

FINAL Basis of Design Report

APPROVED

APPROVED AS NOTED

REVISE AND RESUBMIT



Disclaimer: If approved; the approval is granted under the condition that the final construction documents submitted for city review will match the information herein. Any subsequent changes in the water or sewer design that materially impact design criteria or standards will require re-analysis, re-submittal, and approval of a revised basis of design report prior to the plan review submission.; this approval is not a guarantee of construction document acceptance. For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY scan

DATE 6/1/2022

Wastewater Basis of Design Report

Shadow Ridge North

Prepared for:

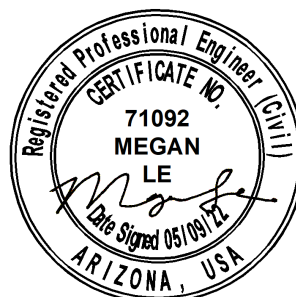
Camelot Homes, Inc.
6607 N. Scottsdale Rd. Suite H-100
Scottsdale, AZ 85250

Prepared by:

Kimley-Horn & Associates, Inc.
7740 North 16th Street, Suite 300
Phoenix, AZ 85020



291104122
May 2022
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EXPIRES 06/30/2023

Sewer Basis of Design

SHADOW RIDGE NORTH

MAY 2022

Prepared By:

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Appendix C – Sereno Canyon Phase 4 - Master Sewer Plan 128th Street Offsite Analysis

1.0 INTRODUCTION

Kimley-Horn has prepared this wastewater basis of design report for the proposed residential development at the southwest corner of E. Ranch Gate Road and N. 128th Street in Scottsdale, Arizona. This report will demonstrate that the proposed project conforms to the City of Scottsdale design requirements.

Shadow Ridge North, the “Site”, encompasses approximately 29.0 acres and contains a total of 19 single family residential lots. The project lies within a portion of the northeast quarter of Section 11, Township 4 North, Range 5 East of the Gila and Salt River Base and Meridian in Maricopa County, Arizona. More specifically, the project is bounded by 128th Street to the east, Ranch Gate Road to the north, with single family residential subdivisions to the west, east, and south, and undeveloped land to the north. The existing zoning is R1-130, and the proposed zoning is R1-43 ESL (17 lots) and R1-130 ESL (2 lots). The site’s topography is upper desert and slopes from the southwest to the northeast at approximately 14%. Refer to **Figure 1** in **Appendix A** for the Vicinity Map.

2.0 WASTEWATER COLLECTION SYSTEM

2.1 SYSTEM LAYOUT

There is an existing 8" sanitary sewer main in 128th Street that flows to the north. A proposed 8" sewer main is proposed to service the site that will connect to this existing sewer main in 128th Street. Refer to **Figure 2** in **Appendix A** for the wastewater layout.

All 8" sewer lines will be PVC SDR 35 at a minimum slope of 0.52%. Sewer Manhole sections and cones will be precast concrete as detailed in the MAG Standard Detail No. 420, without the manhole steps and/or cast in anchors for steps. Manholes shall be 4 feet in diameter, and for depths less than 10 feet, manholes shall be 5 feet in diameter for all depths greater than 10 foot. The proposed wash crossing will be contained in the road and the sewerline will be dipped below the storm drains to protect them from the washes.

2.2 SYSTEM ANALYSIS AND RESULTS

To determine the capacity of the proposed onsite wastewater collection system, design flows were calculated and analyzed with minimum pipe design slopes. Design flows are calculated based on the criteria in Section 7-1.403 of **Reference 1**. For residential developments, the design flow is 100 gallons per capita per day (gpcd) with a peaking factor of 4. Residential densities are assumed to be 2.5 persons per dwelling unit. Average Day Flow (ADF) and Peak Day Flow (PDF) are summarized in Table 2 below:

Table 2: Wastewater Design Flows

# DUs	Density (persons/DU)	Design flow (gpcpd)	ADF (GPD)	Peaking Factor	PDF (GPD)	PDF (GPM)
19	2.5	100	4,750	4.0	19,000	13.2

Sanitary sewer lines will be designed to maintain a full flow velocity between 2.5 ft/sec – 10 ft/sec with a maximum depth to diameter ratio (d/D) of 0.65 in the ultimate peak flow condition. To achieve the velocity requirements, the minimum slope of 0.52% and maximum slope of 8.33% will be utilized. Using the peak flow calculated in **Table 2** and the minimum design slope, a sewer main with a diameter (D) of 8" has the capacity to convey the proposed design flows with a flow depth (d) of 1.0" and a d/D ratio of 0.13. Sewer pipe capacity results can be seen in **Appendix B**.

The Sereno Canyon Phase 4 – Master Sewer Plan 128th Street Offsite Analysis, included in **Appendix C**, shows the 8" sewer main will not have the capacity for the additional lots proposed by Shadow Ridge North (OS5) and the McDowell Manor (OS4) development to the north. This was calculated assuming 40 lots each for a total of 80 additional lots to connect to the 8" in 128th. Since the master report was completed, it was determined that the developments will be less dense than anticipated with an assumed total lot count of 55 lots. This reduces the d/D in the pipe 211, See **Figure 1**, to 0.6583. While this is over the maximum required d/D ratio, it is within a factor of safety that doesn't require the 8" pipe to be upsized. ✓

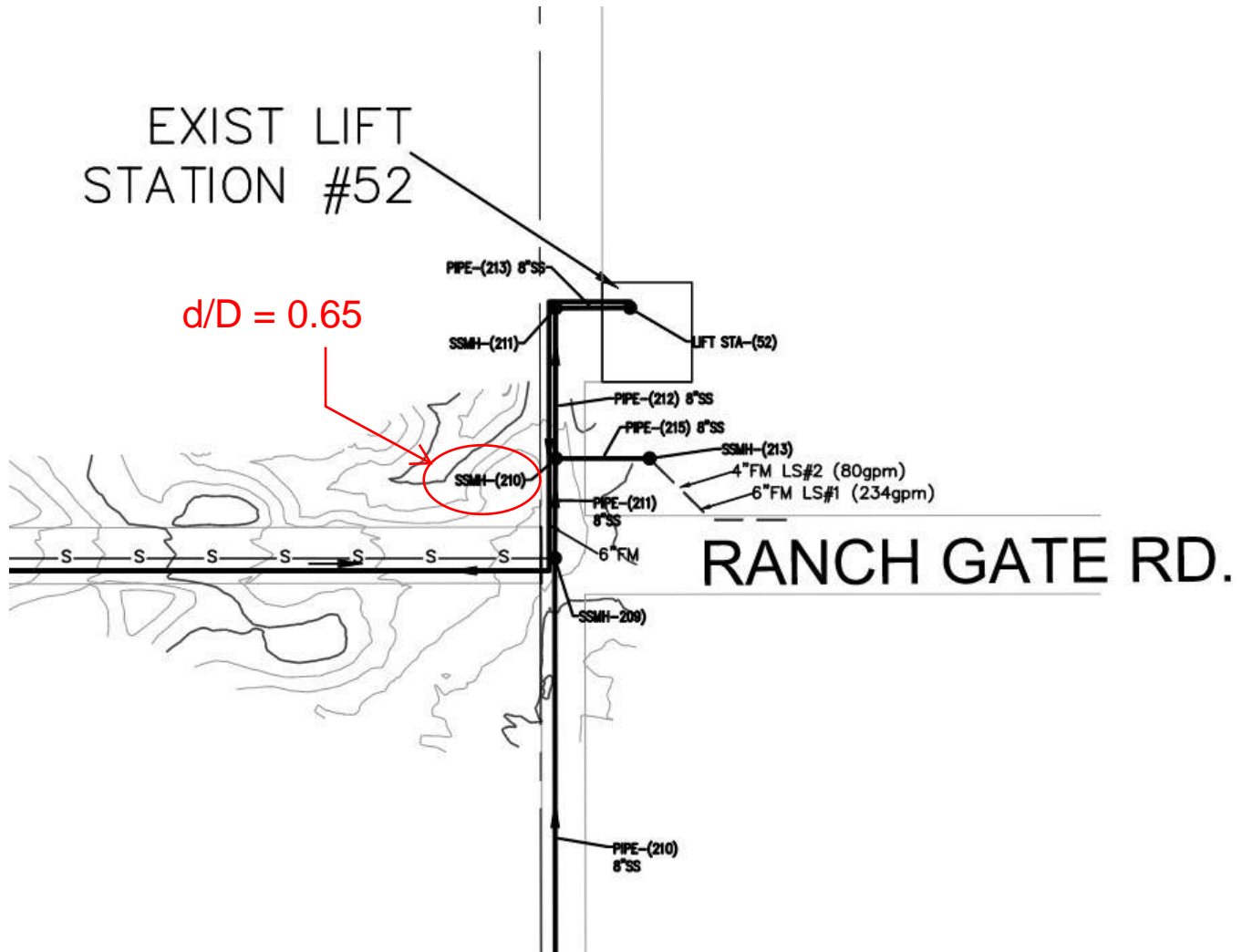


Figure 1: Existing 8" sewer in 128th Street

3.0 CONCLUSION

This project proposes a new 8" sanitary sewer main to serve the proposed development which will gravity flow into the existing 8" sanitary main in 128th Street. Proposed sanitary sewer for private road will be within the water and sewer easement of Tract A. Based on the analysis in this report, an 8" sewer main has the capacity to convey the proposed design flow for the development.

4.0 REFERENCES

1. City of Scottsdale, *Design Standards and Policies Manual*. 2021.
2. International Code Council, *2015 International Fire Code*. 2015.

Appendix A – Figures

Figure 1 – Vicinity Map

Figure 2 – Wastewater Layout

Appendix B – Sewer Capacity Calculations

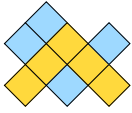
Worksheet for 8" Capacity

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.012
Channel Slope	0.005 ft/ft
Diameter	8.0 in
Discharge	19,000.00 gal/day
Results	
Normal Depth	1.0 in
Flow Area	0.0 ft ²
Wetted Perimeter	0.5 ft
Hydraulic Radius	0.6 in
Top Width	0.43 ft
Critical Depth	0.9 in
Percent Full	12.1 %
Critical Slope	0.006 ft/ft
Velocity	1.23 ft/s
Velocity Head	0.02 ft
Specific Energy	0.10 ft
Froude Number	0.920
Maximum Discharge	656,287.99 gal/day
Discharge Full	610,099.85 gal/day
Slope Full	0.000 ft/ft
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	0.0 %
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	1.0 in
Critical Depth	0.9 in
Channel Slope	0.005 ft/ft
Critical Slope	0.006 ft/ft

Worksheet for 8" Full Flow Capacity

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Capacity
Input Data	
Roughness Coefficient	0.012
Channel Slope	0.005 ft/ft
Normal Depth	8.0 in
Diameter	8.0 in
Discharge	610,099.85 gal/day
Results	
Discharge	610,099.85 gal/day
Normal Depth	8.0 in
Flow Area	0.3 ft ²
Wetted Perimeter	2.1 ft
Hydraulic Radius	2.0 in
Top Width	0.00 ft
Critical Depth	5.5 in
Percent Full	100.0 %
Critical Slope	0.008 ft/ft
Velocity	2.70 ft/s
Velocity Head	0.11 ft
Specific Energy	0.78 ft
Froude Number	(N/A)
Maximum Discharge	656,287.99 gal/day
Discharge Full	610,099.85 gal/day
Slope Full	0.005 ft/ft
Flow Type	Undefined
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	0.0 %
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	8.0 in
Critical Depth	5.5 in
Channel Slope	0.005 ft/ft
Critical Slope	0.008 ft/ft

Appendix C – Sereno Canyon Phase 4
– Master Sewer Plan 128th Street
Offsite Analysis



November 2, 2021

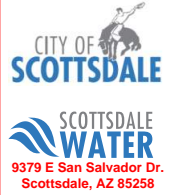
To: City of Scottsdale

From: Jorge Garré, P.E.
Argus Consulting, P.C.
28150 N. Alma School Pkwy., Suite 103-#193
Scottsdale, Arizona 85262
(480) 596-1131
igarre.argus@att.net

Re: Sereno Canyon Phase 4 – Master Sewer Plan
128th Street Offsite Analysis

**FINAL Basis of Design
Report**

- APPROVED**
 APPROVED AS NOTED
 REVISE AND RESUBMIT



Disclaimer: If approved; the approval is granted under the condition that the final construction documents submitted for city review will match the information herein. Any subsequent changes in the water or sewer design that materially impact design criteria or standards will require re-analysis, re-submittal, and approval of a revised basis of design report prior to the plan review submission.; this approval is not a guarantee of construction document acceptance. For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY scan

DATE 12/9/2021

Sereno Canyon Master Sewer Plan (Amendment #2) (SMP#2) report and flow model analysis dated May 26, 2020 and approved by City of Scottsdale sets the basis of sewer design for Parcels F, G, H, I, and J.

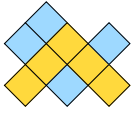
With Parcel H improvement plans under review, City staff has requested an offsite sewer flow analysis along 128th Street from Sereno Canyon property north to Lift Station #52 (LS-52) owned by the City of Scottsdale. The graphics, calculations, and results attached support the sewer discharge from Sereno Canyon Phase 4 Parcels F, G, H, I, and J; into 128th Street sewer line.

Wastewater flows generated by the Sereno development (Parcels F, G, H, I, and J) will discharge into a proposed 8-inch sewer line within 128th Street. Kimley-Horn Associates Phase 2B plans for Story Rock. (5653-17-19) approved by the City of Scottsdale show Sereno sewer line connections at 128th Street.

The sewer offsite analysis presented herein, extends the SMP#2 analysis (Figure 1) to include 8-inch sewer line in 128th Street north to existing LS-52. The Conceptual Master Wastewater Plan (MWP) report for Story Rock approved by City of Scottsdale on September 9th, 2021 has been used to model Story Rock flows contributing to the 128th Street sewer line. Figure 2 (attached) from said report shows the Story Rock wastewater collection system layout.

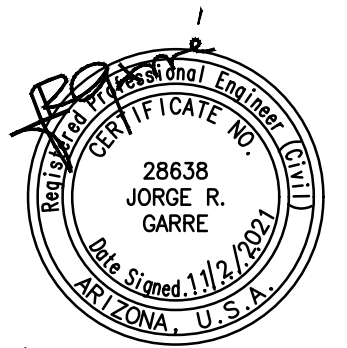
Flow analysis presented in the attached calculations, represent full development conditions for the tributary areas to the 128th Street sewer line. Additionally, an interim scenario consisting of only currently developed and developments under construction has been analyzed. Flow analysis assumes peak flow from all contributory areas arriving at LS-52 simultaneously, while unlikely it is theoretically possible

Offsite areas named OS4, OS 5, OS 6, TE and Story Rock Phase 3 are included in full development scenario and excluded in the Interim scenario.



The results of our sewer flow analysis noted a potential line capacity issue in Pipe 213 discharging from 128th Street into LS-52, north of Ranch Gate Road. The line will require increase slope or size to meet the cities criteria for flow and depth/diameter ratio of 0.65.

A possible solution that would not change the invert elevation at LS-52, would be to install 12-inch pipe. Upsizing to 12-inch pipe will meet both City design criteria.



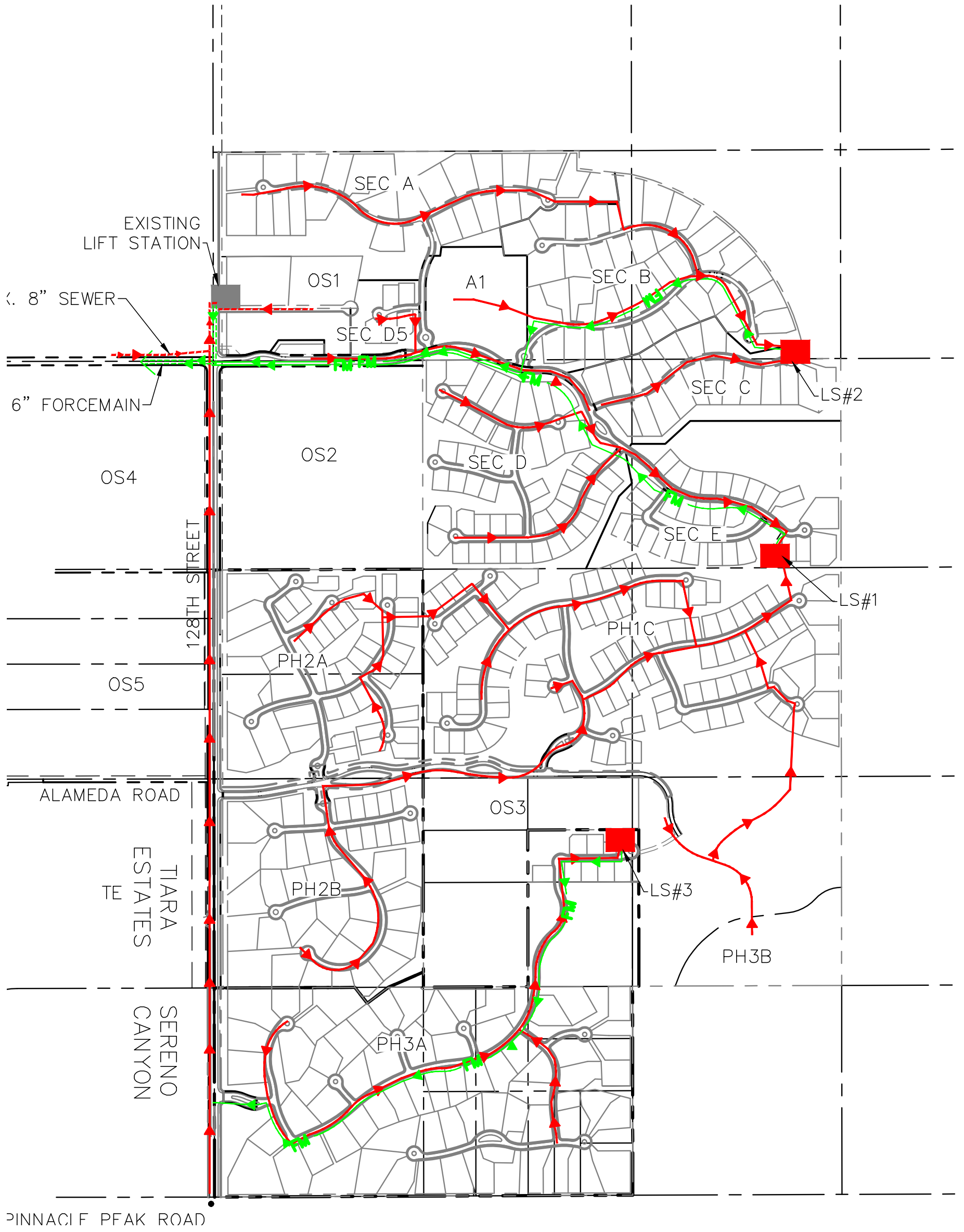
SCALE: 1=200' EXPIRES 12/31/21




ARGUS CONSULTING
 A CIVIL ENGINEERING COMPANY, P.C.
 10115 E. Bell Road, Suite 107 - #104
 Scottsdale, Arizona 85260 480-596-1131


SERENO CANYON PHASE 4

FIGURE 1
 SEWER PLAN

Designed by	Drawn by
Date 11/2/2021	Job No.
	Sheet 1 of 1



-  PROPOSED GRAVITY SEWER AND FLOW DIRECTION
-  PROPOSED FORCE MAIN
-  PROPOSED LIFT STATION

1 OF 1	PROJECT NO. 191988002 DRAWING NAME	STORYROCK CONCEPTUAL MASTER WASTEWATER PLAN FIGURE 2 - SEWER LAYOUT SCOTTSDALE, ARIZONA	SCALE (H): 1"=50' SCALE (V): NONE DESIGNED BY: ZJH DRAWN BY: ZJH CHECKED BY: JMB DATE: JAN 2019	 © 2019 KIMLEY-HORN AND ASSOCIATES, INC. 7740 North 16th Street, Suite 300 Phoenix, Arizona 85020 (602) 944-5500	NO.	REVISION	DATE

FULL DEVELOPMENT CONDITIONS

Sewer Model Node Demand Assignment

Project:		Sereno Canyon Phase 4										
Location:		Scottsdale, AZ										
SSMH	Phase	Rim Elevation	# of Units	Persons Per Unit (PPU)	Total Pop.	Daily Flow Factor (gal/cap-day)	Residential gallons/unit /day	Average Daily Flow (gpd)	Average Daily Flow (gpm)	Peaking Factor	Demand Flow with peaking factor (gpm)	Demand Flow with peaking factor (cfs)
1	4	2769.45	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
2	4	2761.99	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
3	4	2758.01	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
4	4	2762.73	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
5	4	2831.55	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
6	4	2832.98	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
7	4	2788.9	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
8	4	2785.33	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
9	4	2782.57	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
10	4	2779.75	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
11	4	2774.74	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
12	4	2770.74	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
13	4	2767.29	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
14	4	2765.21	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
15	4	2763.84	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
16	4	2838.32	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
17	4	2834.2	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
18	4	2826.45	5	2.5	12.5	100	250	1250	0.87	4.00	3.472	0.0077
19	4	2820.37	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
20	4	2818.1	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
21	4	2797.06	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
22	4	2830	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
23	4	2815.87	10	2.5	25.0	100	250	2500	1.74	4.00	6.944	0.0155
24	4	2799.18	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
25	4	2801.92	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
26	4	2776.29	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
27	4	2779.72	6	2.5	15.0	100	250	1500	1.04	4.00	4.167	0.0093
28	4	2788.07	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
29	4	2792.76	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
30	4	2797.11	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
31	4	2801.29	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
32	4	2804.34	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
33	4	2807.55	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
34	4	2812.29	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
35	4	2813.43	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
36	4	2804.59	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
37	4	2797.26	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
38	4	2797.86	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
39	4	2780.57	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
40	4	2779.22	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
41	4	2779.76	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
42	4	2792.05	7	2.5	17.5	100	250	1750	1.22	4.00	4.861	0.0108
43	4	2793.06	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
44	4	2795.26	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
45	4	2771.86	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
46	4	2773.99	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
47	4	2776.51	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
48	4	2780.97	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
49	4	2786.58	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
50	4	2786.99	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
57	4	2797	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
58	4	2798.5	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
59	4	2811	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
60	4	2809.64	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
61	4	2810.09	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
62	4	2814.06	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
63	4	2827.13	11	2.5	27.5	100	250	2750	1.91	4.00	7.639	0.0170
64	4	2830.21	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
65	4	2833.17	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
66	4	2836.28	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
67	4	2838.03	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
68	4	2838.62	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
69	Resort	2827.79	25	2.5	62.5	100	380	9500	6.60	4.50	29.688	0.0661
69	Spa	2827.79	14500	sf			1.2	17400	12.08	6.00	72.500	0.1615
70	4	2791.77	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
71	4	2784.42	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
72	4	2778.21	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
73	4	2775.32	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
74	4	2768.13	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
75	4	2761.66	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
76	4	2758.02	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
77	4	2756.62	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
78	4	2815.62	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
79	4	2810.92	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
80	4	2806.99	8	2.5	20.0	100	250	2000	1.39	4.00	5.556	0.0124
81	4	2793.72	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062

Sewer Model Node Demand Assignment

Project: Sereno Canyon Phase 4
 Location: Scottsdale, AZ

SSMH	Phase	Rim Elevation	# of Units	Persons Per Unit (PPU)	Total Pop.	Daily Flow Factor (gal/cap-day)	Residential gallons/unit /day	Average Daily Flow (gpd)	Average Daily Flow (gpm)	Peaking Factor	Demand Flow with peaking factor (gpm)	Demand Flow with peaking factor (cfs)
82	4	2792.27	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
83	4	2790.23	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
84	4	2788.87	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
85	4	2786.14	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
86	4	2784.14	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
87	4	2802.83	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
88	4	2798.62	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
89	4	2792.17	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
90	4	2786.74	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
91	4	2781.38	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
92	4	2777.77	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
93	4	2772.93	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
94	4	2768.26	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
95	4	2763.13	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
96	4	2768.52	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
97	4	2766.99	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
98	4	2762.87	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
99	4	2758.75	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
100	4	2754.57	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
101	4	2752.31	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
102	4	2749.75	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
103	4	2744.71	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
104	4	2743.48	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
105	4	2745.14	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
106	4	2746.64	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
107	4	2754.54	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
108	4	2758.26	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
109	4	2760.57	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
110	4	2765.17	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
111	4	2770.98	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
112	4	2775.76	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
113	4	2781.48	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
114	4	2785.93	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
115	4	2794.66	5	2.5	12.5	100	250	1250	0.87	4.00	3.472	0.0077
116	4	2797.09	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
117	4	2799.22	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
118	4	2811.43	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
119	4	2815.28	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
120	4	2821.44	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
121	4	2798.43	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
122	4	2797.44	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
123	4	2789.51	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
124	4	2782.75	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
125	4	2780.13	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
126	4	2777.9	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
127	4	2773.5	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
128	4	2770.5	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
129	4	2769.8	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
130	4	2748.07	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
131	4	2738.13	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
132	4	2750.84	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
133	4	2745.18	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
134	2	2815.98	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
135	2	2821.08	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
136	2	2820.48	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
137	2	2825	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
138	4	2821	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
139	4	2813.8	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
140	4	2809.75	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
141	2	2806	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
142	4	2798.19	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
143	4	2792.3	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
144	4	2785.01	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
145	4	2776	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
146	2	2773.5	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
147	2	2752	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
148	2	2748	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
149	2	2744	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
150	2	2743	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
151	2	2757	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
152	4	2765.8	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
153	4	2766.2	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
154	4	2765	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
155	4	2756.94	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
156	4	2749.7	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
157	3	2780.5	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000

Sewer Model Node Demand Assignment

Project: Sereno Canyon Phase 4
 Location: Scottsdale, AZ

SSMH	Phase	Rim Elevation	# of Units	Persons Per Unit (PPU)	Total Pop.	Daily Flow Factor (gal/cap-day)	Residential gallons/unit /day	Average Daily Flow (gpd)	Average Daily Flow (gpm)	Peaking Factor	Demand Flow with peaking factor (gpm)	Demand Flow with peaking factor (cfs)
158	3	2778.6	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
159	3	2771.4	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
160	3	2764.01	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
161	4	2755.72	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
162	4	2754.72	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
163	4	2754.02	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
164	4	2753.32	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
165	4	2760.63	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
166	4	2756.73	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
167	3	2753.14	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
168	3	2747.84	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
169	3	2747.63	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
170	3	2743.3	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
171	3	2738.44	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
172	3	2736.68	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
173	3	2732.54	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
174	3	2729.38	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
175	3	2727.4	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
176	3	2726.07	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
177	3	2720.9	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
178	3	2717.97	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
179	3	2711.18	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
180	3	2707.55	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
181	3	2704.24	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
182	3	2700.7	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
183	3	2701.3	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
185	3	2733.2	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
186	3	2729.55	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
187	3	2728.63	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
188	4	2783.3	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
189	4	2778.7	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
190	4	2772.3	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
191	4	2773.4	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
192	4	2782.92	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
193	4	2779.07	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
194	4	2764.69	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
195	4	2758.3	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
196	4	2756.17	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
197	4	2756.3	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
198	4	2744.14	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
199	4	2726.9	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
EXMH-1	1	2721.98	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
EXMH-2	1	2725.04	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
EXMH-3	1	2730.33	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
EXMH-4	1	2731.01	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
EXMH-5	1	2739.72	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
EXMH-6	1	2699.2	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
EXMH-7	1	2701.79	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
EXMH-8	1	2703.28	52	2.5	130.0	100	250	13000	9.03	4.00	36.111	0.0805
Total			382		955			116150	80.6597		350.104	0.7800

	E, Alameda RD.	E. Ranch Gate Rd.	128th St.	Total		Average Daily Flow (gpd)	Average Daily Flow (gpm)	Peaking Factor	Demand Flow with peaking factor (gpm)	Demand Flow with peaking factor (cfs)
Phase 1	2	54	0	56	Phase 1	14,000	9.7222	4.00	38.889	0.0866
Phase 2	15	0	0	15	Phase 2	3,250	2.2569	4.00	9.028	0.0201
Phase 3	0	19	0	19	Phase 3	4,500	3.1250	4.00	12.500	0.0279
Phase 4	123	14	130	267	Phase 4	67,500	46.8750	4.00	187.500	0.4178
Resort	25	0	0	25	Resort	9,500	6.5972	4.50	29.688	0.0661
	165	87	130	382	Spa	17,400	12	6.00	72.500	0.1615
						116,150	80.6597		350.104	0.7800

SSMH	Phase	Rim Elevation	# of Units	Persons Per Unit (PPU)	Total Pop.	Daily Flow Factor (gal/cap-day)	Residential gallons/unit /day	Average Daily Flow (gpd)	Average Daily Flow (gpm)	Peaking Factor	Demand Flow with peaking factor (gpm)	Demand Flow with peaking factor (cfs)
199	128th Street	2733.2	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
200	128th Street	2729.55	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000

Sewer Model Node Demand Assignment

Project: Sereno Canyon Phase 4
 Location: Scottsdale, AZ

SSMH	Phase	Rim Elevation	# of Units	Persons Per Unit (PPU)	Total Pop.	Daily Flow Factor (gal/cap-day)	Residential gallons/unit /day	Average Daily Flow (gpd)	Average Daily Flow (gpm)	Peaking Factor	Demand Flow with peaking factor (gpm)	Demand Flow with peaking factor (cfs)
201	128th Street	2728.63	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
202	128th Street	2783.3	31	2.5	77.5	100	250	7750	5.38	4.00	21.528	0.0480
203	128th Street	2778.7	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
204	128th Street	2772.3	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
205	128th Street	2773.4	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
206	128th Street	2782.92	40 25	2.5	100.062.5	100	250	100006250	6.944.34	4.00	27.77817.36	0.0619
207	128th Street	2779.07	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
208	128th Street	2764.69	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
209	128th Street	2758.3	218 208	2.5	545.0 520	100	250	5450052000	37.8536.11	4.00	151.389 144.44	0.3373
210	128th Street	2756.17	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
211	128th Street	2756.3	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
LS-52	128th Street	2744.14	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
212	128th Street	2750.25	SB-LS#3							4.00	80.000	0.1782
213	128th Street	2641.99	SB-LS#1 #2							4.00	430.000	0.9580
214	128th Street	2644.92	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
Total								66000			710.694678.75	1.583

Explain these changes to the calculations

	A	B	C	D	E	F	G	H	I	J	K
1	Name	US Node	DS Node	US Invert (ft)	DS Invert (ft)	2D Length (ft)	% Slope	Size (in)	Tributary Pipes	Peak Cumulative Flow (cfs)	Depth to Diameter Ratio (d/D)
center-to-center											
edge-to-edge											
198	Pipe - (75)	SSMH- (80)	SSMH- (81)	2797.02	2785.82	221.99	5.05%	8		0.0217	0.0627
199						217.99					
200	Pipe - (76)	SSMH- (81)	SSMH- (82)	2785.72	2783.61	98.54	2.14%	8		0.0279	0.0716
201						94.54					
202	Pipe - (77)	SSMH- (82)	SSMH- (83)	2783.51	2782.19	245.00	0.54%	8		0.0279	0.1207
203						241.00					
204	Pipe - (78)	SSMH- (83)	SSMH- (84)	2782.09	2780.47	110.00	1.47%	8		0.0031	0.1000
205						106.00					
206	Pipe - (81)	SSMH- (87)	SSMH- (88)	2794.44	2790.23	68.27	6.17%	8		0.0031	0.0298
207						64.27					
208	Pipe - (82)	SSMH- (88)	SSMH- (89)	2790.13	2783.78	131.74	4.82%	8		0.0031	0.0448
209						127.74					
210	Pipe - (83)	SSMH- (89)	SSMH- (84)	2783.68	2780.47	128.71	2.49%	8		0.0093	0.0896
211						124.71					
212	Pipe - (80)	SSMH- (84)	SSMH- (85)	2780.37	2778.72	68.00	2.43%	8	Pipes 78, 83	0.0124	0.0507
213						64.00					
214	Pipe - (79)	SSMH- (85)	SSMH- (86)	2778.62	2775.65	89.00	3.34%	8		0.0124	0.0537
215						85.00					
216	Pipe - (192)	SSMH- (86)	SSMH- (192)	2775.55	2774.78	89.00	0.87%	8		0.0124	0.0731
217						85.00					
218	Pipe - (193)	SSMH- (192)	SSMH- (193)	2774.68	2771.17	82.00	4.28%	8		0.0124	0.0507
219						78.00					
220	Pipe - (194)	SSMH- (193)	SSMH- (194)	2771.07	2756.79	293.00	4.87%	8		0.0124	0.0493
221						289.00					
222	Pipe - (195)	SSMH- (194)	SSMH- (195)	2756.69	2748.90	120.00	6.49%	8		0.0124	0.0463
223						116.00					
224	Pipe - (196)	SSMH- (195)	SSMH- (196)	2748.80	2748.01	104.00	0.76%	8		0.0124	0.0761
225						100.00					
226	Pipe - (85)	SSMH- (90)	SSMH- (91)	2778.35	2773.09	92.98	5.66%	8		0.0046	0.0896
227						88.98					
228	Pipe - (86)	SSMH- (91)	SSMH- (92)	2772.99	2769.48	66.42	5.28%	8		0.0077	0.1045
229						62.42					
230	Pipe - (87)	SSMH- (92)	SSMH- (93)	2769.38	2764.64	92.14	5.14%	8		0.0124	0.1044
231						88.14					
232	Pipe - (88)	SSMH- (93)	SSMH- (94)	2764.54	2759.97	89.06	5.13%	8		0.0170	0.1045
233						85.06					
234	Pipe - (89)	SSMH- (94)	SSMH- (95)	2759.87	2754.84	102.83	4.89%	8		0.0217	0.1194
235						98.83					
236	Pipe - (90)	SSMH- (95)	SSMH- (75)	2754.74	2753.27	69.49	2.12%	8		0.0248	0.1343
237						65.49					
238	Pipe - (66)	SSMH- (70)	SSMH- (71)	2783.38	2776.03	108.07	6.80%	8		0.0031	0.0045
239						104.07					
240	Pipe - (67)	SSMH- (71)	SSMH- (72)	2776.03	2769.82	109.55	5.67%	8		0.0062	0.0343
241						105.55					
242	Pipe - (68)	SSMH- (72)	SSMH- (73)	2769.82	2766.93	84.71	3.41%	8		0.0062	0.3880
243						80.71					
244	Pipe - (69)	SSMH- (73)	SSMH- (74)	2766.83	2759.74	243.97	2.91%	8		0.0124	0.0552
245						239.97					
246	Pipe - (70)	SSMH- (74)	SSMH- (75)	2759.64	2753.27	133.03	4.79%	8		0.0124	0.4980
247						129.03					
248	Pipe - (71)	SSMH- (75)	SSMH- (76)	2753.17	2749.63	135.51	2.61%	8	Pipes70, 90	0.0387	0.0970
249						131.51					
250	Pipe - (72)	SSMH- (76)	SSMH- (77)	2749.53	2747.98	297.52	0.52%	8		0.0387	0.1433
251						293.52					
252	Pipe - (91)	SSMH- (96)	SSMH- (97)	2760.13	2758.60	47.67	3.21%	8		0.0031	0.0299
253						43.67					
254	Pipe - (92)	SSMH- (97)	SSMH- (98)	2758.50	2754.48	119.36	3.37%	8		0.0062	0.0448
255						115.36					
256	Pipe - (93)	SSMH- (98)	SSMH- (99)	2754.38	2750.36	89.23	4.51%	8		0.0108	0.0597
257						85.23					
258	Pipe - (94)	SSMH- (99)	SSMH- (77)	2750.26	2747.98	43.89	5.19%	8		0.0139	0.0597
259						39.89					
260	Pipe - (95)	SSMH- (77)	SSMH- (100)	2747.88	2746.00	43.33	4.34%	8	Pipes 72, 94	0.0526	0.1000
261						39.33					
262	Pipe - (96)	SSMH- (100)	SSMH- (101)	2745.90	2743.84	47.39	4.35%	8		0.0572	0.1030
263						43.39					
264	Pipe - (97)	SSMH- (101)	SSMH- (102)	2743.74	2741.36	53.40	4.46%	8		0.0588	0.1045
265						49.40					
266	Pipe - (98)	SSMH- (102)	SSMH- (103)	2741.26	2736.32	129.04	3.83%	8		0.0619	0.1104
267						125.04					
268	Pipe - (99)	SSMH- (103)	SSMH- (104)	2736.23	2735.58	46.22	1.41%	8		0.0634	0.1418
269						42.22					
270	Pipe - (197)	SSMH- (196)	SSMH- (197)	2747.91	2747.63	35.00	0.80%	8	Pipes 103, 196	0.0789	0.1179
271						31.00					
272	Pipe - (198)	SSMH- (197)	SSMH- (107)	2747.53	2745.53	80.00	2.50%	8		0.0805	0.1388
273						76.00					
274	Pipe - (102)	SSMH- (107)	SSMH- (106)	2746.43	2738.74	109.00	7.06%	8		0.0820	0.1075
275						105.00					
276	Pipe - (101)	SSMH- (106)	SSMH- (105)	2738.64	2737.23	30.00	4.70%	8		0.0836	0.1224
277						26.00					
278	Pipe - (100)	SSMH- (105)	SSMH- (104)	2737.13	2735.58	75.00	2.07%	8		0.0882	0.1493
279						71.00					
280	Pipe - (199)	SSMH- (104)	SSMH- (198)	2735.48	2733.01	38.00	6.50%	8		0.0882	0.1478
281						34.00					
282	Pipe - (128)	SSMH- (198)	SSMH- (131)	2729.65	2727.05	260.00	1.00%	8	Pipe 216,128	0.0882	0.2358
283						256.00					
284	Pipe - (200)	SSMH- (131)	SSMH- (199)	2726.95	2722.06	271.63	1.80%	8		0.2835	0.2810
285						267.63					
286	Pipe - (201)	SSMH- (199)	SSMH- (200)	2721.96	2714.00	325.88	2.44%	8		0.2835	0.2601
287						321.88					
288	Pipe - (202)	SSMH- (200)	SSMH- (201)	2712.00	2701.00	351.28	3.13%	8		0.2835	0.2443
289						347.28					
290	Pipe - (203)	SSMH- (201)	SSMH- (202)	2699.40	2689.00	500.00	2.08%	8		0.2835	0.2709
291						496.00					
292	Pipe - (204)	SSMH- (202)	SSMH- (203)	2688.90	2687.96	142.84	0.66%	8		0.3314	0.3975
293						138.84					
294						500.00					

	A	B	C	D	E	F	G	H	I	J	K	L
1	Name	US Node	DS Node	US Invert (ft)	DS Invert (ft)	2D Length (ft)	% Slope	Size (in)	Tributary Pipes	Peak Cumulative Flow (cfs)	Depth to Diameter Ratio (d/D)	Peak Flow Velocity (ft/s)
center-to-center												
edge-to-edge												
198	Pipe - (75)	SSMH- (80)	SSMH- (81)	2797.02	2785.82	221.99	5.05%	8		0.0217	0.0627	2.3230
199						217.99						
200						98.54						
201	Pipe - (76)	SSMH- (81)	SSMH- (82)	2785.72	2783.61	94.54	2.14%	8		0.0279	0.0716	2.5080
202						245.00						
203	Pipe - (77)	SSMH- (82)	SSMH- (83)	2783.51	2782.19	241.00	0.54%	8		0.0279	0.1207	1.1533
204						110.00						
205	Pipe - (78)	SSMH- (83)	SSMH- (84)	2782.09	2780.47	106.00	1.47%	8		0.0031	0.1000	1.6895
206						68.27						
207	Pipe - (81)	SSMH- (87)	SSMH- (88)	2794.44	2790.23	64.27	6.17%	8		0.0031	0.0298	0.9900
208						131.74						
209	Pipe - (82)	SSMH- (88)	SSMH- (89)	2790.13	2783.78	127.74	4.82%	8		0.0031	0.0448	1.6200
210						128.71						
211	Pipe - (83)	SSMH- (89)	SSMH- (84)	2783.68	2780.47	124.71	2.49%	8		0.0093	0.0896	0.9800
212						68.00						
213	Pipe - (80)	SSMH- (84)	SSMH- (85)	2780.37	2778.72	64.00	2.43%	8	Pipes 78, 83	0.0124	0.0507	1.3970
214						89.00						
215	Pipe - (79)	SSMH- (85)	SSMH- (86)	2778.62	2775.65	85.00	3.34%	8		0.0124	0.0537	1.7030
216						89.00						
217	Pipe - (192)	SSMH- (86)	SSMH- (192)	2775.55	2774.78	85.00	0.87%	8		0.0124	0.0731	1.0670
218						82.00						
219	Pipe - (193)	SSMH- (192)	SSMH- (193)	2774.68	2771.17	78.00	4.28%	8		0.0124	0.0507	1.8570
220						293.00						
221	Pipe - (194)	SSMH- (193)	SSMH- (194)	2771.07	2756.79	289.00	4.87%	8		0.0124	0.0493	1.9420
222						120.00						
223	Pipe - (195)	SSMH- (194)	SSMH- (195)	2756.69	2748.90	116.00	6.49%	8		0.0124	0.0463	2.1450
224						104.00						
225	Pipe - (196)	SSMH- (195)	SSMH- (196)	2748.80	2748.01	100.00	0.76%	8		0.0124	0.0761	1.0170
226						92.98						
227	Pipe - (85)	SSMH- (90)	SSMH- (91)	2778.35	2773.09	88.98	5.66%	8		0.0046	0.0896	3.0500
228						66.42						
229	Pipe - (86)	SSMH- (91)	SSMH- (92)	2772.99	2769.48	62.42	5.28%	8		0.0077	0.1045	2.5900
230						92.14						
231	Pipe - (87)	SSMH- (92)	SSMH- (93)	2769.38	2764.64	88.14	5.14%	8		0.0124	0.1044	2.8300
232						89.06						
233	Pipe - (88)	SSMH- (93)	SSMH- (94)	2764.54	2759.97	85.06	5.13%	8		0.0170	0.1045	3.0600
234						102.83						
235	Pipe - (89)	SSMH- (94)	SSMH- (95)	2759.87	2754.84	98.83	4.89%	8		0.0217	0.1194	2.6900
236						69.49						
237	Pipe - (90)	SSMH- (95)	SSMH- (75)	2754.74	2753.27	65.49	2.12%	8		0.0248	0.1343	2.3200
238						108.07						
239	Pipe - (66)	SSMH- (70)	SSMH- (71)	2783.38	2776.03	104.07	6.80%	8		0.0031	0.0045	1.4270
240						109.55						
241	Pipe - (67)	SSMH- (71)	SSMH- (72)	2776.03	2769.82	105.55	5.67%	8		0.0062	0.0343	1.6570
242						84.71						
243	Pipe - (68)	SSMH- (72)	SSMH- (73)	2769.82	2766.93	80.71	3.41%	8		0.0062	0.3880	1.3890
244						243.97						
245	Pipe - (69)	SSMH- (73)	SSMH- (74)	2766.83	2759.74	239.97	2.91%	8		0.0124	0.0552	1.6240
246						133.03						
247	Pipe - (70)	SSMH- (74)	SSMH- (75)	2759.64	2753.27	129.03	4.79%	8		0.0124	0.4980	1.9310
248						135.51						
249	Pipe - (71)	SSMH- (75)	SSMH- (76)	2753.17	2749.63	131.51	2.61%	8	Pipes70, 90	0.0387	0.0970	2.2070
250						297.52						
251	Pipe - (72)	SSMH- (76)	SSMH- (77)	2749.53	2747.98	293.52	0.52%	8		0.0387	0.1433	1.2550
252						47.67						
253	Pipe - (91)	SSMH- (96)	SSMH- (97)	2760.13	2758.60	43.67	3.21%	8		0.0031	0.0299	0.9900
254						119.36						
255	Pipe - (92)	SSMH- (97)	SSMH- (98)	2758.50	2754.48	115.36	3.37%	8		0.0062	0.0448	1.0800
256						89.23						
257	Pipe - (93)	SSMH- (98)	SSMH- (99)	2754.38	2750.36	85.23	4.51%	8		0.0108	0.0597	1.2500
258						43.89						
259	Pipe - (94)	SSMH- (99)	SSMH- (77)	2750.26	2747.98	39.89	5.19%	8		0.0139	0.0597	1.6100
260						43.33						
261	Pipe - (95)	SSMH- (77)	SSMH- (100)	2747.88	2746.00	39.33	4.34%	8	Pipes 72, 94	0.0526	0.1000	2.8920
262						47.39						
263	Pipe - (96)	SSMH- (100)	SSMH- (101)	2745.90	2743.84	43.39	4.35%	8		0.0572	0.1030	2.9680
264						53.40						
265	Pipe - (97)	SSMH- (101)	SSMH- (102)	2743.74	2741.36	49.40	4.46%	8		0.0588	0.1045	3.0190
266						129.04						
267	Pipe - (98)	SSMH- (102)	SSMH- (103)	2741.26	2736.32	125.04	3.83%	8		0.0619	0.1104	2.9070
268						46.22						
269	Pipe - (99)	SSMH- (103)	SSMH- (104)	2736.23	2735.58	42.22	1.41%	8		0.0634	0.1418	2.0630
270						35.00						
271	Pipe - (197)	SSMH- (196)	SSMH- (197)	2747.91	2747.63	31.00	0.80%	8	Pipes 103, 196	0.0789	0.1179	1.8040
272						80.00						
273	Pipe - (198)	SSMH- (197)	SSMH- (107)	2747.53	2745.53	76.00	2.50%	8		0.0805	0.1388	2.7090
274						109.00						
275	Pipe - (102)	SSMH- (107)	SSMH- (106)	2746.43	2738.74	105.00	7.06%	8		0.0820	0.1075	4.8200
276						30.00						
277	Pipe - (101)	SSMH- (106)	SSMH- (105)	2738.64	2737.23	26.00	4.70%	8		0.0836	0.1224	3.4100
278						75.00						
279	Pipe - (100)	SSMH- (105)	SSMH- (104)	2737.13	2735.58	71.00	2.07%	8		0.0882	0.1493	2.5780
280						38.00						
281	Pipe - (199)	SSMH- (104)	SSMH- (198)	2735.48	2733.01	34.00	6.50%	8		0.0882	0.1478	4.5470
282						260.00						
283	Pipe - (128)	SSMH- (198)	SSMH- (131)	2729.65	2727.05	256.00	1.00%	8		0.0882	0.2358	2.3490
284						271.63						
285	Pipe - (200)	SSMH- (131)	SSMH- (199)	2726.95	2722.06	267.63	1.80%	8	Pipe 216,128	0.2835	0.2810	3.4890
286						325.88						
287	Pipe - (201)	SSMH- (199)	SSMH- (200)	2721.96	2714.00	321.88	2.44%	8		0.2835	0.2601	3.8885
288						351.28						
289	Pipe - (202)	SSMH- (200)	SSMH- (201)	2712.00	2701.00	347.28	3.13%	8		0.2835	0.2443	4.2492
290						500.00						
291	Pipe - (203)	SSMH- (201)	SSMH- (202)	2699.40	2689.00	496.00	2.08%	8		0.2835	0.2709	3.6740
292						142.84						
293	Pipe - (204)	SSMH- (202)	SSMH- (203)	2688.90	2687.96	138.84	0.66%	8		0.3314	0.3975	2.5378
294						500.00						

	A	B	C	D	E	F	G	H	I	J	K	L
1	Name	US Node	DS Node	US Invert (ft)	DS Invert (ft)	2D Length (ft)	% Slope	Size (in)	Tributary Pipes	Peak Cumulative Flow (cfs)	Depth to Diameter Ratio (d/D)	Peak Flow Velocity (ft/s)
center-to-center												
edge-to-edge												
295	Pipe - (205)	SSMH- (203)	SSMH- (204)	2687.86	2675.24	496.00	2.52%	8		0.3314	0.2672	4.3783
296						370.00						
297	Pipe - (206)	SSMH- (204)	SSMH- (205)	2675.14	2664.03	366.00	3.00%	8		0.3314	0.2672	4.3783
298						280.00						
299	Pipe - (207)	SSMH- (205)	SSMH- (206)	2660.65	2658.97	276.00	0.60%	8		0.3314	0.4079	2.4511
300						350.00						
301	Pipe - (208)	SSMH- (206)	SSMH- (207)	2658.87	2656.77	346.00	0.60%	8		0.3933	0.4478	2.5647
302						500.00						
303	Pipe - (209)	SSMH- (207)	SSMH- (208)	2654.20	2639.86	496.00	2.87%	8		0.3933	0.2951	4.5254
304						497.83						
305	Pipe - (210)	SSMH- (208)	SSMH- (209)	2635.82	2632.83	493.83	0.60%	8		0.3933	0.4478	2.5647
306						89.04						
307	Pipe - (211)	SSMH- (209)	SSMH- (210)	2632.73	2632.20	85.04	0.60%	8		0.7306	0.6584	2.9680
308						305.00						
309	Pipe - (212)	SSMH- (210)	SSMH- (211)	2632.00	2620.05	301.00	3.92%	8	Pipes 211, 215	1.6886	0.6143	7.4328
310						67.00						
311	Pipe - (213)	SSMH- (211)	LS - (52)	2619.85	2619.43	63.00	0.63%	12		1.6886	0.5566	3.7592
312						50.00						
313	Pipe - (214)	SSMH- (212)	SSMH- (130)	2743.16	2742.20	46.00	1.92%	8		0.1782	0.2188	3.1218
314						84.00						
315	Pipe - (215)	SSMH- (213)	SSMH- (210)	2636.33	2635.33	80.00	1.19%	8		0.9580	0.5139	3.8327
316						124.06						
317	Pipe - (115)	SSMH- (120)	SSMH- (119)	2813.05	2806.89	120.06	4.97%	8		0.0062	0.0448	1.0800
318						78.17						
319	Pipe - (114)	SSMH- (119)	SSMH- (118)	2806.79	2803.04	74.17	4.80%	8		0.0093	0.0448	1.6200
320						284.06						
321	Pipe - (113)	SSMH- (118)	SSMH- (117)	2802.94	2790.83	280.06	4.26%	8		0.0124	0.0597	1.6100
322						46.18						
323	Pipe - (112)	SSMH- (117)	SSMH- (116)	2790.73	2788.70	42.18	4.40%	8		0.0186	0.0746	1.5500
324						50.08						
325	Pipe - (111)	SSMH- (116)	SSMH- (115)	2788.60	2786.27	46.08	4.65%	8		0.0217	0.0746	1.8000
326						176.43						
327	Pipe - (110)	SSMH- (115)	SSMH- (114)	2786.17	2777.54	172.43	4.89%	8		0.0294	0.0746	2.3200
328						53.67						
329	Pipe - (116)	SSMH- (121)	SSMH- (122)	2790.04	2789.05	49.67	1.84%	8		0.0015	0.0299	0.4800
330						164.71						
331	Pipe - (117)	SSMH- (122)	SSMH- (114)	2788.95	2777.54	160.71	6.93%	8		0.0031	0.0299	0.9900
332						85.24						
333	Pipe - (109)	SSMH- (114)	SSMH- (113)	2777.44	2773.09	81.24	5.10%	8	Pipes 110,117	0.0340	0.0896	2.1600
334						108.08						
335	Pipe - (108)	SSMH- (113)	SSMH- (112)	2772.99	2767.37	104.08	5.20%	8		0.0402	0.0896	2.5600
336						89.68						
337	Pipe - (107)	SSMH- (112)	SSMH- (111)	2767.27	2762.59	85.68	5.22%	8		0.0449	0.0896	2.7500
338						110.34						
339	Pipe - (106)	SSMH- (111)	SSMH- (110)	2762.49	2756.78	106.34	5.17%	8		0.0495	0.1045	2.4400
340						88.08						
341	Pipe - (105)	SSMH- (110)	SSMH- (109)	2756.68	2752.18	84.08	5.11%	8		0.0557	0.1045	2.5900
342						81.99						
343	Pipe - (104)	SSMH- (109)	SSMH- (108)	2752.08	2748.93	77.99	3.84%	8		0.0588	0.1194	2.3000
344						305.06						
345	Pipe - (103)	SSMH- (108)	SSMH- (196)	2748.83	2736.75	301.06	3.96%	8		0.0603	0.1194	2.4900
346	E. Ranch Gate Road (Happy Valley Rd) Sewer outfall											
347												
348						82.86						
349	Pipe - (46)	SSMH- (50)	SSMH- (49)	2772.74	2772.31	78.86	0.52%	8		0.0031	0.0433	0.5850
350						108.41						
351	Pipe - (45)	SSMH- (49)	SSMH- (48)	2772.21	2771.64	104.41	0.53%	8		0.0062	0.0597	0.7220
352						76.41						
353	Pipe - (44)	SSMH- (48)	SSMH- (47)	2771.55	2766.06	72.41	7.18%	8		0.0062	0.0328	1.7980
354						50.83						
355	Pipe - (43)	SSMH- (47)	SSMH- (46)	2765.96	2762.48	46.83	6.85%	8		0.0062	0.0328	1.7700
356						51.40						
357	Pipe - (42)	SSMH- (46)	SSMH- (45)	2762.38	2758.85	47.40	6.87%	8		0.0062	0.0328	1.7700
358						52.66						
359	Pipe - (41)	SSMH- (45)	SSMH- (1)	2758.75	2755.09	48.66	6.95%	8		0.0108	0.0418	2.1080
360						135.90						
361	Pipe - (1)	SSMH- (1)	SSMH- (2)	2754.99	2754.21	131.90	0.57%	8		0.0155	0.0925	0.9846
362						115.13						
363	Pipe - (2)	SSMH- (2)	SSMH- (3)	2754.11	2753.51	111.13	0.52%	8		0.0155	0.0921	0.9534
364						137.13						
365	Pipe - (3)	SSMH- (3)	SSMH- (4)	2753.41	2752.7	133.13	0.52%	8		0.0155	0.0921	0.9534
366						72.61						
367	Pipe - (155)	SSMH- (4)	SSMH- (161)	2752.6	2752.2	68.61	0.55%	8		0.0155	0.0909	0.9724
368						96.39						
369	Pipe - (156)	SSMH- (161)	SSMH- (162)	2752.1	2751.4	92.39	0.73%	8		0.0155	0.0849	1.0734
370						149.91						
371	Pipe - (157)	SSMH- (162)	SSMH- (163)	2751.3	2750.5	145.91	0.53%	8		0.0155	0.0957	0.9599
372						99.44						
373	Pipe - (158)	SSMH- (163)	SSMH- (164)	2750.4	2749.8	95.44	0.60%	8		0.0186	0.0970	1.0590
374						60.16						
375	Pipe - (159)	SSMH- (164)	SSMH- (160)	2749.7	2749.3	56.16	0.66%	8		0.0186	0.0955	1.0950
376						89.98						
377	Pipe - (152)	SSMH- (157)	SSMH- (158)	2771.4	2770	85.98	1.56%	8		0.0000	0.0000	0.0000
378						121.47						
379	Pipe - (153)	SSMH- (158)	SSMH- (159)	2769.9	2761.7	117.47	6.75%	8		0.0015	0.2985	0.4800
380						209.77						
381	Pipe - (154)	SSMH- (159)	SSMH- (160)	2761.6	2749.3	205.77	5.86%	8		0.0015	0.2985	0.4800
382						143.68						
383	Pipe - (160)	SSMH- (160)	SSMH- (165)	2749.2	2745.1	139.68	2.85%	8	Pipes 154,159	0.0217	0.0716	1.9100
384						128.80						
385	Pipe - (161)	SSMH- (165)	SSMH- (166)	2745	2744.2	124.80	0.62%	8		0.0217	0.1030	1.1220
386						90.22						
387	Pipe - (162)	SSMH- (166)	SSMH- (167)	2744.1	2743.5	86.22	0.67%	8		0.0248	0.1045	1.1770
388						145.50						
389	Pipe - (163)	SSMH- (167)	SSMH- (168)	2743.4	2739	141.50	3.02%	8		0.0248	0.0731	1.9900
390						98.27						
391	Pipe - (164)	SSMH- (168)	SSMH- (169)	2738.9	2738.2	94.27	0.71%	8		0.0263	0.1075	1.2250

INTERIM CONDITIONS

Sewer Model Node Demand Assignment												
Project:	Sereno Canyon Phase 4											
Location:	Scottsdale, AZ											
SSMH	Phase	Rim Elevation	# of Units	Persons Per Unit (PPU)	Total Pop.	Daily Flow Factor (gal/cap-day)	Residential gallons/unit /day	Average Daily Flow (gpd)	Average Daily Flow (gpm)	Peaking Factor	Demand Flow with peaking factor (gpm)	Demand Flow with peaking factor (cfs)
1	4	2769.45	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
2	4	2761.99	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
3	4	2758.01	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
4	4	2762.73	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
5	4	2831.55	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
6	4	2832.98	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
7	4	2788.9	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
8	4	2785.33	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
9	4	2782.57	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
10	4	2779.75	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
11	4	2774.74	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
12	4	2770.74	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
13	4	2767.29	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
14	4	2765.21	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
15	4	2763.84	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
16	4	2838.32	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
17	4	2834.2	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
18	4	2826.45	5	2.5	12.5	100	250	1250	0.87	4.00	3.472	0.0077
19	4	2820.37	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
20	4	2818.1	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
21	4	2797.06	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
22	4	2830	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
23	4	2815.87	10	2.5	25.0	100	250	2500	1.74	4.00	6.944	0.0155
24	4	2799.18	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
25	4	2801.92	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
26	4	2776.29	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
27	4	2779.72	6	2.5	15.0	100	250	1500	1.04	4.00	4.167	0.0093
28	4	2788.07	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
29	4	2792.76	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
30	4	2797.11	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
31	4	2801.29	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
32	4	2804.34	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
33	4	2807.55	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
34	4	2812.29	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
35	4	2813.43	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
36	4	2804.59	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
37	4	2797.26	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
38	4	2797.86	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
39	4	2780.57	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
40	4	2779.22	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
41	4	2779.76	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
42	4	2792.05	7	2.5	17.5	100	250	1750	1.22	4.00	4.861	0.0108
43	4	2793.06	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
44	4	2795.26	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
45	4	2771.86	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
46	4	2773.99	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
47	4	2776.51	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
48	4	2780.97	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
49	4	2786.58	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
50	4	2786.99	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
57	4	2797	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
58	4	2798.5	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
59	4	2811	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
60	4	2809.64	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
61	4	2810.09	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
62	4	2814.06	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
63	4	2827.13	11	2.5	27.5	100	250	2750	1.91	4.00	7.639	0.0170
64	4	2830.21	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
65	4	2833.17	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
66	4	2836.28	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
67	4	2838.03	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
68	4	2838.62	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
69	Resort	2827.79	25	2.5	62.5	100	380	9500	6.60	4.50	29.688	0.0661
69	Spa	2827.79	14500	sf			1.2	17400	12.08	6.00	72.500	0.1615
70	4	2791.77	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
71	4	2784.42	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
72	4	2778.21	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
73	4	2775.32	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
74	4	2768.13	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
75	4	2761.66	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
76	4	2758.02	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
77	4	2756.62	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
78	4	2815.62	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
79	4	2810.92	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
80	4	2806.99	8	2.5	20.0	100	250	2000	1.39	4.00	5.556	0.0124
81	4	2793.72	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
82	4	2792.27	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
83	4	2790.23	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
84	4	2788.87	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
85	4	2786.14	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
86	4	2784.14	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
87	4	2802.83	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
88	4	2798.62	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
89	4	2792.17	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
90	4	2786.74	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
91	4	2781.38	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
92	4	2777.77	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
93	4	2772.93	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
94	4	2768.26	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
95	4	2763.13	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
96	4	2768.52	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
97	4	2766.99	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
98	4	2762.87	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
99	4	2758.75	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
100	4	2754.57	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
101	4	2752.31	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
102	4	2749.75	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
103	4	2744.71	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015

Sewer Model Node Demand Assignment

Project:		Sereno Canyon Phase 4										
Location:		Scottsdale, AZ										
SSMH	Phase	Rim Elevation	# of Units	Persons Per Unit (PPU)	Total Pop.	Daily Flow Factor (gal/cap-day)	Residential gallons/unit /day	Average Daily Flow (gpd)	Average Daily Flow (gpm)	Peaking Factor	Demand Flow with peaking factor (gpm)	Demand Flow with peaking factor (cfs)
104	4	2743.48	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
105	4	2745.14	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
106	4	2746.64	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
107	4	2754.54	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
108	4	2758.26	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
109	4	2760.57	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
110	4	2765.17	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
111	4	2770.98	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
112	4	2775.76	3	2.5	7.5	100	250	750	0.52	4.00	2.083	0.0046
113	4	2781.48	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
114	4	2785.93	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
115	4	2794.66	5	2.5	12.5	100	250	1250	0.87	4.00	3.472	0.0077
116	4	2797.09	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
117	4	2799.22	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
118	4	2811.43	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
119	4	2815.28	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
120	4	2821.44	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
121	4	2798.43	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
122	4	2797.44	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
123	4	2789.51	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
124	4	2782.75	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
125	4	2780.13	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
126	4	2777.9	4	2.5	10.0	100	250	1000	0.69	4.00	2.778	0.0062
127	4	2773.5	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
128	4	2770.5	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
129	4	2769.8	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
130	4	2748.07	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
131	4	2738.13	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
132	4	2750.84	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
133	4	2745.18	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
134	2	2815.98	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
135	2	2821.08	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
136	2	2820.48	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
137	2	2825	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
138	4	2821	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
139	4	2813.8	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
140	4	2809.75	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
141	2	2806	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
142	4	2798.19	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
143	4	2792.3	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
144	4	2785.01	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
145	4	2776	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
146	2	2773.5	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
147	2	2752	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
148	2	2748	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
149	2	2744	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
150	2	2743	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
151	2	2757	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
152	4	2765.8	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
153	4	2766.2	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
154	4	2765	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
155	4	2756.94	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
156	4	2749.7	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
157	3	2780.5	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
158	3	2778.6	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
159	3	2771.4	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
160	3	2764.01	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
161	4	2755.72	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
162	4	2754.72	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
163	4	2754.02	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
164	4	2753.32	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
165	4	2760.63	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
166	4	2756.73	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
167	3	2753.14	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
168	3	2747.84	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
169	3	2747.63	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
170	3	2743.3	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
171	3	2738.44	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
172	3	2736.68	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
173	3	2732.54	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
174	3	2729.38	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
175	3	2727.4	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
176	3	2726.07	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
177	3	2720.9	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
178	3	2717.97	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
179	3	2711.18	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
180	3	2707.55	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
181	3	2704.24	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
182	3	2700.7	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
183	3	2701.3	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
185	3	2733.2	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
186	3	2729.55	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
187	3	2728.63	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
188	4	2783.3	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
189	4	2778.7	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
190	4	2772.3	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
191	4	2773.4	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
192	4	2782.92	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
193	4	2779.07	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
194	4	2764.69	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
195	4	2758.3	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
196	4	2756.17	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
197	4	2756.3	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
198	4	2744.14	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
199	4	2726.9	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
EXMH-1	1	2721.98	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
EXMH-2	1	2725.04	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
EXMH-3	1	2730.33	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000

Sewer Model Node Demand Assignment

Project:		Sereno Canyon Phase 4										
Location:		Scottsdale, AZ										
SSMH	Phase	Rim Elevation	# of Units	Persons Per Unit (PPU)	Total Pop.	Daily Flow Factor (gal/cap-day)	Residential gallons/unit /day	Average Daily Flow (gpd)	Average Daily Flow (gpm)	Peaking Factor	Demand Flow with peaking factor (gpm)	Demand Flow with peaking factor (cfs)
EXMH-4	1	2731.01	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
EXMH-5	1	2739.72	1	2.5	2.5	100	250	250	0.17	4.00	0.694	0.0015
EXMH-6	1	2699.2	2	2.5	5.0	100	250	500	0.35	4.00	1.389	0.0031
EXMH-7	1	2701.79	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
EXMH-8	1	2703.28	52	2.5	130.0	100	250	13000	9.03	4.00	36.111	0.0805
Total			382		955			116150	80.6597		350.104	0.7800
	E, Alameda RD.	E. Ranch Gate Rd.	128th St.	Total				Average Daily Flow (gpd)	Average Daily Flow (gpm)	Peaking Factor	Demand Flow with peaking factor (gpm)	Demand Flow with peaking factor (cfs)
Phase 1	2	54	0	56		Phase 1	14,000	9.7222	4.00	38.889	0.0866	
Phase 2	15	0	0	15		Phase 2	3,250	2.2569	4.00	9.028	0.0201	
Phase 3	0	19	0	19		Phase 3	4,500	3.1250	4.00	12.500	0.0279	
Phase 4	123	14	130	267		Phase 4	67,500	46.8750	4.00	187.500	0.4178	
Resort	25	0	0	25		Resort	9,500	6.5972	4.50	29.688	0.0661	
	165	87	130	382		Spa	17,400	12	6.00	72.500	0.1615	
								116,150	80.6597		350.104	0.7800
						128th St. Outfall Sewer						
SSMH	Phase	Rim Elevation	# of Units	Persons Per Unit (PPU)	Total Pop.	Daily Flow Factor (gal/cap-day)	Residential gallons/unit /day	Average Daily Flow (gpd)	Average Daily Flow (gpm)	Peaking Factor	Demand Flow with peaking factor (gpm)	Demand Flow with peaking factor (cfs)
199	128th Street	2733.2	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
200	128th Street	2729.55	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
201	128th Street	2728.63	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
202	128th Street	2783.3	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
203	128th Street	2778.7	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
204	128th Street	2772.3	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
205	128th Street	2773.4	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
206	128th Street	2782.92	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
207	128th Street	2779.07	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
208	128th Street	2764.69	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
209	128th Street	2758.3	87	2.5	217.5	100	250	21750	15.10	4.00	60.417	0.1346
210	128th Street	2756.17	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
211	128th Street	2756.3	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
LS-52	128th Street	2744.14	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
212	128th Street	2750.25	SB-LS#3							4.00	0.000	0.0000
213	128th Street	2641.99	SB-LS#1 #2							4.00	430.000	0.9580
214	128th Street	2644.92	0	2.5	0.0	100	250	0	0.00	4.00	0.000	0.0000
Total											490.417	1.093

	A	B	C	D	E	F	G	H	I	J	K
1	Name	US Node	DS Node	US Invert (ft)	DS Invert (ft)	2D Length (ft)	% Slope	Size (in)	Tributary Pipes	Peak Cumulative Flow (cfs)	Depth to Diameter Ratio (d/D)
center-to-center											
edge-to-edge											
101	Pipe - (32)	SSMH- (35)	SSMH- (36)	2805.05	2796.3	156.74	5.44%	8		0.0077	0.0448
102						182.64					
103	Pipe - (33)	SSMH- (36)	SSMH- (37)	2796.2	2788.77	178.64	4.07%	8		0.0077	0.0448
104						95.04					
105	Pipe - (34)	SSMH- (38)	SSMH- (57)	2789.26	2788.77	91.04	0.52%	8		0.0448	0.1537
106						48.53					
107	Pipe - (40)	SSMH- (37)	SSMH- (44)	2788.67	2786.87	44.53	3.71%	8	Pipes 33, 34	0.0541	0.1077
108						134.41					
109	Pipe - (39)	SSMH- (44)	SSMH- (43)	2786.77	2784.67	130.41	1.56%	8		0.0588	0.0896
110						148.31					
111	Pipe - (38)	SSMH- (43)	SSMH- (42)	2784.57	2783.66	144.31	0.61%	8		0.0649	0.1194
112						340.28					
113	Pipe - (37)	SSMH- (42)	SSMH- (41)	2783.56	2771.37	336.28	3.58%	8		0.0758	0.1045
114						56.69					
115	Pipe - (36)	SSMH- (41)	SSMH- (40)	2771.37	2771.07	52.69	0.53%	8		0.0789	0.1490
116						58.8					
117	Pipe - (35)	SSMH- (40)	SSMH- (39)	2770.97	2770.67	54.8	0.51%	8		0.0820	0.1490
118						55.45					
119	Pipe - (184)	SSMH- (39)	SSMH- (188)	2770.57	2770.28	51.45	0.52%	8		0.0820	0.1490
120						125.12					
121	Pipe - (182)	SSMH- (188)	SSMH- (189)	2770.18	2769.53	121.12	0.52%	8		0.0820	0.1490
122						237.68					
123	Pipe - (183)	SSMH- (189)	SSMH- (190)	2769.43	2767.05	233.68	1.00%	8		0.0820	0.1343
124						54.83					
125	Pipe - (185)	SSMH- (190)	SSMH- (191)	2766.95	2766.07	50.83	1.60%	8		0.0820	0.1194
126						32.32					
127	Pipe - (186)	SSMH- (191)	SSMH- (146)	2765.97	2765.5	28.32	1.45%	8	Pipes 185,187	0.1206	0.1642
128						275.89					
129	Pipe - (143)	SSMH- (146)	SSMH- (151)	2765.4	2749	271.89	5.94%	8	Pipes 139,186	0.1841	0.1642
130						275.89					
131	Pipe - (144)	SSMH- (151)	SSMH- (147)	2748.9	2744	271.89	1.78%	8		0.1872	0.2089
132						92.54					
133	Pipe - (140)	SSMH- (147)	SSMH- (148)	2743.9	2740	88.54	4.21%	8		0.1903	0.1791
134						87.07					
135	Pipe - (141)	SSMH- (148)	SSMH- (149)	2739.9	2736	83.07	4.48%	8		0.1903	0.1642
136						73.51					
137	Pipe - (142)	SSMH- (149)	SSMH- (150)	2735.9	2735	69.51	1.22%	8		0.1903	0.2388
138						54.08					
139	Pipe - (145)	SSMH- (150)	EXIST SSMH- (5)	2735.8	2730	50.08	10.72%	8	Pipes 142, 150	0.2166	0.1493
140						61.83					
141	Pipe - (56)	SSMH- (38)	SSMH- (57)	2789.26	2788.78	57.83	0.78%	8		0.0046	0.0478
142						140.25					
143	Pipe - (53)	SSMH- (58)	SSMH- (57)	2793.03	2788.78	136.25	3.03%	8		0.0402	0.0955
144						66.7					
145	Pipe - (54)	SSMH- (59)	SSMH- (58)	2795.6	2793.13	62.7	3.70%	8		0.0402	0.0910
146						127.7					
147	Pipe - (55)	SSMH- (61)	SSMH- (59)	2800.81	2795.7	123.7	4.00%	8		0.0402	0.0896
148						99					
149	Pipe - (57)	SSMH- (61)	SSMH- (60)	2801.5	2800.91	95	0.60%	8		0.0031	0.0418
150						148.27					
151	Pipe - (58)	SSMH- (62)	SSMH- (61)	2805.67	2800.81	144.27	3.28%	8		0.0371	0.0896
152						334.99					
153	Pipe - (59)	SSMH- (63)	SSMH- (62)	2818.64	2805.77	330.99	3.84%	8		0.0309	0.0791
154						45.92					
155	Pipe - (60)	SSMH- (64)	SSMH- (63)	2821.72	2818.74	41.92	6.49%	8		0.0139	0.0478
156						43.93					
157	Pipe - (61)	SSMH- (65)	SSMH- (64)	2824.68	2821.82	39.93	6.51%	8		0.0108	0.0433
158						46.16					
159	Pipe - (62)	SSMH- (66)	SSMH- (65)	2827.79	2824.78	42.16	6.52%	8		0.0093	0.0403
160						44.25					
161	Pipe - (63)	SSMH- (67)	SSMH- (66)	2829.54	2827.89	40.25	3.73%	8		0.0077	0.0418
162						47.52					
163	Pipe - (64)	SSMH- (68)	SSMH- (67)	2830.23	2829.64	43.52	1.24%	8		0.0062	0.0493
164						209.87					
165	Pipe - (65)	SSMH- (69)	SSMH- (62)	2806.86	2805.77	205.87	0.52%	8		0.2277	0.1134
166						257.01					
167	EXIST Pipe - (4)	EXIST SSMH- (5)	EXIST SSMH- (4)	2730	2722.5	253.01	2.92%	8		0.2181	0.2089
168						91.26					
169	EXIST Pipe - (3)	EXIST SSMH- (4)	EXIST SSMH- (3)	2722.4	2721.8	87.26	0.66%	8		0.2181	0.2985
170						92.83					
171	EXIST Pipe - (2)	EXIST SSMH- (3)	EXIST SSMH- (2)	2721.7	2715.9	88.83	6.25%	8		0.2181	0.1642
172						38.00					
173	EXIST Pipe - (1)	EXIST SSMH- (2)	EXIST SSMH- (1)	2715.8	2713.5	34.00	6.05%	8		0.2197	0.1791
174	128th Street Sewer Outfall										
175						95.81					
176	Pipe - (118)	SSMH- (123)	SSMH- (124)	2781.12	2774.36	91.81	7.06%	8		0.0031	0.0236
177						46.88					
178	Pipe - (119)	SSMH- (124)	SSMH- (125)	2774.26	2771.74	42.88	5.38%	8		0.0062	0.0346
179						46.88					
180	Pipe - (120)	SSMH- (125)	SSMH- (126)	2771.64	2769.51	42.88	4.54%	8		0.0077	0.0403
181						96.50					
182	Pipe - (121)	SSMH- (126)	SSMH- (127)	2769.41	2765.11	92.50	4.46%	8		0.0139	0.0527
183						210.16					
184	Pipe - (122)	SSMH- (127)	SSMH- (128)	2768.43	2760.50	206.16	3.77%	8		0.0139	0.0548
185						428.02					
186	Pipe - (123)	SSMH- (128)	SSMH- (129)	2760.40	2747.57	424.02	3.00%	8		0.0170	0.0636
187						148.07					
188	Pipe - (124)	SSMH- (129)	SSMH- (130)	2747.47	2742.20	144.07	3.56%	8		0.0170	0.0610
189						167.30					
190	Pipe - (125)	SSMH- (130)	SSMH- (214)	2742.10	2734.19	236.78	4.73%	8	PIPES 124, 215	0.0170	0.1833
191						158.37					
192	Pipe - (216)	SSMH- (214)	SSMH- (131)	2729.80	2726.95	236.78	1.80%	8		0.0170	0.2328
193						116.72					
194	Pipe - (73)	SSMH- (78)	SSMH- (79)	2808.90	2803.06	112.72	5.00%	8		0.0046	0.0313
195						116.94					
196	Pipe - (74)	SSMH- (79)	SSMH- (80)	2802.96	2797.12	112.94	4.99%	8		0.0093	0.0418

	A	B	C	D	E	F	G	H	I	J	K
1	Name	US Node	DS Node	US Invert (ft)	DS Invert (ft)	2D Length (ft)	% Slope	Size (in)	Tributary Pipes	Peak Cumulative Flow (cfs)	Depth to Diameter Ratio (d/D)
center-to-center											
edge-to-edge											
198	Pipe - (75)	SSMH- (80)	SSMH- (81)	2797.02	2785.82	221.99	5.05%	8		0.0217	0.0627
199						217.99					
200	Pipe - (76)	SSMH- (81)	SSMH- (82)	2785.72	2783.61	98.54	2.14%	8		0.0279	0.0716
201						94.54					
202	Pipe - (77)	SSMH- (82)	SSMH- (83)	2783.51	2782.19	245.00	0.54%	8		0.0279	0.1207
203						241.00					
204	Pipe - (78)	SSMH- (83)	SSMH- (84)	2782.09	2780.47	110.00	1.47%	8		0.0031	0.1000
205						106.00					
206	Pipe - (81)	SSMH- (87)	SSMH- (88)	2794.44	2790.23	68.27	6.17%	8		0.0031	0.0298
207						64.27					
208	Pipe - (82)	SSMH- (88)	SSMH- (89)	2790.13	2783.78	131.74	4.82%	8		0.0031	0.0448
209						127.74					
210	Pipe - (83)	SSMH- (89)	SSMH- (84)	2783.68	2780.47	128.71	2.49%	8		0.0093	0.0896
211						124.71					
212	Pipe - (80)	SSMH- (84)	SSMH- (85)	2780.37	2778.72	68.00	2.43%	8	Pipes 78, 83	0.0124	0.0507
213						64.00					
214	Pipe - (79)	SSMH- (85)	SSMH- (86)	2778.62	2775.65	89.00	3.34%	8		0.0124	0.0537
215						85.00					
216	Pipe - (192)	SSMH- (86)	SSMH- (192)	2775.55	2774.78	89.00	0.87%	8		0.0124	0.0731
217						85.00					
218	Pipe - (193)	SSMH- (192)	SSMH- (193)	2774.68	2771.17	82.00	4.28%	8		0.0124	0.0507
219						78.00					
220	Pipe - (194)	SSMH- (193)	SSMH- (194)	2771.07	2756.79	293.00	4.87%	8		0.0124	0.0493
221						289.00					
222	Pipe - (195)	SSMH- (194)	SSMH- (195)	2756.69	2748.90	120.00	6.49%	8		0.0124	0.0463
223						116.00					
224	Pipe - (196)	SSMH- (195)	SSMH- (196)	2748.80	2748.01	104.00	0.76%	8		0.0124	0.0761
225						100.00					
226	Pipe - (85)	SSMH- (90)	SSMH- (91)	2778.35	2773.09	92.98	5.66%	8		0.0046	0.0896
227						88.98					
228	Pipe - (86)	SSMH- (91)	SSMH- (92)	2772.99	2769.48	66.42	5.28%	8		0.0077	0.1045
229						62.42					
230	Pipe - (87)	SSMH- (92)	SSMH- (93)	2769.38	2764.64	92.14	5.14%	8		0.0124	0.1044
231						88.14					
232	Pipe - (88)	SSMH- (93)	SSMH- (94)	2764.54	2759.97	89.06	5.13%	8		0.0170	0.1045
233						85.06					
234	Pipe - (89)	SSMH- (94)	SSMH- (95)	2759.87	2754.84	102.83	4.89%	8		0.0217	0.1194
235						98.83					
236	Pipe - (90)	SSMH- (95)	SSMH- (75)	2754.74	2753.27	69.49	2.12%	8		0.0248	0.1343
237						65.49					
238	Pipe - (66)	SSMH- (70)	SSMH- (71)	2783.38	2776.03	108.07	6.80%	8		0.0031	0.0045
239						104.07					
240	Pipe - (67)	SSMH- (71)	SSMH- (72)	2776.03	2769.82	109.55	5.67%	8		0.0062	0.0343
241						105.55					
242	Pipe - (68)	SSMH- (72)	SSMH- (73)	2769.82	2766.93	84.71	3.41%	8		0.0062	0.3880
243						80.71					
244	Pipe - (69)	SSMH- (73)	SSMH- (74)	2766.83	2759.74	243.97	2.91%	8		0.0124	0.0552
245						239.97					
246	Pipe - (70)	SSMH- (74)	SSMH- (75)	2759.64	2753.27	133.03	4.79%	8		0.0124	0.4980
247						129.03					
248	Pipe - (71)	SSMH- (75)	SSMH- (76)	2753.17	2749.63	135.51	2.61%	8	Pipes70, 90	0.0387	0.0970
249						131.51					
250	Pipe - (72)	SSMH- (76)	SSMH- (77)	2749.53	2747.98	297.52	0.52%	8		0.0387	0.1433
251						293.52					
252	Pipe - (91)	SSMH- (96)	SSMH- (97)	2760.13	2758.60	47.67	3.21%	8		0.0031	0.0299
253						43.67					
254	Pipe - (92)	SSMH- (97)	SSMH- (98)	2758.50	2754.48	119.36	3.37%	8		0.0062	0.0448
255						115.36					
256	Pipe - (93)	SSMH- (98)	SSMH- (99)	2754.38	2750.36	89.23	4.51%	8		0.0108	0.0597
257						85.23					
258	Pipe - (94)	SSMH- (99)	SSMH- (77)	2750.26	2747.98	43.89	5.19%	8		0.0139	0.0597
259						39.89					
260	Pipe - (95)	SSMH- (77)	SSMH- (100)	2747.88	2746.00	43.33	4.34%	8	Pipes 72, 94	0.0526	0.1000
261						39.33					
262	Pipe - (96)	SSMH- (100)	SSMH- (101)	2745.90	2743.84	47.39	4.35%	8		0.0572	0.1030
263						43.39					
264	Pipe - (97)	SSMH- (101)	SSMH- (102)	2743.74	2741.36	53.40	4.46%	8		0.0588	0.1045
265						49.40					
266	Pipe - (98)	SSMH- (102)	SSMH- (103)	2741.26	2736.32	129.04	3.83%	8		0.0619	0.1104
267						125.04					
268	Pipe - (99)	SSMH- (103)	SSMH- (104)	2736.23	2735.58	46.22	1.41%	8		0.0634	0.1418
269						42.22					
270	Pipe - (197)	SSMH- (196)	SSMH- (197)	2747.91	2747.63	35.00	0.80%	8	Pipes 103, 196	0.0789	0.1179
271						31.00					
272	Pipe - (198)	SSMH- (197)	SSMH- (107)	2747.53	2745.53	80.00	2.50%	8		0.0805	0.1388
273						76.00					
274	Pipe - (102)	SSMH- (107)	SSMH- (106)	2746.43	2738.74	109.00	7.06%	8		0.0820	0.1075
275						105.00					
276	Pipe - (101)	SSMH- (106)	SSMH- (105)	2738.64	2737.23	30.00	4.70%	8		0.0836	0.1224
277						26.00					
278	Pipe - (100)	SSMH- (105)	SSMH- (104)	2737.13	2735.58	75.00	2.07%	8		0.0882	0.1493
279						71.00					
280	Pipe - (199)	SSMH- (104)	SSMH- (198)	2735.48	2733.01	38.00	6.50%	8		0.0882	0.1478
281						34.00					
282	Pipe - (128)	SSMH- (198)	SSMH- (131)	2729.65	2727.05	260.00	1.00%	8	Pipe 216,128	0.1052	0.2358
283						256.00					
284	Pipe - (200)	SSMH- (131)	SSMH- (199)	2726.95	2722.06	271.63	1.80%	8		0.1052	0.2810
285						267.63					
286	Pipe - (201)	SSMH- (199)	SSMH- (200)	2721.96	2714.00	325.88	2.44%	8		0.1052	0.2601
287						321.88					
288	Pipe - (202)	SSMH- (200)	SSMH- (201)	2712.00	2701.00	351.28	3.13%	8		0.1052	0.2443
289						347.28					
290	Pipe - (203)	SSMH- (201)	SSMH- (202)	2699.40	2689.00	500.00	2.08%	8		0.1052	0.2709
291						496.00					
292	Pipe - (204)	SSMH- (202)	SSMH- (203)	2688.90	2687.96	142.84	0.66%	8		0.1052	0.3975
293						138.84					
294						500.00					

	A	B	C	D	E	F	G	H	I	J	K	L
1	Name	US Node	DS Node	US Invert (ft)	DS Invert (ft)	2D Length (ft)	% Slope	Size (in)	Tributary Pipes	Peak Cumulative Flow (cfs)	Depth to Diameter Ratio (d/D)	Peak Flow Velocity (ft/s)
center-to-center												
edge-to-edge												
198	Pipe - (75)	SSMH- (80)	SSMH- (81)	2797.02	2785.82	221.99	5.05%	8		0.0217	0.0627	2.3230
199						217.99						
200						98.54						
201	Pipe - (76)	SSMH- (81)	SSMH- (82)	2785.72	2783.61	94.54	2.14%	8		0.0279	0.0716	2.5080
202						245.00						
203	Pipe - (77)	SSMH- (82)	SSMH- (83)	2783.51	2782.19	241.00	0.54%	8		0.0279	0.1207	1.1533
204						110.00						
205	Pipe - (78)	SSMH- (83)	SSMH- (84)	2782.09	2780.47	106.00	1.47%	8		0.0031	0.1000	1.6895
206						68.27						
207	Pipe - (81)	SSMH- (87)	SSMH- (88)	2794.44	2790.23	64.27	6.17%	8		0.0031	0.0298	0.9900
208						131.74						
209	Pipe - (82)	SSMH- (88)	SSMH- (89)	2790.13	2783.78	127.74	4.82%	8		0.0031	0.0448	1.6200
210						128.71						
211	Pipe - (83)	SSMH- (89)	SSMH- (84)	2783.68	2780.47	124.71	2.49%	8		0.0093	0.0896	0.9800
212						68.00						
213	Pipe - (80)	SSMH- (84)	SSMH- (85)	2780.37	2778.72	64.00	2.43%	8	Pipes 78, 83	0.0124	0.0507	1.3970
214						89.00						
215	Pipe - (79)	SSMH- (85)	SSMH- (86)	2778.62	2775.65	85.00	3.34%	8		0.0124	0.0537	1.7030
216						89.00						
217	Pipe - (192)	SSMH- (86)	SSMH- (192)	2775.55	2774.78	85.00	0.87%	8		0.0124	0.0731	1.0670
218						82.00						
219	Pipe - (193)	SSMH- (192)	SSMH- (193)	2774.68	2771.17	78.00	4.28%	8		0.0124	0.0507	1.8570
220						293.00						
221	Pipe - (194)	SSMH- (193)	SSMH- (194)	2771.07	2756.79	289.00	4.87%	8		0.0124	0.0493	1.9420
222						120.00						
223	Pipe - (195)	SSMH- (194)	SSMH- (195)	2756.69	2748.90	116.00	6.49%	8		0.0124	0.0463	2.1450
224						104.00						
225	Pipe - (196)	SSMH- (195)	SSMH- (196)	2748.80	2748.01	100.00	0.76%	8		0.0124	0.0761	1.0170
226						92.98						
227	Pipe - (85)	SSMH- (90)	SSMH- (91)	2778.35	2773.09	88.98	5.66%	8		0.0046	0.0896	3.0500
228						66.42						
229	Pipe - (86)	SSMH- (91)	SSMH- (92)	2772.99	2769.48	62.42	5.28%	8		0.0077	0.1045	2.5900
230						92.14						
231	Pipe - (87)	SSMH- (92)	SSMH- (93)	2769.38	2764.64	88.14	5.14%	8		0.0124	0.1044	2.8300
232						89.06						
233	Pipe - (88)	SSMH- (93)	SSMH- (94)	2764.54	2759.97	85.06	5.13%	8		0.0170	0.1045	3.0600
234						102.83						
235	Pipe - (89)	SSMH- (94)	SSMH- (95)	2759.87	2754.84	98.83	4.89%	8		0.0217	0.1194	2.6900
236						69.49						
237	Pipe - (90)	SSMH- (95)	SSMH- (75)	2754.74	2753.27	65.49	2.12%	8		0.0248	0.1343	2.3200
238						108.07						
239	Pipe - (66)	SSMH- (70)	SSMH- (71)	2783.38	2776.03	104.07	6.80%	8		0.0031	0.0045	1.4270
240						109.55						
241	Pipe - (67)	SSMH- (71)	SSMH- (72)	2776.03	2769.82	105.55	5.67%	8		0.0062	0.0343	1.6570
242						84.71						
243	Pipe - (68)	SSMH- (72)	SSMH- (73)	2769.82	2766.93	80.71	3.41%	8		0.0062	0.3880	1.3890
244						243.97						
245	Pipe - (69)	SSMH- (73)	SSMH- (74)	2766.83	2759.74	239.97	2.91%	8		0.0124	0.0552	1.6240
246						133.03						
247	Pipe - (70)	SSMH- (74)	SSMH- (75)	2759.64	2753.27	129.03	4.79%	8		0.0124	0.4980	1.9310
248						135.51						
249	Pipe - (71)	SSMH- (75)	SSMH- (76)	2753.17	2749.63	131.51	2.61%	8	Pipes70, 90	0.0387	0.0970	2.2070
250						297.52						
251	Pipe - (72)	SSMH- (76)	SSMH- (77)	2749.53	2747.98	293.52	0.52%	8		0.0387	0.1433	1.2550
252						47.67						
253	Pipe - (91)	SSMH- (96)	SSMH- (97)	2760.13	2758.60	43.67	3.21%	8		0.0031	0.0299	0.9900
254						119.36						
255	Pipe - (92)	SSMH- (97)	SSMH- (98)	2758.50	2754.48	115.36	3.37%	8		0.0062	0.0448	1.0800
256						89.23						
257	Pipe - (93)	SSMH- (98)	SSMH- (99)	2754.38	2750.36	85.23	4.51%	8		0.0108	0.0597	1.2500
258						43.89						
259	Pipe - (94)	SSMH- (99)	SSMH- (77)	2750.26	2747.98	39.89	5.19%	8		0.0139	0.0597	1.6100
260						43.33						
261	Pipe - (95)	SSMH- (77)	SSMH- (100)	2747.88	2746.00	39.33	4.34%	8	Pipes 72, 94	0.0526	0.1000	2.8920
262						47.39						
263	Pipe - (96)	SSMH- (100)	SSMH- (101)	2745.90	2743.84	43.39	4.35%	8		0.0572	0.1030	2.9680
264						53.40						
265	Pipe - (97)	SSMH- (101)	SSMH- (102)	2743.74	2741.36	49.40	4.46%	8		0.0588	0.1045	3.0190
266						129.04						
267	Pipe - (98)	SSMH- (102)	SSMH- (103)	2741.26	2736.32	125.04	3.83%	8		0.0619	0.1104	2.9070
268						46.22						
269	Pipe - (99)	SSMH- (103)	SSMH- (104)	2736.23	2735.58	42.22	1.41%	8		0.0634	0.1418	2.0630
270						35.00						
271	Pipe - (197)	SSMH- (196)	SSMH- (197)	2747.91	2747.63	31.00	0.80%	8	Pipes 103, 196	0.0789	0.1179	1.8040
272						80.00						
273	Pipe - (198)	SSMH- (197)	SSMH- (107)	2747.53	2745.53	76.00	2.50%	8		0.0805	0.1388	2.7090
274						109.00						
275	Pipe - (102)	SSMH- (107)	SSMH- (106)	2746.43	2738.74	105.00	7.06%	8		0.0820	0.1075	4.8200
276						30.00						
277	Pipe - (101)	SSMH- (106)	SSMH- (105)	2738.64	2737.23	26.00	4.70%	8		0.0836	0.1224	3.4100
278						75.00						
279	Pipe - (100)	SSMH- (105)	SSMH- (104)	2737.13	2735.58	71.00	2.07%	8		0.0882	0.1493	2.5780
280						38.00						
281	Pipe - (199)	SSMH- (104)	SSMH- (198)	2735.48	2733.01	34.00	6.50%	8		0.0882	0.1478	4.5470
282						260.00						
283	Pipe - (128)	SSMH- (198)	SSMH- (131)	2729.65	2727.05	256.00	1.00%	8		0.0882	0.2358	2.3490
284						271.63						
285	Pipe - (200)	SSMH- (131)	SSMH- (199)	2726.95	2722.06	267.63	1.80%	8	Pipe 216,128	0.1052	0.2810	3.4890
286						325.88						
287	Pipe - (201)	SSMH- (199)	SSMH- (200)	2721.96	2714.00	321.88	2.44%	8		0.1052	0.2601	3.8885
288						351.28						
289	Pipe - (202)	SSMH- (200)	SSMH- (201)	2712.00	2701.00	347.28	3.13%	8		0.1052	0.2443	4.2492
290						500.00						
291	Pipe - (203)	SSMH- (201)	SSMH- (202)	2699.40	2689.00	496.00	2.08%	8		0.1052	0.2709	3.6740
292						142.84						
293	Pipe - (204)	SSMH- (202)	SSMH- (203)	2688.90	2687.96	138.84	0.66%	8		0.1052	0.3975	2.5378
294						500.00						

	A	B	C	D	E	F	G	H	I	J	K	L
1	Name	US Node	DS Node	US Invert (ft)	DS Invert (ft)	2D Length (ft)	% Slope	Size (in)	Tributary Pipes	Peak Cumulative Flow (cfs)	Depth to Diameter Ratio (d/D)	Peak Flow Velocity (ft/s)
center-to-center												
edge-to-edge												
295	Pipe - (205)	SSMH- (203)	SSMH- (204)	2687.86	2675.24	496.00	2.52%	8		0.1052	0.2672	4.3783
296						370.00						
297	Pipe - (206)	SSMH- (204)	SSMH- (205)	2675.14	2664.03	366.00	3.00%	8		0.1052	0.2672	4.3783
298						280.00						
299	Pipe - (207)	SSMH- (205)	SSMH- (206)	2660.65	2658.97	276.00	0.60%	8		0.1052	0.4079	2.4511
300						350.00						
301	Pipe - (208)	SSMH- (206)	SSMH- (207)	2658.87	2656.77	346.00	0.60%	8		0.1052	0.4478	2.5647
302						500.00						
303	Pipe - (209)	SSMH- (207)	SSMH- (208)	2654.20	2639.86	496.00	2.87%	8		0.1052	0.2951	4.5254
304						497.83						
305	Pipe - (210)	SSMH- (208)	SSMH- (209)	2635.82	2632.83	493.83	0.60%	8		0.1052	0.4478	2.5647
306						89.04						
307	Pipe - (211)	SSMH- (209)	SSMH- (210)	2632.73	2632.20	85.04	0.60%	8		0.2398	0.6584	2.9680
308						305.00						
309	Pipe - (212)	SSMH- (210)	SSMH- (211)	2632.00	2620.05	301.00	3.92%	8	Pipes 211, 215	1.1979	0.6143	6.8567
310						67.00						
311	Pipe - (213)	SSMH- (211)	LS - (52)	2619.85	2619.43	63.00	0.63%	12		1.1979	0.4543	3.4512
312						50.00						
313	Pipe - (214)	SSMH- (212)	SSMH- (130)	2743.16	2742.20	46.00	1.92%	8		0.0000	0.2188	3.1218
314						84.00						
315	Pipe - (215)	SSMH- (213)	SSMH- (210)	2636.33	2635.33	80.00	1.19%	8		0.9580	0.5139	3.8327
316						124.06						
317	Pipe - (115)	SSMH- (120)	SSMH- (119)	2813.05	2806.89	120.06	4.97%	8		0.0062	0.0448	1.0800
318						78.17						
319	Pipe - (114)	SSMH- (119)	SSMH- (118)	2806.79	2803.04	74.17	4.80%	8		0.0093	0.0448	1.6200
320						284.06						
321	Pipe - (113)	SSMH- (118)	SSMH- (117)	2802.94	2790.83	280.06	4.26%	8		0.0124	0.0597	1.6100
322						46.18						
323	Pipe - (112)	SSMH- (117)	SSMH- (116)	2790.73	2788.70	42.18	4.40%	8		0.0186	0.0746	1.5500
324						50.08						
325	Pipe - (111)	SSMH- (116)	SSMH- (115)	2788.60	2786.27	46.08	4.65%	8		0.0217	0.0746	1.8000
326						176.43						
327	Pipe - (110)	SSMH- (115)	SSMH- (114)	2786.17	2777.54	172.43	4.89%	8		0.0294	0.0746	2.3200
328						53.67						
329	Pipe - (116)	SSMH- (121)	SSMH- (122)	2790.04	2789.05	49.67	1.84%	8		0.0015	0.0299	0.4800
330						164.71						
331	Pipe - (117)	SSMH- (122)	SSMH- (114)	2788.95	2777.54	160.71	6.93%	8		0.0031	0.0299	0.9900
332						85.24						
333	Pipe - (109)	SSMH- (114)	SSMH- (113)	2777.44	2773.09	81.24	5.10%	8	Pipes 110,117	0.0340	0.0896	2.1600
334						108.08						
335	Pipe - (108)	SSMH- (113)	SSMH- (112)	2772.99	2767.37	104.08	5.20%	8		0.0402	0.0896	2.5600
336						89.68						
337	Pipe - (107)	SSMH- (112)	SSMH- (111)	2767.27	2762.59	85.68	5.22%	8		0.0449	0.0896	2.7500
338						110.34						
339	Pipe - (106)	SSMH- (111)	SSMH- (110)	2762.49	2756.78	106.34	5.17%	8		0.0495	0.1045	2.4400
340						88.08						
341	Pipe - (105)	SSMH- (110)	SSMH- (109)	2756.68	2752.18	84.08	5.11%	8		0.0557	0.1045	2.5900
342						81.99						
343	Pipe - (104)	SSMH- (109)	SSMH- (108)	2752.08	2748.93	77.99	3.84%	8		0.0588	0.1194	2.3000
344						305.06						
345	Pipe - (103)	SSMH- (108)	SSMH- (196)	2748.83	2736.75	301.06	3.96%	8		0.0603	0.1194	2.4900
346	E. Ranch Gate Road (Happy Valley Rd) Sewer outfall											
347												
348						82.86						
349	Pipe - (46)	SSMH- (50)	SSMH- (49)	2772.74	2772.31	78.86	0.52%	8		0.0031	0.0433	0.5850
350						108.41						
351	Pipe - (45)	SSMH- (49)	SSMH- (48)	2772.21	2771.64	104.41	0.53%	8		0.0062	0.0597	0.7220
352						76.41						
353	Pipe - (44)	SSMH- (48)	SSMH- (47)	2771.55	2766.06	72.41	7.18%	8		0.0062	0.0328	1.7980
354						50.83						
355	Pipe - (43)	SSMH- (47)	SSMH- (46)	2765.96	2762.48	46.83	6.85%	8		0.0062	0.0328	1.7700
356						51.40						
357	Pipe - (42)	SSMH- (46)	SSMH- (45)	2762.38	2758.85	47.40	6.87%	8		0.0062	0.0328	1.7700
358						52.66						
359	Pipe - (41)	SSMH- (45)	SSMH- (1)	2758.75	2755.09	48.66	6.95%	8		0.0108	0.0418	2.1080
360						135.90						
361	Pipe - (1)	SSMH- (1)	SSMH- (2)	2754.99	2754.21	131.90	0.57%	8		0.0155	0.0925	0.9846
362						115.13						
363	Pipe - (2)	SSMH- (2)	SSMH- (3)	2754.11	2753.51	111.13	0.52%	8		0.0155	0.0921	0.9534
364						137.13						
365	Pipe - (3)	SSMH- (3)	SSMH- (4)	2753.41	2752.7	133.13	0.52%	8		0.0155	0.0921	0.9534
366						72.61						
367	Pipe - (155)	SSMH- (4)	SSMH- (161)	2752.6	2752.2	68.61	0.55%	8		0.0155	0.0909	0.9724
368						96.39						
369	Pipe - (156)	SSMH- (161)	SSMH- (162)	2752.1	2751.4	92.39	0.73%	8		0.0155	0.0849	1.0734
370						149.91						
371	Pipe - (157)	SSMH- (162)	SSMH- (163)	2751.3	2750.5	145.91	0.53%	8		0.0155	0.0957	0.9599
372						99.44						
373	Pipe - (158)	SSMH- (163)	SSMH- (164)	2750.4	2749.8	95.44	0.60%	8		0.0186	0.0970	1.0590
374						60.16						
375	Pipe - (159)	SSMH- (164)	SSMH- (160)	2749.7	2749.3	56.16	0.66%	8		0.0186	0.0955	1.0950
376						89.98						
377	Pipe - (152)	SSMH- (157)	SSMH- (158)	2771.4	2770	85.98	1.56%	8		0.0000	0.0000	0.0000
378						121.47						
379	Pipe - (153)	SSMH- (158)	SSMH- (159)	2769.9	2761.7	117.47	6.75%	8		0.0015	0.2985	0.4800
380						209.77						
381	Pipe - (154)	SSMH- (159)	SSMH- (160)	2761.6	2749.3	205.77	5.86%	8		0.0015	0.2985	0.4800
382						143.68						
383	Pipe - (160)	SSMH- (160)	SSMH- (165)	2749.2	2745.1	139.68	2.85%	8	Pipes 154,159	0.0217	0.0716	1.9100
384						128.80						
385	Pipe - (161)	SSMH- (165)	SSMH- (166)	2745	2744.2	124.80	0.62%	8		0.0217	0.1030	1.1220
386						90.22						
387	Pipe - (162)	SSMH- (166)	SSMH- (167)	2744.1	2743.5	86.22	0.67%	8		0.0248	0.1045	1.1770
388						145.50						
389	Pipe - (163)	SSMH- (167)	SSMH- (168)	2743.4	2739	141.50	3.02%	8		0.0248	0.0731	1.9900
390						98.27						
391	Pipe - (164)	SSMH- (168)	SSMH- (169)	2738.9	2738.2	94.27	0.71%	8		0.0263	0.1075	1.2250

