on the centerline distance between the two manholes.
3. **Pipe SDP26** from SDMH146 to SDMH142 – Survey was unable to obtain the pipe invert at SDMH142 and the pipe slope was not shown in COA record drawings. Solution was to assume the pipe carried the same slope as SDP24 (S=0.0012; Item #1 above) since both manholes are located adjacent to Commercial Street and near each other, and to calculate the invert based on the centerline distance between the two manholes on each of its ends.
4. **Pipe SDP25** from SDMH42 to SDMH51 – Survey was unable to reach the pipe and did not record the invert at SDMH42. Solution was to obtain the pipe's slope (S=0.0012) from the record drawing (COA #08-541-54, Sheet 9) and to calculate the invert based on the centerline distance between the two manholes.
5. **Pipe SDP19** from SDMH51 to SDMH55 – Survey was unable to reach the pipe and did not record the invert at SDMH55. Solution was to obtain the pipe's slope (S=0.0012) from the record drawing (COA #08-541-54, Sheet 9) and to calculate the invert based on the centerline distance between the two manholes.
6. **Pipe SDP22** from SDMH54 to SDMH55 – Survey was unable to reach the pipe and did not record the invert at SDMH55. Solution was to obtain the pipe's slope (S=0.0012) from the record drawing (COA #08-541-54, Sheet 9) and to calculate the invert based on the centerline distance between the two manholes.



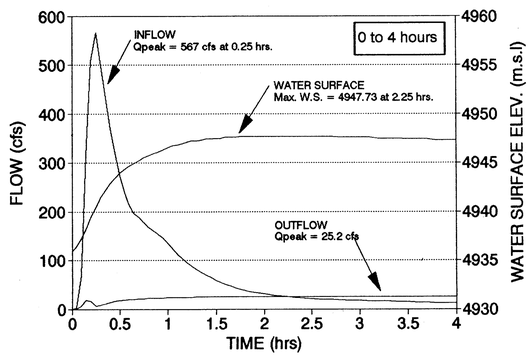
DRAINAGE AREA MAP

DETENTION BASIN PROPERTIES

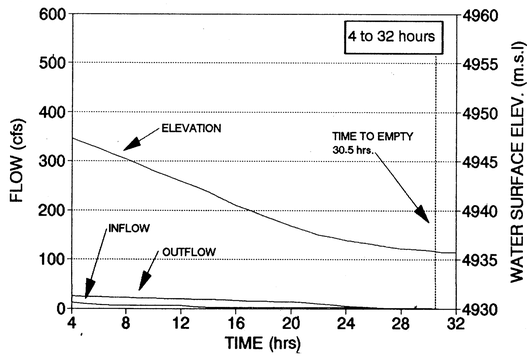
DRAINAGE AREA SIZE (100 YEAR)	332 ac.
100 YEAR DESIGN RAINFALL	2.4 in. in 24 hrs (2.2 in. in 6 hrs)
100 YEAR PEAK INFLOW (24)	567 cfs
HAZARD CLASSIFICATION	DOES NOT APPLY
MAXIMUM HEIGHT OF FILL ABOVE NATURAL GROUND	2.5 ft
LENGTH OF RETAINING WALL	350 ft
TOP OF WALL ELEVATION	4950.0
LOCATION OF EMERGENCY SPILLWAY (WEIR)	SW CORNER OF BASIN
LENGTH OF SPILLWAY CREST	73 ft
TOP OF WEIR WIDTH	2.67 ft
SLOPE OF UPSTREAM FACE	3H:1V OR FLATTER
SLOPE OF DOWNSTREAM FACE	HORIZONTAL; VERTICAL @ 2.5' RET WALL
TOP OF SPILLWAY ELEVATION	4948.8
CROSS SECTIONAL AREA OF EMERGENCY SPILLWAY	87.6 sq ft
DISCHARGE CAPACITY OF EMERGENCY SPILLWAY	107 cfs
OUTLET CONDUIT SIZE	30" dia.
OUTLET INVERT ELEVATION	4935.68
SLOPE OF OUTLET PIPE	0.001 ft/ft
MAXIMUM OUTLET DISCHARGE CAPACITY	27.8 cfs
TIME TO EMPTY DETENTION RESERVOIR (100-YR)	30.5 hrs
MAXIMUM WATER SURFACE ELEVATION (100-YR)	4947.73 @ 2.25 hrs
SURFACE AREA AT MAXIMUM WATER SURFACE ELEVATION (100-YR)	2.6 ac.
SURFACE AREA AT TOP OF WALL (4950.0)	2.8 ac.
STORAGE CAPACITY @ 49 47.73 (100-YR)	22.6 ac. ft
STORAGE CAPACITY @ 4950.0 (TOP OF WALL)	28.5 ac. ft.

THE 30" OUTLET PIPE BECOMES PART OF THE LOCAL STORM DRAIN SYSTEM AND DISCHARGES TO THE EXISTING BELL AVENUE/COMMERCIAL STREET PUMP STATION. THE PUMP STATION DISCHARGES INTO THE BROADWAY STORM DRAIN AT BELL AVENUE.

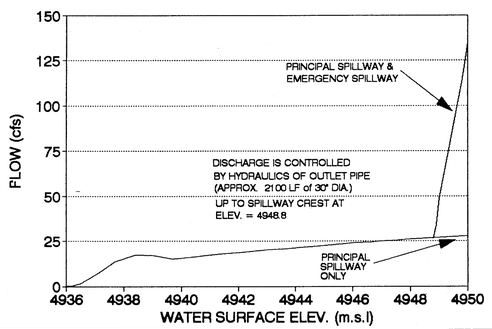
100-YR 24-HR STORM
INFLOW, OUTFLOW, AND WATER SURFACE



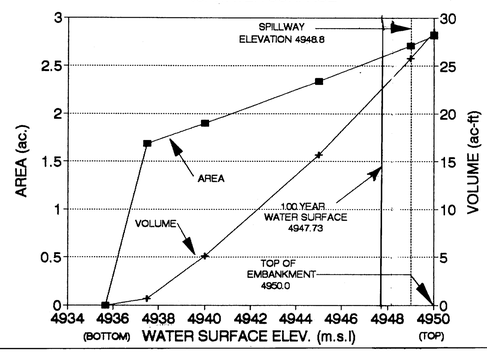
100-YR 24-HR STORM
INFLOW, OUTFLOW, AND WATER SURFACE



OUTFLOW
vs. WATER SURFACE



AREA and VOLUME
vs. WATER SURFACE



FILE-a:SBNOTES LAST REVISION=11/14/91

GENERAL NOTES

1. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED UNDER CONTRACT SHALL, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREIN, BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (1986) INCLUDING UPDATES. FOR SHORT, THESE MAY ALSO BE REFERRED TO AS THE SPECIFICATIONS OR THE STANDARD SPECIFICATIONS.

2. IF THE CONTRACTOR IS UNCLEAR AS TO THE INTENT OF THE PLANS OR SPECIFICATIONS HE SHALL PROMPTLY DISCUSS THEM WITH THE ENGINEER.

3. TIMING OF WORK: SEE THE SUPPLEMENTAL GENERAL CONDITIONS AND SPECIFICATIONS FOR REQUIREMENTS FOR THE TIMING OF CONSTRUCTION.

4. MUCH OF THE WORK OF THIS PROJECT OCCURS IN OR NEAR ESTABLISHED RESIDENTIAL AREAS. THE CONTRACTOR SHALL CONDUCT HIS WORK IN SUCH A WAY AS TO AVOID UNNECESSARY DISRUPTION, INCLUDING BUT NOT LIMITED TO DISRUPTIONS CAUSED BY TRAFFIC, NOISE, AND DUST.

5. THE UTILITY LOCATIONS SHOWN ON THE PLANS ARE BASED ON RECORD DRAWINGS AND FIELD SPOTTINGS AND MUST BE CONSIDERED APPROXIMATE. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE-CALL, 260-1990, FOR LOCATION OF EXISTING UTILITIES. THE ONE-CALL TICKET NUMBER FOR DESIGN OF THIS PROJECT WAS 910517 1429 0174.

6. ALL UTILITIES SHOWN AND ANY OTHER UTILITIES THAT ARE NOT SHOWN ON THE PLANS BUT ARE WITHIN THE CONSTRUCTION AREA SHALL BE LOCATED, IDENTIFIED AND PROTECTED BY THE CONTRACTOR AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS SHOWN ON THE DRAWINGS, INCLUDING THE HORIZONTAL AND VERTICAL LOCATION OF ALL OBSTRUCTIONS, PRIOR TO STARTING WORK AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR INCONSISTENCIES SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.

7. UTILITIES COORDINATION: THE CONTRACTOR SHALL COORDINATE WITH THE UTILITIES INVOLVED BEFORE AND DURING WORK ON THIS PROJECT, AND SHALL INFORM THE ENGINEER OF ANY PROBLEMS AFFECTING THE DESIGN OR EXECUTION OF THE PROJECT. THE UTILITY CONTACT PERSONS FOR THIS PROJECT ARE:

UTILITY	NAME OF CONTACT	PHONE
PUBLIC SERVICE COMPANY OF NEW MEXICO	BRENT SWITZER	848-3470
GAS COMPANY OF NEW MEXICO	TIM CYNOWA	761-7775
U. S. WEST COMMUNICATIONS	TOM WISEMAN	245-6460
JONES INTERCABLE	KAREN JARAMILLO	761-6220
(AT&T	ISHMAEL PANTOJA	842-2806)

8. THE GAS CO. SHALL MOVE OR REMOVE ITS LINES AS REQUIRED IN ADVANCE OF CONSTRUCTION.

9. HIGH PRESSURE AND VERY HIGH PRESSURE GAS LINES EXIST CLOSE TO THE WORK IN SEVERAL PLACES, PARTICULARLY ALONG COMMERCIAL STREET.

10. THE CONTRACTOR SHALL VERIFY THAT THE SANITARY SEWER LINE IN BROADWAY BLVD. SHOWN ON THE PLANS AS BEING ABANDONED ACTUALLY IS ABANDONED BEFORE REMOVING OR DISTURBING IT.

11. ALL UTILITIES WITHIN THIS PROJECT SHALL REMAIN IN OPERATION UNLESS OTHERWISE INDICATED ON THE PLANS.

12. DESIGN NOTE: THE CATCH BASINS ON THE WEST SIDE OF BROADWAY BLVD. SOUTH OF SANTA FE AVE. WILL CONTINUE TO BE CONNECTED TO THE EXISTING 72-INCH STORM DRAIN. CATCH BASINS ON THE EAST SIDE WILL CONNECT TO NEW STORM DRAINS AS SHOWN ON THE PLANS.

13. THREE (3) WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION THE CONTRACTOR SHALL SUBMIT TO THE CONSTRUCTION CO-ORDINATION DIVISION A DETAILED CONSTRUCTION SCHEDULE. TWO (2) WORKING DAYS PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL OBTAIN A BARRICADING PERMIT FROM THE CONSTRUCTION CO-ORDINATION DIVISION. THE CONTRACTOR SHALL NOTIFY THE BARRICADE ENGINEER (768-2551) PRIOR TO OCCUPYING AN INTERSECTION. SEE SECTION 19 OF THE SPECIFICATIONS.

14. THE CONTRACTOR SHALL COORDINATE TRAFFIC CONTROL WITH THE CONSTRUCTION COORDINATOR OF THE CITY OF ALBUQUERQUE PUBLIC WORKS DEPT.

15. THE CONTRACTOR SHALL MAINTAIN THE TRAFFIC CONTROL SIGNAL (STOP LIGHT) AT BROADWAY BLVD. AND PACIFIC AVE. IN OPERATION AT ALL TIMES UNLESS OTHERWISE DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL REPLACE ALL SIGNAL LOOPS TO THEIR ORIGINAL LOCATION, KIND, AND OPERATION. AT ANY TIME WHEN A STOP SIGN HAS BEEN REMOVED OR OBSCURED (E.G. SANTA FE AVE WEST OF BROADWAY BLVD) THE CONTRACTOR SHALL PROVIDE AN APPROPRIATE TEMPORARY STOP SIGN UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

16. ALL PAVEMENT STRIPING WITHIN THIS PROJECT SHALL BE REPLACED BY THE CONTRACTOR IN LOCATION AND IN KIND AS EXISTING, OR AS INDICATED BY THIS PLAN SET AS DIRECTED BY THE ENGINEER.

17. SURVEY MONUMENTS: THE CONTRACTOR SHALL NOTIFY THE ENGINEER NOT LESS THAN SEVEN (7) DAYS PRIOR TO STARTING WORK IN ORDER THAT THE ENGINEER MAY TAKE NECESSARY MEASURES TO INSURE THE PRESERVATION OF SURVEY MONUMENTS. CONTRACTOR SHALL NOT DISTURB PERMANENT SURVEY MONUMENTS WITHOUT THE CONSENT OF THE ENGINEER AND SHALL NOTIFY THE ENGINEER AND BEAR THE EXPENSE OF REPLACING ANY THAT MAY BE DISTURBED WITHOUT PERMISSION. REPLACEMENT SHALL BE DONE ONLY BY THE ENGINEER. WHEN A CHANGE IS MADE IN THE FINISHED ELEVATION OF THE PAVEMENT OF ANY ROADWAY IN WHICH A PERMANENT SURVEY MONUMENT IS LOCATED, CONTRACTOR SHALL, AT HIS OWN EXPENSE, ADJUST THE MONUMENT COVER TO THE NEW GRADE UNLESS OTHERWISE SPECIFIED. REFER TO SECTION 4.4 OF THE SPECIFICATIONS.

18. BEARINGS & DISTANCES. THE DETENTION BASIN IS DESIGNED TO BE LAID OUT USING PROJECT BEARINGS AND DISTANCES AS SHOWN ON THE PLANS. LINE 1 ON SHEET 5 IS THE MAIN LAYOUT LINE FOR THE PROJECT. THE PLAT WAS CREATED USING DIFFERENT C.O.A. MONUMENTATION. SHEET 5 CONTAINS BOTH PLAT AND PROJECT DESCRIPTIONS OF LINE 1. THE PROJECT LIES WITHIN THE PLAT BOUNDARIES.

19. LEFT AND RIGHT MEAN LEFT AND RIGHT WHEN LOOKING IN THE DIRECTION OF INCREASING STATIONING.

20. PROFILE GRADE IS GIVEN AT RIM ELEVATION OF EXISTING STORM DRAIN MANHOLES IN BROADWAY, WILLIAM, PACIFIC, AND COMMERCIAL. THE CONTRACTOR SHALL DOCUMENT EXISTING PAVEMENT GRADES PRIOR TO CONSTRUCTION AND SHALL RESTORE EXISTING GRADES WHEN REPAVING UNLESS OTHERWISE SHOWN ON THE PLANS OR OTHERWISE DIRECTED BY THE ENGINEER.

21. CONTROL OF DUST: THE CONTRACTOR SHALL BE FAMILIAR WITH THE RELEVANT REGULATIONS OF THE ALBUQUERQUE/BERNALILLO COUNTY AIR QUALITY CONTROL BOARD. AT A MINIMUM, THE CONTRACTOR SHALL MAKE A VOLUNTARY WORK STOPPAGE WHEN WIND AND SOIL CONDITIONS ARE SUCH THAT HE CANNOT CONFINE THE DUST TO THE SITE. SOIL CONDITIONS MAY REQUIRE THAT ALL EXCAVATION LIFTS BE PRE-WETTED, PARTICULARLY IF PADDLE SCRAPERS ARE USED. ALL TRUCKS SHALL BE PROPERLY MAINTAINED AND EQUIPPED AND ALL LOADS ENTERING AND LEAVING THE SITE SHALL BE COVERED. LEAVE ALL DISTURBED AREAS IN STABLE CONDITION AT THE END OF EACH WORK DAY. THE CONTRACTOR SHALL CLEAN UP ADJACENT PAVED STREETS DIRTIED BY HIS OPERATIONS, DAILY OR AS DIRECTED BY THE ENGINEER, BY WET BROOMING OR OTHER APPROVED MEANS. DRY BROOMING WILL NOT BE PERMITTED.

22. CONTROL OF WATER: THE CONTRACTOR SHALL CONTROL STORM AND NUISANCE WATER WITHIN THE PROJECT AREA. IN PARTICULAR, THE CONTRACTOR SHALL ENSURE THAT WATER FROM STORM DRAINAGE SYSTEMS WITHIN THE PROJECT AREA (PARTICULARLY THE BROADWAY STORM DRAINAGE SYSTEM) ARE DIRECTED SAFELY AWAY FROM THE WORK AREA. SEE THE CONTRACT DOCUMENTS INCLUDING SUPPLEMENTAL GENERAL CONDITIONS AND TECHNICAL SPECIFICATIONS, SPECIFICALLY STS SECTION 625.

23. TRENCHING: SEE THE SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS, INCLUDING SECTION 701.6.5. THE DEPTH OF NEW PIPING, THE NEARNESS OF OTHER UTILITIES AND STRUCTURES WHICH THE CONTRACTOR IS REQUIRED TO PROTECT, PAY LIMITS, AND TRAFFIC CONCERNS INDICATE THAT TRENCH BOXES, SHORING, OR OTHER SUPPORT MAY BE APPROPRIATE IN MUCH OF THIS PROJECT. BACKFILL BETWEEN A TRENCH SHIELD (TRENCH BOX), IF USED, AND THE TRENCH WALL IS REQUIRED IN SOME LOCATIONS.

24. VIBRATORY COMPACTION: SEE THE SUPPLEMENTAL SPECIFICATIONS FOR LIMITATIONS.

25. PIPE MATERIALS AND INSTALLATION: SEE THE PLANS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. ALL CONCRETE PIPE IS CLASS III REINFORCED CONCRETE PIPE EXCEPT AS OTHERWISE NOTED ON THE PLANS.

26. LEAN FILL: LEAN FILL CONSTRUCTION PER STS SEC.207 IS PERMITTED AT THE CONTRACTOR'S OPTION UPON AUTHORIZATION BY THE ENGINEER.

27. PIPE CROSSINGS: ALL PIPING AND OTHER UTILITIES THAT CROSS WITH LESS THAN EIGHT (8) INCHES OF CLEARANCE SHALL HAVE CONCRETE PLACED BETWEEN THEM FOR A DISTANCE OF 2.5 FEET ON EITHER SIDE OF THE CROSSING SO AS TO PROVIDE FIRM AND UNIFORM SUPPORT EXCEPT AS OTHERWISE DIRECTED BY THE ENGINEER.

28. PIPE ABANDONMENT: ALL LATERALS AND OTHER PIPE THAT IS TO BE ABANDONED IN PLACE SHALL HAVE ALL OPEN ENDS SECURELY PLUGGED WITH CONCRETE. ANY PIPE THAT IS DAMAGED, AND ANY OTHER PIPE DESIGNATED BY THE ENGINEER, SHALL BE REMOVED AND THE REMAINING OPEN ENDS SHALL BE PLUGGED.

29. SALVAGE: SALVAGE ALL MANHOLE RINGS AND COVERS, CATCH BASIN GRATES, AND ANY WATERLINE OR STORM DRAIN COMPONENTS AS DIRECTED BY THE ENGINEER, TO THE PINO AVENUE CITY YARDS. THIS WORK IS INCIDENTAL TO CONSTRUCTION.

30. TEMPORARY PAVING: TEMPORARY PAVING AS NEEDED SHALL BE PROVIDED PER THE DETAIL SHOWN ON SHEET 13 AND THE STANDARD SPECIFICATIONS. APPROXIMATELY 80 SY OF TEMPORARY PAVING MAY BE NEEDED AT BROADWAY BLVD. AND SANTA FE AVE. TEMPORARY PAVING SHALL BE INCIDENTAL TO CONSTRUCTION AND NO SEPARATE PAYMENT WILL BE MADE THEREFORE.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
2 6 4 1 6 5 . 9 0 0 2 9 3

SCANNED BY
BY LASON

LEGEND

DASHED SYMBOLS DENOTE EXISTING ITEMS

- EXISTING WATER LINE
- PROPOSED WATER LINE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- 57.50 EXISTING ELEVATION
- 50.00 PROPOSED ELEVATION
- FLOW DIRECTION
- SLOPE INDICATOR
- EXISTING FIRE HYDRANT
- PP POWER POLE
- STORM DRAIN INLET
- CURB AND GUTTER
- MANHOLE
- FENCE
- OVERHEAD POWER LINE
- UNDRGRND. TELEPHONE
- IRRIGATION LINE
- GAS LINE
- PROPERTY LINE
- CENTERLINE
- EXTENSION OF ℄
- ASPHALT PAVEMENT
- EARTH
- CONCRETE
- TRANSITION AREA

ABBREVIATIONS

T.C.	TOP OF CURB
T.O.C.	TOP OF CONCRETE
T.O.W.	TOP OF WALL
E.O.P.	EDGE OF PAVEMENT END OF PROJECT
B.O.P.	BEGINNING OF PROJECT
F.F.	FINISHED FLOOR
F.G.	FINISHED GRADE
℄	PROPERTY LINE
℄	CENTERLINE
V.P.T.	(VERTICAL) POINT OF TANGENT
P.I.	POINT OF INTERSECTION
F.C.	FACE OF CURB
T.G.	TOP OF GRATE
S.D.	(COA) STANDARD DRAWING
M.H.	MANHOLE
REM.	REMOVE
DISP.	DISPOSE
L.F.	LINEAR FEET
EXIST.	EXISTING
S.A.S.	SANITARY SEWER
R/W	RIGHT OF WAY
℄	FLOW LINE
F.C.	FACE OF CURB
H.G.L.	HYDRAULIC GRADE LINE
R.C.P.	REINFORCED CONCRETE PIPE
S.D.	STORM DRAIN
(V.P.I.	(VERTICAL) POINT OF INTERSECTION
(V)P.C.	(VERTICAL) POINT CURVATURE
O.C.	ON CENTER

Resource Technology, Inc.
ENGINEERS & ENVIRONMENTAL SCIENTISTS
2129 OSUNA NE - SUITE 200, ALBUQUERQUE, NEW MEXICO 87113
TELEPHONE - (505) 345 - 3115

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE
1	RESOURCE TECHNOLOGY, INC	4/91 - 7/91

BENCH MARKS

AN ACS CONTROL CAP 9-L14 LOCATED AT THE INTERSECTION OF BROADWAY AND STADIUM
X=381,804.60 Y=1,480,772.92 ELEV.=4961.11

AN ACS BENCHMARK 15-K14 LOCATED AT THE INTERSECTION OF BROADWAY AND PACIFIC
ELEV.=4957.597

AN ACS BENCHMARK 14-K14 LOCATED AT THE INTERSECTION OF BROADWAY AND HAZELDINE
ELEV.=4965.108

AS BUILT INFORMATION

CONTRACTOR John Concrete DATE
WORK STAKED BY C.O.A. DATE 2/1/93
ACCEPTANCE BY C.O.A. James Best DATE 2/1/93
VERIFICATION BY DATE
DRAWINGS COMPILED BY Robert Trick DATE

MICRO-FILM INFORMATION

RECORDED BY DATE
NO.

ENGINEER'S SEAL

TUCKER H. GREEN
NEW MEXICO
REGISTERED
PROFESSIONAL
ENGINEER
6857
2/1/93
1-17-92

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

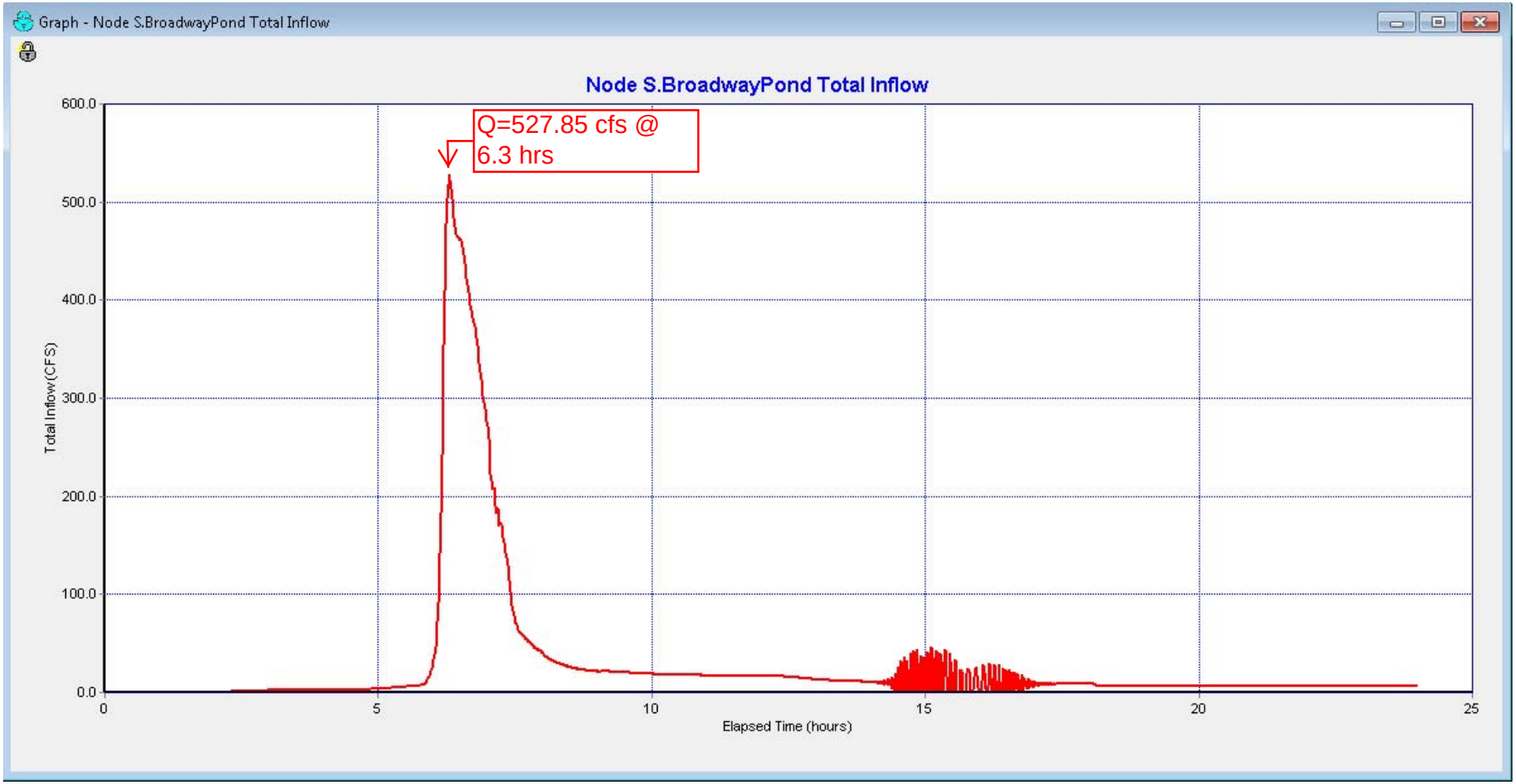
DESIGNED BY T.H.G. DATE 10/91
DRAWN BY B.A.G. DATE 10/91
CHECKED BY E.V.D. DATE 11/91

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE:
BASIN LOCATION AND HYDROGRAPHS

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
DRC CHAIRMAN	Floyd Khoury	2-5-92	WATER		
TRANSPORT.	[illegible]	1-22-92	WASTE WATER		
HYDROLOGY	[illegible]	1-17-92			

PROJECT NO.	MAP NO.	SHEET	OF
4165.90	K-14, L-14	2	34


Graph - Node S.BroadwayPond Total Inflow
Node S.BroadwayPond Total Inflow
Q=527.85 cfs @
6.3 hrs
600.0
500.0
400.0
300.0
200.0
100.0
0.0
Total Inflow (CFS)
0
5
10
15
20
25
Elapsed Time (hours)

N

SCALE:——— 1" = 20'

20 0 20 40

WARNING: 8" VERY HIGH PRESSURE GAS LINE NEAR FENCE. SEE SHEET G OF PLANS.

MATCH EXISTING GRADE TYPICAL

SEE SHEET 19 FOR DETAILED GRADING & PAVING OF COMMERCIAL STREET

INSTALL 8" UN-PINNED EXTRUDED CONC. CURB PER STD. DWG. #2415

STA 2+50

STA 1+50

STA 1+00

COMMERCIAL ST.

MATCH ASPHALT TO EXISTING GRADE AT FENCE TYP.

MAIN OFFSITE FLOW ENTRY.

TYPE 'B' VALVE BOX

F.H. FLANGE 49.70

ALL PIPE BOLLARDS

12' CHAIN LINK GATE

INSTALL STD. CURB & GUTTER PER STD. DWG #2415

STA. 1+68.20 BUILD SLEEPER JOINT PER SD 2265 PW=2"

GRADE TO DRAIN

CONCRETE COLLAR

INSTALL CUT-OFF WALL, DWG 2415 B. TOP = 50.0 FT MIN BURY DEPTH 0.8 FT

INSTALL CUT-OFF WALL, DWG 2415 B. TOP 51.0 FT. MIN BURY DEPTH OF 0.8 FT. SEE SHEET 2 OF 3. REMOVE FENCE PER DIRECTION OF THE ENGINEER.

EXISTING TOC NW ~EL 50.0

20:1 (H:V) MAX

20:1 (H:V) MAX

S=0.008%

TIE-IN EXISTING ASPHALT

A - A

"SPEED TABLE"/WATER BREAK PROFILE

EXISTING TOC NW EL 50.0

EXISTING TOC SE EL 49.6 (APPROX)

NEW CUT-OFF WAL TOP = 50.0

EXISTING FL ≈ 49.3

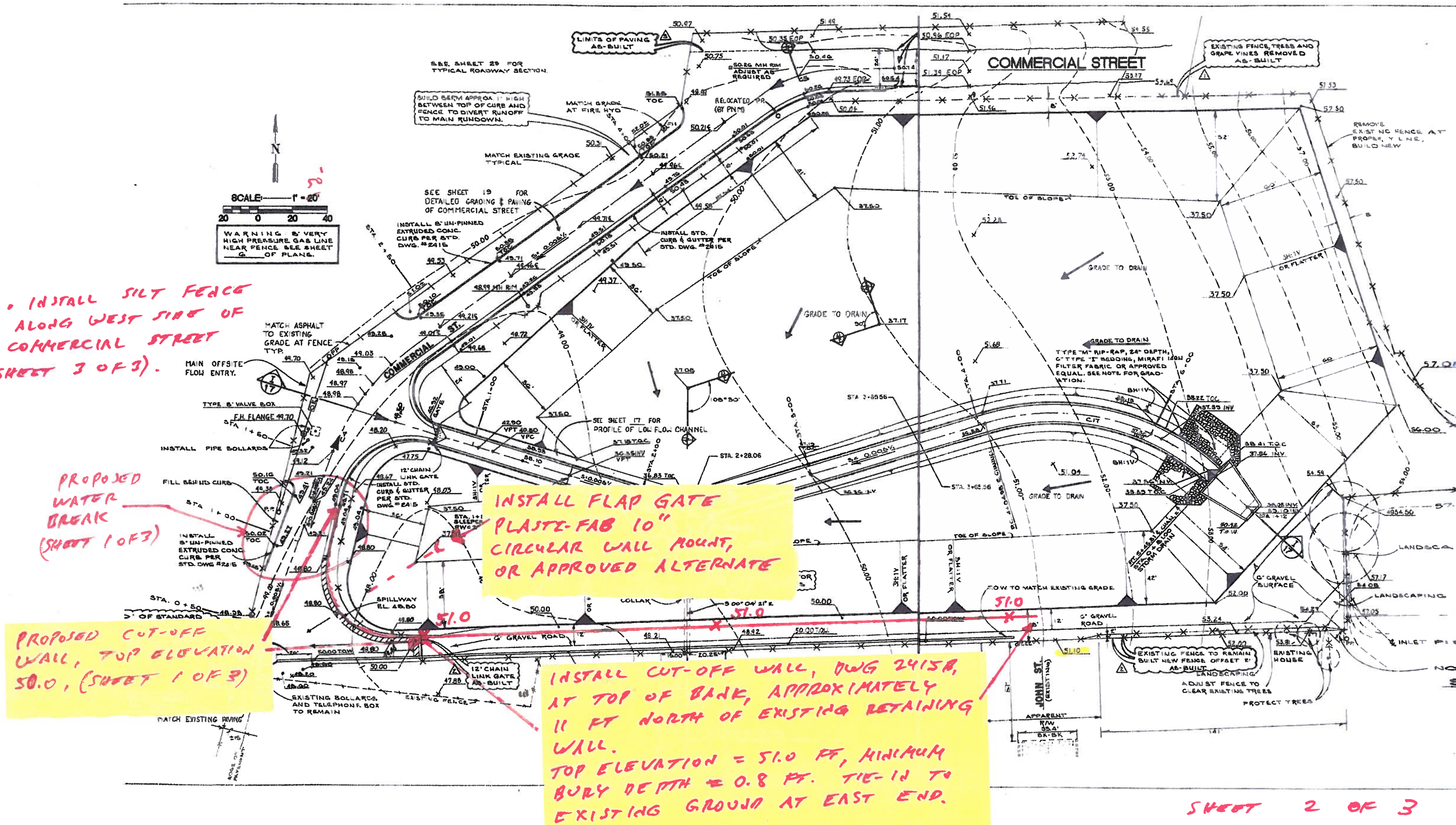
EXISTING FL ≈ 48.9

B - B

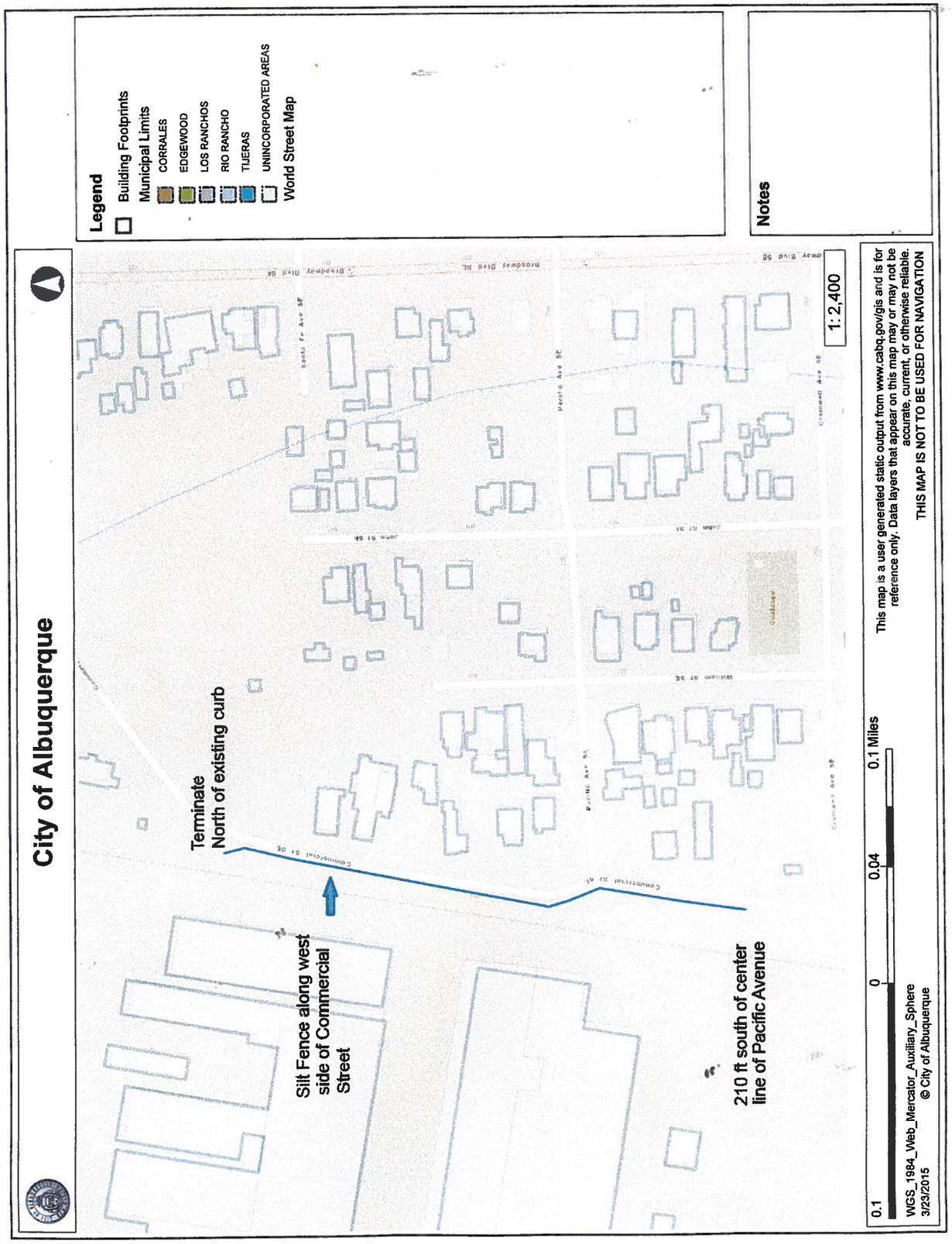
(APPROXIMATELY 30' F-F)

"SPEED TABLE"/WATER BREAK CROSS SECTION

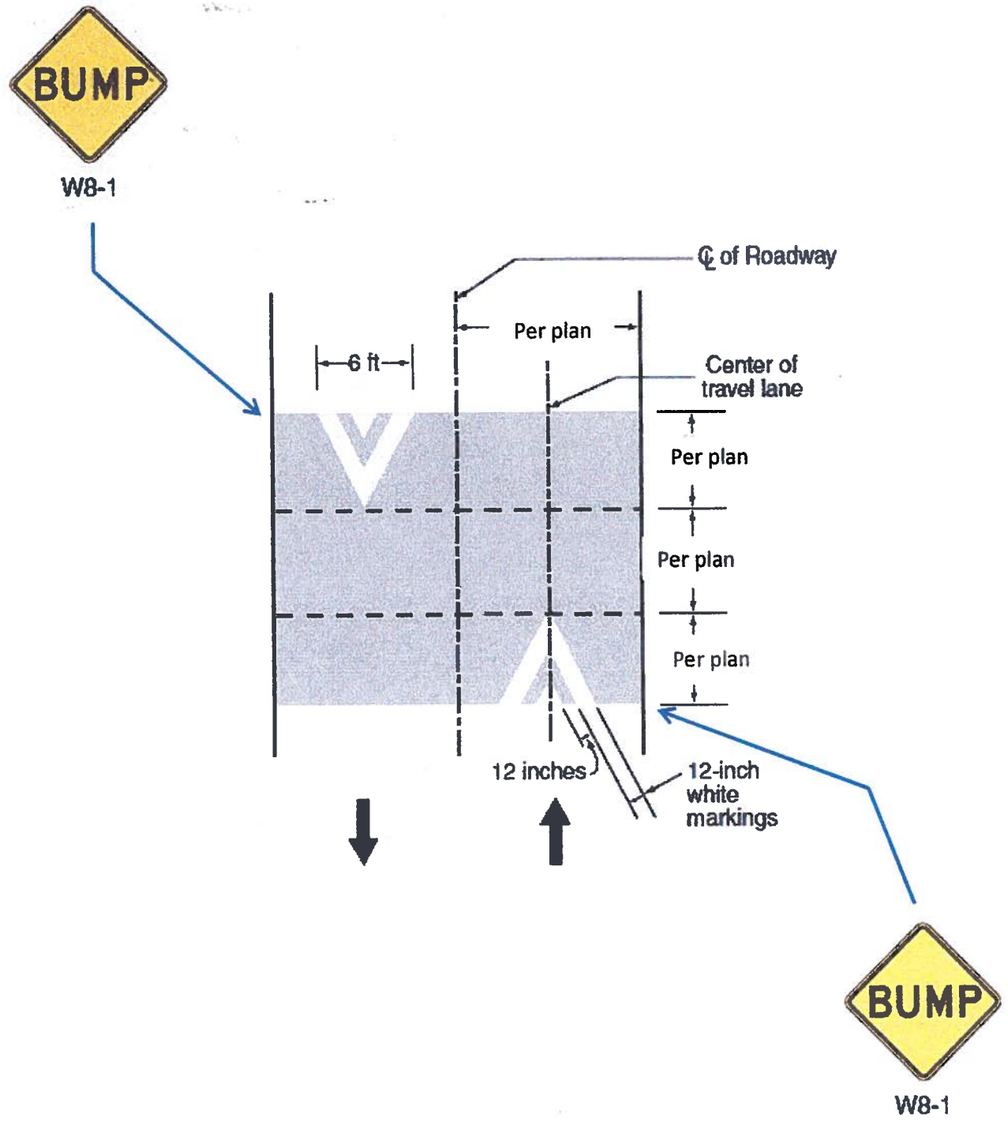
SHEET 1 OF 3



• INSTALL SILT FENCE ALONG WEST SIDE OF COMMERCIAL STREET (SHEET 3 OF 3).



SIGNING AND STRIPING FOR WATER BREAK



Located on Commercial Street 100 feet north and south of water break per the direction of the Engineer:

part of a retrofit in 2002. Previously, they were in service as activated sludge pumps at the City of Albuquerque's Southside Water Reclamation Facility.

At maximum capacity, the pumps are capable of delivering between 13,900 and 32,000 gpm depending on the total dynamic head (TDH) required. The flow rate depends on the wet well's water level, which causes static lift to range from approximately 16 feet to 35 feet. A larger static lift corresponds to a smaller flow rate as the pumps must work harder to lift the water. The lift pumps may be operated in different configurations to suit variable pumping requirements. Pump No. 1 should not be operated by itself, but rather as an auxiliary to the two (2) Flygt pumps when more capacity is needed. This is because the required flow rate and TDH may be outside the manufacturer's recommended operating range under expected conditions. Refer to Appendix C for the manufacturer's pump curve and data. Also included in Appendix C are an additional set of curves showing approximate system hydraulics and possible pump operating combinations.

The manufacturer's pump curves for the FM 5710-18 and Flygt CT3500 indicate that the pumps require 18 feet and 16 feet of net positive suction head (NPSH) to prevent cavitation, respectively. When cavitation occurs, the pump runs noisily and sounds as if it were pumping marbles. Prolonged cavitation will result in pitting of the impeller and volute. Stormwater periods tend to be brief and some cavitation is tolerable over the life of the pump.

At the station's site elevation, the quantity of available suction head is greater than the required quantity. Therefore, the pumps are capable of pulling between 4.5 (FM 5710) and 8.5 (Flygt CT3500) feet of suction lift. That is, the pumps could pull water through suction piping from a wet well at a lower elevation with a water level approximately 4.5 to 8.5 feet below the elevation of the impeller. The station is designed such that the pumps pull less suction lift that this amount.

The Flygt pumps are installed in Flygt's "T" configuration, which indicates it is installed vertically in a dry-pit with permanent (flanged) suction and discharge piping.

Pump 1

18"

5711
VERTICAL FOR FLEXIBLE SHAFTING

5721
HORIZONTAL

5731M&W
SUBMERSIBLE

5741
VERTICAL CLOSE COUPLED

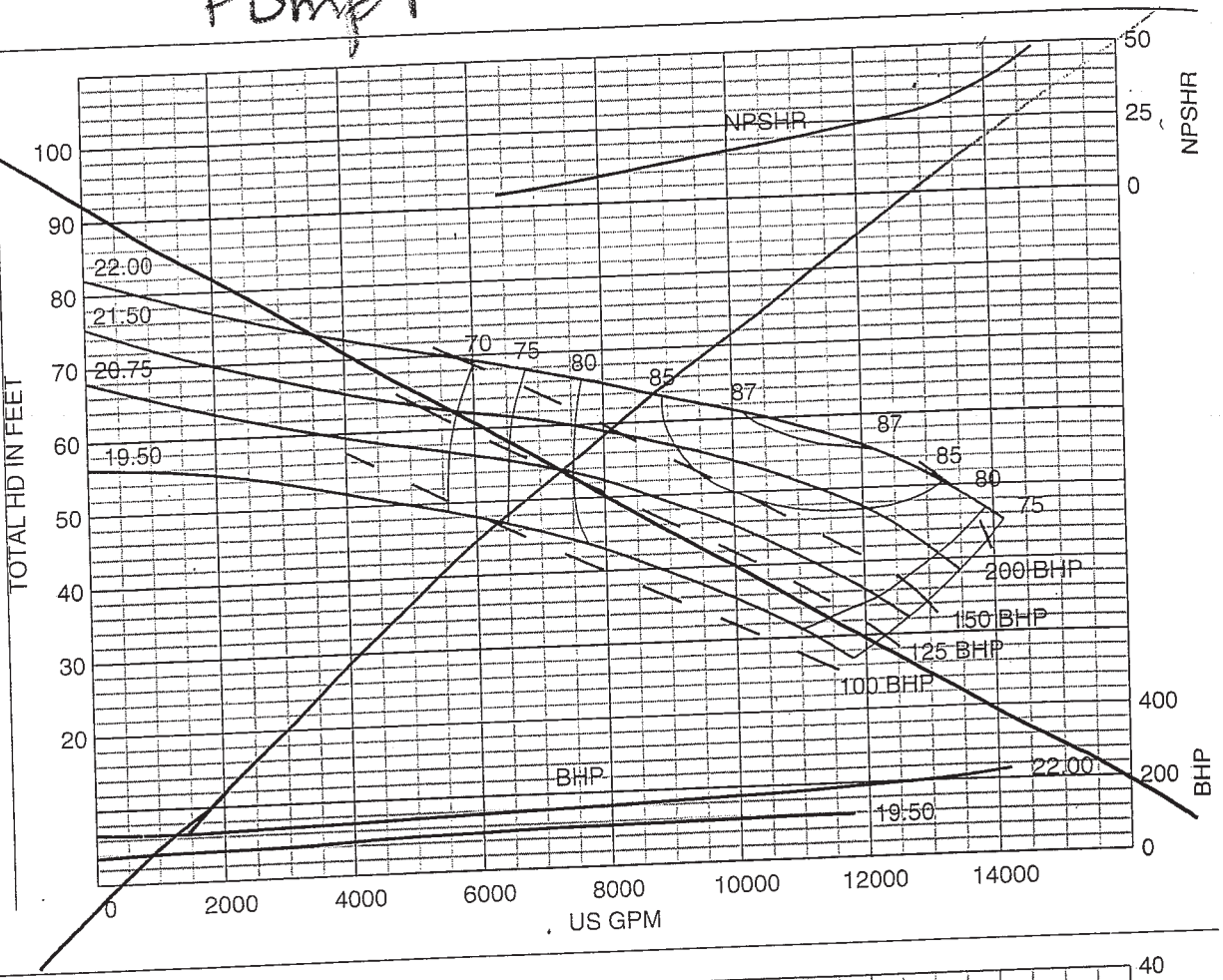
705 RPM
NO.OF VANES 3

SUCTION SIZE 18"

IMPELLER L18A1H

INLET AREA 190.3 SQ.IN.

MAX.SPHERE 4 1/4"



18"

5711
VERTICAL FOR FLEXIBLE SHAFTING

5721
HORIZONTAL

5731M&W
SUBMERSIBLE

5741
VERTICAL CLOSE COUPLED

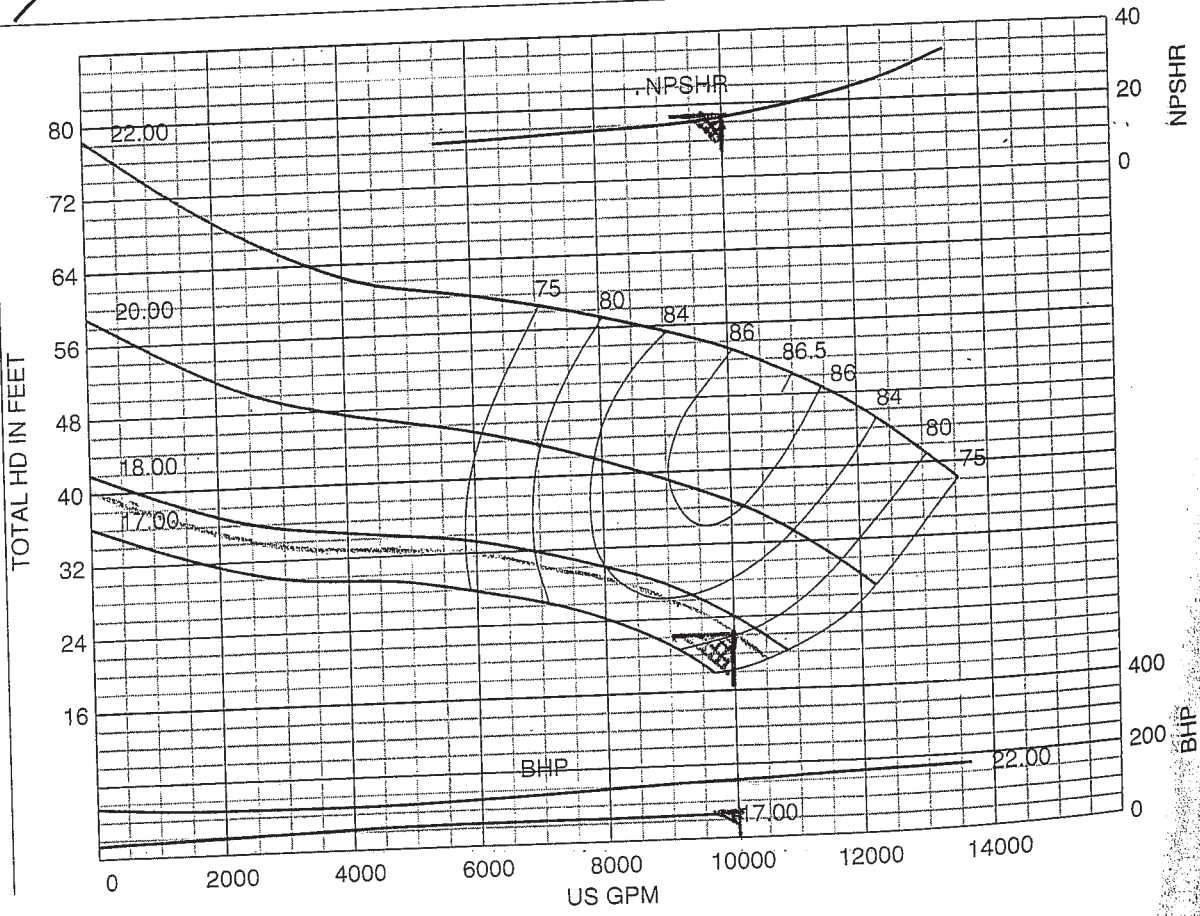
705 RPM
NO.OF VANES 2

SUCTION SIZE 18"

IMPELLER L18A1M

INLET AREA 190.3 SQ.IN.

MAX.SPHERE 6 3/4"



FLYGT

PERFORMANCE CURVE Pump 2 & 3

DATE	PROJECT	ISSUE	PROD
1990-11-08	C. D. M. ALBQ. WWTP - R. A. S. PUMPS	5	3500

NO. OF BLADES.....	3	TOT.MOM.OF INERTIA.....	12.99	KGM²	POLES 14	FREQ 60	HZ
IMPELLER THROUGHLET...	110*250 RECTA.	RATED SPEED.....	505	RPM	VOLTAGE.....	460	V
					MOTOR SHAFT POWER.....	100	KW
					STARTING TORQUE.....	1715	NM
					MAX TORQUE.....	3560	NM
					RATED CURRENT.....	225	A
					STARTING CURRENT.....	715	A

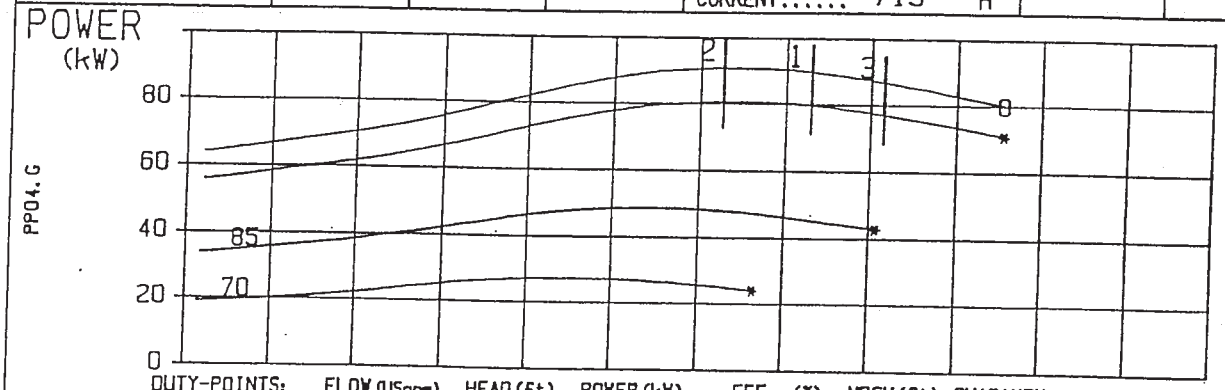
CURVE NO 63-1430

IMPELLER DIAMETER 595 MM

MOTORTYPE 51-56-14AA/3

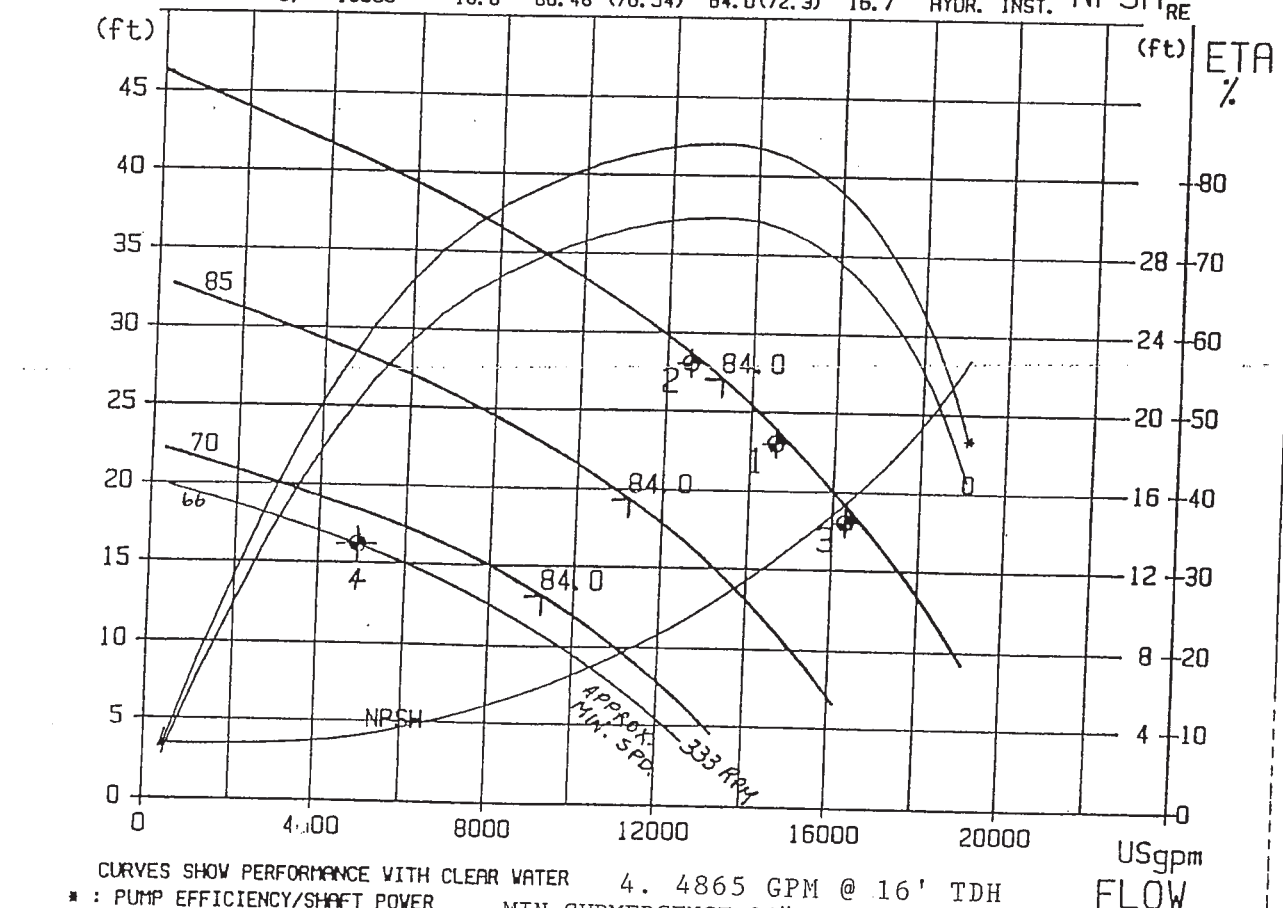
GEARTYPE RATIO

	1/1-LOAD	3/4-LOAD	1/2-LOAD
MOTOR COS FI	0.63	0.56	0.45
MOTOR EFFICIENCY	88.5%	88.5%	86.5%
GEAR EFFICIENCY			



DUTY-POINTS:

	FLOW (USgpm)	HEAD (Ft)	POWER (kW)	EFF. (%)	NPSH (Ft)	GUARANTY
1.	14600	23.0	89.64 (79.48)	70.7 (79.7)	13.4	HYDR. INST.
2.	12540	28.0	91.08 (80.79)	72.7 (82.0)	10.2	HYDR. INST.
3.	16300	18.0	86.48 (76.54)	64.0 (72.3)	16.7	HYDR. INST.



CURVES SHOW PERFORMANCE WITH CLEAR WATER
* : PUMP EFFICIENCY/SHAFT POWER
O : OVERALL EFFICIENCY/INPUT POWER

4. 4865 GPM @ 16' TDH
MIN.SUBMERGENCE 36" ABOVE PUMP BASE.
MAX.SUBMERGENCE 65' ABOVE PUMP BASE.

-0370.1

PERFORMANCE CURVE

Pump 2 & 3

SIMILAR UNIT TEST DATA

FLYGT

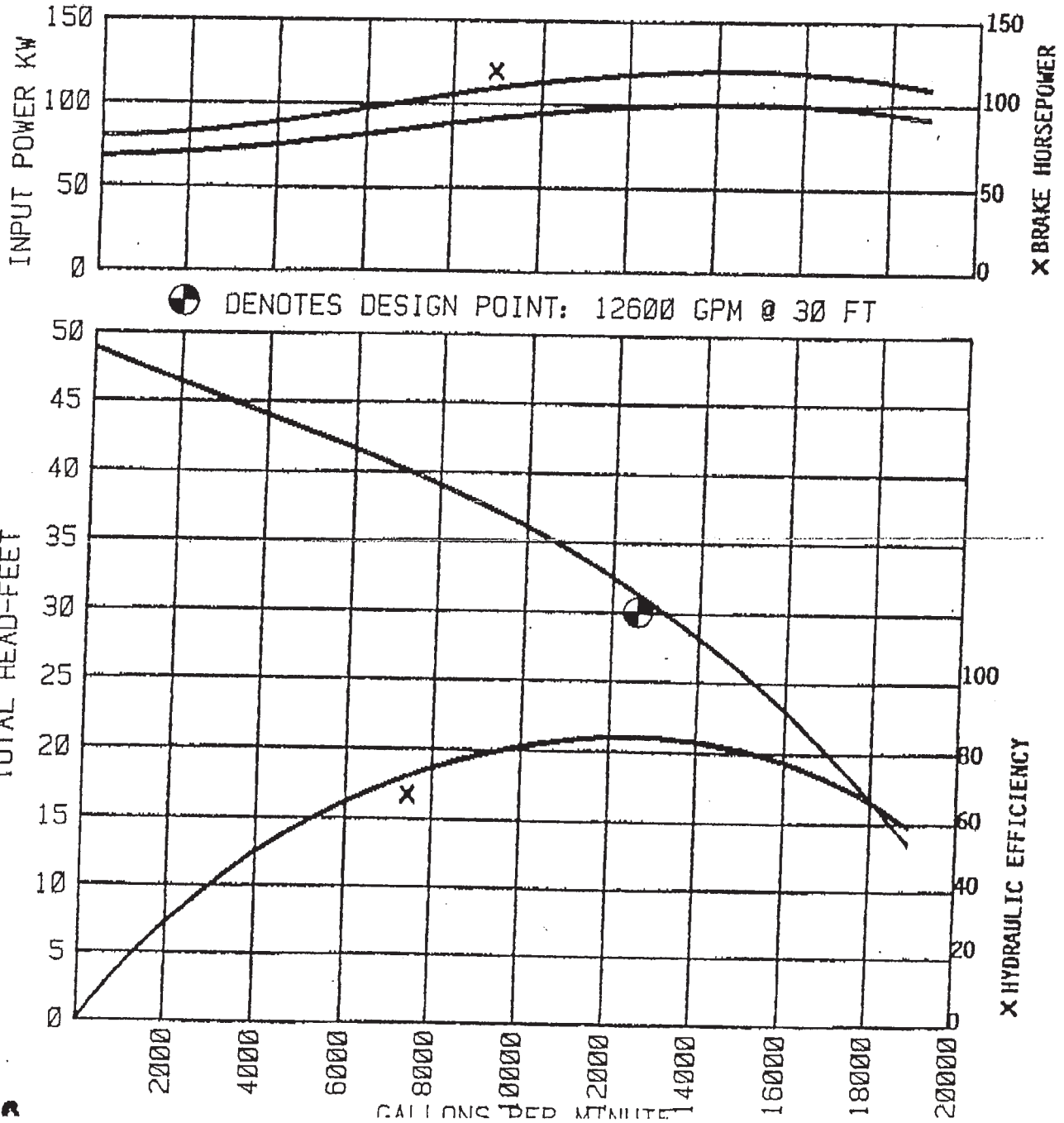
CUSTOMER REF. NO.	James Cooke
	Squaw Peak Pkwy
	Phoenix, AZ
REP.	James Cooke

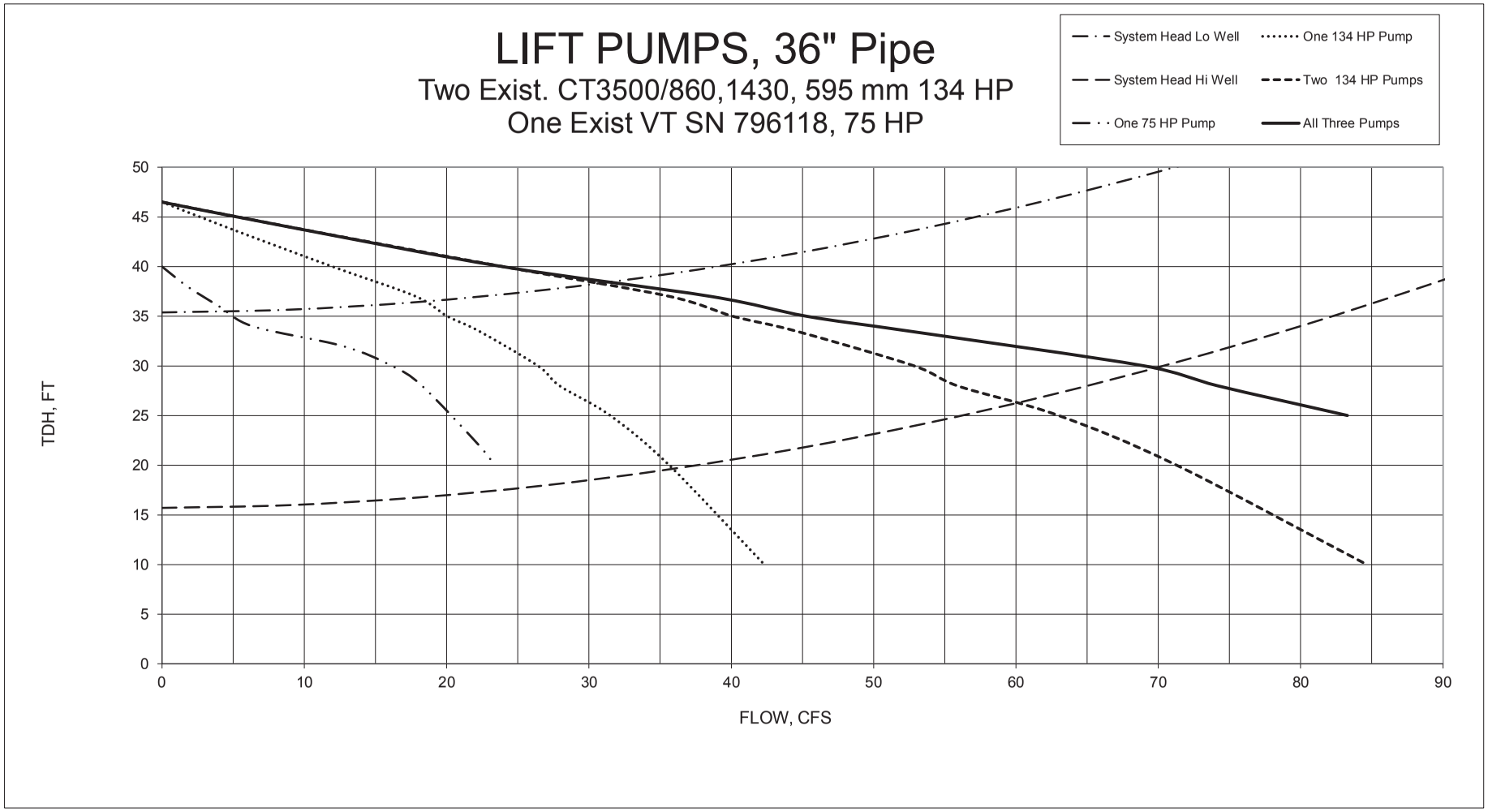
CERTIFIED TEST CURVE NO. 5950

SER. NO.	880-8850643	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 CLEAN 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.

	TEST BY Lindas	PREP. BY A. Hannis	WITNESSED BY
T.A.# 6662	DATE 6/29/88	DATE 7/29/88	DATE




LIFT PUMPS, 36" Pipe
Two Exist. CT3500/860,1430, 595 mm 134 HP
One Exist VT SN 796118, 75 HP
System Head Lo Well
System Head Hi Well
One 75 HP Pump
One 134 HP Pump
Two 134 HP Pumps
All Three Pumps
TDH, FT
FLOW, CFS
0
5
10
15
20
25
30
35
40
45
50
0
10
20
30
40
50
60
70
80
90

APPENDIX C
SWMM MODELS

SWMM Model Input - Existing System

```
[TITLE]

[OPTIONS]
FLOW_UNITS           CFS
INFILTRATION         HORTON
FLOW_ROUTING         DYNWAVE
START_DATE           05/06/2016
START_TIME           00:00:00
REPORT_START_DATE    05/06/2016
REPORT_START_TIME    00:00:00
END_DATE             05/06/2016
END_TIME             06:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          00:00:15
WET_STEP             00:05:00
DRY_STEP             01:00:00
ROUTING_STEP         0:00:15
ALLOW_PONDING        NO
INERTIAL_DAMPING     PARTIAL
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.557
NORMAL_FLOW_LIMITED  BOTH
SKIP_STEADY_STATE    NO
FORCE_MAIN_EQUATION  H-W
LINK_OFFSETS         DEPTH
MIN_SLOPE            0.001

[EVAPORATION]
;;Type       Parameters
;;---------- ----------
CONSTANT     0.0
DRY_ONLY     NO

[JUNCTIONS]
;;               Invert     Max.       Init.      Surcharge  Ponded
;;Name           Elev.      Depth      Depth      Depth      Area
;;-------------- ---------- ---------- ---------- ---------- ----------
DI2024           4945.64    3.87       0          0          0
;Max/rim_elev._is_top_of_curb_elevation.
DI2046           4945.39    3.5        0          0          0
;Rim elevation was raised to match grate elevation plus 8" curb height.
K14941           4937.35    11.75      0          0          0
;MH rim elevation changed to match lowest connecting inlet grate elevation (DI #2079 - 4949.03) plus 8" curb height.
K14942           4936.82    13.35      0          0          0
K14943           4946.02    3.75       0          0          0
K14944           4937.6     11.85      0          0          0
;Manhole rim elevation has been adjusted to the flowline elevation at the curb plus the curb height (the manhole
;is located 11 feet from the curb at a 2% cross slope).
K14945           4937.94    12.2       0          0          0
;MH rim elevation adjusted to lowest connecting inlet grate elevation (DI #2024 - 4948.66) plus 8" curb height.
K14951           4945.21    4.6        0          0          0
;MH rim elevation changed to reflect lowest connecting inlet grate elevation (DI #2327 - 4948.32) plus 8" curb height.
K14952           4943.04    6.05       0          0          0
;MH rim elevation adj. to lowest connecting inlet grate elevation (DI #2336 - 4950.17) plus 8" curb height.
K14953           4945.46    5.57       0          0          0
;Changed rim elevation to reflect the location of the sd inlet in the middle of the street. William Street has an invers
;crown with a 2% cross slope with the sd inlet grate elevation being lower than the curb flowline. Curb elevation was
;determined to be at 4949.24 ft. multiplied by 2% slope results in an inlet grate elevation of 4949.04 ft. The manhole r
;was then adjusted back to the curb height elevation by adding 8" to the grate elevation.
K14954           4937.94    11.81      0          0          0
;MH rim elevation adj. to lowest connecting inlet grate elevation (DI #2009 - 4946.30) plus 8" curb height.
L14041           4936.6     11.17      0          0          0
L14042           4943.53    3.7        0          0          0
L14051           4944.35    2.95       0          0          0
;MH rim elevation adj. to lowest connecting grate elevation (DI #2303 - 4947.78) plus 8" curb height.
L14052           4941.40    7.23       0          0          0
;MH rim elevation adj. to lowest connecting inlet elevation (DI #2344 - 4949.89) plus 8" curb height.
L14053           4944.98    5.39       0          0          0
;MH rim elevation adj. to existing rim elevation (4951.39) plus 8" curb height.
;There were no connecting inlets shown in the survey file.
L14054           4944.59    7.27       0          0          0
;MH rim elevation adj. to lowest connecting inlet grate elevation (DI #2218 - 4948.59) plus 8" curb height.
L14055           4939.88    9.56       0          0          0
L14141           4936.08    12.24      0          0          0
;MH rim elevation adj. to lowest connecting inlet grate elevation (DI #2134 - 4947.71) plus 8" curb height.
L14142           4935.24    13.23      0          0          0
;MH rim elevation adj. to lowest connecting inlet grate elevation (DI #2156 - 4947.10) plus 8" curb height.
L14143           4935.66    12.35      0          0          0
L14146           4943.06    5.41       0          0          0
```

```
;MH rim elevation adj. to lowest connecting inlet grate elevation (DI #2210 - 4947.80) plus 8" curb height.
L14151           4939.08    9.82       0          0          0
;MH rim elevation adj. to lowest connecting inlet grate elevation (DI #2180 - 4947.83) plus 8" curb height.
L14152           4937.58    11.05      0          0          0
L14999           4937.3     11.28      0          0          0
L14JB145         4934.73    13.55      0          0          0

[OUTFALLS]
;;               Invert     Outfall    Stage/Table      Tide
;;Name           Elev.      Type       Time Series      Gate
;;-------------- ---------- ---------- ---------------- ----
L14JB2           4952.21    FREE                        NO

[STORAGE]
;;               Invert   Max.     Init.    Storage    Curve                    Ponded   Evap.
;;Name           Elev.    Depth    Depth    Curve      Params                   Area     Frac.    Infiltration Paramet
;;-------------- -------- -------- -------- ---------- -------- -------- -------- -------- -------- --------------------
L14PS1           4926.99  22.67    0        TABULAR    L14PS1                   0        0
SBroadwayPond    4938.42  15.25    15.25    TABULAR    SB.DepthArea             0        0

[CONDUITS]
;;               Inlet            Outlet                      Manning    Inlet      Outlet     Init.      Max.
;;Name           Node             Node             Length     N          Offset     Offset     Flow       Flow
;;-------------- ---------------- ---------------- ---------- ---------- ---------- ---------- ---------- ----------
Bell_A           L14JB145         L14143           86         0.017      12.88      11.44      0          0
Bell_B           L14999           L14JB145         261        0.017      10.53      12.88      0          0
Bell_C           L14152           L14999           35         0.017      10.25      10.53      0          0
Commercial_1     K14942           L14041           393        0.017      12.68      10.29      0          0
Commercial_2     L14142           L14041           350        0.017      12.47      10.29      0          0
Commercial_Sag   K14941           DI2046           92.157     0.017      10.86      2.56       0          0
Cromwell_Junct   K14942           K14943           48         0.017      12.68      3.01       0          0
E.Cromwell       K14953           K14952           170        0.017      4.71       5.28       0          0
E.Garfield       L14054           L14055           244        0.017      6.6        8.71       0          0
Lewis_Junct      L14142           L14146           35         0.017      12.47      4.65       0          0
Link-13          DI2024           K14951           18.41      0.013      0          0.35       0          0
Link-14          DI2046           K14944           46.09      0.013      0          0.15       0          0
N.Commercial     K14942           K14941           234        0.017      12.68      10.86      0          0
N.John           K14953           L14053           191        0.017      4.71       4.91       0          0
N.William        DI2024           K14952           355        0.017      3.02       5.28       0          0
Pacific          K14945           DI2046           268        0.017      11.53      2.56       0          0
Pacific_William  K14954           K14951           34         0.017      11.14      3.45       0          0
S.Commercial_A   L14142           L14141           330        0.017      12.47      11.57      0          0
S.Commercial_B   L14141           L14143           36         0.017      11.57      11.44      0          0
S.John           L14054           L14053           200        0.017      6.6        4.91       0          0
S.William        L14152           L14151           370        0.017      10.25      8.72       0          0
SDP1             SBroadwayPond    K14954           410.95811861 0.013      0          0.1        0          0
SDP10            L14143           L14JB145         85.40790915 0.013       0          0.42       0          0
SDP11            K14951           K14952           354.71353104 0.013      0          0.08000000000000001 0          0
SDP12            K14952           L14052           158.63026916 0.013      0          0.4        0          0
SDP13            L14052           L14055           223.09104012 0.013      0          0.5        0          0
SDP14            L14055           L14151           339.09603202 0.013      0          0.37       0          0
SDP15            L14151           L14152           369.53315621 0.013      0          0.85       0          0
SDP16            L14152           L14999           34.22873553 0.013       0          0.77       0          0
SDP17            L14999           L14JB145         260.75662555 0.013      0          0.7        0          0
SDP19            L14055           L14051           183.12768235 0.013      4.69       0          0          0
SDP2             K14954           K14945           43.12332141 0.013       0          0.05000000000000003 0          0
SDP20            L14053           L14054           199.67810886 0.013      0          0          0          0
SDP21            K14953           L14053           191.14310008 0.013      0          0.08000000000000001 0          0
SDP22            L14054           L14055           244.301283 0.013        0.07000000000000003 4.487      0          0
SDP24            L14042           L14041           19.24659539 0.013       0          6.907      0          0
SDP25            L14051           L14042           180.4767637 0.013       0          0.6        0          0
SDP26            L14146           L14142           35.18528675 0.013       0          7.778      0          0
SDP27            K14943           K14942           47.70588865 0.013       0          9          0          0
SDP28            L14JB145         L14PS1           53.05839922 0.013       0          6.45       0          0
SDP3             K14945           K14944           267.90742539 0.013      0          0.15       0          0
SDP4             K14944           K14941           92.15714564 0.013       0          0.15       0          0
SDP5             K14941           K14942           233.62246284 0.013      0          0.2        0          0
SDP6             K14942           L14041           392.68031286 0.013      0          0.12       0          0
SDP7             L14041           L14142           349.68993313 0.013      0          0.09999999999999996 0          0
SDP8             L14142           L14141           330.32958193 0.013      0          0.08000000000000001 0          0
SDP9             L14141           L14143           35.81241274 0.013       0          1.22       0          0
W.Garfield_A     L14051           L14042           181        0.017      2.32       2.77       0          0
W.Garfield_B     L14055           L14051           183        0.017      8.71       2.32       0          0
;Initial_invert_4943.53_to_4936.6_switched_direction
W.Garfield_Junct L14041           L14042           19         0.017      10.29      2.77       0          0
William_1A       K14952           L14052           158        0.017      5.28       6.38       0          0
William_1B       L14055           L14052           223        0.017      8.71       6.38       0          0
William_2        L14055           L14151           339        0.017      8.71       8.72       0          0
William_Pacific  K14945           K14954           43         0.017      11.53      11.14      0          0

[PUMPS]
;;               Inlet            Outlet           Pump             Init.  Startup  Shutoff
```

```
;;Name           Node             Node             Curve            Status Depth    Depth
;;-------------- ---------------- ---------------- ---------------- ------ -------- --------
PUMP_CT-3500-135_02 L14PS1           L14JB2           PumpStation      OFF    3.5      0

[XSECTIONS]
;;Link           Shape        Geom1            Geom2      Geom3      Geom4      Barrels
;;-------------- ------------ ---------------- ---------- ---------- ---------- ----------
Bell_A           IRREGULAR    Standard         0          0          0          1
Bell_B           IRREGULAR    Standard         0          0          0          1
Bell_C           IRREGULAR    Standard         0          0          0          1
Commercial_1     IRREGULAR    Standard         0          0          0          1
Commercial_2     IRREGULAR    Standard         0          0          0          1
Commercial_Sag   IRREGULAR    Standard         0          0          0          1
Cromwell_Junct   IRREGULAR    Standard         0          0          0          1
E.Cromwell       IRREGULAR    Standard         0          0          0          1
E.Garfield       IRREGULAR    Standard         0          0          0          1
Lewis_Junct      IRREGULAR    Standard         0          0          0          1
Link-13          CIRCULAR     1.5              0          1          1          1
Link-14          CIRCULAR     1.5              0          1          1          1
N.Commercial     IRREGULAR    Standard         0          0          0          1
N.John           IRREGULAR    Standard         0          0          0          1
N.William        IRREGULAR    Standard         0          0          0          1
Pacific          IRREGULAR    Standard         0          0          0          1
Pacific_William  IRREGULAR    Standard         0          0          0          1
S.Commercial_A   IRREGULAR    Standard         0          0          0          1
S.Commercial_B   IRREGULAR    Standard         0          0          0          1
S.John           IRREGULAR    Standard         0          0          0          1
S.William        IRREGULAR    Standard         0          0          0          1
SDP1             CIRCULAR     2.5              0          1          1          1
SDP10            CIRCULAR     4                0          1          1          1
SDP11            CIRCULAR     2                0          1          1          1          1
SDP12            CIRCULAR     2                0          1          1          1
SDP13            CIRCULAR     2.5              0          1          1          1
SDP14            CIRCULAR     3                0          1          1          1
SDP15            CIRCULAR     3                0          1          1          1
SDP16            CIRCULAR     4                0          1          1          1
SDP17            CIRCULAR     4                0          1          1          1
SDP19            CIRCULAR     1                0          1          1          1
SDP2             CIRCULAR     2.5              0          1          1          1
SDP20            CIRCULAR     1                0          1          1          1
SDP21            CIRCULAR     1                0          1          1          1
SDP22            CIRCULAR     1                0          1          1          1
SDP24            CIRCULAR     1.5              0          1          1          1
SDP25            CIRCULAR     1                0          1          1          1
SDP26            CIRCULAR     1.5              0          1          1          1
SDP27            CIRCULAR     1.5              0          1          1          1
SDP28            CIRCULAR     4                0          1          1          1
SDP3             CIRCULAR     2.5              0          1          1          1
SDP4             CIRCULAR     2.5              0          1          1          1
SDP5             CIRCULAR     2.5              0          1          1          1
SDP6             CIRCULAR     2.5              0          1          1          1
SDP7             CIRCULAR     2.5              0          1          1          1
SDP8             CIRCULAR     2.5              0          1          1          1
SDP9             CIRCULAR     4                0          1          1          1
W.Garfield_A     IRREGULAR    Standard         0          0          0          1
W.Garfield_B     IRREGULAR    Standard         0          0          0          1
W.Garfield_Junct IRREGULAR    Standard         0          0          0          1
William_1A       IRREGULAR    Standard         0          0          0          1
William_1B       IRREGULAR    Standard         0          0          0          1
William_2        IRREGULAR    Standard         0          0          0          1
William_Pacific  IRREGULAR    Standard         0          0          0          1

[TRANSECTS]

;Standard roadway section for the project with 2% cross slope, 32' full street sectionand 8" curb and gutter.
NC 0        0        0.017
X1 Standard          5        0.0      0.0      0.0      0.0      0.0      0.0      0.0
GR 0.67     0        0        0.1      0.32     16       0        31.9     0.67     32

[LOSSES]
;;Link           Inlet      Outlet     Average    Flap Gate
;;-------------- ---------- ---------- ---------- ----------
Link-13          0.5        0.6        0          NO
Link-14          0.5        0.6        0          NO
SDP1             0.025      0.025      0          NO
SDP10            .025       .025       0          NO
SDP11            .025       .025       0          NO
SDP12            .025       .025       0          NO
SDP13            .025       .025       0          NO
SDP14            0.025      0.025      0          NO
SDP15            .025       .025       0          NO
SDP16            .025       .025       0          NO
```

```
SDP17            0.025      .025       0          NO
SDP19            .025       .025       0          NO
SDP2             0.025      0.025      0          NO
SDP20            .025       .025       0          NO
SDP21            0.025      .025       0          NO
SDP22            .025       .025       0          NO
SDP24            0.025      0.025      0          NO
SDP25            .025       .025       0          NO
SDP26            0.025      0.025      0          NO
SDP27            0.025      0.025      0          NO
SDP28            .025       .025       0          NO
SDP3             .025       0.025      0          NO
SDP4             0.025      0.025      0          NO
SDP5             0.025      0.025      0          NO
SDP6             0.025      0.025      0          NO
SDP7             .025       .025       0          NO
SDP8             0.025      .025       0          NO
SDP9             .025       .025       0          NO

[INFLOWS]
;;                                                 Param    Units    Scale    Baseline Baseline
;;Node            Parameter        Time Series      Type     Factor   Factor   Value    Pattern
;;--------------- ---------------- ---------------- -------- -------- -------- -------- --------
DI2024           FLOW             UH-B2            FLOW     1.0      1.0
DI2046           FLOW             UH-B1            FLOW     1.0      1.0
K14941           FLOW             UH-B3            FLOW     1.0      1.0
K14952           FLOW             UH-B4            FLOW     1.0      1.0
K14953           FLOW             UH-B5            FLOW     1.0      1.0
L14042           FLOW             UH-B6            FLOW     1.0      1.0
L14052           FLOW             UH-B7            FLOW     1.0      1.0
L14053           FLOW             UH-B8            FLOW     1.0      1.0
L14055           FLOW             UH-B9            FLOW     1.0      1.0
L14142           FLOW             UH-B10           FLOW     1.0      1.0
L14143           FLOW             UH-B12           FLOW     1.0      1.0
L14151           FLOW             UH-B11           FLOW     1.0      1.0
L14152           FLOW             UH-B13           FLOW     1.0      1.0

[CURVES]
;;Name            Type       X-Value    Y-Value
;;--------------- ---------- ---------- ----------
PumpStation      Pump3      26.5       80
PumpStation                 28         75
PumpStation                 29.5       70
PumpStation                 31.5       65
PumpStation                 32         60
PumpStation                 33         55
PumpStation                 33.5       50
PumpStation                 35         45
PumpStation                 37         40
PumpStation                 47         0

L14PS1           Storage    0          0
L14PS1                      25         496

SB.DepthArea     Storage    0          0
SB.DepthArea                3.94       21780
SB.DepthArea                4.42       43560
SB.DepthArea                5.19       65340
SB.DepthArea                8.74       87120
SB.DepthArea                14.36      108900
SB.DepthArea                16.54      121968

[TIMESERIES]
;;Name            Date       Time       Value
;;--------------- ---------- ---------- ----------
;Unit hydrograph for sub-basin #1 developed using COA DPM Modified Rational Method.
UH-B1            5/6/2016   0:00       0
UH-B1            5/6/2016   00:12      10.21
UH-B1            5/6/2016   00:24      10.21
UH-B1            5/6/2016   00:43      0

;Unit hydrograph for sub-basin #10 using COA DPM Modified Rational Method.
UH-B10           5/6/2016   0:00       0
UH-B10           5/6/2016   0:14       5.03
UH-B10           5/6/2016   0:21       5.03
UH-B10           5/6/2016   0:45       0

;Unit hydrograph for sub-basin #11 using COA DPM Modified Rational Method.
UH-B11           5/6/2016   0:00       0
UH-B11           5/6/2016   0:15       17.84
UH-B11           5/6/2016   0:19       17.84
UH-B11           5/6/2016   0:45       0
```

```
;Unit hydrograph for sub-basin 12 using COA DPM Modified Rational Method.
UH-B12           5/6/2016   0:00       0
UH-B12           5/6/2016   0:14       7.08
UH-B12           5/6/2016   0:20       7.08
UH-B12           5/6/2016   0:45       0

;Unit hydrograph for sub-basin 13 using COA DPM Modified Rational Method.
UH-B13           5/6/2016   0:00       0
UH-B13           5/6/2016   0:14       26.51
UH-B13           5/6/2016   0:21       26.51
UH-B13           5/6/2016   0:45       0

;Unit hydrograph for sub-basin #2 using COA DPM Modified Rational Method.
UH-B2            5/6/2016   0:00       0
UH-B2            5/6/2016   0:14       21.48
UH-B2            5/6/2016   0:21       21.48
UH-B2            5/6/2016   0:45       0

;Unit hydrograph for sub-basin #3 using COA DPM Modified Rational Method.
UH-B3            5/6/2016   0:00       0
UH-B3            5/6/2016   0:14       6.43
UH-B3            5/6/2016   0:20       6.43
UH-B3            5/6/2016   0:45       0

;Unit hydrograph for sub-basin #4 using COA DPM Modified Rational Method.
UH-B4            5/6/2016   0:00       0
UH-B4            5/6/2016   0:14       6.96
UH-B4            5/6/2016   0:21       6.96
UH-B4            5/6/2016   0:45       0

;Unit hydrograph for sub-basin #5 using COA DPM Modified Rational Method
UH-B5            5/6/2016   0:00       0
UH-B5            5/6/2016   0:14       14.64
UH-B5            5/6/2016   0:21       14.64
UH-B5            5/6/2016   0:45       0

;Unit hydrograph for sub-basin #6 using COA DPM Modified Rational Method.
UH-B6            5/6/2016   0:00       0
UH-B6            5/6/2016   0:14       11.73
UH-B6            5/6/2016   0:21       11.73
UH-B6            5/6/2016   0:45       0

;Unit hydrograph for sub-basin #7 using COA DPM Modified Rational Method.
UH-B7            5/6/2016   0:00       0
UH-B7            5/6/2016   0:14       9.15
UH-B7            5/6/2016   0:21       9.15
UH-B7            5/6/2016   0:45       0

;Unit hydrograph for sub-basin #8 using COA DPM Modified Rational Method.
UH-B8            5/6/2016   0:00       0
UH-B8            5/6/2016   0:14       8.71
UH-B8            5/6/2016   0:21       8.71
UH-B8            5/6/2016   0:45       0

;Unit hydrograph for sub-basin #9 using COA DPM Modified Rational Method.
UH-B9            5/6/2016   0:00       0
UH-B9            5/6/2016   0:14       11.05
UH-B9            5/6/2016   0:21       11.05
UH-B9            5/6/2016   0:45       0

[REPORT]
INPUT      YES
CONTROLS   YES
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 1520848.930 1481094.560 1521757.510 1483178.350
Units      Feet

[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DI2024           1521464.400        1482627.250
DI2046           1521132.640        1482625.370
K14941           1521127.100        1482521.880
K14942           1521091.600        1482287.960
K14943           1521139.220        1482285.170
```

```
K14944           1521142.930        1482609.670
K14945           1521410.070        1482629.980
K14951           1521435.400        1482633.430
K14952           1521444.180        1482278.820
K14953           1521650.770        1482287.060
K14954           1521432.240        1482666.960
L14041           1521030.200        1481900.110
L14042           1521049.290        1481897.720
L14051           1521229.760        1481896.040
L14052           1521448.090        1482120.240
L14053           1521654.920        1482095.970
L14054           1521657.120        1481896.300
L14055           1521412.850        1481899.950
L14141           1520921.980        1481228.760
L14142           1520974.200        1481554.940
L14143           1520918.320        1481193.130
L14146           1521008.940        1481549.410
L14151           1521357.360        1481565.420
L14152           1521298.170        1481200.660
L14999           1521264.330        1481195.520
L14JB145         1521003.650        1481189.280
L14JB2           1520997.600        1481244.150
L14PS1           1520997.730        1481242.010
SBroadwayPond    1521439.080        1483083.630

[VERTICES]
;;Link            X-Coord            Y-Coord
;;--------------- ------------------ ------------------
Bell_A           1520962.580        1481217.120
Bell_B           1521135.350        1481250.800
Bell_C           1521271.320        1481233.960
Commercial_1     1521006.170        1482100.160
Commercial_2     1520943.120        1481714.300
Commercial_Sag   1521091.070        1482563.310
Cromwell_Junct   1521113.770        1482303.590
E.Cromwell       1521561.320        1482327.700
E.Garfield       1521540.070        1481972.680
Lewis_Junct      1521002.710        1481579.910
N.Commercial     1521030.160        1482398.290
N.John           1521705.920        1482179.230
N.William        1521487.300        1482435.300
Pacific          1521246.240        1482667.330
Pacific_William  1521465.120        1482651.400
S.Commercial_A   1520895.830        1481387.380
S.Commercial_B   1520890.230        1481220.240
S.John           1521716.210        1482043.270
S.William        1521398.890        1481381.210
W.Garfield_A     1521152.260        1481980.280
W.Garfield_B     1521238.510        1481985.020
W.Garfield_Junct 1521043.840        1481915.030
William_1A       1521513.220        1482191.700
William_1B       1521505.120        1482095.360
William_2        1521448.920        1481693.740
William_Pacific  1521394.650        1482667.620


[PROFILES]
;;Name            Links
;;--------------- ----------
"SouthBroadwaytoPump" SDP1 SDP2 SDP3 SDP4 SDP5
"SouthBroadwaytoPump" SDP6 SDP7 SDP8 SDP9 SDP10
"SouthBroadwaytoPump" SDP28
"SouthBroadway Pond to Pump Station through Road" SDP1 William_Pacific Pacific_Commercial SDP4 SDP5
"SouthBroadway Pond to Pump Station through Road" SDP6 SDP7 SDP8 SDP9 SDP10
"SouthBroadway Pond to Pump Station through Road" SDP28
"                " SDP1 Williams_Pacific SDP4 SDP5 SDP6
"                " SDP7 SDP8 SDP9 SDP10 SDP28
"SouthBroadway Street Profile" SDP1 Williams_Pacific SDP4 SDP5 SDP6
"SouthBroadway Street Profile" SDP7 SDP8 SDP9 SDP10 SDP28
"FullStreet      " SDP1 Williams_Pacific Commercial SDP5 SDP6
"FullStreet      " SDP7 SDP8 SDP9 SDP10 SDP28
```

SWMM Model Output - Existing System

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.0 (Build 5.0.022)
--------------------------------------------------------------


***********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
***********************************************************

***************
Analysis Options
***************
Flow Units ............... CFS
Process Models:
  Rainfall/Runoff ........ NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Flow Routing Method ...... DYNWAVE
Starting Date ............ MAY-06-2016 00:00:00
Ending Date .............. MAY-06-2016 06:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:00:15
Routing Time Step ........ 15.00 sec


WARNING 04: minimum elevation drop used for Conduit Bell_C

WARNING 04: minimum elevation drop used for Conduit Lewis_Junct

WARNING 02: maximum depth increased for Node L14051

WARNING 02: maximum depth increased for Node L14053

*************
Element Count
*************
Number of rain gages ...... 0
Number of subcatchments ... 0
Number of nodes ........... 29
Number of links ........... 55
Number of pollutants ...... 0
Number of land uses ....... 0


************
Node Summary
************
                                  Invert      Max.    Ponded    External
Name                Type           Elev.     Depth      Area    Inflow
------------------------------------------------------------------------
DI2024              JUNCTION     4945.64      3.87       0.0    Yes
DI2046              JUNCTION     4945.39      3.50       0.0    Yes
K14941              JUNCTION     4937.35     11.75       0.0    Yes
K14942              JUNCTION     4936.82     13.35       0.0
K14943              JUNCTION     4946.02      3.75       0.0
K14944              JUNCTION     4937.60     11.85       0.0
K14945              JUNCTION     4937.94     12.20       0.0
K14951              JUNCTION     4945.21      4.60       0.0
K14952              JUNCTION     4943.04      6.05       0.0    Yes
K14953              JUNCTION     4945.46      5.57       0.0    Yes
K14954              JUNCTION     4937.94     11.81       0.0
L14041              JUNCTION     4936.60     11.17       0.0
L14042              JUNCTION     4943.53      3.70       0.0    Yes
L14051              JUNCTION     4944.35      2.99       0.0
L14052              JUNCTION     4941.40      7.23       0.0    Yes
L14053              JUNCTION     4944.98      5.58       0.0    Yes
L14054              JUNCTION     4944.59      7.27       0.0
L14055              JUNCTION     4939.88      9.56       0.0    Yes
L14141              JUNCTION     4936.08     12.24       0.0
L14142              JUNCTION     4935.24     13.23       0.0    Yes
L14143              JUNCTION     4935.66     12.35       0.0    Yes
L14146              JUNCTION     4943.06      5.41       0.0
L14151              JUNCTION     4939.08      9.82       0.0    Yes
L14152              JUNCTION     4937.58     11.05       0.0    Yes
L14999              JUNCTION     4937.30     11.28       0.0
L14JB145            JUNCTION     4934.73     13.55       0.0
L14JB2              OUTFALL      4952.21      0.00       0.0
```

L14PS1	STORAGE	4926.99	22.67	0.0
SBroadwayPond	STORAGE	4938.42	15.25	0.0

****
Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
Bell_A	L14JB145	L14143	CONDUIT	86.0	0.5930	0.0170
Bell_B	L14999	L14JB145	CONDUIT	261.0	0.0843	0.0170
Bell_C	L14152	L14999	CONDUIT	35.0	0.0029	0.0170
Commercial_1	K14942	L14041	CONDUIT	393.0	0.6641	0.0170
Commercial_2	L14142	L14041	CONDUIT	350.0	0.2343	0.0170
Commercial_Sag	K14941	DI2046	CONDUIT	92.2	0.2821	0.0170
Cromwell_Junct	K14942	K14943	CONDUIT	48.0	0.9792	0.0170
E.Cromwell	K14953	K14952	CONDUIT	170.0	1.0883	0.0170
E.Garfield	L14054	L14055	CONDUIT	244.0	1.0656	0.0170
Lewis_Junct	L14142	L14146	CONDUIT	35.0	0.0029	0.0170
Link-13	DI2024	K14951	CONDUIT	18.4	0.4346	0.0130
Link-14	DI2046	K14944	CONDUIT	46.1	16.8088	0.0130
N.Commercial	K14942	K14941	CONDUIT	234.0	0.5513	0.0170
N.John	K14953	L14053	CONDUIT	191.0	0.1466	0.0170
N.William	DI2024	K14952	CONDUIT	355.0	0.0958	0.0170
Pacific	K14945	DI2046	CONDUIT	268.0	0.5672	0.0170
Pacific_William	K14954	K14951	CONDUIT	34.0	1.2354	0.0170
S.Commercial_A	L14142	L14141	CONDUIT	330.0	0.0182	0.0170
S.Commercial_B	L14141	L14143	CONDUIT	36.0	1.5280	0.0170
S.John	L14054	L14053	CONDUIT	200.0	0.6500	0.0170
S.William	L14152	L14151	CONDUIT	370.0	0.0081	0.0170
SDP1	SBroadwayPond	K14954	CONDUIT	411.0	0.0925	0.0130
SDP10	L14143	L14JB145	CONDUIT	85.4	0.5971	0.0130
SDP11	K14951	K14952	CONDUIT	354.7	0.5892	0.0130
SDP12	K14952	L14052	CONDUIT	158.6	0.7817	0.0130
SDP13	L14052	L14055	CONDUIT	223.1	0.4572	0.0130
SDP14	L14055	L14151	CONDUIT	339.1	0.1268	0.0130
SDP15	L14151	L14152	CONDUIT	369.5	0.1759	0.0130
SDP16	L14999	L14152	CONDUIT	34.2	1.4317	0.0130
SDP17	L14999	L14JB145	CONDUIT	260.8	0.7172	0.0130
SDP19	L14055	L14051	CONDUIT	183.1	0.1201	0.0130
SDP2	K14945	K14954	CONDUIT	43.1	0.1159	0.0130
SDP20	L14053	L14054	CONDUIT	199.7	0.1953	0.0130
SDP21	K14953	L14053	CONDUIT	191.1	0.2093	0.0130
SDP22	L14054	L14055	CONDUIT	244.3	0.1199	0.0130
SDP24	L14042	L14041	CONDUIT	19.2	0.1195	0.0130
SDP25	L14051	L14042	CONDUIT	180.5	0.1219	0.0130
SDP26	L14146	L14142	CONDUIT	35.2	0.1194	0.0130
SDP27	K14943	K14942	CONDUIT	47.7	0.4192	0.0130
SDP28	L14JB145	L14PS1	CONDUIT	53.1	2.4320	0.0130
SDP3	K14945	K14944	CONDUIT	267.9	0.0709	0.0130
SDP4	K14944	K14941	CONDUIT	92.2	0.1085	0.0130
SDP5	K14941	K14942	CONDUIT	233.6	0.1413	0.0130
SDP6	K14942	L14041	CONDUIT	392.7	0.0255	0.0130
SDP7	L14041	L14142	CONDUIT	349.7	0.3603	0.0130
SDP8	L14141	L14142	CONDUIT	330.3	0.2785	0.0130
SDP9	L14143	L14141	CONDUIT	35.8	2.2344	0.0130
W.Garfield_A	L14051	L14042	CONDUIT	181.0	0.2044	0.0170
W.Garfield_B	L14055	L14051	CONDUIT	183.0	1.0492	0.0170
W.Garfield_Junct	L14041	L14042	CONDUIT	19.0	3.1068	0.0170
William_1A	K14952	L14052	CONDUIT	158.0	0.3418	0.0170
William_1B	L14055	L14052	CONDUIT	223.0	0.3632	0.0170
William_2	L14055	L14151	CONDUIT	339.0	0.2330	0.0170
William_Pacific	K14945	K14954	CONDUIT	43.0	0.9070	0.0170
PUMP_CT-3500-135_02	L14PS1	L14JB2	TYPE3 PUMP			

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
Bell_A	Standard	0.67	16.28	0.49	32.00	1	68.05
Bell_B	Standard	0.67	16.28	0.49	32.00	1	25.66
Bell_C	Standard	0.67	16.28	0.49	32.00	1	4.72
Commercial_1	Standard	0.67	16.28	0.49	32.00	1	72.02
Commercial_2	Standard	0.67	16.28	0.49	32.00	1	42.77
Commercial_Sag	Standard	0.67	16.28	0.49	32.00	1	46.94
Cromwell_Junct	Standard	0.67	16.28	0.49	32.00	1	87.44
E.Cromwell	Standard	0.67	16.28	0.49	32.00	1	92.19
E.Garfield	Standard	0.67	16.28	0.49	32.00	1	91.22
Lewis_Junct	Standard	0.67	16.28	0.49	32.00	1	4.72

Link-13	CIRCULAR	1.50	1.77	0.38	1.50	1	6.92
Link-14	CIRCULAR	1.50	1.77	0.38	1.50	1	43.07
N.Commercial	Standard	0.67	16.28	0.49	32.00	1	65.61
N.John	Standard	0.67	16.28	0.49	32.00	1	33.83
N.William	Standard	0.67	16.28	0.49	32.00	1	27.35
Pacific	Standard	0.67	16.28	0.49	32.00	1	66.55
Pacific_William	Standard	0.67	16.28	0.49	32.00	1	98.22
S.Commercial_A	Standard	0.67	16.28	0.49	32.00	1	11.92
S.Commercial_B	Standard	0.67	16.28	0.49	32.00	1	109.23
S.John	Standard	0.67	16.28	0.49	32.00	1	71.25
S.William	Standard	0.67	16.28	0.49	32.00	1	7.96
SDP1	CIRCULAR	2.50	4.91	0.63	2.50	1	12.47
SDP10	CIRCULAR	4.00	12.57	1.00	4.00	1	111.00
SDP11	CIRCULAR	2.00	3.14	0.50	2.00	1	17.37
SDP12	CIRCULAR	2.00	3.14	0.50	2.00	1	20.00
SDP13	CIRCULAR	2.50	4.91	0.63	2.50	1	27.73
SDP14	CIRCULAR	3.00	7.07	0.75	3.00	1	23.75
SDP15	CIRCULAR	3.00	7.07	0.75	3.00	1	27.97
SDP16	CIRCULAR	4.00	12.57	1.00	4.00	1	171.87
SDP17	CIRCULAR	4.00	12.57	1.00	4.00	1	121.64
SDP19	CIRCULAR	1.00	0.79	0.25	1.00	1	1.23
SDP2	CIRCULAR	2.50	4.91	0.63	2.50	1	13.97
SDP20	CIRCULAR	1.00	0.79	0.25	1.00	1	1.57
SDP21	CIRCULAR	1.00	0.79	0.25	1.00	1	1.63
SDP22	CIRCULAR	1.00	0.79	0.25	1.00	1	1.23
SDP24	CIRCULAR	1.50	1.77	0.38	1.50	1	3.63
SDP25	CIRCULAR	1.00	0.79	0.25	1.00	1	1.24
SDP26	CIRCULAR	1.50	1.77	0.38	1.50	1	3.63
SDP27	CIRCULAR	1.50	1.77	0.38	1.50	1	6.80
SDP28	CIRCULAR	4.00	12.57	1.00	4.00	1	224.01
SDP3	CIRCULAR	2.50	4.91	0.63	2.50	1	10.92
SDP4	CIRCULAR	2.50	4.91	0.63	2.50	1	13.51
SDP5	CIRCULAR	2.50	4.91	0.63	2.50	1	15.42
SDP6	CIRCULAR	2.50	4.91	0.63	2.50	1	6.55
SDP7	CIRCULAR	2.50	4.91	0.63	2.50	1	24.62
SDP8	CIRCULAR	2.50	4.91	0.63	2.50	1	21.65
SDP9	CIRCULAR	4.00	12.57	1.00	4.00	1	214.72
W.Garfield_A	Standard	0.67	16.28	0.49	32.00	1	39.95
W.Garfield_B	Standard	0.67	16.28	0.49	32.00	1	90.52
W.Garfield_Junct	Standard	0.67	16.28	0.49	32.00	1	155.76
William_1A	Standard	0.67	16.28	0.49	32.00	1	51.66
William_1B	Standard	0.67	16.28	0.49	32.00	1	53.26
William_2	Standard	0.67	16.28	0.49	32.00	1	42.66
William_Pacific	Standard	0.67	16.28	0.49	32.00	1	84.16

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Transect Summary
****

Transect Standard
Area:

0.0005	0.0022	0.0049	0.0088	0.0137
0.0198	0.0269	0.0352	0.0445	0.0550
0.0665	0.0791	0.0929	0.1077	0.1236
0.1407	0.1588	0.1780	0.1984	0.2198
0.2423	0.2660	0.2907	0.3165	0.3428
0.3690	0.3953	0.4215	0.4478	0.4740
0.5003	0.5266	0.5528	0.5791	0.6054
0.6317	0.6580	0.6843	0.7106	0.7369
0.7632	0.7895	0.8158	0.8421	0.8684
0.8947	0.9210	0.9473	0.9737	1.0000

Hrad:

0.0134	0.0268	0.0402	0.0536	0.0670
0.0805	0.0939	0.1073	0.1207	0.1341
0.1475	0.1609	0.1743	0.1877	0.2011
0.2145	0.2279	0.2414	0.2548	0.2682
0.2816	0.2950	0.3084	0.3234	0.3499
0.3764	0.4028	0.4292	0.4556	0.4819
0.5082	0.5344	0.5606	0.5868	0.6129
0.6390	0.6650	0.6910	0.7170	0.7429
0.7688	0.7947	0.8205	0.8462	0.8719
0.8976	0.9233	0.9489	0.9745	1.0000

Width:

0.0417	0.0835	0.1252	0.1670	0.2087
0.2504	0.2922	0.3339	0.3756	0.4174
0.4591	0.5009	0.5426	0.5843	0.6261
0.6678	0.7096	0.7513	0.7930	0.8348
0.8765	0.9182	0.9600	0.9968	0.9969
0.9970	0.9971	0.9972	0.9974	0.9975
0.9976	0.9977	0.9979	0.9980	0.9981

```
            0.9983     0.9984     0.9985     0.9986     0.9988
            0.9989     0.9990     0.9991     0.9992     0.9994
            0.9995     0.9996     0.9998     0.9999     1.0000


  ********************
  Control Actions Taken
  ********************


  *************************        Volume        Volume
  Flow Routing Continuity        acre-feet      10^6 gal
  *************************     ---------     ---------
  Dry Weather Inflow .......         0.000         0.000
  Wet Weather Inflow .......         0.000         0.000
  Groundwater Inflow .......         0.000         0.000
  RDII Inflow ..............         0.000         0.000
  External Inflow ..........         5.591         1.822
  External Outflow .........        18.610         6.064
  Internal Outflow .........         2.144         0.699
  Storage Losses ...........         0.000         0.000
  Initial Stored Volume ....        23.467         7.647
  Final Stored Volume ......         8.203         2.673
  Continuity Error (%) .....         0.348


  ************************
  Highest Continuity Errors
  ************************
  Node L14051 (-4.50%)


  ***************************
  Time-Step Critical Elements
  ***************************
  Link SDP9 (86.90%)
  Link SDP24 (3.01%)
  Link William_Pacific (2.56%)
  Link Link-13 (2.50%)
  Link W.Garfield_Junct (2.24%)


  ******************************
  Highest Flow Instability Indexes
  ******************************
  Link SDP9 (5)
  Link SDP10 (4)
  Link SDP28 (3)
  Link SDP11 (2)
  Link Link-13 (1)


  ************************
  Routing Time Step Summary
  ************************
  Minimum Time Step           :     0.50 sec
  Average Time Step           :     2.16 sec
  Maximum Time Step           :    15.00 sec
  Percent in Steady State     :     0.00
  Average Iterations per Step :     2.14


  ******************
  Node Depth Summary
  ******************

  ---------------------------------------------------------------------------
                                Average  Maximum  Maximum  Time of Max
                                  Depth    Depth      HGL   Occurrence
  Node                 Type        Feet     Feet     Feet  days hr:min
  ---------------------------------------------------------------------------
  DI2024               JUNCTION     0.46     3.84  4949.48     0  00:21
  DI2046               JUNCTION     0.93     3.50  4948.89     0  00:20
  K14941               JUNCTION     8.16    11.55  4948.90     0  00:21
  K14942               JUNCTION     7.42    11.45  4948.27     0  00:21
  K14943               JUNCTION     0.15     2.25  4948.27     0  00:21
  K14944               JUNCTION     8.42    11.32  4948.92     0  00:21
  K14945               JUNCTION     9.46    11.62  4949.56     0  00:50
  K14951               JUNCTION     0.56     4.53  4949.74     0  00:16
  K14952               JUNCTION     0.60     6.05  4949.09     0  00:16
  K14953               JUNCTION     0.58     5.07  4950.53     0  00:20
  K14954               JUNCTION     9.75    11.81  4949.75     0  00:16
```

L14041	JUNCTION	5.58	10.66	4947.26	0	00:20
L14042	JUNCTION	0.31	3.70	4947.23	0	00:19
L14051	JUNCTION	0.20	2.95	4947.30	0	00:21
L14052	JUNCTION	0.66	7.23	4948.63	0	00:16
L14053	JUNCTION	0.62	5.58	4950.56	0	00:17
L14054	JUNCTION	0.55	5.02	4949.61	0	00:23
L14055	JUNCTION	0.79	8.56	4948.44	0	00:21
L14141	JUNCTION	2.49	10.58	4946.66	0	00:21
L14142	JUNCTION	5.07	11.84	4947.08	0	00:20
L14143	JUNCTION	2.02	11.00	4946.66	0	00:21
L14146	JUNCTION	0.18	4.02	4947.08	0	00:20
L14151	JUNCTION	0.78	9.02	4948.10	0	00:24
L14152	JUNCTION	1.15	9.58	4947.16	0	00:21
L14999	JUNCTION	0.72	9.79	4947.09	0	00:21
L14JB145	JUNCTION	1.76	11.91	4946.64	0	00:21
L14JB2	OUTFALL	0.00	0.00	4952.21	0	00:00
L14PS1	STORAGE	1.73	19.45	4946.44	0	00:21
SBroadwayPond	STORAGE	11.76	15.25	4953.67	0	00:00

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal
DI2024	JUNCTION	21.48	28.31	0	00:16	0.250	0.385
DI2046	JUNCTION	10.21	12.95	0	00:14	0.126	0.154
K14941	JUNCTION	6.43	47.59	0	00:03	0.074	4.691
K14942	JUNCTION	0.00	44.21	0	00:02	0.000	4.673
K14943	JUNCTION	0.00	0.57	0	00:12	0.000	0.001
K14944	JUNCTION	0.00	46.18	0	00:03	0.000	4.527
K14945	JUNCTION	0.00	65.25	0	00:00	0.000	5.171
K14951	JUNCTION	0.00	25.21	0	00:51	0.000	0.466
K14952	JUNCTION	6.96	67.70	0	00:16	0.081	0.952
K14953	JUNCTION	14.64	20.21	0	00:18	0.171	0.216
K14954	JUNCTION	0.00	79.95	0	00:17	0.000	5.709
L14041	JUNCTION	0.00	38.63	0	00:10	0.000	4.752
L14042	JUNCTION	11.73	41.84	0	00:20	0.137	0.262
L14051	JUNCTION	0.00	11.61	0	00:18	0.000	0.043
L14052	JUNCTION	9.15	68.86	0	00:20	0.107	1.049
L14053	JUNCTION	8.71	11.77	0	00:13	0.102	0.121
L14054	JUNCTION	0.00	4.50	0	00:06	0.000	0.074
L14055	JUNCTION	11.05	46.99	0	00:13	0.129	0.831
L14141	JUNCTION	0.00	40.79	0	00:10	0.000	4.688
L14142	JUNCTION	5.03	41.43	0	00:10	0.059	4.705
L14143	JUNCTION	7.08	45.44	0	00:58	0.081	4.764
L14146	JUNCTION	0.00	1.77	0	00:13	0.000	0.001
L14151	JUNCTION	17.84	58.37	0	00:12	0.196	0.998
L14152	JUNCTION	26.51	79.53	0	00:12	0.309	1.303
L14999	JUNCTION	0.00	76.46	0	00:12	0.000	1.303
L14JB145	JUNCTION	0.00	108.70	0	00:10	0.000	6.061
L14JB2	OUTFALL	0.00	80.00	0	00:02	0.000	6.064
L14PS1	STORAGE	0.00	99.95	0	00:09	0.000	6.063
SBroadwayPond	STORAGE	0.00	0.00	0	00:00	0.000	7.639

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Feet	Min. Depth Below Rim Feet
DI2024	JUNCTION	0.22	0.147	0.033
DI2046	JUNCTION	0.39	0.270	0.000
K14941	JUNCTION	0.04	0.025	0.195
K14944	JUNCTION	5.98	8.670	0.530
K14951	JUNCTION	0.63	0.412	0.068
K14952	JUNCTION	0.22	0.100	0.000
K14954	JUNCTION	0.48	0.000	0.000
L14042	JUNCTION	0.48	0.260	0.000
L14052	JUNCTION	0.45	0.180	0.000
L14053	JUNCTION	0.08	0.000	0.000
L14PS1	STORAGE	0.82	9.004	3.216

SBroadwayPond STORAGE 6.00 12.750 0.000

****
Node Flooding Summary
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Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CFS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 gal	Maximum Ponded Depth Feet
DI2046	0.11	5.81	0 00:21	0.006	3.50
K14952	0.14	10.94	0 00:16	0.014	6.05
K14954	0.47	13.41	0 00:21	0.104	11.81
L14042	0.28	41.72	0 00:20	0.139	3.70
L14052	0.42	56.56	0 00:21	0.434	7.23
L14053	0.08	0.70	0 00:20	0.001	5.58

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Storage Volume Summary
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Storage Unit	Average Volume 1000 ft3	Avg Pcnt Full	E&I Pcnt Loss	Maximum Volume 1000 ft3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
L14PS1	0.268	5	0	3.754	74	0 00:21	80.00
SBroadwayPond	659.176	65	0	1021.242	100	0 00:00	69.44

****
Outfall Loading Summary
****

Outfall Node	Flow Freq. Pcnt.	Avg. Flow CFS	Max. Flow CFS	Total Volume 10^6 gal
L14JB2	99.24	36.57	80.00	6.064
System	99.24	36.57	80.00	6.064

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
Bell_A	CHANNEL	0.00	0 00:00	0.00	0.00	0.00
Bell_B	CHANNEL	0.00	0 00:00	0.00	0.00	0.00
Bell_C	CHANNEL	0.00	0 00:00	0.00	0.00	0.00
Commercial_1	CHANNEL	0.00	0 00:00	0.00	0.00	0.28
Commercial_2	CHANNEL	0.00	0 00:00	0.00	0.00	0.28
Commercial_Sag	CHANNEL	11.22	0 00:16	0.89	0.24	1.00
Cromwell_Junct	CHANNEL	0.00	0 00:00	0.00	0.00	0.00
E.Cromwell	CHANNEL	20.19	0 00:20	2.36	0.22	0.77
E.Garfield	CHANNEL	0.00	0 00:00	0.00	0.00	0.00
Lewis_Junct	CHANNEL	0.00	0 00:00	0.00	0.00	0.00
Link-13	CONDUIT	10.55	0 00:07	5.97	1.52	1.00
Link-14	CONDUIT	5.30	0 00:06	3.19	0.12	1.00
N.Commercial	CHANNEL	0.00	0 00:00	0.00	0.00	0.50
N.John	CHANNEL	5.35	0 00:23	0.68	0.16	0.77
N.William	CHANNEL	30.82	0 00:16	1.93	1.13	1.00
Pacific	CHANNEL	0.34	0 00:50	0.11	0.01	0.50
Pacific_William	CHANNEL	25.21	0 00:51	2.86	0.26	1.00
S.Commercial_A	CHANNEL	0.00	0 00:00	0.00	0.00	0.00
S.Commercial_B	CHANNEL	0.00	0 00:00	0.00	0.00	0.00
S.John	CHANNEL	0.00	0 00:00	0.00	0.00	0.50
S.William	CHANNEL	0.78	0 00:24	0.38	0.10	0.30
SDP1	CONDUIT	69.44	0 00:00	14.15	5.57	1.00
SDP10	CONDUIT	47.96	0 00:58	8.20	0.43	1.00
SDP11	CONDUIT	21.03	0 00:55	6.69	1.21	1.00

SDP12	CONDUIT	27.81	0	00:50	8.85	1.39	1.00
SDP13	CONDUIT	36.41	0	00:46	7.42	1.31	1.00
SDP14	CONDUIT	43.54	0	00:12	6.16	1.83	1.00
SDP15	CONDUIT	56.30	0	00:12	8.00	2.01	1.00
SDP16	CONDUIT	76.46	0	00:12	10.14	0.44	1.00
SDP17	CONDUIT	71.14	0	00:11	9.48	0.58	1.00
SDP19	CONDUIT	3.17	0	00:49	4.33	2.57	1.00
SDP2	CONDUIT	65.25	0	00:00	13.29	4.67	1.00
SDP20	CONDUIT	4.50	0	00:06	5.73	2.86	1.00
SDP21	CONDUIT	3.25	0	00:04	4.14	1.99	1.00
SDP22	CONDUIT	3.94	0	00:49	5.19	3.19	1.00
SDP24	CONDUIT	9.99	0	00:13	5.82	2.75	1.00
SDP25	CONDUIT	1.64	0	00:13	2.14	1.32	1.00
SDP26	CONDUIT	1.77	0	00:13	2.31	0.49	1.00
SDP27	CONDUIT	0.57	0	00:12	1.00	0.08	1.00
SDP28	CONDUIT	99.95	0	00:09	16.69	0.45	1.00
SDP3	CONDUIT	43.72	0	00:01	8.91	4.00	1.00
SDP4	CONDUIT	46.18	0	00:03	9.41	3.42	1.00
SDP5	CONDUIT	44.21	0	00:02	9.01	2.87	1.00
SDP6	CONDUIT	34.60	0	00:04	7.06	5.29	1.00
SDP7	CONDUIT	37.53	0	00:10	7.65	1.52	1.00
SDP8	CONDUIT	40.79	0	00:10	8.48	1.88	1.00
SDP9	CONDUIT	45.44	0	00:58	8.02	0.21	1.00
W.Garfield_A	CHANNEL	9.03	0	00:22	0.71	0.23	0.97
W.Garfield_B	CHANNEL	0.00	0	00:00	0.00	0.00	0.47
W.Garfield_Junct	CHANNEL	27.43	0	00:20	2.50	0.18	0.78
William_1A	CHANNEL	47.68	0	00:25	2.93	0.92	1.00
William_1B	CHANNEL	0.07	0	00:34	0.01	0.00	0.53
William_2	CHANNEL	0.00	0	00:00	0.00	0.00	0.22
William_Pacific	CHANNEL	42.26	0	00:27	3.32	0.50	0.87
PUMP_CT-3500-135_02	PUMP	80.00	0	00:02		1.00	

****
Flow Classification Summary
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	Adjusted /Actual	--- Fraction of Time in Flow Class ----						Avg.	Avg.
Conduit	Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Froude Number	Flow Change
Bell_A	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
Bell_B	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
Bell_C	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
Commercial_1	1.00	0.95	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
Commercial_2	1.00	0.95	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
Commercial_Sag	1.00	0.88	0.02	0.00	0.05	0.00	0.05	0.00	0.02	0.0001
Cromwell_Junct	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
E.Cromwell	1.00	0.90	0.00	0.00	0.05	0.00	0.00	0.04	0.06	0.0000
E.Garfield	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
Lewis_Junct	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
Link-13	1.00	0.00	0.00	0.00	0.22	0.00	0.00	0.78	0.05	0.0013
Link-14	1.00	0.00	0.31	0.00	0.69	0.00	0.00	0.00	0.01	0.0001
N.Commercial	1.00	0.94	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
N.John	1.00	0.90	0.00	0.00	0.09	0.00	0.00	0.01	0.02	0.0001
N.William	1.00	0.89	0.00	0.00	0.05	0.00	0.00	0.06	0.04	0.0004
Pacific	1.00	0.88	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
Pacific_William	1.00	0.75	0.00	0.00	0.07	0.00	0.00	0.17	0.22	0.0001
S.Commercial_A	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
S.Commercial_B	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
S.John	1.00	0.91	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
S.William	1.00	0.98	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.0000
SDP1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.0009
SDP10	1.00	0.00	0.00	0.00	0.11	0.00	0.00	0.89	1.14	0.0002
SDP11	1.00	0.00	0.00	0.00	0.12	0.00	0.00	0.88	0.28	0.0007
SDP12	1.00	0.00	0.00	0.00	0.10	0.00	0.00	0.90	0.44	0.0005
SDP13	1.00	0.00	0.00	0.00	0.13	0.00	0.00	0.87	0.37	0.0004
SDP14	1.00	0.00	0.00	0.00	0.13	0.00	0.00	0.87	0.35	0.0006
SDP15	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.45	0.0005
SDP16	1.00	0.00	0.00	0.00	0.09	0.00	0.91	0.00	0.14	0.0001
SDP17	1.00	0.00	0.00	0.00	0.88	0.02	0.00	0.09	0.23	0.0001
SDP19	1.00	0.02	0.87	0.00	0.06	0.00	0.05	0.00	0.01	0.0011
SDP2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.0019
SDP20	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.0007
SDP21	1.00	0.00	0.00	0.00	0.17	0.00	0.00	0.83	0.16	0.0008
SDP22	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.94	0.34	0.0009
SDP24	1.00	0.00	0.00	0.00	0.09	0.00	0.00	0.91	0.33	0.0028
SDP25	1.00	0.01	0.01	0.00	0.12	0.00	0.00	0.86	0.26	0.0010
SDP26	1.00	0.06	0.00	0.00	0.07	0.00	0.00	0.88	0.07	0.0003
SDP27	1.00	0.03	0.00	0.00	0.11	0.00	0.00	0.85	0.06	0.0001
SDP28	1.00	0.00	0.00	0.00	0.11	0.00	0.00	0.89	2.27	0.0001

SDP3	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.0011
SDP4	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.0010
SDP5	1.00	0.00	0.00	0.00	0.99	0.00	0.00	0.01	0.01	0.0007
SDP6	1.00	0.00	0.00	0.00	0.99	0.00	0.00	0.01	0.01	0.0012
SDP7	1.00	0.00	0.00	0.00	0.99	0.00	0.00	0.01	0.01	0.0005
SDP8	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.59	0.0005
SDP9	1.00	0.01	0.00	0.00	0.10	0.00	0.89	0.00	1.02	0.0001
W.Garfield_A	1.00	0.95	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.0002
W.Garfield_B	1.00	0.95	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
W.Garfield_Junct	1.00	0.95	0.01	0.00	0.04	0.00	0.00	0.00	0.01	0.0002
William_1A	1.00	0.94	0.00	0.00	0.05	0.00	0.00	0.01	0.04	0.0002
William_1B	1.00	0.95	0.01	0.00	0.00	0.00	0.04	0.00	0.00	0.0000
William_2	1.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
William_Pacific	1.00	0.75	0.19	0.00	0.00	0.00	0.05	0.00	0.05	0.0001

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Conduit Surcharge Summary
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Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
Commercial_Sag	0.04	0.04	0.04	0.01	0.01
Link-13	0.85	0.85	0.85	0.54	0.14
Link-14	1.79	1.79	1.79	0.01	0.01
N.William	0.18	0.18	0.18	0.11	0.10
Pacific_William	0.47	0.47	0.48	0.01	0.01
SDP1	6.00	6.00	6.00	6.00	6.00
SDP10	0.75	0.75	0.75	0.01	0.01
SDP11	0.79	0.79	0.79	0.12	0.09
SDP12	0.76	0.76	0.76	0.26	0.19
SDP13	0.75	0.75	0.75	0.35	0.34
SDP14	0.73	0.73	0.73	0.64	0.54
SDP15	0.67	0.67	0.67	0.82	0.67
SDP16	0.64	0.64	0.64	0.01	0.01
SDP17	0.67	0.67	0.67	0.01	0.01
SDP19	0.59	0.59	0.59	0.52	0.39
SDP2	5.99	5.99	5.99	6.00	0.01
SDP20	0.88	0.88	0.88	0.86	0.83
SDP21	0.88	0.88	0.88	0.07	0.07
SDP22	0.60	0.60	0.60	0.92	0.60
SDP24	0.67	0.67	0.67	0.40	0.29
SDP25	0.64	0.64	0.64	0.01	0.01
SDP26	0.58	0.58	0.58	0.01	0.01
SDP27	0.59	0.59	0.59	0.01	0.01
SDP28	0.78	0.78	0.78	0.01	0.01
SDP3	5.98	5.98	5.98	5.67	5.66
SDP4	5.97	5.97	5.97	5.48	5.47
SDP5	5.95	5.95	5.95	5.97	5.95
SDP6	5.93	5.93	5.93	5.96	5.93
SDP7	5.93	5.93	5.93	5.53	5.52
SDP8	0.79	0.79	0.79	5.62	0.01
SDP9	0.68	0.68	0.68	0.01	0.01
William_1A	0.22	0.22	0.22	0.01	0.01

****
Pumping Summary
****

Pump	Percent Utilized	Number of Start-Ups	Min Flow CFS	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal	Power Usage Kw-hr	% Time Off Pump Curve: Low	% Time Off Pump Curve: High
PUMP_CT-3500-135_02	99.27	1	0.00	36.57	80.00	6.064	386.07	0.0	100.0

Analysis begun on: Tue Dec 13 10:26:44 2016
Analysis ended on: Tue Dec 13 10:26:45 2016
Total elapsed time: 00:00:01

SWMM Model Input - Recommended Improvements

```
[TITLE]

[OPTIONS]
FLOW_UNITS           CFS
INFILTRATION         HORTON
FLOW_ROUTING         DYNWAVE
START_DATE           05/06/2016
START_TIME           00:00:00
REPORT_START_DATE    05/06/2016
REPORT_START_TIME    00:00:00
END_DATE             05/07/2016
END_TIME             00:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          00:00:15
WET_STEP             00:05:00
DRY_STEP             01:00:00
ROUTING_STEP         0:00:15
ALLOW_PONDING        NO
INERTIAL_DAMPING     PARTIAL
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.557
NORMAL_FLOW_LIMITED  BOTH
SKIP_STEADY_STATE    NO
FORCE_MAIN_EQUATION  H-W
LINK_OFFSETS         DEPTH
MIN_SLOPE            0.001

[EVAPORATION]
;;Type       Parameters
;;---------- ----------
CONSTANT     0.0
DRY_ONLY     NO

[JUNCTIONS]
;;               Invert     Max.       Init.      Surcharge  Ponded
;;Name           Elev.      Depth      Depth      Depth      Area
;;-------------- ---------- ---------- ---------- ---------- ----------
DI2024           4945.64    3.87       0          0          0
;Max/rim_elev._is_top_of_curb_elevation.
DI2046           4945.39    3.5        0          0          0
;Rim elevation was raised to match grate elevation plus 8" curb height.
K14941           4937.35    11.75      0          0          0
;MH rim elevation changed to match lowest connecting inlet grate elevation (DI #2079 - 4949.03) plus 8" curb heig
K14942           4936.82    13.35      0          0          0
K14943           4946.02    3.75       0          0          0
K14944           4937.6     11.85      0          0          0
;Manhole rim elevation has been adjusted to the flowline elevation at the curb plus the curb height (the manhole
;is located 11 feet from the curb at a 2% cross slope).
K14945           4937.94    12.2       0          0          0
;MH rim elevation adjusted to lowest connecting inlet grate elevation (DI #2024 - 4948.66) plus 8" curb height.
K14951           4945.21    4.6        0          0          0
;MH rim elevation changed to reflect lowest connecting inlet grate elevation (DI #2327 - 4948.32) plus 8" curb he
K14952           4943.04    6.05       0          0          0
;MH rim elevation adj. to lowest connecting inlet grate elevation (DI #2336 - 4950.17) plus 8" curb height.
K14953           4943.86    7.17       0          0          0
;Changed rim elevation to reflect the location of the sd inlet in the middle of the street. William Street has ar
;crown with a 2% cross slope with the sd inlet grate elevation being lower than the curb flowline. Curb elevation
;determined to be at 4949.24 ft. multiplied by 2% slope results in an inlet grate elevation of 4949.04 ft. The ma
;was then adjusted back to the curb height elevation by adding 8" to the grate elevation.
K14954           4937.94    11.81      0          0          0
;MH rim elevation adj. to lowest connecting inlet grate elevation (DI #2009 - 4946.30) plus 8" curb height.
L14041           4936.6     11.17      0          0          0
L14042           4943.53    3.7        0          0          0
L14051           4944.35    2.95       0          0          0
;MH rim elevation adj. to lowest connecting grate elevation (DI #2303 - 4947.78) plus 8" curb height.
L14052           4941.40    7.23       0          0          0
;MH rim elevation adj. to lowest connecting inlet elevation (DI #2344 - 4949.89) plus 8" curb height.
L14053           4943.06    7.31       0          0          0
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;MH rim elevation adj. to existing rim elevation (4951.39) plus 8" curb height.
;There were no connecting inlets shown in the survey file.
L14054           4942.28    9.58       0          0          0
;MH rim elevation adj. to lowest connecting inlet grate elevation (DI #2218 - 4948.59) plus 8" curb height.
L14055           4939.88    9.56       0          0          0
L14141           4936.08    12.24      0          0          0
;MH rim elevation adj. to lowest connecting inlet grate elevation (DI #2134 - 4947.71) plus 8" curb height.
L14142           4935.24    13.23      0          0          0
;MH rim elevation adj. to lowest connecting inlet grate elevation (DI #2156 - 4947.10) plus 8" curb height.
L14143           4935.66    12.35      0          0          0
L14146           4943.06    5.41       0          0          0
;MH rim elevation adj. to lowest connecting inlet grate elevation (DI #2210 - 4947.80) plus 8" curb height.
L14151           4939.08    9.82       0          0          0
;MH rim elevation adj. to lowest connecting inlet grate elevation (DI #2180 - 4947.83) plus 8" curb height.
L14152           4937.58    11.05      0          0          0
L14999           4937.3     11.28      0          0          0
L14JB145         4934.73    13.55      0          0          0

[OUTFALLS]
;;               Invert     Outfall    Stage/Table      Tide
;;Name           Elev.      Type       Time Series      Gate
;;-------------- ---------- ---------- ---------------- ----
L14JB2           4952.21    FREE                        NO
Unknown          4952       FREE                        NO

[STORAGE]
;;               Invert   Max.     Init.    Storage    Curve                    Ponded   Evap.
;;Name           Elev.    Depth    Depth    Curve      Params                   Area     Frac.    Infiltration
;;-------------- -------- -------- -------- ---------- -------- -------- -------- -------- -------- -------------
L14PS1           4926.99  22.67    0        TABULAR    L14PS1                   0        0
Park             4941.5   7        0        TABULAR    Park                     0        0
SBroadwayPond    4938.42  16.54    0        TABULAR    SB.DepthArea             0        0

[CONDUITS]
;;               Inlet            Outlet                      Manning    Inlet      Outlet     Init.      Max.
;;Name           Node             Node             Length     N          Offset     Offset     Flow       Flow
;;-------------- ---------------- ---------------- ---------- ---------- ---------- ---------- ---------- ----------
Commercial_Sag   K14941           DI2046           92.157     0.017      10.86      2.56       0          0
E.Cromwell       K14953           K14952           170        0.017      6.31       5.28       0          0
Link-13          DI2024           K14951           18.41      0.013      0          0.35       0          0
Link-14          DI2046           K14944           46.09      0.013      0          0.15       0          0
Link-16          L14054           Park             58.69      0.013      0          0          0          0
Link-17          Park             L14151           407.62     0.013      0          0          0          0
N.Commercial     K14942           K14941           234        0.017      12.68      10.86      0          0
N.William        DI2024           K14952           355        0.017      3.02       5.28       0          0
Pacific          K14945           DI2046           268        0.017      11.53      2.56       0          0
Pacific_William  K14954           K14951           34         0.017      11.14      3.45       0          0
S.Commercial_A   L14142           L14141           330        0.017      12.47      11.57      0          0
S.Commercial_B   L14141           L14143           36         0.017      11.57      11.44      0          0
S.William        L14152           L14151           370        0.017      10.25      8.72       0          0
SDP1             SBroadwayPond    K14954           410.95811861 0.013      0          0.1        0          0
SDP10            L14143           L14JB145         85.40790915 0.013      0          0.42       0          0
SDP11            K14951           K14952           354.71353104 0.013      0          0.08000000000000001 0
SDP12            K14952           L14052           158.63026916 0.013      0          0.4        0          0
SDP13            L14052           L14055           223.09104012 0.013      0          0.5        0          0
SDP14            L14055           L14151           339.09603202 0.013      0          0.37       0          0
SDP15            L14151           L14152           369.53315621 0.013      0          0.85       0          0
SDP16            L14152           L14999           34.22873553 0.013       0          0.77       0          0
SDP17            L14999           L14JB145         260.75662555 0.013      0          0.7        0          0
SDP19            L14055           L14051           183.13     0.013       4.69       0          0          0
SDP2             K14954           K14945           43.12332141 0.013       0          0.05000000000000003 0
SDP20            L14053           L14054           199.67810886 0.013      0          0          0          0
SDP21            K14953           L14053           191.14310008 0.013      0          0          0          0
SDP22            L14054           L14055           244.301283 0.013       2.38       4.487      0          0
SDP24            L14042           L14041           19.24659539 0.013       0          6.907      0          0
SDP25            L14051           L14042           180.48     0.01        0          0.6        0          0
SDP26            L14146           L14142           35.18528675 0.013       0          7.778      0          0
SDP27            K14943           K14942           47.70588865 0.013       0          9          0          0
SDP28            L14JB145         L14PS1           53.05839922 0.013       0          6.45       0          0
SDP3             K14945           K14944           267.90742539 0.013      0          0.15       0          0
SDP4             K14944           K14941           92.15714564 0.013       0          0.15       0          0
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SDP5             K14941           K14942           233.62246284 0.013      0          0.2        0          0
SDP6             K14942           L14041           392.68031286 0.013      0          0.12       0          0
SDP7             L14041           L14142           349.68993313 0.013      0          0.0999999999999996 0
SDP8             L14142           L14141           330.32958193 0.013      0          0.0800000000000001 0
SDP9             L14141           L14143           35.81241274 0.013      0          1.22       0          0
W.Garfield_A     L14051           L14042           181        0.017      2.32       2.77       0          0
W.Garfield_B     L14055           L14051           183        0.017      8.71       2.32       0          0
;Initial_invert_4943.53_to_4936.6_switched_direction
W.Garfield_Junct L14041           L14042           19         0.017      10.29      2.77       0          0
William_1A       K14952           L14052           158        0.017      5.28       6.38       0          0
William_1B       L14055           L14052           223        0.017      8.71       6.38       0          0
William_Pacific  K14945           K14954           43         0.017      11.53      11.14      0          0

[PUMPS]
;;               Inlet            Outlet           Pump             Init.  Startup  Shutoff
;;Name           Node             Node             Curve            Status Depth    Depth
;;-------------- ---------------- ---------------- ---------------- ------ -------- --------
PUMP_CT-3500-135_02 L14PS1           L14JB2           PumpStation      OFF    3.5      0

[WEIRS]
;;               Inlet            Outlet           Weir         Crest      Disch.     Flap End      End
;;Name           Node             Node             Type         Height     Coeff.     Gate Con.     Coeff.
;;-------------- ---------------- ---------------- ------------ ---------- ---------- ---- -------- ----------
EmergencySpillway SBroadwayPond    Unknown          TRANSVERSE   14.25      0.7        NO   0        2.60

[XSECTIONS]
;;Link           Shape        Geom1            Geom2      Geom3      Geom4      Barrels
;;-------------- ------------ ---------------- ---------- ---------- ---------- ----------
Commercial_Sag   IRREGULAR    Standard         0          0          0          1
E.Cromwell       IRREGULAR    Standard         0          0          0          1
Link-13          CIRCULAR     1.5              0          1          1          1
Link-14          CIRCULAR     1.5              0          1          1          1
Link-16          CIRCULAR     2.5              0          1          1          1
Link-17          CIRCULAR     1.5              0          1          1          1
N.Commercial     IRREGULAR    Standard         0          0          0          1
N.William        IRREGULAR    Standard         0          0          0          1
Pacific          IRREGULAR    Standard         0          0          0          1
Pacific_William  IRREGULAR    Standard         0          0          0          1
S.Commercial_A   IRREGULAR    Standard         0          0          0          1
S.Commercial_B   IRREGULAR    Standard         0          0          0          1
S.William        IRREGULAR    Standard         0          0          0          1
SDP1             CIRCULAR     2.5              0          1          1          1
SDP10            CIRCULAR     4                0          1          1          1
SDP11            CIRCULAR     2                0          1          1          1          1
SDP12            CIRCULAR     2                0          1          1          1
SDP13            CIRCULAR     2.5              0          1          1          1
SDP14            CIRCULAR     3                0          1          1          1
SDP15            CIRCULAR     3                0          1          1          1
SDP16            CIRCULAR     4                0          1          1          1
SDP17            CIRCULAR     4                0          1          1          1
SDP19            CIRCULAR     1                0          1          1          1
SDP2             CIRCULAR     2.5              0          1          1          1
SDP20            CIRCULAR     2                0          1          1          1
SDP21            CIRCULAR     2.0000000000     0          1          1          1
SDP22            CIRCULAR     1                0          1          1          1
SDP24            CIRCULAR     2                0          1          1          1
SDP25            CIRCULAR     1                0          1          1          1
SDP26            CIRCULAR     1.5              0          1          1          1
SDP27            CIRCULAR     1.5              0          1          1          1
SDP28            CIRCULAR     4                0          1          1          1
SDP3             CIRCULAR     2.5              0          1          1          1
SDP4             CIRCULAR     2.5              0          1          1          1
SDP5             CIRCULAR     2.5              0          1          1          1
SDP6             CIRCULAR     2.5              0          1          1          1
SDP7             CIRCULAR     2.50000000000    0          1          1          1
SDP8             CIRCULAR     2.5              0          1          1          1
SDP9             CIRCULAR     4                0          1          1          1
W.Garfield_A     IRREGULAR    Standard         0          0          0          1
W.Garfield_B     IRREGULAR    Standard         0          0          0          1
W.Garfield_Junct IRREGULAR    Standard         0          0          0          1
William_1A       IRREGULAR    Standard         0          0          0          1
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William_1B       IRREGULAR    Standard         0          0          0          1
William_Pacific  IRREGULAR    Standard         0          0          0          1
EmergencySpillway RECT_OPEN    1.29            73         1          1

[TRANSECTS]

;Standard roadway section for the project with 2% cross slope, 32' full street sectionand 8" curb and gutter.
NC 0        0        0.017
X1 Standard          5        0.0      0.0      0.0      0.0      0.0      0.0      0.0
GR 0.67     0        0        0.1      0.32     16       0        31.9     0.67     32

[LOSSES]
;;Link           Inlet      Outlet     Average    Flap Gate
;;-------------- ---------- ---------- ---------- ----------
Link-13          0.5        0.6        0          NO
Link-14          0.5        0.6        0          NO
Link-16          0.025      0.025      0          NO
Link-17          0.025      0.025      0          NO
SDP1             0.025      0.025      0          NO
SDP10            .025       .025       0          NO
SDP11            .025       .025       0          NO
SDP12            .025       .025       0          NO
SDP13            .025       .025       0          NO
SDP14            0.025      0.025      0          NO
SDP15            .025       .025       0          NO
SDP16            .025       .025       0          NO
SDP17            0.025      .025       0          NO
SDP19            0.025      0.025      0          NO
SDP2             0.025      0.025      0          NO
SDP20            .025       .025       0          NO
SDP21            0.025      .025       0          NO
SDP22            .025       .025       0          NO
SDP24            0.025      0.025      0          NO
SDP25            0.025      0.025      0          NO
SDP26            0.025      0.025      0          NO
SDP27            0.025      0.025      0          NO
SDP28            .025       .025       0          NO
SDP3             .025       0.025      0          NO
SDP4             0.025      0.025      0          NO
SDP5             0.025      0.025      0          NO
SDP6             0.025      0.025      0          NO
SDP7             .025       .025       0          NO
SDP8             0.025      .025       0          NO
SDP9             .025       .025       0          NO

[INFLOWS]
;;                                                 Param    Units    Scale    Baseline Baseline
;;Node           Parameter        Time Series      Type     Factor   Factor   Value    Pattern
;;-------------- ---------------- ---------------- -------- -------- -------- -------- --------
DI2024           FLOW             UH-B2            FLOW     1.0      1.0
DI2046           FLOW             UH-B1            FLOW     1.0      1.0
K14941           FLOW             UH-B3            FLOW     1.0      1.0
K14952           FLOW             UH-B4            FLOW     1.0      1.0
K14953           FLOW             UH-B5            FLOW     1.0      1.0
L14042           FLOW             UH-B6            FLOW     1.0      1.0
L14052           FLOW             UH-B7            FLOW     1.0      1.0
L14053           FLOW             UH-B8            FLOW     1.0      1.0
L14055           FLOW             UH-B9            FLOW     1.0      1.0
L14142           FLOW             UH-B10           FLOW     1.0      1.0
L14143           FLOW             UH-B12           FLOW     1.0      1.0
L14151           FLOW             UH-B11           FLOW     1.0      1.0
L14152           FLOW             UH-B13           FLOW     1.0      1.0
SBroadwayPond    FLOW             S Broadway Pond  FLOW     1.0      1.0

[CURVES]
;;Name           Type       X-Value    Y-Value
;;-------------- ---------- ---------- ----------
PumpStation      Pump3      26.5       80
PumpStation                 28         75
PumpStation                 29.5       70
PumpStation                 31.5       65
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PumpStation                32         60
PumpStation                33         55
PumpStation                33.5       50
PumpStation                35         45
PumpStation                37         40
PumpStation                47         0

L14PS1           Storage   0          0
L14PS1                     25         496

;Conic Reservoir Volume assuming 140 ft x 140 ft footprint w/ 6:1 side slopes.
Park             Storage   0.0        19600.00
Park                       0.5        21316.00
Park                       1.0        23104.00
Park                       1.5        24964.00
Park                       2.0        26896.00
Park                       2.5        28900.00
Park                       3.0        30976.00
Park                       3.5        33124.00
Park                       4.0        35344.00
Park                       4.5        37636.00
Park                       5.0        40000.00
Park                       5.5        42436.00
Park                       6.0        44944.00
Park                       6.5        47524.00
Park                       7.0        50176.00

SB.DepthArea     Storage   0          0
SB.DepthArea               3.94       21780
SB.DepthArea               4.42       43560
SB.DepthArea               5.19       65340
SB.DepthArea               8.74       87120
SB.DepthArea               14.36      108900
SB.DepthArea               16.54      121968

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
;5/6/2016       0:02    38.99
S Broadway Pond  5/6/2016   0:04       57.38
S Broadway Pond  5/6/2016   0:05       72.32
S Broadway Pond  5/6/2016   0:06       91.17
S Broadway Pond  5/6/2016   0:07       113.22
S Broadway Pond  5/6/2016   0:08       141.27
S Broadway Pond  5/6/2016   0:09       183.18
S Broadway Pond  5/6/2016   0:10       241.75
S Broadway Pond  5/6/2016   0:11       309.74
S Broadway Pond  5/6/2016   0:12       354.16
S Broadway Pond  5/6/2016   0:13       409.71
S Broadway Pond  5/6/2016   0:14       444.98
S Broadway Pond  5/6/2016   0:15       477.07
S Broadway Pond  5/6/2016   0:16       502.79
S Broadway Pond  5/6/2016   0:17       517.66
S Broadway Pond  5/6/2016   0:18       527.53
S Broadway Pond  5/6/2016   0:19       523.01
S Broadway Pond  5/6/2016   0:20       513.8
S Broadway Pond  5/6/2016   0:21       503.6
S Broadway Pond  5/6/2016   0:22       491.45
S Broadway Pond  5/6/2016   0:23       483.62
S Broadway Pond  5/6/2016   0:24       475.38
S Broadway Pond  5/6/2016   0:25       470.44
S Broadway Pond  5/6/2016   0:26       466.98
S Broadway Pond  5/6/2016   0:27       464.4
S Broadway Pond  5/6/2016   0:28       462.93
S Broadway Pond  5/6/2016   0:29       461.78
S Broadway Pond  5/6/2016   0:30       460.75
S Broadway Pond  5/6/2016   0:31       460.69
S Broadway Pond  5/6/2016   0:32       458.8
S Broadway Pond  5/6/2016   0:33       454.5
S Broadway Pond  5/6/2016   0:34       447.13
S Broadway Pond  5/6/2016   0:35       437.94
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S Broadway Pond	5/6/2016	0:36	429.75
S Broadway Pond	5/6/2016	0:37	422.16
S Broadway Pond	5/6/2016	0:38	415.24
S Broadway Pond	5/6/2016	0:39	408.53
S Broadway Pond	5/6/2016	0:40	401.43
S Broadway Pond	5/6/2016	0:41	395.71
S Broadway Pond	5/6/2016	0:42	390.7
S Broadway Pond	5/6/2016	0:43	386
S Broadway Pond	5/6/2016	0:44	382
S Broadway Pond	5/6/2016	0:45	377.89
S Broadway Pond	5/6/2016	0:46	373.79
S Broadway Pond	5/6/2016	0:47	368.66
S Broadway Pond	5/6/2016	0:48	361.99
S Broadway Pond	5/6/2016	0:49	353.47
S Broadway Pond	5/6/2016	0:50	344.71
S Broadway Pond	5/6/2016	0:51	335.89
S Broadway Pond	5/6/2016	0:52	327.2
S Broadway Pond	5/6/2016	0:53	318.7
S Broadway Pond	5/6/2016	0:54	310.5
S Broadway Pond	5/6/2016	0:55	303.05
S Broadway Pond	5/6/2016	0:56	295.96
S Broadway Pond	5/6/2016	0:57	289.14
S Broadway Pond	5/6/2016	0:58	282.65
S Broadway Pond	5/6/2016	0:59	276.38
S Broadway Pond	5/6/2016	1:00	271.93
S Broadway Pond	5/6/2016	1:01	265.74
S Broadway Pond	5/6/2016	1:02	258.49
S Broadway Pond	5/6/2016	1:03	222.16
S Broadway Pond	5/6/2016	1:04	216.95
S Broadway Pond	5/6/2016	1:05	212.58
S Broadway Pond	5/6/2016	1:06	207.4
S Broadway Pond	5/6/2016	1:07	207.01
S Broadway Pond	5/6/2016	1:08	207.99
S Broadway Pond	5/6/2016	1:09	190.69
S Broadway Pond	5/6/2016	1:10	183.29
S Broadway Pond	5/6/2016	1:11	188.34
S Broadway Pond	5/6/2016	1:12	171.41
S Broadway Pond	5/6/2016	1:13	170.37
S Broadway Pond	5/6/2016	1:14	174.06
S Broadway Pond	5/6/2016	1:15	170.82
S Broadway Pond	5/6/2016	1:16	161.48
S Broadway Pond	5/6/2016	1:17	158.8
S Broadway Pond	5/6/2016	1:18	152.75
S Broadway Pond	5/6/2016	1:19	146.2
S Broadway Pond	5/6/2016	1:20	142.82
S Broadway Pond	5/6/2016	1:21	137.48
S Broadway Pond	5/6/2016	1:22	130.47
S Broadway Pond	5/6/2016	1:23	122.64
S Broadway Pond	5/6/2016	1:24	114.13
S Broadway Pond	5/6/2016	1:25	102.43
S Broadway Pond	5/6/2016	1:26	95.35
S Broadway Pond	5/6/2016	1:27	89.27
S Broadway Pond	5/6/2016	1:28	83.67
S Broadway Pond	5/6/2016	1:29	78.4
S Broadway Pond	5/6/2016	1:30	74.18
S Broadway Pond	5/6/2016	1:31	71.26
S Broadway Pond	5/6/2016	1:32	68.9
S Broadway Pond	5/6/2016	1:33	66.7
S Broadway Pond	5/6/2016	1:34	64.78
S Broadway Pond	5/6/2016	1:35	61.98
S Broadway Pond	5/6/2016	1:36	60.49
S Broadway Pond	5/6/2016	1:37	59.49
S Broadway Pond	5/6/2016	1:38	58.59
S Broadway Pond	5/6/2016	1:39	57.53
S Broadway Pond	5/6/2016	1:40	56.47
S Broadway Pond	5/6/2016	1:41	55.47
S Broadway Pond	5/6/2016	1:42	54.53
S Broadway Pond	5/6/2016	1:43	53.63
S Broadway Pond	5/6/2016	1:44	52.7
S Broadway Pond	5/6/2016	1:45	51.8
S Broadway Pond	5/6/2016	1:46	50.96

S Broadway Pond	5/6/2016	1:47	50.17
S Broadway Pond	5/6/2016	1:48	49.37
S Broadway Pond	5/6/2016	1:49	48.57
S Broadway Pond	5/6/2016	1:50	47.77
S Broadway Pond	5/6/2016	1:51	46.51
S Broadway Pond	5/6/2016	1:52	45.61
S Broadway Pond	5/6/2016	1:53	46.17
S Broadway Pond	5/6/2016	1:54	44.27
S Broadway Pond	5/6/2016	1:55	44.39
S Broadway Pond	5/6/2016	1:56	42.13
S Broadway Pond	5/6/2016	1:57	42.4
S Broadway Pond	5/6/2016	1:58	42.27
S Broadway Pond	5/6/2016	1:59	41.29
S Broadway Pond	5/6/2016	2:00	40.41
S Broadway Pond	5/6/2016	2:01	39.84
S Broadway Pond	5/6/2016	2:02	37.56
S Broadway Pond	5/6/2016	2:03	36.9
S Broadway Pond	5/6/2016	2:04	36.31
S Broadway Pond	5/6/2016	2:05	35.7
S Broadway Pond	5/6/2016	2:06	35.14
S Broadway Pond	5/6/2016	2:07	34.57
S Broadway Pond	5/6/2016	2:08	34.03
S Broadway Pond	5/6/2016	2:09	33.48
S Broadway Pond	5/6/2016	2:10	32.97
S Broadway Pond	5/6/2016	2:11	32.46
S Broadway Pond	5/6/2016	2:12	31.98
S Broadway Pond	5/6/2016	2:13	31.51
S Broadway Pond	5/6/2016	2:14	31.07
S Broadway Pond	5/6/2016	2:15	30.64
S Broadway Pond	5/6/2016	2:16	30.23
S Broadway Pond	5/6/2016	2:17	29.83
S Broadway Pond	5/6/2016	2:18	29.44
S Broadway Pond	5/6/2016	2:19	29.06
S Broadway Pond	5/6/2016	2:20	28.7
S Broadway Pond	5/6/2016	2:21	28.35
S Broadway Pond	5/6/2016	2:22	28.02
S Broadway Pond	5/6/2016	2:23	27.68
S Broadway Pond	5/6/2016	2:24	27.37
S Broadway Pond	5/6/2016	2:25	27.07
S Broadway Pond	5/6/2016	2:26	26.78
S Broadway Pond	5/6/2016	2:27	26.5
S Broadway Pond	5/6/2016	2:28	26.22
S Broadway Pond	5/6/2016	2:29	25.97
S Broadway Pond	5/6/2016	2:30	25.7
S Broadway Pond	5/6/2016	2:31	25.46
S Broadway Pond	5/6/2016	2:32	25.22
S Broadway Pond	5/6/2016	2:33	24.98
S Broadway Pond	5/6/2016	2:34	24.79
S Broadway Pond	5/6/2016	2:35	24.53
S Broadway Pond	5/6/2016	2:36	24.4
S Broadway Pond	5/6/2016	2:37	24.14
S Broadway Pond	5/6/2016	2:38	24.02
S Broadway Pond	5/6/2016	2:39	23.7
S Broadway Pond	5/6/2016	2:40	23.62
S Broadway Pond	5/6/2016	2:41	23.43
S Broadway Pond	5/6/2016	2:42	23.36
S Broadway Pond	5/6/2016	2:43	23.1
S Broadway Pond	5/6/2016	2:44	22.99
S Broadway Pond	5/6/2016	2:45	22.82
S Broadway Pond	5/6/2016	2:46	22.74
S Broadway Pond	5/6/2016	2:47	22.57
S Broadway Pond	5/6/2016	2:48	22.44
S Broadway Pond	5/6/2016	2:49	22.32
S Broadway Pond	5/6/2016	2:50	22.2
S Broadway Pond	5/6/2016	2:51	22.14
S Broadway Pond	5/6/2016	2:52	22.04
S Broadway Pond	5/6/2016	2:53	21.91
S Broadway Pond	5/6/2016	2:54	21.82
S Broadway Pond	5/6/2016	2:55	21.72
S Broadway Pond	5/6/2016	2:56	21.66
S Broadway Pond	5/6/2016	2:57	21.53

S Broadway Pond	5/6/2016	2:58	21.48
S Broadway Pond	5/6/2016	2:59	21.35
S Broadway Pond	5/6/2016	3:00	21.29
S Broadway Pond	5/6/2016	3:01	21.21
S Broadway Pond	5/6/2016	3:02	21.16
S Broadway Pond	5/6/2016	3:03	21.06
S Broadway Pond	5/6/2016	3:04	21.29
S Broadway Pond	5/6/2016	3:05	21.54
S Broadway Pond	5/6/2016	3:06	21.88
S Broadway Pond	5/6/2016	3:07	21.88
S Broadway Pond	5/6/2016	3:08	21.7
S Broadway Pond	5/6/2016	3:09	21.74
S Broadway Pond	5/6/2016	3:10	21.64
S Broadway Pond	5/6/2016	3:11	21.79
S Broadway Pond	5/6/2016	3:12	21.51
S Broadway Pond	5/6/2016	3:13	21.33
S Broadway Pond	5/6/2016	3:14	21.13
S Broadway Pond	5/6/2016	3:15	21.1
S Broadway Pond	5/6/2016	3:16	21.19
S Broadway Pond	5/6/2016	3:17	21.21
S Broadway Pond	5/6/2016	3:18	21.14
S Broadway Pond	5/6/2016	3:19	21.08
S Broadway Pond	5/6/2016	3:20	21.06
S Broadway Pond	5/6/2016	3:21	21.03
S Broadway Pond	5/6/2016	3:22	21.06
S Broadway Pond	5/6/2016	3:23	20.94
S Broadway Pond	5/6/2016	3:24	20.82
S Broadway Pond	5/6/2016	3:25	20.72
S Broadway Pond	5/6/2016	3:26	20.63
S Broadway Pond	5/6/2016	3:27	20.62
S Broadway Pond	5/6/2016	3:28	20.62
S Broadway Pond	5/6/2016	3:29	20.54
S Broadway Pond	5/6/2016	3:30	20.47
S Broadway Pond	5/6/2016	3:31	20.37
S Broadway Pond	5/6/2016	3:32	20.32
S Broadway Pond	5/6/2016	3:33	20.27
S Broadway Pond	5/6/2016	3:34	20.16
S Broadway Pond	5/6/2016	3:35	20.1
S Broadway Pond	5/6/2016	3:36	20
S Broadway Pond	5/6/2016	3:37	19.95
S Broadway Pond	5/6/2016	3:38	19.89
S Broadway Pond	5/6/2016	3:39	19.83
S Broadway Pond	5/6/2016	3:40	19.79
S Broadway Pond	5/6/2016	3:41	19.72
S Broadway Pond	5/6/2016	3:42	19.66
S Broadway Pond	5/6/2016	3:43	19.6
S Broadway Pond	5/6/2016	3:44	19.55
S Broadway Pond	5/6/2016	3:45	19.51
S Broadway Pond	5/6/2016	3:46	19.44
S Broadway Pond	5/6/2016	3:47	19.37
S Broadway Pond	5/6/2016	3:48	19.31
S Broadway Pond	5/6/2016	3:49	19.25
S Broadway Pond	5/6/2016	3:50	19.23
S Broadway Pond	5/6/2016	3:51	19.16
S Broadway Pond	5/6/2016	3:52	19.13
S Broadway Pond	5/6/2016	3:53	19.06
S Broadway Pond	5/6/2016	3:54	19.01
S Broadway Pond	5/6/2016	3:55	18.93
S Broadway Pond	5/6/2016	3:56	18.82
S Broadway Pond	5/6/2016	3:57	18.79
S Broadway Pond	5/6/2016	3:58	18.75
S Broadway Pond	5/6/2016	3:59	18.76
S Broadway Pond	5/6/2016	4:00	18.73
S Broadway Pond	5/6/2016	4:01	18.71
S Broadway Pond	5/6/2016	4:02	18.68
S Broadway Pond	5/6/2016	4:03	18.65
S Broadway Pond	5/6/2016	4:04	18.6
S Broadway Pond	5/6/2016	4:05	18.55
S Broadway Pond	5/6/2016	4:06	18.5
S Broadway Pond	5/6/2016	4:07	18.47
S Broadway Pond	5/6/2016	4:08	18.45

S Broadway Pond	5/6/2016	4:09	18.41
S Broadway Pond	5/6/2016	4:10	18.36
S Broadway Pond	5/6/2016	4:11	18.3
S Broadway Pond	5/6/2016	4:12	18.25
S Broadway Pond	5/6/2016	4:13	18.23
S Broadway Pond	5/6/2016	4:14	18.2
S Broadway Pond	5/6/2016	4:15	18.19
S Broadway Pond	5/6/2016	4:16	18.16
S Broadway Pond	5/6/2016	4:17	18.14
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S Broadway Pond  5/6/2016   17:50      6.8
S Broadway Pond  5/6/2016   17:51      6.8
S Broadway Pond  5/6/2016   17:52      6.8
S Broadway Pond  5/6/2016   17:53      6.8
S Broadway Pond  5/6/2016   17:54      6.8
S Broadway Pond  5/6/2016   17:55      6.8
S Broadway Pond  5/6/2016   17:56      6.8
S Broadway Pond  5/6/2016   17:57      6.8
S Broadway Pond  5/6/2016   17:58      6.8
S Broadway Pond  5/6/2016   17:59      6.8

;Unit hydrograph for sub-basin #1 developed using COA DPM Modified Rational Method.
UH-B1            5/6/2016   0:00       0
UH-B1            5/6/2016   00:12      10.21
UH-B1            5/6/2016   00:24      10.21
UH-B1            5/6/2016   00:43      0

;Unit hydrograph for sub-basin #10 using COA DPM Modified Rational Method.
UH-B10           5/6/2016   0:00       0
UH-B10           5/6/2016   0:14       5.03
UH-B10           5/6/2016   0:21       5.03
UH-B10           5/6/2016   0:45       0

;Unit hydrograph for sub-basin #11 using COA DPM Modified Rational Method.
UH-B11           5/6/2016   0:00       0
UH-B11           5/6/2016   0:15       17.84
UH-B11           5/6/2016   0:19       17.84
UH-B11           5/6/2016   0:45       0

;Unit hydrograph for sub-basin 12 using COA DPM Modified Rational Method.
UH-B12           5/6/2016   0:00       0
```

```
UH-B12           5/6/2016   0:14       7.08
UH-B12           5/6/2016   0:20       7.08
UH-B12           5/6/2016   0:45       0

;Unit hydrograph for sub-basin 13 using COA DPM Modified Rational Method.
UH-B13           5/6/2016   0:00       0
UH-B13           5/6/2016   0:14       26.51
UH-B13           5/6/2016   0:21       26.51
UH-B13           5/6/2016   0:45       0

;Unit hydrograph for sub-basin #2 using COA DPM Modified Rational Method.
UH-B2            5/6/2016   0:00       0
UH-B2            5/6/2016   0:14       21.48
UH-B2            5/6/2016   0:21       21.48
UH-B2            5/6/2016   0:45       0

;Unit hydrograph for sub-basin #3 using COA DPM Modified Rational Method.
UH-B3            5/6/2016   0:00       0
UH-B3            5/6/2016   0:14       6.43
UH-B3            5/6/2016   0:20       6.43
UH-B3            5/6/2016   0:45       0

;Unit hydrograph for sub-basin #4 using COA DPM Modified Rational Method.
UH-B4            5/6/2016   0:00       0
UH-B4            5/6/2016   0:14       6.96
UH-B4            5/6/2016   0:21       6.96
UH-B4            5/6/2016   0:45       0

;Unit hydrograph for sub-basin #5 using COA DPM Modified Rational Method
UH-B5            5/6/2016   0:00       0
UH-B5            5/6/2016   0:14       14.64
UH-B5            5/6/2016   0:21       14.64
UH-B5            5/6/2016   0:45       0

;Unit hydrograph for sub-basin #6 using COA DPM Modified Rational Method.
UH-B6            5/6/2016   0:00       0
UH-B6            5/6/2016   0:14       11.73
UH-B6            5/6/2016   0:21       11.73
UH-B6            5/6/2016   0:45       0

;Unit hydrograph for sub-basin #7 using COA DPM Modified Rational Method.
UH-B7            5/6/2016   0:00       0
UH-B7            5/6/2016   0:14       9.15
UH-B7            5/6/2016   0:21       9.15
UH-B7            5/6/2016   0:45       0

;Unit hydrograph for sub-basin #8 using COA DPM Modified Rational Method.
UH-B8            5/6/2016   0:00       0
UH-B8            5/6/2016   0:14       8.71
UH-B8            5/6/2016   0:21       8.71
UH-B8            5/6/2016   0:45       0

;Unit hydrograph for sub-basin #9 using COA DPM Modified Rational Method.
UH-B9            5/6/2016   0:00       0
UH-B9            5/6/2016   0:14       11.05
UH-B9            5/6/2016   0:21       11.05
UH-B9            5/6/2016   0:45       0

[REPORT]
INPUT      YES
CONTROLS   YES
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 1520851.510 1481094.290 1521703.260 1483184.090
Units      Feet
```

```
[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DI2024           1521464.400        1482627.250
DI2046           1521132.640        1482625.370
K14941           1521127.100        1482521.880
K14942           1521091.600        1482287.960
K14943           1521139.220        1482285.170
K14944           1521142.930        1482609.670
K14945           1521410.070        1482629.980
K14951           1521435.400        1482633.430
K14952           1521444.180        1482278.820
K14953           1521650.770        1482287.060
K14954           1521432.240        1482666.960
L14041           1521030.200        1481900.110
L14042           1521049.290        1481897.720
L14051           1521229.760        1481896.040
L14052           1521448.090        1482120.240
L14053           1521660.680        1482098.580
L14054           1521657.120        1481896.300
L14055           1521412.850        1481899.950
L14141           1520921.980        1481228.760
L14142           1520974.200        1481554.940
L14143           1520918.320        1481193.130
L14146           1521008.940        1481549.410
L14151           1521357.360        1481565.420
L14152           1521298.170        1481200.660
L14999           1521264.330        1481195.520
L14JB145         1521003.650        1481189.280
L14JB2           1520997.600        1481244.150
Unknown          1521215.440        1483020.040
L14PS1           1520997.730        1481242.010
Park             1521664.540        1481838.510
SBroadwayPond    1521440.510        1483089.100

[VERTICES]
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
Commercial_Sag   1521091.070        1482563.310
E.Cromwell       1521561.320        1482327.700
Link-17          1521643.100        1481566.870
N.Commercial     1521030.160        1482398.290
N.William        1521487.300        1482435.300
Pacific          1521246.240        1482667.330
Pacific_William  1521465.120        1482651.400
S.Commercial_A   1520895.830        1481387.380
S.Commercial_B   1520890.230        1481220.240
S.William        1521398.890        1481381.210
W.Garfield_A     1521152.260        1481980.280
W.Garfield_B     1521238.510        1481985.020
W.Garfield_Junct 1521043.840        1481915.030
William_1A       1521513.220        1482191.700
William_1B       1521505.120        1482095.360
William_Pacific  1521394.650        1482667.620


[PROFILES]
;;Name           Links
;;-------------- ----------
"SouthBroadwaytoPump" SDP1 SDP2 SDP3 SDP4 SDP5
"SouthBroadwaytoPump" SDP6 SDP7 SDP8 SDP9 SDP10
"SouthBroadwaytoPump" SDP28
"SouthBroadway Pond to Pump Station through Road" SDP1 William_Pacific Pacific_Commercial SDP4 SDP5
"SouthBroadway Pond to Pump Station through Road" SDP6 SDP7 SDP8 SDP9 SDP10
"SouthBroadway Pond to Pump Station through Road" SDP28
"                " SDP1 Williams_Pacific SDP4 SDP5 SDP6
"                " SDP7 SDP8 SDP9 SDP10 SDP28
"SouthBroadway Street Profile" SDP1 Williams_Pacific SDP4 SDP5 SDP6
"SouthBroadway Street Profile" SDP7 SDP8 SDP9 SDP10 SDP28
"FullStreet      " SDP1 Williams_Pacific Commercial SDP5 SDP6
"FullStreet      " SDP7 SDP8 SDP9 SDP10 SDP28
```

SWMM Model Output - Recommended Improvements

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.0 (Build 5.0.022)
--------------------------------------------------------------


***********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
***********************************************************

****************
Analysis Options
****************
Flow Units ............... CFS
Process Models:
  Rainfall/Runoff ........ NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Flow Routing Method ...... DYNWAVE
Starting Date ............ MAY-06-2016 00:00:00
Ending Date .............. MAY-07-2016 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:00:15
Routing Time Step ........ 15.00 sec


WARNING 02: maximum depth increased for Node L14051

*************
Element Count
*************
Number of rain gages ...... 0
Number of subcatchments ... 0
Number of nodes ........... 31
Number of links ........... 47
Number of pollutants ...... 0
Number of land uses ....... 0


************
Node Summary
************
                                  Invert      Max.    Ponded    External
Name                Type           Elev.     Depth      Area    Inflow
--------------------------------------------------------------------------
DI2024              JUNCTION     4945.64      3.87       0.0    Yes
DI2046              JUNCTION     4945.39      3.50       0.0    Yes
K14941              JUNCTION     4937.35     11.75       0.0    Yes
K14942              JUNCTION     4936.82     13.35       0.0
K14943              JUNCTION     4946.02      3.75       0.0
K14944              JUNCTION     4937.60     11.85       0.0
K14945              JUNCTION     4937.94     12.20       0.0
K14951              JUNCTION     4945.21      4.60       0.0
K14952              JUNCTION     4943.04      6.05       0.0    Yes
K14953              JUNCTION     4943.86      7.17       0.0    Yes
K14954              JUNCTION     4937.94     11.81       0.0
L14041              JUNCTION     4936.60     11.17       0.0
L14042              JUNCTION     4943.53      3.70       0.0    Yes
L14051              JUNCTION     4944.35      2.99       0.0
L14052              JUNCTION     4941.40      7.23       0.0    Yes
L14053              JUNCTION     4943.06      7.31       0.0    Yes
L14054              JUNCTION     4942.28      9.58       0.0
L14055              JUNCTION     4939.88      9.56       0.0    Yes
L14141              JUNCTION     4936.08     12.24       0.0
L14142              JUNCTION     4935.24     13.23       0.0    Yes
L14143              JUNCTION     4935.66     12.35       0.0    Yes
L14146              JUNCTION     4943.06      5.41       0.0
```

L14151	JUNCTION	4939.08	9.82	0.0	Yes
L14152	JUNCTION	4937.58	11.05	0.0	Yes
L14999	JUNCTION	4937.30	11.28	0.0	
L14JB145	JUNCTION	4934.73	13.55	0.0	
L14JB2	OUTFALL	4952.21	0.00	0.0	
Unknown	OUTFALL	4952.00	15.54	0.0	
L14PS1	STORAGE	4926.99	22.67	0.0	
Park	STORAGE	4941.50	7.00	0.0	
SBroadwayPond	STORAGE	4938.42	16.54	0.0	Yes

****
Link Summary
****

Name	From Node	To Node	Type	Length	%Slope	Roughness
Commercial_Sag	K14941	DI2046	CONDUIT	92.2	0.2821	0.0170
E.Cromwell	K14953	K14952	CONDUIT	170.0	1.0883	0.0170
Link-13	DI2024	K14951	CONDUIT	18.4	0.4346	0.0130
Link-14	DI2046	K14944	CONDUIT	46.1	16.8088	0.0130
Link-16	L14054	Park	CONDUIT	58.7	1.3291	0.0130
Link-17	Park	L14151	CONDUIT	407.6	0.5937	0.0130
N.Commercial	K14942	K14941	CONDUIT	234.0	0.5513	0.0170
N.William	DI2024	K14952	CONDUIT	355.0	0.0958	0.0170
Pacific	K14945	DI2046	CONDUIT	268.0	0.5672	0.0170
Pacific_William	K14954	K14951	CONDUIT	34.0	1.2354	0.0170
S.Commercial_A	L14142	L14141	CONDUIT	330.0	0.0182	0.0170
S.Commercial_B	L14141	L14143	CONDUIT	36.0	1.5280	0.0170
S.William	L14152	L14151	CONDUIT	370.0	0.0081	0.0170
SDP1	SBroadwayPond	K14954	CONDUIT	411.0	0.0925	0.0130
SDP10	L14143	L14JB145	CONDUIT	85.4	0.5971	0.0130
SDP11	K14951	K14952	CONDUIT	354.7	0.5892	0.0130
SDP12	K14952	L14052	CONDUIT	158.6	0.7817	0.0130
SDP13	L14052	L14055	CONDUIT	223.1	0.4572	0.0130
SDP14	L14055	L14151	CONDUIT	339.1	0.1268	0.0130
SDP15	L14151	L14152	CONDUIT	369.5	0.1759	0.0130
SDP16	L14999	L14152	CONDUIT	34.2	1.4317	0.0130
SDP17	L14999	L14JB145	CONDUIT	260.8	0.7172	0.0130
SDP19	L14055	L14051	CONDUIT	183.1	0.1201	0.0130
SDP2	K14945	K14954	CONDUIT	43.1	0.1159	0.0130
SDP20	L14053	L14054	CONDUIT	199.7	0.3906	0.0130
SDP21	K14953	L14053	CONDUIT	191.1	0.4185	0.0130
SDP22	L14054	L14055	CONDUIT	244.3	0.1199	0.0130
SDP24	L14042	L14041	CONDUIT	19.2	0.1195	0.0130
SDP25	L14051	L14042	CONDUIT	180.5	0.1219	0.0100
SDP26	L14146	L14142	CONDUIT	35.2	0.1194	0.0130
SDP27	K14943	K14942	CONDUIT	47.7	0.4192	0.0130
SDP28	L14JB145	L14PS1	CONDUIT	53.1	2.4320	0.0130
SDP3	K14945	K14944	CONDUIT	267.9	0.0709	0.0130
SDP4	K14944	K14941	CONDUIT	92.2	0.1085	0.0130
SDP5	K14941	K14942	CONDUIT	233.6	0.1413	0.0130
SDP6	K14942	L14041	CONDUIT	392.7	0.0255	0.0130
SDP7	L14041	L14142	CONDUIT	349.7	0.3603	0.0130
SDP8	L14141	L14142	CONDUIT	330.3	0.2785	0.0130
SDP9	L14143	L14141	CONDUIT	35.8	2.2344	0.0130
W.Garfield_A	L14051	L14042	CONDUIT	181.0	0.2044	0.0170
W.Garfield_B	L14055	L14051	CONDUIT	183.0	1.0492	0.0170
W.Garfield_Junct	L14041	L14042	CONDUIT	19.0	3.1068	0.0170
William_1A	K14952	L14052	CONDUIT	158.0	0.3418	0.0170
William_1B	L14055	L14052	CONDUIT	223.0	0.3632	0.0170
William_Pacific	K14945	K14954	CONDUIT	43.0	0.9070	0.0170
PUMP_CT-3500-135_02	L14PS1	L14JB2	TYPE3 PUMP			
EmergencySpillway	SBroadwayPond	Unknown	WEIR			

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow

Commercial_Sag	Standard	0.67	16.28	0.49	32.00	1	46.94
E.Cromwell	Standard	0.67	16.28	0.49	32.00	1	92.19
Link-13	CIRCULAR	1.50	1.77	0.38	1.50	1	6.92
Link-14	CIRCULAR	1.50	1.77	0.38	1.50	1	43.07
Link-16	CIRCULAR	2.50	4.91	0.63	2.50	1	47.29
Link-17	CIRCULAR	1.50	1.77	0.38	1.50	1	8.09
N.Commercial	Standard	0.67	16.28	0.49	32.00	1	65.61
N.William	Standard	0.67	16.28	0.49	32.00	1	27.35
Pacific	Standard	0.67	16.28	0.49	32.00	1	66.55
Pacific_William	Standard	0.67	16.28	0.49	32.00	1	98.22
S.Commercial_A	Standard	0.67	16.28	0.49	32.00	1	11.92
S.Commercial_B	Standard	0.67	16.28	0.49	32.00	1	109.23
S.William	Standard	0.67	16.28	0.49	32.00	1	7.96
SDP1	CIRCULAR	2.50	4.91	0.63	2.50	1	12.47
SDP10	CIRCULAR	4.00	12.57	1.00	4.00	1	111.00
SDP11	CIRCULAR	2.00	3.14	0.50	2.00	1	17.37
SDP12	CIRCULAR	2.00	3.14	0.50	2.00	1	20.00
SDP13	CIRCULAR	2.50	4.91	0.63	2.50	1	27.73
SDP14	CIRCULAR	3.00	7.07	0.75	3.00	1	23.75
SDP15	CIRCULAR	3.00	7.07	0.75	3.00	1	27.97
SDP16	CIRCULAR	4.00	12.57	1.00	4.00	1	171.87
SDP17	CIRCULAR	4.00	12.57	1.00	4.00	1	121.64
SDP19	CIRCULAR	1.00	0.79	0.25	1.00	1	1.23
SDP2	CIRCULAR	2.50	4.91	0.63	2.50	1	13.97
SDP20	CIRCULAR	2.00	3.14	0.50	2.00	1	14.14
SDP21	CIRCULAR	2.00	3.14	0.50	2.00	1	14.64
SDP22	CIRCULAR	1.00	0.79	0.25	1.00	1	1.23
SDP24	CIRCULAR	2.00	3.14	0.50	2.00	1	7.82
SDP25	CIRCULAR	1.00	0.79	0.25	1.00	1	1.62
SDP26	CIRCULAR	1.50	1.77	0.38	1.50	1	3.63
SDP27	CIRCULAR	1.50	1.77	0.38	1.50	1	6.80
SDP28	CIRCULAR	4.00	12.57	1.00	4.00	1	224.01
SDP3	CIRCULAR	2.50	4.91	0.63	2.50	1	10.92
SDP4	CIRCULAR	2.50	4.91	0.63	2.50	1	13.51
SDP5	CIRCULAR	2.50	4.91	0.63	2.50	1	15.42
SDP6	CIRCULAR	2.50	4.91	0.63	2.50	1	6.55
SDP7	CIRCULAR	2.50	4.91	0.63	2.50	1	24.62
SDP8	CIRCULAR	2.50	4.91	0.63	2.50	1	21.65
SDP9	CIRCULAR	4.00	12.57	1.00	4.00	1	214.72
W.Garfield_A	Standard	0.67	16.28	0.49	32.00	1	39.95
W.Garfield_B	Standard	0.67	16.28	0.49	32.00	1	90.52
W.Garfield_Junct	Standard	0.67	16.28	0.49	32.00	1	155.76
William_1A	Standard	0.67	16.28	0.49	32.00	1	51.66
William_1B	Standard	0.67	16.28	0.49	32.00	1	53.26
William_Pacific	Standard	0.67	16.28	0.49	32.00	1	84.16

****
Transect Summary
****

Transect Standard
Area:

0.0005	0.0022	0.0049	0.0088	0.0137
0.0198	0.0269	0.0352	0.0445	0.0550
0.0665	0.0791	0.0929	0.1077	0.1236
0.1407	0.1588	0.1780	0.1984	0.2198
0.2423	0.2660	0.2907	0.3165	0.3428
0.3690	0.3953	0.4215	0.4478	0.4740
0.5003	0.5266	0.5528	0.5791	0.6054
0.6317	0.6580	0.6843	0.7106	0.7369
0.7632	0.7895	0.8158	0.8421	0.8684
0.8947	0.9210	0.9473	0.9737	1.0000

Hrad:

0.0134	0.0268	0.0402	0.0536	0.0670
0.0805	0.0939	0.1073	0.1207	0.1341
0.1475	0.1609	0.1743	0.1877	0.2011
0.2145	0.2279	0.2414	0.2548	0.2682
0.2816	0.2950	0.3084	0.3234	0.3499
0.3764	0.4028	0.4292	0.4556	0.4819

```
            0.5082     0.5344     0.5606     0.5868     0.6129
            0.6390     0.6650     0.6910     0.7170     0.7429
            0.7688     0.7947     0.8205     0.8462     0.8719
            0.8976     0.9233     0.9489     0.9745     1.0000
Width:
            0.0417     0.0835     0.1252     0.1670     0.2087
            0.2504     0.2922     0.3339     0.3756     0.4174
            0.4591     0.5009     0.5426     0.5843     0.6261
            0.6678     0.7096     0.7513     0.7930     0.8348
            0.8765     0.9182     0.9600     0.9968     0.9969
            0.9970     0.9971     0.9972     0.9974     0.9975
            0.9976     0.9977     0.9979     0.9980     0.9981
            0.9983     0.9984     0.9985     0.9986     0.9988
            0.9989     0.9990     0.9991     0.9992     0.9994
            0.9995     0.9996     0.9998     0.9999     1.0000

*********************
Control Actions Taken
*********************


*************************        Volume        Volume
Flow Routing Continuity        acre-feet      10^6 gal
*************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......         0.000         0.000
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........        59.383        19.351
External Outflow .........        59.297        19.323
Internal Outflow .........         0.000         0.000
Storage Losses ...........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.050         0.016
Continuity Error (%) .....         0.060


************************
Highest Continuity Errors
************************
Node L14051 (-6.25%)


***************************
Time-Step Critical Elements
***************************
Link SDP9 (81.67%)
Link SDP28 (7.73%)
Link SDP2 (2.24%)
Link SDP24 (1.49%)
Link Link-16 (1.23%)


*******************************
Highest Flow Instability Indexes
*******************************
Link SDP28 (2)
Link SDP10 (2)
Link SDP9 (2)
Link SDP11 (1)
Link SDP16 (1)


************************
Routing Time Step Summary
************************
Minimum Time Step           :     0.50 sec
Average Time Step           :     2.68 sec
Maximum Time Step           :    15.00 sec
Percent in Steady State     :     0.00
```

Average Iterations per Step : 2.14

****
Node Depth Summary
****

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min
DI2024	JUNCTION	0.32	3.57	4949.21	0 00:24
DI2046	JUNCTION	0.70	3.33	4948.72	0 00:39
K14941	JUNCTION	6.74	11.37	4948.72	0 00:38
K14942	JUNCTION	6.18	11.30	4948.12	0 00:36
K14943	JUNCTION	0.03	2.10	4948.12	0 00:36
K14944	JUNCTION	6.92	11.23	4948.83	0 00:39
K14945	JUNCTION	7.79	11.38	4949.32	0 00:42
K14951	JUNCTION	0.40	3.92	4949.13	0 00:38
K14952	JUNCTION	0.32	5.64	4948.68	0 00:27
K14953	JUNCTION	0.07	3.01	4946.87	0 00:21
K14954	JUNCTION	8.00	11.49	4949.43	0 00:46
L14041	JUNCTION	4.64	10.63	4947.23	0 00:32
L14042	JUNCTION	0.09	3.70	4947.23	0 00:32
L14051	JUNCTION	0.06	2.89	4947.24	0 00:33
L14052	JUNCTION	0.34	6.92	4948.32	0 00:29
L14053	JUNCTION	0.09	3.05	4946.11	0 00:12
L14054	JUNCTION	0.11	1.64	4943.92	0 00:44
L14055	JUNCTION	0.43	7.47	4947.35	0 00:25
L14141	JUNCTION	2.06	9.39	4945.47	0 00:24
L14142	JUNCTION	4.41	11.08	4946.32	0 00:26
L14143	JUNCTION	1.49	9.80	4945.46	0 00:24
L14146	JUNCTION	0.04	3.26	4946.32	0 00:25
L14151	JUNCTION	0.54	7.62	4946.70	0 00:24
L14152	JUNCTION	0.88	8.29	4945.87	0 00:24
L14999	JUNCTION	0.40	8.51	4945.81	0 00:24
L14JB145	JUNCTION	1.19	10.70	4945.43	0 00:24
L14JB2	OUTFALL	0.00	0.00	4952.21	0 00:00
Unknown	OUTFALL	0.00	0.00	4952.00	0 00:00
L14PS1	STORAGE	0.57	18.25	4945.24	0 00:24
Park	STORAGE	0.28	2.22	4943.72	0 00:43
SBroadwayPond	STORAGE	9.63	16.51	4954.93	0 01:15

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal
DI2024	JUNCTION	21.48	21.48	0 00:14	0.251	0.253
DI2046	JUNCTION	10.21	11.20	0 00:27	0.126	0.153
K14941	JUNCTION	6.43	33.06	0 01:12	0.074	13.509
K14942	JUNCTION	0.00	33.18	0 00:55	0.000	13.504
K14943	JUNCTION	0.00	0.61	0 00:20	0.000	0.001
K14944	JUNCTION	0.00	33.06	0 01:12	0.000	13.419
K14945	JUNCTION	0.00	33.06	0 01:11	0.000	13.316
K14951	JUNCTION	0.00	22.30	0 00:48	0.000	0.911
K14952	JUNCTION	6.96	24.70	0 00:24	0.081	1.098
K14953	JUNCTION	14.64	14.64	0 00:14	0.171	0.171
K14954	JUNCTION	0.00	47.27	0 01:15	0.000	14.080
L14041	JUNCTION	0.00	33.82	0 00:55	0.000	13.636
L14042	JUNCTION	11.73	12.86	0 00:21	0.137	0.148
L14051	JUNCTION	0.00	5.94	0 00:27	0.000	0.024
L14052	JUNCTION	9.15	30.42	0 00:24	0.107	1.206
L14053	JUNCTION	8.71	23.37	0 00:15	0.102	0.273

L14054	JUNCTION	0.00	26.15	0	00:21	0.000	0.312
L14055	JUNCTION	11.05	40.04	0	00:15	0.129	1.351
L14141	JUNCTION	0.00	38.76	0	00:52	0.000	13.684
L14142	JUNCTION	5.03	35.50	0	00:53	0.059	13.693
L14143	JUNCTION	7.08	43.66	0	00:52	0.081	13.761
L14146	JUNCTION	0.00	1.88	0	00:18	0.000	0.001
L14151	JUNCTION	17.84	56.44	0	00:15	0.196	1.903
L14152	JUNCTION	26.51	78.77	0	00:15	0.309	2.106
L14999	JUNCTION	0.00	78.10	0	00:15	0.000	2.105
L14JB145	JUNCTION	0.00	104.54	0	00:13	0.000	15.869
L14JB2	OUTFALL	0.00	80.00	0	00:10	0.000	15.873
Unknown	OUTFALL	0.00	118.36	0	01:15	0.000	3.449
L14PS1	STORAGE	0.00	97.86	0	00:12	0.000	15.872
Park	STORAGE	0.00	36.49	0	00:21	0.000	0.412
SBroadwayPond	STORAGE	527.47	527.47	0	00:18	17.525	17.530

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Feet	Min. Depth Below Rim Feet
DI2046	JUNCTION	0.15	0.104	0.166
K14943	JUNCTION	0.31	0.595	1.655
K14944	JUNCTION	17.89	8.584	0.616
L14042	JUNCTION	0.22	0.260	0.000
L14053	JUNCTION	0.25	1.050	4.260
L14146	JUNCTION	0.39	1.757	2.153
L14999	JUNCTION	0.45	3.738	2.772
L14JB145	JUNCTION	0.59	6.001	2.849
L14PS1	STORAGE	0.69	7.795	4.425
SBroadwayPond	STORAGE	0.92	0.967	0.033

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Node Flooding Summary
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Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CFS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 gal	Maximum Ponded Depth Feet
L14042	0.02	0.11	0 00:33	0.000	3.70

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Storage Volume Summary
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Storage Unit	Average Volume 1000 ft3	Avg Pcnt Full	E&I Pcnt Loss	Maximum Volume 1000 ft3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
L14PS1	0.083	2	0	3.302	65	0 00:24	80.00
Park	5.892	2	0	52.296	22	0 00:43	10.75
SBroadwayPond	505.729	43	0	1169.582	100	0 01:15	165.63

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Outfall Loading Summary
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Outfall Node	Flow Freq. Pcnt.	Avg. Flow CFS	Max. Flow CFS	Total Volume 10^6 gal
L14JB2	99.79	30.94	80.00	15.873
Unknown	13.31	54.29	118.36	3.449
System	56.55	85.23	173.33	19.322

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Link Flow Summary
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Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days	hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
Commercial_Sag	CHANNEL	7.22	0	00:35	0.81	0.15	0.88
E.Cromwell	CHANNEL	0.00	0	00:00	0.00	0.00	0.27
Link-13	CONDUIT	15.24	0	00:13	8.63	2.20	1.00
Link-14	CONDUIT	10.20	0	00:12	10.53	0.24	1.00
Link-16	CONDUIT	26.14	0	00:21	16.46	0.55	0.77
Link-17	CONDUIT	10.97	0	00:24	6.53	1.36	1.00
N.Commercial	CHANNEL	0.00	0	00:00	0.00	0.00	0.38
N.William	CHANNEL	12.62	0	00:24	1.39	0.46	0.67
Pacific	CHANNEL	0.00	0	00:00	0.00	0.00	0.50
Pacific_William	CHANNEL	18.62	0	00:46	3.13	0.19	0.58
S.Commercial_A	CHANNEL	0.00	0	00:00	0.00	0.00	0.00
S.Commercial_B	CHANNEL	0.00	0	00:00	0.00	0.00	0.00
S.William	CHANNEL	0.00	0	00:00	0.00	0.00	0.00
SDP1	CONDUIT	47.27	0	01:15	9.63	3.79	1.00
SDP10	CONDUIT	45.48	0	00:52	7.89	0.41	1.00
SDP11	CONDUIT	22.38	0	00:51	7.13	1.29	1.00
SDP12	CONDUIT	25.46	0	00:46	8.23	1.27	1.00
SDP13	CONDUIT	30.08	0	00:34	6.27	1.08	1.00
SDP14	CONDUIT	38.60	0	00:15	5.46	1.63	1.00
SDP15	CONDUIT	52.26	0	00:15	7.45	1.87	1.00
SDP16	CONDUIT	78.10	0	00:15	10.18	0.45	1.00
SDP17	CONDUIT	73.36	0	00:13	9.73	0.60	1.00
SDP19	CONDUIT	3.50	0	00:39	4.70	2.83	1.00
SDP2	CONDUIT	33.06	0	01:11	6.73	2.37	1.00
SDP20	CONDUIT	23.38	0	00:15	8.57	1.65	0.83
SDP21	CONDUIT	14.67	0	00:21	4.67	1.00	1.00
SDP22	CONDUIT	3.27	0	00:25	4.44	2.65	0.89
SDP24	CONDUIT	12.23	0	00:19	5.50	1.56	1.00
SDP25	CONDUIT	1.72	0	00:44	2.19	1.06	1.00
SDP26	CONDUIT	1.88	0	00:18	2.12	0.52	1.00
SDP27	CONDUIT	0.61	0	00:20	1.33	0.09	1.00
SDP28	CONDUIT	97.86	0	00:12	16.64	0.44	1.00
SDP3	CONDUIT	33.06	0	01:12	6.73	3.03	1.00
SDP4	CONDUIT	33.06	0	01:12	6.73	2.45	1.00
SDP5	CONDUIT	33.17	0	00:55	6.76	2.15	1.00
SDP6	CONDUIT	33.76	0	00:55	6.88	5.16	1.00
SDP7	CONDUIT	35.49	0	00:53	7.23	1.44	1.00
SDP8	CONDUIT	38.76	0	00:52	8.18	1.79	1.00
SDP9	CONDUIT	43.66	0	00:52	7.82	0.20	1.00
W.Garfield_A	CHANNEL	4.12	0	00:27	0.39	0.10	0.92
W.Garfield_B	CHANNEL	0.00	0	00:00	0.00	0.00	0.42
W.Garfield_Junct	CHANNEL	2.90	0	00:35	0.35	0.02	0.75
William_1A	CHANNEL	11.29	0	00:27	1.57	0.22	0.67
William_1B	CHANNEL	0.00	0	00:00	0.00	0.00	0.40
William_Pacific	CHANNEL	0.00	0	00:00	0.00	0.00	0.26
PUMP_CT-3500-135_02	PUMP	80.00	0	00:10		1.00	
EmergencySpillway	WEIR	118.36	0	01:15			1.00

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Flow Classification Summary

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Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Avg. Froude Number	Avg. Flow Change
Commercial_Sag	1.00	0.97	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.0000
E.Cromwell	1.00	0.99	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
Link-13	1.00	0.00	0.00	0.00	0.25	0.00	0.00	0.75	0.01	0.0003
Link-14	1.00	0.03	0.46	0.00	0.48	0.02	0.00	0.00	0.05	0.0000
Link-16	1.00	0.00	0.85	0.00	0.11	0.03	0.00	0.00	0.11	0.0003
Link-17	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.53	0.0002
N.Commercial	1.00	0.99	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
N.William	1.00	0.96	0.00	0.00	0.01	0.00	0.00	0.03	0.01	0.0000
Pacific	1.00	0.97	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
Pacific_William	1.00	0.75	0.01	0.00	0.01	0.00	0.00	0.23	0.27	0.0000
S.Commercial_A	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
S.Commercial_B	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
S.William	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
SDP1	1.00	0.00	0.00	0.00	0.97	0.00	0.00	0.03	0.02	0.0003
SDP10	1.00	0.00	0.00	0.00	0.04	0.01	0.00	0.95	1.22	0.0001
SDP11	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.22	0.0003
SDP12	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.38	0.0001
SDP13	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.31	0.0001
SDP14	1.00	0.00	0.00	0.00	0.14	0.00	0.00	0.86	0.21	0.0001
SDP15	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.68	0.0001
SDP16	1.00	0.00	0.00	0.00	0.03	0.00	0.97	0.00	0.24	0.0001
SDP17	1.00	0.00	0.00	0.00	0.72	0.02	0.00	0.26	0.53	0.0000
SDP19	1.00	0.01	0.96	0.00	0.02	0.00	0.02	0.00	0.01	0.0003
SDP2	1.00	0.00	0.00	0.00	0.98	0.00	0.02	0.00	0.02	0.0003
SDP20	1.00	0.00	0.00	0.00	0.97	0.03	0.00	0.00	0.05	0.0002
SDP21	1.00	0.00	0.90	0.00	0.10	0.00	0.00	0.00	0.02	0.0001
SDP22	1.00	0.98	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.0002
SDP24	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.09	0.0007
SDP25	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.95	0.08	0.0002
SDP26	1.00	0.02	0.00	0.00	0.02	0.00	0.00	0.96	0.02	0.0002
SDP27	1.00	0.03	0.00	0.00	0.03	0.00	0.00	0.95	0.02	0.0001
SDP28	1.00	0.00	0.00	0.00	0.04	0.00	0.00	0.96	2.43	0.0001
SDP3	1.00	0.00	0.00	0.00	0.96	0.00	0.00	0.04	0.03	0.0003
SDP4	1.00	0.00	0.00	0.00	0.96	0.00	0.00	0.04	0.04	0.0003
SDP5	1.00	0.00	0.00	0.00	0.96	0.00	0.00	0.04	0.03	0.0002
SDP6	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.0005
SDP7	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.0002
SDP8	1.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.58	0.0002
SDP9	1.00	0.00	0.00	0.00	0.03	0.00	0.96	0.00	1.01	0.0001
W.Garfield_A	1.00	0.99	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.0000
W.Garfield_B	1.00	0.99	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
W.Garfield_Junct	1.00	0.99	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.0000
William_1A	1.00	0.99	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.0000
William_1B	1.00	0.99	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
William_Pacific	1.00	0.76	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.0000

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Conduit Surcharge Summary
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Conduit	Hours Full: Both Ends	Upstream	Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
Link-13	1.45	1.45	1.45	0.28	0.51
Link-14	5.11	5.11	5.11	0.01	0.01
Link-17	1.00	1.00	1.00	0.38	0.14
SDP1	17.96	17.96	17.96	17.89	17.68
SDP10	0.58	0.58	0.58	0.01	0.01
SDP11	0.64	0.64	0.64	0.16	0.14
SDP12	0.56	0.56	0.56	0.31	0.24
SDP13	0.56	0.56	0.56	0.15	0.18

SDP14	0.55	0.55	0.55	0.70	0.55
SDP15	0.50	0.50	0.50	0.76	0.50
SDP16	0.45	0.45	0.45	0.01	0.01
SDP17	0.50	0.50	0.50	0.01	0.01
SDP19	0.34	0.34	0.34	0.39	0.17
SDP2	17.95	17.95	17.95	17.76	0.01
SDP20	0.01	0.01	0.01	0.37	0.01
SDP21	0.20	0.20	0.20	0.05	0.13
SDP22	0.01	0.01	0.01	0.34	0.01
SDP24	0.44	0.44	0.44	0.26	0.12
SDP25	0.46	0.46	0.46	0.01	0.01
SDP26	0.39	0.39	0.39	0.01	0.01
SDP27	0.31	0.31	0.32	0.01	0.01
SDP28	0.62	0.62	0.62	0.01	0.01
SDP3	17.89	17.89	17.90	17.92	17.60
SDP4	17.95	17.95	17.95	17.95	17.77
SDP5	18.02	18.02	18.02	17.89	17.89
SDP6	17.79	17.79	17.79	18.41	17.79
SDP7	17.95	17.95	17.95	12.93	13.09
SDP8	0.64	0.64	0.64	15.38	0.01
SDP9	0.51	0.51	0.51	0.01	0.01

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Pumping Summary
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Pump	Percent Utilized	Number of Start-Ups	Min Flow CFS	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal	Power Usage Kw-hr	% Time Off Pump Curve Low	% Time Off Pump Curve High
PUMP_CT-3500-135_02	99.82	1	0.00	30.94	80.00	15.872	1182.59	0.0	100.0

Analysis begun on: Tue Dec 13 10:33:44 2016
Analysis ended on: Tue Dec 13 10:33:46 2016
Total elapsed time: 00:00:02