Appendix K1

Water System Hydraulic Analysis

HUNSAKER
& ASSOCIATES
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PLANNING
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Water System Hydraulic Analysis

Date: April 14, 2022

For: Nichole Horton, P.E.
City of Pomona
Water Resources Department

By: John R. Gass, P.E.
Project Manager
Hunsaker & Associates Irvine, Inc.

Project: **Elephant Hill**

Hunsaker & Associates Irvine, Inc. (H&A) is pleased to submit the Water System Hydraulic Analysis for the Elephant Hill project. This analysis has been prepared to describe the proposed water system for the aforementioned residential development project in the City of Pomona (City). The project lies within the jurisdiction of the City and their standards have been used for this report. Hydraulic models were prepared using Haestad Methods software to model various flows during steady state conditions.

THE PROPOSED WATER SYSTEM FOR THE ELEPHANT HILL PROJECT MEETS THE DESIGN STANDARDS SPECIFIED BY THE CITY OF POMONA. This evaluation is based on existing and known conditions and should be re-evaluated if these conditions change or new information becomes available. Any interpretation of the information presented in this report should be referred to H&A to ensure the integrity of the results.

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Project Location

The Elephant Hill project is located adjacent to the 57 freeway and Mission Boulevards in the City of Pomona, CA. The general location is shown on the attached exhibit entitled, “Overall Water System Node Map – Figure 1”.

Project Description

The Elephant Hill project is a proposed residential development on 120.62 acres which includes 77.36 acres of natural open space that will ne be developed. The proposed development area is 36.14 acres and includes 227 residential dwelling units (DU) that consists of a mix of attached residential DU’s and detached residential DU’s. There are 65 three-story attached DU’s, 94 two-story duplex DU’s and 68 two-story single family DU’s. Since the majority of the project is considered multi-family, the average day water demands will be estimated using 3400 gpd/acre according to the City of Pomona Potable Water Master Plan (PWMP) dated October 2019.

Summary of Findings

1. The estimated Average Day Demand (ADD) is as follows:
   - ADD = 36.14 ac x 3,400 gpd/acre = 122,876 gpd
   - 122,876 gpd ÷ 227 du = 541.3 gpd/du

2. The estimated Maximum Day Demand (MDD) is as follows:
   - MDD = ADD x 1.7 = 122,876 gpd x 1.7 = 208,889 gpd
   - 208,889 gpd ÷ 227 du = 920.1 gpd/du

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3. The estimated Peak Hour Demand (PHD) is as follows:
   - PHD = MDD x 1.7 = 208,889 gpd x 1.7 = 355,112 gpd
   - 355,112 gpd ÷ 227 du = 1,564.4 gpd/du

4. Water supply is provided by the City of Pomona through the existing Zone 11 (1243 HGL) pressure zone water system. The Static Hydraulic grade is estimated to be 1,222 feet based on a fire hydrant flow test on Mission Boulevard (fire hydrant #F15_002), included in the Appendix for Reference.

5. The proposed onsite water system consists of 6 & 8-inch diameter water mains. The proposed water system includes two connections to the existing water mains surrounding the project. The first connection will be a new 8-inch connection to the existing 10-inch water main in Sorrento Drive and the second connection will be a new 8-inch connection to the existing 12-inch water main in Mission Boulevard. Based on the pressure of the existing Zone 11 water system, the proposed onsite system will include 8-inch Pressure Reducing Valves (PRV) downstream of each connection point to the existing water mains. The PRV's shall be set to an HGL of 1040 feet, to reduce the onsite pressure to a maximum of 90 psi to meet the pressure requirements identified in the City of Pomona PWMP. The water system schematic is shown on the attached exhibit entitled, "Overall Water System Node Map – Figure 1".

6. Fire flow requirement were taken from 2016 California Fire Code, Table B105.1(2) based on the largest building size and assumed construction type for each product type. The fire flow requirement are shown below:

Table 1 – Fire Flows Requirements

Dwelling Type	Largest Area (sf)	Construction Type	Fire Flow
2-story detached	1,930	Type V-B	1,500 gpm
2-Story Attached	1,660	Type V-B	1,500 gpm
3-Story Attached	1,850	Type V-B	1,500 gpm

7. H&A estimated the flow constant "K" using Affinity Laws to determine the HGL of the water supply at static, peak hour demands, and maximum day demands plus the required fire flow events. The flow constant for this water system is $K = Q / H_f^{0.54}$ where H_f is the difference (in feet) of the measured static and residual pressure at the test flow. The "K" value for the water system is estimated to be **377** based on the fire flow test included in the Appendix.

8. In order to calculate the pipe sizes, velocities and available pressure of the proposed water system, we have prepared a hydraulic model using WaterCad v8I by Haestad Methods. The summary of outputs from the model runs are included in the Appendix of this report.

9. The proposed water system provides pressures greater than 40 psi for all nodes during peak hour demands. The minimum in-track peak hour pressure experienced was **67 psi** with an estimated HGL of 1,222 feet at the modeled

fire flow test hydrant on Mission Boulevard. The following table summarizes the peak hour model run:

Table 2 – Summary of Peak Hour Model Run

Total Flow (gpm)	Minimum in-tract Residual Pressure	
	(node)	(psi)
247	J-10	**67**

10. The proposed water system provides pressures greater than 20 psi during maximum day demands plus the required fire flow events as required by the CPC and the City of Pomona. The minimum residual pressure experience for the modeled fire flow event are shown in Table 3 below. The estimated HGL of 1207 feet (1500 gpm fire event) was used at the modeled fire flow test hydrant on Mission Boulevard. The following table summarizes the MDD plus Fire Flow events:

Table 3 - Summary of Fire Flow Model Runs

Fire Flow Node	Node Elevation	MDD+FF at Node	Node HGL	Residual Pressure
Max Day Demand + 1,500 gpm Fire Flow @ J-17				
J-17	840 ft	1,500 gpm	1,023.81 ft	**80 psi**
Max Day Demand + 1,500 gpm Fire Flow @ J-31				
J-31	836 ft	1,503 gpm	1,019.76 ft	**80 psi**
Max Day Demand + 1,500 gpm Fire Flow @ J-62				
J-62	858 ft	1,504 gpm	1,017.29 ft	**69 psi**
Max Day Demand + 1,500 gpm Fire Flow @ J-68				
J-68	851 ft	1,500 gpm	1,025.68 ft	**76 psi**

11. All domestic water meters will require individual pressure reduction devices to reduce the pressure to a maximum of 80 psi for each dwelling unit within the project site

We sincerely trust these calculations will provide sufficient evidence that the proposed water system is adequate for the proposed Elephant Hill residential project. Please contact me at (949) 768-2579 if you have any questions.

JG:jg
Enclosures
xc: Joe Martin – Trumark
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W.O. 3593-44
(F:\0054\Engineering\WS_Studies\Water\WT_Report.doc)

SUMMARY OF FIRE FLOW MODEL RUNS

FIRE FLOW NODE	NODE ELEVATION (ft)	FF+MDD AT NODE (gpm)	NODE HGL (ft)	RESIDUAL PRESSURE (psi)
1,500 GPM FIRE FLOW @ J-17				
J-17	840	1,500	1023.81	80
1,500 GPM FIRE FLOW @ J-31				
J-31	836	1,503	1019.76	80
1,500 GPM FIRE FLOW @ J-62				
J-62	858	1,504	1017.29	69
1,500 GPM FIRE FLOW @ J-68				
J-68	851	1,500	1025.68	76

LEGEND

- P-# — EXISTING 6" WATER LINE AND PIPE NUMBER
- P-# — EXISTING 8" WATER LINE AND PIPE NUMBER
- P-# — EXISTING 10" WATER LINE AND PIPE NUMBER
- P-# — EXISTING 12" WATER LINE AND PIPE NUMBER
- P-# — PROPOSED 6" WATER LINE AND PIPE NUMBER
- P-# — PROPOSED 8" WATER LINE AND PIPE NUMBER
- J-# — JUNCTION NODE AND NUMBER
- J-# — LOCATION OF MODELED FIRE FLOW
- J-# — LOCATION OF PROPOSED FIRE HYDRANT
- PRV-# — MODELED PRESSURE REDUCING VALVE (PRV)
- R-# — MODELED RESERVOIR SEE NOTE 2 BELOW

NOTE:

1. ALL PROPOSED & EXISTING WATER MAIN SIZES ARE NOTED ON PLAN.
2. MODELED RESERVOIR IS LOCATED AT THE FLOW TEST HYDRANT PERFORMED ON MISSION BOULEVARD. THE STATIC HGL IS CALCULATED TO BE 1,222-FEET, PER FIRE HYDRANT FLOW TEST.
3. SEE APPENDIX FOR THE COMPLETE MODEL RUN DATA

0 40 80 160 240 320

SCALE: 1" = 80'

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ELEPHANT HILL
OVERALL WATER SYSTEM
NODE MAP

FIGURE 1

JOB NO. 3593-44 DATE: 4/14/2022

PLOTTED BY: JohnG DATE: Apr. 14, 2022 TIME: 03:33 PM F:\0054\Engineering\WS_Studies\Water\Figure-01.dwg

Fire Hydrant Flow Test

THE CITY OF POMONA
WATER RESOURCES DEPARTMENT

FIRE HYDRANT/FLOW INFORMATION

All fire flows are conducted using a Pollard Water diffuser and flow rate chart for pitot measurements.

PROJECT SITE ADDRESS:	**Appian Way & 379 Via Moreno**				
Hydrant Number:	F15_002	Location:	Elephant Hill		
Static PSI:	165	Residual PSI:	156	Pitot PSI:	135
Hydrant Size/Type :	6" Clow				
Size of Water Main:	12" ACP	Duration:	5 Minutes		
Flow Rate @ 20 PSI Residual Pressure (GPM):	**8,747**				
Pitot Flow Rate - From Pollard Water Chart (GPM):	1,950				
Date:	11/12/2020				
Time of Test:	8:12	AM:	X	PM:	
PROJECT SITE ADDRESS:					
Hydrant Number:		Location:			
Static PSI:		Residual PSI:		Pitot PSI:	
Hydrant Size/Type :					
Size of Water Main:		Duration:	5 Minutes		
Flow Rate @ 20 PSI Residual Pressure (GPM):	**No Value**				
Pitot Flow Rate - From Pollard Water Chart (GPM):					
Date:					
Time of Test:		AM:		PM:	
Flows Performed Simultaneously?:		YES		2 Hydrants	
		NO	X	3 Hydrants	
Flow Tester:	Frank Munoz	Signature:			

FIRE FLOWS TAKEN FROM THE 2-1/2 INCH ORIFICE

Form Current as of January 2016

THE CITY OF POMONA
WATER RESOURCES DEPARTMENT

FIRE HYDRANT/FLOW INFORMATION

All fire flows are conducted using a Pollard Water diffuser and flow rate chart for pitot measurements.

PROJECT SITE ADDRESS: **2889 W. Mission Blvd. - Elephant Hill, Trumark Homes Development**

Hydrant Number: E16_068 Location: Sorrento Dr. & Appian Way

Static PSI:	144	Residual PSI:	134	Pitot PSI:	108

Hydrant Size/Type : 6"

Size of Water Main: 10" Duration: 5 Minutes

Flow Rate @ 20 PSI Residual Pressure (GPM): **6,952**

Pitot Flow Rate - From Pollard Water Chart (GPM): 1,785

Date: 11/19/20

Time of Test: 9:00 AM: X PM:

PROJECT SITE ADDRESS:

Hydrant Number: Location:

Static PSI:		Residual PSI:		Pitot PSI:	

Hydrant Size/Type :

Size of Water Main: Duration: 5 Minutes

Flow Rate @ 20 PSI Residual Pressure (GPM): **No Value**

Pitot Flow Rate - From Pollard Water Chart (GPM):

Date:

Time of Test: AM: PM:

Flows Performed Simultaneously?:	YES		2 Hydrants	
	NO	X	3 Hydrants	

Flow Tester: FM Signature:

FIRE FLOWS TAKEN FROM THE 2-1/2 INCH ORIFICE

Form Current as of January 2016

HGL CALCULATIONS

HUNSAKER
& ASSOCIATES
IRVINE, INC.

HGL Calculation Based on Hydrant Test on Mission Boulevard (Hyd# F15_002)

Description	Desired Flow Q_F (gpm)	Dynamic Loss H_F (feet)*	Available HGL_F (feet)**	Test Run
Static	0	0.00	1,222	1
Max Day	145	0.17	1,222	2
Peak Hour	247	0.46	1,222	3
MDD+1,500 gpm FF	1,645	15.29	1,207	4

* H_F is Static minus Residual (in feet) at Desired Flow

** HGL_F = Test Elevation + Static Pressure - H_F

Hydrant Test Data:

Orifice Dia	2.5	in.	
Static Pressure	165	psi	*381* feet
Residual Pressure	156	psi	*360* feet
Pitot Reading	135	psi	
Observed Flow	1,950	gpm	
Test Elevation	841	feet	

Fire Flow Requirement:

Largest Building	1,930	sq. ft.
Const. Type	V-B	
Required Fire Flow	1,500	gpm

Affinity Equations:

$$K = \frac{Q_R}{H_R^{\wedge 0.54}}$$

- K is Affinity Constant
- Q_R is Test Flow
- Q_F is Desired Flow
- H_R is Static minus Residual (in feet) at Test Flow

$$H_F = \left(\frac{Q_F}{K}\right)^{\wedge 1.85}$$

Affinity Constant: (Using Flow Test Values)

K = 377

WATER SYSTEM
MODEL RUN DATA

Elephant Hill
Scenario: Static
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	852	0	1,222.00	160
J-2	866	0	1,222.00	154
J-3	888	0	1,222.00	145
J-4	883	0	1,222.00	147
J-5	883	0	1,222.00	147
J-6	884	0	1,222.00	146
J-7	881	0	1,222.00	148
J-8	884	0	1,222.00	146
J-9	885	0	1,222.00	146
J-10	885	0	1,040.07	67
J-11	871	0	1,040.07	73
J-12	838	0	1,040.07	87
J-13	834	0	1,040.07	89
J-14	836	0	1,040.07	88
J-15	837	0	1,040.07	88
J-16	837	0	1,040.07	88
J-17	840	0	1,040.07	87
J-18	840	0	1,040.07	87
J-19	841	0	1,040.07	86
J-20	852	0	1,040.07	81
J-21	853	0	1,040.07	81
J-22	855	0	1,040.07	80
J-23	858	0	1,040.07	79
J-24	865	0	1,040.07	76
J-25	868	0	1,040.07	74
J-26	836	0	1,040.07	88
J-27	836	0	1,040.07	88
J-28	835	0	1,040.07	89
J-29	835	0	1,040.07	89
J-30	835	0	1,040.07	89
J-31	836	0	1,040.07	88
J-32	837	0	1,040.07	88
J-33	837	0	1,040.07	88
J-34	838	0	1,040.07	87
J-35	838	0	1,040.07	87
J-36	839	0	1,040.07	87
J-37	836	0	1,040.07	88
J-38	836	0	1,040.07	88

Elephant Hill
Scenario: Static
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-39	834	0	1,040.07	89
J-40	835	0	1,040.07	89
J-41	833	0	1,040.07	90
J-42	835	0	1,040.07	89
J-43	833	0	1,040.07	90
J-44	835	0	1,040.07	89
J-45	834	0	1,040.07	89
J-46	836	0	1,040.07	88
J-47	838	0	1,040.07	87
J-48	838	0	1,040.07	87
J-49	840	0	1,040.07	87
J-50	841	0	1,040.07	86
J-51	839	0	1,040.07	87
J-52	843	0	1,040.07	85
J-53	854	0	1,040.07	81
J-54	856	0	1,040.07	80
J-55	869	0	1,040.07	74
J-56	869	0	1,040.07	74
J-57	872	0	1,040.07	73
J-58	857	0	1,040.07	79
J-59	855	0	1,040.07	80
J-60	856	0	1,040.07	80
J-61	857	0	1,040.07	79
J-62	858	0	1,040.07	79
J-63	859	0	1,040.07	78
J-64	858	0	1,040.07	79
J-65	857	0	1,040.07	79
J-66	857	0	1,040.07	79
J-67	853	0	1,040.07	81
J-67	850	0	1,040.07	82
J-68	853	0	1,222.00	160

Elephant Hill
Scenario: Peak Hour Demand
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	852	0	1,221.94	160
J-2	866	0	1,221.92	154
J-3	888	0	1,221.90	144
J-4	883	0	1,221.87	147
J-5	883	0	1,221.86	147
J-6	884	0	1,221.85	146
J-7	881	0	1,221.89	147
J-8	884	0	1,221.89	146
J-9	885	0	1,221.82	146
J-10	885	0	1,040.02	67
J-11	871	0	1,039.90	73
J-12	838	0	1,039.80	87
J-13	834	0	1,039.79	89
J-14	836	0	1,039.79	88
J-15	837	0	1,039.79	88
J-16	837	4	1,039.79	88
J-17	840	0	1,039.80	86
J-18	840	4	1,039.80	86
J-19	841	0	1,039.80	86
J-20	852	9	1,039.82	81
J-21	853	4	1,039.82	81
J-22	855	4	1,039.83	80
J-23	858	8	1,039.84	79
J-24	865	0	1,039.88	76
J-25	868	7	1,039.90	74
J-26	836	10	1,039.79	88
J-27	836	7	1,039.78	88
J-28	835	7	1,039.78	89
J-29	835	4	1,039.78	89
J-30	835	7	1,039.78	89
J-31	836	5	1,039.78	88
J-32	837	11	1,039.78	88
J-33	837	4	1,039.78	88
J-34	838	3	1,039.78	87
J-35	838	3	1,039.78	87
J-36	839	7	1,039.78	87
J-37	836	2	1,039.78	88
J-38	836	2	1,039.78	88

Elephant Hill
Scenario: Peak Hour Demand
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-39	834	0	1,039.78	89
J-40	835	3	1,039.78	89
J-41	833	0	1,039.79	89
J-42	835	7	1,039.78	89
J-43	833	0	1,039.79	89
J-44	835	7	1,039.79	89
J-45	834	0	1,039.79	89
J-46	836	7	1,039.79	88
J-47	838	7	1,039.79	87
J-48	838	9	1,039.79	87
J-49	840	11	1,039.79	86
J-50	841	10	1,039.79	86
J-51	839	4	1,039.79	87
J-52	843	7	1,039.80	85
J-53	854	7	1,039.82	80
J-54	856	7	1,039.83	80
J-55	869	5	1,039.89	74
J-56	869	3	1,039.90	74
J-57	872	7	1,039.90	73
J-58	857	3	1,039.99	79
J-59	855	0	1,040.01	80
J-60	856	4	1,040.01	80
J-61	857	7	1,040.00	79
J-62	858	7	1,040.00	79
J-63	859	4	1,040.00	78
J-64	858	4	1,040.00	79
J-65	857	4	1,040.01	79
J-66	857	3	1,039.99	79
J-67	853	0	1,040.05	81
J-67	850	0	1,039.82	82
J-68	853	0	1,221.93	160

Elephant Hill
Scenario: Peak Hour Demand
FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (Friction) (ft)
P-1	275	R-1	J-1	12	120	247	0.70	0.0604
P-2	315	J-1	J-2	12	120	139	0.39	0.0239
P-3	509	J-2	J-3	12	120	91	0.26	0.0175
P-4	302	J-3	J-4	10	120	91	0.37	0.0254
P-5	73	J-4	J-5	10	120	139	0.57	0.0133
P-6	26	J-5	J-6	10	120	139	0.57	0.0049
P-7	287	J-2	J-7	8	120	48	0.31	0.0221
P-8	190	J-7	J-8	8	120	36	0.23	0.0084
P-9	160	J-8	J-4	8	120	48	0.31	0.0123
P-10	326	J-7	J-8	6	120	13	0.14	0.0084
P-11	70	J-6	J-9	8	120	139	0.89	0.0383
P-12	64	J-9	PRV-1	8	120	139	0.89	0.0348
P-13	60	PRV-1	J-10	8	120	139	0.89	0.0331
P-14	219	J-10	J-11	8	120	139	0.89	0.1196
P-15	393	J-11	J-12	8	120	94	0.60	0.1041
P-16	100	J-12	J-13	8	120	35	0.22	0.0044
P-17	141	J-13	J-14	8	120	1	0.00	0.0000
P-18	117	J-14	J-15	8	120	7	0.05	0.0002
P-19	35	J-15	J-16	8	120	7	0.05	0.0001
P-20	218	J-16	J-17	8	120	21	0.14	0.0037
P-21	33	J-17	J-18	8	120	21	0.14	0.0006
P-22	65	J-18	J-19	8	120	50	0.32	0.0052
P-23	160	J-19	J-67	8	120	56	0.36	0.0162
P-24	162	J-67	J-20	8	120	11	0.07	0.0009
P-25	157	J-20	J-21	8	120	20	0.13	0.0023
P-26	146	J-21	J-22	8	120	31	0.20	0.0049
P-27	154	J-22	J-23	8	120	42	0.27	0.0090
P-28	142	J-24	J-25	8	120	54	0.35	0.0137
P-29	102	J-25	J-11	8	120	45	0.29	0.0068
P-30	111	J-12	J-26	8	120	59	0.37	0.0125
P-31	38	J-26	J-27	8	120	30	0.19	0.0011
P-32	99	J-27	J-28	8	120	21	0.13	0.0017
P-33	29	J-28	J-29	8	120	7	0.05	0.0001
P-34	108	J-29	J-30	8	120	1	0.01	0.0000
P-35	136	J-30	J-31	8	120	7	0.05	0.0002
P-36	154	J-31	J-32	8	120	2	0.01	0.0000
P-37	18	J-32	J-33	8	120	2	0.01	0.0000
P-38	101	J-33	J-34	8	120	13	0.08	0.0006

Elephant Hill
Scenario: Peak Hour Demand
FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (Friction) (ft)
P-39	42	J-34	J-35	6	120	3	0.04	0.0001
P-40	188	J-34	J-26	8	120	19	0.12	0.0026
P-41	120	J-33	J-36	6	120	7	0.07	0.0010
P-42	179	J-28	J-32	8	120	7	0.05	0.0004
P-43	67	J-27	J-37	6	120	2	0.02	0.0001
P-44	67	J-29	J-38	6	120	2	0.02	0.0000
P-45	170	J-30	J-39	8	120	13	0.08	0.0012
P-46	143	J-39	J-40	6	120	3	0.04	0.0004
P-47	132	J-39	J-41	8	120	16	0.10	0.0013
P-48	152	J-41	J-42	6	120	7	0.07	0.0011
P-49	160	J-41	J-43	8	120	23	0.15	0.0031
P-50	152	J-43	J-44	6	120	7	0.07	0.0011
P-51	146	J-43	J-45	8	120	29	0.19	0.0045
P-52	149	J-45	J-46	6	120	7	0.07	0.0011
P-53	19	J-45	J-13	8	120	36	0.23	0.0009
P-54	152	J-14	J-47	6	120	7	0.07	0.0011
P-55	167	J-16	J-48	8	120	10	0.06	0.0007
P-56	173	J-48	J-49	8	120	1	0.01	0.0000
P-57	169	J-49	J-50	8	120	14	0.09	0.0013
P-58	175	J-50	J-18	8	120	24	0.15	0.0037
P-59	124	J-49	J-51	6	120	4	0.05	0.0004
P-60	227	J-19	J-52	6	120	7	0.07	0.0017
P-61	131	J-21	J-53	6	120	7	0.07	0.0010
P-62	131	J-22	J-54	6	120	7	0.07	0.0010
P-63	169	J-24	J-55	8	120	40	0.25	0.0092
P-64	142	J-55	J-56	8	120	45	0.29	0.0098
P-65	158	J-56	J-57	8	120	22	0.14	0.0029
P-66	242	J-57	J-25	8	120	16	0.10	0.0023
P-67	574	J-56	J-58	8	120	71	0.45	0.0901
P-68	104	J-58	J-59	8	120	77	0.49	0.0190
P-69	128	J-59	J-60	8	120	30	0.19	0.0042
P-70	136	J-60	J-61	8	120	22	0.14	0.0024
P-71	136	J-61	J-62	8	120	11	0.07	0.0006
P-72	141	J-62	J-63	6	120	4	0.05	0.0005
P-73	111	J-61	J-64	6	120	4	0.05	0.0004
P-74	111	J-60	J-65	6	120	4	0.05	0.0004
P-75	102	J-58	J-66	6	120	3	0.04	0.0002
P-76	116	J-59	J-67	8	120	108	0.69	0.0398

Elephant Hill
Scenario: Peak Hour Demand
FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (Friction) (ft)
P-77	48	PRV-2	J-67	8	120	108	0.69	0.0165
P-78	48	J-68	PRV-2	8	120	108	0.69	0.0162
P-79	22	J-68	J-1	8	120	108	0.69	0.0074
P-80	54	J-67	J-68	8	120	45	0.29	0.0037
P-81	297	J-68	J-69	8	120	45	0.29	0.0201
P-82	91	J-69	J-70	8	120	45	0.29	0.0061

Elephant Hill
Scenario: Peak Hour Demand
FlexTable: Reservoir Table

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,222.00	247	1,222.00

Elephant Hill
Scenario: Peak Hour Demand
FlexTable: PRV Table

Label	Elevation (ft)	Valve Diameter (in)	Hydraulic Grade Setting (Initial) (ft)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)
PRV-1	887	8	1,040.00	139.00	1,221.78	1,040.06	181.73
PRV-2	856	8	1,040.00	108.00	1,221.92	1,040.07	181.85

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	852	0	1,204.97	153
J-2	866	0	1,203.95	146
J-3	888	0	1,203.21	136
J-4	883	0	1,202.13	138
J-5	883	0	1,201.56	138
J-6	884	0	1,201.35	137
J-7	881	0	1,203.01	139
J-8	884	0	1,202.65	138
J-9	885	0	1,199.73	136
J-10	885	0	1,038.65	66
J-11	871	0	1,033.56	70
J-12	838	0	1,028.79	83
J-13	834	0	1,028.12	84
J-14	836	0	1,026.64	82
J-15	837	0	1,025.43	82
J-16	837	3	1,025.07	81
J-17	840	1,500	1,023.81	80
J-18	840	3	1,024.51	80
J-19	841	0	1,025.51	80
J-20	852	5	1,028.50	76
J-21	853	3	1,029.00	76
J-22	855	3	1,029.48	75
J-23	858	4	1,030.00	74
J-24	865	0	1,032.52	72
J-25	868	4	1,033.31	72
J-26	836	6	1,028.66	83
J-27	836	4	1,028.65	83
J-28	835	4	1,028.61	84
J-29	835	3	1,028.60	84
J-30	835	4	1,028.56	84
J-31	836	3	1,028.58	83
J-32	837	6	1,028.61	83
J-33	837	3	1,028.61	83
J-34	838	2	1,028.63	82
J-35	838	2	1,028.63	82
J-36	839	4	1,028.61	82
J-37	836	1	1,028.65	83
J-38	836	1	1,028.60	83

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-39	834	0	1,028.44	84
J-40	835	2	1,028.44	84
J-41	833	0	1,028.34	85
J-42	835	4	1,028.34	84
J-43	833	0	1,028.23	84
J-44	835	4	1,028.23	84
J-45	834	0	1,028.13	84
J-46	836	4	1,028.13	83
J-47	838	4	1,026.64	82
J-48	838	5	1,024.92	81
J-49	840	6	1,024.77	80
J-50	841	6	1,024.63	79
J-51	839	3	1,024.77	80
J-52	843	4	1,025.51	79
J-53	854	4	1,029.00	76
J-54	856	4	1,029.48	75
J-55	869	3	1,033.13	71
J-56	869	2	1,033.65	71
J-57	872	4	1,033.51	70
J-58	857	2	1,037.96	78
J-59	855	0	1,038.74	79
J-60	856	3	1,038.74	79
J-61	857	4	1,038.74	79
J-62	858	4	1,038.74	78
J-63	859	3	1,038.74	78
J-64	858	3	1,038.74	78
J-65	857	3	1,038.74	79
J-66	857	2	1,037.96	78
J-67	853	0	1,039.68	81
J-67	850	0	1,028.01	77
J-68	853	0	1,204.79	152

Elephant Hill
Scenario: MDD+1500 gpm FF @ J-17
FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (Friction) (ft)
P-1	275	R-1	J-1	12	120	1,645	4.67	2.0294
P-2	315	J-1	J-2	12	120	1,052	2.99	1.0166
P-3	509	J-2	J-3	12	120	687	1.95	0.7469
P-4	302	J-3	J-4	10	120	687	2.81	1.0768
P-5	73	J-4	J-5	10	120	1,052	4.30	0.5701
P-6	26	J-5	J-6	10	120	1,052	4.30	0.2061
P-7	287	J-2	J-7	8	120	365	2.33	0.9429
P-8	190	J-7	J-8	8	120	271	1.73	0.3569
P-9	160	J-8	J-4	8	120	365	2.33	0.5239
P-10	326	J-7	J-8	6	120	95	1.08	0.3569
P-11	70	J-6	J-9	8	120	1,052	6.72	1.6288
P-12	64	J-9	PRV-1	8	120	1,052	6.72	1.4791
P-13	60	PRV-1	J-10	8	120	1,052	6.72	1.4069
P-14	219	J-10	J-11	8	120	1,052	6.72	5.0898
P-15	393	J-11	J-12	8	120	740	4.72	4.7708
P-16	100	J-12	J-13	8	120	534	3.41	0.6663
P-17	141	J-13	J-14	8	120	684	4.37	1.4796
P-18	117	J-14	J-15	8	120	680	4.34	1.2123
P-19	35	J-15	J-16	8	120	680	4.34	0.3625
P-20	218	J-16	J-17	8	120	495	3.16	1.2578
P-21	33	J-17	J-18	8	120	1,005	6.41	0.6965
P-22	65	J-18	J-19	8	120	844	5.39	1.0078
P-23	160	J-19	J-67	8	120	848	5.41	2.4916
P-24	162	J-67	J-20	8	120	353	2.25	0.4989
P-25	157	J-20	J-21	8	120	358	2.28	0.4958
P-26	146	J-21	J-22	8	120	364	2.33	0.4767
P-27	154	J-22	J-23	8	120	371	2.37	0.5200
P-28	142	J-24	J-25	8	120	485	3.10	0.7870
P-29	102	J-25	J-11	8	120	313	1.99	0.2507
P-30	111	J-12	J-26	8	120	206	1.31	0.1265
P-31	38	J-26	J-27	8	120	122	0.78	0.0160
P-32	99	J-27	J-28	8	120	117	0.74	0.0393
P-33	29	J-28	J-29	8	120	105	0.67	0.0094
P-34	108	J-29	J-30	8	120	102	0.65	0.0331
P-35	136	J-30	J-31	8	120	66	0.42	0.0188
P-36	154	J-31	J-32	8	120	69	0.44	0.0233
P-37	18	J-32	J-33	8	120	68	0.43	0.0026
P-38	101	J-33	J-34	8	120	74	0.48	0.0175

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (Friction) (ft)
P-39	42	J-34	J-35	6	120	2	0.02	0.0000
P-40	188	J-34	J-26	8	120	78	0.50	0.0356
P-41	120	J-33	J-36	6	120	4	0.04	0.0004
P-42	179	J-28	J-32	8	120	7	0.05	0.0004
P-43	67	J-27	J-37	6	120	1	0.01	0.0001
P-44	67	J-29	J-38	6	120	1	0.01	0.0000
P-45	170	J-30	J-39	8	120	164	1.04	0.1262
P-46	143	J-39	J-40	6	120	2	0.02	0.0001
P-47	132	J-39	J-41	8	120	162	1.03	0.0958
P-48	152	J-41	J-42	6	120	4	0.04	0.0004
P-49	160	J-41	J-43	8	120	158	1.01	0.1111
P-50	152	J-43	J-44	6	120	4	0.04	0.0005
P-51	146	J-43	J-45	8	120	154	0.98	0.0968
P-52	149	J-45	J-46	6	120	4	0.04	0.0005
P-53	19	J-45	J-13	8	120	150	0.96	0.0121
P-54	152	J-14	J-47	6	120	4	0.04	0.0004
P-55	167	J-16	J-48	8	120	183	1.17	0.1517
P-56	173	J-48	J-49	8	120	178	1.13	0.1490
P-57	169	J-49	J-50	8	120	169	1.08	0.1321
P-58	175	J-50	J-18	8	120	163	1.04	0.1284
P-59	124	J-49	J-51	6	120	3	0.03	0.0001
P-60	227	J-19	J-52	6	120	4	0.04	0.0007
P-61	131	J-21	J-53	6	120	4	0.04	0.0004
P-62	131	J-22	J-54	6	120	4	0.04	0.0004
P-63	169	J-24	J-55	8	120	385	2.46	0.6113
P-64	142	J-55	J-56	8	120	389	2.48	0.5222
P-65	158	J-56	J-57	8	120	180	1.15	0.1400
P-66	242	J-57	J-25	8	120	176	1.13	0.2065
P-67	574	J-56	J-58	8	120	571	3.64	4.3035
P-68	104	J-58	J-59	8	120	575	3.67	0.7863
P-69	128	J-59	J-60	8	120	18	0.11	0.0016
P-70	136	J-60	J-61	8	120	13	0.08	0.0009
P-71	136	J-61	J-62	8	120	6	0.04	0.0002
P-72	141	J-62	J-63	6	120	3	0.03	0.0002
P-73	111	J-61	J-64	6	120	3	0.03	0.0002
P-74	111	J-60	J-65	6	120	3	0.03	0.0001
P-75	102	J-58	J-66	6	120	2	0.02	0.0001
P-76	116	J-59	J-67	8	120	593	3.78	0.9352

Elephant Hill
Scenario: MDD+1500 gpm FF @ J-17
FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (Friction) (ft)
P-77	48	PRV-2	J-67	8	120	593	3.78	0.3871
P-78	48	J-68	PRV-2	8	120	593	3.78	0.3823
P-79	22	J-68	J-1	8	120	593	3.78	0.1757
P-80	54	J-67	J-68	8	120	495	3.16	0.3090
P-81	297	J-68	J-69	8	120	495	3.16	1.7120
P-82	91	J-69	J-70	8	120	495	3.16	0.5243

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,207.00	1,645	1,207.00

Label	Elevation (ft)	Valve Diameter (in)	Hydraulic Grade Setting (Initial) (ft)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)
PRV-1	887	8	1,040.00	1,052.00	1,198.25	1,040.06	158.19
PRV-2	856	8	1,040.00	593.00	1,204.41	1,040.07	164.35

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	852	0	1,204.97	153
J-2	866	0	1,203.93	146
J-3	888	0	1,203.17	136
J-4	883	0	1,202.07	138
J-5	883	0	1,201.49	138
J-6	884	0	1,201.27	137
J-7	881	0	1,202.97	139
J-8	884	0	1,202.60	138
J-9	885	0	1,199.61	136
J-10	885	0	1,038.62	66
J-11	871	0	1,033.42	70
J-12	838	0	1,025.46	81
J-13	834	0	1,025.48	83
J-14	836	0	1,026.57	82
J-15	837	0	1,027.48	82
J-16	837	3	1,027.76	83
J-17	840	0	1,028.52	82
J-18	840	3	1,028.63	82
J-19	841	0	1,029.18	81
J-20	852	5	1,030.82	77
J-21	853	3	1,031.09	77
J-22	855	3	1,031.35	76
J-23	858	4	1,031.64	75
J-24	865	0	1,033.06	73
J-25	868	4	1,033.39	72
J-26	836	6	1,022.95	81
J-27	836	4	1,022.66	81
J-28	835	4	1,021.90	81
J-29	835	3	1,021.84	81
J-30	835	4	1,021.62	81
J-31	836	1,503	1,019.76	80
J-32	837	6	1,021.52	80
J-33	837	3	1,021.60	80
J-34	838	2	1,022.07	80
J-35	838	2	1,022.07	80
J-36	839	4	1,021.60	79
J-37	836	1	1,022.66	81
J-38	836	1	1,021.84	80

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-39	834	0	1,022.65	82
J-40	835	2	1,022.65	81
J-41	833	0	1,023.45	82
J-42	835	4	1,023.45	82
J-43	833	0	1,024.44	83
J-44	835	4	1,024.44	82
J-45	834	0	1,025.36	83
J-46	836	4	1,025.35	82
J-47	838	4	1,026.57	82
J-48	838	5	1,027.95	82
J-49	840	6	1,028.16	81
J-50	841	6	1,028.39	81
J-51	839	3	1,028.16	82
J-52	843	4	1,029.18	81
J-53	854	4	1,031.09	77
J-54	856	4	1,031.35	76
J-55	869	3	1,033.52	71
J-56	869	2	1,033.91	71
J-57	872	4	1,033.70	70
J-58	857	2	1,038.04	78
J-59	855	0	1,038.79	80
J-60	856	3	1,038.79	79
J-61	857	4	1,038.79	79
J-62	858	4	1,038.79	78
J-63	859	3	1,038.79	78
J-64	858	3	1,038.79	78
J-65	857	3	1,038.79	79
J-66	857	2	1,038.04	78
J-67	853	0	1,039.69	81
J-67	850	0	1,030.55	78
J-68	853	0	1,204.80	152

Elephant Hill

Scenario: MDD+1500 gpm FF @ J-31

FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (Friction) (ft)
P-1	275	R-1	J-1	12	120	1,645	4.67	2.0294
P-2	315	J-1	J-2	12	120	1,065	3.02	1.0389
P-3	509	J-2	J-3	12	120	695	1.97	0.7633
P-4	302	J-3	J-4	10	120	695	2.84	1.1005
P-5	73	J-4	J-5	10	120	1,065	4.35	0.5826
P-6	26	J-5	J-6	10	120	1,065	4.35	0.2106
P-7	287	J-2	J-7	8	120	370	2.36	0.9635
P-8	190	J-7	J-8	8	120	274	1.75	0.3647
P-9	160	J-8	J-4	8	120	370	2.36	0.5355
P-10	326	J-7	J-8	6	120	96	1.09	0.3647
P-11	70	J-6	J-9	8	120	1,065	6.80	1.6644
P-12	64	J-9	PRV-1	8	120	1,065	6.80	1.5117
P-13	60	PRV-1	J-10	8	120	1,065	6.80	1.4377
P-14	219	J-10	J-11	8	120	1,065	6.80	5.2017
P-15	393	J-11	J-12	8	120	975	6.22	7.9509
P-16	100	J-12	J-13	8	120	59	0.38	0.0112
P-17	141	J-13	J-14	8	120	581	3.71	1.0916
P-18	117	J-14	J-15	8	120	585	3.73	0.9149
P-19	35	J-15	J-16	8	120	585	3.73	0.2736
P-20	218	J-16	J-17	8	120	377	2.41	0.7601
P-21	33	J-17	J-18	8	120	377	2.41	0.1136
P-22	65	J-18	J-19	8	120	609	3.89	0.5509
P-23	160	J-19	J-67	8	120	613	3.91	1.3663
P-24	162	J-67	J-20	8	120	253	1.62	0.2699
P-25	157	J-20	J-21	8	120	258	1.65	0.2711
P-26	146	J-21	J-22	8	120	265	1.69	0.2639
P-27	154	J-22	J-23	8	120	271	1.73	0.2914
P-28	142	J-24	J-25	8	120	306	1.95	0.3342
P-29	102	J-25	J-11	8	120	90	0.57	0.0250
P-30	111	J-12	J-26	8	120	1,034	6.60	2.5115
P-31	38	J-26	J-27	8	120	584	3.73	0.2936
P-32	99	J-27	J-28	8	120	579	3.70	0.7627
P-33	29	J-28	J-29	8	120	287	1.83	0.0598
P-34	108	J-29	J-30	8	120	283	1.81	0.2212
P-35	136	J-30	J-31	8	120	788	5.03	1.8547
P-36	154	J-31	J-32	8	120	715	4.57	1.7570
P-37	18	J-32	J-33	8	120	433	2.77	0.0804
P-38	101	J-33	J-34	8	120	440	2.81	0.4694

Elephant Hill
Scenario: MDD+1500 gpm FF @ J-31
FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (Friction) (ft)
P-39	42	J-34	J-35	6	120	2	0.02	0.0000
P-40	188	J-34	J-26	8	120	444	2.83	0.8853
P-41	120	J-33	J-36	6	120	4	0.04	0.0003
P-42	179	J-28	J-32	8	120	288	1.84	0.3787
P-43	67	J-27	J-37	6	120	1	0.01	0.0001
P-44	67	J-29	J-38	6	120	1	0.01	0.0001
P-45	170	J-30	J-39	8	120	508	3.25	1.0304
P-46	143	J-39	J-40	6	120	2	0.02	0.0001
P-47	132	J-39	J-41	8	120	510	3.26	0.8047
P-48	152	J-41	J-42	6	120	4	0.04	0.0004
P-49	160	J-41	J-43	8	120	514	3.28	0.9891
P-50	152	J-43	J-44	6	120	4	0.04	0.0005
P-51	146	J-43	J-45	8	120	518	3.31	0.9150
P-52	149	J-45	J-46	6	120	4	0.04	0.0004
P-53	19	J-45	J-13	8	120	522	3.33	0.1207
P-54	152	J-14	J-47	6	120	4	0.04	0.0004
P-55	167	J-16	J-48	8	120	210	1.34	0.1959
P-56	173	J-48	J-49	8	120	215	1.37	0.2123
P-57	169	J-49	J-50	8	120	224	1.43	0.2231
P-58	175	J-50	J-18	8	120	230	1.47	0.2424
P-59	124	J-49	J-51	6	120	3	0.03	0.0002
P-60	227	J-19	J-52	6	120	4	0.04	0.0007
P-61	131	J-21	J-53	6	120	4	0.04	0.0004
P-62	131	J-22	J-54	6	120	4	0.04	0.0004
P-63	169	J-24	J-55	8	120	330	2.11	0.4587
P-64	142	J-55	J-56	8	120	333	2.13	0.3928
P-65	158	J-56	J-57	8	120	223	1.42	0.2080
P-66	242	J-57	J-25	8	120	219	1.40	0.3093
P-67	574	J-56	J-58	8	120	558	3.56	4.1317
P-68	104	J-58	J-59	8	120	562	3.59	0.7550
P-69	128	J-59	J-60	8	120	18	0.11	0.0015
P-70	136	J-60	J-61	8	120	13	0.08	0.0010
P-71	136	J-61	J-62	8	120	6	0.04	0.0002
P-72	141	J-62	J-63	6	120	3	0.03	0.0001
P-73	111	J-61	J-64	6	120	3	0.03	0.0001
P-74	111	J-60	J-65	6	120	3	0.03	0.0002
P-75	102	J-58	J-66	6	120	2	0.02	0.0001
P-76	116	J-59	J-67	8	120	580	3.70	0.8993

Elephant Hill
Scenario: MDD+1500 gpm FF @ J-31
FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (Friction) (ft)
P-77	48	PRV-2	J-67	8	120	580	3.70	0.3722
P-78	48	J-68	PRV-2	8	120	580	3.70	0.3677
P-79	22	J-68	J-1	8	120	580	3.70	0.1688
P-80	54	J-67	J-68	8	120	360	2.30	0.1710
P-81	297	J-68	J-69	8	120	360	2.30	0.9479
P-82	91	J-69	J-70	8	120	360	2.30	0.2903

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,207.00	1,645	1,207.00

Label	Elevation (ft)	Valve Diameter (in)	Hydraulic Grade Setting (Initial) (ft)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)
PRV-1	887	8	1,040.00	1,065.00	1,198.10	1,040.06	158.04
PRV-2	856	8	1,040.00	580.00	1,204.43	1,040.07	164.37

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	852	0	1,204.97	153
J-2	866	0	1,204.72	147
J-3	888	0	1,204.54	137
J-4	883	0	1,204.28	139
J-5	883	0	1,204.14	139
J-6	884	0	1,204.09	138
J-7	881	0	1,204.49	140
J-8	884	0	1,204.40	139
J-9	885	0	1,203.69	138
J-10	885	0	1,039.71	67
J-11	871	0	1,038.47	72
J-12	838	0	1,038.23	87
J-13	834	0	1,038.21	88
J-14	836	0	1,038.17	87
J-15	837	0	1,038.14	87
J-16	837	3	1,038.14	87
J-17	840	0	1,038.12	86
J-18	840	3	1,038.12	86
J-19	841	0	1,038.11	85
J-20	852	5	1,038.09	81
J-21	853	3	1,038.08	80
J-22	855	3	1,038.08	79
J-23	858	4	1,038.08	78
J-24	865	0	1,038.07	75
J-25	868	4	1,038.17	74
J-26	836	6	1,038.22	87
J-27	836	4	1,038.21	87
J-28	835	4	1,038.21	88
J-29	835	3	1,038.21	88
J-30	835	4	1,038.21	88
J-31	836	3	1,038.21	87
J-32	837	6	1,038.21	87
J-33	837	3	1,038.21	87
J-34	838	2	1,038.21	87
J-35	838	2	1,038.21	87
J-36	839	4	1,038.21	86
J-37	836	1	1,038.21	87
J-38	836	1	1,038.21	87

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-39	834	0	1,038.21	88
J-40	835	2	1,038.21	88
J-41	833	0	1,038.21	89
J-42	835	4	1,038.21	88
J-43	833	0	1,038.21	89
J-44	835	4	1,038.21	88
J-45	834	0	1,038.21	88
J-46	836	4	1,038.21	87
J-47	838	4	1,038.17	87
J-48	838	5	1,038.13	87
J-49	840	6	1,038.12	86
J-50	841	6	1,038.12	85
J-51	839	3	1,038.12	86
J-52	843	4	1,038.11	84
J-53	854	4	1,038.08	80
J-54	856	4	1,038.08	79
J-55	869	3	1,037.91	73
J-56	869	2	1,037.78	73
J-57	872	4	1,037.93	72
J-58	857	2	1,035.87	77
J-59	855	0	1,035.53	78
J-60	856	3	1,029.64	75
J-61	857	4	1,023.44	72
J-62	858	1,504	1,017.29	69
J-63	859	3	1,017.29	68
J-64	858	3	1,023.44	72
J-65	857	3	1,029.64	75
J-66	857	2	1,035.87	77
J-67	853	0	1,038.74	80
J-67	850	0	1,038.09	81
J-68	853	0	1,204.37	152

Elephant Hill
Scenario: MDD+1500 gpm FF @ J-62
FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (Friction) (ft)
P-1	275	R-1	J-1	12	120	1,645	4.67	2.0294
P-2	315	J-1	J-2	12	120	492	1.40	0.2485
P-3	509	J-2	J-3	12	120	321	0.91	0.1826
P-4	302	J-3	J-4	10	120	321	1.31	0.2632
P-5	73	J-4	J-5	10	120	492	2.01	0.1394
P-6	26	J-5	J-6	10	120	492	2.01	0.0503
P-7	287	J-2	J-7	8	120	171	1.09	0.2305
P-8	190	J-7	J-8	8	120	126	0.81	0.0873
P-9	160	J-8	J-4	8	120	171	1.09	0.1281
P-10	326	J-7	J-8	6	120	44	0.50	0.0873
P-11	70	J-6	J-9	8	120	492	3.14	0.3982
P-12	64	J-9	PRV-1	8	120	492	3.14	0.3616
P-13	60	PRV-1	J-10	8	120	492	3.14	0.3439
P-14	219	J-10	J-11	8	120	492	3.14	1.2443
P-15	393	J-11	J-12	8	120	147	0.94	0.2377
P-16	100	J-12	J-13	8	120	87	0.55	0.0229
P-17	141	J-13	J-14	8	120	91	0.58	0.0352
P-18	117	J-14	J-15	8	120	87	0.56	0.0270
P-19	35	J-15	J-16	8	120	87	0.56	0.0081
P-20	218	J-16	J-17	8	120	48	0.31	0.0165
P-21	33	J-17	J-18	8	120	48	0.31	0.0026
P-22	65	J-18	J-19	8	120	62	0.40	0.0079
P-23	160	J-19	J-67	8	120	58	0.37	0.0176
P-24	162	J-67	J-20	8	120	30	0.19	0.0052
P-25	157	J-20	J-21	8	120	25	0.16	0.0037
P-26	146	J-21	J-22	8	120	19	0.12	0.0021
P-27	154	J-22	J-23	8	120	12	0.08	0.0009
P-28	142	J-24	J-25	8	120	152	0.97	0.0914
P-29	102	J-25	J-11	8	120	345	2.20	0.3016
P-30	111	J-12	J-26	8	120	60	0.38	0.0128
P-31	38	J-26	J-27	8	120	33	0.21	0.0015
P-32	99	J-27	J-28	8	120	28	0.18	0.0027
P-33	29	J-28	J-29	8	120	18	0.12	0.0004
P-34	108	J-29	J-30	8	120	14	0.09	0.0009
P-35	136	J-30	J-31	8	120	7	0.05	0.0002
P-36	154	J-31	J-32	8	120	10	0.07	0.0007
P-37	18	J-32	J-33	8	120	11	0.07	0.0000
P-38	101	J-33	J-34	8	120	17	0.11	0.0012

Elephant Hill
Scenario: MDD+1500 gpm FF @ J-62
FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (Friction) (ft)
P-39	42	J-34	J-35	6	120	2	0.02	0.0000
P-40	188	J-34	J-26	8	120	21	0.14	0.0032
P-41	120	J-33	J-36	6	120	4	0.04	0.0002
P-42	179	J-28	J-32	8	120	6	0.04	0.0002
P-43	67	J-27	J-37	6	120	1	0.01	0.0000
P-44	67	J-29	J-38	6	120	1	0.01	0.0000
P-45	170	J-30	J-39	8	120	18	0.11	0.0021
P-46	143	J-39	J-40	6	120	2	0.02	0.0001
P-47	132	J-39	J-41	8	120	16	0.10	0.0013
P-48	152	J-41	J-42	6	120	4	0.04	0.0004
P-49	160	J-41	J-43	8	120	12	0.08	0.0009
P-50	152	J-43	J-44	6	120	4	0.04	0.0005
P-51	146	J-43	J-45	8	120	8	0.05	0.0005
P-52	149	J-45	J-46	6	120	4	0.04	0.0004
P-53	19	J-45	J-13	8	120	4	0.03	0.0000
P-54	152	J-14	J-47	6	120	4	0.04	0.0005
P-55	167	J-16	J-48	8	120	37	0.23	0.0077
P-56	173	J-48	J-49	8	120	32	0.20	0.0061
P-57	169	J-49	J-50	8	120	23	0.14	0.0033
P-58	175	J-50	J-18	8	120	17	0.11	0.0020
P-59	124	J-49	J-51	6	120	3	0.03	0.0002
P-60	227	J-19	J-52	6	120	4	0.04	0.0007
P-61	131	J-21	J-53	6	120	4	0.04	0.0004
P-62	131	J-22	J-54	6	120	4	0.04	0.0004
P-63	169	J-24	J-55	8	120	188	1.20	0.1614
P-64	142	J-55	J-56	8	120	185	1.18	0.1316
P-65	158	J-56	J-57	8	120	186	1.19	0.1482
P-66	242	J-57	J-25	8	120	190	1.21	0.2362
P-67	574	J-56	J-58	8	120	369	2.35	1.9135
P-68	104	J-58	J-59	8	120	365	2.33	0.3387
P-69	128	J-59	J-60	8	120	1,518	9.69	5.8849
P-70	136	J-60	J-61	8	120	1,513	9.66	6.2017
P-71	136	J-61	J-62	8	120	1,506	9.61	6.1532
P-72	141	J-62	J-63	6	120	3	0.03	0.0002
P-73	111	J-61	J-64	6	120	3	0.03	0.0001
P-74	111	J-60	J-65	6	120	3	0.03	0.0001
P-75	102	J-58	J-66	6	120	2	0.02	0.0001
P-76	116	J-59	J-67	8	120	1,153	7.36	3.2094

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (Friction) (ft)
P-77	48	PRV-2	J-67	8	120	1,153	7.36	1.3281
P-78	48	J-68	PRV-2	8	120	1,153	7.36	1.3120
P-79	22	J-68	J-1	8	120	1,153	7.36	0.6025
P-80	54	J-67	J-68	8	120	28	0.18	0.0015
P-81	297	J-68	J-69	8	120	28	0.18	0.0083
P-82	91	J-69	J-70	8	120	28	0.18	0.0026

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,207.00	1,645	1,207.00

Label	Elevation (ft)	Valve Diameter (in)	Hydraulic Grade Setting (Initial) (ft)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)
PRV-1	887	8	1,040.00	492.00	1,203.33	1,040.06	163.27
PRV-2	856	8	1,040.00	1,153.00	1,203.06	1,040.07	162.99

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	852	0	1,204.97	153
J-2	866	0	1,203.98	146
J-3	888	0	1,203.24	136
J-4	883	0	1,202.19	138
J-5	883	0	1,201.63	138
J-6	884	0	1,201.43	137
J-7	881	0	1,203.05	139
J-8	884	0	1,202.70	138
J-9	885	0	1,199.84	136
J-10	885	0	1,038.68	66
J-11	871	0	1,033.69	70
J-12	838	0	1,030.69	83
J-13	834	0	1,030.28	85
J-14	836	0	1,029.39	84
J-15	837	0	1,028.66	83
J-16	837	3	1,028.44	83
J-17	840	0	1,027.88	81
J-18	840	3	1,027.80	81
J-19	841	0	1,027.43	81
J-20	852	5	1,027.07	76
J-21	853	3	1,027.61	76
J-22	855	3	1,028.13	75
J-23	858	4	1,028.69	74
J-24	865	0	1,032.00	72
J-25	868	4	1,033.17	71
J-26	836	6	1,030.60	84
J-27	836	4	1,030.59	84
J-28	835	4	1,030.57	85
J-29	835	3	1,030.56	85
J-30	835	4	1,030.54	85
J-31	836	3	1,030.55	84
J-32	837	6	1,030.57	84
J-33	837	3	1,030.57	84
J-34	838	2	1,030.58	83
J-35	838	2	1,030.58	83
J-36	839	4	1,030.57	83
J-37	836	1	1,030.59	84
J-38	836	1	1,030.56	84

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-39	834	0	1,030.46	85
J-40	835	2	1,030.46	85
J-41	833	0	1,030.41	85
J-42	835	4	1,030.41	85
J-43	833	0	1,030.34	85
J-44	835	4	1,030.34	85
J-45	834	0	1,030.29	85
J-46	836	4	1,030.29	84
J-47	838	4	1,029.39	83
J-48	838	5	1,028.27	82
J-49	840	6	1,028.10	81
J-50	841	6	1,027.95	81
J-51	839	3	1,028.10	82
J-52	843	4	1,027.43	80
J-53	854	4	1,027.61	75
J-54	856	4	1,028.13	74
J-55	869	3	1,032.76	71
J-56	869	2	1,033.40	71
J-57	872	4	1,033.31	70
J-58	857	2	1,037.88	78
J-59	855	0	1,038.69	79
J-60	856	3	1,038.69	79
J-61	857	4	1,038.69	79
J-62	858	4	1,038.69	78
J-63	859	3	1,038.69	78
J-64	858	3	1,038.69	78
J-65	857	3	1,038.69	79
J-66	857	2	1,037.88	78
J-67	853	0	1,039.66	81
J-67	850	0	1,026.53	76
J-68	853	0	1,204.79	152

Elephant Hill
Scenario: MDD+1500 gpm FF @ J-68
FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (Friction) (ft)
P-1	275	R-1	J-1	12	120	1,645	4.67	2.0294
P-2	315	J-1	J-2	12	120	1,040	2.95	0.9954
P-3	509	J-2	J-3	12	120	679	1.93	0.7312
P-4	302	J-3	J-4	10	120	679	2.78	1.0541
P-5	73	J-4	J-5	10	120	1,040	4.25	0.5582
P-6	26	J-5	J-6	10	120	1,040	4.25	0.2017
P-7	287	J-2	J-7	8	120	361	2.31	0.9230
P-8	190	J-7	J-8	8	120	267	1.71	0.3494
P-9	160	J-8	J-4	8	120	361	2.31	0.5129
P-10	326	J-7	J-8	6	120	94	1.06	0.3494
P-11	70	J-6	J-9	8	120	1,040	6.64	1.5946
P-12	64	J-9	PRV-1	8	120	1,040	6.64	1.4480
P-13	60	PRV-1	J-10	8	120	1,040	6.64	1.3773
P-14	219	J-10	J-11	8	120	1,040	6.64	4.9830
P-15	393	J-11	J-12	8	120	577	3.68	3.0063
P-16	100	J-12	J-13	8	120	410	2.62	0.4087
P-17	141	J-13	J-14	8	120	521	3.33	0.8931
P-18	117	J-14	J-15	8	120	517	3.30	0.7294
P-19	35	J-15	J-16	8	120	517	3.30	0.2181
P-20	218	J-16	J-17	8	120	319	2.04	0.5574
P-21	33	J-17	J-18	8	120	319	2.04	0.0833
P-22	65	J-18	J-19	8	120	492	3.14	0.3710
P-23	160	J-19	J-67	8	120	488	3.12	0.8964
P-24	162	J-67	J-20	8	120	369	2.36	0.5428
P-25	157	J-20	J-21	8	120	374	2.39	0.5389
P-26	146	J-21	J-22	8	120	381	2.43	0.5175
P-27	154	J-22	J-23	8	120	387	2.47	0.5636
P-28	142	J-24	J-25	8	120	601	3.84	1.1713
P-29	102	J-25	J-11	8	120	464	2.96	0.5209
P-30	111	J-12	J-26	8	120	166	1.06	0.0852
P-31	38	J-26	J-27	8	120	98	0.62	0.0107
P-32	99	J-27	J-28	8	120	93	0.59	0.0256
P-33	29	J-28	J-29	8	120	82	0.52	0.0059
P-34	108	J-29	J-30	8	120	78	0.50	0.0203
P-35	136	J-30	J-31	8	120	50	0.32	0.0114
P-36	154	J-31	J-32	8	120	53	0.34	0.0144
P-37	18	J-32	J-33	8	120	53	0.34	0.0016
P-38	101	J-33	J-34	8	120	59	0.38	0.0114

Elephant Hill
Scenario: MDD+1500 gpm FF @ J-68
FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (Friction) (ft)
P-39	42	J-34	J-35	6	120	2	0.02	0.0000
P-40	188	J-34	J-26	8	120	63	0.40	0.0238
P-41	120	J-33	J-36	6	120	4	0.04	0.0004
P-42	179	J-28	J-32	8	120	7	0.05	0.0004
P-43	67	J-27	J-37	6	120	1	0.01	0.0000
P-44	67	J-29	J-38	6	120	1	0.01	0.0000
P-45	170	J-30	J-39	8	120	124	0.79	0.0758
P-46	143	J-39	J-40	6	120	2	0.02	0.0001
P-47	132	J-39	J-41	8	120	122	0.78	0.0570
P-48	152	J-41	J-42	6	120	4	0.04	0.0005
P-49	160	J-41	J-43	8	120	118	0.76	0.0653
P-50	152	J-43	J-44	6	120	4	0.04	0.0005
P-51	146	J-43	J-45	8	120	115	0.73	0.0560
P-52	149	J-45	J-46	6	120	4	0.04	0.0005
P-53	19	J-45	J-13	8	120	111	0.71	0.0068
P-54	152	J-14	J-47	6	120	4	0.04	0.0005
P-55	167	J-16	J-48	8	120	195	1.25	0.1720
P-56	173	J-48	J-49	8	120	190	1.22	0.1696
P-57	169	J-49	J-50	8	120	181	1.16	0.1514
P-58	175	J-50	J-18	8	120	176	1.12	0.1477
P-59	124	J-49	J-51	6	120	3	0.03	0.0002
P-60	227	J-19	J-52	6	120	4	0.04	0.0006
P-61	131	J-21	J-53	6	120	4	0.04	0.0004
P-62	131	J-22	J-54	6	120	4	0.04	0.0004
P-63	169	J-24	J-55	8	120	433	2.76	0.7568
P-64	142	J-55	J-56	8	120	436	2.78	0.6453
P-65	158	J-56	J-57	8	120	145	0.93	0.0937
P-66	242	J-57	J-25	8	120	141	0.90	0.1371
P-67	574	J-56	J-58	8	120	583	3.72	4.4723
P-68	104	J-58	J-59	8	120	587	3.74	0.8169
P-69	128	J-59	J-60	8	120	18	0.11	0.0015
P-70	136	J-60	J-61	8	120	13	0.08	0.0010
P-71	136	J-61	J-62	8	120	6	0.04	0.0002
P-72	141	J-62	J-63	6	120	3	0.03	0.0001
P-73	111	J-61	J-64	6	120	3	0.03	0.0001
P-74	111	J-60	J-65	6	120	3	0.03	0.0002
P-75	102	J-58	J-66	6	120	2	0.02	0.0000
P-76	116	J-59	J-67	8	120	605	3.86	0.9706

Elephant Hill
Scenario: MDD+1500 gpm FF @ J-68
FlexTable: Pipe Table

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (Friction) (ft)
P-77	48	PRV-2	J-67	8	120	605	3.86	0.4017
P-78	48	J-68	PRV-2	8	120	605	3.86	0.3967
P-79	22	J-68	J-1	8	120	605	3.86	0.1823
P-80	54	J-67	J-68	8	120	858	5.47	0.8540
P-81	297	J-68	J-69	8	120	642	4.10	2.7687
P-82	91	J-69	J-70	8	120	642	4.10	0.8479

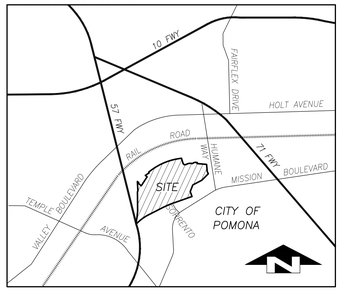
Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,207.00	1,645	1,207.00

Elephant Hill
Scenario: MDD+1500 gpm FF @ J-68
FlexTable: PRV Table

Label	Elevation (ft)	Valve Diameter (in)	Hydraulic Grade Setting (Initial) (ft)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)
PRV-1	887	8	1,040.00	1,040.00	1,198.39	1,040.06	158.33
PRV-2	856	8	1,040.00	605.00	1,204.39	1,040.07	164.33

Reference Material

VICINITY MAP



BENCHMARK:

LOS ANGELES COUNTY PUBLIC WORKS DEPARTMENT
BENCHMARK NO. C 4642
ELEVATION: 758.002
DATUM: NAVD 88 (2005 ADJUSTMENT)

DESCRIPTION:
LEAD & TACK IN EAST CURB OF POMONA BLVD, +/- 33' EAST OF CENTERLINE ON CENTERLINE PROD OF PIONEER PL

NOTES

1. EXISTING LAND USE: VACANT.
2. PROPOSED LAND USE: URBAN NEIGHBORHOOD
3. EXISTING ZONING: CITY OF POMONA, PRD AND OPEN SPACE
4. PROPOSED ZONING: CITY OF POMONA, PRD AND OPEN SPACE
5. GENERAL PLAN: OPEN SPACE AND URBAN NEIGHBORHOOD
6. EARTHWORK: CUT= 1,111,998 CYS, FILL= 1,215,939 CYS
7. GROSS ACRES: 120.62 ACRES
8. ASSESSOR'S PARCEL NUMBER: 8707-020-001, 8707-020-008 AND 8708-021-058

UTILITY AGENCIES

SEWER & WATER:
CITY OF POMONA
505 SOUTH GAREY AVENUE
POMONA, CALIFORNIA 91766
(909) 620-2241

ELECTRIC SERVICE:
SOUTHERN CALIFORNIA EDISON
265 N. EAST END AVENUE
POMONA, CA 91767
(909) 469-0200

GAS SERVICE:
SOUTHERN CALIFORNIA GAS COMPANY
13525 12TH STREET
CHINO, CA
(909) 355-7873

TELEPHONE SERVICE:
VERIZON
1400 PHILLIPS RANCH RD.
POMONA, CA 91766
(800) 483-3000

TRASH:
CITY OF POMONA
505 SOUTH GAREY AVENUE
POMONA, CALIFORNIA 91766
(909) 620-2241

EXISTING EASEMENTS

(4) REFERS TO AN EASEMENT FOR THE PURPOSE PUBLIC HIGHWAY DRAINAGE PURPOSES IN FAVOR OF THE STATE OF CALIFORNIA RECORDED APRIL 6, 1970 AS INSTRUMENT NO. 2703, O.R.
AFFECTS: A PROTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.

(5) THE OWNERSHIP OF SAID LAND DOES NOT INCLUDE RIGHTS OF ACCESS TO OR FROM THE STREET, HIGHWAY, OR FREEWAY ABUTTING SAID LAND, SUCH RIGHTS HAVING BEEN RELINQUISHED BY THE DOCUMENT RECORDED JULY 12, 1971 AS INSTRUMENT NO. 2995, OFFICIAL RECORDS.
AFFECTS: STATE FREEWAY

(6) REFERES TO AN EASEMENT FOR STORM DRAIN PURPOSES IN FAVOR OF THE CITY OF POMONA, A MUNICIPAL CORPORATION RECORDED MAY 29, 1992 AS INSTRUMENT NO. 92-974716, O.R.
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.

(7) REFERS TO AN EASEMENT FOR STORM DRAIN PURPOSES IN FAVOR OF THE CITY OF POMONA, A MUNICIPAL CORPORATION RECORDED JANUARY 22, 1998 AS INSTRUMENT NO. 98-101498, O.R.
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.

(8) REFERS TO AN EASEMENT FOR SLOPE AND TEMPORARY CONSTRUCTION PURPOSES IN FAVOR OF ALAMEDA CORRIDOR-EAST CONSTRUCTION AUTHORITY RECORDED AUGUST 17, 2006 AS INSTRUMENT NO. 06-1835393, O.R.
AFFECTS: A PORITON OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.

(9) REFERS TO AN EASEMENT FOR OVERHEAD AND UNDERGROUND ELECTRICAL SUPPLY SYSTEMS AND COMMUNICATION SYSTEMS PURPOSES RECORDED MARCH 18, 1969 AS INSTRUMENT NO. 2682, O.R.
AFFECTS: AS DESCRIBED THEREIN

(13) REFERS TO AN EASEMENT FOR WATERLINE PURPOSES AS DELINEATED ON OR AS OFFERED FOR DEDICATION ON MAP/PLAT: TRACT NO. 35167, M.B. 1080/57-61 IN FAVOR OF THE CITY OF POMONA.
AFFECTS: AS SHOWN ON SAID MAP

(14) REFERS TO AN EASEMENT FOR SEWER PURPOSES AS DELINEATED ON OR AS OFFERED FOR DEDICATION ON MAP/PLAT: TRACT 35167, M.B. 1080/57-61 IN FAVOR OF THE CITY OF POMONA.
AFFECTS: AS SHOWN ON SAID MAP

(15) REFERS TO AN EASEMENT FOR SEWER MAIN LINE PURPOSES AS DELINEATED ON OR AS OFFERED FOR DEDICATION ON MAP/PLAT: TRACT NO. 50048, M.B. 1196/38-39 IN FAVOR OF THE CITY OF POMONA.
AFFECTS: AS SHOWN ON SAID MAP.

PROPOSED EASEMENTS

(1) INGRESS EGRESS AND EMERGENCY ACCESS OVER PRIVATE STREETS AND PUBLIC UTILITY PURPOSES WITH VARIES 20' MINIMUM.

LOT SUMMARY

Lot No.	Land Use	Acres
LOTS 1-85	RESIDENTIAL	11.52
LOTS 86-104	PRIVATE STREET	7.73
LOTS 105-106	WATER QUALITY/DEBRIS BASIN	1.11
LOT 107	RECREATION CENTER	1.02
LOTS 108-126	OPEN SPACE	28.84
LOT 127	OPEN SPACE	68.80
LOT 128	EMERGENCY, VEHICULAR ACCESS/SEWER & STORM DRAIN EASEMENT	0.61
LOT 129	LIFT STATION	0.09
LOT A	MISSION BOULEVARD	0.69
LOT B	MISSION BOULEVARD	0.20
TOTAL		120.61

LEGAL DESCRIPTION

BEING A PORTION OF THE RANCHO SAN JOSE TOGETHER WITH A PORTION OF LOT 1 OF TRACT NO. 50048, IN THE CITY OF POMONA, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA.

STATEMENT OF OWNERSHIP

I HEREBY STATE THAT THIS MAP WAS PREPARED UNDER MY SUPERVISION AND THAT THE OWNER OF RECORD HAS KNOWLEDGE OF AND CONSENTS TO THE FILING OF THIS MAP.

AMANDA COPPOLA DATE 4/13/2023

REGISTERED PROFESSIONAL ENGINEER AMANDA COPPOLA NO. 85533 Exp. 09/30/24 CIVIL STATE OF CALIFORNIA

LEGEND

- PROJECT BOUNDARY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- PROPOSED CURB
- EASEMENT LINE
- FUEL MOD
- PROPOSED CENTERLINE
- PROPOSED WATER
- PROPOSED SEWER
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- EXISTING SEWER
- EXISTING WATER
- RETAINING WALL/ RETAINING WALL HEIGHT
- PROPOSED M.S.E. WALL
- TOP OF SLOPE
- TOE OF SLOPE
- FIRE HYDRANT

NORTH

0 50' 100' 200'
SCALE: 1" = 100'

OWNER/APPLICANT:
TRUMARK HOMES
450 NEWPORT CENTER DRIVE, SUITE 300
NEWPORT BEACH, CA 92660
PH: (949) 999-9800

PREPARED BY:
HUNSAKER & ASSOCIATES IRVINE, INC.
PLANNING ▪ ENGINEERING ▪ SURVEYING
Three Hughes ▪ Irvine, CA 92618 ▪ PH: (949) 583-1010 ▪ FX: (949) 583-0759

CITY OF POMONA, COUNTY OF LOS ANGELES

TENTATIVE TRACT MAP 72653
ELEPHANT HILL

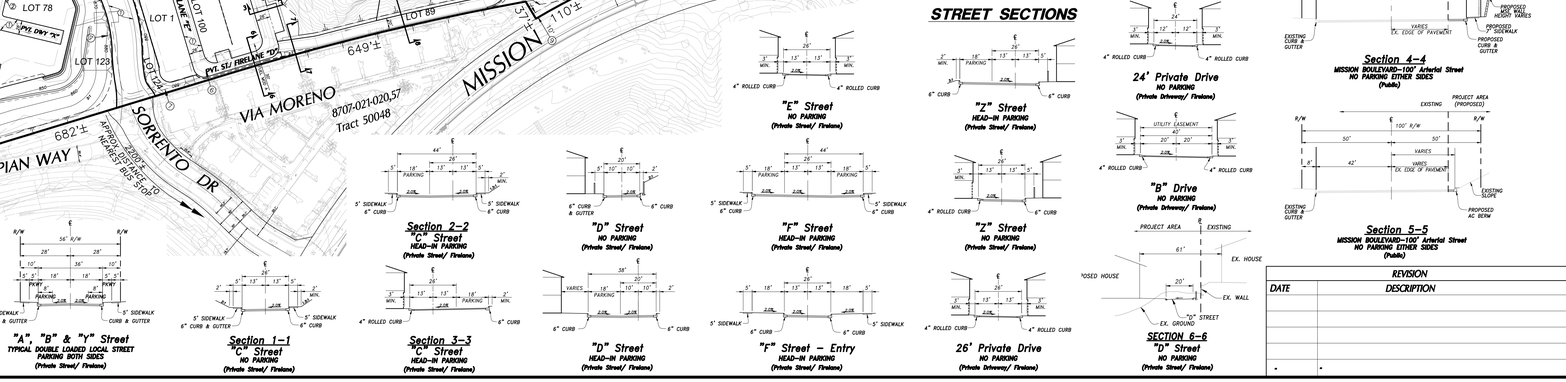
REVISION	
DATE	DESCRIPTION

DESIGNED BY: ____ DRAFTED BY: ____ CHECKED BY: ____ DATE: 4/12/23 CITY FILE NO.: SHEET 1 OF 4

W.O. 3593-44X TTM 72653 ELEPHANT HILL

DATE: Apr. 13, 2023 04:00:54 PM FILE: F:\0054\Planning\SA_TTM\TTM_SHT.1.dwg

STREET SECTIONS



8707-020-900
SPADRA CEMETERY ASSN.

LOT 106
W.Q. BASIN
BOTTOM=725

LOT 119
LOT 45
LOT 44
LOT 96
LOT 40
LOT 41
LOT 39
LOT 97
LOT 42
LOT 38
LOT 43
LOT 122
LOT 110
LOT 108
LOT 109
LOT 17
LOT 18
LOT 19
LOT 16
LOT 15
LOT 20
LOT 21
LOT 22
LOT 23
LOT 24
LOT 25
LOT 111

PVT. DWY "C"
PVT. DWY "F"
PVT. DWY "H"
PVT. DWY "K"
PVT. DWY "M"
PVT. DWY "T"

83'±
40'±
180'±
440'±
208'±
105'±
495'±
42'±
40'±

50' FUEL MOD
70' FUEL MOD B
30' FUEL MOD A

CONTINUED ON PAGE 3
CONTINUED ON PAGE 3

Summary of Areas

Lot No.	Land Use	S.F	Acres	Lot No.	Land Use	S.F	Acres
LOT 1	RESIDENTIAL	12,727	0.29	LOT 67	RESIDENTIAL	2,580	0.06
LOT 2	RESIDENTIAL	26,425	0.61	LOT 68	RESIDENTIAL	2,520	0.06
LOT 3	RESIDENTIAL	3,403	0.08	LOT 69	RESIDENTIAL	2,460	0.06
LOT 4	RESIDENTIAL	3,276	0.08	LOT 70	RESIDENTIAL	2,460	0.06
LOT 5	RESIDENTIAL	3,276	0.08	LOT 71	RESIDENTIAL	2,520	0.06
LOT 6	RESIDENTIAL	3,912	0.09	LOT 72	RESIDENTIAL	2,580	0.06
LOT 7	RESIDENTIAL	2,842	0.07	LOT 73	RESIDENTIAL	8,764	0.20
LOT 8	RESIDENTIAL	2,856	0.07	LOT 74	RESIDENTIAL	6,968	0.16
LOT 9	RESIDENTIAL	2,788	0.06	LOT 75	RESIDENTIAL	6,856	0.16
LOT 10	RESIDENTIAL	2,856	0.07	LOT 76	RESIDENTIAL	15,602	0.36
LOT 11	RESIDENTIAL	2,924	0.07	LOT 77	RESIDENTIAL	26,700	0.61
LOT 12	RESIDENTIAL	2,924	0.07	LOT 78	RESIDENTIAL	33,077	0.76
LOT 13	RESIDENTIAL	2,856	0.07	LOT 79	RESIDENTIAL	10,960	0.25
LOT 14	RESIDENTIAL	2,788	0.06	LOT 80	RESIDENTIAL	9,738	0.22
LOT 15	RESIDENTIAL	2,856	0.07	LOT 81	RESIDENTIAL	10,036	0.23
LOT 16	RESIDENTIAL	2,897	0.07	LOT 82	RESIDENTIAL	14,058	0.32
LOT 17	RESIDENTIAL	2,592	0.06	LOT 83	RESIDENTIAL	15,239	0.35
LOT 18	RESIDENTIAL	2,774	0.06	LOT 84	RESIDENTIAL	19,942	0.46
LOT 19	RESIDENTIAL	2,778	0.06	LOT 85	RESIDENTIAL	11,064	0.25
LOT 20	RESIDENTIAL	2,460	0.06	LOT 86	PRIVATE STREET	107,649	2.47
LOT 21	RESIDENTIAL	2,520	0.06	LOT 87	PRIVATE STREET	12,407	0.29
LOT 22	RESIDENTIAL	2,832	0.07	LOT 88	PRIVATE STREET	15,513	0.36
LOT 23	RESIDENTIAL	2,832	0.07	LOT 89	PRIVATE STREET	15,314	0.35
LOT 24	RESIDENTIAL	2,520	0.06	LOT 90	PRIVATE STREET	42,193	0.97
LOT 25	RESIDENTIAL	2,460	0.06	LOT 91	PRIVATE STREET	3,976	0.09
LOT 26	RESIDENTIAL	2,460	0.06	LOT 92	PRIVATE STREET	4,662	0.11
LOT 27	RESIDENTIAL	2,520	0.06	LOT 93	PRIVATE STREET	3,030	0.07
LOT 28	RESIDENTIAL	2,832	0.07	LOT 94	PRIVATE STREET	3,030	0.07
LOT 29	RESIDENTIAL	2,832	0.07	LOT 95	PRIVATE STREET	3,030	0.07
LOT 30	RESIDENTIAL	2,520	0.06	LOT 96	PRIVATE STREET	21,563	0.50
LOT 31	RESIDENTIAL	2,460	0.06	LOT 97	PRIVATE STREET	3,815	0.09
LOT 32	RESIDENTIAL	2,460	0.06	LOT 98	PRIVATE STREET	26,404	0.61
LOT 33	RESIDENTIAL	2,520	0.06	LOT 99	PRIVATE STREET	44,435	1.02
LOT 34	RESIDENTIAL	2,832	0.07	LOT 100	PRIVATE STREET	18,261	0.42
LOT 35	RESIDENTIAL	2,832	0.07	LOT 101	PRIVATE STREET	2,597	0.06
LOT 36	RESIDENTIAL	2,520	0.06	LOT 102	PRIVATE STREET	2,726	0.06
LOT 37	RESIDENTIAL	2,460	0.06	LOT 103	PRIVATE STREET	2,724	0.06
LOT 38	RESIDENTIAL	4,667	0.11	LOT 104	PRIVATE STREET	3,488	0.08
LOT 39	RESIDENTIAL	2,642	0.06	LOT 105	W.Q. BASIN	30,154	0.69
LOT 40	RESIDENTIAL	4,125	0.10	LOT 106	W.Q. BASIN	18,351	0.42
LOT 41	RESIDENTIAL	4,738	0.11	LOT 107	PARK	44,461	1.02
LOT 42	RESIDENTIAL	2,520	0.06	LOT 108	SLOPE/OPEN SPACE	8,388	0.19
LOT 43	RESIDENTIAL	3,800	0.09	LOT 109	SLOPE/OPEN SPACE	2,258	0.05
LOT 44	RESIDENTIAL	33,092	0.76	LOT 110	SLOPE/OPEN SPACE	574	0.01
LOT 45	RESIDENTIAL	52,657	1.21	LOT 111	SLOPE/OPEN SPACE	4,459	0.10
LOT 46	RESIDENTIAL	2,460	0.06	LOT 112	SLOPE/OPEN SPACE	4,454	0.10
LOT 47	RESIDENTIAL	2,520	0.06	LOT 113	SLOPE/OPEN SPACE	21,391	0.49
LOT 48	RESIDENTIAL	2,580	0.06	LOT 114	SLOPE/OPEN SPACE	600	0.01
LOT 49	RESIDENTIAL	2,580	0.06	LOT 115	SLOPE/OPEN SPACE	600	0.01
LOT 50	RESIDENTIAL	2,520	0.06	LOT 116	SLOPE/OPEN SPACE	600	0.01
LOT 51	RESIDENTIAL	2,460	0.06	LOT 117	SLOPE/OPEN SPACE	600	0.01
LOT 52	RESIDENTIAL	2,460	0.06	LOT 118	SLOPE/OPEN SPACE	7,952	0.18
LOT 53	RESIDENTIAL	2,520	0.06	LOT 119	SLOPE/OPEN SPACE	122,460	2.81
LOT 54	RESIDENTIAL	2,580	0.06	LOT 120	SLOPE/OPEN SPACE	127,119	2.92
LOT 55	RESIDENTIAL	2,580	0.06	LOT 121	SLOPE/OPEN SPACE	26,431	0.61
LOT 56	RESIDENTIAL	2,520	0.06	LOT 122	SLOPE/OPEN SPACE	490,964	11.27
LOT 57	RESIDENTIAL	2,460	0.06	LOT 123	SLOPE/OPEN SPACE	53,169	1.22
LOT 58	RESIDENTIAL	2,460	0.06	LOT 124	SLOPE/OPEN SPACE	6,574	0.15
LOT 59	RESIDENTIAL	2,520	0.06	LOT 125	SLOPE/OPEN SPACE	148,671	3.41
LOT 60	RESIDENTIAL	2,580	0.06	LOT 126	SLOPE/OPEN SPACE	223,960	5.25
LOT 61	RESIDENTIAL	2,580	0.06	LOT 127	NATURAL SLOPE	2,996,949	68.80
LOT 62	RESIDENTIAL	2,520	0.06	LOT 128	E.V.A.	26,637	0.61
LOT 63	RESIDENTIAL	2,460	0.06	LOT 129	LIFT STATION	3,973	0.09
LOT 64	RESIDENTIAL	2,460	0.06	LOT A	MISSION BLVD.	30,038	0.69
LOT 65	RESIDENTIAL	2,520	0.06	LOT B	MISSION BLVD.	8,687	0.20
LOT 66	RESIDENTIAL	2,580	0.06	**TOTAL**		**5,249,198**	**120.61**



KEY MAP

LOT SUMMARY

Lot No.	Land Use	Acres
LOTS 1-85	RESIDENTIAL	11.52
LOTS 86-104	PRIVATE STREET	7.73
LOTS 105-106	WATER QUALITY/DEBRIS BASIN	1.11
LOT 107	RECREATION CENTER	1.02
LOTS 108-126	OPEN SPACE	28.84
LOT 127	OPEN SPACE	68.80
LOT 128	EMERGENCY, VEHICULAR ACCESS/SEWER & STORM DRAIN EASEMENT	0.61
LOT 129	LIFT STATION	0.09
LOT A	MISSION BOULEVARD	0.69
LOT B	MISSION BOULEVARD	0.20
TOTAL		120.61

LEGEND

- PROJECT BOUNDARY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- PROPOSED CURB
- EASEMENT LINE
- FUEL MOD
- PROPOSED CENTERLINE
- PROPOSED WATER
- PROPOSED SEWER
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- EXISTING SEWER
- EXISTING WATER
- RETAINING WALL/ RETAINING WALL HEIGHT
- PROPOSED M.S.E. WALL
- TOP OF SLOPE
- TOE OF SLOPE
- FIRE HYDRANT

NORTH

0 20' 40' 80'

SCALE: 1" = 40'

REVISION	
DATE	DESCRIPTION
.	.

OWNER/APPLICANT:
TRUMARK HOMES
450 NEWPORT CENTER DRIVE, SUITE 300
NEWPORT BEACH, CA 92660
PH: (949) 999-9800

PREPARED BY:
HUNSAKER & ASSOCIATES
IRVINE, INC.
PLANNING • ENGINEERING • SURVEYING
Three Hughes • Irvine, CA 92618 • PH: (949) 583-1010 • FX: (949) 583-0759

CITY OF POMONA, COUNTY OF LOS ANGELES

TENTATIVE TRACT MAP 72653
ELEPHANT HILL

DESIGNED BY:	DATE:	CITY FILE NO.:	SHEET
DRAFTED BY:	4/12/23		2 OF 4
CHECKED BY:			

TTM 72653 ELEPHANT HILL
W.O. 5593-441

DATE: Apr. 12, 2023 03:42:49 PM FILE: F:\0054\Planning\SA_TTM\TTM_SHT.2.dwg

CONTINUED ON PAGE 2

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KEY MAP

LOT SUMMARY

Lot No.	Land Use	Acres
LOTS 1-85	RESIDENTIAL	11.52
LOTS 86-104	PRIVATE STREET	7.73
LOTS 105-106	WATER QUALITY/DEBRIS BASIN	1.11
LOT 107	RECREATION CENTER	1.02
LOTS 108-126	OPEN SPACE	28.84
LOT 127	OPEN SPACE	68.80
LOT 128	EMERGENCY, VEHICULAR ACCESS/SEWER & STORM DRAIN EASEMENT	0.61
LOT 129	LIFT STATION	0.09
LOT A	MISSION BOULEVARD	0.69
LOT B	MISSION BOULEVARD	0.20
TOTAL		120.61

LEGEND

- PROJECT BOUNDARY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- PROPOSED CURB
- EASEMENT LINE
- FUEL MOD
- PROPOSED CENTERLINE
- PROPOSED WATER
- PROPOSED SEWER
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- EXISTING SEWER
- EXISTING WATER
- RETAINING WALL/ RETAINING WALL HEIGHT
- PROPOSED M.S.E. WALL
- TOP OF SLOPE
- TOE OF SLOPE
- FIRE HYDRANT

NORTH

0 20' 40' 80'

SCALE: 1" = 40'

OWNER/APPLICANT:
TRUMARK HOMES
450 NEWPORT CENTER DRIVE, SUITE 300
NEWPORT BEACH, CA 92660
PH: (949) 999-9800

PREPARED BY:
HUNSAKER & ASSOCIATES
IRVINE, INC.
PLANNING • ENGINEERING • SURVEYING
Three Hughes • Irvine, CA 92618 • PH: (949) 583-1010 • FX: (949) 583-0759

CITY OF POMONA, COUNTY OF LOS ANGELES

TENTATIVE TRACT MAP 72653
ELEPHANT HILL

REVISION	
DATE	DESCRIPTION

DESIGNED BY:
DRAFTED BY:
CHECKED BY:
DATE: 4/12/23
CITY FILE NO.:
SHEET 3 OF 4

ELEPHANT HILL
TTM 72653
W.O. 3593-441

DATE: Apr. 12, 2023 03:41:58 PM FILE: F:\0054\Planning\SA_TTM\TTM_SHT_3.dwg

CONTINUED ON PAGE 3

LOT 126

8707-020-902
CITY OF POMONA

LOT 105
DEBRIS BASIN
BOTTOM=850

LOT 85

LOT 88

LOT 84

LOT 83

LOT 87

LOT 82

LOT 81

LOT 80

LOT 79

LOT 103

LOT 104

LOT 102

LOT 101

LOT 121

LOT A

LOT B

PVT. ST./ FIRELANE "Z"

PVT. DWY "CC"

PVT. DWY "DD"

PVT. DWY "BB"

PVT. DWY "AA"

PVT. ST./ FIRELANE "Y"

FUEL MOD A

FUEL MOD B

FUEL MOD C

FUEL MOD D

EX. GUARDRAIL TO BE REMOVE

TRANSITION AC BERM TO EXISTING

WATER QUALITY BASIN

BOULEVARD

MISSION BLVD

929'±

818'

326'±

1611'±

789'±

CONNECTION TO EXISTING

MISSION

CONTINUED ON PAGE 3



KEY MAP

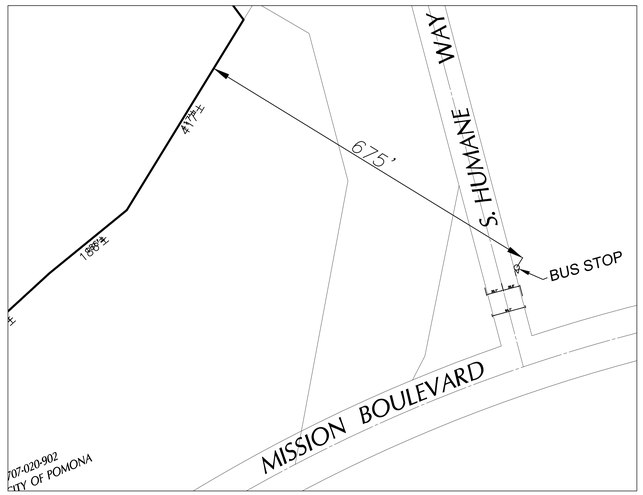
LOT SUMMARY

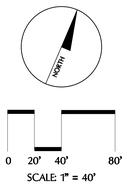
Lot No.	Land Use	Acres
LOTS 1-85	RESIDENTIAL	11.52
LOTS 86-104	PRIVATE STREET	7.73
LOTS 105-106	WATER QUALITY/DEBRIS BASIN	1.11
LOT 107	RECREATION CENTER	1.02
LOTS 108-126	OPEN SPACE	28.84
LOT 127	OPEN SPACE	68.80
LOT 128	EMERGENCY, VEHICULAR ACCESS/SEWER & STORM DRAIN EASEMENT	0.61
LOT 129	LIFT STATION	0.09
LOT A	MISSION BOULEVARD	0.69
LOT B	MISSION BOULEVARD	0.20
TOTAL		120.61

LEGEND

- PROJECT BOUNDARY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- PROPOSED CURB
- EASEMENT LINE
- FUEL MOD
- PROPOSED CENTERLINE
- PROPOSED WATER
- PROPOSED SEWER
- PROPOSED STORM DRAIN
- RETAINING WALL/ RETAINING WALL HEIGHT
- PROPOSED M.S.E. WALL
- TOP OF SLOPE
- TOE OF SLOPE
- FIRE HYDRANT

BUS STOP LOCATION





SCALE: 1" = 40'

OWNER/APPLICANT:
TRUMARK HOMES
450 NEWPORT CENTER DRIVE, SUITE 300
NEWPORT BEACH, CA 92660
PH: (949) 999-9800

PREPARED BY:
HUNSAKER & ASSOCIATES
IRVINE, INC.
PLANNING • ENGINEERING • SURVEYING
Three Hughes • Irvine, CA 92618 • PH (949) 583-1010 • FX (949) 583-0759

CITY OF POMONA, COUNTY OF LOS ANGELES

TENTATIVE TRACT MAP 72653
ELEPHANT HILL

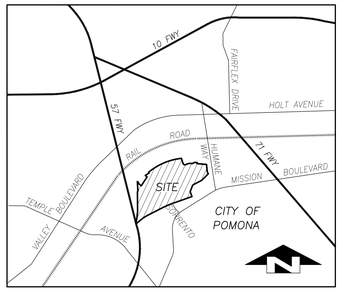
REVISION	
DATE	DESCRIPTION
.	.

DESIGNED BY: _____
DRAFTED BY: _____
CHECKED BY: _____
DATE: 4/12/23
CITY FILE NO.:
SHEET 4 OF 4

W.O. 3593-44X TTM 72653 ELEPHANT HILL

DATE: Apr. 12, 2023 03:41:16 PM FILE: F:\0054\Planning\SA_TTM\TTM_SHT-4.dwg

VICINITY MAP



UNIT SUMMARY

Cluster SFD

Unit Type	Sq. Ft.	Number of Units
Plan 1	1,690	24
Plan 2	1,760	21
Plan 3	1,930	23
Sub-Total		*68*

Duplex

Unit Type	Sq. Ft.	Number of Units
Plan 1	1,230	30
Plan 2	1,400	33
Plan 3	1,660	31
Sub-Total		*94*

Row/Townhome

Unit Type	Sq. Ft.	Number of Units
Plan 1	1,430	11
Plan 2	1,460	11
Plan 3	1,850	44
Sub-Total		*66*

Overall Total 228

NOTES

1. EXISTING LAND USE: VACANT.
2. PROPOSED LAND USE: URBAN NEIGHBORHOOD
3. EXISTING ZONING: CITY OF POMONA, PRD AND OPEN SPACE
4. PROPOSED ZONING: CITY OF POMONA, PRD AND OPEN SPACE
5. GENERAL PLAN: OPEN SPACE AND URBAN NEIGHBORHOOD
6. EARTHWORK: CUT= 1,111,998 CYS, FILL= 1,215,939 CYS
7. GROSS ACRES: 120.62 ACRES
8. ASSESSOR'S PARCEL NUMBER: 8707-020-001, 8707-020-008 AND 8708-021-058

UTILITY AGENCIES

SEWER & WATER:
CITY OF POMONA
505 SOUTH GAREY AVENUE
POMONA, CALIFORNIA 91766
(909) 620-2241

ELECTRIC SERVICE:
SOUTHERN CALIFORNIA EDISON
265 N. EAST END AVENUE
POMONA, CA 91767
(909) 469-0200

GAS SERVICE:
SOUTHERN CALIFORNIA GAS COMPANY
13525 12TH STREET
CHINO, CA
(909) 355-7873

TELEPHONE SERVICE:
VERIZON
1400 PHILLIPS RANCH RD.
POMONA, CA 91766
(800) 483-3000

TRASH:
CITY OF POMONA
505 SOUTH GAREY AVENUE
POMONA, CALIFORNIA 91766
(909) 620-2241

EXISTING EASEMENTS

(4) REFERS TO AN EASEMENT FOR THE PURPOSE PUBLIC HIGHWAY DRAINAGE PURPOSES IN FAVOR OF THE STATE OF CALIFORNIA RECORDED APRIL 6, 1970 AS INSTRUMENT NO. 2703, O.R.
AFFECTS: A PROTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.

(5) THE OWNERSHIP OF SAID LAND DOES NOT INCLUDE RIGHTS OF ACCESS TO OR FROM THE STREET, HIGHWAY, OR FREEWAY ABUTTING SAID LAND, SUCH RIGHTS HAVING BEEN RELINQUISHED BY THE DOCUMENT RECORDED JULY 12, 1971 AS INSTRUMENT NO. 2995, OFFICIAL RECORDS.
AFFECTS: STATE FREEWAY

(6) REFERES TO AN EASEMENT FOR STORM DRAIN PURPOSES IN FAVOR OF THE CITY OF POMONA, A MUNICIPAL CORPORATION RECORDED MAY 29, 1992 AS INSTRUMENT NO. 92-974716, O.R.
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.

(7) REFERS TO AN EASEMENT FOR STORM DRAIN PURPOSES IN FAVOR OF THE CITY OF POMONA, A MUNICIPAL CORPORATION RECORDED JANUARY 22, 1998 AS INSTRUMENT NO. 98-101498, O.R.
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.

(8) REFERS TO AN EASEMENT FOR SLOPE AND TEMPORARY CONSTRUCTION PURPOSES IN FAVOR OF ALAMEDA CORRIDOR-EAST CONSTRUCTION AUTHORITY RECORDED AUGUST 17, 2006 AS INSTRUMENT NO. 06-1835393, O.R.
AFFECTS: A PORITON OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.

(9) REFERS TO AN EASEMENT FOR OVERHEAD AND UNDERGROUND ELECTRICAL SUPPLY SYSTEMS AND COMMUNICATION SYSTEMS PURPOSES RECORDED MARCH 18, 1969 AS INSTRUMENT NO. 2682, O.R.
AFFECTS: AS DESCRIBED THEREIN

(13) REFERS TO AN EASEMENT FOR WATERLINE PURPOSES AS DELINEATED ON OR AS OFFERED FOR DEDICATION ON MAP/PLAT: TRACT NO. 35167, M.B. 1080/57-61 IN FAVOR OF THE CITY OF POMONA.
AFFECTS: AS SHOWN ON SAID MAP

(14) REFERS TO AN EASEMENT FOR SEWER PURPOSES AS DELINEATED ON OR AS OFFERED FOR DEDICATION ON MAP/PLAT: TRACT 35167, M.B. 1080/57-61 IN FAVOR OF THE CITY OF POMONA.
AFFECTS: AS SHOWN ON SAID MAP

(15) REFERS TO AN EASEMENT FOR SEWER MAIN LINE PURPOSES AS DELINEATED ON OR AS OFFERED FOR DEDICATION ON MAP/PLAT: TRACT NO. 50048, M.B. 1196/38-39 IN FAVOR OF THE CITY OF POMONA.
AFFFECTS: AS SHOWN ON SAID MAP.

LOT SUMMARY

Lot No.	Land Use	Acres
LOTS 1-85	RESIDENTIAL	11.52
LOTS 86-104	PRIVATE STREET	7.73
LOTS 105-106	WATER QUALITY/DEBRIS BASIN	1.11
LOT 107	RECREATION CENTER	1.02
LOTS 108-126	OPEN SPACE	28.84
LOT 127	OPEN SPACE	68.80
LOT 128	EMERGENCY, VEHICULAR ACCESS/SEWER & STORM DRAIN EASEMENT	0.61
LOT 129	LIFT STATION	0.09
LOT A	MISSION BOULEVARD	0.69
LOT B	MISSION BOULEVARD	0.20
TOTAL		120.61

PARKING SUMMARY

Area	Homes	Garage/Covered	Suface Head-In	Surface On-Street	Total Spaces
1	73	146	4	21	171
2	55	110	52	41	203
3	66	132	34	35	201
4	34	68	19	4	91
Subtotal	228	456	109	101	666

LEGEND

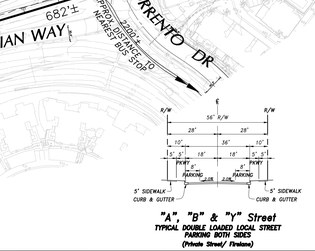
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- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- PROPOSED CURB
- EASEMENT LINE
- FUEL MOD
- PROPOSED CENTERLINE
- PROPOSED WATER
- PROPOSED SEWER
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- EXISTING SEWER
- EXISTING WATER
- RETAINING WALL/ RETAINING WALL HEIGHT
- PROPOSED M.S.E. WALL
- TOP OF SLOPE
- TOE OF SLOPE
- FIRE HYDRANT

NORTH

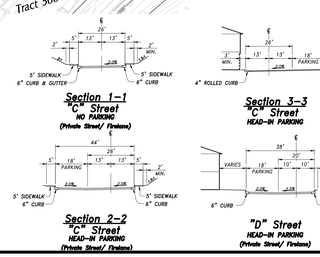
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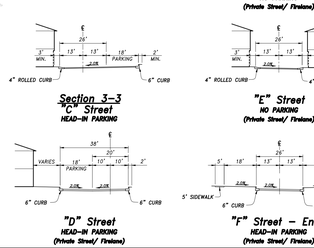
STREET SECTIONS



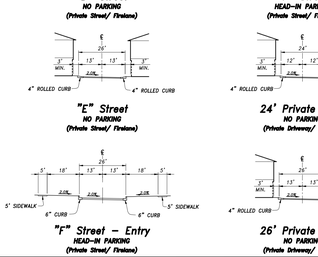
"A", "B" & "Y" Street
TYPICAL DOUBLE LOADED LOCAL STREET
PARKING BOTH SIDES
(Private Street/ Firelane)



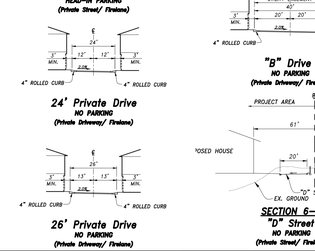
Section 2-2
"C" Street
HEAD-IN PARKING
(Private Street/ Firelane)



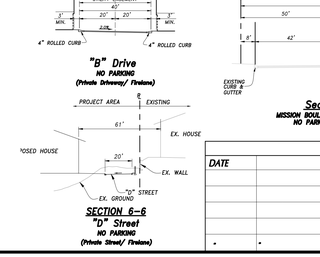
"D" Street
HEAD-IN PARKING
(Private Street/ Firelane)



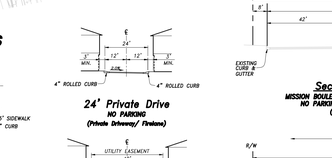
"F" Street - Entry
HEAD-IN PARKING
(Private Street/ Firelane)



26' Private Drive
NO PARKING
(Private Driveway/ Firelane)

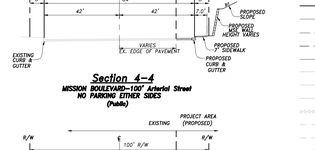


SECTION 6-6
"D" Street
NO PARKING
(Private Street/ Firelane)

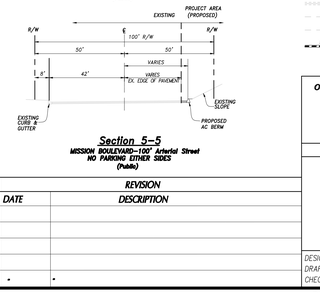


24' Private Drive
NO PARKING
(Private Driveway/ Firelane)

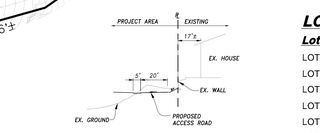
"B" Drive
NO PARKING
(Private Driveway/ Firelane)



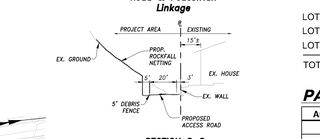
Section 4-4
MISSION BOULEVARD-100' Arterial Street
NO PARKING EITHER SIDES
(Public)



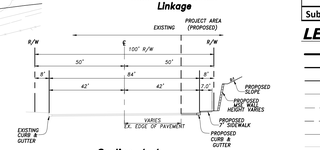
Section 5-5
MISSION BOULEVARD-100' Arterial Street
NO PARKING EITHER SIDES
(Public)



SECTION 7-7
Emergency Vehicle Access Road & Pedestrian Linkage



SECTION 8-8
Emergency Vehicle Access Road & Pedestrian Linkage



Section 4-4
MISSION BOULEVARD-100' Arterial Street
NO PARKING EITHER SIDES
(Public)

Section 5-5
MISSION BOULEVARD-100' Arterial Street
NO PARKING EITHER SIDES
(Public)

REVISION	
DATE	DESCRIPTION

OWNER/APPLICANT:
TRUMARK HOMES
450 NEWPORT CENTER DRIVE, SUITE 300
NEWPORT BEACH, CA 92660
PH: (949) 999-9800

PREPARED BY:
HUNSAKER & ASSOCIATES
IRVINE, INC.
PLANNING ■ ENGINEERING ■ SURVEYING
Three Hughes ▪ Irvine, CA 92618 ▪ PH: (949) 583-1010 ▪ FX: (949) 583-0759

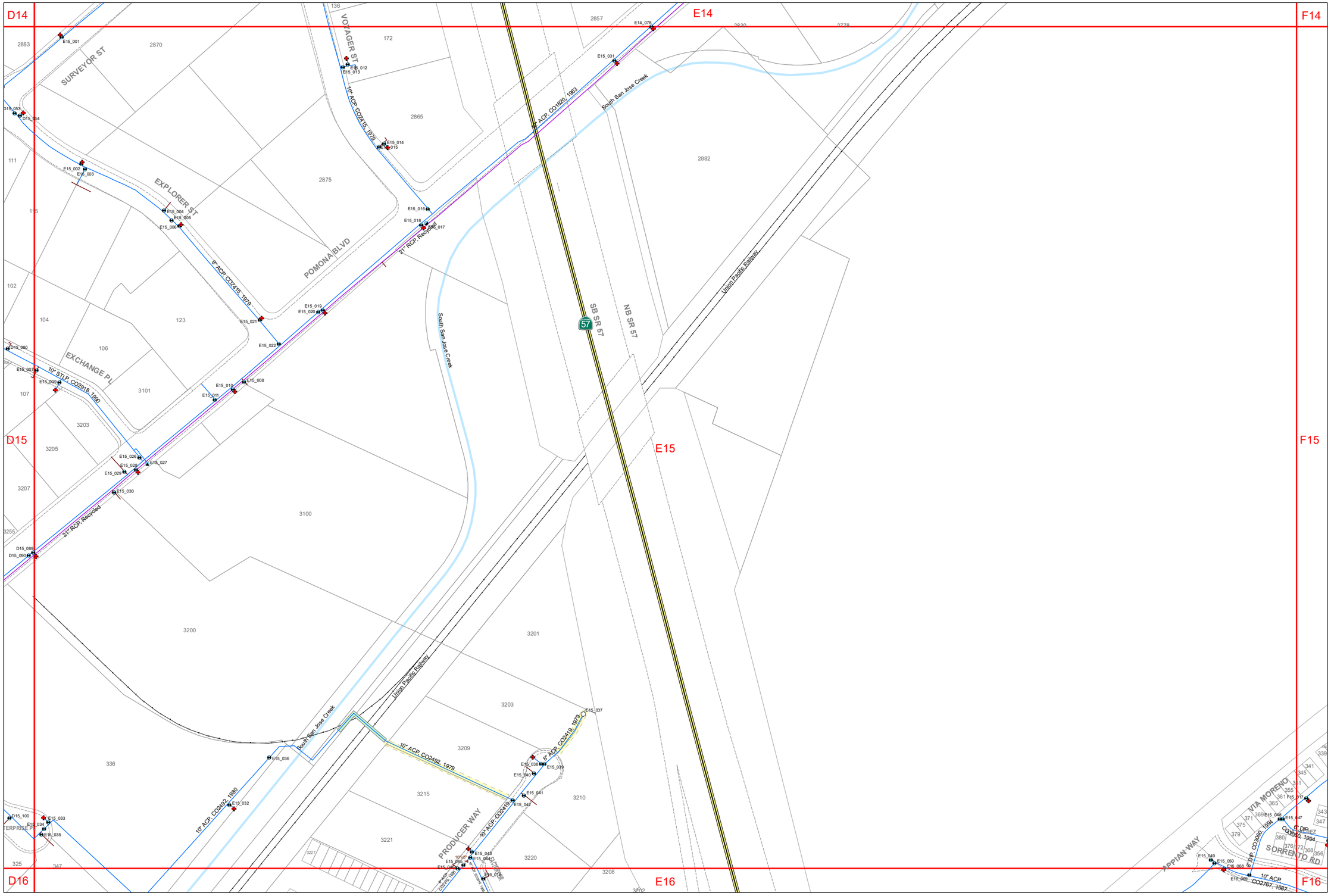
CITY OF POMONA, COUNTY OF LOS ANGELES

TENTATIVE TRACT MAP 72653
TECHNICAL SITE PLAN
ELEPHANT HILL

DESIGNED BY:	DATE:	CITY FILE NO.:
DRAFTED BY:	4/12/23	
CHECKED BY:		

W.O. 3593-44X TTM 72653 ELEPHANT HILL

DATE: Apr. 13, 2023 04:35:45 PM FILE: F:\0054\Planning\SA_Site Plan\Site Plan - Sht.1.dwg



City of Pomona

Water Atlas Map

Tile: E15

Updated Mar 10, 2020

Water Main

Labeled with Diameter, Material, Drawing, Year Installed

- Distribution Main
- Transmission Main
- Recycled Main
- Abandoned Main

Lateral

- Hydrant Lateral Line
- Service Lateral Line

Valves

Labeled with: New Valve ID

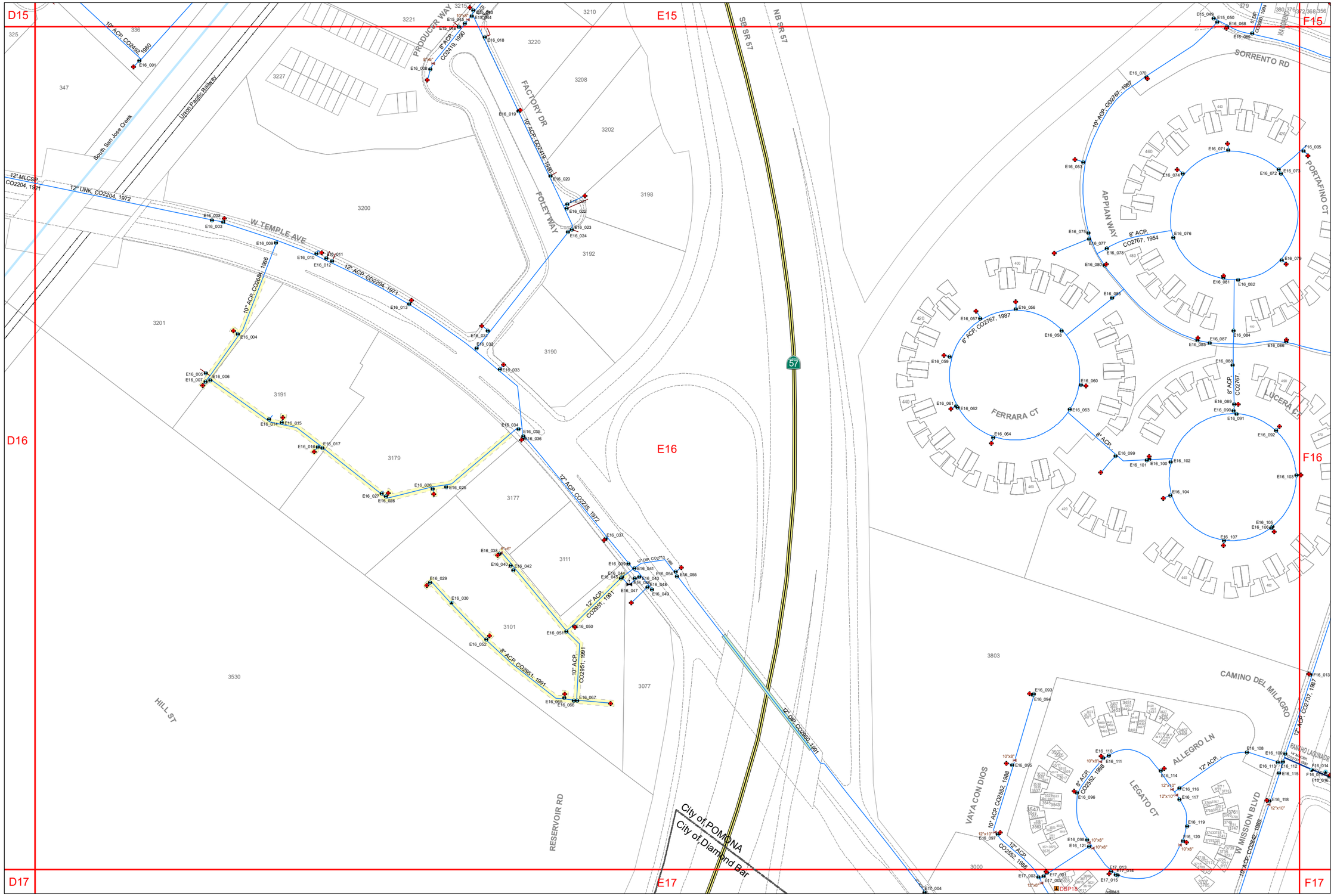
- Air Release Valve
- Blow Off Valve
- Butterfly Valve
- Check Valve
- Gate Valve
- Isolation Valve
- Pressure Regulating Valve
- Recycled Valve

Features

- Hydrant
- Recycled Hydrant
- Well
- Booster Pump
- Access Manhole
- Meter
- DC
- Sampling Point
- Reducer
- Over Unders
- Reservoir
- Recycled Reservoir
- Casing
- Easements
- Vault
- Sand Trap

0 75 150 300 Feet

CITY OF POMONA DISCLAIMER
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City of Pomona

Water Atlas Map

Tile: E16

Updated Mar 10, 2020

Water Main

Labeled with Diameter, Material, Drawing, Year Installed

- Distribution Main
- Transmission Main
- Recycled Main
- Abandoned Main

Lateral

- Hydrant Lateral Line
- Service Lateral Line

Valves

Labeled with: New Valve ID

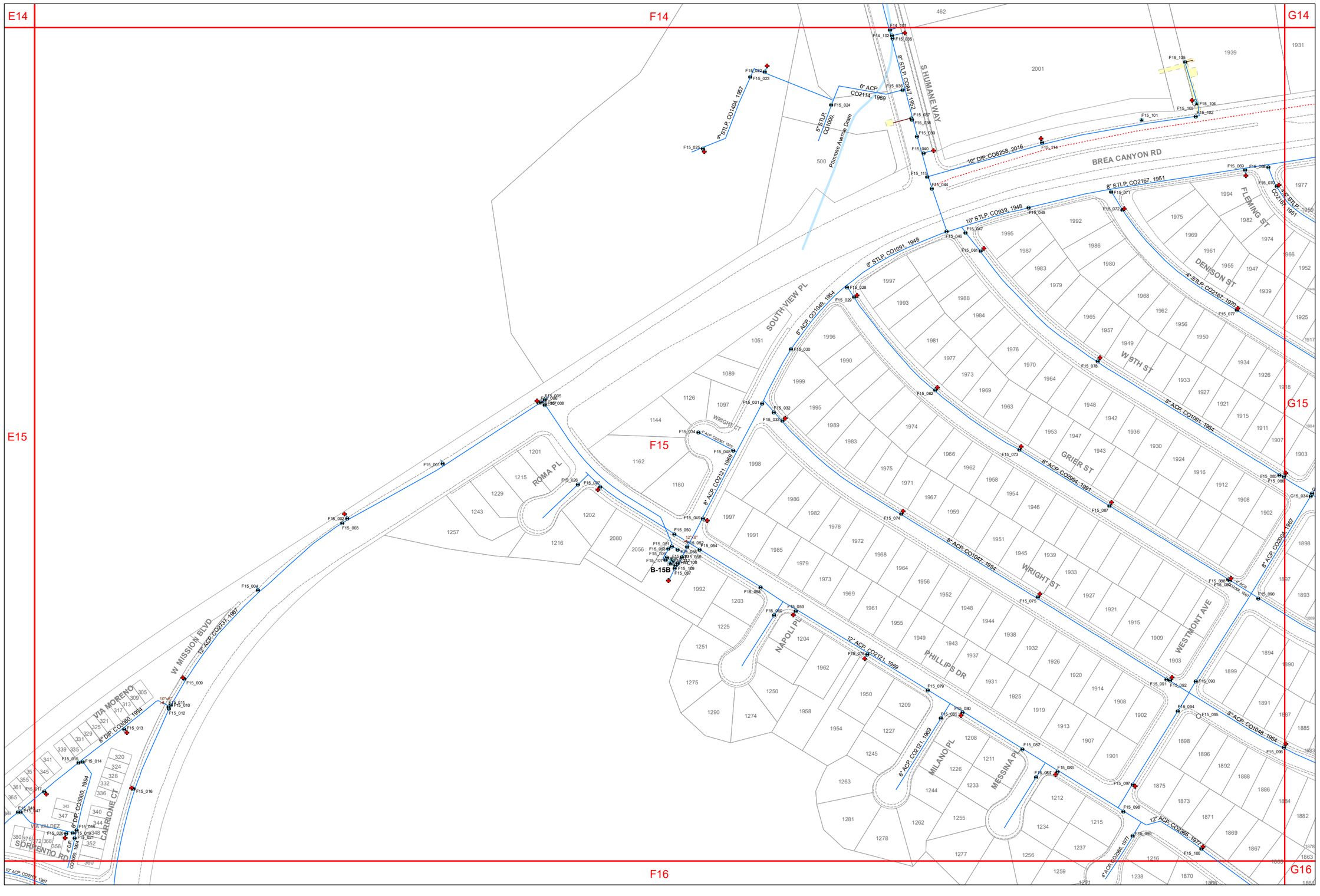
- Air Release Valve
- Blow Off Valve
- Butterfly Valve
- Check Valve
- Gate Valve
- Isolation Valve
- Pressure Regulating Valve
- Recycled Valve

Features

- Hydrant
- Recycled Hydrant
- Well
- Booster Pump
- Access Manhole
- Meter
- DC
- Sampling Point
- Reducer
- Over Unders
- Reservoir
- Recycled Reservoir
- Casing
- Easements
- Vault
- Sand Trap

0 75 150 300 Feet

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City of Pomona

Water Atlas Map

Tile: F15

Updated Mar 10, 2020

Water Main

Labeled with Diameter, Material, Drawing, Year Installed

- Distribution Main
- Transmission Main
- Recycled Main
- Abandoned Main

Lateral

- Hydrant Lateral Line
- Service Lateral Line

Valves

Labeled with: New Valve ID

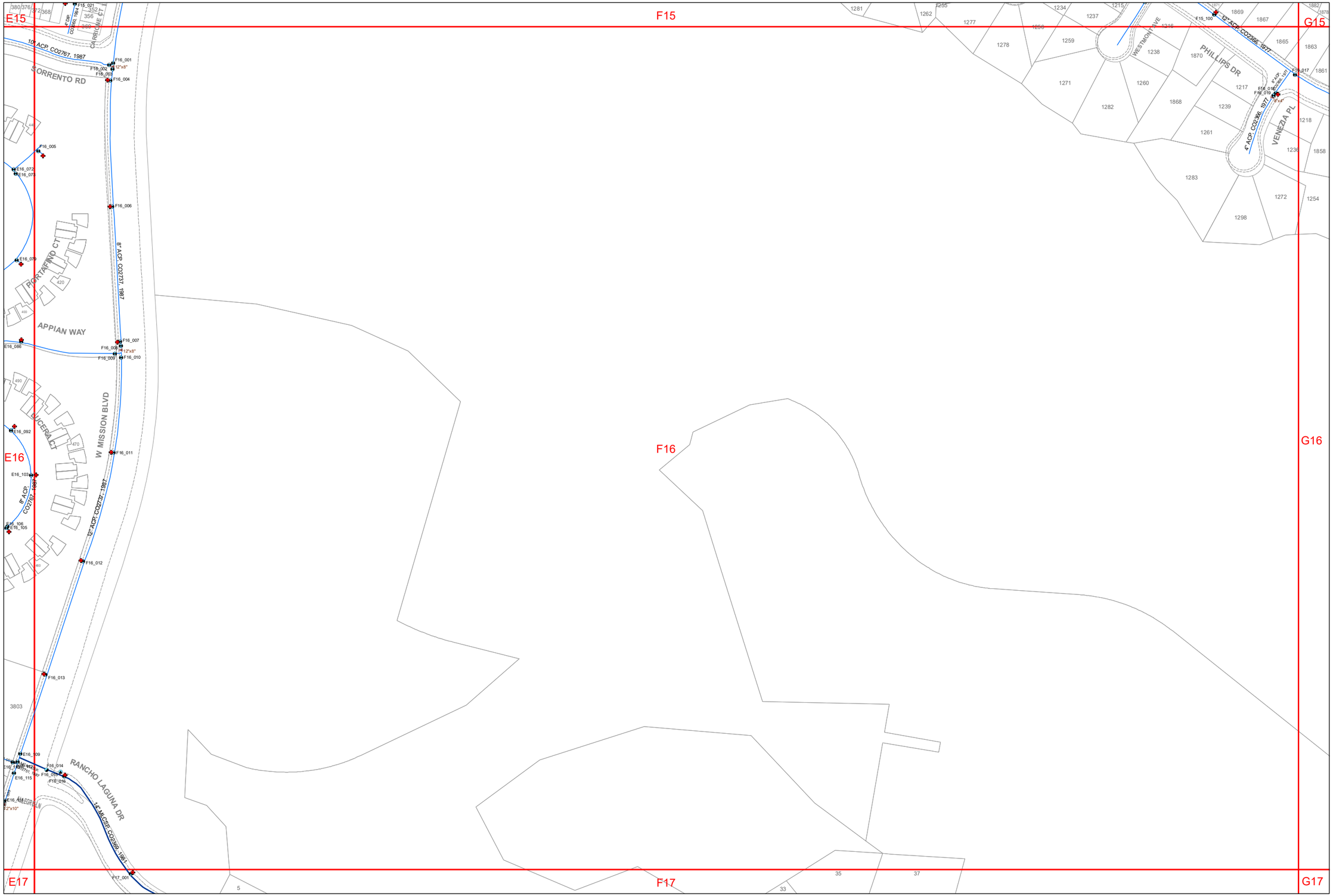
- Air Release Valve
- Blow Off Valve
- Butterfly Valve
- Check Valve
- Gate Valve
- Isolation Valve
- Pressure Regulating Valve
- Recycled Valve

Features

- Hydrant
- Recycled Hydrant
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0 75 150 300 Feet

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City of Pomona

Water Atlas Map

Tile: F16

Updated Mar 10, 2020

Water Main

Labeled with Diameter, Material, Drawing, Year Installed

- Distribution Main
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Lateral

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- Reservoir
- Recycled Reservoir
- Casing
- Easements
- Vault
- Sand Trap

N

0 75 150 300 Feet

CITY OF POMONA DISCLAIMER
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Potable Water Master Plan

October 2019

888 S Figueroa Street, Suite 1700
Los Angeles, CA 90017
213-223-9460

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

0455-002
City of Pomona

FINAL

The calculated WDFs were used to estimate the future demands of the vacant parcels by multiplying the appropriate WDF by the parcel acreage, assuming the zoning listed in the vacant parcel shapefile provided by the City's Planning Department is reflective of future land use and that all currently vacant parcels will be developed by 2040. As shown in **Figure 3-2**, vacant land is evenly distributed throughout the City as opposed to large, assembled areas suitable for large developments. It should be noted that areas in the southwestern portion of the City appear to have vacant parcels, but these areas are designated open space. Per information provided by the City, only vacant parcels zoned for residential, commercial or industrial use will be developed; additionally, development won't occur on any parcels identified as alleys, ROW, utility corridors, open space, or owned by the City. Projected demands for vacant parcel development are provided in **Table 3-8**.

Table 3-8: Projected Demand for Currently Vacant Parcels

Future Land Use	Vacant Area to be Developed (acres)	Demand Factor (gpd/acre)	Average Day Demand (gpd)	Average Annual Demand (AFY)
Single Family Residential	96	2,100	201600	226
Multi-Family Residential	44	3,400	149,600	168
Mixed Residential and Commercial	14	1,700	23,800	27
Commercial	109	1,900	207,100	232
Mixed Commercial and Industrial[1]	3	1,400	4,200	5
General Office	5	1,400	7,000	8
Industrial	119	900	107,100	120
Total	**390**	**n/a**	**700,400**	**784**

1. Mixed commercial and industrial WDF is assumed to be an average of multi-family residential and commercial WDFs.

The volume of incremental demand to be further distributed was calculated by subtracting the projected demands for development of vacant parcels, and shown in **Table 3-9**. Note that the 2015 UWMP uses less land use categories than the vacant parcel development demand projection analysis; therefore, land uses were combined to align with the 2015 UWMP demand projections.

Table 3-9: Incremental Demand Associated with Densification

Land Use	Remaining Incremental Demand to Distribute from Table 3-6 (AFY)	Projected Demand for Vacant Parcel Development (AFY)	Remaining Incremental Demand (AFY)
Single Family	2,593	600	2,367
Multi-Family[1]	779	194	585
Commercial[2]	895	364	531
Landscape[3]	352	0	352
Total	**4,619**	**1,158**	**3,835**

1. Includes demand projections for "multi-family residential" and "mixed residential and commercial".
2. Includes demand projections for "commercial", "mixed commercial and industrial", "general office" and "industrial".
3. Demands for parks and open space land use not included in vacant parcel development demand projections.

SEDID	Type	Location	From Zone	To Zone	Typical Status/ Setpoint
V-FCV-Z2Z7	FCV	Reservoir 7	Zone 2	Zone 7	closed
V-FCV-Z7Z5	FCV	Booster Station 2	Zone 7	Zone 5	2,500 gpm
V-FCV-Z8Z5	FCV	Booster Station 10	Zone 8	Zone 5	closed
V-PRV-PR12	FCV	45 Rio Rancho Rd	Zone 8	Zone 6	2,000 gpm
V-PRV-Z4Z8	FCV	Booster Station 8	Zone 4	Zone 8	closed
V-PRV-Z9Z2	FCV	Booster Station 9	Zone 9	Zone 2	2,000 gpm

6.5.10 Interconnects with Outside Agencies

All interconnections with outside agencies are modeled as FCVs. According to the 2005 Master Plan, the City has interconnections with the Three Valley Municipal Water District, Metropolitan Water District (MWDSC) and the Walnut Valley Water District. The MWDSC connections are included as water supplies in the distribution model.

6.6 MODEL DEMANDS

Accurate demand allocation is one of the most important factors impacting model calibration. Demand is divided into two categories in the Pomona model, Consumption demand, and Non-Revenue Water (NRW). The model demand data is based on historical production and billing data and geocoded customer meter points. Each customer point in GIS was given an "average" demand in gallons per minute (gpm) based on historical billing data from FY 2013 to 2016. The NRW data is based on a comparison of billing data and production data over an identical period. **Table 6-11** includes a breakdown of existing conditions ADD model demand per usage type.

Table 6-11: ADD Demand Breakdown per Category

Pattern	Description	Demand Field	Usage (MGD)	Usage Percent of Total)
RESIDENTIAL	Single-family Residential	Field 1	7.12	39%
MULTI_FAMILY	Multi-family Residential	Field 2	2.88	16%
COMMERCIAL	Commercial Demand	Field 3	3.45	19%
GOVERNMENT	Government Demand	Field 4	2.38	13%
NRW	Non-Revenue Water	Field 5	2.66	14%
Total Demand			18.50	100%

6.6.1 Consumption Demand

The process and results used to complete the demand development for the model are described in this section. Demand data was processed for each customer account to determine the individual and system-wide average day demand (ADD) using the 12 consecutive months of usage data provided by the City. The usage data contained the customer account and monthly meter readings. The monthly meter readings were averaged for the FY 2013-2014 to FY 2015-2016 time period to create an ADD for each metered account and are discussed further in Section 3.

6.6.2 Peaking Factors

To create the maximum day demand (MDD) and peak hour demand (PHD) scenarios, a multiplier was applied to the average day demands. The MDD/ADD multiplier was determined by reviewing monthly production data provided by

the City and globally applied to the average day demands. The PHD/ADD multipliers are 1.6 for existing demands and 1.7 for any near-term (2020) and future demands (2040). The demands allocated to the model junctions and the peaking factors used can be seen below in **Table 6-12**.

Table 6-12: Demand Breakdown per Category

Demand Condition	Existing	Near-Term	Future
Existing ADD (MGD)	18.50	19.43	23.56
Existing MDD (MGD)	27.75	33.04	40.06
MDD/ADD Ratio	1.50	1.70	1.70
Hourly Peaking Factor	1.7	1.7	1.7
Existing PHD (MGD)	47.18	56.16	68.10



6.6.3 Consumption Geocoding

The individual billing data accounts were matched to the service meter feature class points in GIS. Approximately 837 billing accounts out of a total of 29,168 billing accounts did not match with the service meter feature class points in GIS and were manually located by Pomona WRD staff.

6.6.4 Consumption Demand Allocation

The customer meter consumption shapefile and was allocated demand by two methods: 1) by using the automatic demand allocator tool in Infowater, and 2) by manually allocating the top 20 users. The top 20 users are manually allocated to ensure that large impact demands are placed on the correct pipe, as misallocating a large demand can lead to model error.

The model database field "JUNC_DEM" is used to denote which nodes are demand nodes. Where demand junctions are determined by excluding:

- Junctions connected to 16-inch diameter and larger
- Junctions connected to pipe at pump stations, wells, WTPs, tanks, and other facilities
- Sections of pipe pass through other pressure zones
- Hydrant laterals
- Junctions that are any valve type

The consumption demand (less top 20 users) is spatially allocated to model demand junctions using the nearest pipe methodology in Infowater™'s demand allocator add-on tool. This demand allocator tool calculates the pipe lengths on either side of where the meter would perpendicularly intersect the nearest pipe. These two lengths are used to proportionally split the demand between the pipe nodes. The nearest pipe method lessens demand allocation mistakes specifically in parts of a model without many junctions splitting pipes. This process provides high demand allocation accuracy by assigning which generally translates to better model calibration.

The consulting team reviewed how the demand allocator tool allocated demand to pipe along pressure zone boundaries and did not find instances of where miss-allocation to the wrong zone may have occurred.

6.6.5 Non-Revenue Water Demand

The NRW demand is calculated from comparing billing data and production data from fiscal years starting from 2013 to 2016. The annual average NRW over this period is 14 percent. The model does not attempt to separate leakage

8. POTABLE WATER MASTER PLAN EVALUATION METHODOLOGY

This Master Plan contains two methods for identifying and developing needed projects. The first method used is a standard hydraulic modeling evaluation based on identifying and correcting existing deficiencies or those resulting from future growth. The second method uses the CIP software platform risk-based project identification platform that dynamically pulls in the latest asset management data along with hydraulic modeling results. The hydraulic modeling method evaluates existing, near-term, and future system deficiencies and develops projects that are needed to address those specific deficiencies. The CIP software platform incorporates hydraulic model outputs such as pressure, velocity, fire-flow capacity, pipe criticality as well as dynamically updated asset management data. The output of the CIP software platform is a risk-score based prioritization and development of capital pipeline projects.

By utilizing these two approaches, the City gains a comprehensive and flexible Capital Improvement Plan. The hydraulic modeling approach evaluates whether large-impact projects to address hydraulic deficiencies are needed, while the CIP software platform maintains a dynamic asset management plan for pipes that are accessible and continuously updated to further define the pipeline CIP.

8.1 HYDRAULIC MODELING EVALUATION CRITERIA

Hydraulic modeling evaluation criteria were initially provided by the City. After reviewing the criteria with the City, it was agreed to adjust the fire flow criteria for the land uses that have high fire flow requirements (Commercial, Industrial, High-Density Residential, Office, and Schools). This adjustment is described in additional detail in **Section 9.1.3. Table 8-1** summarizes the criteria considered within the hydraulic modeling evaluation.

Table 8-1: Hydraulic Modeling Evaluation Criteria

Description	Value	Evaluation Scenario/Demand Condition
System Pressure		
Maximum Pressure	90 psi	MDD EPS (includes PHD)
Maximum Pressure for Hilly Terrain	125 psi	
Minimum Pressure, without fire flow	40 psi	
Minimum Pressure, with fire flow	20 psi	MDD SS
Pipeline Velocity		
Maximum Velocity for Transmission Pipelines (16-inch and greater)	5 fps	MDD EPS
Maximum Velocity for Distribution Pipelines (less than 16-inch)	8 fps	MDD EPS
Fire Flow Requirements		
Single family Residential	1,250 gpm @ 20 psi	MDD SS
Medium Density Residential	1,500 gpm @ 20 psi	MDD SS
High Density Residential	1,500 gpm @ 30 psi	MDD SS
Commercial	1,500 gpm @ 30 psi	MDD SS
Industrial	2,000 gpm @ 30 psi	MDD SS
Office	1,500 gpm @ 30 psi	MDD SS
Schools	2,000 gpm @ 30 psi	MDD SS
Open Space	1,000 gpm @ 20 psi	MDD SS

TABLE B105.1(1)
REQUIRED FIRE-FLOW FOR ONE- AND TWO-FAMILY DWELLINGS, GROUP R-3 AND R-4 BUILDINGS AND TOWNHOUSES

FIRE-FLOW CALCULATION AREA (square feet)	AUTOMATIC SPRINKLER SYSTEM (Design Standard)	MINIMUM FIRE-FLOW (gallons per minute)	FLOW DURATION (hours)
0-3,600	No automatic sprinkler system	1,000	1
3,601 and greater	No automatic sprinkler system	Value in Table B105.1(2)	Duration in Table B105.1(2) at the required fire-flow rate
0-3,600	Section 903.3.1.3 of the *California Fire Code* or Section *313.3* of the *California Residential Code*	500	$^1/_2$
3,601 and greater	Section 903.3.1.3 of the *California Fire Code* or Section *313.3* of the *California Residential Code*	$^1/_2$ value in Table B105.1(2)	1

For SI: 1 square foot = 0.0929 m^2, 1 gallon per minute = 3.785 L/m.

TABLE B105.1(2)
REFERENCE TABLE FOR TABLES B105.1(1) AND B105.2

FIRE-FLOW CALCULATION AREA (square feet)					FIRE-FLOW (gallons per minute)[b]	FLOW DURATION (hours)
Type IA and IB[a]	Type IIA and IIIA[a]	Type IV and V-A[a]	Type IIB and IIIB[a]	Type V-B[a]		
0-22,700	0-12,700	0-8,200	0-5,900	0-3,600	1,500	2
22,701-30,200	12,701-17,000	8,201-10,900	5,901-7,900	3,601-4,800	1,750	
30,201-38,700	17,001-21,800	10,901-12,900	7,901-9,800	4,801-6,200	2,000	
38,701-48,300	21,801-24,200	12,901-17,400	9,801-12,600	6,201-7,700	2,250	
48,301-59,000	24,201-33,200	17,401-21,300	12,601-15,400	7,701-9,400	2,500	
59,001-70,900	33,201-39,700	21,301-25,500	15,401-18,400	9,401-11,300	2,750	
70,901-83,700	39,701-47,100	25,501-30,100	18,401-21,800	11,301-13,400	3,000	3
83,701-97,700	47,101-54,900	30,101-35,200	21,801-25,900	13,401-15,600	3,250	
97,701-112,700	54,901-63,400	35,201-40,600	25,901-29,300	15,601-18,000	3,500	
112,701-128,700	63,401-72,400	40,601-46,400	29,301-33,500	18,001-20,600	3,750	
128,701-145,900	72,401-82,100	46,401-52,500	33,501-37,900	20,601-23,300	4,000	4
145,901-164,200	82,101-92,400	52,501-59,100	37,901-42,700	23,301-26,300	4,250	
164,201-183,400	92,401-103,100	59,101-66,000	42,701-47,700	26,301-29,300	4,500	
183,401-203,700	103,101-114,600	66,001-73,300	47,701-53,000	29,301-32,600	4,750	
203,701-225,200	114,601-126,700	73,301-81,100	53,001-58,600	32,601-36,000	5,000	
225,201-247,700	126,701-139,400	81,101-89,200	58,601-65,400	36,001-39,600	5,250	
247,701-271,200	139,401-152,600	89,201-97,700	65,401-70,600	39,601-43,400	5,500	
271,201-295,900	152,601-166,500	97,701-106,500	70,601-77,000	43,401-47,400	5,750	
295,901-Greater	166,501-Greater	106,501-115,800	77,001-83,700	47,401-51,500	6,000	
—	—	115,801-125,500	83,701-90,600	51,501-55,700	6,250	
—	—	125,501-135,500	90,601-97,900	55,701-60,200	6,500	
—	—	135,501-145,800	97,901-106,800	60,201-64,800	6,750	
—	—	145,801-156,700	106,801-113,200	64,801-69,600	7,000	
—	—	156,701-167,900	113,201-121,300	69,601-74,600	7,250	
—	—	167,901-179,400	121,301-129,600	74,601-79,800	7,500	
—	—	179,401-191,400	129,601-138,300	79,801-85,100	7,750	
—	—	191,401-Greater	138,301-Greater	85,101-Greater	8,000	

For SI: 1 square foot = 0.0929 m^2, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

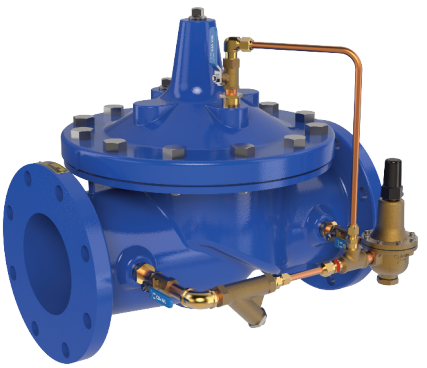
a. Types of construction are based on the *California Building Code*.

b. Measured at 20 psi residual pressure.

CLA-VAL®

MODEL 90-01

Pressure Reducing Valve



- **Sensitive and Accurate Pressure Control**
- **Easy Adjustment and Maintenance**
- **Optional Check Feature**
- **Fully Supported Frictionless Diaphragm**
- **Meets National Lead Reduction Mandate**

The Cla-Val Model 90-01 Pressure Reducing Valve automatically reduces a higher inlet pressure to a steady lower downstream pressure, regardless of changing flow rate and/or varying inlet pressure. This valve is an accurate, pilot-operated regulator capable of holding downstream pressure to a pre-determined limit. When downstream pressure exceeds the pressure setting of the control pilot, the main valve and pilot valve close drip-tight.

If a check feature is added, and a pressure reversal occurs, the downstream pressure is admitted into the main valve cover chamber, closing the valve to prevent return flow.

For space savings, see Cla-Val Model 90-48 or 90-99 with integral Low Flow Bypass Pressure Regulator.

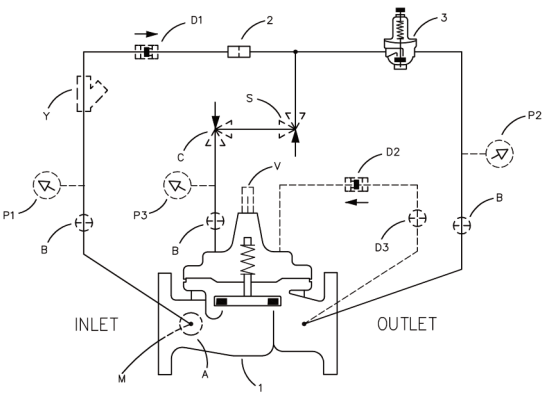
Schematic Diagram

Item	Description
1	100-01 Hytrol Main Valve
2	X58 Restriction Fitting
3	CRD Pressure Reducing Control

Optional Features

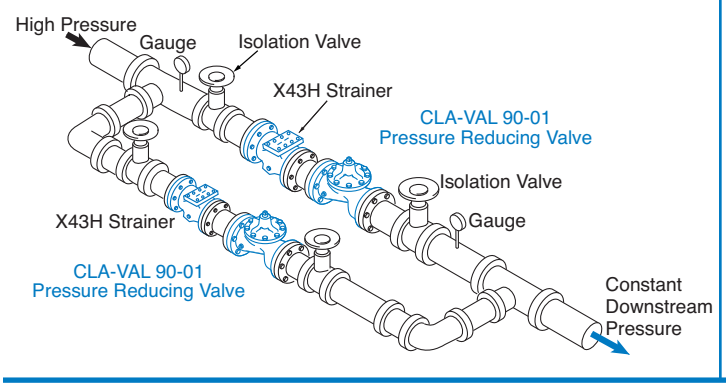
Item	Description
A	X46A Flow Clean Strainer
B	CK2 Isolation Valve
C	CV Flow Control (Closing)*
D	Check Valves with Isolation Valve
M	X144 e-FlowMeter
P	X141 Pressure Gauge
S	CV Flow Control (Opening)
V	X101 Valve Position Indicator
Y	X43 "Y" Strainer

*The closing speed control (optional) on this valve should always be open at least three (3) turns off its seat.

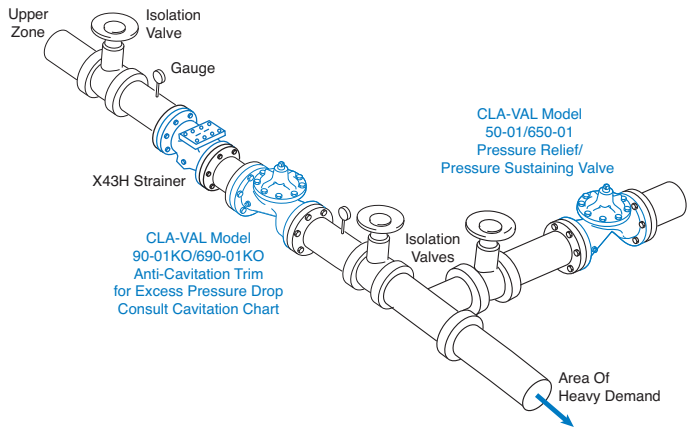


Typical Applications

Typical applications include pressure reducing valve station using Model 90-01 and Model 90-01 in parallel to handle wide range of flow rates. Larger Model 90-01 valve meets requirements of peak loads and smaller Model 90-01 handles low flows. A downstream pressure relief valve is also recommended for this type of application.



Cla-Val Model 90-01KO Pressure Reducing Valve with Anti-Cavitation Trim provides for optimum downstream pressure control while reducing noise and eliminating damage associated with cavitation. See Cavitation Guide to determine if the valve is a candidate for the KO Anti-Cavitation Trim. A downstream pressure relief valve is recommended for this type of application.



Model 90-01 (Uses 100-01 Hytrol Main Valve)

Pressure Ratings (Recommended Maximum Pressure - psi)

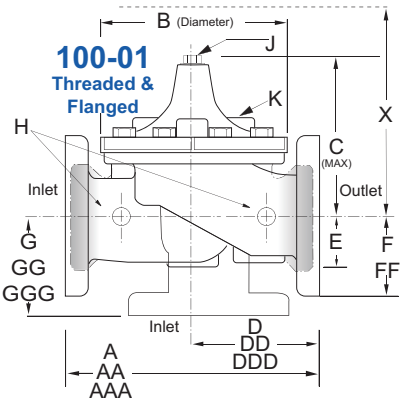
Valve Body & Cover		Pressure Class				
		Flanged			Grooved	Threaded
Grade	Material	ANSI Standards*	150 Class	300 Class	300 Class	End‡ Details
ASTM A536	Ductile Iron	B16.42	250	400	400	400
ASTM A216-WCB	Cast Steel	B16.5	285	400	400	400
UNS 87850	Bronze	B16.24	225	400	400	400

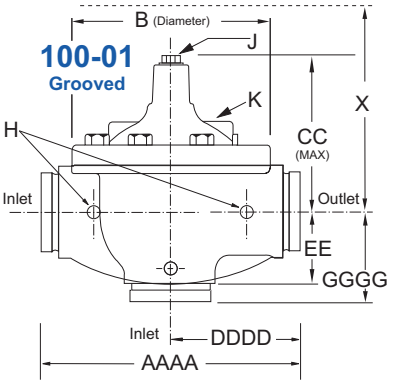
Note: * ANSI standards are for flange dimensions only.
Flanged valves are available faced but not drilled.
‡ End Details machined to ANSI B2.1 specifications.
Valves for higher pressure are available; consult factory for details

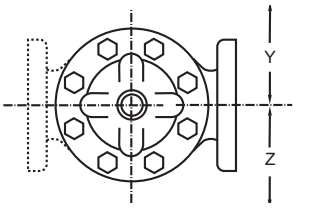
Materials

Component	Standard Material Combinations		
Body & Cover	Ductile Iron	Cast Steel	Bronze
Available Sizes	1" - 36" 25 - 900mm	1" - 16" 25 - 400mm	1" - 16" 25 - 400mm
Disc Retainer & Diaphragm Washer	Cast Iron	Cast Steel	Bronze
Trim: Disc Guide, Seat & Cover Bearing	Bronze is Standard Stainless Steel is Optional		
Disc	Buna-N® Rubber		
Diaphragm	Nylon Reinforced Buna-N® Rubber		
Stem, Nut & Spring	Stainless Steel		

For material options not listed, consult factory.
Cla-Val manufactures valves in more than 50 different alloys.







Model 90-01 Dimensions (In Inches)

Valve Size (Inches)	1	1¼	1½	2	2½	3	4	6	8	10	12	14	16	18	20	24	30	36
A Threaded	7.25	7.25	7.25	9.38	11.00	12.50	—	—	—	—	—	—	—	—	—	—	—	—
AA 150 ANSI	—	—	8.50	9.38	11.00	12.00	15.00	20.00	25.38	29.75	34.00	39.00	41.38	46.00	52.00	61.50	63.00	72.75
AAA 300 ANSI	—	—	9.00	10.00	11.62	13.25	15.62	21.00	26.38	31.12	35.50	40.50	43.50	47.64	53.62	63.24	64.50	74.75
AAAA Grooved End	—	—	8.50	9.00	11.00	12.50	15.00	20.00	25.38	—	—	—	—	—	—	—	—	—
B Diameter	5.62	5.62	5.62	6.62	8.00	9.12	11.50	15.75	20.00	23.62	28.00	32.75	35.50	41.50	45.00	53.16	56.00	66.00
C Maximum	5.50	5.50	5.50	6.50	7.56	8.19	10.62	13.38	16.00	17.12	20.88	24.19	25.00	39.06	41.90	43.93	54.60	59.00
CC Maximum Grooved End	—	—	4.75	5.75	6.88	7.25	9.31	12.12	14.62	—	—	—	—	—	—	—	—	—
D Threaded	3.25	3.25	3.25	4.75	5.50	6.25	—	—	—	—	—	—	—	—	—	—	—	—
DD 150 ANSI	—	—	4.00	4.75	5.50	6.00	7.50	10.00	12.69	14.88	17.00	19.50	20.81	—	—	30.75	—	—
DDD 300 ANSI	—	—	4.25	5.00	5.88	6.38	7.88	10.50	13.25	15.56	17.75	20.25	21.62	—	—	31.62	—	—
DDDD Grooved End	—	—	—	4.75	—	6.00	7.50	—	—	—	—	—	—	—	—	—	—	—
E	1.12	1.12	1.12	1.50	1.69	2.06	3.19	4.31	5.31	9.25	10.75	12.62	15.50	12.95	15.00	17.75	21.31	24.56
EE Grooved End	—	—	2.00	2.50	2.88	3.12	4.25	6.00	7.56	—	—	—	—	—	—	—	—	—
F 150 ANSI	—	—	2.50	3.00	3.50	3.75	4.50	5.50	6.75	8.00	9.50	10.50	11.75	15.00	16.50	19.25	22.50	28.50
FF 300 ANSI	—	—	3.06	3.25	3.75	4.13	5.00	6.25	7.50	8.75	10.25	11.50	12.75	15.00	16.50	19.25	24.00	30.00
G Threaded	1.88	1.88	1.88	3.25	4.00	4.50	—	—	—	—	—	—	—	—	—	—	—	—
GG 150 ANSI	—	—	4.00	3.25	4.00	4.00	5.00	6.00	8.00	8.62	13.75	14.88	15.69	—	—	22.06	—	—
GGG 300 ANSI	—	—	4.25	3.50	4.31	4.38	5.31	6.50	8.50	9.31	14.50	15.62	16.50	—	—	22.90	—	—
GGGG Grooved End	—	—	—	3.25	—	4.25	5.00	—	—	—	—	—	—	—	—	—	—	—
H NPT Body Tapping	0.375	0.375	0.375	0.375	0.50	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
J NPT Cover Center Plug	0.25	0.25	0.25	0.50	0.50	0.50	0.75	0.75	1.00	1.00	1.25	1.50	2.00	1.00	1.00	1.00	2.00	2.00
K NPT Cover Tapping	0.375	0.375	0.375	0.375	0.50	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Stem Travel	0.40	0.40	0.40	0.60	0.70	0.80	1.10	1.70	2.30	2.80	3.40	4.00	4.50	5.10	5.63	6.75	7.50	8.50
Approx. Ship Weight (lbs)	15	15	15	35	50	70	140	285	500	780	1165	1600	2265	2982	3900	6200	7703	11720
Approx. **X** Pilot System	11	11	11	13	14	15	17	29	31	33	36	40	40	43	47	68	79	85
Approx. **Y** Pilot System	9	9	9	9	10	11	12	20	22	24	26	29	30	32	34	39	40	45
Approx. **Z** Pilot System	9	9	9	9	10	11	12	20	22	24	26	29	30	32	34	39	42	47

90-01 Valve Selection	100-01 Pattern: Globe (G), Angle (A), End Connections: Threaded (T), Grooved (GR), Flanged (F) Indicate Available Sizes																		
	Inches	1	1¼	1½	2	2½	3	4	6	8	10	12	14	16	18	20	24	30	36
	mm	25	32	40	50	65	80	100	150	200	250	300	350	400	450	500	600	750	900
Main Valve 100-01	Pattern	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G, A	G	G	G, A	G	G
	End Detail	T	T	T, F, Gr*	T, F, Gr	T, F, Gr*	T, F, Gr	F, Gr	F, Gr*	F, Gr*	F	F	F	F	F	F	F	F	F
Suggested Flow (gpm)	Maximum	55	93	125	210	300	460	800	1800	3100	4900	7000	8400	11000	14000	17000	25000	42000	50000
	Maximum Intermittent	68	120	160	260	370	580	990	2250	3900	6150	8720	10540	13700	17500	21700	31300	48000	62500
	Minimum	1	1	1	1	2	2	4	10	15	35	50	70	95	120	150	275	450	650
Suggested Flow (Liters/Sec)	Maximum	3.5	6	8	13	19	29	50	113	195	309	442	530	694	883	1073	1577	2650	3150
	Maximum Intermittent	4.3	7.6	10	16	23	37	62	142	246	387	549	664	863	1104	1369	1972	3028	3940
	Minimum	.03	.03	.03	.06	.09	0.13	0.25	0.63	0.95	2.2	3.2	4.4	6.0	7.6	9.5	17.4	28.4	41.0

100-01 Series is the full internal port Hytrol. **For Lower Flows Consult Factory** *Globe Grooved Only

Notes:
- For sizes 18 through 36-inches / 450 mm though 900 mm, consult Factory
- Many factors should be considered in sizing pressure reducing valves including inlet pressure, outlet pressure and flow rates.
- For sizing questions or cavitation analysis, consult Cla-Val with system details.

Pilot System Specifications



Adjustment Ranges

2 to 30 psi
15 to 75 psi
20 to 105 psi
30 to 300 psi*
150 to 600 psi (CRD-18)

*Supplied unless otherwise specified

Temperature Range
Water: to 180°F

Materials

Standard Pilot System Materials
Pilot Control: Low Lead Bronze
Trim: Stainless Steel Type 303
Rubber: Buna-N® Synthetic Rubber

Optional Pilot System Materials
Pilot Systems are available with optional Stainless Steel or Monel materials.

Note: Available with remote sensing control.

When Ordering, Specify:

1. Catalog No. 90-01
2. Valve Size
3. Pattern - Globe or Angle
4. Pressure Class
5. Threaded, Flanged or Grooved
6. Trim Material
7. Adjustment Range
8. Desired Options
9. When Vertically Installed

Main Valve Options

EPDM Rubber Parts
Optional diaphragm, disc and o-ring fabricated with EPDM synthetic rubber

Viton® Rubber Parts - suffix KB
Optional diaphragm, disc and o-ring fabricated with Viton® synthetic rubber

Epoxy Coating - suffix KC
NSF/ANSI 61 Fusion Bonded Epoxy

Dura-Kleen® Stem - suffix KD
Fluted design prevents dissolved minerals build-up on the stem

LFS Trim
Designed to regulate precisely and smoothly at typical flow rates as well as lower than the industry standard of 1 fps, without decreasing the valve's capacity

Valve Options

X141 Pressure Gauge





X101AR Valve Position Indicator with Air Release



X101 Valve Position Indicator

X144 e-FlowMeter





X43H Strainer



Stainless Steel Pilot

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