Water Basis of Design
Prepared: September 2016

STORYROCK Phase 2

Prepared for:

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September, 2016.

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1.0 INTRODUCTION

1.1 Project Description

The purpose of this water report is to support the proposed StoryRock Phase 2 residential development. StoryRock Phase 2 (Phase 2) is part of the StoryRock Master Planned Community (formerly named Cavalliere Ranch), a development consisting of 462-acres of single family residential construction. A Conceptual Water Master Plan was approved October 2014 with the project Zoning Case (13-ZN-2014) and amended October 2016.

StoryRock Phase 2 is a proposed 77-acre single family residential subdivision consisting of 78 single family residential units. Phase 2 is zoned for R1-18, R1-35, and R1-43 development.

1.2 Project Location

StoryRock is located within Section 12 of Township 4 North, Range 5 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona. The site is bound to the north by the Happy Valley Road Alignment and to the west by 128th Street. The Pinnacle Peak Road Alignment borders the site to the south. The McDowell Sonoran Preserve borders the site to the east and portions of the site to the north and south. Phase 2 is located in the western half of the site, straddling Alameda Road. See **Figure 1: Vicinity Map.**

1.3 Scope of Water Plan

The Conceptual Master Water Plan for StoryRock established water distribution design parameters, criteria and a general plan for water distribution. The report presented a conceptual layout of transmission and distribution mains. It also established pressure zones and pressure reducing valve (PRV) locations. Water demands have been calculated based on proposed zoning and a preliminary development layout.

This report presents the basis of design criteria that will be used for the engineering design of the proposed Phase 2 development. Furthermore, this report will establish the water system demands and the proposed water system infrastructure required to serve the development. Finally, the report will show the development of Phase 2 is in conformance with the approved master plan.

All design criteria that is presented in this report will conform to the City of Scottsdale Design Standards & Polices Manual (DS&PM).

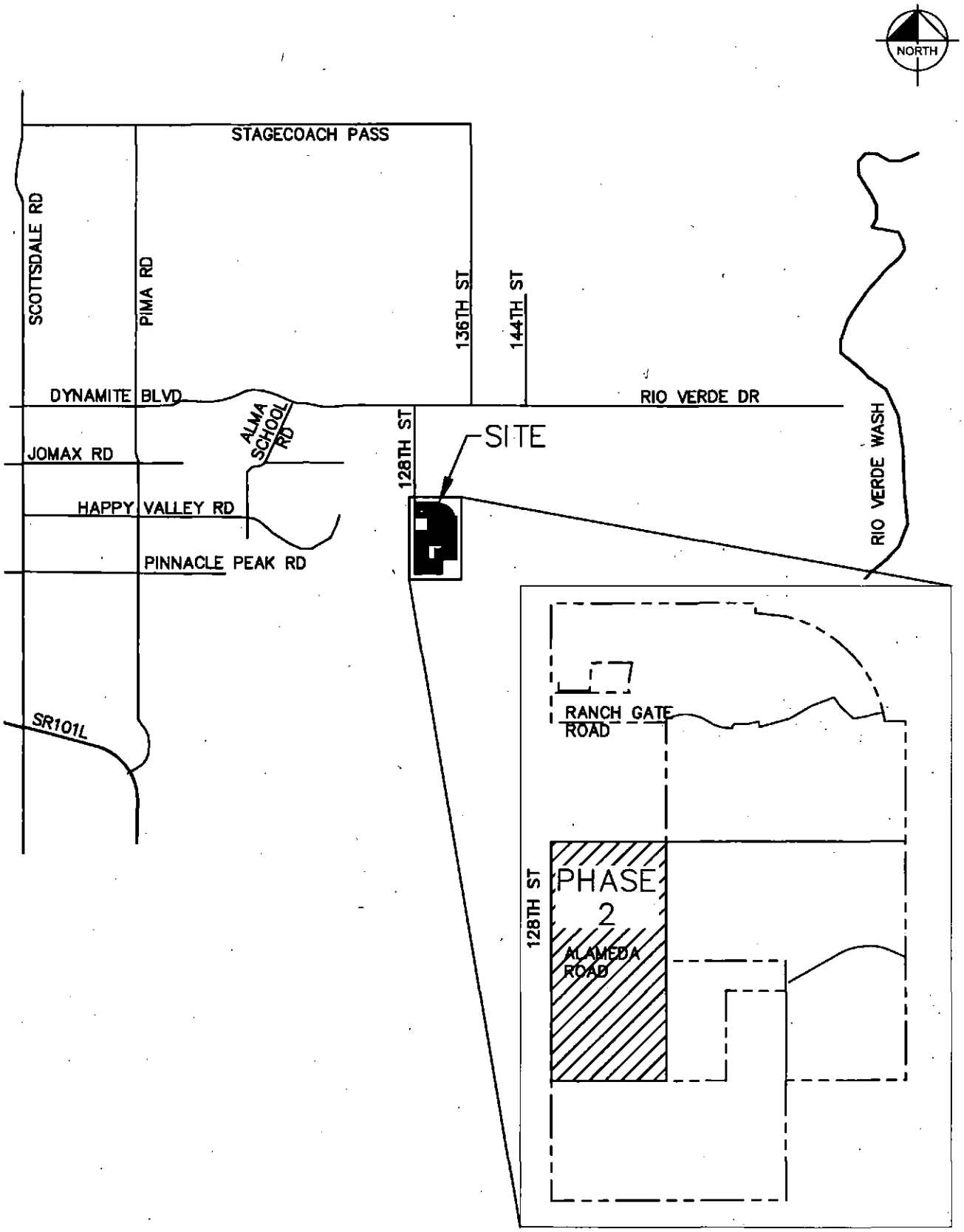

FIGURE 1
VICINITY MAP
STORYROCK

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2.0 EXISTING SITE CONDITIONS AND WATER SYSTEMS

2.1 Site Conditions

The project is undeveloped natural desert. Based on a review of City Quarter Section maps; no city water infrastructure exists on-site. The site is characterized by many washes and rock features of varying sizes. The on-site washes vary in size and depth, but generally flow from the southwest to the northeast or east through the site. Multiple ridgelines run though the site, in the general direction of southwest to northeast. Elevations across the Phase 2 site range from approximately 2740' in the southwest to 2620' in the northeast.

2.2 Adjacent Water Systems

Directly to the west of the project is the development of Sereno Canyon. A majority of the project infrastructure has been constructed, though none of the lots have been developed. An existing zone 13 booster pump station (PS 145) is located at Alameda Road and the 122th Street alignment, near the west edge of Sereno Canyon. The booster pump station is proposed to serve the area. PS 145 is comprised of three 500 gpm pumps and a 1,750 gpm fire flow booster pump, connected to a 12,000-gallon tank. One of the pumps is required to be kept as a redundant pump. Additionally, there is space for a 4th domestic pump.

An existing 8-inch DIP waterline is located in Ranch Gate Road west of the site. This line connects to an existing 12-inch DIP waterline at 128th Street. The line in 128th Street extends north approximately 430 feet and is stubbed to the south. There is also an existing 6-inch DIP waterline in Buckskin Trail providing service to properties along the frontage. No other waterlines are located adjacent to the project.

2.3 Existing Pressure Zones

Based on elevations, the existing Phase 2 site falls within two (2) City of Scottsdale pressure zones: 12 and 13. Sereno Canyon to the west primarily operates in pressure zone 13. There is an existing pressure reducing valve (PRV) on the 8-inch line in Ranch Gate east of 125th Place, which reduces the line to pressure zone 12. The north half of Phase 2 will operate in pressure zone 12 and the south half will operate in pressure zone 13.

2.4 Phasing and Existing StoryRock Development

As discussed within the approved master plan, the development of StoryRock is divided into three (3) major phases. Phase 1 is intended to be the first phase of development and is further divided into three (3) sub-phases: 1A, 1B and 1C. Currently all phases of development are proceeding though preliminary plat. It is anticipated that Phase 2 will be constructed after Phase 1 (1A, 1B, and 1C). In this scenario, the prior phase of development will have completed the 12-inch line in 128th Street from Alameda to Ranch Gate Road, and the connection to Sereno Canyon. Phase 1C will have installed

the 8-inch line within Alameda Road and the zone 12 PRV. If Phase 2 proceeds to final design and construction prior to development of Phase 1, then Phase 2 will be responsible to construct the needed infrastructure to serve its development.

3.0 Proposed Water System

3.1 General Discussion

Per the approved master plan, the water system for StoryRock consists of a 12-inch transmission within 128th Street and 8-inch distribution lines internal to the development. PRV's divide the project into pressure zones 12 and 13. Waterline looping is provided for redundancy and water quality. The proposed StoryRock system connects to the zone 13 water system in Sereno Canyon along the Alameda alignment west of 128th Street, and to the zone 12 system at the intersection of Ranch Gate Road and 128th Street.

3.2 Phase 2 Proposed Distribution System

The Phase 2 proposed on-site distribution system will consist of an 8" Class 350 DIP water line that will provide potable water and fire protection. Phase 2 will operate in pressure zones 12 and 13.

The off-site waterlines needed to serve Phase 2 includes an 8-inch line within Alameda Road, a 12-inch line within 128th Street along the property frontage, and the 12-inch connection line to Sereno Canyon. Additionally, two PRV's are required to serve the development, one along Alameda Road and one along 128th Street.

At full buildout of the StoryRock development, waterline looping is provided through the multiple phases to ensure redundancy and cycling of water for water quality. A connection to the Phase 1C distribution system is required to loop the Phase 2 distribution system. In the event Phase 2 is developed prior to Phase 1C, an additional connection to the 12-inch waterline in 128th Street will need to be provided approximately 1,100 feet north of Alameda Road. In addition to providing redundancy, the two connections prevent long dead-end lines. All proposed dead-end distribution lines are less than 1,200 feet, satisfying the requirements of the DS&PM.

If development of other phases of StoryRock occurs concurrently or before development of Phase 2, waterline looping may be provided directly through those phases.

See **Figure 2: Water System Layout** for waterline and PRV locations.

4.0 METHODOLOGY AND CALCULATIONS

4.1 General Discussion

The proposed water distribution system for Phase 2 has been designed to provide the calculated domestic and fire flow demands for the project, while maintaining required operating pressures. The design criterion conforms to the approved Conceptual Water Master Plan and is based on requirements described within the City of Scottsdale Design Standards and Policies Manual (DS&PM).

4.2 Water Demands, Fire Flows, Pressures

The proposed water distribution system for the project is modeled under 4 design scenarios: Average Day, Max Day, Peak Hour and Max Day plus Fire Flow. Average Day Demands are based on Figure 6.1-2 in the DS&PM, with peaking factors per section 6-1.404. A fire flow of 1,000 gpm per section 6-1.501 of the DS&PM was used. See **Table 1** below for a summary of water demands. According to Section 6-1.407 of the DSPM, distribution systems shall be designed with a minimum residual pressure of 50 psi and a maximum static pressure of 120 psi. For fire flow scenarios, a minimum design pressure of 30 psi is required.

Table 1: Water Demands

Land Use	Dwelling Units (du)	Average Daily Demand (gpd/du)	Average Daily Flow (gpd)	ADF (gpm)	Max Day Flow (gpd)	MDF (gpm)	Peak Hour Flow (gpd)	PHF (gpm)
<2 du/ac	78	485.6	37,877	26	75,754	53	132,569	92

4.3 Hydraulic Model

The WaterCAD v8i water system modeling software distributed by Haestad Methods, Inc. was used to model the proposed water network. The model is calibrated with provided existing system information and tested fire flow conditions. A fire flow test was performed to determine the residual and static pressure of the existing system. The test was performed along Ranch Gate Road near 125th Place. The static hydrant is located to the west of the existing PRV in pressure zone 13. Based on the fire flow test a pump curve is generated. Within the model a pump connected to a reservoir is attached to the model at the static hydrant.

Pump information was also provided for the existing Sereno Canyon booster pump station. This allows a schematic representation of the pump station to be included within the model, including the reservoir tank and the 4 existing pumps.

Refer to **Appendix A** for fire flow test results and the PS-145 pump curves.

Four scenarios are analyzed within the hydraulic models: Average Day Demands, Max Day Demands, Peak Hour Demands, and Max Day plus Fire Flow Demands. Demands are applied at each on-site junction based on the number of adjacent proposed units.

The approved master plan details further analysis of the pump station and build-out scenarios for StoryRock and the surrounding area. For this analysis, only the reservoir and pump correlating to the fire flow test were activate for the average day, max day, and peak hour scenarios, leaving the booster station inactive. With this configuration, fire flow demands are not satisfied. Thus, the fire pump is exclusively turned on in the fire flow scenario, leaving the fire flow test reservoir and pump inactive. All fire flow is provided from the Sereno Canyon booster station.

The waterline loop through Phase 1C is not included in the hydraulic model. This allows the modelling results to prove the system can provide required flows and pressures without the waterline loop. This allows more flexibility in how the waterline looping is provided.

4.5 Results

Based on the results of the hydraulic modeling, the proposed water distribution system can provide the required domestic and fire flow water demands to the project while maintaining required operating pressures. The 8-inch distribution system with a 12-inch line located in 128th street provides adequate flow for both domestic and fire flow scenarios. The proposed pressure zones maintain system pressure on-site in an adequate range of 50-120 psi. Booster station PS 145 does not need to be active for Phase 2 to satisfy domestic water demands as a standalone development. Fire flow water demands, however, require the booster station fire pump.

See **Appendix B** for complete results of the hydraulic models.

ALLIANCE FIRE PROTECTION CO.
FIRE SPRINKLERS

ALLIANCE FIRE PROTECTION CO.

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AZ Lic. L-16 74007
NV Lic. C-41a 30135

FIRE HYDRANT FLOW TEST

Name: Kimley-Horn
Senora Canyon
Ranch Gate & 125 Place
Scottsdale Arizona

Date: 03/28/14
Time: 9:00 AM
Report #
Tech: R.Pfeiff

Static Hydrant: 150 Yards west of 125th Pl. on North side of Ranch Gate
Elevation: 2690
Dist. Between Hydrants: 300 Yards
Diameter of Main: 8"

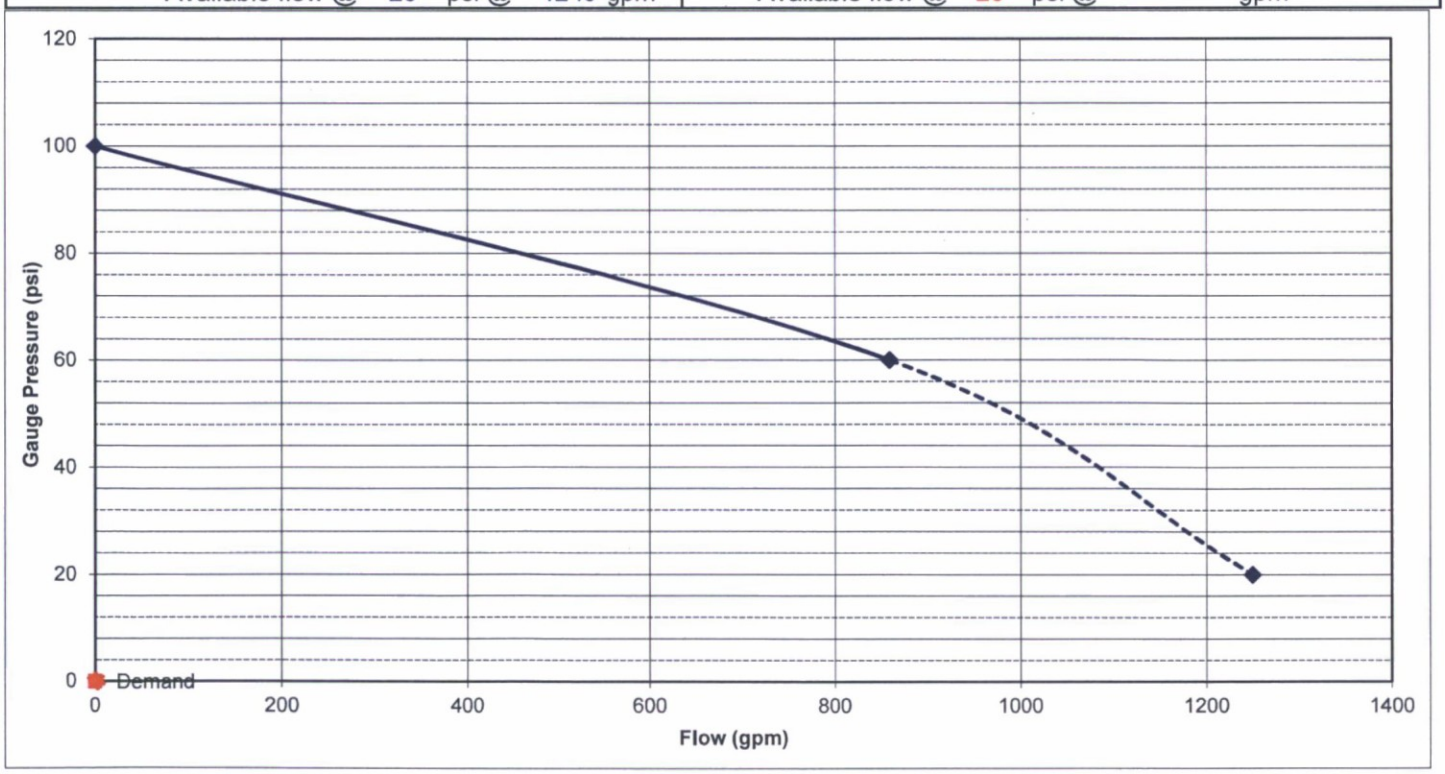
Static Pressure:	A	100.0	B	
Residual Pressure:	A	60.0	B	

Pump Present: NO
Tank Present: NO
Req. GPM: Req. PSI:

Flowing Hydrant: 150 Yards east of 125th Pl. on North side of Ranch Gate
Elevation: 2677
Type of Supply: CITY MAIN

Hydrant:	A	A	B	B
Outlet Diameter:	4.0			
Pitot Reading:	4.0			
Coeff:	0.90			
Discharge GPM:	859	0	0	0

Flow A				Flow B			
Static pressure of	100	psi @	0 gpm	Static pressure of	0	psi @	0 gpm
Residual pressure of	60	psi @	859 gpm	Residual pressure of	0	psi @	0 gpm
Available flow @	20	psi @	1249 gpm	Available flow @	20	psi @	gpm



Comments: Elevations are approximate

NOTES:

1. Flowing hydrant is assumed to be on a circulating main or downstream of the pressure test hydrant on a dead-end system.
2. Flow analysis assumes a gravity flow system with no distribution pumps and having no demand, other than the test
3. The distance between hydrants, elevations & main diameters are for information only

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FIRE SPRINKLERS

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FIRE HYDRANT FLOW TEST

Name: Kimley-Horn
Senora Canyon
Alameda & 124th Street
Scottsdale Arizona

Date: 03/28/14
Time: 9:00 AM
Report #
Tech: R.Pfeiff

Static Hydrant: NWC Alameda & 124th St.
Flowing Hydrant: NWC 121st St & Alameda

Elevation: 2766
Elevation: 2712

Dist. Between Hydrants: 500 yards
Type of Supply: CITY MAIN

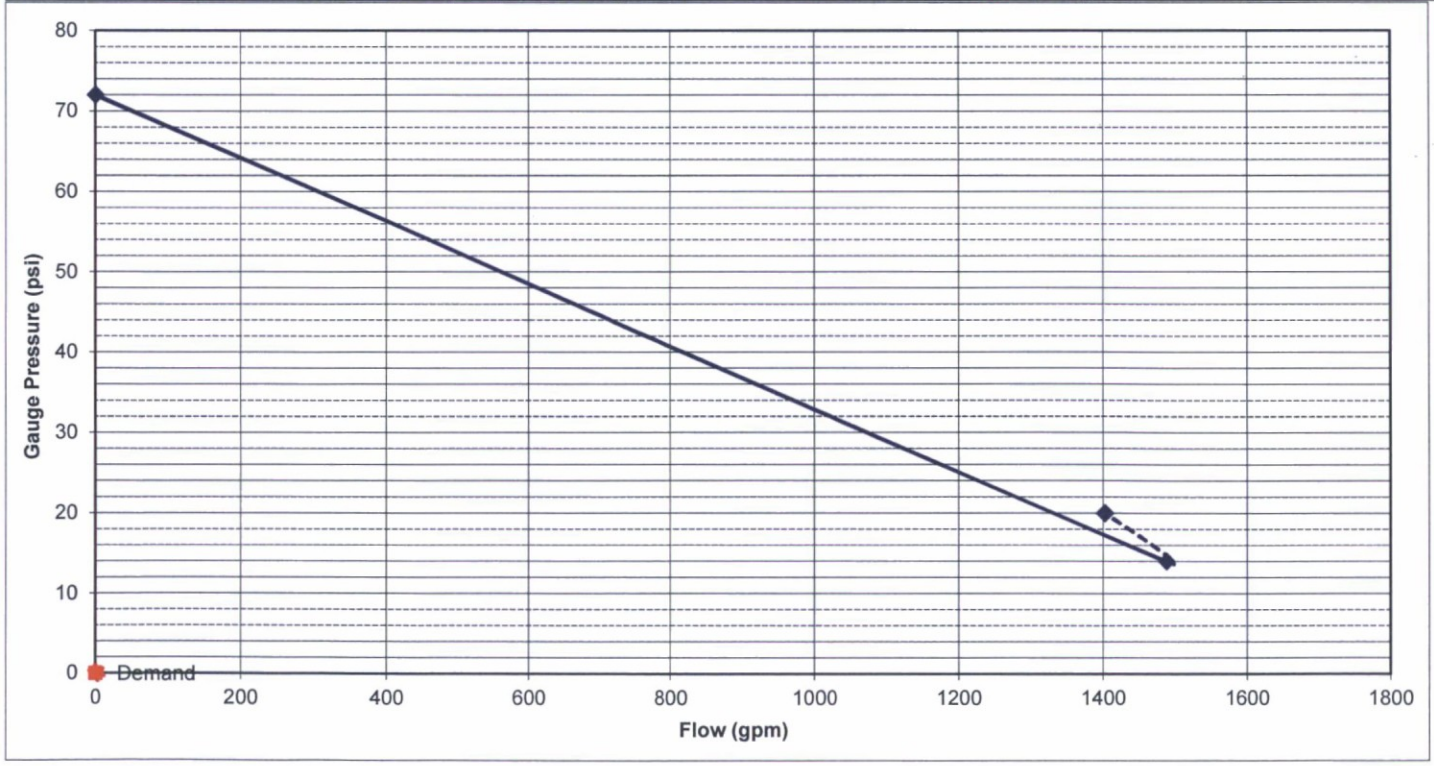
Diameter of Main: 8"

Static Pressure:	A	72.0	B	
Residual Pressure:	A	14.0	B	

Pump Present: NO
Tank Present: NO
Req. GPM: Req. PSI:

Hydrant:	A	A	B	B
Outlet Diameter:	4.0			
Pitot Reading:	12.0			
Coeff:	0.90			
Discharge GPM:	1488	0	0	0

Flow A				Flow B			
Static pressure of	72	psi @	0 gpm	Static pressure of	0	psi @	0 gpm
Residual pressure of	14	psi @	1488 gpm	Residual pressure of	0	psi @	0 gpm
Available flow @	20	psi @	1403 gpm	Available flow @	20	psi @	gpm



Comments: Elevations are approximate

NOTES:

1. Flowing hydrant is assumed to be on a circulating main or downstream of the pressure test hydrant on a dead-end system.
2. Flow analysis assumes a gravity flow system with no distribution pumps and having no demand, other than the test

S-145 P 1-3

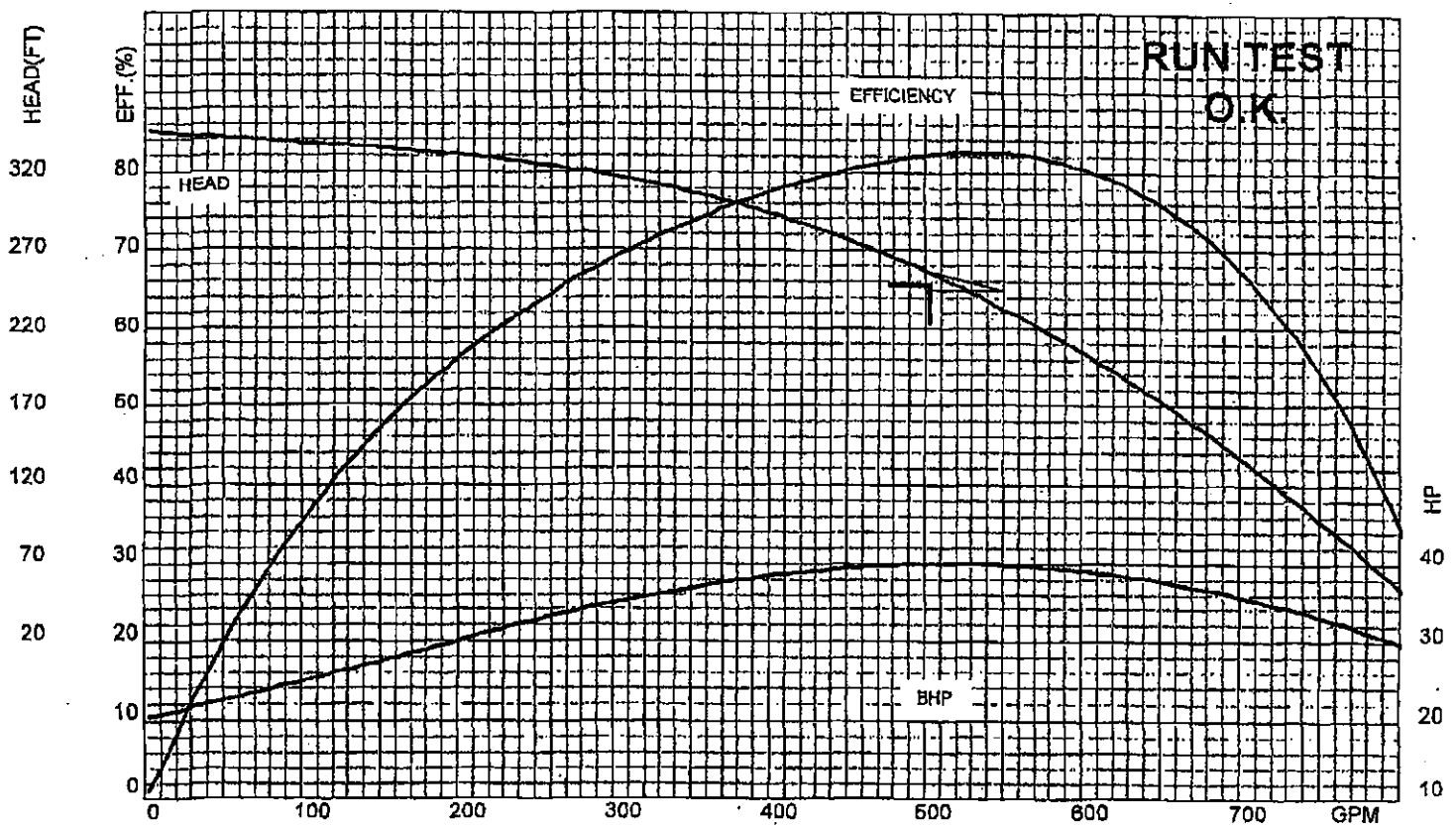
HYDRAULIC PERFORMANCE WARRANTY
GUARANTEED AT DESIGNED POINT ONLY AND IS CONTINGENT ON:
1.PROPER NPSH OR SUBMERGENCE AVAILABLE.
2.PROPER AND ADEQUATE FLOW TO PUMP SUCTION.
3.FLUID FREE OF GAS, AIR, AND ABRASIVE MATTER.
4.IMPELLER WITH PROPER LATERAL ADJUSTMENT (VERTICAL PUMP ONLY).

PEERLESS PUMPS

TEST SITE: Lubbock TX
BY: TH
DATE: 9/15/2008
CUSTOMER: P.E.C. PUMP

PUMP:	10MA
IMP. NO.:	T84353
SHOP ORDER:	747272B-2
STAGES:	8
IMP. DIA1:	1 @ 6.75 X 6.75
IMP. DIA2:	2-8 @ 6.88 X 6.88
IMP. DIA3:	0

Rated GPM:	500.00
Rated Hd(ft):	246.00
Rated RPM:	1782
Rated HP	36.97
Rated Eff %	81.40
Spec. Gravity:	1.000



CERTIFIED BOWL PERFORMANCE TEST CURVE

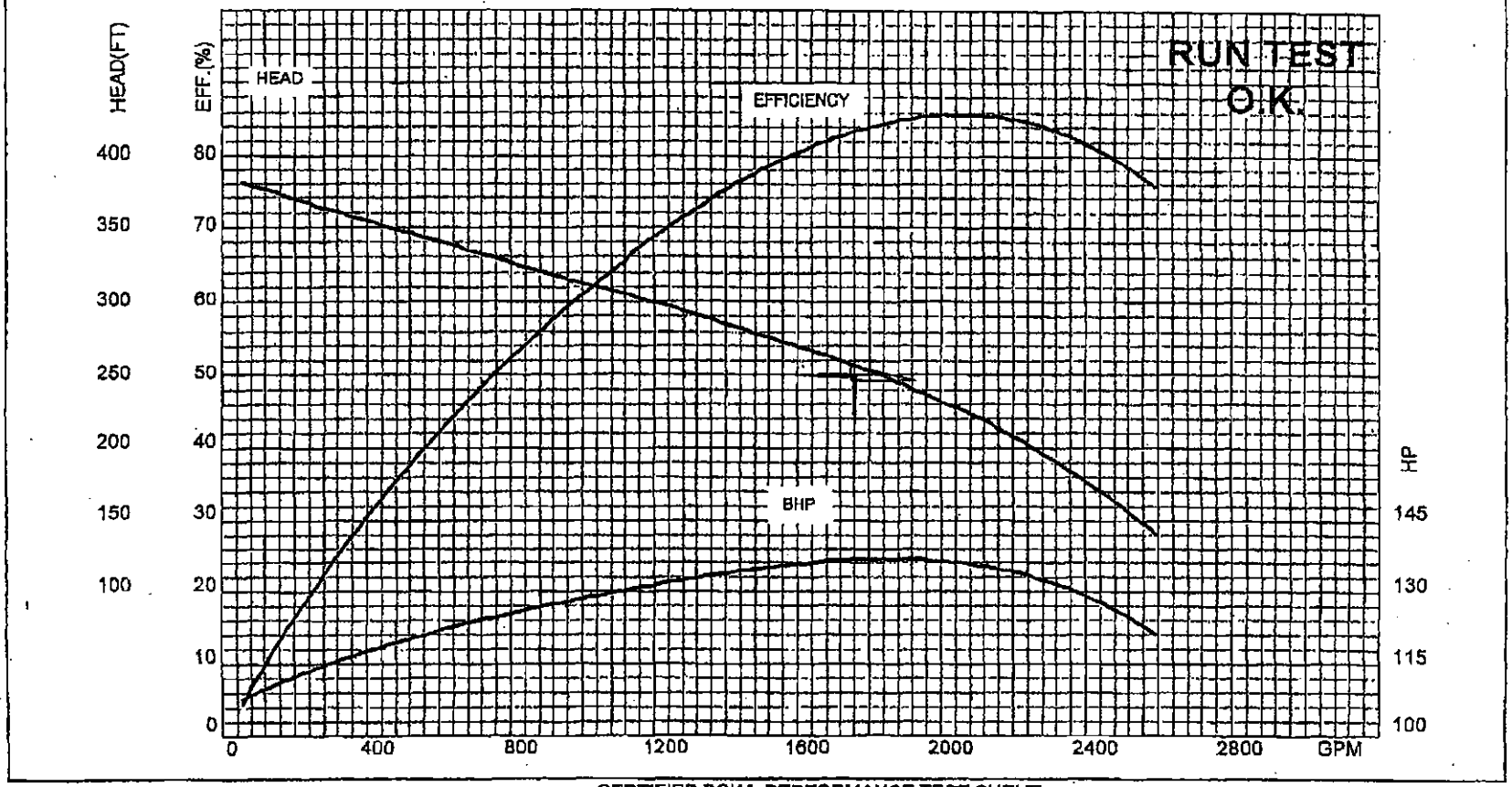
S-145 P-5

HYDRAULIC PERFORMANCE WARRANTY
GUARANTEED AT DESIGNED POINT ONLY AND IS CONTINGENT ON:
1.PROPER NPSH OR SUBMERGENCE AVAILABLE.
2.PROPER AND ADEQUATE FLOW TO PUMP SUCTION.
3.FLUID FREE OF GAS, AIR, AND ABRASIVE MATTER.
4.IMPELLER WITH PROPER LATERAL ADJUSTMENT (VERTICAL PUMP ONLY).

PEERLESS PUMPS

TEST SITE: Lubbock TX
BY: TH
DATE: 9/18/2008
CUSTOMER: P.E.C. PUMP

PUMP:	M14HXB	Rated GPM:	1750.00
IMP. NO.:	V4399	Rated Hd(ft):	245.00
SHOP ORDER:	747310A-1	Rated RPM:	1782
STAGES:	4	Rated HP	134.90
IMP. DIA1:	1-3 @ 9.16 X 10.4	Rated Eff %	82.30
IMP. DIA2:	4 @8.66 X 9.94	Spec. Gravity:	1.000
IMP. DIA3:	0		



CERTIFIED BOWL PERFORMANCE TEST CURVE

Appendix B– WaterCAD Model Results

FlexTable: Junction Table
Storyrock Phase 2.wtg
Active Scenario: Average Day

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)	Zone
J-1	2,640.00	0	2,810.05	73.6	Zone 12
J-2	2,695.00	0	2,920.81	97.7	Zone 13
J-4	2,676.00	1	2,920.80	105.9	Zone 13
J-5	2,667.00	2	2,810.05	61.9	Zone 12
J-6	2,659.00	3	2,810.05	65.4	Zone 12
J-7	2,657.00	1	2,810.05	66.2	Zone 12
J-8	2,632.00	1	2,810.05	77.0	Zone 12
J-9	2,656.00	4	2,810.05	66.6	Zone 12
J-10	2,656.00	2	2,810.05	66.6	Zone 12
J-11	2,683.00	6	2,920.79	102.9	Zone 13
J-12	2,682.00	2	2,920.79	103.3	Zone 13
J-13	2,704.00	3	2,920.79	93.8	Zone 13
J-14	2,711.00	2	2,920.79	90.8	Zone 13
SC-1	2,735.00	0	2,920.83	80.4	Zone 13
SC-2	2,755.00	0	2,920.83	71.7	Zone 13
SC-3	2,767.00	0	2,920.82	66.5	Zone 13
SC-4	2,780.00	0	2,920.82	60.9	Zone 13
SC-5	2,762.00	0	2,920.82	68.7	Zone 13
SC-6	2,725.00	0	2,920.82	84.7	Zone 13
SC-7	2,600.00	0	2,726.00	54.5	Zone 13
SC-8	2,693.50	0	2,920.85	98.4	Zone 13
SC-9	2,744.68	0	2,920.82	76.2	Zone 13

FlexTable: Pipe Table
Storyrock Phase 2.wtg
Active Scenario: Average Day

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)
FH-1	260	R-FH	FF TEST 1	48.0	130.0	27	0.00	0.000
FH-2	345	FF TEST 1	SC-8	36.0	130.0	27	0.01	0.000
P-1	301	T-1	SC-7	24.0	130.0	0	0.00	0.000
P-1	272	SC-7	PUMP 1	12.0	130.0	(N/A)	(N/A)	(N/A)
P-2	257	SC-7	PUMP 2	12.0	130.0	(N/A)	(N/A)	(N/A)
P-3	267	SC-7	PUMP 3	12.0	130.0	(N/A)	(N/A)	(N/A)
P-4	292	SC-7	PUMP 5	12.0	130.0	(N/A)	(N/A)	(N/A)
P-5	263	PUMP 1	SC-6	12.0	130.0	(N/A)	(N/A)	(N/A)
P-6	273	PUMP 2	SC-6	12.0	130.0	(N/A)	(N/A)	(N/A)
P-7	280	PUMP 3	SC-6	12.0	130.0	(N/A)	(N/A)	(N/A)
P-8	304	PUMP 5	SC-6	12.0	130.0	(N/A)	(N/A)	(N/A)
P-9	1,049	SC-6	SC-3	12.0	130.0	0	0.00	0.000
P-10	725	SC-3	SC-4	12.0	130.0	12	0.03	0.001
P-11	985	SC-4	SC-5	12.0	130.0	12	0.03	0.001
P-12	2,393	SC-1	SC-3	8.0	130.0	12	0.07	0.005
P-13	1,027	SC-1	SC-2	8.0	130.0	-12	0.07	0.005
P-14	782	SC-2	SC-8	8.0	130.0	-26	0.17	0.022
P-15	227	SC-8	PRV-1	8.0	130.0	0	0.00	0.000
P-16	1,460	PRV-1	J-1	8.0	130.0	0	0.00	0.000
P-17	2,375	J-1	PRV-2	12.0	130.0	0	0.00	0.000
P-18	2,399	SC-2	SC-5	8.0	130.0	15	0.09	0.007
P-19	446	SC-5	SC-9	12.0	130.0	26	0.07	0.003
P-20	1,343	SC-9	J-2	12.0	130.0	26	0.07	0.003
P-21	286	J-2	PRV-2	12.0	130.0	0	0.00	0.000
P-22	716	J-2	J-4	8.0	130.0	26	0.17	0.021
P-23	88	J-4	PRV-3	8.0	130.0	12	0.08	0.006
P-24	429	PRV-3	J-5	8.0	130.0	12	0.08	0.005
P-25	463	J-5	J-6	8.0	130.0	4	0.03	0.001
P-26	456	J-6	J-7	8.0	130.0	2	0.01	0.000
P-27	603	J-7	J-8	8.0	130.0	0	0.00	0.000
P-28	536	J-9	J-8	8.0	130.0	1	0.00	0.000
P-29	316	J-5	J-9	8.0	130.0	6	0.04	0.002
P-30	417	J-9	J-10	8.0	130.0	2	0.01	0.000
P-31	270	J-4	J-11	8.0	130.0	13	0.08	0.006
P-32	471	J-11	J-12	8.0	130.0	7	0.05	0.002
P-33	638	J-12	J-13	8.0	130.0	3	0.02	0.000
P-34	905	J-12	J-14	8.0	130.0	2	0.02	0.000

FlexTable: PRV Table

Storyrock Phase 2.wtg

Active Scenario: Average Day

Label	Elevation (ft)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)	Zone
PRV-1	2,675.56	0	2,920.85	2,810.05	110.80	Zone 12
PRV-2	2,685.00	0	2,920.81	2,810.05	0.00	Zone 12
PRV-3	2,675.00	12	2,920.80	2,810.05	110.75	Zone 12

FlexTable: Pump Table

Storyrock Phase 2.wtg

Active Scenario: Average Day

Label	Elevation (ft)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Flow (Design) (gpm)	Pump Head (ft)	Head (Design) (ft)	Zone
FF TEST 1	2,690.00	2,690.00	2,920.85	27	(N/A)	230.85	(N/A)	Zone 13
PUMP 1	2,717.00	(N/A)	(N/A)	(N/A)	500	(N/A)	245.00	Zone 13
PUMP 2	2,717.00	(N/A)	(N/A)	(N/A)	500	(N/A)	245.00	Zone 13
PUMP 3	2,717.00	(N/A)	(N/A)	(N/A)	500	(N/A)	245.00	Zone 13
PUMP 5	2,717.00	(N/A)	(N/A)	(N/A)	1,750	(N/A)	245.00	Zone 13

FlexTable: Tank Table

Storyrock Phase 2.wtg

Active Scenario: Average Day

Label	Elevation (Base) (ft)	Elevation (Minimum) (ft)	Elevation (Initial) (ft)	Elevation (Maximum) (ft)	Diameter (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)	Zone
T-1	2,720.00	2,720.00	2,726.00	2,727.00	20.00	0	2,726.00	Zone 12

FlexTable: Junction Table
Storyrock Phase 2.wtg
Active Scenario: Max Day

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)	Zone
J-1	2,640.00	1	2,810.05	73.6	Zone 12
J-2	2,695.00	0	2,920.32	97.5	Zone 13
J-4	2,676.00	1	2,920.26	105.7	Zone 13
J-5	2,667.00	4	2,810.04	61.9	Zone 12
J-6	2,659.00	5	2,810.04	65.3	Zone 12
J-7	2,657.00	3	2,810.04	66.2	Zone 12
J-8	2,632.00	2	2,810.04	77.0	Zone 12
J-9	2,656.00	7	2,810.04	66.6	Zone 12
J-10	2,656.00	3	2,810.04	66.6	Zone 12
J-11	2,683.00	11	2,920.26	102.7	Zone 13
J-12	2,682.00	5	2,920.25	103.1	Zone 13
J-13	2,704.00	5	2,920.25	93.6	Zone 13
J-14	2,711.00	5	2,920.25	90.5	Zone 13
SC-1	2,735.00	0	2,920.38	80.2	Zone 13
SC-2	2,755.00	0	2,920.40	71.6	Zone 13
SC-3	2,767.00	0	2,920.34	66.3	Zone 13
SC-4	2,780.00	0	2,920.34	60.7	Zone 13
SC-5	2,762.00	0	2,920.34	68.5	Zone 13
SC-6	2,725.00	0	2,920.34	84.5	Zone 13
SC-7	2,600.00	0	2,726.00	54.5	Zone 13
SC-8	2,693.50	0	2,920.46	98.2	Zone 13
SC-9	2,744.68	0	2,920.33	76.0	Zone 13

FlexTable: Pipe Table
Storyrock Phase 2.wtg
Active Scenario: Max Day

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)
FH-1	260	R-FH	FF TEST 1	48.0	130.0	53	0.01	0.000
FH-2	345	FF TEST 1	SC-8	36.0	130.0	53	0.02	0.000
P-1	301	T-1	SC-7	24.0	130.0	0	0.00	0.000
P-1	272	SC-7	PUMP 1	12.0	130.0	(N/A)	(N/A)	(N/A)
P-2	257	SC-7	PUMP 2	12.0	130.0	(N/A)	(N/A)	(N/A)
P-3	267	SC-7	PUMP 3	12.0	130.0	(N/A)	(N/A)	(N/A)
P-4	292	SC-7	PUMP 5	12.0	130.0	(N/A)	(N/A)	(N/A)
P-5	263	PUMP 1	SC-6	12.0	130.0	(N/A)	(N/A)	(N/A)
P-6	273	PUMP 2	SC-6	12.0	130.0	(N/A)	(N/A)	(N/A)
P-7	280	PUMP 3	SC-6	12.0	130.0	(N/A)	(N/A)	(N/A)
P-8	304	PUMP 5	SC-6	12.0	130.0	(N/A)	(N/A)	(N/A)
P-9	1,049	SC-6	SC-3	12.0	130.0	0	0.00	0.000
P-10	725	SC-3	SC-4	12.0	130.0	23	0.07	0.003
P-11	985	SC-4	SC-5	12.0	130.0	23	0.07	0.002
P-12	2,393	SC-1	SC-3	8.0	130.0	23	0.15	0.017
P-13	1,027	SC-1	SC-2	8.0	130.0	-23	0.15	0.017
P-14	782	SC-2	SC-8	8.0	130.0	-53	0.34	0.078
P-15	227	SC-8	PRV-1	8.0	130.0	1	0.00	0.000
P-16	1,460	PRV-1	J-1	8.0	130.0	1	0.00	0.000
P-17	2,375	J-1	PRV-2	12.0	130.0	0	0.00	0.000
P-18	2,399	SC-2	SC-5	8.0	130.0	29	0.19	0.026
P-19	446	SC-5	SC-9	12.0	130.0	53	0.15	0.011
P-20	1,343	SC-9	J-2	12.0	130.0	53	0.15	0.011
P-21	286	J-2	PRV-2	12.0	130.0	0	0.00	0.000
P-22	716	J-2	J-4	8.0	130.0	53	0.34	0.078
P-23	88	J-4	PRV-3	8.0	130.0	25	0.16	0.019
P-24	429	PRV-3	J-5	8.0	130.0	25	0.16	0.019
P-25	463	J-5	J-6	8.0	130.0	9	0.06	0.003
P-26	456	J-6	J-7	8.0	130.0	4	0.02	0.001
P-27	603	J-7	J-8	8.0	130.0	1	0.01	0.000
P-28	536	J-9	J-8	8.0	130.0	1	0.01	0.000
P-29	316	J-5	J-9	8.0	130.0	12	0.08	0.005
P-30	417	J-9	J-10	8.0	130.0	3	0.02	0.000
P-31	270	J-4	J-11	8.0	130.0	26	0.17	0.022
P-32	471	J-11	J-12	8.0	130.0	15	0.09	0.007
P-33	638	J-12	J-13	8.0	130.0	5	0.03	0.001
P-34	905	J-12	J-14	8.0	130.0	5	0.03	0.001

FlexTable: PRV Table
Storyrock Phase 2.wtg
Active Scenario: Max Day

Label	Elevation (ft)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Headloss (ft)	Zone
PRV-1	2,675.56	1	2,920.46	2,810.05	110.41	Zone 12
PRV-2	2,685.00	0	2,920.32	2,810.05	0.00	Zone 12
PRV-3	2,675.00	25	2,920.26	2,810.05	110.21	Zone 12

FlexTable: Pump Table
Storyrock Phase 2.wtg
Active Scenario: Max Day

Label	Elevation (ft)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Flow (Design) (gpm)	Pump Head (ft)	Head (Design) (ft)	Zone
FF TEST 1	2,690.00	2,690.00	2,920.46	53	(N/A)	230.46	(N/A)	Zone 13
PUMP 1	2,717.00	(N/A)	(N/A)	(N/A)	500	(N/A)	245.00	Zone 13
PUMP 2	2,717.00	(N/A)	(N/A)	(N/A)	500	(N/A)	245.00	Zone 13
PUMP 3	2,717.00	(N/A)	(N/A)	(N/A)	500	(N/A)	245.00	Zone 13
PUMP 5	2,717.00	(N/A)	(N/A)	(N/A)	1,750	(N/A)	245.00	Zone 13

FlexTable: Reservoir Table
Storyrock Phase 2.wtg
Active Scenario: Max Day

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)	Zone
R-FH	2,690.00	53	2,690.00	Zone 13

FlexTable: Tank Table
Storyrock Phase 2.wtg
Active Scenario: Max Day

Label	Elevation (Base) (ft)	Elevation (Minimum) (ft)	Elevation (Initial) (ft)	Elevation (Maximum) (ft)	Diameter (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)	Zone
T-1	2,720.00	2,720.00	2,726.00	2,727.00	20.00	0	2,726.00	Zone 12

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FlexTable: Junction Table
Storyrock Phase 2.wtg
Active Scenario: Peak Hour

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)	Zone
J-1	2,640.00	1	2,810.05	73.6	Zone 12
J-2	2,695.00	0	2,919.08	96.9	Zone 13
J-4	2,676.00	2	2,918.92	105.1	Zone 13
J-5	2,667.00	7	2,810.02	61.9	Zone 12
J-6	2,659.00	9	2,810.02	65.3	Zone 12
J-7	2,657.00	5	2,810.02	66.2	Zone 12
J-8	2,632.00	4	2,810.02	77.0	Zone 12
J-9	2,656.00	13	2,810.02	66.6	Zone 12
J-10	2,656.00	6	2,810.02	66.6	Zone 12
J-11	2,683.00	20	2,918.91	102.1	Zone 13
J-12	2,682.00	8	2,918.90	102.5	Zone 13
J-13	2,704.00	9	2,918.90	93.0	Zone 13
J-14	2,711.00	8	2,918.89	89.9	Zone 13
SC-1	2,735.00	0	2,919.26	79.7	Zone 13
SC-2	2,755.00	0	2,919.31	71.1	Zone 13
SC-3	2,767.00	0	2,919.15	65.8	Zone 13
SC-4	2,780.00	0	2,919.14	60.2	Zone 13
SC-5	2,762.00	0	2,919.14	68.0	Zone 13
SC-6	2,725.00	0	2,919.15	84.0	Zone 13
SC-7	2,600.00	0	2,726.00	54.5	Zone 13
SC-8	2,693.50	0	2,919.49	97.8	Zone 13
SC-9	2,744.68	0	2,919.12	75.5	Zone 13

FlexTable: Pipe Table
Storyrock Phase 2.wtg
Active Scenario: Peak Hour

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)
FH-1	260	R-FH	FF TEST 1	48.0	130.0	93	0.02	0.000
FH-2	345	FF TEST 1	SC-8	36.0	130.0	93	0.03	0.000
P-1	301	T-1	SC-7	24.0	130.0	0	0.00	0.000
P-1	272	SC-7	PUMP 1	12.0	130.0	(N/A)	(N/A)	(N/A)
P-2	257	SC-7	PUMP 2	12.0	130.0	(N/A)	(N/A)	(N/A)
P-3	267	SC-7	PUMP 3	12.0	130.0	(N/A)	(N/A)	(N/A)
P-4	292	SC-7	PUMP 5	12.0	130.0	(N/A)	(N/A)	(N/A)
P-5	263	PUMP 1	SC-6	12.0	130.0	(N/A)	(N/A)	(N/A)
P-6	273	PUMP 2	SC-6	12.0	130.0	(N/A)	(N/A)	(N/A)
P-7	280	PUMP 3	SC-6	12.0	130.0	(N/A)	(N/A)	(N/A)
P-8	304	PUMP 5	SC-6	12.0	130.0	(N/A)	(N/A)	(N/A)
P-9	1,049	SC-6	SC-3	12.0	130.0	0	0.00	0.000
P-10	725	SC-3	SC-4	12.0	130.0	41	0.12	0.007
P-11	985	SC-4	SC-5	12.0	130.0	41	0.12	0.007
P-12	2,393	SC-1	SC-3	8.0	130.0	41	0.26	0.049
P-13	1,027	SC-1	SC-2	8.0	130.0	-41	0.26	0.049
P-14	782	SC-2	SC-8	8.0	130.0	-92	0.59	0.220
P-15	227	SC-8	PRV-1	8.0	130.0	1	0.01	0.000
P-16	1,460	PRV-1	J-1	8.0	130.0	1	0.01	0.000
P-17	2,375	J-1	PRV-2	12.0	130.0	0	0.00	0.000
P-18	2,399	SC-2	SC-5	8.0	130.0	51	0.33	0.074
P-19	446	SC-5	SC-9	12.0	130.0	92	0.26	0.031
P-20	1,343	SC-9	J-2	12.0	130.0	92	0.26	0.031
P-21	286	J-2	PRV-2	12.0	130.0	0	0.00	0.000
P-22	716	J-2	J-4	8.0	130.0	92	0.59	0.220
P-23	88	J-4	PRV-3	8.0	130.0	44	0.28	0.056
P-24	429	PRV-3	J-5	8.0	130.0	44	0.28	0.055
P-25	463	J-5	J-6	8.0	130.0	16	0.10	0.008
P-26	456	J-6	J-7	8.0	130.0	6	0.04	0.001
P-27	603	J-7	J-8	8.0	130.0	1	0.01	0.000
P-28	536	J-9	J-8	8.0	130.0	2	0.01	0.000
P-29	316	J-5	J-9	8.0	130.0	21	0.13	0.014
P-30	417	J-9	J-10	8.0	130.0	6	0.04	0.002
P-31	270	J-4	J-11	8.0	130.0	46	0.29	0.062
P-32	471	J-11	J-12	8.0	130.0	26	0.17	0.021
P-33	638	J-12	J-13	8.0	130.0	9	0.06	0.003
P-34	905	J-12	J-14	8.0	130.0	8	0.05	0.003