



SEWER ANALYSIS REPORT

THE BOWERY

2300 & 2320 RED HILL AVENUE
SANTA ANA, CALIFORNIA

PREPARED FOR

Vineyards Development Corporation
240 Newport Center Drive, Suite 200
Newport Beach, California 92660
310.571.8227

FUSCOE ENGINEERING, INC.

16795 Von Karman, Suite 100
Irvine, California 92606
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PROJECT MANAGER

Joshua Ruiz, PE

DATE PREPARED: October 2019

PROJECT NUMBER: 1154.003.01

full circle thinking®



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THE BOWERY
SANTA ANA, CALIFORNIA / October 2019



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2300 & 2320 Red Hill Avenue

Santa Ana, CA

PREPARED FOR

VINEYARDS DEVELOPMENT CORPORATION
240 NEWPORT CENTER DRIVE, SUITE 200
NEWPORT BEACH, CA 92660
310.571.8227

PREPARED BY

FUSCOE ENGINEERING, INC.
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1st SUBMITTAL: OCTOBER 2019

Table of Contents

Section	Page
1.0 INTRODUCTION	1
1.1 Purpose of the Study.....	1
1.2 Existing Site Description	1
1.3 Project Description	1
1.4 Existing Sewer Facilities.....	3
1.5 Sewer Flow Monitoring.....	3
1.6 Proposed Sewer Facilities.....	3
2.0 METHODOLOGY & RESULTS.....	4
2.1 Existing Sewer Line Capacity	4
2.2 Existing Condition Flows	4
2.3 Proposed Condition Flows.....	5
3.0 CONCLUSIONS	7
3.1 Existing COSA Sewer Facilities in Warner Avenue	7
3.2 Recommendations for Capacity Expansion	7
4.0 APPENDICES	8
Appendix 1 – Site Plan & Location Map	
Appendix 2 – Sewer Atlas Maps	
Appendix 3 – Sewer As-Built Plans	
Appendix 4 – Kutter Flow Depth Calculations - Existing Condition	
Appendix 5 – Kutter Flow Depth Calculations - Proposed Condition	
Appendix 6 – Utility Systems Science & Software – Sewer Monitoring Data	
Appendix 7 – City of Santa Ana Design Criteria	

1.0 INTRODUCTION

1.1 Purpose of the Study

The purpose of this analysis is to calculate and compare the sanitary sewer (wastewater) flows for pre and post development of the proposed Bowery project located at 2300 & 2320 Red Hill Avenue in the City of Santa Ana, California. The calculations have been provided in cubic-feet per second (cfs) and include the monitored current flows (pre-development) along with the theoretical proposed flows (post-development), as requested by the City of Santa Ana (COSA) Public Works Agency (PWA).

1.2 Existing Site Description

The Bowery project site is located at 2300 & 2320 Red Hill Avenue and encompasses a total area of 14.69 acres. Under existing conditions, the project site is about 75% developed with one office building, two warehouse buildings, paved parking lots, and landscaping. Adjacent land uses include industrial, commercial and office park. The existing buildings and paved parking areas currently on the project site will be demolished.

The project site is bounded by Warner Avenue on the northeasterly edge and Red Hill Avenue on the southeasterly edge. The southwesterly edge is mid-block between Warner Avenue and Carnegie Avenue, and the northwestern edge is mid-block between Red Hill Avenue and existing railroad tracks. A vicinity map is provided in Figure 1 of this report.

1.3 Project Description

The project proposes the development of four buildings on one lot. Buildings A-D consist of five-story structures each with six-story parking garages. A total of 1,150 dwelling units are proposed which consist of a mix of studios, one-bedrooms and two-bedroom units. In addition to residential uses, approximately 80,000 square-feet (sf) of retail is also proposed as part of the Project.

A Site Plan is provided in Appendix 1 of this report.



Figure 1 – Vicinity Map

1.4 Existing Sewer Facilities

Wastewater from the project site currently discharges into existing COSA-owned 8" VCP sewer lines within Warner Avenue. The existing sewer lines drain southeasterly to an existing COSA-owned manhole (SMH: O13-004) located at the intersection with Red Hill Avenue. Based on As-Built plans, flows discharging from this manhole are conveyed southeasterly through an existing 6" double siphon and ultimately drain into an existing OCSD-owned 42" RCP trunk sewer line (SMH: O13-007) within Red Hill Avenue which then drains southwesterly.

It should be noted that per As-Built plans, as well as field investigation, there is no evidence that the potential COSA-owned manhole (SMH: O13-003) exists.

1.5 Sewer Flow Monitoring

In order to determine whether the existing COSA-owned sewer facilities can adequately handle the additional wastewater flows associated with the proposed development, it was required that flow monitoring be performed in order to establish currently existing wastewater flows. The COSA PWA directed the location of said monitoring along with requiring existing flow data to be collected at 30-minute intervals for a period of two weeks. Below is the designation of the existing sewer facility that has been monitored:

- Site 1: Intersection of Warner Avenue and Red Hill Avenue (SMH: O13-004)

The monitored flow at Site 1 includes all flows discharging through the 8" VCP sewer lines within Warner Avenue. Thus, the monitored location reflects flows through all sewer lines that would serve the project.

The Location Map, included in Appendix 1 of this report, shows the COSA's requested existing sewer manhole flow monitoring location, and proximity to the proposed project site.

1.6 Proposed Sewer Facilities

Wastewater flows from the proposed project site will discharge in the existing COSA-owned 8" VCP sewer lines within Warner Avenue. Approximately half the project site will discharge directly into the existing COSA-owned manhole (SMH: O13-004) located at the intersection with Red Hill Avenue. The approximate other half of the project site will discharge into a proposed manhole within Warner Avenue and will drain southeasterly through the existing 8" VCP sewer lines, flowing through an existing COSA-owned manhole (SMH: O13-002) located in Warner Avenue, and ultimately conveying this portion of the proposed project wastewater flows to the existing manhole (SMH: O13-004) located at the intersection with Red Hill Avenue.

2.0 METHODOLOGY & RESULTS

2.1 Existing Sewer Line Capacity

Typically, a combination of Sewer Atlas mapping and As-Built plans are utilized to determine the existing sewer line piping diameter, slope and length. Sewer As-Built plans provided by the COSA PWA have been marked up to indicate the flow monitoring location, as well as existing COSA-owned manholes. Per As-Built plan data pipe diameter and slope information was obtained for the existing COSA-owned 8" VCP sewer lines within Warner Avenue. It was determined that the existing sewer line which drains southeasterly and discharges into existing manhole SMH: O13-002 is an 8-in diameter pipe at 0.8% slope and the existing sewer line which drains southeasterly and discharges into existing manhole SMH: O13-004 is an 8-in diameter pipe at 0.4% slope.

Sewer Atlas mapping (O-13 & P-13) provided by the COSA PWA has been marked up to indicate the flow monitoring location, COSA-owned sewer line diameters and slopes, as well as the proposed project site location. The marked-up Sewer Atlas mapping and As-Built plans are included in Appendix 2 of this report.

Capacity of the existing sewer line at the flow monitoring location was determined using the following methodology. As per the COSA Design Guidelines for Water and Sewer Facilities, last revised March 2017, (Design Guidelines) Section 300.3 Minimum and Maximum Slope Design, a Manning's formula "n" value of 0.013 was used in computing all existing (monitored) and proposed (theoretical) sewer flow depths. In addition, the Design Guidelines, Section 300.4.3, Design Criteria, specifies that 12" diameter pipelines and smaller are limited to flowing at half of full depth which is the governing criteria for this report in assessing adequate capacity of the existing COSA-owned sewer facilities.

Using the Kutter Flow Depth calculations, included in Appendix 4 of this report, it was determined that the capacity of the existing sewer lines in Warner Avenue are as follows:

- Site 1 SMH (O13-002 to O13-004): 8" VCP @ Slope = 0.40%; Capacity = 0.35 cfs
- SMH (O13-001 to O13-002): 8" VCP @ Slope = 0.80%; Capacity = 0.50 cfs

The next step was to determine the existing condition (monitored) wastewater flows, followed by the proposed condition (theoretical) wastewater flows, and then analyze the adequacy of the existing COSA-owned sewer facilities downstream of the project site. As part of the analysis, average daily and peak daily flows were each assessed in order to understand capacity under varying flow regimes.

2.2 Existing Condition Flows

Existing condition (monitored) wastewater flows were determined as follows. Flow monitoring was conducted on the existing COSA-owned 8" VCP sewer line within Warner Avenue (northwest of Red Hill Avenue). Monitoring was performed between April 30, 2019 and May 15, 2019 by Utility Systems Science and Software (US3). Sewer manhole flow monitoring was conducted for a period of two weeks with a 15-minute interval sampling frequency.

Upon review of the flow monitoring data, it was noticed that two consecutive days (the second and third day of the monitoring period) were recorded as have exceedingly high wastewater flow rates. In speaking with US3 these rates have been deemed to be outliers, most likely due to a partial blockage of the flow channel which then cleared itself during this time period. Thus, this segment of the flow monitoring data has been omitted from the analysis for this sewer study. The flow monitoring data is included in Appendix 6 of this report.

The following is a summary of the existing condition maximum average daily and peak daily wastewater flows observed during the monitoring period and utilized in the analysis:

Existing Condition Flows (8" VCP Sewer):

- Site 1: Average Flow = 0.0141 cfs; Peak Flow = 0.0367 cfs

The existing condition flow depths for average and peak wastewater flows were calculated using the Kutter Flow Depth procedure, included in Appendix 4 of this report, and the following is a summary of the results:

Existing Condition Flow Depths (8" VCP Sewer):

- Site 1: Average Flow Depth = 0.87"; Peak Flow Depth = 1.33"

2.3 Proposed Condition Flows

Proposed condition (theoretical) wastewater flows were determined as follows. Design flow rates were projected by utilizing the COSA Design Guidelines, Section 300.4.1 Sewerage Flows, to determine theoretical proposed average daily sewerage generation rates. Specifically, sewage flow coefficients were utilized in calculating the proposed flow and the specific COSA Flow Design Criteria is included in Appendix 7 of this report for reference.

Based on the proposed project development consisting of four buildings with a total of 1,150 residential units situated on 14.69 acres, a land use classification of Urban Center Residential (90 du/acre max) with an average sewage flow coefficient of 0.0270 cfs/acre was selected for the proposed project. Using the project site area of 14.69 acres, the theoretical proposed average daily flow to be generated would be 0.3966 cfs. As per the Design Guidelines, Section 300.4.2 Peak Flows, it is assumed that peak daily flow is three times the average daily flow therefore the theoretical proposed peak daily flows to be generated would be 1.1898 cfs.

Since the proposed project site is currently developed and occupied for industrial purposes, a credit has been incorporated which is deducted from the theoretical proposed average and peak daily flows anticipated to be observed at the Site 1 manhole. Again, using COSA Design Guidelines, Section 300.4.1 Sewerage Flows, an existing land use classification of Industrial with an average sewage flow coefficient of 0.0060 cfs/acre was selected. Using the project site area of 14.69 acres, the theoretical proposed average daily flow credit would be 0.0881 cfs and per the Design Guidelines, Section 300.4.2 Peak Flows, the theoretical proposed peak daily flow credit would be 0.2643 cfs.

It is important to note that while these are the theoretical peak wastewater flows expected to be generated by the proposed project, these values are extremely conservative from a capacity analysis standpoint in comparison to the actual peak daily wastewater flows observed during the monitoring period.

The following is a summary of the proposed condition total (monitored existing plus theoretical proposed with credit) average daily and peak daily wastewater flows anticipated to be observed and utilized in the analysis:

Proposed Condition Flows (8" VCP Sewer):

- Site 1: Average Flow = $(0.0141 + 0.3966 - 0.0881) = 0.3226$ cfs
Peak Flow = $(0.0367 + 1.1898 - 0.2643) = 0.9622$ cfs

The proposed condition flow depths for average and peak wastewater flows were calculated using the Kutter Flow Depth procedure, included in Appendix 5 of this report, and the following is a summary of the results:

Proposed Condition Flow Depths (8" VCP Sewer):

- Site 1 (8" VCP Sewer): Average Flow Depth = 3.38"; Peak Flow Depth = >8.00"

Upon performing the flow depth analysis, it was determined that the existing 8" VCP sewer line within Warner Avenue, draining between existing manhole SMH: O13-002 and SMH: O13-004, would not adequately handle the proposed condition peak daily wastewater flow of 0.9622 cfs. Further flow depth analysis also revealed that the existing 8" VCP sewer line within Warner Avenue, draining between existing manhole SMH: O13-001 and SMH: O13-002, would not adequately handle the proposed condition peak daily wastewater flow of 0.9622 cfs.

In determining potential mitigation options, addition proposed condition wastewater flow scenarios were analyzed for adequate flow depths. As part of planning the proposed private-owned sewer lines to service the project site, it was established that approximately fifty percent of the proposed project site will discharge directly into the existing COSA-owned manhole (SMH: O13-004) located at the intersection of Warner Avenue and Red Hill Avenue. Knowing this, a split flow proposed condition flow depth analysis was performed. The following is a summary of the wastewater flows and flow depths anticipated to be observed.

Proposed Condition Split Flows (8" VCP Sewer):

- Site 1: Average Flow = $0.3226 * 0.5 = 0.1613$ cfs
Peak Flow = $0.9622 * 0.5 = 0.4811$ cfs

Proposed Condition Flow Depths (8" VCP Sewer):

- Site 1 (8" VCP Sewer): Average Flow Depth = 2.67"; Peak Flow Depth = 4.84"
- SMH: O13-002 (8" VCP Sewer): Average Flow Depth = 2.25"; Peak Flow Depth = 3.94"

3.0 CONCLUSIONS

3.1 Existing COSA Sewer Facilities in Warner Avenue

Based on the results of the sewer flow monitoring, along with the theoretical proposed average and peak sewerage generation rates, the study shows that the existing COSA-owned 8" VCP sewer line within Warner Avenue, draining between existing manhole SMH: O13-002 and SMH: O13-004 would be over capacity for the proposed split flow peak condition. The proposed peak split flow depth within this portion of the existing COSA-owned sewer facilities would be 61% full which is greater than the maximum (d/D) of 50% for sewer lines of 12" diameter pipelines and smaller.

The table below shows the existing condition capacity data of the existing 8" VCP sewer line within Warner Avenue which drains from existing manhole SMH: O13-002 to SMH: O13-004.

EXISTING CONDITION - SEWER CAPACITY SUMMARY

SEWER MONITORING LOCATION	SEGMENT		PIPE		CAPACITY		EXIST. AVERAGE		EXIST. PEAK		CAPACITY % FULL	
	FROM MH#	TO MH#	SIZE (in)	SLOPE (ft/ft)	1/2 FULL [<12"] (cfs)	3/4 FULL [>12"] (cfs)	DAILY FLOW (cfs)	FLOW DEPTH (in)	DAILY FLOW (cfs)	FLOW DEPTH (in)	AVERAGE DAILY FLOW	PEAK DAILY FLOW
Site 1 SMH	O13-002	O13-004	8	0.0040	0.35	0.65	0.0141	0.87	0.0367	1.33	4.04	10.50

The table below shows the proposed condition capacity data of the existing 8" VCP sewer line within Warner Avenue which drains from existing manhole SMH: O13-003 to SMH: O13-004.

PROPOSED CONDITION - SEWER CAPACITY SUMMARY

SEWER MONITORING LOCATION	SEGMENT		PIPE		CAPACITY		PROP. AVERAGE		PROP. PEAK		CAPACITY % FULL	
	FROM MH#	TO MH#	SIZE (in)	SLOPE (ft/ft)	1/2 FULL [<12"] (cfs)	3/4 FULL [>12"] (cfs)	DAILY FLOW (cfs)	FLOW DEPTH (in)	DAILY FLOW (cfs)	FLOW DEPTH (in)	AVERAGE DAILY FLOW	PEAK DAILY FLOW
Site 1 SMH	O13-002	O13-004	8	0.0040	0.35	0.65	0.3226	3.83	0.9622	8.00	92.41	275.62

The table below shows the proposed condition split flow capacity data of the existing 8" VCP sewer lines within Warner Avenue which drain from existing manhole SMH: O13-002 to SMH: O13-004 and from existing manhole SMH: O13-001 to SMH: O13-002.

PROPOSED CONDITION SPLIT FLOW - SEWER CAPACITY SUMMARY

SEWER MONITORING LOCATION	SEGMENT		PIPE		CAPACITY		PROP. AVERAGE		PROP. PEAK		CAPACITY % FULL	
	FROM MH#	TO MH#	SIZE (in)	SLOPE (ft/ft)	1/2 FULL [<12"] (cfs)	3/4 FULL [>12"] (cfs)	DAILY FLOW (cfs)	FLOW DEPTH (in)	DAILY FLOW (cfs)	FLOW DEPTH (in)	AVERAGE DAILY FLOW	PEAK DAILY FLOW
Site 1 SMH	O13-002	O13-004	8	0.0040	0.35	0.65	0.1613	2.67	0.4811	4.84	46.20	137.81
SMH: O13-002	O13-001	O13-002	8	0.0080	0.50	0.92	0.1613	2.25	0.4811	3.94	32.58	97.17

3.2 Recommendations for Capacity Expansion

Per the above findings a potential for inadequate capacity, based on proposed peak flow condition, has been identified within the existing COSA-owned sewer facilities. It is therefore recommended that the existing COSA-owned 8" VCP sewer line within Warner Avenue, draining between existing manhole SMH: O13-002 and SMH: O13-004, be upsized to a 10" VCP sewer line for a length of 367'. The proposed 10" VCP sewer line would have a half full capacity of 0.65 cfs which would provide adequate capacity for the proposed split flow peak condition wastewater flow.

4.0 APPENDICES

Appendix 1 – Site Plan & Location Map

Appendix 2 – Sewer Atlas Maps

Appendix 3 – Sewer As-Built Plans

Appendix 4 – Kutter Flow Depth Calculations - Existing Condition

Appendix 5 – Kutter Flow Depth Calculations - Proposed Condition

Appendix 6 – Utility Systems Science & Software - Sewer Monitoring Data

Appendix 7 – City of Santa Ana Design Criteria

Appendix 1

Site Plan & Location Map



F:\PROJECTS\154\003\PLANS\ENTITLEMENTS\SCHEMATIC PLANS\1154-003E13.001.DWG (09-30-19 7:04:43PM) Plotted by Greg Atford

THE BOWERY SANTA ANA, CA.

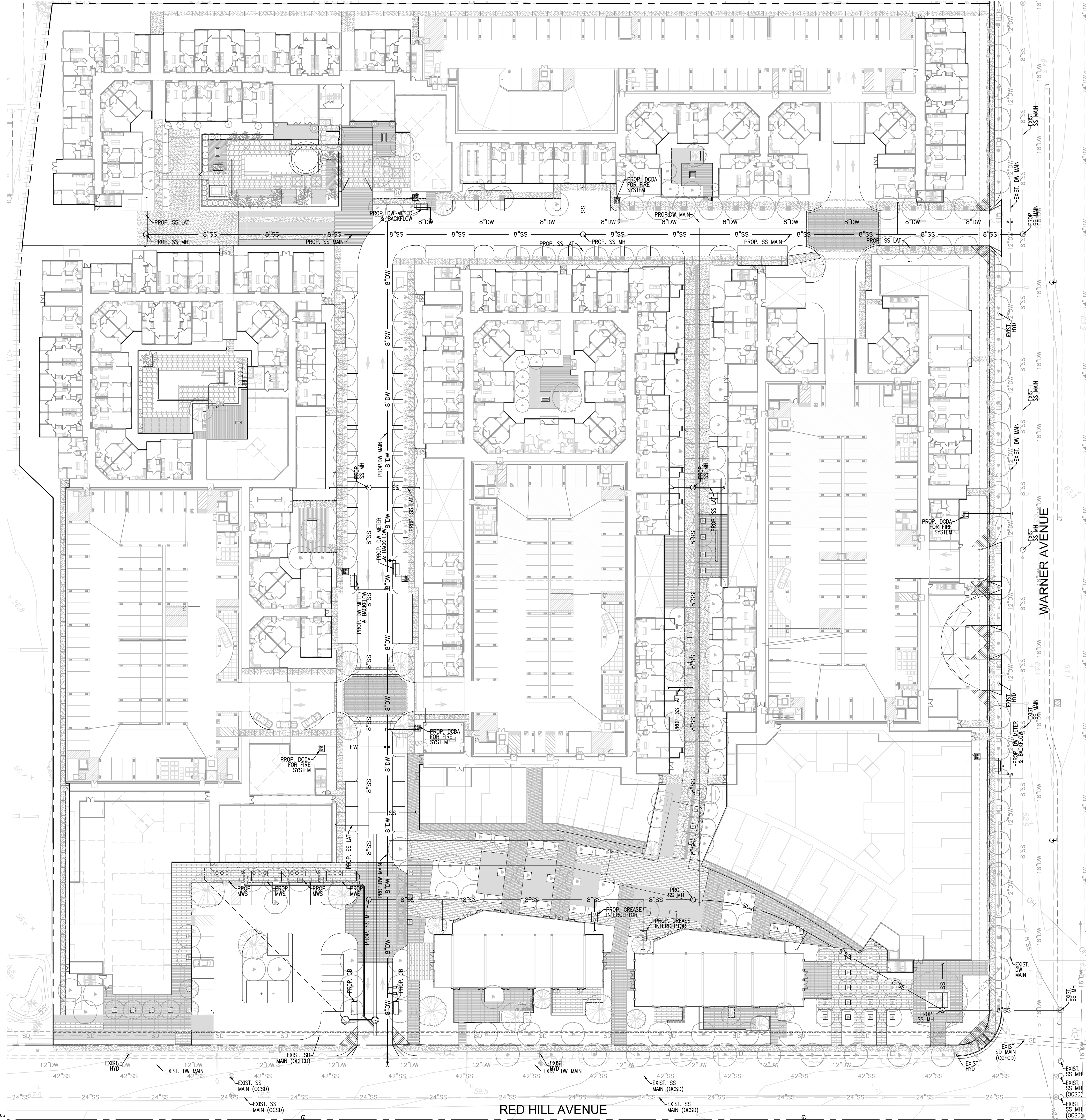
VDC
240 NEWPORT CENTER DRIVE, SUITE 200 NEWPORT BEACH, CA. 92660
(310) 571-8227

RED HILL AVENUE

ARCHITECTS ORANGE
144 NORTH ORANGE ST., ORANGE, CA 92666
(714) 639-9860

SITE PLAN -
UTILITY
C-3.0

DATE: 09.30.19



NOTES

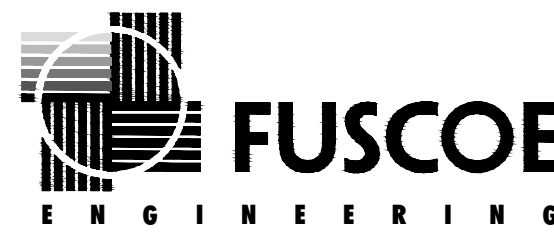
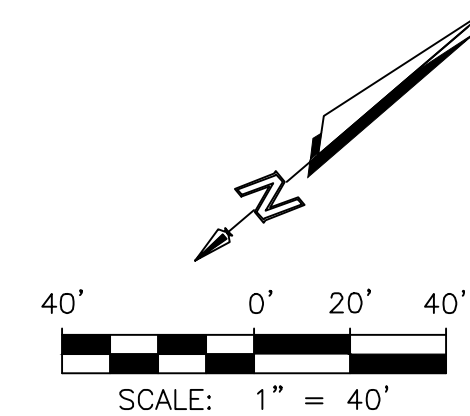
1. ALL NEW FOOD SERVICE ESTABLISHMENTS SHALL COMPLY WITH CITY ORDINANCE NS-26-70 FOR FAT, OIL AND GREASE (FOG) CONTROL PROGRAM.
2. THE BMP'S SHOWN ON THE APPROVED SITE PLAN ARE ONLY PRELIMINARY AND WILL BE REVISED OR MODIFIED AS NECESSARY UPON COMPLETION OF THE WOMP. PRIOR TO THE ISSUANCE OF THE GRADING PERMIT, THE APPROVED GRADING/UTILITY PLAN SHALL INCORPORATE ALL REQUIRED STRUCTURAL BMP'S.
3. DEMAND CALCULATIONS FOR SIZE DETERMINATION OF DOMESTIC, IRRIGATION AND FIRE SERVICE WATER METERS TO BE CONFIRMED IN FINAL DESIGN.
4. SEPARATE LANDSCAPE IRRIGATION WATER SERVICE/METER SHALL BE USED TO IRRIGATE ALL NON-RESIDENTIAL IRRIGATED LANDSCAPES OF 1,000 SQ. FT. AND RESIDENTIAL IRRIGATED LANDSCAPES OF 5,000 SQ. FT. OR GREATER. LANDSCAPE IRRIGATION WATER METER OF PROPER SIZE SHALL BE DESIGNED TO SUPPLY THE PROJECT'S LANDSCAPE IRRIGATION SYSTEM. IRRIGATION SYSTEM SHALL UTILIZE WEATHER BASED IRRIGATION CONTROLLERS "SMART TIMERS" AND ROTATING NOZZLES FOR POP-UP SPRAY HEADS.
5. ABANDONMENT OF ALL SEWER LATERAL CONNECTIONS FROM THE PROJECT SITE SHALL BE REMOVED TO THE SEWER MAIN.
6. ALL UTILITY PIPE SIZES TO BE CONFIRMED IN FINAL DESIGN.

ABBREVIATIONS

AD	AREA DRAIN	LAT	LATERAL
CB	CATCH BASIN	MH	MANHOLE
DCDA	DOUBLE CHECK DETECTOR ASSEMBLY	MWS	MODULAR WETLAND SYSTEM
DW	DOMESTIC WATER	OHW	OVERHEAD WIRE
EXIST.	EXISTING	PROP.	PROPOSED
FW	FIRE WATER	SD	STORM DRAIN
HYD	FIRE HYDRANT	SS	SANITARY SEWER
IRR	IRRIGATION	WM	WATER METER

LEGEND

---	EXISTING SEWER LINE
---	EXISTING DOMESTIC WATER LINE
---	EXISTING STORM DRAIN LINE
---	EXISTING GAS LINE
---	EXISTING OVERHEAD WIRE
---	PROPOSED SEWER LINE
---	PROPOSED DOMESTIC WATER LINE
---	PROPOSED FIRE WATER LINE
---	PROPOSED AREA DRAIN LINE

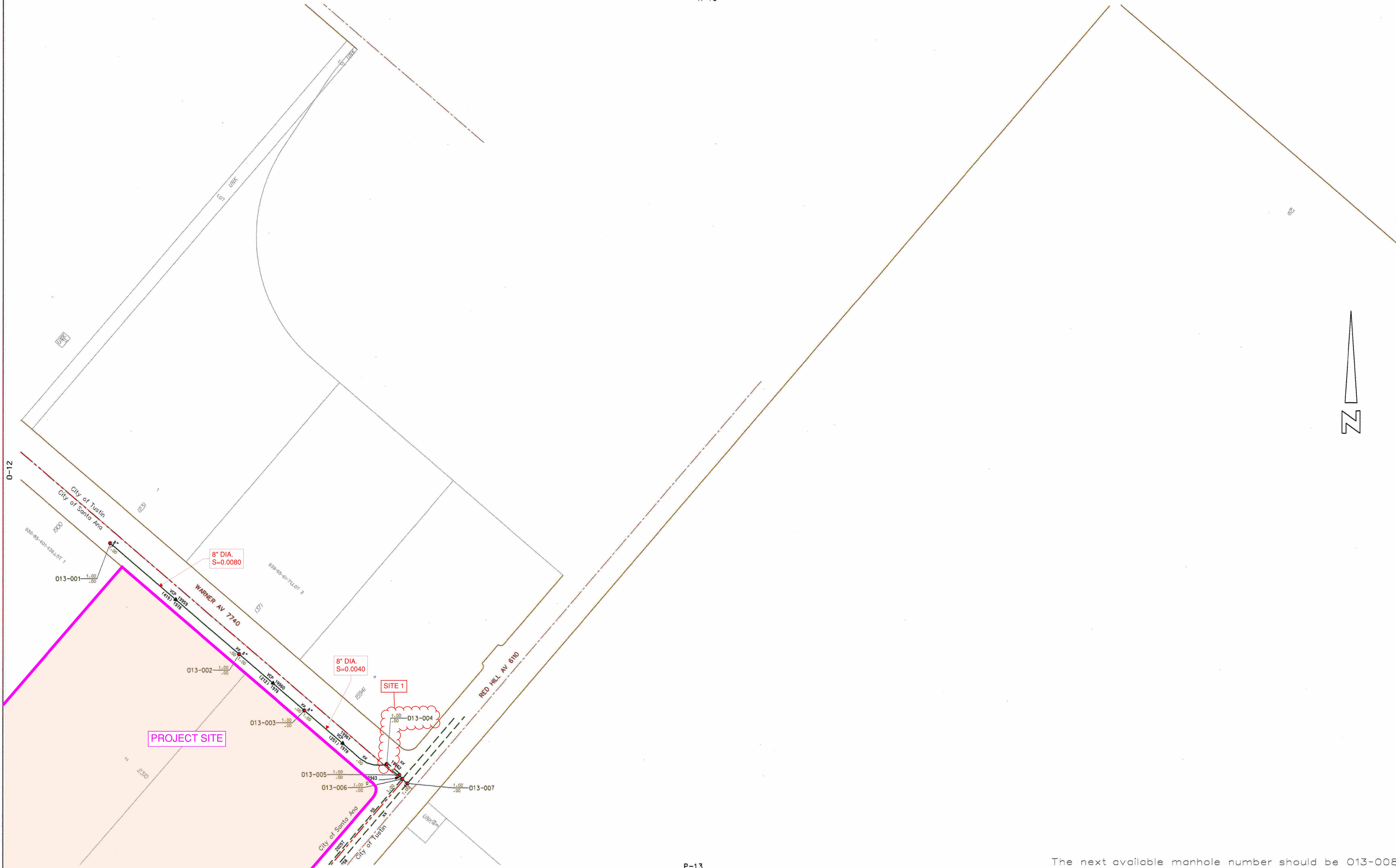


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Appendix 2

Sewer Atlas Maps



The next available manhole number should be 013-008

0-13

REVISIONS

DATE	INITIALS	DESCRIPTION	APPROVED
0/0/00	XXX	LATEST REVISION	

INTENDED USE

The utility information shown is intended to be used for general reference and availability of service and is not intended to accurately reflect conditions in the field. For additional information please contact the Water Resources Division at (714) 647-3320. For utility location prior to construction contact Underground Service Alert at (800) 422-4133.

LEGEND

Surveyed Manhole	●	Surveyed Rim	●	Unsurveyed Manhole	●
Mains designated as hot spots are shown in red					
Highlighted Mains Have NAVD88 Adjusted Elevations					
CCSD SEWER MAIN	---				
COOPERATIVE AGREEMENT SEWER MAIN	---				
OTHER AGENCY SEWER MAIN	---				
PRIVATELY MAINTAINED SEWER MAIN	---				

SCALE: 1" = 100'

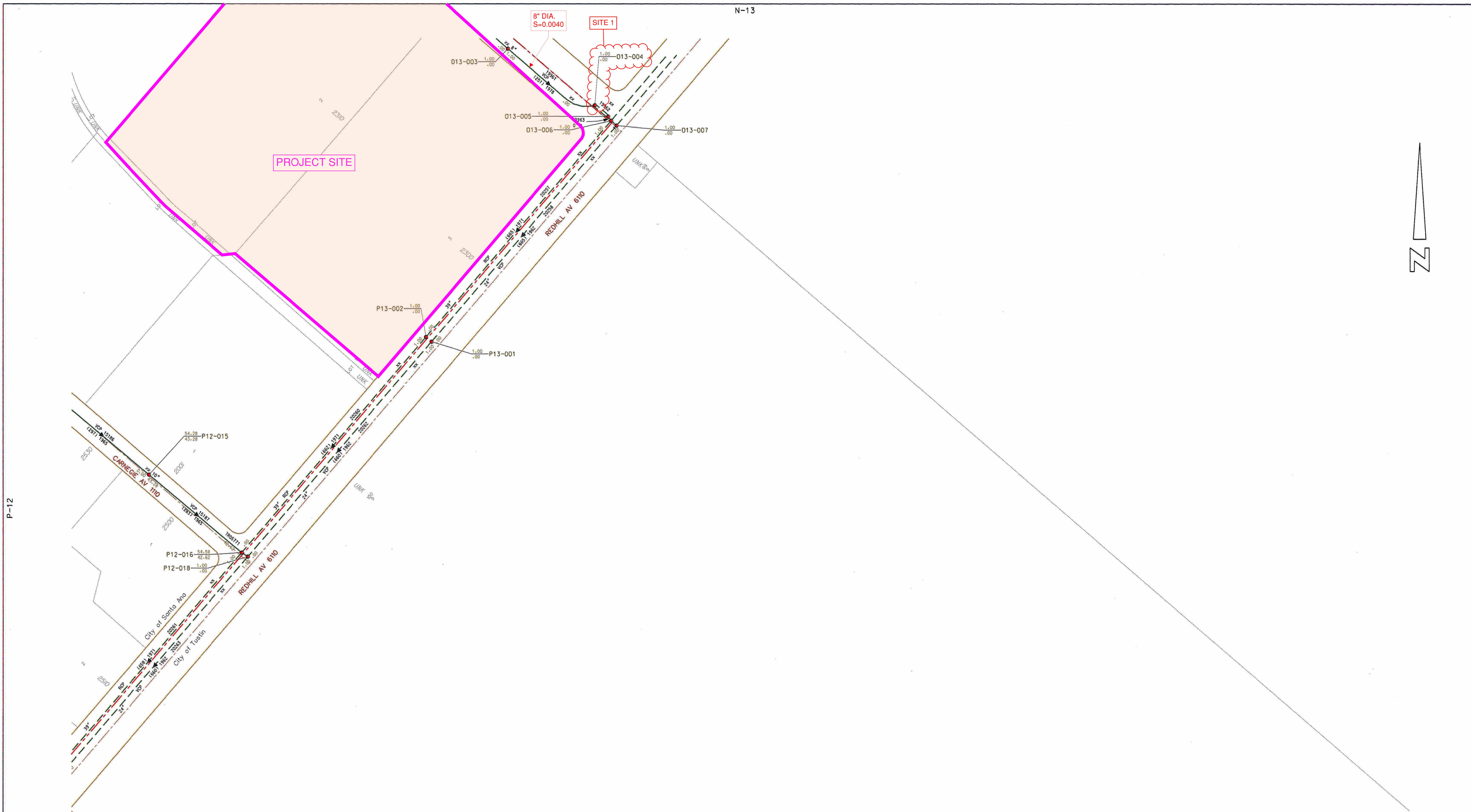
SEWER ATLAS

PUBLIC WORKS AGENCY

CITY OF SANTA ANA

0-13

SHEET NO.



The next available manhole number should be P13-003

P-13	REVISIONS			INTENDED USE	LEGEND	SCALE: 1" = 100'	SEWER ATLAS PUBLIC WORKS AGENCY CITY OF SANTA ANA SHEET NO.	P-13
	DATE	INITIALS	DESCRIPTIONS	APPROVED	Surveyed Manhole ● Surveyed Rim ● Unsurveyed Manhole ● Mains designated as hot spots are shown in red Highlighted Mains Have NAVD88 Adjusted Elevations ----- OCSD SEWER MAIN ----- COOPERATIVE AGREEMENT SEWER MAIN ----- OTHER AGENCY SEWER MAIN ----- PRIVATELY MAINTAINED SEWER MAIN -----			
	0/0/00	XXX	LAT66F REVISION					
The utility information shown is intended to be used for general reference and availability of service and is not intended to accurately reflect conditions in the field. For additional information please contact the Water Resources Division at (714) 647-3320. For utility location prior to construction contact Underground Service Alert at (800) 422-4133.								

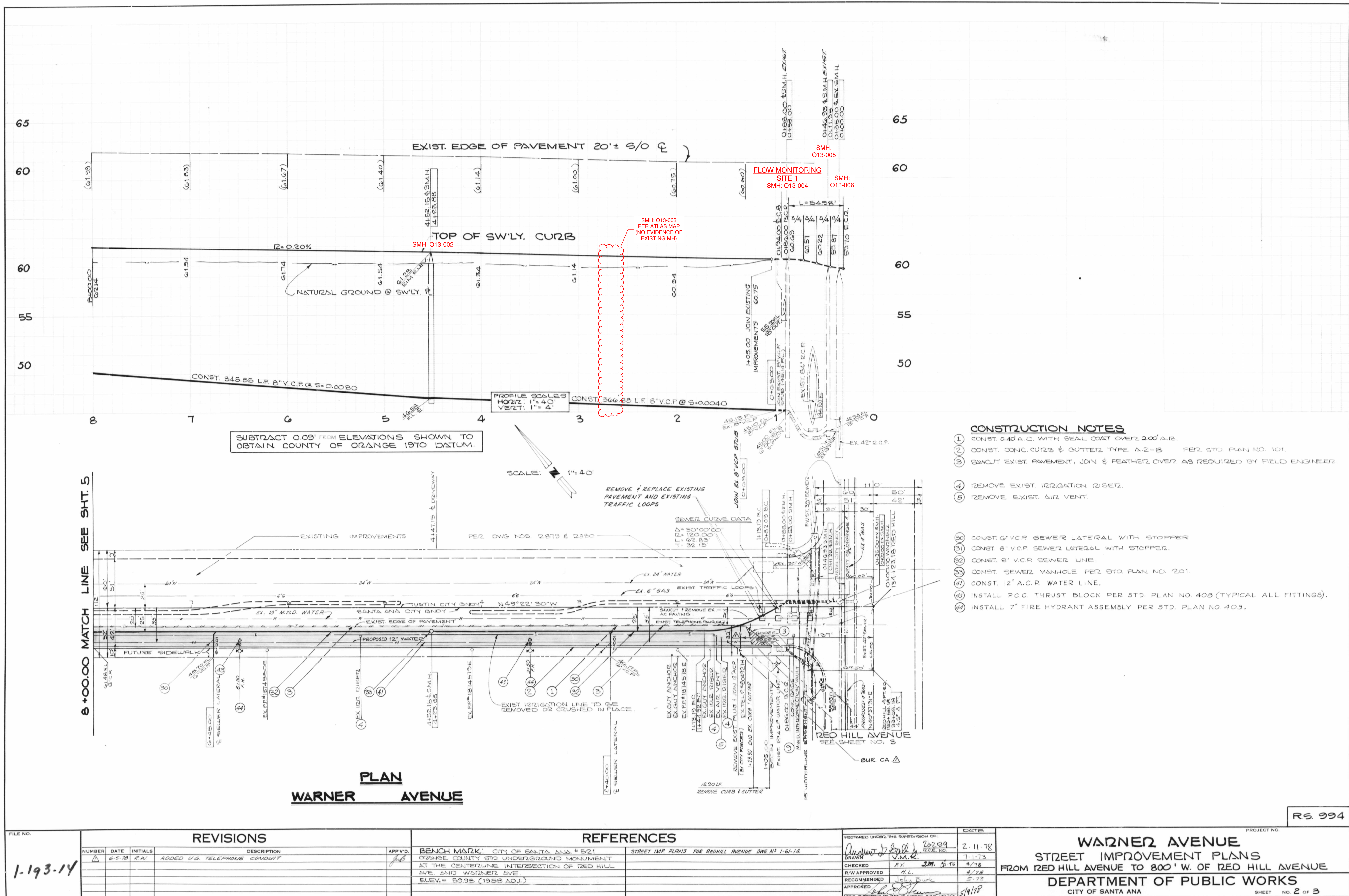
Appendix 3

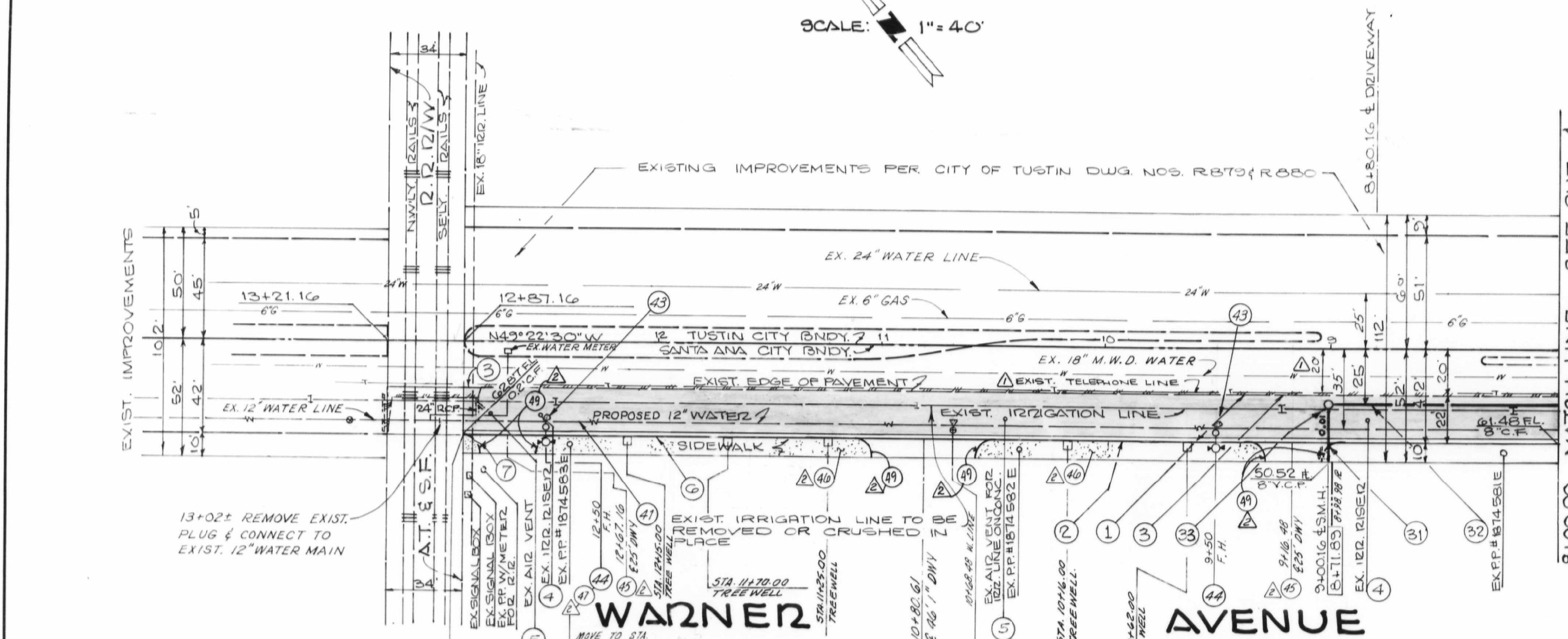
Sewer As-Built Plans

1-193-14

Rs: 994

2073






SCALE: 1" = 40'

Technical drawing of a quarter-circle ramp structure. The drawing includes the following dimensions and labels:

- 8" CURB FACE**: Dimension across the top horizontal edge.
- 12'**: Vertical dimension from the base to the top of the curb.
- R=10'**: Radius of the quarter-circle ramp.
- RIDGE LINE**: Label pointing to the top edge of the ramp.
- WHEELCHAIR ACCESS RAMP**: Label pointing to the ramp surface.
- 10'**: Horizontal dimension from the base to the center of the quarter-circle.
- 3'**: Vertical dimension from the base to the top of the ramp.
- 5'**: Vertical dimension from the base to the bottom of the ramp.
- 10'**: Horizontal dimension from the base to the center of the quarter-circle.
- DRIVE APPROACH**: Label on the right side of the drawing.
- A**: Callout letter for a detail view.

2 WHEELCHAIR ACCESS RAMP DETAILS
NO SCALE

ELEVATION-A

REVISION  BY:
V.T.N. CONSOLIDATED, INC.
2301 CAMPUS DR, IRVINE CA. 92713
D. Lynn Parker 8-24-79
D.L. PARKER R.C.E. N° 29570

CONSTRUCTION NOTES

- | | | | |
|---|--|----|--|
| 1 | CONST. 0.40' A.C. WITH SEAL COAT OVER 200' A.B. | 30 | CONST. 8" V.C.P. SEWER LINE. |
| 2 | CONST. CONC CURB & GUTTER TYPE A-2-B PER STD. PLAN NO. 101. | 31 | CONST. SEWER MANHOLE PER STD. PLAN NO. 201. |
| 3 | SAW CUT EXIST. PAVEMENT, JOIN & FEATHER OVER AS REQUIRED FOR FIELD RIGHNESS. | 41 | CONST. 12" A.C.P. WATER LINE. |
| 4 | REMOVE EXIST. IRRIGATION RISE. | 43 | INSTALL P.C.C. THRUST BLOCK PER STD. PLAN NO. 403 (TYPICAL ALL FITTINGS) |
| 5 | REMOVE EXIST. AIR VENT. | 44 | INSTALL 1" FIRE HYDRANT ASSEMBLY PER STD. PLAN NO. 403. |
| 6 | CONST. 2" TO 6" CURB & GUTTER TRANSITION. | 7 | REMOVE & PLUG ENDS OF ABANDONED IRRIGATION LINE. |

45 - CONST. CURB RETURN TYPE DWY APPROACH PER STD PLAN N° 112 B
 46 - CONST. 12" SIDEWALK 4" THICK WITH 3"x3" TREEWELL PER STD. 104. PLANT
 15 GAL. TREES-TYPE PER C.D.A. PARK DEPARTMENT.
 47 - RELOCATE EXISTING FIRE HYDRANT
 48 - CONST. 8" A.C.P. WATER LINE.
 49 - CONST. WHEELCHAIR ACCESS RAMP PER DETAIL ABOVE

[illegible]

PREPARED UNDER THE SUPERVISION OF:		DATE
<i>Andrew G. Galt</i>	20259 R.C.F.D.	2-11-78
DRAWN	F.M. <i>W</i>	7-1-78
CHECKED	<i>R.M. Ch. Ts</i>	4-17
R/W APPROVED	<i>H.L.</i>	4-18
RECOMMENDED	<i>John Burke</i>	5-78
APPROVED	<i>John G. Thomas</i>	5-12-78

PROJECT NO. _____

WARNER AVENUE

STREET IMPROVEMENT PLANS

FROM A.T. & S.F. 12.12/4 TO 800' W. OF 120 HILL AVENUE

DEPARTMENT OF PUBLIC WORKS

CITY OF SANTA ANA

REV. 2 *
PM-79-883
R.S. 994

Appendix 4

Kutter Flow Depth Calculations - Existing Conditions

SITE 1 (WARNER AVE. MH) - EXISTING AVERAGE FLOW

SMH: O13-002 to O13-004

GIVEN:

Q _{given} =	0.0141	cfs	<== Discharge
n=	0.013		<== Roughness coefficient
S=	0.0040		<== Slope V:H
r=	0.333	ft	<== Radius
d=	8.000	in	

TRIAL DEPTH:

h=	0.868	in	<== Vary this depth to get Q _{assume} = Q _{given}
	0.072	ft	

CACULATIONS:

beta=	38.46	degree
R=	0.046	ft
C=	50.827	
V=	0.688	ft/sec
A=	0.020	sq-ft
Q _{assume} =	0.0141	cfs

d_{0.5} =	0.333 ft	d_{0.75} =	0.500 ft
Q_{half} =	0.35 cfs	Q_{3/4full} =	0.65 cfs

RESULT:

(Q_{given}-Q_{assume}) / Q_{given} % = 0% <===== **OK**

Flow Depth (h) = 0.868 in

d_{capacity} = 0.333 ft

Capacity h_{flowdepth}/d_{capacity} = 21.70%

Q_{capacity} = 0.349 cfs

Capacity Q_{given}/Q_{capacity} = 4.04%

(Q_{half} =	0.35 cfs)
beta_{half} =	90.000 degree
R_{half} =	0.167 ft
C_{half} =	77.391 ft
A_{half} =	0.175 sq-ft
V_{half} =	2.000 ft/sec

(Q_{3/4full} =	0.65 cfs)
beta_{3/4full} =	120.00 degree
R_{3/4full} =	0.201 ft
C_{3/4full} =	81.546 ft
A_{3/4full} =	0.281 sq-ft
V_{3/4full} =	2.313 ft/sec

SITE 1 (WARNER AVE. MH) - EXISTING PEAK FLOW

SMH: O13-002 to O13-004

GIVEN:

Q_{given}= 0.0367 cfs <== Discharge
n= 0.013 <== Roughness coefficient
S= 0.0040 <== Slope V:H
r= 0.333 ft <== Radius
d= 8.000 in

TRIAL DEPTH:

h= 1.330 in <== Vary this depth to get Q_{assume} = Q_{given}
0.111 ft

CACULATIONS:

beta= 48.13 degree

R= 0.068 ft

C= 58.398

V= 0.963 ft/sec

A= 0.038 sq-ft

Q_{assume}= 0.0367 cfs

d_{0.5} = 0.333 ft d_{0.75} = 0.500 ft

Q_{half} = 0.35 cfs Q_{3/4full} = 0.65 cfs

RESULT:

(Q_{given}-Q_{assume}) / Q_{given} % = 0% <===== OK

Flow Depth (h) = 1.330 in

d_{capacity} = 0.333 ft

Capacity h_{flowdepth}/d_{capacity} = 33.25%

Q_{capacity} = 0.349 cfs

Capacity Q_{given}/Q_{capacity} = 10.51%

(Q_{half} = 0.35 cfs)
beta_{half} = 90.000 degree
R_{half} = 0.167 ft
C_{half} = 77.391 ft
A_{half} = 0.175 sq-ft
V_{half} = 2.000 ft/sec

(Q_{3/4full} = 0.65 cfs)
beta_{3/4full} = 120.00 degree
R_{3/4full} = 0.201 ft
C_{3/4full} = 81.546 ft
A_{3/4full} = 0.281 sq-ft
V_{3/4full} = 2.313 ft/sec

Appendix 5

Kutter Flow Depth Calculations - Proposed Condition

SITE 1 (WARNER AVE. MH) - PROPOSED AVERAGE FLOW

SMH: O13-002 to O13-004

GIVEN:

Q _{given} =	0.3226	cfs	<== Discharge
n=	0.013		<== Roughness coefficient
S=	0.0040		<== Slope V:H
r=	0.333	ft	<== Radius
d=	8.000	in	

TRIAL DEPTH:

h=	3.831	in	<== Vary this depth to get Q _{assume} = Q _{given}
	0.319	ft	

CACULATIONS:

beta=	87.58 degree
R=	0.162 ft
C=	76.726
V=	1.953 ft/sec
A=	0.165 sq-ft
Q _{assume} =	0.3226 cfs

d_{0.5} =	0.333 ft	d_{0.75} =	0.500 ft
Q_{half} =	0.35 cfs	Q_{3/4} =	0.65 cfs

RESULT:

(Q_{given}-Q_{assume}) / Q_{given} % = 0% <===== **OK**

Flow Depth (h) = 3.831 in

d_{capacity} = 0.333 ft

Capacity h_{flowdepth}/d_{capacity} = 95.78%

Q_{capacity} = 0.349 cfs

Capacity Q_{given}/Q_{capacity} = 92.41%

(Q_{half} =	0.35 cfs)
beta_{half} =	90.00 degree
R_{half} =	0.167 ft
C_{half} =	77.391 ft
A_{half} =	0.175 sq-ft
V_{half} =	2.000 ft/sec

(Q_{3/4} =	0.65 cfs)
beta_{3/4} =	120.00 degree
R_{3/4} =	0.201 ft
C_{3/4} =	81.546 ft
A_{3/4} =	0.281 sq-ft
V_{3/4} =	2.313 ft/sec

SITE 1 (WARNER AVE. MH) - PROPOSED PEAK FLOW

SMH: O13-002 to O13-004

GIVEN:

Q _{given} =	0.9622	cfs	<== Discharge
n=	0.013		<== Roughness coefficient
S=	0.0040		<== Slope V:H
r=	0.333	ft	<== Radius
d=	8.000	in	

TRIAL DEPTH:

h=	8.000	in	<== Vary this depth to get Q _{assume} = Q _{given}
	0.667	ft	

CACULATIONS:

beta=	180.00	degree
R=	0.167	ft
C=	77.347	
V=	1.997	ft/sec
A=	0.349	sq-ft
Q _{assume} =	0.6971	cfs

d_{0.5} =	0.333 ft	d_{0.75} =	0.500 ft
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Q_{half} =	0.35 cfs	Q_{3/4} =	0.65 cfs
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RESULT:

(Q _{given} -Q _{assume}) / Q _{given} % =	28%	<===== Not Good (Increase h)
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Flow Depth (h) = Try another h in

d_{capacity} =	0.333 ft
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Capacity h_{flowdepth}/d_{capacity} =	200.00%
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Q_{capacity} =	0.349 cfs
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Capacity Q_{given}/Q_{capacity} =	275.62%
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(Q_{half} =	0.35 cfs)
beta_{half} =	90.00 degree
R_{half} =	0.167 ft
C_{half} =	77.391 ft
A_{half} =	0.175 sq-ft
V_{half} =	2.000 ft/sec

(Q_{3/4} =	0.65 cfs)
beta_{3/4} =	120.00 degree
R_{3/4} =	0.201 ft
C_{3/4} =	81.546 ft
A_{3/4} =	0.281 sq-ft
V_{3/4} =	2.313 ft/sec

SITE 1 (WARNER AVE. MH) - PROPOSED SPLIT AVERAGE FLOW

SMH: O13-002 to O13-004

GIVEN:

Q _{given} =	0.1613	cfs	<== Discharge
n=	0.013		<== Roughness coefficient
S=	0.0040		<== Slope V:H
r=	0.333	ft	<== Radius
d=	8.000	in	

TRIAL DEPTH:

h=	2.670	in	<== Vary this depth to get Q _{assume} = Q _{given}
	0.223	ft	

CACULATIONS:

beta=	70.58 degree
R=	0.124 ft
C=	70.904
V=	1.581 ft/sec
A=	0.102 sq-ft
Q _{assume} =	0.1613 cfs

d_{0.5} =	0.333 ft	d_{0.75} =	0.500 ft
Q_{half} =	0.35 cfs	Q_{3/4full} =	0.65 cfs

RESULT:

(Q_{given}-Q_{assume}) / Q_{given} % = 0% <===== **OK**

Flow Depth (h) = 2.670 in

d_{capacity} = 0.333 ft

Capacity h_{flowdepth}/d_{capacity} = 66.75%

Q_{capacity} = 0.349 cfs

Capacity Q_{given}/Q_{capacity} = 46.20%

(Q_{half} =	0.35 cfs)
beta_{half} =	90.000 degree
R_{half} =	0.167 ft
C_{half} =	77.391
A_{half} =	0.175 sq-ft
V_{half} =	2.000 ft/sec

(Q_{3/4full} =	0.65 cfs)
beta_{3/4full} =	120.00 degree
R_{3/4full} =	0.201 ft
C_{3/4full} =	81.546
A_{3/4full} =	0.281 sq-ft
V_{3/4full} =	2.313 ft/sec

SITE 1 (WARNER AVE. MH) - PROPOSED SPLIT PEAK FLOW

SMH: O13-002 to O13-004

GIVEN:

Q _{given} =	0.4811	cfs	<== Discharge
n=	0.013		<== Roughness coefficient
S=	0.0040		<== Slope V:H
r=	0.333	ft	<== Radius
d=	8.000	in	

TRIAL DEPTH:

h=	4.845	in	<== Vary this depth to get Q _{assume} = Q _{given}
	0.404	ft	

CACULATIONS:

beta=	102.19 degree
R=	0.186 ft
C=	79.787
V=	2.176 ft/sec
A=	0.221 sq-ft
Q _{assume} =	0.4811 cfs

d_{0.5} =	0.333 ft	d_{0.75} =	0.500 ft
Q_{halffull} =	0.35 cfs	Q_{3/4full} =	0.65 cfs

RESULT:

(Q_{given}-Q_{assume}) / Q_{given} % = 0% <===== **OK**

Flow Depth (h) = 4.845 in

d_{capacity} = 0.333 ft

Capacity h_{flowdepth}/d_{capacity} = 121.11%

Q_{capacity} = 0.349 cfs

Capacity Q_{given}/Q_{capacity} = 137.81%

(Q_{halffull} =	0.35 cfs)
beta_{halffull} =	90.000 degree
R_{halffull} =	0.167 ft
C_{halffull} =	77.391
A_{halffull} =	0.175 sq-ft
V_{halffull} =	2.000 ft/sec

(Q_{3/4full} =	0.65 cfs)
beta_{3/4full} =	120.00 degree
R_{3/4full} =	0.201 ft
C_{3/4full} =	81.546
A_{3/4full} =	0.281 sq-ft
V_{3/4full} =	2.313 ft/sec

SMH: O13-002 - PROPOSED SPLIT AVERAGE FLOW

SMH: O13-001 to O13-002

GIVEN:

Q _{given} =	0.1613	cfs	<== Discharge
n=	0.013		<== Roughness coefficient
S=	0.0080		<== Slope V:H
r=	0.333	ft	<== Radius
d=	8.000	in	

TRIAL DEPTH:

h=	2.251	in	<== Vary this depth to get Q _{assume} = Q _{given}
	0.188	ft	

CACULATIONS:

beta=	64.06	degree
R=	0.108	ft
C=	68.131	
V=	2.003	ft/sec
A=	0.081	sq-ft
Q _{assume} =	0.1613	cfs

d_{0.5} =	0.333 ft	d_{0.75} =	0.500 ft
Q_{half} =	0.50 cfs	Q_{3/4} =	0.92 cfs

RESULT:(Q_{given}-Q_{assume}) / Q_{given} % = 0% <===== **OK****Flow Depth (h) = 2.251 in****d_{capacity} = 0.333 ft****Capacity h_{flowdepth}/d_{capacity} = 56.26%****Q_{capacity} = 0.495 cfs****Capacity Q_{given}/Q_{capacity} = 32.58%**

(Q_{half} = 0.50 cfs)
beta_{half} = 90.000 degree
R_{half} = 0.167 ft
C_{half} = 77.611 ft
A_{half} = 0.175 sq-ft
V_{half} = 2.837 ft/sec

(Q_{3/4} = 0.92 cfs)
beta_{3/4} = 120.00 degree
R_{3/4} = 0.201 ft
C_{3/4} = 81.762 ft
A_{3/4} = 0.281 sq-ft
V_{3/4} = 3.280 ft/sec

SMH: O13-002 - PROPOSED SPLIT PEAK FLOW

SMH: O13-001 to O13-002

GIVEN:

Q _{given} =	0.4811	cfs	<== Discharge
n=	0.013		<== Roughness coefficient
S=	0.0080		<== Slope V:H
r=	0.333	ft	<== Radius
d=	8.000	in	

TRIAL DEPTH:

h=	3.940	in	<== Vary this depth to get Q _{assume} = Q _{given}
	0.328	ft	

CACULATIONS:

beta=	89.13	degree
R=	0.165	ft
C=	77.350	
V=	2.811	ft/sec
A=	0.171	sq-ft
Q _{assume} =	0.4811	cfs

d_{0.5} =	0.333	ft	d_{0.75} =	0.500	ft
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Q_{half}full =	0.50	cfs	Q_{3/4}full =	0.92	cfs
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RESULT:

(Q _{given} -Q _{assume}) / Q _{given} % =	0% <===== OK
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Flow Depth (h) =	3.940	in
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d_{capacity} =	0.333	ft
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Capacity h_{flowdepth}/d_{capacity} =	98.49%
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Q_{capacity} =	0.495	cfs
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Capacity Q_{given}/Q_{capacity} =	97.17%
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(Q_{half}full =	0.50	cfs)
beta_{half}full =	90.000	degree
R_{half}full =	0.167	ft
C_{half}full =	77.611	ft
A_{half}full =	0.175	sq-ft
V_{half}full =	2.837	ft/sec

(Q_{3/4}full =	0.92	cfs)
beta_{3/4}full =	120.00	degree
R_{3/4}full =	0.201	ft
C_{3/4}full =	81.762	ft
A_{3/4}full =	0.281	sq-ft
V_{3/4}full =	3.280	ft/sec

SITE 1 (WARNER AVE. MH) - PROPOSED MITIGATION SPLIT PEAK FLOW

SMH: O13-002 to O13-004

GIVEN:

Q _{given} =	0.4811	cfs	<== Discharge
n=	0.013		<== Roughness coefficient
S=	0.0040		<== Slope V:H
r=	0.417	ft	<== Radius
d=	10.000	in	

TRIAL DEPTH:

h=	4.247	in	<== Vary this depth to get Q _{assume} = Q _{given}
		0.354	ft

CACULATIONS:

beta=	81.34	degree
R=	0.186	ft
C=	79.852	
V=	2.181	ft/sec
A=	0.221	sq-ft
Q _{assume} =	0.4811	cfs

d_{0.5} =	0.417	ft	d_{0.75} =	0.625	ft
Q_{half}full =	0.65	cfs	Q_{3/4}full =	1.20	cfs

RESULT:

(Q_{given}-Q_{assume}) / Q_{given} % = 0% <===== **OK**

Flow Depth (h) = 4.247 in

d_{capacity} = 0.417 ft

Capacity h_{flowdepth}/d_{capacity} = 84.94%

Q_{capacity} = 0.647 cfs

Capacity Q_{given}/Q_{capacity} = 74.31%

(Q_{half}full =	0.65	cfs)
beta_{half}full =	90.000	degree
R_{half}full =	0.208	ft
C_{half}full =	82.302	ft
A_{half}full =	0.273	sq-ft
V_{half}full =	2.374	ft/sec

(Q_{3/4}full =	1.20	cfs)
beta_{3/4}full =	120.00	degree
R_{3/4}full =	0.251	ft
C_{3/4}full =	86.584	ft
A_{3/4}full =	0.439	sq-ft
V_{3/4}full =	2.746	ft/sec

Appendix 6

Utility Systems Science & Software - Sewer Monitoring Data



Utility Systems Science and Software

SITE 1
SMH: 013-004

Report Date: 05/17/2019
Customer: Fuscoe
Group: Santa Ana
Site: 2019.05 Warner Av MH 013-004

Statistics for 2019.05 Warner Av MH 013-004 : 04/30/2019 thru 05/15/2019

	Flow (GPM)			Flow (MGD)			Velocity (FPS)			Level (inches)				
Date	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Total Gal	Rain
4/30/19	3.02	10.42	0.56	0.00	0.02	0.00	1.57	2.10	1.19	0.28	0.57	0.10	4,344	
5/1/19	110.58	203.33	0.00	0.16	0.29	0.00	1.06	1.83	0.19	4.80	5.75	0.03	159,233	
5/2/19	84.28	154.31	0.00	0.12	0.22	0.00	0.81	1.37	0.00	4.79	5.69	0.00	121,366	
5/3/19	3.12	16.46	0.00	0.00	0.02	0.00	1.15	1.77	0.00	0.28	0.93	0.00	4,489	
5/4/19	4.84	12.43	0.00	0.01	0.02	0.00	0.95	1.86	0.00	0.44	0.84	0.00	6,964	
5/5/19	6.33	14.24	0.21	0.01	0.02	0.00	1.07	1.78	0.82	0.61	1.05	0.07	9,120	
Week:	35.36	203.33	0.00	0.05	0.29	0.00	1.10	2.10	0.00	1.87	5.75	0.00	305,515	
5/6/19	1.69	7.50	0.00	0.00	0.01	0.00	1.05	1.95	0.00	0.20	0.55	0.00	2,441	
5/7/19	2.24	5.69	0.00	0.00	0.01	0.00	1.36	1.94	0.00	0.25	0.40	0.00	3,227	
5/8/19	1.10	4.79	0.00	0.00	0.01	0.00	1.14	1.90	0.00	0.14	0.39	0.00	1,585	
5/9/19	0.84	7.43	0.00	0.00	0.01	0.00	1.03	1.93	0.00	0.12	0.48	0.00	1,204	
5/10/19	0.60	3.61	0.00	0.00	0.01	0.00	0.79	1.88	0.00	0.09	0.30	0.00	867	
5/11/19	0.59	3.06	0.00	0.00	0.00	0.00	0.68	1.88	0.00	0.09	0.36	0.00	853	
5/12/19	0.56	2.29	0.00	0.00	0.00	0.00	0.74	1.70	0.00	0.10	0.26	0.00	810	
Week:	1.09	7.50	0.00	0.00	0.01	0.00	0.97	1.95	0.00	0.14	0.55	0.00	10,987	
5/13/19	0.52	5.00	0.00	0.00	0.01	0.00	0.59	2.07	0.00	0.09	0.44	0.00	742	
5/14/19	1.03	4.44	0.00	0.00	0.01	0.00	1.08	1.91	0.00	0.14	0.37	0.00	1,478	
5/15/19	0.76	3.33	0.00	0.00	0.00	0.00	0.94	1.93	0.00	0.11	0.28	0.00	1,092	
Week:	0.77	5.00	0.00	0.00	0.01	0.00	0.87	2.07	0.00	0.11	0.44	0.00	3,312	
Totals:	13.88	203.33	0.00	0.02	0.29	0.00	1.00	2.10	0.00	0.78	5.75	0.00	319,814	

**Data for 2019.05 Warner Av MH 013-004 :
4/30/2019 thru 5/15/2019**

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/04/30 09:48	0.44	5.69	1.69
2019/04/30 10:03	0.57	10.42	2.10
2019/04/30 10:18	0.16	0.90	1.19
2019/04/30 10:33	0.40	4.79	1.64
2019/04/30 10:48	0.44	5.69	1.69
2019/04/30 11:03	0.40	5.21	1.78
2019/04/30 11:18	0.37	4.65	1.78
2019/04/30 11:33	0.37	4.65	1.78
2019/04/30 11:48	0.35	4.31	1.78
2019/04/30 12:03	0.35	4.24	1.76
2019/04/30 12:18	0.36	4.37	1.76
2019/04/30 12:33	0.36	4.37	1.76
2019/04/30 12:48	0.36	4.51	1.79
2019/04/30 13:03	0.36	4.51	1.79
2019/04/30 13:18	0.33	3.96	1.79
2019/04/30 13:33	0.15	1.04	1.54
2019/04/30 13:48	0.15	1.04	1.54
2019/04/30 14:03	0.15	0.90	1.38
2019/04/30 14:18	0.15	1.04	1.54
2019/04/30 14:33	0.14	0.97	1.54
2019/04/30 14:48	0.14	0.97	1.59
2019/04/30 15:03	0.11	0.56	1.35
2019/04/30 15:18	0.14	0.97	1.59
2019/04/30 15:33	0.14	0.97	1.59
2019/04/30 15:48	0.30	3.06	1.59
2019/04/30 16:03	0.30	3.61	1.90
2019/04/30 16:18	0.36	4.79	1.91
2019/04/30 16:33	0.36	4.79	1.90
2019/04/30 16:48	0.30	3.06	1.59
2019/04/30 17:03	0.29	2.85	1.56
2019/04/30 17:18	0.14	0.83	1.33
2019/04/30 17:33	0.14	0.76	1.25
2019/04/30 17:48	0.14	0.76	1.29
2019/04/30 18:03	0.22	1.53	1.29
2019/04/30 18:18	0.22	1.53	1.29
2019/04/30 18:33	0.47	4.79	1.29
2019/04/30 18:48	0.22	1.74	1.43
2019/04/30 19:03	0.10	0.56	1.43
2019/04/30 19:18	0.22	1.74	1.45

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/04/30 19:33	0.30	3.06	1.59
2019/04/30 19:48	0.22	1.74	1.43
2019/04/30 20:03	0.12	0.62	1.22
2019/04/30 20:18	0.28	2.71	1.56
2019/04/30 20:33	0.28	2.71	1.56
2019/04/30 20:48	0.28	2.71	1.56
2019/04/30 21:03	0.40	5.00	1.71
2019/04/30 21:18	0.40	5.07	1.72
2019/04/30 21:33	0.43	5.83	1.79
2019/04/30 21:48	0.40	5.21	1.79
2019/04/30 22:03	0.37	4.51	1.72
2019/04/30 22:18	0.37	4.51	1.72
2019/04/30 22:33	0.35	3.89	1.63
2019/04/30 22:48	0.25	2.08	1.44
2019/04/30 23:03	0.23	1.81	1.42
2019/04/30 23:18	0.21	1.46	1.28
2019/04/30 23:33	0.19	1.18	1.19
2019/04/30 23:48	0.14	0.69	1.19
2019/05/01 00:03	0.03	0.00	0.23
2019/05/01 00:18	0.04	0.00	0.23
2019/05/01 00:33	0.04	0.00	0.23
2019/05/01 00:48	0.12	0.14	0.35
2019/05/01 01:03	0.04	0.00	0.23
2019/05/01 01:18	0.04	0.00	0.23
2019/05/01 01:33	5.02	73.47	0.71
2019/05/01 01:48	4.16	111.11	1.35
2019/05/01 02:03	3.90	100.90	1.33
2019/05/01 02:18	4.00	107.29	1.37
2019/05/01 02:33	4.00	107.29	1.37
2019/05/01 02:48	4.00	107.29	1.37
2019/05/01 03:03	3.90	100.90	1.33
2019/05/01 03:18	3.87	99.10	1.32
2019/05/01 03:33	3.77	93.68	1.29
2019/05/01 03:48	3.44	76.04	1.18
2019/05/01 04:03	3.44	61.87	0.96
2019/05/01 04:18	3.44	61.87	0.96
2019/05/01 04:33	3.77	61.74	0.85
2019/05/01 04:48	3.89	55.97	0.74
2019/05/01 05:03	3.90	47.78	0.63
2019/05/01 05:18	4.05	41.39	0.52
2019/05/01 05:33	4.16	24.72	0.30
2019/05/01 05:48	4.16	24.72	0.30
2019/05/01 06:03	4.58	17.64	0.19
2019/05/01 06:18	4.83	95.90	0.97
2019/05/01 06:33	5.19	154.86	1.44

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/01 06:48	5.19	150.62	1.40
2019/05/01 07:03	5.58	163.33	1.40
2019/05/01 07:18	5.58	163.33	1.40
2019/05/01 07:33	5.59	163.68	1.40
2019/05/01 07:48	5.64	165.28	1.40
2019/05/01 08:03	5.58	163.33	1.40
2019/05/01 08:18	5.64	161.74	1.37
2019/05/01 08:33	5.64	161.74	1.37
2019/05/01 08:48	5.57	154.86	1.33
2019/05/01 09:03	5.52	152.22	1.32
2019/05/01 09:18	5.46	141.25	1.24
2019/05/01 09:33	5.46	141.25	1.24
2019/05/01 09:48	5.46	141.25	1.24
2019/05/01 10:03	5.55	143.82	1.24
2019/05/01 10:18	5.55	136.87	1.18
2019/05/01 10:33	5.73	141.74	1.18
2019/05/01 10:48	5.75	133.82	1.11
2019/05/01 11:03	5.73	74.44	0.62
2019/05/01 11:18	5.61	72.78	0.62
2019/05/01 11:33	5.61	72.78	0.62
2019/05/01 11:48	5.57	142.08	1.22
2019/05/01 12:03	5.54	148.19	1.28
2019/05/01 12:18	5.54	149.31	1.29
2019/05/01 12:33	5.52	149.86	1.30
2019/05/01 12:48	5.50	151.60	1.32
2019/05/01 13:03	5.50	149.31	1.30
2019/05/01 13:18	5.55	150.76	1.30
2019/05/01 13:33	5.50	126.32	1.10
2019/05/01 13:48	5.50	117.15	1.02
2019/05/01 14:03	5.37	112.92	1.01
2019/05/01 14:18	5.33	112.01	1.01
2019/05/01 14:33	5.27	109.44	1.00
2019/05/01 14:48	5.27	109.44	1.00
2019/05/01 15:03	5.27	109.44	1.00
2019/05/01 15:18	5.27	71.18	0.65
2019/05/01 15:33	5.30	70.49	0.64
2019/05/01 15:48	5.40	72.01	0.64
2019/05/01 16:03	5.34	71.11	0.64
2019/05/01 16:18	5.34	108.89	0.98
2019/05/01 16:33	5.41	110.49	0.98
2019/05/01 16:48	5.41	112.78	1.00
2019/05/01 17:03	5.34	121.11	1.09
2019/05/01 17:18	5.32	131.67	1.19
2019/05/01 17:33	5.32	151.60	1.37
2019/05/01 17:48	5.32	151.60	1.37

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/01 18:03	5.41	148.82	1.32
2019/05/01 18:18	5.41	144.31	1.28
2019/05/01 18:33	5.48	150.97	1.32
2019/05/01 18:48	5.41	148.82	1.32
2019/05/01 19:03	5.34	203.33	1.83
2019/05/01 19:18	5.32	202.50	1.83
2019/05/01 19:33	5.21	197.71	1.83
2019/05/01 19:48	5.19	195.76	1.82
2019/05/01 20:03	5.19	195.76	1.82
2019/05/01 20:18	5.19	194.72	1.81
2019/05/01 20:33	5.29	198.96	1.81
2019/05/01 20:48	5.43	137.01	1.21
2019/05/01 21:03	5.58	108.54	0.93
2019/05/01 21:18	5.58	108.54	0.93
2019/05/01 21:33	5.58	93.33	0.80
2019/05/01 21:48	5.58	88.68	0.76
2019/05/01 22:03	5.44	86.25	0.76
2019/05/01 22:18	5.43	84.93	0.75
2019/05/01 22:33	5.39	84.24	0.75
2019/05/01 22:48	5.32	81.87	0.74
2019/05/01 23:03	5.30	81.53	0.74
2019/05/01 23:18	5.30	81.53	0.74
2019/05/01 23:33	5.30	80.42	0.73
2019/05/01 23:48	5.30	80.42	0.73
2019/05/02 00:03	5.23	78.12	0.72
2019/05/02 00:18	5.16	76.94	0.72
2019/05/02 00:33	5.16	53.40	0.50
2019/05/02 00:48	5.16	29.93	0.28
2019/05/02 01:03	5.16	38.47	0.36
2019/05/02 01:18	5.18	107.36	1.00
2019/05/02 01:33	5.23	91.18	0.84
2019/05/02 01:48	5.23	92.22	0.85
2019/05/02 02:03	5.27	98.54	0.90
2019/05/02 02:18	5.34	97.78	0.88
2019/05/02 02:33	5.36	94.86	0.85
2019/05/02 02:48	5.36	94.86	0.85
2019/05/02 03:03	5.36	93.75	0.84
2019/05/02 03:18	5.25	89.37	0.82
2019/05/02 03:33	5.21	87.50	0.81
2019/05/02 03:48	5.15	85.28	0.80
2019/05/02 04:03	5.15	85.28	0.80
2019/05/02 04:18	5.15	85.28	0.80
2019/05/02 04:33	5.16	85.49	0.80
2019/05/02 04:48	5.46	91.11	0.80
2019/05/02 05:03	5.48	64.03	0.56

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/02 05:18	5.48	62.92	0.55
2019/05/02 05:33	5.61	64.58	0.55
2019/05/02 05:48	5.66	66.39	0.56
2019/05/02 06:03	5.61	65.69	0.56
2019/05/02 06:18	0.77	1.81	0.23
2019/05/02 06:33	5.32	84.10	0.76
2019/05/02 06:48	5.27	80.97	0.74
2019/05/02 07:03	5.32	82.99	0.75
2019/05/02 07:18	5.22	79.03	0.73
2019/05/02 07:33	5.32	82.99	0.75
2019/05/02 07:48	5.27	82.08	0.75
2019/05/02 08:03	5.25	98.12	0.90
2019/05/02 08:18	0.54	1.25	0.28
2019/05/02 08:33	0.22	0.21	0.15
2019/05/02 08:48	0.96	3.54	0.33
2019/05/02 09:03	5.39	111.18	0.99
2019/05/02 09:18	5.37	110.69	0.99
2019/05/02 09:33	5.19	43.06	0.40
2019/05/02 09:48	5.07	22.01	0.21
2019/05/02 10:03	5.37	65.97	0.59
2019/05/02 10:18	5.37	147.57	1.32
2019/05/02 10:33	5.57	138.61	1.19
2019/05/02 10:48	5.69	72.71	0.61
2019/05/02 11:03	5.69	122.78	1.03
2019/05/02 11:18	5.69	122.78	1.03
2019/05/02 11:33	5.62	121.11	1.03
2019/05/02 11:48	5.61	120.90	1.03
2019/05/02 12:03	5.61	120.90	1.03
2019/05/02 12:18	5.54	112.29	0.97
2019/05/02 12:33	5.51	112.78	0.98
2019/05/02 12:48	5.51	112.78	0.98
2019/05/02 13:03	5.51	107.01	0.93
2019/05/02 13:18	5.51	98.96	0.86
2019/05/02 13:33	5.51	85.14	0.74
2019/05/02 13:48	5.50	85.00	0.74
2019/05/02 14:03	5.50	82.71	0.72
2019/05/02 14:18	5.47	82.15	0.72
2019/05/02 14:33	5.47	82.15	0.72
2019/05/02 14:48	5.54	85.69	0.74
2019/05/02 15:03	5.58	86.32	0.74
2019/05/02 15:18	5.58	88.68	0.76
2019/05/02 15:33	5.58	130.69	1.12
2019/05/02 15:48	5.58	135.35	1.16
2019/05/02 16:03	5.50	133.19	1.16
2019/05/02 16:18	5.34	124.44	1.12

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/02 16:33	5.34	124.44	1.12
2019/05/02 16:48	5.50	133.19	1.16
2019/05/02 17:03	5.57	153.75	1.32
2019/05/02 17:18	5.59	154.31	1.32
2019/05/02 17:33	5.59	154.31	1.32
2019/05/02 17:48	5.59	146.11	1.25
2019/05/02 18:03	5.52	141.81	1.23
2019/05/02 18:18	5.52	141.81	1.23
2019/05/02 18:33	5.52	141.81	1.23
2019/05/02 18:48	5.62	142.29	1.21
2019/05/02 19:03	5.62	142.29	1.21
2019/05/02 19:18	5.62	85.83	0.73
2019/05/02 19:33	5.62	69.37	0.59
2019/05/02 19:48	5.52	66.87	0.58
2019/05/02 20:03	5.52	66.87	0.58
2019/05/02 20:18	5.44	65.83	0.58
2019/05/02 20:33	5.46	67.22	0.59
2019/05/02 20:48	5.48	84.65	0.74
2019/05/02 21:03	5.48	85.76	0.75
2019/05/02 21:18	5.48	85.76	0.75
2019/05/02 21:33	5.48	85.76	0.75
2019/05/02 21:48	5.48	93.82	0.82
2019/05/02 22:03	0.50	4.51	1.10
2019/05/02 22:18	0.41	3.40	1.13
2019/05/02 22:33	0.39	3.89	1.37
2019/05/02 22:48	0.24	1.87	1.37
2019/05/02 23:03	0.11	0.49	1.13
2019/05/02 23:18	0.00	0.00	0.00
2019/05/02 23:33	0.00	0.00	0.00
2019/05/02 23:48	0.01	0.00	0.00
2019/05/03 00:03	0.00	0.00	0.00
2019/05/03 00:18	0.00	0.00	0.00
2019/05/03 00:33	0.00	0.00	0.00
2019/05/03 00:48	0.00	0.00	0.00
2019/05/03 01:03	0.00	0.00	0.00
2019/05/03 01:18	0.00	0.00	0.00
2019/05/03 01:33	0.00	0.00	0.00
2019/05/03 01:48	0.00	0.00	0.00
2019/05/03 02:03	0.00	0.00	0.00
2019/05/03 02:18	0.00	0.00	0.00
2019/05/03 02:33	0.00	0.00	0.00
2019/05/03 02:48	0.00	0.00	0.00
2019/05/03 03:03	0.00	0.00	0.00
2019/05/03 03:18	0.00	0.00	0.00
2019/05/03 03:33	0.00	0.00	0.00

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/03 03:48	0.00	0.00	0.00
2019/05/03 04:03	0.00	0.00	0.00
2019/05/03 04:18	0.00	0.00	0.00
2019/05/03 04:33	0.12	0.76	1.59
2019/05/03 04:48	0.19	1.46	1.53
2019/05/03 05:03	0.15	0.49	0.73
2019/05/03 05:18	0.11	0.62	1.47
2019/05/03 05:33	0.19	1.46	1.53
2019/05/03 05:48	0.16	1.11	1.47
2019/05/03 06:03	0.16	1.04	1.40
2019/05/03 06:18	0.19	1.39	1.47
2019/05/03 06:33	0.03	0.07	1.40
2019/05/03 06:48	0.05	0.07	0.42
2019/05/03 07:03	0.39	1.18	0.42
2019/05/03 07:18	0.19	1.46	1.50
2019/05/03 07:33	0.16	1.11	1.50
2019/05/03 07:48	0.16	1.11	1.50
2019/05/03 08:03	0.16	1.11	1.50
2019/05/03 08:18	0.15	1.04	1.50
2019/05/03 08:33	0.14	0.90	1.43
2019/05/03 08:48	0.14	0.83	1.31
2019/05/03 09:03	0.10	0.28	0.77
2019/05/03 09:18	0.35	3.12	1.31
2019/05/03 09:33	0.26	2.01	1.31
2019/05/03 09:48	0.12	0.69	1.49
2019/05/03 10:03	0.33	3.26	1.49
2019/05/03 10:18	0.26	2.36	1.51
2019/05/03 10:33	0.18	1.32	1.51
2019/05/03 10:48	0.18	1.32	1.49
2019/05/03 11:03	0.18	1.25	1.41
2019/05/03 11:18	0.18	1.32	1.46
2019/05/03 11:33	0.18	1.32	1.46
2019/05/03 11:48	0.22	1.67	1.41
2019/05/03 12:03	0.22	1.74	1.46
2019/05/03 12:18	0.22	1.81	1.50
2019/05/03 12:33	0.25	2.57	1.76
2019/05/03 12:48	0.22	1.87	1.58
2019/05/03 13:03	0.19	1.74	1.77
2019/05/03 13:18	0.15	1.18	1.77
2019/05/03 13:33	0.14	0.97	1.58
2019/05/03 13:48	0.14	0.83	1.35
2019/05/03 14:03	0.14	0.83	1.35
2019/05/03 14:18	0.19	1.32	1.35
2019/05/03 14:33	0.19	1.32	1.35
2019/05/03 14:48	0.19	1.32	1.39

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/03 15:03	0.16	1.11	1.50
2019/05/03 15:18	0.15	1.04	1.50
2019/05/03 15:33	0.21	1.74	1.54
2019/05/03 15:48	0.19	1.46	1.54
2019/05/03 16:03	0.21	1.74	1.56
2019/05/03 16:18	0.29	2.78	1.54
2019/05/03 16:33	0.29	2.78	1.54
2019/05/03 16:48	0.29	2.78	1.54
2019/05/03 17:03	0.23	2.01	1.55
2019/05/03 17:18	0.19	1.39	1.44
2019/05/03 17:33	0.16	1.11	1.44
2019/05/03 17:48	0.19	1.39	1.44
2019/05/03 18:03	0.19	1.39	1.47
2019/05/03 18:18	0.33	2.57	1.18
2019/05/03 18:33	0.36	3.68	1.47
2019/05/03 18:48	0.36	3.75	1.51
2019/05/03 19:03	0.36	3.75	1.50
2019/05/03 19:18	0.36	3.75	1.51
2019/05/03 19:33	0.39	4.65	1.64
2019/05/03 19:48	0.48	5.76	1.51
2019/05/03 20:03	0.80	14.10	1.73
2019/05/03 20:18	0.89	16.46	1.73
2019/05/03 20:33	0.80	11.87	1.46
2019/05/03 20:48	0.89	13.89	1.46
2019/05/03 21:03	0.80	11.87	1.46
2019/05/03 21:18	0.89	10.56	1.11
2019/05/03 21:33	0.80	9.03	1.11
2019/05/03 21:48	0.86	13.68	1.51
2019/05/03 22:03	0.86	13.68	1.51
2019/05/03 22:18	0.89	14.37	1.51
2019/05/03 22:33	0.86	13.68	1.51
2019/05/03 22:48	0.86	13.61	1.50
2019/05/03 23:03	0.93	10.07	0.99
2019/05/03 23:18	0.86	8.96	0.99
2019/05/03 23:33	0.82	8.40	0.99
2019/05/03 23:48	0.82	9.72	1.15
2019/05/04 00:03	0.82	12.43	1.47
2019/05/04 00:18	0.79	12.01	1.50
2019/05/04 00:33	0.44	5.07	1.50
2019/05/04 00:48	0.09	0.07	0.20
2019/05/04 01:03	0.30	1.53	0.81
2019/05/04 01:18	0.26	1.04	0.68
2019/05/04 01:33	0.00	0.00	0.00
2019/05/04 01:48	0.00	0.00	0.00
2019/05/04 02:03	0.00	0.00	0.00

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/04 02:18	0.00	0.00	0.00
2019/05/04 02:33	0.00	0.00	0.00
2019/05/04 02:48	0.00	0.00	0.00
2019/05/04 03:03	0.00	0.00	0.00
2019/05/04 03:18	0.00	0.00	0.00
2019/05/04 03:33	0.00	0.00	0.00
2019/05/04 03:48	0.00	0.00	0.00
2019/05/04 04:03	0.00	0.00	0.00
2019/05/04 04:18	0.00	0.00	0.00
2019/05/04 04:33	0.00	0.00	0.00
2019/05/04 04:48	0.00	0.00	0.00
2019/05/04 05:03	0.19	1.32	1.34
2019/05/04 05:18	0.03	0.00	0.18
2019/05/04 05:33	0.00	0.00	0.00
2019/05/04 05:48	0.05	0.07	0.38
2019/05/04 06:03	0.05	0.00	0.18
2019/05/04 06:18	0.00	0.00	0.00
2019/05/04 06:33	0.29	0.21	0.10
2019/05/04 06:48	0.18	0.35	0.38
2019/05/04 07:03	0.03	0.00	0.16
2019/05/04 07:18	0.05	0.00	0.16
2019/05/04 07:33	0.07	0.07	0.42
2019/05/04 07:48	0.23	0.56	0.42
2019/05/04 08:03	0.23	0.56	0.42
2019/05/04 08:18	0.28	2.78	1.63
2019/05/04 08:33	0.23	2.15	1.65
2019/05/04 08:48	0.28	2.85	1.65
2019/05/04 09:03	0.37	4.51	1.72
2019/05/04 09:18	0.44	6.25	1.86
2019/05/04 09:33	0.47	6.39	1.72
2019/05/04 09:48	0.47	6.39	1.72
2019/05/04 10:03	0.47	6.39	1.72
2019/05/04 10:18	0.43	5.62	1.72
2019/05/04 10:33	0.30	3.26	1.72
2019/05/04 10:48	0.30	2.99	1.55
2019/05/04 11:03	0.29	2.85	1.55
2019/05/04 11:18	0.30	2.99	1.55
2019/05/04 11:33	0.29	2.50	1.38
2019/05/04 11:48	0.32	2.85	1.37
2019/05/04 12:03	0.47	4.93	1.33
2019/05/04 12:18	0.54	5.14	1.12
2019/05/04 12:33	0.54	5.14	1.12
2019/05/04 12:48	0.55	5.28	1.12
2019/05/04 13:03	0.55	5.90	1.26
2019/05/04 13:18	0.73	8.96	1.26

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/04 13:33	0.75	9.37	1.26
2019/05/04 13:48	0.75	9.37	1.26
2019/05/04 14:03	0.75	9.37	1.26
2019/05/04 14:18	0.75	11.53	1.55
2019/05/04 14:33	0.71	10.62	1.55
2019/05/04 14:48	0.68	9.93	1.55
2019/05/04 15:03	0.68	10.28	1.60
2019/05/04 15:18	0.68	10.28	1.60
2019/05/04 15:33	0.65	7.57	1.26
2019/05/04 15:48	0.65	7.57	1.26
2019/05/04 16:03	0.82	10.62	1.26
2019/05/04 16:18	0.84	8.12	0.93
2019/05/04 16:33	0.82	7.85	0.93
2019/05/04 16:48	0.82	7.36	0.87
2019/05/04 17:03	0.84	7.64	0.87
2019/05/04 17:18	0.78	6.60	0.84
2019/05/04 17:33	0.71	5.76	0.84
2019/05/04 17:48	0.71	5.76	0.84
2019/05/04 18:03	0.69	5.83	0.89
2019/05/04 18:18	0.61	5.14	0.94
2019/05/04 18:33	0.61	5.28	0.96
2019/05/04 18:48	0.61	5.76	1.06
2019/05/04 19:03	0.62	5.97	1.07
2019/05/04 19:18	0.65	6.39	1.06
2019/05/04 19:33	0.65	6.46	1.07
2019/05/04 19:48	0.62	7.15	1.28
2019/05/04 20:03	0.62	7.15	1.28
2019/05/04 20:18	0.64	6.39	1.09
2019/05/04 20:33	0.61	6.32	1.15
2019/05/04 20:48	0.64	6.74	1.15
2019/05/04 21:03	0.72	8.06	1.15
2019/05/04 21:18	0.72	10.76	1.54
2019/05/04 21:33	0.72	10.76	1.54
2019/05/04 21:48	0.72	10.76	1.54
2019/05/04 22:03	0.72	8.40	1.20
2019/05/04 22:18	0.75	8.40	1.13
2019/05/04 22:33	0.75	8.40	1.13
2019/05/04 22:48	0.78	7.29	0.93
2019/05/04 23:03	0.78	7.29	0.93
2019/05/04 23:18	0.78	8.89	1.13
2019/05/04 23:33	0.72	7.08	1.01
2019/05/04 23:48	0.69	6.53	1.00
2019/05/05 00:03	0.69	6.60	1.01
2019/05/05 00:18	0.69	6.60	1.01
2019/05/05 00:33	0.69	6.53	1.00

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/05 00:48	0.66	6.11	1.00
2019/05/05 01:03	0.66	6.39	1.04
2019/05/05 01:18	0.66	6.39	1.04
2019/05/05 01:33	0.69	6.81	1.04
2019/05/05 01:48	0.76	7.99	1.06
2019/05/05 02:03	0.76	7.99	1.06
2019/05/05 02:18	0.76	7.92	1.05
2019/05/05 02:33	0.75	6.81	0.92
2019/05/05 02:48	0.73	6.53	0.92
2019/05/05 03:03	0.73	6.18	0.87
2019/05/05 03:18	0.73	5.90	0.83
2019/05/05 03:33	0.73	6.18	0.87
2019/05/05 03:48	0.73	5.83	0.82
2019/05/05 04:03	0.72	5.69	0.82
2019/05/05 04:18	0.72	7.22	1.03
2019/05/05 04:33	0.72	7.22	1.03
2019/05/05 04:48	0.72	7.29	1.04
2019/05/05 05:03	0.72	7.57	1.08
2019/05/05 05:18	0.76	8.40	1.11
2019/05/05 05:33	0.76	8.75	1.16
2019/05/05 05:48	0.76	8.75	1.16
2019/05/05 06:03	0.76	8.40	1.11
2019/05/05 06:18	0.86	10.14	1.12
2019/05/05 06:33	0.86	10.14	1.12
2019/05/05 06:48	0.87	10.35	1.12
2019/05/05 07:03	0.87	10.35	1.12
2019/05/05 07:18	0.96	11.94	1.12
2019/05/05 07:33	0.96	11.94	1.12
2019/05/05 07:48	0.98	12.29	1.12
2019/05/05 08:03	0.96	11.39	1.07
2019/05/05 08:18	0.97	10.83	1.00
2019/05/05 08:33	0.94	11.04	1.07
2019/05/05 08:48	0.93	12.92	1.27
2019/05/05 09:03	0.90	10.35	1.07
2019/05/05 09:18	0.93	13.40	1.32
2019/05/05 09:33	0.93	13.40	1.32
2019/05/05 09:48	0.93	10.69	1.05
2019/05/05 10:03	1.01	9.37	0.82
2019/05/05 10:18	1.01	12.01	1.05
2019/05/05 10:33	1.01	12.01	1.05
2019/05/05 10:48	1.05	11.67	0.96
2019/05/05 11:03	1.00	10.83	0.96
2019/05/05 11:18	1.00	11.18	0.99
2019/05/05 11:33	1.00	11.18	0.99
2019/05/05 11:48	1.00	10.83	0.96

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/05 12:03	1.00	9.58	0.85
2019/05/05 12:18	0.98	10.83	0.99
2019/05/05 12:33	0.96	9.17	0.86
2019/05/05 12:48	0.96	9.17	0.86
2019/05/05 13:03	0.96	10.83	1.02
2019/05/05 13:18	0.93	10.35	1.02
2019/05/05 13:33	0.96	9.79	0.92
2019/05/05 13:48	0.96	9.79	0.92
2019/05/05 14:03	1.00	10.42	0.92
2019/05/05 14:18	1.03	9.79	0.83
2019/05/05 14:33	1.03	9.79	0.83
2019/05/05 14:48	1.03	11.11	0.94
2019/05/05 15:03	0.79	14.24	1.78
2019/05/05 15:18	0.29	3.26	1.78
2019/05/05 15:33	0.25	2.57	1.78
2019/05/05 15:48	0.22	1.74	1.43
2019/05/05 16:03	0.11	0.49	1.09
2019/05/05 16:18	0.11	0.49	1.09
2019/05/05 16:33	0.07	0.21	0.92
2019/05/05 16:48	0.21	1.39	1.21
2019/05/05 17:03	0.16	0.90	1.21
2019/05/05 17:18	0.16	0.90	1.21
2019/05/05 17:33	0.16	0.83	1.15
2019/05/05 17:48	0.16	0.83	1.15
2019/05/05 18:03	0.11	0.42	0.95
2019/05/05 18:18	0.11	0.42	0.95
2019/05/05 18:33	0.10	0.35	0.86
2019/05/05 18:48	0.12	0.42	0.90
2019/05/05 19:03	0.16	0.62	0.86
2019/05/05 19:18	0.12	0.42	0.89
2019/05/05 19:33	0.16	0.62	0.86
2019/05/05 19:48	0.16	0.69	0.89
2019/05/05 20:03	0.18	0.76	0.89
2019/05/05 20:18	0.18	0.83	0.96
2019/05/05 20:33	0.18	0.83	0.96
2019/05/05 20:48	0.16	0.69	0.97
2019/05/05 21:03	0.19	1.18	1.23
2019/05/05 21:18	0.18	1.18	1.33
2019/05/05 21:33	0.18	1.18	1.36
2019/05/05 21:48	0.18	1.39	1.55
2019/05/05 22:03	0.22	1.87	1.55
2019/05/05 22:18	0.23	1.74	1.35
2019/05/05 22:33	0.23	1.74	1.35
2019/05/05 22:48	0.23	1.60	1.26
2019/05/05 23:03	0.23	1.60	1.26

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/05 23:18	0.22	1.39	1.14
2019/05/05 23:33	0.19	0.83	0.86
2019/05/05 23:48	0.12	0.42	0.86
2019/05/06 00:03	0.12	0.28	0.61
2019/05/06 00:18	0.16	0.56	0.74
2019/05/06 00:33	0.16	0.56	0.74
2019/05/06 00:48	0.16	0.56	0.74
2019/05/06 01:03	0.18	0.56	0.62
2019/05/06 01:18	0.18	0.62	0.67
2019/05/06 01:33	0.18	0.62	0.67
2019/05/06 01:48	0.18	0.62	0.68
2019/05/06 02:03	0.18	0.62	0.68
2019/05/06 02:18	0.18	0.62	0.68
2019/05/06 02:33	0.09	0.21	0.68
2019/05/06 02:48	0.00	0.00	0.00
2019/05/06 03:03	0.00	0.00	0.00
2019/05/06 03:18	0.05	0.00	0.00
2019/05/06 03:33	0.00	0.00	0.00
2019/05/06 03:48	0.04	0.00	0.00
2019/05/06 04:03	0.00	0.00	0.00
2019/05/06 04:18	0.01	0.00	0.00
2019/05/06 04:33	0.00	0.00	0.00
2019/05/06 04:48	0.00	0.00	0.00
2019/05/06 05:03	0.18	1.39	1.58
2019/05/06 05:18	0.00	0.00	0.00
2019/05/06 05:33	0.00	0.00	0.00
2019/05/06 05:48	0.00	0.00	0.00
2019/05/06 06:03	0.00	0.00	0.00
2019/05/06 06:18	0.05	0.00	0.00
2019/05/06 06:33	0.23	0.28	0.19
2019/05/06 06:48	0.23	0.62	0.47
2019/05/06 07:03	0.37	4.10	1.56
2019/05/06 07:18	0.23	2.01	1.59
2019/05/06 07:33	0.23	2.01	1.59
2019/05/06 07:48	0.23	2.22	1.73
2019/05/06 08:03	0.15	1.18	1.73
2019/05/06 08:18	0.15	1.18	1.73
2019/05/06 08:33	0.15	1.18	1.73
2019/05/06 08:48	0.30	3.33	1.73
2019/05/06 09:03	0.30	3.26	1.70
2019/05/06 09:18	0.30	3.26	1.70
2019/05/06 09:33	0.30	3.26	1.70
2019/05/06 09:48	0.26	2.64	1.70
2019/05/06 10:03	0.26	2.64	1.70
2019/05/06 10:18	0.33	4.24	1.94

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/06 10:33	0.35	4.65	1.94
2019/05/06 10:48	0.43	6.39	1.95
2019/05/06 11:03	0.47	7.22	1.95
2019/05/06 11:18	0.47	6.94	1.87
2019/05/06 11:33	0.43	6.04	1.85
2019/05/06 11:48	0.32	3.89	1.85
2019/05/06 12:03	0.32	3.54	1.70
2019/05/06 12:18	0.29	2.99	1.63
2019/05/06 12:33	0.23	2.08	1.63
2019/05/06 12:48	0.32	3.40	1.62
2019/05/06 13:03	0.23	2.08	1.62
2019/05/06 13:18	0.22	1.94	1.62
2019/05/06 13:33	0.26	2.50	1.60
2019/05/06 13:48	0.26	2.50	1.60
2019/05/06 14:03	0.22	0.42	0.36
2019/05/06 14:18	0.21	0.42	0.36
2019/05/06 14:33	0.15	0.83	1.24
2019/05/06 14:48	0.16	0.90	1.24
2019/05/06 15:03	0.19	1.18	1.24
2019/05/06 15:18	0.19	1.18	1.24
2019/05/06 15:33	0.00	0.00	0.00
2019/05/06 15:48	0.01	0.00	0.00
2019/05/06 16:03	0.28	0.14	0.10
2019/05/06 16:18	0.00	0.00	0.00
2019/05/06 16:33	0.25	0.14	0.10
2019/05/06 16:48	0.15	0.49	0.70
2019/05/06 17:03	0.21	1.11	1.00
2019/05/06 17:18	0.15	0.69	1.00
2019/05/06 17:33	0.21	1.25	1.11
2019/05/06 17:48	0.21	1.25	1.11
2019/05/06 18:03	0.05	0.14	1.00
2019/05/06 18:18	0.08	0.14	0.59
2019/05/06 18:33	0.08	0.14	0.59
2019/05/06 18:48	0.15	0.42	0.59
2019/05/06 19:03	0.08	0.14	0.59
2019/05/06 19:18	0.10	0.56	1.49
2019/05/06 19:33	0.10	0.56	1.49
2019/05/06 19:48	0.25	2.15	1.49
2019/05/06 20:03	0.25	2.15	1.49
2019/05/06 20:18	0.32	3.33	1.60
2019/05/06 20:33	0.55	7.50	1.60
2019/05/06 20:48	0.25	2.36	1.60
2019/05/06 21:03	0.32	3.68	1.75
2019/05/06 21:18	0.32	3.68	1.75
2019/05/06 21:33	0.32	3.68	1.74

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/06 21:48	0.32	3.68	1.74
2019/05/06 22:03	0.32	3.68	1.74
2019/05/06 22:18	0.30	3.26	1.72
2019/05/06 22:33	0.25	2.01	1.38
2019/05/06 22:48	0.25	2.01	1.38
2019/05/06 23:03	0.23	1.81	1.38
2019/05/06 23:18	0.22	1.53	1.26
2019/05/06 23:33	0.23	1.53	1.17
2019/05/06 23:48	0.25	1.74	1.17
2019/05/07 00:03	0.23	1.32	1.03
2019/05/07 00:18	0.21	1.18	1.03
2019/05/07 00:33	0.11	0.42	1.03
2019/05/07 00:48	0.11	0.42	1.03
2019/05/07 01:03	0.08	0.00	0.05
2019/05/07 01:18	0.00	0.00	0.00
2019/05/07 01:33	0.11	0.00	0.05
2019/05/07 01:48	0.14	0.14	0.23
2019/05/07 02:03	0.21	1.04	0.90
2019/05/07 02:18	0.15	0.69	1.00
2019/05/07 02:33	0.15	0.69	1.00
2019/05/07 02:48	0.19	0.97	1.00
2019/05/07 03:03	0.19	0.83	0.84
2019/05/07 03:18	0.15	0.49	0.74
2019/05/07 03:33	0.16	0.56	0.74
2019/05/07 03:48	0.16	0.62	0.84
2019/05/07 04:03	0.07	0.07	0.28
2019/05/07 04:18	0.16	0.56	0.74
2019/05/07 04:33	0.16	0.62	0.88
2019/05/07 04:48	0.16	0.62	0.88
2019/05/07 05:03	0.16	0.76	1.01
2019/05/07 05:18	0.18	1.18	1.32
2019/05/07 05:33	0.18	1.18	1.36
2019/05/07 05:48	0.21	1.53	1.36
2019/05/07 06:03	0.23	1.67	1.32
2019/05/07 06:18	0.23	1.67	1.32
2019/05/07 06:33	0.23	1.67	1.32
2019/05/07 06:48	0.23	1.67	1.32
2019/05/07 07:03	0.26	2.08	1.34
2019/05/07 07:18	0.26	2.08	1.34
2019/05/07 07:33	0.26	2.22	1.42
2019/05/07 07:48	0.26	2.22	1.42
2019/05/07 08:03	0.23	1.81	1.42
2019/05/07 08:18	0.23	1.81	1.42
2019/05/07 08:33	0.30	2.71	1.42
2019/05/07 08:48	0.32	3.06	1.44

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/07 09:03	0.32	3.06	1.44
2019/05/07 09:18	0.32	3.06	1.44
2019/05/07 09:33	0.32	3.06	1.44
2019/05/07 09:48	0.33	3.19	1.44
2019/05/07 10:03	0.35	3.54	1.47
2019/05/07 10:18	0.35	3.47	1.44
2019/05/07 10:33	0.32	3.06	1.44
2019/05/07 10:48	0.32	3.19	1.51
2019/05/07 11:03	0.26	2.22	1.44
2019/05/07 11:18	0.26	2.22	1.44
2019/05/07 11:33	0.22	1.60	1.33
2019/05/07 11:48	0.23	1.67	1.30
2019/05/07 12:03	0.22	1.53	1.29
2019/05/07 12:18	0.22	1.60	1.30
2019/05/07 12:33	0.22	1.60	1.30
2019/05/07 12:48	0.22	1.67	1.38
2019/05/07 13:03	0.22	1.74	1.42
2019/05/07 13:18	0.22	1.74	1.44
2019/05/07 13:33	0.19	1.46	1.51
2019/05/07 13:48	0.19	1.46	1.51
2019/05/07 14:03	0.19	1.46	1.51
2019/05/07 14:18	0.19	1.46	1.51
2019/05/07 14:33	0.22	1.87	1.56
2019/05/07 14:48	0.29	2.99	1.66
2019/05/07 15:03	0.29	2.99	1.66
2019/05/07 15:18	0.39	5.14	1.82
2019/05/07 15:33	0.36	4.24	1.68
2019/05/07 15:48	0.32	3.54	1.68
2019/05/07 16:03	0.36	4.24	1.69
2019/05/07 16:18	0.36	4.37	1.76
2019/05/07 16:33	0.36	4.37	1.76
2019/05/07 16:48	0.36	4.37	1.76
2019/05/07 17:03	0.36	4.37	1.76
2019/05/07 17:18	0.37	4.58	1.77
2019/05/07 17:33	0.39	5.21	1.84
2019/05/07 17:48	0.40	5.69	1.94
2019/05/07 18:03	0.40	5.69	1.94
2019/05/07 18:18	0.40	5.69	1.94
2019/05/07 18:33	0.39	4.93	1.74
2019/05/07 18:48	0.25	2.43	1.65
2019/05/07 19:03	0.22	1.94	1.63
2019/05/07 19:18	0.22	1.94	1.59
2019/05/07 19:33	0.22	1.87	1.55
2019/05/07 19:48	0.26	2.43	1.59
2019/05/07 20:03	0.26	2.43	1.59

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/07 20:18	0.26	2.36	1.55
2019/05/07 20:33	0.22	1.87	1.55
2019/05/07 20:48	0.22	2.01	1.68
2019/05/07 21:03	0.22	1.94	1.61
2019/05/07 21:18	0.22	2.01	1.68
2019/05/07 21:33	0.29	3.12	1.74
2019/05/07 21:48	0.36	4.37	1.74
2019/05/07 22:03	0.36	4.37	1.74
2019/05/07 22:18	0.36	4.37	1.74
2019/05/07 22:33	0.36	4.37	1.74
2019/05/07 22:48	0.29	2.85	1.58
2019/05/07 23:03	0.18	1.39	1.53
2019/05/07 23:18	0.15	0.97	1.44
2019/05/07 23:33	0.18	1.25	1.44
2019/05/07 23:48	0.14	0.90	1.44
2019/05/08 00:03	0.18	1.25	1.44
2019/05/08 00:18	0.14	0.90	1.43
2019/05/08 00:33	0.19	1.39	1.45
2019/05/08 00:48	0.14	0.83	1.37
2019/05/08 01:03	0.16	0.97	1.31
2019/05/08 01:18	0.15	0.90	1.31
2019/05/08 01:33	0.15	0.90	1.31
2019/05/08 01:48	0.15	0.83	1.24
2019/05/08 02:03	0.15	0.83	1.24
2019/05/08 02:18	0.11	0.56	1.24
2019/05/08 02:33	0.11	0.56	1.24
2019/05/08 02:48	0.14	0.83	1.33
2019/05/08 03:03	0.14	0.83	1.35
2019/05/08 03:18	0.15	0.90	1.38
2019/05/08 03:33	0.15	0.90	1.35
2019/05/08 03:48	0.16	0.97	1.34
2019/05/08 04:03	0.21	1.60	1.41
2019/05/08 04:18	0.16	1.04	1.37
2019/05/08 04:33	0.16	1.04	1.37
2019/05/08 04:48	0.16	1.04	1.37
2019/05/08 05:03	0.21	1.53	1.37
2019/05/08 05:18	0.21	1.53	1.37
2019/05/08 05:33	0.33	2.99	1.37
2019/05/08 05:48	0.04	0.00	0.21
2019/05/08 06:03	0.01	0.00	0.21
2019/05/08 06:18	0.04	0.00	0.21
2019/05/08 06:33	0.04	0.00	0.21
2019/05/08 06:48	0.04	0.00	0.21
2019/05/08 07:03	0.04	0.00	0.00
2019/05/08 07:18	0.04	0.14	1.21

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/08 07:33	0.05	0.14	1.01
2019/05/08 07:48	0.11	0.76	1.78
2019/05/08 08:03	0.11	0.49	1.10
2019/05/08 08:18	0.11	0.49	1.10
2019/05/08 08:33	0.10	0.42	1.10
2019/05/08 08:48	0.10	0.49	1.34
2019/05/08 09:03	0.10	0.49	1.34
2019/05/08 09:18	0.21	1.94	1.72
2019/05/08 09:33	0.22	2.08	1.74
2019/05/08 09:48	0.26	2.85	1.86
2019/05/08 10:03	0.26	2.85	1.86
2019/05/08 10:18	0.21	1.94	1.74
2019/05/08 10:33	0.14	0.97	1.63
2019/05/08 10:48	0.12	0.76	1.61
2019/05/08 11:03	0.12	0.76	1.61
2019/05/08 11:18	0.14	0.97	1.63
2019/05/08 11:33	0.14	0.97	1.63
2019/05/08 11:48	0.22	2.08	1.74
2019/05/08 12:03	0.22	2.08	1.74
2019/05/08 12:18	0.14	0.97	1.63
2019/05/08 12:33	0.18	1.39	1.55
2019/05/08 12:48	0.11	0.56	1.37
2019/05/08 13:03	0.11	0.56	1.37
2019/05/08 13:18	0.10	0.49	1.37
2019/05/08 13:33	0.10	0.49	1.38
2019/05/08 13:48	0.22	1.67	1.38
2019/05/08 14:03	0.30	2.92	1.54
2019/05/08 14:18	0.18	1.39	1.54
2019/05/08 14:33	0.15	1.04	1.54
2019/05/08 14:48	0.03	0.00	0.26
2019/05/08 15:03	0.08	0.21	0.82
2019/05/08 15:18	0.07	0.14	0.68
2019/05/08 15:33	0.05	0.00	0.26
2019/05/08 15:48	0.01	0.00	0.00
2019/05/08 16:03	0.00	0.00	0.00
2019/05/08 16:18	0.04	0.00	0.00
2019/05/08 16:33	0.00	0.00	0.00
2019/05/08 16:48	0.03	0.00	0.00
2019/05/08 17:03	0.15	1.18	1.71
2019/05/08 17:18	0.08	0.28	0.92
2019/05/08 17:33	0.00	0.00	0.00
2019/05/08 17:48	0.01	0.00	0.14
2019/05/08 18:03	0.01	0.00	0.14
2019/05/08 18:18	0.10	0.07	0.14
2019/05/08 18:33	0.04	0.00	0.14

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/08 18:48	0.04	0.00	0.14
2019/05/08 19:03	0.07	0.14	0.77
2019/05/08 19:18	0.29	2.36	1.31
2019/05/08 19:33	0.12	0.62	1.31
2019/05/08 19:48	0.03	0.07	1.31
2019/05/08 20:03	0.11	0.56	1.31
2019/05/08 20:18	0.22	1.53	1.27
2019/05/08 20:33	0.22	1.53	1.27
2019/05/08 20:48	0.39	3.61	1.27
2019/05/08 21:03	0.33	3.68	1.66
2019/05/08 21:18	0.36	4.65	1.86
2019/05/08 21:33	0.33	4.10	1.86
2019/05/08 21:48	0.36	4.79	1.90
2019/05/08 22:03	0.36	4.79	1.90
2019/05/08 22:18	0.36	4.79	1.90
2019/05/08 22:33	0.26	2.64	1.71
2019/05/08 22:48	0.26	2.64	1.71
2019/05/08 23:03	0.14	0.76	1.30
2019/05/08 23:18	0.10	0.21	0.64
2019/05/08 23:33	0.07	0.07	0.25
2019/05/08 23:48	0.00	0.00	0.00
2019/05/09 00:03	0.00	0.00	0.00
2019/05/09 00:18	0.00	0.00	0.00
2019/05/09 00:33	0.00	0.00	0.00
2019/05/09 00:48	0.00	0.00	0.00
2019/05/09 01:03	0.00	0.00	0.00
2019/05/09 01:18	0.12	0.56	1.09
2019/05/09 01:33	0.07	0.14	0.60
2019/05/09 01:48	0.00	0.00	0.00
2019/05/09 02:03	0.00	0.00	0.00
2019/05/09 02:18	0.29	1.11	0.60
2019/05/09 02:33	0.12	0.28	0.60
2019/05/09 02:48	0.10	0.49	1.28
2019/05/09 03:03	0.01	0.00	1.28
2019/05/09 03:18	0.16	0.97	1.28
2019/05/09 03:33	0.01	0.00	0.16
2019/05/09 03:48	0.11	0.07	0.16
2019/05/09 04:03	0.13	0.07	0.16
2019/05/09 04:18	0.01	0.00	0.13
2019/05/09 04:33	0.01	0.00	0.13
2019/05/09 04:48	0.00	0.00	0.00
2019/05/09 05:03	0.00	0.00	0.00
2019/05/09 05:18	0.18	0.21	0.20
2019/05/09 05:33	0.08	0.00	0.09
2019/05/09 05:48	0.07	0.14	0.68

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/09 06:03	0.04	0.07	0.68
2019/05/09 06:18	0.07	0.14	0.68
2019/05/09 06:33	0.07	0.14	0.68
2019/05/09 06:48	0.07	0.07	0.33
2019/05/09 07:03	0.07	0.35	1.56
2019/05/09 07:18	0.07	0.35	1.58
2019/05/09 07:33	0.12	0.90	1.80
2019/05/09 07:48	0.12	0.56	1.19
2019/05/09 08:03	0.12	0.76	1.56
2019/05/09 08:18	0.12	0.76	1.51
2019/05/09 08:33	0.12	0.56	1.19
2019/05/09 08:48	0.12	0.56	1.19
2019/05/09 09:03	0.15	1.04	1.51
2019/05/09 09:18	0.16	1.18	1.59
2019/05/09 09:33	0.22	1.94	1.59
2019/05/09 09:48	0.25	2.29	1.59
2019/05/09 10:03	0.29	2.92	1.59
2019/05/09 10:18	0.29	2.15	1.20
2019/05/09 10:33	0.22	1.46	1.20
2019/05/09 10:48	0.21	1.32	1.20
2019/05/09 11:03	0.21	1.32	1.20
2019/05/09 11:18	0.18	1.18	1.33
2019/05/09 11:33	0.21	1.81	1.61
2019/05/09 11:48	0.15	1.18	1.69
2019/05/09 12:03	0.22	2.08	1.73
2019/05/09 12:18	0.15	1.18	1.69
2019/05/09 12:33	0.12	0.83	1.69
2019/05/09 12:48	0.08	0.14	0.64
2019/05/09 13:03	0.08	0.14	0.64
2019/05/09 13:18	0.07	0.14	0.64
2019/05/09 13:33	0.05	0.07	0.54
2019/05/09 13:48	0.07	0.21	0.92
2019/05/09 14:03	0.12	0.83	1.68
2019/05/09 14:18	0.10	0.35	0.92
2019/05/09 14:33	0.29	3.47	1.93
2019/05/09 14:48	0.22	2.29	1.93
2019/05/09 15:03	0.48	7.43	1.93
2019/05/09 15:18	0.18	1.74	1.92
2019/05/09 15:33	0.22	2.29	1.92
2019/05/09 15:48	0.18	1.53	1.73
2019/05/09 16:03	0.18	1.53	1.70
2019/05/09 16:18	0.15	1.11	1.65
2019/05/09 16:33	0.11	0.69	1.58
2019/05/09 16:48	0.11	0.69	1.58
2019/05/09 17:03	0.11	0.69	1.61

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/09 17:18	0.05	0.14	0.81
2019/05/09 17:33	0.03	0.00	0.39
2019/05/09 17:48	0.03	0.00	0.39
2019/05/09 18:03	0.03	0.00	0.31
2019/05/09 18:18	0.03	0.00	0.31
2019/05/09 18:33	0.05	0.07	0.63
2019/05/09 18:48	0.18	1.32	1.49
2019/05/09 19:03	0.18	1.32	1.49
2019/05/09 19:18	0.18	1.32	1.49
2019/05/09 19:33	0.18	1.39	1.54
2019/05/09 19:48	0.18	1.25	1.39
2019/05/09 20:03	0.18	1.25	1.39
2019/05/09 20:18	0.21	1.67	1.51
2019/05/09 20:33	0.21	1.67	1.51
2019/05/09 20:48	0.21	1.67	1.47
2019/05/09 21:03	0.21	1.67	1.51
2019/05/09 21:18	0.21	1.74	1.53
2019/05/09 21:33	0.21	1.81	1.59
2019/05/09 21:48	0.18	1.39	1.59
2019/05/09 22:03	0.12	0.76	1.59
2019/05/09 22:18	0.11	0.56	1.34
2019/05/09 22:33	0.07	0.21	0.95
2019/05/09 22:48	0.07	0.21	0.83
2019/05/09 23:03	0.07	0.21	0.83
2019/05/09 23:18	0.08	0.21	0.83
2019/05/09 23:33	0.05	0.00	0.17
2019/05/09 23:48	0.04	0.00	0.10
2019/05/10 00:03	0.07	0.35	1.70
2019/05/10 00:18	0.08	0.28	1.08
2019/05/10 00:33	0.05	0.07	0.45
2019/05/10 00:48	0.00	0.00	0.00
2019/05/10 01:03	0.11	0.21	0.45
2019/05/10 01:18	0.00	0.00	0.00
2019/05/10 01:33	0.00	0.00	0.00
2019/05/10 01:48	0.00	0.00	0.00
2019/05/10 02:03	0.00	0.00	0.00
2019/05/10 02:18	0.05	0.00	0.00
2019/05/10 02:33	0.07	0.00	0.05
2019/05/10 02:48	0.00	0.00	0.00
2019/05/10 03:03	0.00	0.00	0.00
2019/05/10 03:18	0.00	0.00	0.00
2019/05/10 03:33	0.00	0.00	0.00
2019/05/10 03:48	0.00	0.00	0.00
2019/05/10 04:03	0.00	0.00	0.00
2019/05/10 04:18	0.00	0.00	0.00

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/10 04:33	0.00	0.00	0.00
2019/05/10 04:48	0.00	0.00	0.00
2019/05/10 05:03	0.00	0.00	0.00
2019/05/10 05:18	0.00	0.00	0.00
2019/05/10 05:33	0.00	0.00	0.00
2019/05/10 05:48	0.00	0.00	0.00
2019/05/10 06:03	0.05	0.00	0.00
2019/05/10 06:18	0.12	0.56	1.19
2019/05/10 06:33	0.30	3.61	1.88
2019/05/10 06:48	0.14	0.76	1.21
2019/05/10 07:03	0.14	0.90	1.50
2019/05/10 07:18	0.18	1.32	1.50
2019/05/10 07:33	0.30	3.12	1.64
2019/05/10 07:48	0.21	1.67	1.50
2019/05/10 08:03	0.30	2.99	1.56
2019/05/10 08:18	0.30	2.99	1.57
2019/05/10 08:33	0.28	2.71	1.57
2019/05/10 08:48	0.26	2.43	1.56
2019/05/10 09:03	0.28	2.71	1.57
2019/05/10 09:18	0.26	2.43	1.57
2019/05/10 09:33	0.25	2.15	1.47
2019/05/10 09:48	0.25	2.15	1.47
2019/05/10 10:03	0.25	2.36	1.64
2019/05/10 10:18	0.14	0.90	1.47
2019/05/10 10:33	0.14	1.04	1.74
2019/05/10 10:48	0.14	1.11	1.82
2019/05/10 11:03	0.12	0.83	1.74
2019/05/10 11:18	0.11	0.69	1.67
2019/05/10 11:33	0.11	0.69	1.67
2019/05/10 11:48	0.11	0.69	1.63
2019/05/10 12:03	0.08	0.35	1.22
2019/05/10 12:18	0.11	0.69	1.63
2019/05/10 12:33	0.11	0.56	1.22
2019/05/10 12:48	0.10	0.49	1.22
2019/05/10 13:03	0.07	0.07	0.18
2019/05/10 13:18	0.00	0.00	0.00
2019/05/10 13:33	0.14	0.07	0.10
2019/05/10 13:48	0.10	0.49	1.22
2019/05/10 14:03	0.07	0.21	0.87
2019/05/10 14:18	0.04	0.07	0.87
2019/05/10 14:33	0.08	0.28	1.04
2019/05/10 14:48	0.08	0.28	1.04
2019/05/10 15:03	0.08	0.28	1.04
2019/05/10 15:18	0.14	1.04	1.75
2019/05/10 15:33	0.16	1.32	1.75

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/10 15:48	0.16	1.32	1.75
2019/05/10 16:03	0.16	1.11	1.50
2019/05/10 16:18	0.16	1.04	1.37
2019/05/10 16:33	0.07	0.14	0.49
2019/05/10 16:48	0.07	0.14	0.49
2019/05/10 17:03	0.08	0.14	0.59
2019/05/10 17:18	0.07	0.14	0.59
2019/05/10 17:33	0.08	0.21	0.77
2019/05/10 17:48	0.08	0.21	0.77
2019/05/10 18:03	0.10	0.35	0.94
2019/05/10 18:18	0.04	0.07	0.77
2019/05/10 18:33	0.04	0.07	0.39
2019/05/10 18:48	0.00	0.00	0.00
2019/05/10 19:03	0.00	0.00	0.00
2019/05/10 19:18	0.00	0.00	0.00
2019/05/10 19:33	0.10	0.00	0.05
2019/05/10 19:48	0.04	0.00	0.00
2019/05/10 20:03	0.21	1.87	1.65
2019/05/10 20:18	0.07	0.14	0.54
2019/05/10 20:33	0.07	0.14	0.54
2019/05/10 20:48	0.07	0.14	0.76
2019/05/10 21:03	0.07	0.14	0.54
2019/05/10 21:18	0.07	0.14	0.54
2019/05/10 21:33	0.10	0.28	0.76
2019/05/10 21:48	0.11	0.62	1.42
2019/05/10 22:03	0.11	0.62	1.42
2019/05/10 22:18	0.11	0.62	1.42
2019/05/10 22:33	0.07	0.07	0.38
2019/05/10 22:48	0.07	0.07	0.38
2019/05/10 23:03	0.07	0.07	0.30
2019/05/10 23:18	0.00	0.00	0.00
2019/05/10 23:33	0.00	0.00	0.00
2019/05/10 23:48	0.00	0.00	0.00
2019/05/11 00:03	0.00	0.00	0.00
2019/05/11 00:18	0.00	0.00	0.00
2019/05/11 00:33	0.00	0.00	0.00
2019/05/11 00:48	0.00	0.00	0.00
2019/05/11 01:03	0.00	0.00	0.00
2019/05/11 01:18	0.00	0.00	0.00
2019/05/11 01:33	0.00	0.00	0.00
2019/05/11 01:48	0.00	0.00	0.00
2019/05/11 02:03	0.00	0.00	0.00
2019/05/11 02:18	0.00	0.00	0.00
2019/05/11 02:33	0.00	0.00	0.00
2019/05/11 02:48	0.00	0.00	0.00

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/11 03:03	0.00	0.00	0.00
2019/05/11 03:18	0.01	0.00	0.00
2019/05/11 03:33	0.00	0.00	0.00
2019/05/11 03:48	0.00	0.00	0.00
2019/05/11 04:03	0.12	0.56	1.21
2019/05/11 04:18	0.00	0.00	0.00
2019/05/11 04:33	0.00	0.00	0.00
2019/05/11 04:48	0.00	0.00	0.00
2019/05/11 05:03	0.03	0.00	0.00
2019/05/11 05:18	0.05	0.00	0.00
2019/05/11 05:33	0.07	0.00	0.07
2019/05/11 05:48	0.00	0.00	0.00
2019/05/11 06:03	0.00	0.00	0.00
2019/05/11 06:18	0.01	0.00	0.00
2019/05/11 06:33	0.16	1.04	1.37
2019/05/11 06:48	0.19	1.60	1.62
2019/05/11 07:03	0.10	0.69	1.79
2019/05/11 07:18	0.16	1.25	1.65
2019/05/11 07:33	0.19	1.60	1.62
2019/05/11 07:48	0.19	1.60	1.64
2019/05/11 08:03	0.19	1.60	1.64
2019/05/11 08:18	0.19	1.53	1.55
2019/05/11 08:33	0.19	1.53	1.55
2019/05/11 08:48	0.22	1.94	1.64
2019/05/11 09:03	0.25	2.64	1.79
2019/05/11 09:18	0.25	2.64	1.79
2019/05/11 09:33	0.25	2.64	1.79
2019/05/11 09:48	0.25	2.64	1.79
2019/05/11 10:03	0.18	1.53	1.72
2019/05/11 10:18	0.18	0.97	1.11
2019/05/11 10:33	0.00	0.00	0.00
2019/05/11 10:48	0.11	0.21	0.52
2019/05/11 11:03	0.00	0.00	0.00
2019/05/11 11:18	0.00	0.00	0.00
2019/05/11 11:33	0.14	0.42	0.73
2019/05/11 11:48	0.16	0.76	1.02
2019/05/11 12:03	0.08	0.14	0.50
2019/05/11 12:18	0.00	0.00	0.00
2019/05/11 12:33	0.36	1.81	0.73
2019/05/11 12:48	0.04	0.07	0.50
2019/05/11 13:03	0.04	0.00	0.27
2019/05/11 13:18	0.04	0.00	0.27
2019/05/11 13:33	0.07	0.07	0.27
2019/05/11 13:48	0.07	0.07	0.27
2019/05/11 14:03	0.03	0.00	0.00

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/11 14:18	0.07	0.00	0.00
2019/05/11 14:33	0.35	3.06	1.26
2019/05/11 14:48	0.11	0.69	1.69
2019/05/11 15:03	0.07	0.21	1.04
2019/05/11 15:18	0.00	0.00	0.00
2019/05/11 15:33	0.11	0.56	1.26
2019/05/11 15:48	0.04	0.07	1.04
2019/05/11 16:03	0.03	0.07	0.61
2019/05/11 16:18	0.03	0.00	0.40
2019/05/11 16:33	0.03	0.00	0.40
2019/05/11 16:48	0.01	0.00	0.18
2019/05/11 17:03	0.07	0.00	0.00
2019/05/11 17:18	0.00	0.00	0.00
2019/05/11 17:33	0.19	1.60	1.63
2019/05/11 17:48	0.08	0.21	0.69
2019/05/11 18:03	0.21	2.08	1.88
2019/05/11 18:18	0.15	1.18	1.76
2019/05/11 18:33	0.15	1.11	1.63
2019/05/11 18:48	0.10	0.35	0.95
2019/05/11 19:03	0.10	0.35	0.95
2019/05/11 19:18	0.00	0.00	0.00
2019/05/11 19:33	0.00	0.00	0.00
2019/05/11 19:48	0.00	0.00	0.00
2019/05/11 20:03	0.14	0.97	1.60
2019/05/11 20:18	0.07	0.14	0.79
2019/05/11 20:33	0.07	0.14	0.79
2019/05/11 20:48	0.00	0.00	0.00
2019/05/11 21:03	0.07	0.14	0.79
2019/05/11 21:18	0.10	0.28	0.79
2019/05/11 21:33	0.22	0.97	0.79
2019/05/11 21:48	0.25	1.60	1.11
2019/05/11 22:03	0.22	2.15	1.77
2019/05/11 22:18	0.23	2.29	1.77
2019/05/11 22:33	0.23	2.29	1.77
2019/05/11 22:48	0.23	2.29	1.77
2019/05/11 23:03	0.10	0.28	0.80
2019/05/11 23:18	0.07	0.14	0.57
2019/05/11 23:33	0.07	0.14	0.57
2019/05/11 23:48	0.07	0.00	0.13
2019/05/12 00:03	0.07	0.00	0.00
2019/05/12 00:18	0.07	0.00	0.00
2019/05/12 00:33	0.07	0.00	0.00
2019/05/12 00:48	0.07	0.00	0.00
2019/05/12 01:03	0.07	0.00	0.00
2019/05/12 01:18	0.00	0.00	0.00

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/12 01:33	0.00	0.00	0.00
2019/05/12 01:48	0.04	0.00	0.00
2019/05/12 02:03	0.08	0.00	0.00
2019/05/12 02:18	0.04	0.00	0.00
2019/05/12 02:33	0.04	0.00	0.00
2019/05/12 02:48	0.00	0.00	0.00
2019/05/12 03:03	0.15	1.18	1.70
2019/05/12 03:18	0.15	0.97	1.43
2019/05/12 03:33	0.14	0.83	1.36
2019/05/12 03:48	0.08	0.21	0.81
2019/05/12 04:03	0.14	0.83	1.40
2019/05/12 04:18	0.14	0.83	1.36
2019/05/12 04:33	0.14	0.83	1.34
2019/05/12 04:48	0.15	0.90	1.34
2019/05/12 05:03	0.15	0.90	1.35
2019/05/12 05:18	0.15	0.90	1.35
2019/05/12 05:33	0.16	1.04	1.37
2019/05/12 05:48	0.18	1.25	1.44
2019/05/12 06:03	0.18	1.32	1.48
2019/05/12 06:18	0.19	1.46	1.49
2019/05/12 06:33	0.19	1.46	1.49
2019/05/12 06:48	0.19	1.46	1.49
2019/05/12 07:03	0.22	1.81	1.50
2019/05/12 07:18	0.26	2.29	1.50
2019/05/12 07:33	0.22	1.67	1.40
2019/05/12 07:48	0.22	1.39	1.13
2019/05/12 08:03	0.26	1.60	1.02
2019/05/12 08:18	0.21	1.11	0.97
2019/05/12 08:33	0.08	0.07	0.29
2019/05/12 08:48	0.21	1.11	0.97
2019/05/12 09:03	0.08	0.14	0.55
2019/05/12 09:18	0.07	0.07	0.44
2019/05/12 09:33	0.08	0.14	0.55
2019/05/12 09:48	0.14	0.83	1.31
2019/05/12 10:03	0.14	0.76	1.25
2019/05/12 10:18	0.19	1.25	1.29
2019/05/12 10:33	0.19	1.25	1.31
2019/05/12 10:48	0.19	1.25	1.29
2019/05/12 11:03	0.19	1.18	1.25
2019/05/12 11:18	0.14	0.69	1.08
2019/05/12 11:33	0.14	0.69	1.08
2019/05/12 11:48	0.14	0.69	1.08
2019/05/12 12:03	0.15	0.97	1.40
2019/05/12 12:18	0.15	0.97	1.40
2019/05/12 12:33	0.15	0.97	1.40

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/12 12:48	0.15	0.90	1.33
2019/05/12 13:03	0.15	0.90	1.33
2019/05/12 13:18	0.15	0.90	1.33
2019/05/12 13:33	0.18	1.32	1.46
2019/05/12 13:48	0.18	1.32	1.46
2019/05/12 14:03	0.16	1.11	1.53
2019/05/12 14:18	0.11	0.62	1.46
2019/05/12 14:33	0.21	1.67	1.46
2019/05/12 14:48	0.23	1.81	1.43
2019/05/12 15:03	0.16	1.04	1.43
2019/05/12 15:18	0.11	0.56	1.32
2019/05/12 15:33	0.11	0.62	1.43
2019/05/12 15:48	0.07	0.14	0.67
2019/05/12 16:03	0.07	0.14	0.67
2019/05/12 16:18	0.05	0.14	0.91
2019/05/12 16:33	0.05	0.14	0.91
2019/05/12 16:48	0.05	0.14	0.91
2019/05/12 17:03	0.00	0.00	0.00
2019/05/12 17:18	0.03	0.00	0.00
2019/05/12 17:33	0.08	0.00	0.00
2019/05/12 17:48	0.00	0.00	0.00
2019/05/12 18:03	0.00	0.00	0.00
2019/05/12 18:18	0.00	0.00	0.00
2019/05/12 18:33	0.00	0.00	0.00
2019/05/12 18:48	0.00	0.00	0.00
2019/05/12 19:03	0.05	0.00	0.00
2019/05/12 19:18	0.00	0.00	0.00
2019/05/12 19:33	0.00	0.00	0.00
2019/05/12 19:48	0.00	0.00	0.00
2019/05/12 20:03	0.04	0.00	0.00
2019/05/12 20:18	0.03	0.00	0.00
2019/05/12 20:33	0.07	0.00	0.00
2019/05/12 20:48	0.00	0.00	0.00
2019/05/12 21:03	0.22	1.04	0.86
2019/05/12 21:18	0.10	0.14	0.37
2019/05/12 21:33	0.04	0.00	0.16
2019/05/12 21:48	0.03	0.00	0.10
2019/05/12 22:03	0.07	0.07	0.26
2019/05/12 22:18	0.04	0.00	0.16
2019/05/12 22:33	0.03	0.00	0.00
2019/05/12 22:48	0.00	0.00	0.00
2019/05/12 23:03	0.04	0.00	0.00
2019/05/12 23:18	0.03	0.00	0.00
2019/05/12 23:33	0.00	0.00	0.00
2019/05/12 23:48	0.03	0.00	0.00

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/13 00:03	0.00	0.00	0.00
2019/05/13 00:18	0.00	0.00	0.00
2019/05/13 00:33	0.03	0.00	0.00
2019/05/13 00:48	0.05	0.00	0.00
2019/05/13 01:03	0.03	0.00	0.00
2019/05/13 01:18	0.00	0.00	0.00
2019/05/13 01:33	0.00	0.00	0.00
2019/05/13 01:48	0.00	0.00	0.00
2019/05/13 02:03	0.00	0.00	0.00
2019/05/13 02:18	0.01	0.00	0.00
2019/05/13 02:33	0.00	0.00	0.00
2019/05/13 02:48	0.00	0.00	0.00
2019/05/13 03:03	0.01	0.00	0.00
2019/05/13 03:18	0.07	0.00	0.00
2019/05/13 03:33	0.01	0.00	0.00
2019/05/13 03:48	0.00	0.00	0.00
2019/05/13 04:03	0.00	0.00	0.00
2019/05/13 04:18	0.00	0.00	0.00
2019/05/13 04:33	0.00	0.00	0.00
2019/05/13 04:48	0.00	0.00	0.00
2019/05/13 05:03	0.00	0.00	0.00
2019/05/13 05:18	0.03	0.00	0.00
2019/05/13 05:33	0.04	0.00	0.00
2019/05/13 05:48	0.05	0.00	0.00
2019/05/13 06:03	0.00	0.00	0.00
2019/05/13 06:18	0.11	0.49	1.12
2019/05/13 06:33	0.15	1.25	1.85
2019/05/13 06:48	0.07	0.21	0.83
2019/05/13 07:03	0.12	0.76	1.56
2019/05/13 07:18	0.12	0.76	1.53
2019/05/13 07:33	0.12	0.76	1.53
2019/05/13 07:48	0.10	0.28	0.83
2019/05/13 08:03	0.09	0.14	0.37
2019/05/13 08:18	0.15	0.28	0.37
2019/05/13 08:33	0.08	0.07	0.37
2019/05/13 08:48	0.07	0.14	0.66
2019/05/13 09:03	0.21	0.90	0.79
2019/05/13 09:18	0.11	0.62	1.47
2019/05/13 09:33	0.11	0.69	1.67
2019/05/13 09:48	0.11	0.69	1.67
2019/05/13 10:03	0.21	2.08	1.84
2019/05/13 10:18	0.23	2.15	1.67
2019/05/13 10:33	0.28	2.50	1.45
2019/05/13 10:48	0.30	2.78	1.45
2019/05/13 11:03	0.30	3.68	1.94

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/13 11:18	0.35	5.00	2.07
2019/05/13 11:33	0.30	3.96	2.07
2019/05/13 11:48	0.30	3.96	2.07
2019/05/13 12:03	0.30	3.96	2.07
2019/05/13 12:18	0.22	2.29	1.93
2019/05/13 12:33	0.12	0.83	1.69
2019/05/13 12:48	0.10	0.28	0.83
2019/05/13 13:03	0.10	0.28	0.83
2019/05/13 13:18	0.10	0.28	0.83
2019/05/13 13:33	0.10	0.28	0.83
2019/05/13 13:48	0.10	0.28	0.83
2019/05/13 14:03	0.10	0.28	0.83
2019/05/13 14:18	0.10	0.28	0.83
2019/05/13 14:33	0.05	0.07	0.55
2019/05/13 14:48	0.10	0.35	0.98
2019/05/13 15:03	0.08	0.14	0.55
2019/05/13 15:18	0.08	0.14	0.55
2019/05/13 15:33	0.10	0.21	0.58
2019/05/13 15:48	0.15	0.56	0.82
2019/05/13 16:03	0.10	0.21	0.58
2019/05/13 16:18	0.15	0.56	0.82
2019/05/13 16:33	0.15	0.56	0.82
2019/05/13 16:48	0.12	0.35	0.72
2019/05/13 17:03	0.10	0.28	0.71
2019/05/13 17:18	0.03	0.07	0.71
2019/05/13 17:33	0.04	0.00	0.23
2019/05/13 17:48	0.03	0.00	0.15
2019/05/13 18:03	0.00	0.00	0.00
2019/05/13 18:18	0.04	0.00	0.00
2019/05/13 18:33	0.05	0.00	0.00
2019/05/13 18:48	0.12	0.28	0.58
2019/05/13 19:03	0.11	0.28	0.69
2019/05/13 19:18	0.05	0.07	0.34
2019/05/13 19:33	0.11	0.35	0.80
2019/05/13 19:48	0.11	0.28	0.58
2019/05/13 20:03	0.08	0.14	0.43
2019/05/13 20:18	0.08	0.14	0.43
2019/05/13 20:33	0.08	0.14	0.43
2019/05/13 20:48	0.20	0.42	0.43
2019/05/13 21:03	0.44	0.69	0.21
2019/05/13 21:18	0.05	0.00	0.00
2019/05/13 21:33	0.08	0.00	0.00
2019/05/13 21:48	0.10	0.00	0.00
2019/05/13 22:03	0.00	0.00	0.00
2019/05/13 22:18	0.03	0.00	0.00

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/13 22:33	0.03	0.00	0.00
2019/05/13 22:48	0.00	0.00	0.00
2019/05/13 23:03	0.00	0.00	0.00
2019/05/13 23:18	0.00	0.00	0.00
2019/05/13 23:33	0.00	0.00	0.00
2019/05/13 23:48	0.00	0.00	0.00
2019/05/14 00:03	0.00	0.00	0.00
2019/05/14 00:18	0.00	0.00	0.00
2019/05/14 00:33	0.00	0.00	0.00
2019/05/14 00:48	0.10	0.62	1.60
2019/05/14 01:03	0.05	0.14	0.90
2019/05/14 01:18	0.07	0.28	1.13
2019/05/14 01:33	0.00	0.00	0.00
2019/05/14 01:48	0.09	0.28	0.90
2019/05/14 02:03	0.00	0.00	0.00
2019/05/14 02:18	0.12	0.07	0.10
2019/05/14 02:33	0.00	0.00	0.00
2019/05/14 02:48	0.10	0.00	0.00
2019/05/14 03:03	0.00	0.00	0.00
2019/05/14 03:18	0.00	0.00	0.00
2019/05/14 03:33	0.00	0.00	0.00
2019/05/14 03:48	0.00	0.00	0.00
2019/05/14 04:03	0.00	0.00	0.00
2019/05/14 04:18	0.00	0.00	0.00
2019/05/14 04:33	0.28	1.74	1.00
2019/05/14 04:48	0.00	0.00	0.00
2019/05/14 05:03	0.00	0.00	0.00
2019/05/14 05:18	0.00	0.00	0.00
2019/05/14 05:33	0.14	1.04	1.66
2019/05/14 05:48	0.07	0.21	0.82
2019/05/14 06:03	0.04	0.07	0.48
2019/05/14 06:18	0.21	2.15	1.91
2019/05/14 06:33	0.07	0.21	0.82
2019/05/14 06:48	0.05	0.07	0.50
2019/05/14 07:03	0.04	0.07	0.48
2019/05/14 07:18	0.05	0.07	0.50
2019/05/14 07:33	0.05	0.07	0.50
2019/05/14 07:48	0.10	0.28	0.72
2019/05/14 08:03	0.00	0.00	0.00
2019/05/14 08:18	0.21	0.76	0.69
2019/05/14 08:33	0.01	0.00	0.04
2019/05/14 08:48	0.18	0.56	0.60
2019/05/14 09:03	0.23	2.22	1.71
2019/05/14 09:18	0.18	0.62	0.69
2019/05/14 09:33	0.16	1.18	1.57

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/14 09:48	0.18	1.46	1.64
2019/05/14 10:03	0.18	1.46	1.66
2019/05/14 10:18	0.18	1.46	1.66
2019/05/14 10:33	0.23	2.15	1.70
2019/05/14 10:48	0.23	2.15	1.70
2019/05/14 11:03	0.23	2.15	1.70
2019/05/14 11:18	0.19	1.53	1.57
2019/05/14 11:33	0.16	1.18	1.54
2019/05/14 11:48	0.10	0.49	1.27
2019/05/14 12:03	0.16	1.11	1.45
2019/05/14 12:18	0.19	1.39	1.45
2019/05/14 12:33	0.19	1.25	1.29
2019/05/14 12:48	0.19	1.39	1.45
2019/05/14 13:03	0.19	1.39	1.45
2019/05/14 13:18	0.21	1.60	1.45
2019/05/14 13:33	0.21	1.74	1.55
2019/05/14 13:48	0.21	1.74	1.55
2019/05/14 14:03	0.15	0.97	1.39
2019/05/14 14:18	0.15	0.97	1.39
2019/05/14 14:33	0.15	0.97	1.39
2019/05/14 14:48	0.15	0.97	1.39
2019/05/14 15:03	0.26	2.43	1.58
2019/05/14 15:18	0.26	2.43	1.59
2019/05/14 15:33	0.26	2.43	1.59
2019/05/14 15:48	0.23	2.01	1.58
2019/05/14 16:03	0.15	0.90	1.35
2019/05/14 16:18	0.15	0.90	1.35
2019/05/14 16:33	0.15	0.90	1.35
2019/05/14 16:48	0.18	1.25	1.39
2019/05/14 17:03	0.18	1.39	1.54
2019/05/14 17:18	0.22	1.87	1.58
2019/05/14 17:33	0.22	1.87	1.58
2019/05/14 17:48	0.22	1.87	1.55
2019/05/14 18:03	0.23	2.01	1.55
2019/05/14 18:18	0.23	2.01	1.55
2019/05/14 18:33	0.23	2.01	1.55
2019/05/14 18:48	0.23	2.01	1.55
2019/05/14 19:03	0.14	0.83	1.34
2019/05/14 19:18	0.11	0.56	1.27
2019/05/14 19:33	0.11	0.56	1.27
2019/05/14 19:48	0.11	0.56	1.27
2019/05/14 20:03	0.12	0.62	1.27
2019/05/14 20:18	0.14	0.83	1.31
2019/05/14 20:33	0.33	3.47	1.58
2019/05/14 20:48	0.16	1.18	1.58

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/14 21:03	0.37	4.17	1.59
2019/05/14 21:18	0.37	4.44	1.70
2019/05/14 21:33	0.28	2.92	1.70
2019/05/14 21:48	0.16	1.18	1.59
2019/05/14 22:03	0.16	1.18	1.56
2019/05/14 22:18	0.15	1.04	1.51
2019/05/14 22:33	0.15	0.97	1.40
2019/05/14 22:48	0.14	0.83	1.34
2019/05/14 23:03	0.14	0.83	1.32
2019/05/14 23:18	0.12	0.62	1.32
2019/05/14 23:33	0.12	0.62	1.28
2019/05/14 23:48	0.11	0.56	1.27
2019/05/15 00:03	0.11	0.56	1.23
2019/05/15 00:18	0.10	0.42	1.18
2019/05/15 00:33	0.10	0.42	1.17
2019/05/15 00:48	0.10	0.42	1.17
2019/05/15 01:03	0.07	0.21	0.83
2019/05/15 01:18	0.10	0.42	1.14
2019/05/15 01:33	0.14	0.49	0.83
2019/05/15 01:48	0.14	0.49	0.81
2019/05/15 02:03	0.14	0.35	0.61
2019/05/15 02:18	0.00	0.00	0.00
2019/05/15 02:33	0.00	0.00	0.00
2019/05/15 02:48	0.04	0.00	0.07
2019/05/15 03:03	0.00	0.00	0.00
2019/05/15 03:18	0.00	0.00	0.00
2019/05/15 03:33	0.00	0.00	0.00
2019/05/15 03:48	0.03	0.00	0.00
2019/05/15 04:03	0.00	0.00	0.00
2019/05/15 04:18	0.00	0.00	0.00
2019/05/15 04:33	0.00	0.00	0.00
2019/05/15 04:48	0.00	0.00	0.00
2019/05/15 05:03	0.28	3.33	1.93
2019/05/15 05:18	0.10	0.28	0.67
2019/05/15 05:33	0.11	0.62	1.44
2019/05/15 05:48	0.10	0.49	1.26
2019/05/15 06:03	0.10	0.49	1.26
2019/05/15 06:18	0.18	1.11	1.26
2019/05/15 06:33	0.19	1.32	1.33
2019/05/15 06:48	0.21	1.46	1.33
2019/05/15 07:03	0.18	1.46	1.61
2019/05/15 07:18	0.19	1.67	1.70
2019/05/15 07:33	0.19	1.67	1.70
2019/05/15 07:48	0.18	1.53	1.70
2019/05/15 08:03	0.18	1.53	1.69

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/15 08:18	0.19	1.67	1.69
2019/05/15 08:33	0.19	1.67	1.69
2019/05/15 08:48	0.21	2.01	1.80
2019/05/15 09:03	0.21	2.01	1.80

Appendix 7

City of Santa Ana Design Criteria

SECTION 300

DESIGN CRITERIA, SEWER FACILITIES

300.1 GENERAL

The following sections are design criteria to be used in the design of sewer facilities for the City of Santa Ana. The Applicant (developer/builder) and his engineer shall be responsible to ensure that designs submitted are in accordance with the City's Municipal Code, these Design Guidelines, and the City's Standard Plans and Specifications. Where the Standard Plans and Specifications are silent, the design and installation of the sewer mains and manholes shall conform to the Standard Specifications for Public Works Construction, current edition.

300.2 MINIMUM SIZE

The City of Santa Ana will not accept for maintenance any sewer main smaller than 8 inches in diameter.

300.3 MINIMUM AND MAXIMUM SLOPE DESIGN

All sewers shall be designed and constructed to provide a mean velocity of not less than two (2) feet per second (fps) when flowing half-full at the estimated peak flow. Peak flows shall be calculated using Manning's formula with an "n" value of 0.013. The following are minimum slopes by pipe size:

<u>Sewer Size (inches)</u>	<u>Minimum Slope in Feet per 100 Feet</u>
8	0.40
10	0.28
12	0.22

These are absolute minimum slopes. Sewers shall be designed to provide steeper slopes whenever possible up to the stated maximum slope. The maximum allowable slope shall be the slope which generates a maximum flow velocity of eight (8) fps at the peak flow rate.

The maximum slope for sewer laterals is forty (40%) percent. The desirable maximum is ten (10%) percent.

The maximum slope for sewer main lines is 20 (20%) percent. The desirable maximum is ten (10%) percent.

Under special conditions, the Applicant may request slopes of less than the minimums stated. The Applicant must submit this request along with back-up data and calculations to show that the depth of flow at the design average flow will be 0.3 of the pipe diameter or greater. The Applicant must also submit computations to show the depths of flow at minimum and average rates of flow. The request shall also detail the reasons why the normal minimum slopes cannot be achieved. The request and supporting data will be reviewed by the City.

300.4 FLOW DESIGN CRITERIA

300.4.1 Sewerage Flows

All design flows shall be based on the Applicant's (developer/builder) estimated sewerage generation rates for the proposed use, application, establishment, commercial, industry or development or re-development project. The following average sewage flow coefficients can be used as a guide to estimate the sewerage generation for some of the more common land uses:

<u>Land Use Classification</u>	<u>Average Sewage Flow Coefficient</u>
Low Density Residential (8 du/ac max)	0.0032 cfs/acre
Medium Density Residential (15 du/ac max)	0.0045 cfs/acre
Med/High Density Residential (35 du/ac max)	0.0105 cfs/acre
Med. Urban Center Residential (60 du/ac max)	0.0180 cfs/acre
Urban Center Residential (90 du/ac max)	0.0270 cfs/acre
Mixed Use Corridor (130 du/ac max)	0.0400 cfs/acre
Commercial	0.0050 cfs/acre
Industrial	0.0060 cfs/acre
Schools	25 gals/day per student
Medical Center	0.0250 cfs/acre
Hospital	1,000 gals/day per bed

300.4.2 Peak Flows

The peak flow is assumed to be 3.0 times the average sewage flow.

300.4.3 Design Criteria

Design peak flows in pipelines 12 inches in diameter and smaller are to be limited to approximately $d/D = 0.5$ ($\frac{1}{2}$ of full depth). Pipes over 12 inches in diameter are to be limited to approximately $d/D = 0.75$ ($\frac{3}{4}$ of full depth) at design peak flows.

300.5 TYPE OF PIPE

All sewer mains shall be vitrified clay pipe (VCP) or PVC SDR-26 pipe. All other pipe materials require special review and approval from the Water Resources Division. Sewer pipe material shall remain constant (continuous) between manholes. Transitioning between pipe material types (such as VCP to PVC), and size changes, may only be done at manholes.

All sewer laterals shall be either extra strength VCP or SDR-26 PVC pipe. The material used for construction of sewer laterals shall match the materials of construction for the adjacent sewer main to which they are connected.