

Master Utility Design for
POTABLE WATER & FIRE FLOW ANALYSIS
Hillside Groves

FOR

Lennar Homes LLC

Date: April 2022

BY



1560 North Orange Ave.
Suite 210

Winter Park, FL 32789

CWI Job # : 18-04-0004

Certificate of Authorization No. 3650

Ryan R
Blaida

Digitally signed by Ryan R Blaida
DN: c=US, o=CONNELLY AND
WICKER INC.,
ou=A01410D00000177017283E20
0013904, cn=Ryan R Blaida
Date: 2022.04.01 09:53:11 -04'00'



Ryan Blaida, P.E.
FL PE # 61017

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ADF	
MDF + FF	
PHF	



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Planning • Engineering • Landscape Architecture

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Tab 1: Introduction



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A. Introduction

1. Project Overview

Hillside Groves is a 375.2-acre single-family residential home project located north of State Road 19 and southwest of W. Central Ave. and S. Florida Ave. in Howey in the Hills, Lake County, Florida. It is situated in Section 35, Township 20S, Range 25E. Please see Location Map and Figure 2 Aerial Map, both under Tab 2 of this report.

Hillside Groves is a large PUD with supporting roads and infrastructure. The purpose of this report is to demonstrate the potable water system is designed to meet the potable water demand for the proposed development.

2. Utility Provider

The City of Howey in the Hills is the potable water provider for this project. This analysis takes into consideration City of Howey in the Hills design criteria. Where specific criteria are not set by the City, standards from nearby utility providers will be utilized.

B. Design Criteria

1. Potable Water Demand

The Average Daily Flow (ADF) is calculated based on number of single-family homes in the project and based on flow per unit. A peaking factor of 2 is used for Maximum Daily Flow (MDF), and a peaking factor of 4 is used for Peak Hourly Flow (PHF). Please refer to Table 1 for Potable Water Demand Calculations in Tab 3.

2. Fire Hydrant Demand

1000 gpm was used for fire hydrant demand in this analysis.

3. Tie-in Conditions

Potable water tie-in pressure were obtained via a hydrant flow test near the project provided by JJ Southall from the town. Please see Hydrant Flow Test in Tab 3.

C. Methodology

1. Software

The analysis for the potable water system and reclaimed water system were performed using Bentley WaterCAD V8i SELECT series 3 (WaterCAD). This software analyzes flows and pressure distribution in a pressurized system given known parameters such as demands, pipe length, pipe size and other relevant distribution system properties.

2. Potable Water System Model

The proposed potable water network was set up in WaterCAD with pipes, junctions and hydrants. There are two (2) connections to the existing Water system. One is on the Number 2 Road R/W and the other is in the State Road 19 R/W.

The connections are modeled as reservoirs with total head based on the pressure test and existing elevation.

Potable water demand was assigned at the junctions shown in Tab 4: WaterCad Reports for Potable Water System.

The fire hydrant demands are assigned to the following hydrants in WaterCAD, they are:

H-9, H-11, H-13, H-16, H-19, H-21, H-22, H-23, H-24, H-25, H-26, H-27

Minor losses have been added to the pipe network. Hazen-William's coefficient, 'C' of 120 is used for PVC pipe.

3. Potable Water System Scenarios

I. Maximum Daily Flow with Fire Flow

In this scenario, the MDF demand was analyzed in conjunction with fire flow, assuming one fire hydrant is in use at any given moment. The system is designed to maintain a minimum pressure of 20 psi in this scenario.

II. Peak Hourly Flow

In this scenario, the PHF demand was analyzed. The system is designed to maintain a minimum pressure of 30 psi in this scenario.

D. Conclusion

The results of the WaterCAD analysis indicate that the potable water system as designed is capable of providing the minimum pressure of 20 psi during a MDF plus Fire Flow event.

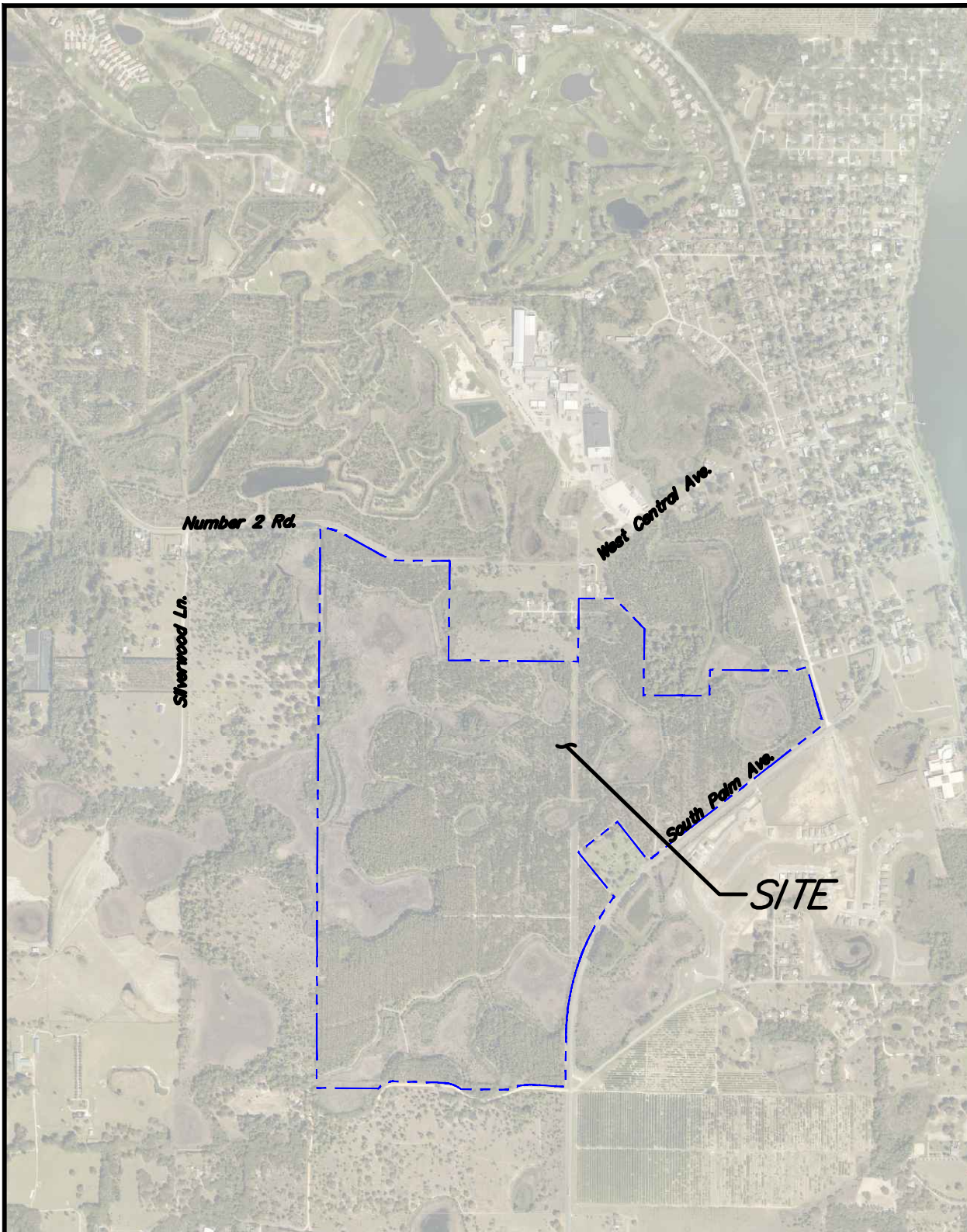
Please see Tab 4 WaterCAD Reports for Potable Water System

Tab 2: Figures



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SOURCE: LABINS



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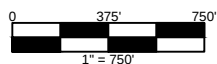
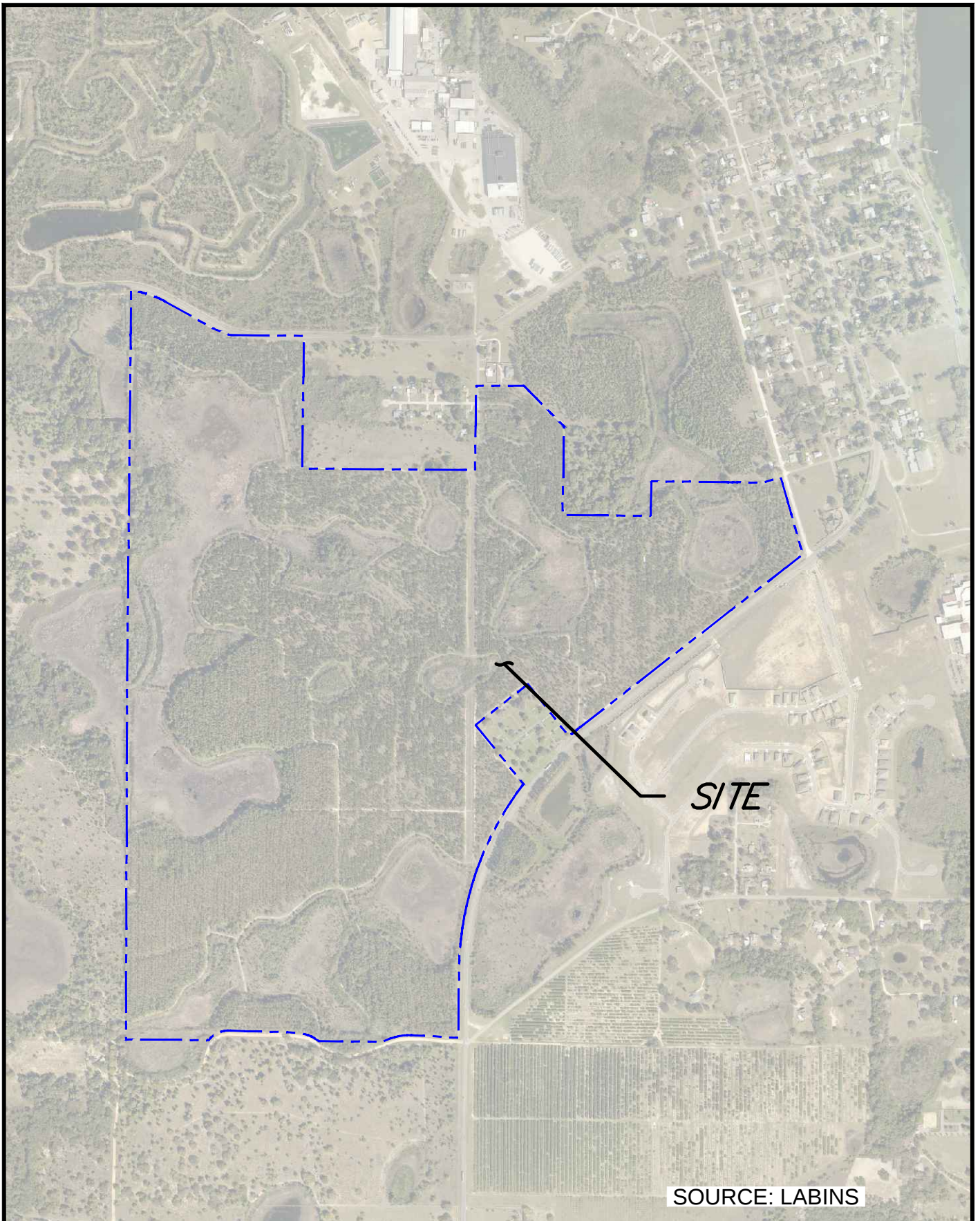


FIGURE 1 SITE LOCATION MAP

21-04-0008

March 2022



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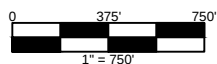


FIGURE 2
AREIAL MAP

21-04-0008

March 2022

Tab 3: Design Tables



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Project: Preserve at Howey
Table: 1: Flow Calculations
Engineer(s): HC

Date: 3/2/2022
Job No.: 21-04-0008

Revised: 3/25/2022

Water Demand Flows

Use	Units	Flow per Unit (gpd)	Total Flow (gpd)
Single Family	709	300	212700
Villa	0	300	0
Total			212700
		ADF=	148
		MDF=	332
		PHF=	591

gpd
gpm
gpm
gpm

Water Demand Per Junction - Zone 1

Junction	Units per Junction	Flow per Unit (gpd)	ADF per Junction (gpm)	MDF per Junction (gpm)	PHF per Junction (gpm)
J-59	0	300	0.0	0.0	0.0
J-66	81	300	16.9	33.8	67.5

Water Demand Per Junction - Zone 2

Junction	Units per Junction	Flow per Unit (gpd)	ADF per Junction (gpm)	MDF per Junction (gpm)	PHF per Junction (gpm)
J-34	0	300	0.0	0.0	0.0
J-69	64	300	13.3	26.7	53.3

Water Demand Per Junction - Zone 3

Junction	Units per Junction	Flow per Unit (gpd)	ADF per Junction (gpm)	MDF per Junction (gpm)	PHF per Junction (gpm)
J-38	4	300	0.8	1.7	3.3
J-45	1	300	0.2	0.4	0.8
J-73	6	300	1.3	2.5	5.0
J-74	8	300	1.7	3.3	6.7
J-75	0	300	0.0	0.0	0.0
J-76	8	300	1.7	3.3	6.7
J-80	10	300	2.1	4.2	8.3
J-81	8	300	1.7	3.3	6.7

Water Demand Per Junction - Zone 4

Junction	Units per Junction	Flow per Unit (gpd)	ADF per Junction (gpm)	MDF per Junction (gpm)	PHF per Junction (gpm)
J-105	10	300	2.1	4.2	8.3
J-109	23	300	4.8	9.6	19.2
J-110	22	300	4.6	9.2	18.3
J-116	0	300	0.0	0.0	0.0
J-117	6	300	1.3	2.5	5.0
J-118	6	300	1.3	2.5	5.0
J-119	6	300	1.3	2.5	5.0
J-115	5	300	1.0	2.1	4.2
J-121	6	300	1.3	2.5	5.0
J-185	0	300	0.0	0.0	0.0
J-187	0	300	0.0	0.0	0.0

Water Demand Per Junction - Zone 5

Junction	Units per Junction	Flow per Unit (gpd)	ADF per Junction (gpm)	MDF per Junction (gpm)	PHF per Junction (gpm)
J-95	0	300	0.0	0.0	0.0
J-103	5	300	1.0	2.1	4.2
J-104	6	300	1.3	2.5	5.0
J-98	6	300	1.3	2.5	5.0
J-99	3	300	0.6	1.3	2.5
J-132	15	300	3.1	6.3	12.5
J-93	3	300	0.6	1.3	2.5
J-92	5	300	1.0	2.1	4.2
J-96	5	300	1.0	2.1	4.2
J-97	6	300	1.3	2.5	5.0
J-124	6	300	1.3	2.5	5.0
J-137	0	300	0.0	0.0	0.0
J-138	0	300	0.0	0.0	0.0

Water Demand Per Junction - Zone 6

Junction	Units per Junction	Flow per Unit (gpd)	ADF per Junction (gpm)	MDF per Junction (gpm)	PHF per Junction (gpm)
J-125	7	300	1.5	2.9	5.8
J-129	8	300	1.7	3.3	6.7
J-126	8	300	1.7	3.3	6.7
J-130	6	300	1.3	2.5	5.0
J-127	8	300	1.7	3.3	6.7
J-131	8	300	1.7	3.3	6.7
J-143	0	300	0.0	0.0	0.0

Water Demand Per Junction - Zone 7

Junction	Units per Junction	Flow per Unit (gpd)	ADF per Junction (gpm)	MDF per Junction (gpm)	PHF per Junction (gpm)
J-33	0	300	0.0	0.0	0.0
J-146	18	300	3.8	7.5	15.0
J-141	0	300	0.0	0.0	0.0

Water Demand Per Junction - Zone 8

Junction	Units per Junction	Flow per Unit (gpd)	ADF per Junction (gpm)	MDF per Junction (gpm)	PHF per Junction (gpm)
J-142	0	300	0.0	0.0	0.0
J-30	22	300	4.6	9.2	18.3
J-52	7	300	1.5	2.9	5.8
J-148	22	300	4.6	9.2	18.3
J-139	16	300	3.3	6.7	13.3
J-159	0	300	0.0	0.0	0.0
J-160	10	300	2.1	4.2	8.3

Water Demand Per Junction - Zone 9

Junction	Units per Junction	Flow per Unit (gpd)	ADF per Junction (gpm)	MDF per Junction (gpm)	PHF per Junction (gpm)
J-158	12	300	2.5	5.0	10.0
J-57	10	300	2.1	4.2	8.3
J-154	8	300	1.7	3.3	6.7
J-27	0	300	0.0	0.0	0.0
J-152	4	300	0.8	1.7	3.3
J-161	11	300	2.3	4.6	9.2
J-162	4	300	0.8	1.7	3.3

Water Demand Per Junction - Zone 10

Junction	Units per Junction	Flow per Unit (gpd)	ADF per Junction (gpm)	MDF per Junction (gpm)	PHF per Junction (gpm)
J-10	0	300	0.0	0.0	0.0
J-186	52	300	10.8	21.7	43.3
J-189	0	300	0.0	0.0	0.0

Water Demand Per Junction - Zone 11

Junction	Units per Junction	Flow per Unit (gpd)	ADF per Junction (gpm)	MDF per Junction (gpm)	PHF per Junction (gpm)
J-26	4	300	0.8	1.7	3.3
J-25	4	300	0.8	1.7	3.3
J-23	10	300	2.1	4.2	8.3
J-163	3	300	0.6	1.3	2.5
J-20	15	300	3.1	6.3	12.5
J-164	8	300	1.7	3.3	6.7
J-171	8	300	1.7	3.3	6.7

Water Demand Per Junction - Zone 12

Junction	Units per Junction	Flow per Unit (gpd)	ADF per Junction (gpm)	MDF per Junction (gpm)	PHF per Junction (gpm)
J-18	17	300	3.5	7.1	14.2
J-6	6	300	1.3	2.5	5.0
J-15	4	300	0.8	1.7	3.3
J-16	8	300	1.7	3.3	6.7
J-13	17	300	3.5	7.1	14.2
J-11	0	300	0.0	0.0	0.0
J-9	18	300	3.8	7.5	15.0
J-7	3	300	0.6	1.3	2.5
J-22	6	300	1.3	2.5	5.0

Note:

1) Peak Factor of 4 used for PHF, PF of 2.00 used for MDF.

2) Total Units = 706

Total Junctions = 108

Ryan Blaida

From: James Southall <jsouthall@howey.org>
Sent: Friday, February 18, 2022 7:54 AM
To: Ryan Blaida
Subject: Re: The Reserve at Howey

[EXTERNAL EMAIL]

Good Morning Ryan,

Water pressure on South Florida which head to Venezia on a 12-inch main at the hydrant

Static pressure 60psi
Residual pressure 55 psi
Gallons per Minute 1000

On number 2 road across from the Juice plant
Static 60
Residual 20
Gallons per minute 700

I will have the FM pressure as soon as my field techs can get them. Sorry for the delay

JJ Southall
Utility Supervisor
Howey in the Hills

From: Ryan Blaida <rblaida@cweng.com>
Sent: Tuesday, February 15, 2022 8:32 AM
To: James Southall <jsouthall@howey.org>; Morgan Cates <mcates@howey.org>; Don Griffey <dag@griffeyengineering.com>
Subject: The Reserve at Howey

Per our conversation last week at the DRC please send over:

1. Water tie in pressures at our tie in points. 12" near plant and 12" at Venezia Blvd
2. FM tie in pressure at 10" FM on Number 2 Road and FM on 19 coming from Venezia
3. Don you mentioned some master system CAD files you might be able to send over

Thanks!!

Ryan Blaida, P.E.
Senior Project Manager

Connelly & Wicker, Inc.

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Tab 4: WaterCAD Reports for Potable Water System



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Hillside Groves
CWI Job #: 21-04-0008

ADF

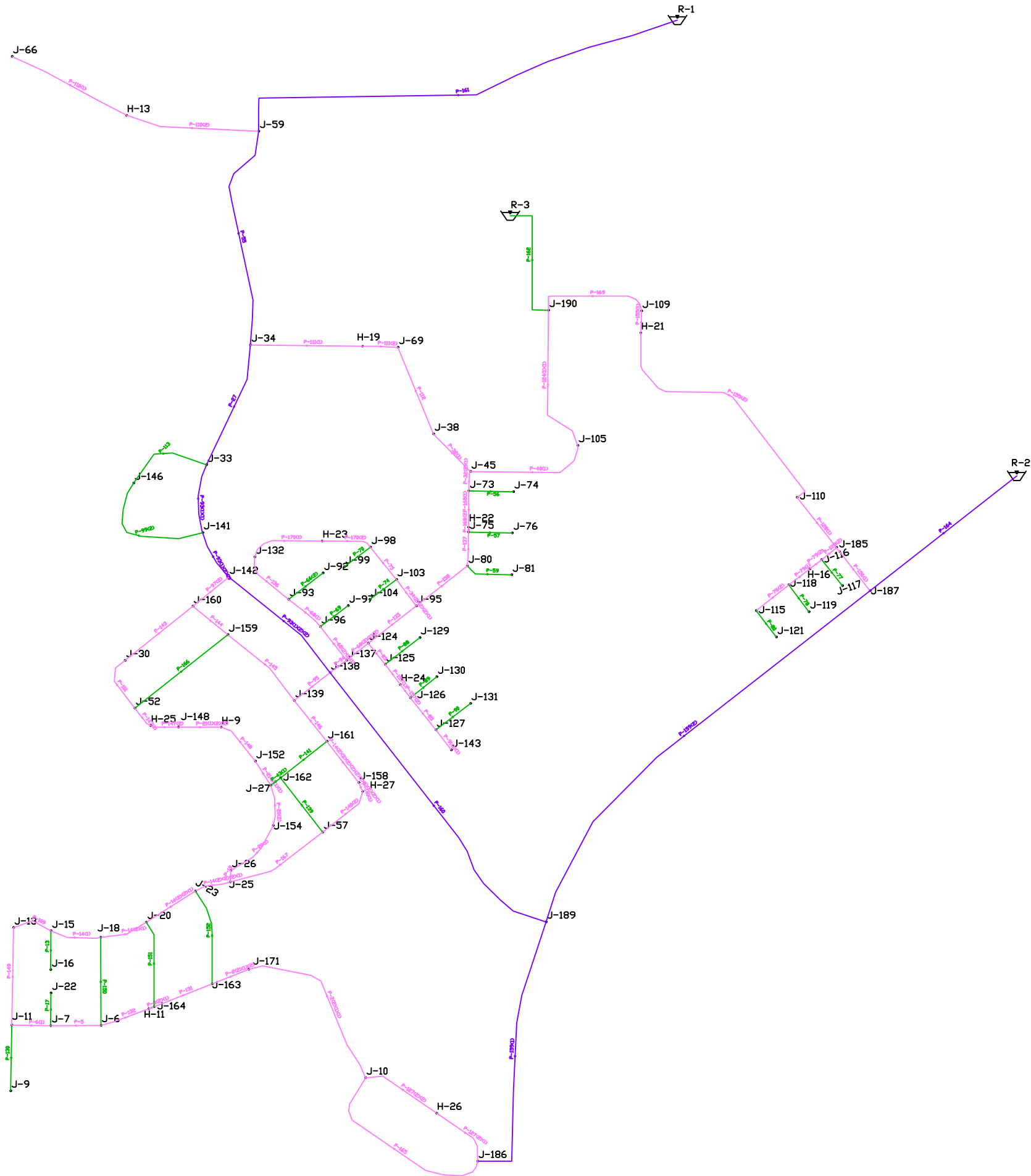


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LEGEND

6"
8"
12"

J-129 JUNCTION

RESERVOIR

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	21-04-0008	

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FlexTable: Junction Table

ID	Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
38	J-6	85.00	1	169.19	36
40	J-7	88.00	1	169.14	35
44	J-9	92.00	4	169.10	33
46	J-10	84.00	0	174.39	39
50	J-11	92.00	0	169.10	33
55	J-13	86.00	4	169.02	36
59	J-15	85.00	1	168.99	36
61	J-16	87.00	2	168.99	35
65	J-18	85.00	4	168.95	36
70	J-20	88.00	3	168.83	35
75	J-22	89.00	1	169.14	35
77	J-23	91.00	2	168.43	34
82	J-25	93.00	1	167.77	32
85	J-26	91.00	1	167.71	33
87	J-27	93.00	0	167.14	32
93	J-30	87.00	5	166.04	34
99	J-33	84.00	0	161.81	34
101	J-34	86.00	0	158.34	31
109	J-38	86.00	1	162.28	33
124	J-45	87.00	0	163.18	33
140	J-52	88.00	2	166.25	34
152	J-57	96.00	2	167.28	31
159	J-59	87.00	0	148.98	27
173	J-66	88.00	17	148.97	26
197	J-69	87.00	13	160.70	32
210	J-73	87.00	1	163.48	33
213	J-74	90.00	2	163.48	32
215	J-75	87.00	0	164.13	33
218	J-76	87.00	2	164.13	33
226	J-80	88.00	2	164.66	33
229	J-81	88.00	2	164.66	33
255	J-92	85.00	1	166.24	35
257	J-93	87.00	1	166.24	34
262	J-95	85.00	0	165.71	35
266	J-96	85.00	1	166.33	35
269	J-97	85.00	1	166.33	35
271	J-98	84.00	1	165.86	35
274	J-99	85.00	1	165.86	35
282	J-103	85.00	1	165.77	35
285	J-104	85.00	1	165.77	35
288	J-105	85.00	2	163.19	34
300	J-109	84.00	5	170.68	38
303	J-110	85.00	5	189.64	45
318	J-115	85.00	1	193.87	47
320	J-116	86.00	0	193.87	47
323	J-117	86.00	1	193.87	47
325	J-118	86.00	1	193.87	47
328	J-119	85.00	1	193.87	47
332	J-121	85.00	1	193.87	47

FlexTable: Junction Table

ID	Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
348	J-124	85.00	1	166.19	35
351	J-125	86.00	2	166.19	35
353	J-126	88.00	2	166.19	34
355	J-127	92.00	2	166.19	32
360	J-129	85.00	2	166.19	35
362	J-130	86.00	1	166.19	35
364	J-131	88.00	2	166.19	34
367	J-132	85.00	3	166.12	35
386	J-137	85.00	0	166.43	35
389	J-138	85.00	0	166.80	35
393	J-139	89.00	3	166.79	34
400	J-141	84.00	0	163.41	34
404	J-142	86.00	0	164.82	34
408	J-143	92.00	0	166.19	32
424	J-146	84.00	4	162.44	34
436	J-148	86.00	5	166.51	35
452	J-152	89.00	1	166.99	34
458	J-154	94.00	2	167.36	32
468	J-158	95.00	3	167.13	31
471	J-159	88.00	0	166.15	34
475	J-160	86.74	2	165.76	34
479	J-161	94.00	2	167.01	32
483	J-162	93.63	1	167.14	32
487	J-163	87.00	1	169.86	36
491	J-164	87.00	2	169.36	36
517	J-171	86.00	2	170.66	37
608	J-185	85.77	0	193.87	47
614	J-186	86.67	11	175.36	38
617	J-187	85.00	0	197.56	49
624	J-189	85.00	0	176.19	39
630	J-190	84.43	0	163.20	34

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Has Check Valve?	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Has User Defined Length?	Length (User Defined) (ft)
41	P-5	241	J-6	J-7	8.0	PVC	120.0	False	0.000	81	0.52	0.000	False	0
51	P-6(1)	190	J-7	J-11	8.0	PVC	120.0	False	0.000	80	0.51	0.000	False	0
62	P-13	187	J-15	J-16	6.0	PVC	120.0	False	0.000	2	0.02	0.000	False	0
66	P-14(1)	245	J-15	J-18	8.0	PVC	120.0	False	0.000	70	0.45	0.000	False	0
71	P-14(2)(1)	237	J-18	J-20	8.0	PVC	120.0	False	0.000	133	0.85	0.001	False	0
76	P-17	157	J-7	J-22	6.0	PVC	120.0	False	0.000	1	0.01	0.000	False	0
78	P-14(2)(2)(1)	280	J-20	J-23	8.0	PVC	120.0	False	0.000	232	1.48	0.001	False	0
83	P-14(2)(2)(2)(1)	174	J-23	J-25	8.0	PVC	120.0	False	0.000	395	2.52	0.004	False	0
86	P-19	55	J-25	J-26	8.0	PVC	120.0	False	0.000	207	1.32	0.001	False	0
102	P-27	621	J-33	J-34	12.0	PVC	120.0	False	0.000	1,415	4.01	0.006	False	0
125	P-32(1)	254	J-38	J-45	8.0	PVC	120.0	False	0.000	-381	2.43	0.004	False	0
206	P-55	1,092	J-59	J-34	12.0	PVC	120.0	False	0.000	-1,782	5.05	0.009	False	0
211	P-32(2)(1)	94	J-45	J-73	8.0	PVC	120.0	False	0.000	-361	2.31	0.003	False	0
214	P-56	215	J-73	J-74	6.0	PVC	120.0	False	0.000	2	0.02	0.000	False	0
219	P-57	210	J-75	J-76	6.0	PVC	120.0	False	0.000	2	0.02	0.000	False	0
230	P-59	228	J-80	J-81	6.0	PVC	120.0	False	0.000	2	0.02	0.000	False	0
259	P-66(2)	209	J-93	J-92	6.0	PVC	120.0	False	0.000	1	0.01	0.000	False	0
267	P-68(1)	202	J-93	J-96	8.0	PVC	120.0	False	0.000	-126	0.81	0.000	False	0
270	P-69	167	J-96	J-97	6.0	PVC	120.0	False	0.000	1	0.01	0.000	False	0
275	P-70	157	J-98	J-99	6.0	PVC	120.0	False	0.000	1	0.01	0.000	False	0
283	P-34(2)(2)(2)(1)	159	J-95	J-103	8.0	PVC	120.0	False	0.000	-117	0.75	0.000	False	0
286	P-74	159	J-103	J-104	6.0	PVC	120.0	False	0.000	1	0.01	0.000	False	0
287	P-75	199	J-103	J-98	8.0	PVC	120.0	False	0.000	-120	0.76	0.000	False	0
289	P-40(1)	595	J-45	J-105	8.0	PVC	120.0	False	0.000	-20	0.13	0.000	False	0
324	P-77	160	J-116	J-117	6.0	PVC	120.0	False	0.000	1	0.01	0.000	False	0
327	P-76(2)	200	J-118	J-115	8.0	PVC	120.0	False	0.000	2	0.01	0.000	False	0
329	P-78	161	J-118	J-119	6.0	PVC	120.0	False	0.000	1	0.01	0.000	False	0
333	P-80	161	J-115	J-121	6.0	PVC	120.0	False	0.000	1	0.01	0.000	False	0
352	P-83	131	J-124	J-125	8.0	PVC	120.0	False	0.000	10	0.06	0.000	False	0
356	P-85	197	J-126	J-127	8.0	PVC	120.0	False	0.000	3	0.02	0.000	False	0
361	P-88	210	J-125	J-129	6.0	PVC	120.0	False	0.000	2	0.02	0.000	False	0
363	P-89	162	J-126	J-130	6.0	PVC	120.0	False	0.000	1	0.01	0.000	False	0
365	P-90	210	J-127	J-131	6.0	PVC	120.0	False	0.000	2	0.02	0.000	False	0
387	P-68(2)(1)(1)	206	J-96	J-137	8.0	PVC	120.0	False	0.000	-129	0.82	0.000	False	0
388	P-68(2)(1)(2)	132	J-137	J-124	8.0	PVC	120.0	False	0.000	263	1.68	0.002	False	0
392	P-94	100	J-137	J-138	8.0	PVC	120.0	False	0.000	-392	2.50	0.004	False	0
396	P-95	218	J-139	J-138	8.0	PVC	120.0	False	0.000	-52	0.33	0.000	False	0
401	P-93(1)(1)	334	J-33	J-141	12.0	PVC	120.0	False	0.000	-1,304	3.70	0.005	False	0
405	P-93(1)(2)(1)	251	J-141	J-142	12.0	PVC	120.0	False	0.000	-1,418	4.02	0.006	False	0
406	P-93(1)(2)(2)	675	J-142	J-138	12.0	PVC	120.0	False	0.000	-1,000	2.84	0.003	False	0
409	P-91(1)(1)	122	J-127	J-143	8.0	PVC	120.0	False	0.000	0	0.00	0.000	False	0
426	P-99(2)	625	J-146	J-141	6.0	PVC	120.0	False	0.000	-114	1.30	0.002	False	0
432	P-101	285	J-30	J-52	8.0	PVC	120.0	False	0.000	-161	1.03	0.001	False	0
450	P-21(1)(2)(2)	206	H-9	J-148	8.0	PVC	120.0	False	0.000	201	1.28	0.001	False	0
453	P-21(1)(1)(1)	137	J-27	J-152	8.0	PVC	120.0	False	0.000	202	1.29	0.001	False	0
459	P-20(1)	306	J-26	J-154	8.0	PVC	120.0	False	0.000	206	1.32	0.001	False	0
460	P-20(2)	197	J-154	J-27	8.0	PVC	120.0	False	0.000	204	1.30	0.001	False	0
477	P-97(2)	222	J-160	J-142	8.0	PVC	120.0	False	0.000	419	2.67	0.004	False	0

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Has Check Valve?	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Has User Defined Length?	Length (User Defined) (ft)
480	P-14(2)(2)(2)(2) (2)(1)(1)(2)(2) (1)	250	J-158	J-161	8.0	PVC	120.0	False	0.000	126	0.80	0.000	False	0
484	P-43(1)	60	J-27	J-162	6.0	PVC	120.0	False	0.000	2	0.03	0.000	False	0
518	P-2(2)(1)(1)	875	J-10	J-171	8.0	PVC	120.0	False	0.000	421	2.69	0.004	False	0
519	P-2(2)(1)(2)	189	J-171	J-163	8.0	PVC	120.0	False	0.000	419	2.67	0.004	False	0
523	P-109	199	J-15	J-13	8.0	PVC	120.0	False	0.000	-72	0.46	0.000	False	0
531	P-3(2)(1)	27	J-164	H-11	8.0	PVC	120.0	False	0.000	149	0.95	0.001	False	0
535	P-111	713	J-34	J-69	8.0	PVC	120.0	False	0.000	-367	2.34	0.003	False	0
536	P-112	446	J-69	J-38	8.0	PVC	120.0	False	0.000	-381	2.43	0.004	False	0
537	P-113	433	J-146	J-33	6.0	PVC	120.0	False	0.000	111	1.26	0.001	False	0
562	P-130	316	J-11	J-9	6.0	PVC	120.0	False	0.000	4	0.04	0.000	False	0
563	P-131	301	J-164	J-163	8.0	PVC	120.0	False	0.000	-253	1.62	0.002	False	0
564	P-132	243	J-6	H-11	8.0	PVC	120.0	False	0.000	-149	0.95	0.001	False	0
567	P-135	292	J-124	J-95	8.0	PVC	120.0	False	0.000	252	1.61	0.002	False	0
568	P-136	277	J-132	J-93	8.0	PVC	120.0	False	0.000	-125	0.80	0.000	False	0
569	P-137	163	J-75	J-80	8.0	PVC	120.0	False	0.000	-366	2.34	0.003	False	0
571	P-139	331	J-162	J-57	6.0	PVC	120.0	False	0.000	-57	0.65	0.000	False	0
572	P-140	329	J-158	J-57	8.0	PVC	120.0	False	0.000	-128	0.82	0.000	False	0
573	P-141	283	J-162	J-161	6.0	PVC	120.0	False	0.000	59	0.67	0.000	False	0
575	P-143	417	J-30	J-160	8.0	PVC	120.0	False	0.000	156	1.00	0.001	False	0
576	P-144	217	J-160	J-159	8.0	PVC	120.0	False	0.000	-265	1.69	0.002	False	0
577	P-145	453	J-159	J-139	8.0	PVC	120.0	False	0.000	-230	1.47	0.001	False	0
578	P-146	252	J-139	J-161	8.0	PVC	120.0	False	0.000	-182	1.16	0.001	False	0
579	P-147	249	J-52	J-148	8.0	PVC	120.0	False	0.000	-197	1.25	0.001	False	0
580	P-148	238	J-152	H-9	8.0	PVC	120.0	False	0.000	201	1.28	0.001	False	0
581	P-149	469	J-13	J-11	8.0	PVC	120.0	False	0.000	-76	0.48	0.000	False	0
582	P-150	423	J-18	J-6	6.0	PVC	120.0	False	0.000	-66	0.75	0.001	False	0
587	P-110(1)	620	J-66	H-13	8.0	PVC	120.0	False	0.000	-17	0.11	0.000	False	0
588	P-110(2)	645	H-13	J-59	8.0	PVC	120.0	False	0.000	-17	0.11	0.000	False	0
592	P-151	417	J-20	J-164	6.0	PVC	120.0	False	0.000	-102	1.16	0.001	False	0
593	P-152	466	J-23	J-163	6.0	PVC	120.0	False	0.000	-165	1.87	0.003	False	0
597	P-155	1,387	J-109	J-110	8.0	PVC	120.0	False	0.000	-789	5.04	0.014	False	0
602	P-79(1)	128	J-118	H-16	8.0	PVC	120.0	False	0.000	-5	0.03	0.000	False	0
603	P-79(2)	71	H-16	J-116	8.0	PVC	120.0	False	0.000	-5	0.03	0.000	False	0
609	P-128(1)	307	J-110	J-185	8.0	PVC	120.0	False	0.000	-794	5.07	0.014	False	0
610	P-128(2)	93	J-185	J-116	8.0	PVC	120.0	False	0.000	6	0.04	0.000	False	0
612	P-157	201	J-125	J-126	8.0	PVC	120.0	False	0.000	6	0.04	0.000	False	0
613	P-158	312	J-80	J-95	8.0	PVC	120.0	False	0.000	-370	2.36	0.003	False	0
616	P-127(2)	727	J-186	J-10	8.0	PVC	120.0	False	0.000	225	1.44	0.001	False	0
618	P-156(1)	263	J-185	J-187	8.0	PVC	120.0	False	0.000	-800	5.11	0.014	False	0
625	P-159(1)	1,337	J-186	J-189	12.0	PVC	120.0	False	0.000	-431	1.22	0.001	False	0
626	P-159(2)	2,270	J-189	J-187	12.0	PVC	120.0	False	0.000	-1,875	5.32	0.009	False	0
627	P-160	1,619	J-138	J-189	12.0	PVC	120.0	False	0.000	-1,443	4.09	0.006	False	0
629	P-161	2,239	J-59	R-1	12.0	PVC	120.0	False	0.000	1,765	5.01	0.008	False	0
631	P-124(1)(1)	720	J-105	J-190	8.0	PVC	120.0	False	0.000	-22	0.14	0.000	False	0
634	P-162	636	J-190	R-3	6.0	PVC	120.0	False	0.000	762	8.64	0.052	False	0
638	P-164	897	J-187	R-2	12.0	PVC	120.0	False	0.000	-2,675	7.59	0.018	False	0
639	P-165	946	J-10	J-186	8.0	PVC	120.0	False	0.000	-195	1.25	0.001	False	0

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Has Check Valve?	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Has User Defined Length?	Length (User Defined) (ft)
640	P-166	569	J-52	J-159	6.0	PVC	120.0	False	0.000	34	0.39	0.000	False	0
641	P-167	515	J-25	J-57	8.0	PVC	120.0	False	0.000	187	1.20	0.001	False	0
642	P-168	198	J-73	J-75	8.0	PVC	120.0	False	0.000	-364	2.32	0.003	False	0
643	P-169	554	J-190	J-109	8.0	PVC	120.0	False	0.000	-784	5.01	0.014	False	0
644	P-170	607	J-132	J-98	8.0	PVC	120.0	False	0.000	122	0.78	0.000	False	0

FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
628	R-1	130.13	<None>	-1,765	130.13
633	R-3	130.13	<None>	-762	130.13
637	R-2	213.87	<None>	2,675	213.87

Hillside Groves
CWI Job #: 21-04-0008

MDF + FF



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FlexTable: Junction Table

ID	Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
38	J-6	85.00	3	167.06	36
40	J-7	88.00	1	167.00	34
44	J-9	92.00	7	166.96	32
46	J-10	84.00	0	172.58	38
50	J-11	92.00	0	166.96	32
55	J-13	86.00	7	166.88	35
59	J-15	85.00	2	166.85	35
61	J-16	87.00	3	166.85	35
65	J-18	85.00	7	166.82	35
70	J-20	88.00	6	166.71	34
75	J-22	89.00	3	167.00	34
77	J-23	91.00	4	166.35	33
82	J-25	93.00	2	165.73	31
85	J-26	91.00	2	165.67	32
87	J-27	93.00	0	165.14	31
93	J-30	87.00	9	164.09	33
99	J-33	84.00	0	160.06	33
101	J-34	86.00	0	156.74	31
109	J-38	86.00	2	160.57	32
124	J-45	87.00	0	161.48	32
140	J-52	88.00	3	164.29	33
152	J-57	96.00	4	165.27	30
159	J-59	87.00	0	147.80	26
173	J-66	88.00	34	147.75	26
197	J-69	87.00	27	158.96	31
210	J-73	87.00	3	161.75	32
213	J-74	90.00	3	161.75	31
215	J-75	87.00	0	162.34	33
218	J-76	87.00	2	162.34	33
226	J-80	88.00	4	162.83	32
229	J-81	88.00	3	162.83	32
255	J-92	85.00	2	164.31	34
257	J-93	87.00	1	164.31	33
262	J-95	85.00	0	163.81	34
266	J-96	85.00	2	164.40	34
269	J-97	85.00	3	164.40	34
271	J-98	84.00	3	163.94	35
274	J-99	85.00	1	163.94	34
282	J-103	85.00	2	163.86	34
285	J-104	85.00	3	163.86	34
288	J-105	85.00	4	161.52	33
300	J-109	84.00	10	169.16	37
303	J-110	85.00	9	188.57	45
318	J-115	85.00	2	192.96	47
320	J-116	86.00	0	192.96	46
323	J-117	86.00	3	192.96	46
325	J-118	86.00	3	192.96	46
328	J-119	85.00	3	192.96	47
332	J-121	85.00	3	192.96	47

FlexTable: Junction Table

ID	Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
348	J-124	85.00	3	164.27	34
351	J-125	86.00	3	164.26	34
353	J-126	88.00	3	164.26	33
355	J-127	92.00	3	164.26	31
360	J-129	85.00	3	164.26	34
362	J-130	86.00	3	164.26	34
364	J-131	88.00	3	164.26	33
367	J-132	85.00	6	164.19	34
386	J-137	85.00	0	164.51	34
389	J-138	85.00	0	164.90	35
393	J-139	89.00	7	164.86	33
400	J-141	84.00	0	161.60	34
404	J-142	86.00	0	162.96	33
408	J-143	92.00	0	164.26	31
424	J-146	84.00	7	160.65	33
436	J-148	86.00	9	164.53	34
452	J-152	89.00	2	164.99	33
458	J-154	94.00	3	165.34	31
468	J-158	95.00	5	165.13	30
471	J-159	88.00	0	164.22	33
475	J-160	86.74	4	163.84	33
479	J-161	94.00	5	165.04	31
483	J-162	93.63	2	165.14	31
487	J-163	87.00	1	167.78	35
491	J-164	87.00	3	167.25	35
517	J-171	86.00	3	168.63	36
608	J-185	85.77	0	192.96	46
614	J-186	86.67	22	173.61	38
617	J-187	85.00	0	196.83	48
624	J-189	85.00	0	174.52	39
630	J-190	84.43	0	161.58	33

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Has Check Valve?	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Has User Defined Length?	Length (User Defined) (ft)
41	P-5	241	J-6	J-7	8.0	PVC	120.0	False	0.000	88	0.56	0.000	False	0
51	P-6(1)	190	J-7	J-11	8.0	PVC	120.0	False	0.000	84	0.53	0.000	False	0
62	P-13	187	J-15	J-16	6.0	PVC	120.0	False	0.000	3	0.04	0.000	False	0
66	P-14(1)	245	J-15	J-18	8.0	PVC	120.0	False	0.000	64	0.41	0.000	False	0
71	P-14(2)(1)	237	J-18	J-20	8.0	PVC	120.0	False	0.000	124	0.79	0.000	False	0
76	P-17	157	J-7	J-22	6.0	PVC	120.0	False	0.000	3	0.03	0.000	False	0
78	P-14(2)(2)(1)	280	J-20	J-23	8.0	PVC	120.0	False	0.000	221	1.41	0.001	False	0
83	P-14(2)(2)(2)(1)	174	J-23	J-25	8.0	PVC	120.0	False	0.000	382	2.44	0.004	False	0
86	P-19	55	J-25	J-26	8.0	PVC	120.0	False	0.000	201	1.28	0.001	False	0
102	P-27	621	J-33	J-34	12.0	PVC	120.0	False	0.000	1,382	3.92	0.005	False	0
125	P-32(1)	254	J-38	J-45	8.0	PVC	120.0	False	0.000	-384	2.45	0.004	False	0
206	P-55	1,092	J-59	J-34	12.0	PVC	120.0	False	0.000	-1,738	4.93	0.008	False	0
211	P-32(2)(1)	94	J-45	J-73	8.0	PVC	120.0	False	0.000	-341	2.17	0.003	False	0
214	P-56	215	J-73	J-74	6.0	PVC	120.0	False	0.000	3	0.04	0.000	False	0
219	P-57	210	J-75	J-76	6.0	PVC	120.0	False	0.000	2	0.02	0.000	False	0
230	P-59	228	J-80	J-81	6.0	PVC	120.0	False	0.000	3	0.04	0.000	False	0
259	P-66(2)	209	J-93	J-92	6.0	PVC	120.0	False	0.000	2	0.02	0.000	False	0
267	P-68(1)	202	J-93	J-96	8.0	PVC	120.0	False	0.000	-128	0.82	0.000	False	0
270	P-69	167	J-96	J-97	6.0	PVC	120.0	False	0.000	3	0.03	0.000	False	0
275	P-70	157	J-98	J-99	6.0	PVC	120.0	False	0.000	1	0.01	0.000	False	0
283	P-34(2)(2)(2)(1)	159	J-95	J-103	8.0	PVC	120.0	False	0.000	-110	0.70	0.000	False	0
286	P-74	159	J-103	J-104	6.0	PVC	120.0	False	0.000	3	0.03	0.000	False	0
287	P-75	199	J-103	J-98	8.0	PVC	120.0	False	0.000	-115	0.73	0.000	False	0
289	P-40(1)	595	J-45	J-105	8.0	PVC	120.0	False	0.000	-44	0.28	0.000	False	0
324	P-77	160	J-116	J-117	6.0	PVC	120.0	False	0.000	3	0.03	0.000	False	0
327	P-76(2)	200	J-118	J-115	8.0	PVC	120.0	False	0.000	5	0.03	0.000	False	0
329	P-78	161	J-118	J-119	6.0	PVC	120.0	False	0.000	3	0.03	0.000	False	0
333	P-80	161	J-115	J-121	6.0	PVC	120.0	False	0.000	3	0.03	0.000	False	0
352	P-83	131	J-124	J-125	8.0	PVC	120.0	False	0.000	19	0.12	0.000	False	0
356	P-85	197	J-126	J-127	8.0	PVC	120.0	False	0.000	7	0.04	0.000	False	0
361	P-88	210	J-125	J-129	6.0	PVC	120.0	False	0.000	3	0.04	0.000	False	0
363	P-89	162	J-126	J-130	6.0	PVC	120.0	False	0.000	3	0.03	0.000	False	0
365	P-90	210	J-127	J-131	6.0	PVC	120.0	False	0.000	3	0.04	0.000	False	0
387	P-68(2)(1)(1)	206	J-96	J-137	8.0	PVC	120.0	False	0.000	-133	0.85	0.001	False	0
388	P-68(2)(1)(2)	132	J-137	J-124	8.0	PVC	120.0	False	0.000	267	1.70	0.002	False	0
392	P-94	100	J-137	J-138	8.0	PVC	120.0	False	0.000	-399	2.55	0.004	False	0
396	P-95	218	J-139	J-138	8.0	PVC	120.0	False	0.000	-77	0.49	0.000	False	0
401	P-93(1)(1)	334	J-33	J-141	12.0	PVC	120.0	False	0.000	-1,276	3.62	0.005	False	0
405	P-93(1)(2)(1)	251	J-141	J-142	12.0	PVC	120.0	False	0.000	-1,390	3.94	0.005	False	0
406	P-93(1)(2)(2)	675	J-142	J-138	12.0	PVC	120.0	False	0.000	-987	2.80	0.003	False	0
409	P-91(1)(1)	122	J-127	J-143	8.0	PVC	120.0	False	0.000	0	0.00	0.000	False	0
426	P-99(2)	625	J-146	J-141	6.0	PVC	120.0	False	0.000	-114	1.29	0.002	False	0
432	P-101	285	J-30	J-52	8.0	PVC	120.0	False	0.000	-156	1.00	0.001	False	0
450	P-21(1)(2)(2)	206	H-9	J-148	8.0	PVC	120.0	False	0.000	197	1.26	0.001	False	0
453	P-21(1)(1)(1)	137	J-27	J-152	8.0	PVC	120.0	False	0.000	199	1.27	0.001	False	0
459	P-20(1)	306	J-26	J-154	8.0	PVC	120.0	False	0.000	199	1.27	0.001	False	0
460	P-20(2)	197	J-154	J-27	8.0	PVC	120.0	False	0.000	196	1.25	0.001	False	0
477	P-97(2)	222	J-160	J-142	8.0	PVC	120.0	False	0.000	403	2.57	0.004	False	0

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Has Check Valve?	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Has User Defined Length?	Length (User Defined) (ft)
480	P-14(2)(2)(2)(2) (2)(1)(1)(2)(2) (1)	250	J-158	J-161	8.0	PVC	120.0	False	0.000	115	0.73	0.000	False	0
484	P-43(1)	60	J-27	J-162	6.0	PVC	120.0	False	0.000	-3	0.03	0.000	False	0
518	P-2(2)(1)(1)	875	J-10	J-171	8.0	PVC	120.0	False	0.000	434	2.77	0.005	False	0
519	P-2(2)(1)(2)	189	J-171	J-163	8.0	PVC	120.0	False	0.000	431	2.75	0.004	False	0
523	P-109	199	J-15	J-13	8.0	PVC	120.0	False	0.000	-69	0.44	0.000	False	0
531	P-3(2)(1)	27	J-164	H-11	8.0	PVC	120.0	False	0.000	157	1.00	0.001	False	0
536	P-112	450	J-69	J-38	8.0	PVC	120.0	False	0.000	-383	2.44	0.004	False	0
537	P-113	433	J-146	J-33	6.0	PVC	120.0	False	0.000	106	1.20	0.001	False	0
562	P-130	316	J-11	J-9	6.0	PVC	120.0	False	0.000	7	0.09	0.000	False	0
563	P-131	301	J-164	J-163	8.0	PVC	120.0	False	0.000	-264	1.68	0.002	False	0
564	P-132	243	J-6	H-11	8.0	PVC	120.0	False	0.000	-157	1.00	0.001	False	0
567	P-135	292	J-124	J-95	8.0	PVC	120.0	False	0.000	246	1.57	0.002	False	0
568	P-136	277	J-132	J-93	8.0	PVC	120.0	False	0.000	-125	0.80	0.000	False	0
569	P-137	163	J-75	J-80	8.0	PVC	120.0	False	0.000	-348	2.22	0.003	False	0
571	P-139	331	J-162	J-57	6.0	PVC	120.0	False	0.000	-56	0.63	0.000	False	0
573	P-141	283	J-162	J-161	6.0	PVC	120.0	False	0.000	51	0.58	0.000	False	0
575	P-143	417	J-30	J-160	8.0	PVC	120.0	False	0.000	147	0.94	0.001	False	0
576	P-144	217	J-160	J-159	8.0	PVC	120.0	False	0.000	-260	1.66	0.002	False	0
577	P-145	453	J-159	J-139	8.0	PVC	120.0	False	0.000	-232	1.48	0.001	False	0
578	P-146	252	J-139	J-161	8.0	PVC	120.0	False	0.000	-161	1.03	0.001	False	0
580	P-148	238	J-152	H-9	8.0	PVC	120.0	False	0.000	197	1.26	0.001	False	0
581	P-149	469	J-13	J-11	8.0	PVC	120.0	False	0.000	-76	0.49	0.000	False	0
582	P-150	423	J-18	J-6	6.0	PVC	120.0	False	0.000	-67	0.76	0.001	False	0
587	P-110(1)	620	J-66	H-13	8.0	PVC	120.0	False	0.000	-34	0.22	0.000	False	0
588	P-110(2)	645	H-13	J-59	8.0	PVC	120.0	False	0.000	-34	0.22	0.000	False	0
592	P-151	417	J-20	J-164	6.0	PVC	120.0	False	0.000	-103	1.17	0.001	False	0
593	P-152	466	J-23	J-163	6.0	PVC	120.0	False	0.000	-166	1.88	0.003	False	0
602	P-79(1)	128	J-118	H-16	8.0	PVC	120.0	False	0.000	-10	0.06	0.000	False	0
603	P-79(2)	71	H-16	J-116	8.0	PVC	120.0	False	0.000	-10	0.06	0.000	False	0
609	P-128(1)	307	J-110	J-185	8.0	PVC	120.0	False	0.000	-809	5.16	0.014	False	0
610	P-128(2)	93	J-185	J-116	8.0	PVC	120.0	False	0.000	12	0.08	0.000	False	0
613	P-158	312	J-80	J-95	8.0	PVC	120.0	False	0.000	-356	2.27	0.003	False	0
618	P-156(1)	263	J-185	J-187	8.0	PVC	120.0	False	0.000	-821	5.24	0.015	False	0
625	P-159(1)	1,337	J-186	J-189	12.0	PVC	120.0	False	0.000	-456	1.29	0.001	False	0
626	P-159(2)	2,270	J-189	J-187	12.0	PVC	120.0	False	0.000	-1,918	5.44	0.010	False	0
627	P-160	1,619	J-138	J-189	12.0	PVC	120.0	False	0.000	-1,463	4.15	0.006	False	0
629	P-161	2,239	J-59	R-1	12.0	PVC	120.0	False	0.000	1,704	4.84	0.008	False	0
631	P-124(1)(1)	720	J-105	J-190	8.0	PVC	120.0	False	0.000	-48	0.31	0.000	False	0
634	P-162	636	J-190	R-3	6.0	PVC	120.0	False	0.000	741	8.41	0.049	False	0
638	P-164	897	J-187	R-2	12.0	PVC	120.0	False	0.000	-2,739	7.77	0.019	False	0
639	P-165	946	J-10	J-186	8.0	PVC	120.0	False	0.000	-201	1.29	0.001	False	0
640	P-166	569	J-52	J-159	6.0	PVC	120.0	False	0.000	29	0.33	0.000	False	0
641	P-167	515	J-25	J-57	8.0	PVC	120.0	False	0.000	180	1.15	0.001	False	0
643	P-169	554	J-190	J-109	8.0	PVC	120.0	False	0.000	-790	5.04	0.014	False	0
652	P-111(1)	540	J-34	H-19	8.0	PVC	120.0	False	0.000	-356	2.27	0.003	False	0
653	P-111(2)	170	H-19	J-69	8.0	PVC	120.0	False	0.000	-356	2.27	0.003	False	0
658	P-155(1)	105	J-109	H-21	8.0	PVC	120.0	False	0.000	-799	5.10	0.014	False	0

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Has Check Valve?	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Has User Defined Length?	Length (User Defined) (ft)
659	P-155(2)	1,283	H-21	J-110	8.0	PVC	120.0	False	0.000	-799	5.10	0.014	False	0
661	P-168(1)	174	J-73	H-22	8.0	PVC	120.0	False	0.000	-346	2.21	0.003	False	0
662	P-168(2)	23	H-22	J-75	8.0	PVC	120.0	False	0.000	-346	2.21	0.003	False	0
664	P-170(1)	363	J-132	H-23	8.0	PVC	120.0	False	0.000	118	0.76	0.000	False	0
665	P-170(2)	244	H-23	J-98	8.0	PVC	120.0	False	0.000	118	0.76	0.000	False	0
667	P-157(1)	121	J-125	H-24	8.0	PVC	120.0	False	0.000	12	0.08	0.000	False	0
668	P-157(2)	80	H-24	J-126	8.0	PVC	120.0	False	0.000	12	0.08	0.000	False	0
670	P-147(1)	115	J-52	H-25	8.0	PVC	120.0	False	0.000	-188	1.20	0.001	False	0
671	P-147(2)	135	H-25	J-148	8.0	PVC	120.0	False	0.000	-188	1.20	0.001	False	0
673	P-127(2)(1)	329	J-186	H-26	8.0	PVC	120.0	False	0.000	232	1.48	0.001	False	0
674	P-127(2)(2)	397	H-26	J-10	8.0	PVC	120.0	False	0.000	232	1.48	0.001	False	0
676	P-140(1)	47	J-158	H-27	8.0	PVC	120.0	False	0.000	-120	0.77	0.000	False	0
677	P-140(2)	282	H-27	J-57	8.0	PVC	120.0	False	0.000	-120	0.77	0.000	False	0

FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
628	R-1	130.13	<None>	-1,704	130.13
633	R-3	130.13	<None>	-741	130.13
637	R-2	213.87	<None>	2,739	213.87

ID	Label	Hydrant Status	Include Hydrant Lateral Loss?	Emitter Coefficient (gpm/psi^n)	Length (Hydrant Lateral) (ft)	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
448	H-9	Closed	False	0.000	20	87.92	<None>	<Collection: 0 items>	0	164.74	33
530	H-11	Closed	False	0.000	20	86.56	<None>	<Collection: 0 items>	0	167.23	35
586	H-13	Closed	False	0.000	20	87.46	<None>	<Collection: 0 items>	0	147.78	26
601	H-16	Closed	False	0.000	20	86.00	<None>	<Collection: 0 items>	0	192.96	46
651	H-19	Closed	False	0.000	20	86.76	<None>	<Collection: 0 items>	0	158.43	31
657	H-21	Closed	False	0.000	20	84.08	<None>	<Collection: 0 items>	0	170.62	37
660	H-22	Closed	False	0.000	20	87.00	<None>	<Collection: 0 items>	0	162.27	33
663	H-23	Closed	False	0.000	20	84.40	<None>	<Collection: 0 items>	0	164.04	34
666	H-24	Closed	False	0.000	20	87.21	<None>	<Collection: 0 items>	0	164.26	33
669	H-25	Closed	False	0.000	20	87.08	<None>	<Collection: 0 items>	0	164.40	33
672	H-26	Closed	False	0.000	20	85.46	<None>	<Collection: 0 items>	0	173.14	38
675	H-27	Closed	False	0.000	20	95.14	<None>	<Collection: 0 items>	0	165.15	30

Hillside Groves
CWI Job #: 21-04-0008

PHF



Connelly & Wicker Inc.

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FlexTable: Junction Table

ID	Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
38	J-6	85.00	5	162.78	34
40	J-7	88.00	3	162.70	32
44	J-9	92.00	15	162.65	31
46	J-10	84.00	0	168.91	37
50	J-11	92.00	0	162.66	31
55	J-13	86.00	14	162.57	33
59	J-15	85.00	3	162.55	34
61	J-16	87.00	7	162.55	33
65	J-18	85.00	14	162.53	34
70	J-20	88.00	13	162.45	32
75	J-22	89.00	5	162.70	32
77	J-23	91.00	8	162.15	31
82	J-25	93.00	3	161.61	30
85	J-26	91.00	3	161.55	31
87	J-27	93.00	0	161.10	29
93	J-30	87.00	18	160.16	32
99	J-33	84.00	0	156.55	31
101	J-34	86.00	0	153.52	29
109	J-38	86.00	3	157.07	31
124	J-45	87.00	1	158.00	31
140	J-52	88.00	6	160.33	31
152	J-57	96.00	8	161.22	28
159	J-59	87.00	0	145.45	25
173	J-66	88.00	68	145.27	25
197	J-69	87.00	53	155.47	30
210	J-73	87.00	5	158.21	31
213	J-74	90.00	7	158.21	30
215	J-75	87.00	0	158.69	31
218	J-76	87.00	7	158.69	31
226	J-80	88.00	8	159.09	31
229	J-81	88.00	7	159.09	31
255	J-92	85.00	4	160.40	33
257	J-93	87.00	3	160.40	32
262	J-95	85.00	0	159.94	32
266	J-96	85.00	4	160.51	33
269	J-97	85.00	5	160.50	33
271	J-98	84.00	5	160.05	33
274	J-99	85.00	3	160.05	32
282	J-103	85.00	4	159.99	32
285	J-104	85.00	5	159.99	32
288	J-105	85.00	8	158.15	32
300	J-109	84.00	19	166.13	36
303	J-110	85.00	18	186.43	44
318	J-115	85.00	4	191.10	46
320	J-116	86.00	0	191.11	45
323	J-117	86.00	5	191.10	45
325	J-118	86.00	5	191.10	45
328	J-119	85.00	5	191.10	46
332	J-121	85.00	5	191.10	46

FlexTable: Junction Table

ID	Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
348	J-124	85.00	5	160.36	33
351	J-125	86.00	6	160.36	32
353	J-126	88.00	7	160.35	31
355	J-127	92.00	7	160.35	30
360	J-129	85.00	7	160.35	33
362	J-130	86.00	5	160.35	32
364	J-131	88.00	7	160.35	31
367	J-132	85.00	13	160.28	33
386	J-137	85.00	0	160.62	33
389	J-138	85.00	0	161.04	33
393	J-139	89.00	13	160.95	31
400	J-141	84.00	0	157.96	32
404	J-142	86.00	0	159.21	32
408	J-143	92.00	0	160.35	30
424	J-146	84.00	15	157.04	32
436	J-148	86.00	18	160.53	32
452	J-152	89.00	3	160.96	31
458	J-154	94.00	7	161.27	29
468	J-158	95.00	10	161.12	29
471	J-159	88.00	0	160.30	31
475	J-160	86.74	8	159.96	32
479	J-161	94.00	9	161.05	29
483	J-162	93.63	3	161.10	29
487	J-163	87.00	3	163.61	33
491	J-164	87.00	7	162.99	33
517	J-171	86.00	7	164.53	34
608	J-185	85.77	0	191.11	46
614	J-186	86.67	43	170.06	36
617	J-187	85.00	0	195.34	48
624	J-189	85.00	0	171.15	37
630	J-190	84.43	0	158.37	32

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Has Check Valve?	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Has User Defined Length?	Length (User Defined) (ft)
41	P-5	241	J-6	J-7	8.0	PVC	120.0	False	0.000	99	0.63	0.000	False	0
51	P-6(1)	190	J-7	J-11	8.0	PVC	120.0	False	0.000	91	0.58	0.000	False	0
62	P-13	187	J-15	J-16	6.0	PVC	120.0	False	0.000	7	0.08	0.000	False	0
66	P-14(1)	245	J-15	J-18	8.0	PVC	120.0	False	0.000	52	0.33	0.000	False	0
71	P-14(2)(1)	237	J-18	J-20	8.0	PVC	120.0	False	0.000	106	0.67	0.000	False	0
76	P-17	157	J-7	J-22	6.0	PVC	120.0	False	0.000	5	0.06	0.000	False	0
78	P-14(2)(2)(1)	280	J-20	J-23	8.0	PVC	120.0	False	0.000	198	1.26	0.001	False	0
83	P-14(2)(2)(2)(1)	174	J-23	J-25	8.0	PVC	120.0	False	0.000	356	2.27	0.003	False	0
86	P-19	55	J-25	J-26	8.0	PVC	120.0	False	0.000	188	1.20	0.001	False	0
102	P-27	621	J-33	J-34	12.0	PVC	120.0	False	0.000	1,314	3.73	0.005	False	0
125	P-32(1)	254	J-38	J-45	8.0	PVC	120.0	False	0.000	-388	2.47	0.004	False	0
206	P-55	1,092	J-59	J-34	12.0	PVC	120.0	False	0.000	-1,645	4.67	0.007	False	0
211	P-32(2)(1)	94	J-45	J-73	8.0	PVC	120.0	False	0.000	-297	1.89	0.002	False	0
214	P-56	215	J-73	J-74	6.0	PVC	120.0	False	0.000	7	0.08	0.000	False	0
219	P-57	210	J-75	J-76	6.0	PVC	120.0	False	0.000	7	0.08	0.000	False	0
230	P-59	228	J-80	J-81	6.0	PVC	120.0	False	0.000	7	0.08	0.000	False	0
259	P-66(2)	209	J-93	J-92	6.0	PVC	120.0	False	0.000	4	0.05	0.000	False	0
267	P-68(1)	202	J-93	J-96	8.0	PVC	120.0	False	0.000	-132	0.84	0.000	False	0
270	P-69	167	J-96	J-97	6.0	PVC	120.0	False	0.000	5	0.06	0.000	False	0
275	P-70	157	J-98	J-99	6.0	PVC	120.0	False	0.000	3	0.03	0.000	False	0
283	P-34(2)(2)(2)(1)	159	J-95	J-103	8.0	PVC	120.0	False	0.000	-96	0.61	0.000	False	0
286	P-74	159	J-103	J-104	6.0	PVC	120.0	False	0.000	5	0.06	0.000	False	0
287	P-75	199	J-103	J-98	8.0	PVC	120.0	False	0.000	-105	0.67	0.000	False	0
289	P-40(1)	595	J-45	J-105	8.0	PVC	120.0	False	0.000	-92	0.59	0.000	False	0
324	P-77	160	J-116	J-117	6.0	PVC	120.0	False	0.000	5	0.06	0.000	False	0
327	P-76(2)	200	J-118	J-115	8.0	PVC	120.0	False	0.000	9	0.06	0.000	False	0
329	P-78	161	J-118	J-119	6.0	PVC	120.0	False	0.000	5	0.06	0.000	False	0
333	P-80	161	J-115	J-121	6.0	PVC	120.0	False	0.000	5	0.06	0.000	False	0
352	P-83	131	J-124	J-125	8.0	PVC	120.0	False	0.000	38	0.24	0.000	False	0
356	P-85	197	J-126	J-127	8.0	PVC	120.0	False	0.000	13	0.09	0.000	False	0
361	P-88	210	J-125	J-129	6.0	PVC	120.0	False	0.000	7	0.08	0.000	False	0
363	P-89	162	J-126	J-130	6.0	PVC	120.0	False	0.000	5	0.06	0.000	False	0
365	P-90	210	J-127	J-131	6.0	PVC	120.0	False	0.000	7	0.08	0.000	False	0
387	P-68(2)(1)(1)	206	J-96	J-137	8.0	PVC	120.0	False	0.000	-141	0.90	0.001	False	0
388	P-68(2)(1)(2)	132	J-137	J-124	8.0	PVC	120.0	False	0.000	276	1.76	0.002	False	0
392	P-94	100	J-137	J-138	8.0	PVC	120.0	False	0.000	-418	2.67	0.004	False	0
396	P-95	218	J-139	J-138	8.0	PVC	120.0	False	0.000	-125	0.80	0.000	False	0
401	P-93(1)(1)	334	J-33	J-141	12.0	PVC	120.0	False	0.000	-1,218	3.45	0.004	False	0
405	P-93(1)(2)(1)	251	J-141	J-142	12.0	PVC	120.0	False	0.000	-1,329	3.77	0.005	False	0
406	P-93(1)(2)(2)	675	J-142	J-138	12.0	PVC	120.0	False	0.000	-959	2.72	0.003	False	0
409	P-91(1)(1)	122	J-127	J-143	8.0	PVC	120.0	False	0.000	0	0.00	0.000	False	0
426	P-99(2)	625	J-146	J-141	6.0	PVC	120.0	False	0.000	-111	1.26	0.001	False	0
432	P-101	285	J-30	J-52	8.0	PVC	120.0	False	0.000	-148	0.94	0.001	False	0
450	P-21(1)(2)(2)	206	H-9	J-148	8.0	PVC	120.0	False	0.000	189	1.21	0.001	False	0
453	P-21(1)(1)(1)	137	J-27	J-152	8.0	PVC	120.0	False	0.000	192	1.23	0.001	False	0
459	P-20(1)	306	J-26	J-154	8.0	PVC	120.0	False	0.000	185	1.18	0.001	False	0
460	P-20(2)	197	J-154	J-27	8.0	PVC	120.0	False	0.000	178	1.14	0.001	False	0
477	P-97(2)	222	J-160	J-142	8.0	PVC	120.0	False	0.000	370	2.36	0.003	False	0

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Has Check Valve?	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Has User Defined Length?	Length (User Defined) (ft)
480	P-14(2)(2)(2)(2) (2)(1)(1)(2)(2) (1)	250	J-158	J-161	8.0	PVC	120.0	False	0.000	94	0.60	0.000	False	0
484	P-43(1)	60	J-27	J-162	6.0	PVC	120.0	False	0.000	-14	0.16	0.000	False	0
518	P-2(2)(1)(1)	875	J-10	J-171	8.0	PVC	120.0	False	0.000	459	2.93	0.005	False	0
519	P-2(2)(1)(2)	189	J-171	J-163	8.0	PVC	120.0	False	0.000	452	2.89	0.005	False	0
523	P-109	199	J-15	J-13	8.0	PVC	120.0	False	0.000	-62	0.40	0.000	False	0
531	P-3(2)(1)	27	J-164	H-11	8.0	PVC	120.0	False	0.000	172	1.10	0.001	False	0
535	P-111	713	J-34	J-69	8.0	PVC	120.0	False	0.000	-331	2.11	0.003	False	0
536	P-112	446	J-69	J-38	8.0	PVC	120.0	False	0.000	-384	2.45	0.004	False	0
537	P-113	433	J-146	J-33	6.0	PVC	120.0	False	0.000	96	1.09	0.001	False	0
562	P-130	316	J-11	J-9	6.0	PVC	120.0	False	0.000	15	0.17	0.000	False	0
563	P-131	301	J-164	J-163	8.0	PVC	120.0	False	0.000	-283	1.80	0.002	False	0
564	P-132	243	J-6	H-11	8.0	PVC	120.0	False	0.000	-172	1.10	0.001	False	0
567	P-135	292	J-124	J-95	8.0	PVC	120.0	False	0.000	234	1.49	0.001	False	0
568	P-136	277	J-132	J-93	8.0	PVC	120.0	False	0.000	-125	0.80	0.000	False	0
569	P-137	163	J-75	J-80	8.0	PVC	120.0	False	0.000	-315	2.01	0.002	False	0
571	P-139	331	J-162	J-57	6.0	PVC	120.0	False	0.000	-53	0.60	0.000	False	0
572	P-140	329	J-158	J-57	8.0	PVC	120.0	False	0.000	-104	0.66	0.000	False	0
573	P-141	283	J-162	J-161	6.0	PVC	120.0	False	0.000	35	0.40	0.000	False	0
575	P-143	417	J-30	J-160	8.0	PVC	120.0	False	0.000	130	0.83	0.000	False	0
576	P-144	217	J-160	J-159	8.0	PVC	120.0	False	0.000	-249	1.59	0.002	False	0
577	P-145	453	J-159	J-139	8.0	PVC	120.0	False	0.000	-232	1.48	0.001	False	0
578	P-146	252	J-139	J-161	8.0	PVC	120.0	False	0.000	-120	0.77	0.000	False	0
579	P-147	249	J-52	J-148	8.0	PVC	120.0	False	0.000	-171	1.09	0.001	False	0
580	P-148	238	J-152	H-9	8.0	PVC	120.0	False	0.000	189	1.21	0.001	False	0
581	P-149	469	J-13	J-11	8.0	PVC	120.0	False	0.000	-76	0.49	0.000	False	0
582	P-150	423	J-18	J-6	6.0	PVC	120.0	False	0.000	-68	0.77	0.001	False	0
587	P-110(1)	620	J-66	H-13	8.0	PVC	120.0	False	0.000	-68	0.43	0.000	False	0
588	P-110(2)	645	H-13	J-59	8.0	PVC	120.0	False	0.000	-68	0.43	0.000	False	0
592	P-151	417	J-20	J-164	6.0	PVC	120.0	False	0.000	-104	1.18	0.001	False	0
593	P-152	466	J-23	J-163	6.0	PVC	120.0	False	0.000	-167	1.89	0.003	False	0
597	P-155	1,387	J-109	J-110	8.0	PVC	120.0	False	0.000	-819	5.23	0.015	False	0
602	P-79(1)	128	J-118	H-16	8.0	PVC	120.0	False	0.000	-19	0.12	0.000	False	0
603	P-79(2)	71	H-16	J-116	8.0	PVC	120.0	False	0.000	-19	0.12	0.000	False	0
609	P-128(1)	307	J-110	J-185	8.0	PVC	120.0	False	0.000	-837	5.34	0.015	False	0
610	P-128(2)	93	J-185	J-116	8.0	PVC	120.0	False	0.000	24	0.15	0.000	False	0
612	P-157	201	J-125	J-126	8.0	PVC	120.0	False	0.000	25	0.16	0.000	False	0
613	P-158	312	J-80	J-95	8.0	PVC	120.0	False	0.000	-330	2.11	0.003	False	0
616	P-127(2)	727	J-186	J-10	8.0	PVC	120.0	False	0.000	246	1.57	0.002	False	0
618	P-156(1)	263	J-185	J-187	8.0	PVC	120.0	False	0.000	-861	5.50	0.016	False	0
625	P-159(1)	1,337	J-186	J-189	12.0	PVC	120.0	False	0.000	-502	1.42	0.001	False	0
626	P-159(2)	2,270	J-189	J-187	12.0	PVC	120.0	False	0.000	-2,004	5.69	0.011	False	0
627	P-160	1,619	J-138	J-189	12.0	PVC	120.0	False	0.000	-1,502	4.26	0.006	False	0
629	P-161	2,239	J-59	R-1	12.0	PVC	120.0	False	0.000	1,578	4.48	0.007	False	0
631	P-124(1)(1)	720	J-105	J-190	8.0	PVC	120.0	False	0.000	-100	0.64	0.000	False	0
634	P-162	636	J-190	R-3	6.0	PVC	120.0	False	0.000	700	7.94	0.044	False	0
638	P-164	897	J-187	R-2	12.0	PVC	120.0	False	0.000	-2,866	8.13	0.021	False	0
639	P-165	946	J-10	J-186	8.0	PVC	120.0	False	0.000	-213	1.36	0.001	False	0

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Has Check Valve?	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Has User Defined Length?	Length (User Defined) (ft)
640	P-166	569	J-52	J-159	6.0	PVC	120.0	False	0.000	17	0.19	0.000	False	0
641	P-167	515	J-25	J-57	8.0	PVC	120.0	False	0.000	165	1.05	0.001	False	0
642	P-168	198	J-73	J-75	8.0	PVC	120.0	False	0.000	-308	1.97	0.002	False	0
643	P-169	554	J-190	J-109	8.0	PVC	120.0	False	0.000	-800	5.10	0.014	False	0
644	P-170	607	J-132	J-98	8.0	PVC	120.0	False	0.000	113	0.72	0.000	False	0

FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
628	R-1	130.13	<None>	-1,578	130.13
633	R-3	130.13	<None>	-700	130.13
637	R-2	213.87	<None>	2,866	213.87