HILLSIDE GROVE PHASES 2-4

LIFT STATION #2 & #3

DESIGN REPORT

FOR

Meritage Homes
5337 Millenia Lakes Blvd, Ste. 235
Orlando, FL 32839
(407) 284-4152

PREPARED BY:

Connelly & Wicker | PrimeAE

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www.cwieng.com

DATE: 9/10/2025

CW Project No.: 24-01-0079

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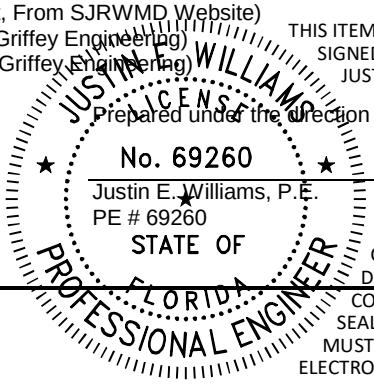


THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY JUSTIN E. WILLIAMS

Prepared under the direction of Justin E Williams

Digitally signed by Justin E Williams
DN: cn=Justin E Williams, c=US, o=CONNELLY AND WICKER INC., email=jwilliams@cwieng.com
Date: 2025.09.23 10:39:32 -04'00'

Justin E. Williams, P.E.
PE # 69260

ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PROJECT DESCRIPTION

THE PROJECT

The proposed development is located within Lake County, Florida (Town of Howey-in-the-Hills) within the Town of Howey-in-the-Hills Utility service area. The project is located west of State Road 19 (South Palm Avenue) and Taylor Memorial Cemetery, north of Revels Road, and south of Number 2 Road. The proposed development is being constructed in 4 phases and will include 638 single family and duplex units.

This design report focuses on the pump stations proposed in phases 2-4. Specifically, Pump Station #2 which is located in phase 3; and Pump Station #3 which is located in phase 4A.

PUMP STATIONS

The Pump Station #2 is located in Phase 3 on the north side of “Road J”. The effluent will pump via a forcemain to State Road 19 where it will cross underneath and connect into an existing 6” forcemain and ultimately received by the Frozen Grove WTF.

The Pump Station #3 is located in Phase 4A on the north side of “Road DD”. The effluent will pump via a forcemain to a gravity sewer system manhole (MH# 13) that is currently under construction in phase 1. The effluent then gravity drains to a master pump station (Pump Station #1) currently in construction in Phase 1A. Pump Station #1 was previously sized to accept the proposed flow. Calculations of the wastewater flows received by Pump Station #1 and calculations for the wetwell sizing are included in this booklet to demonstrate capacity.

EXISTING CONDITIONS MODELING DATA

The connection head condition was determined by modeling the existing wastewater system based on data provided by Griffey Engineering, Inc. to Connelly and Wicker on September 23rd, 2022, Construction Plans obtained from the SJRWMD and Lidar data for existing grades. Information obtained from those documents are the basis for the existing conditions modeling.

A summary of the peak flow requirements from each of the existing system pump stations and the anticipated flows modeled as part of these calculations is included.

DESIGN ANALYSIS

The modeling for this system was accomplished using Bentley OpenFlows WaterCad 2024.

DESIGN OF SANITARY LIFT STATION

Connelly & Wicker | PrimeAE
Project Name: HILLSIDE GROVE PHASES 2-4 (PHASE 1A)
Project No: 24-01-0079
Date: July 31, 2025

COMPUTATION OF AVERAGE DAILY FLOW

Type of Development	Units	Average Flow (GPD)	/	Unit	G.P.D.	G.P.M.
Direct Flow to PS-1 (in Ph 1A)			/	Unit	0	0.00
Single Family - Phase 1A	132	300	/	Unit	39600	27.50
Single Family - Phase 1B	83	300	/	Unit	24900	17.29
Single Family - Duplex - Phase 2	138	300	/	Unit	41400	28.75
Single Family - Phase 3	37	300	/	Unit	11100	7.71
			/	Unit	0	0.00
			/	Unit	0	0.00
			/	Unit	0	0.00
Pumped From PS-3 (in Ph 4A)			/	Unit	0	0.00
Single Family - Phase 4A	131	300	/	Unit	39300	27.29
Single Family - Phase 4B	40	300	/	Unit	12000	8.33
			/	Unit	0	0.00

Average Daily Flow = 168300 G.P.D. = 116.88 G.P.M.

Runout Peaking Factor = (Per CSM Section 17 Part 1.03.C) 3.00

Total Peak Flow = (A.D.F.)*(P.F.) = 351 G.P.M.

Use Total Peak Flow = Q = 351 G.P.M.

FORCE MAIN SIZE

Maximum Flow in Pipe = $Q(G.P.M.) * \left(\frac{1\ Cu.Ft.}{7.48\ Gal.}\right) * \left(\frac{1\ Min.}{60\ Sec.}\right)$ = 0.782 Cfs.

Pipe Diameter			Cross-Sectional Area		Flow (Cfs.)	Flow Velocity	
1. Use	4.27	Inch Pipe	0.099	Sq. Ft.	0.782	7.86	Ft/Sec.
2. Use	6.13	Inch Pipe	0.205	Sq. Ft.	0.782	3.82	Ft/Sec.
3. Use	8.04	Inch Pipe	0.353	Sq. Ft.	0.782	2.22	Ft/Sec.
4. Use	9.87	Inch Pipe	0.531	Sq. Ft.	0.782	1.47	Ft/Sec.
5. Use	11.73	Inch Pipe	0.750	Sq. Ft.	0.782	1.04	Ft/Sec.

Use Force Main of Diameter = 6.13 Inches

LIFT STATION FOR: HILLSIDE GROVE PHASES 2-4 (PHASE 1A)
PROJECT NO.: 24-01-0079

Connelly & Wicker | PrimeAE

DESIGN OF WET WELL

Use a cycle time (T) = 10 Minutes

Storage Required (Vr) = (T*Q) / 4 = 10 Min. * (351 G.P.M. / 4) * (1 Cu.Ft. / 7.48 Gal.) = 117.19 Cu.Ft.

Storage Height Required for Each Size Wet Well

Diameter of Wet Well (Ft.)	4.00	5.00	6.00	8.00	10.00	12.00
Storage Height (Ft.)	9.33	5.97	4.14	2.33	1.49	1.04

Provide Wet Well Diameter = 8.00 Ft. Storage Height Required (Vr) = 2.33 Ft.

Provide Storage Height = 2.40 Ft. Actual Cycle Time = 10 Min.

Volume Provide (Vp) = 120.64 Cu.Ft.

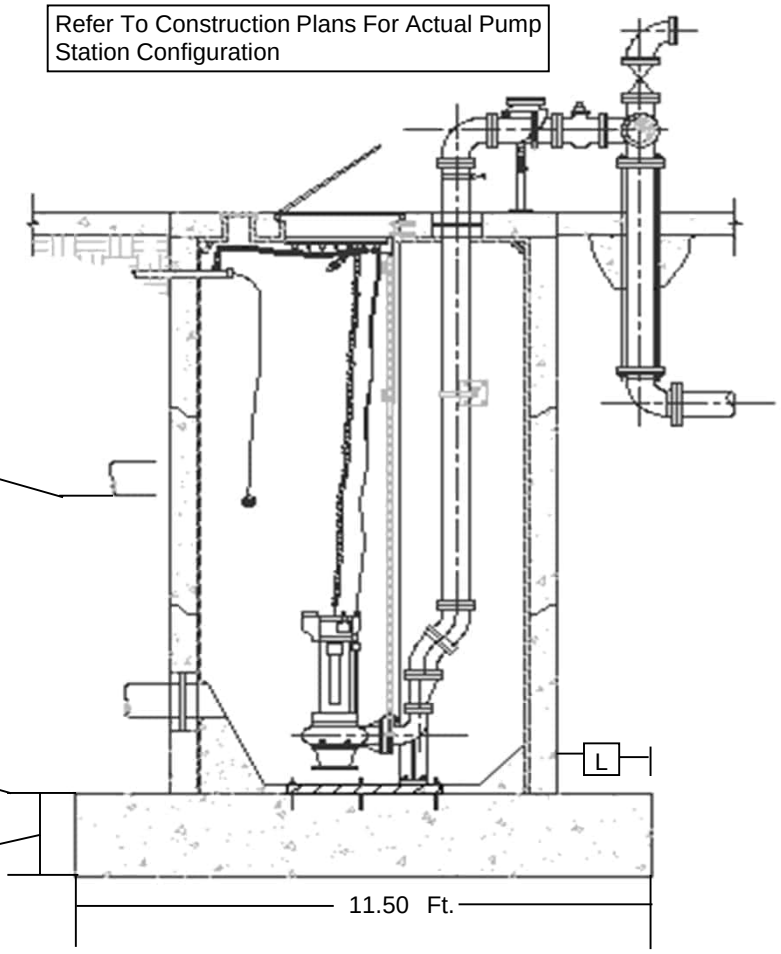
Since Vr < Vp , Then, Adequate Storage is Provided

WET WELL INFORMATION

Refer To Construction Plans For Actual Pump Station Configuration

Wet Well Diameter	=	8.00 Ft.
Wall Thickness (t)	=	0.75 Ft.
Over Hang (L)	=	1.00 Ft.

Top El.	88.40
Grade El.	87.90
Effluent El. (Force Main)	85.40
Control El.	69.06
Redundant Alarm El.	69.05
Alarm El.	68.95
Lag Pump On El.	68.45
Lead Pump On El.	67.95
All Pumps Off El.	65.55
Redundant All Pumps Off El.	65.40
Bottom El.	63.40
Bottom Pad Thickness	1.00



DESIGN OF SANITARY LIFT STATION

Connelly & Wicker | PrimeAE
Project Name: HILLSIDE GROVE PHASES 2-4 (PHASE 3)
Project No: 24-01-0079
Date: September 10, 2025

COMPUTATION OF AVERAGE DAILY FLOW

Type of Development	Units	Average Flow (GPD)	/	Unit	G.P.D.	G.P.M.
Direct Flow to PS-2 (in Ph 3)			/	Unit	0	0.00
Single Family - Phase 3	77	300	/	Unit	23100	16.04
			/	Unit	0	0.00
			/	Unit	0	0.00
			/	Unit	0	0.00
			/	Unit	0	0.00
			/	Unit	0	0.00
			/	Unit	0	0.00
			/	Unit	0	0.00
			/	Unit	0	0.00
			/	Unit	0	0.00
			/	Unit	0	0.00

Average Daily Flow = 23100 G.P.D. = 16.04 G.P.M.

Runout Peaking Factor = (Per CSM Section 17 Part 1.03.C) 3.00

Total Peak Flow = (A.D.F.)*(P.F.) = 48 G.P.M.

Use Total Peak Flow = Q = 90 G.P.M.

FORCE MAIN SIZE

Maximum Flow in Pipe = = 0.201 Cfs.

Pipe Diameter			Cross-Sectional Area		Flow (Cfs.)	Flow Velocity	
1. Use	4.27	Inch Pipe	0.099	Sq. Ft.	0.201	2.02	Ft/Sec.
2. Use	6.13	Inch Pipe	0.205	Sq. Ft.	0.201	0.98	Ft/Sec.
3. Use	8.04	Inch Pipe	0.353	Sq. Ft.	0.201	0.57	Ft/Sec.
4. Use	9.87	Inch Pipe	0.531	Sq. Ft.	0.201	0.38	Ft/Sec.
5. Use	11.73	Inch Pipe	0.750	Sq. Ft.	0.201	0.27	Ft/Sec.

Use Force Main of Diameter = 6.13 Inches

LIFT STATION FOR: HILLSIDE GROVE PHASES 2-4 (PHASE 3)
PROJECT NO.: 24-01-0079

Connelly & Wicker | PrimeAE

DESIGN OF WET WELL

Use a cycle time (T) = 10 Minutes

Storage Required (Vr) = (T*Q) / 4 = $10\ \text{Min.} * \left(\frac{48\ \text{G.P.M.}}{4}\right) * \left(\frac{1\ \text{Cu.Ft.}}{7.48\ \text{Gal.}}\right)$ = 16.08 Cu.Ft.

Storage Height Required for Each Size Wet Well

Diameter of Wet Well (Ft.)	4.00	5.00	6.00	8.00	10.00	12.00
Storage Height (Ft.)	1.28	0.82	0.57	0.32	0.20	0.14

Provide Wet Well Diameter = 8.00 Ft. Storage Height Required (Vr) = 0.32 Ft.

Provide Storage Height = 1.00 Ft. Actual Cycle Time = 31 Min.

Volume Provide (Vp) = 50.27 Cu.Ft.

Since Vr < Vp , Then, Adequate Storage is Provided

WET WELL INFORMATION

Wet Well Diameter = 8.00 Ft.
Wall Thickness (t) = 0.75 Ft.
Over Hang (L) = 1.00 Ft.

Top El. 87.45
Grade El. 86.95

Effluent El.
(Force Main) 84.45

Control El. 73.37

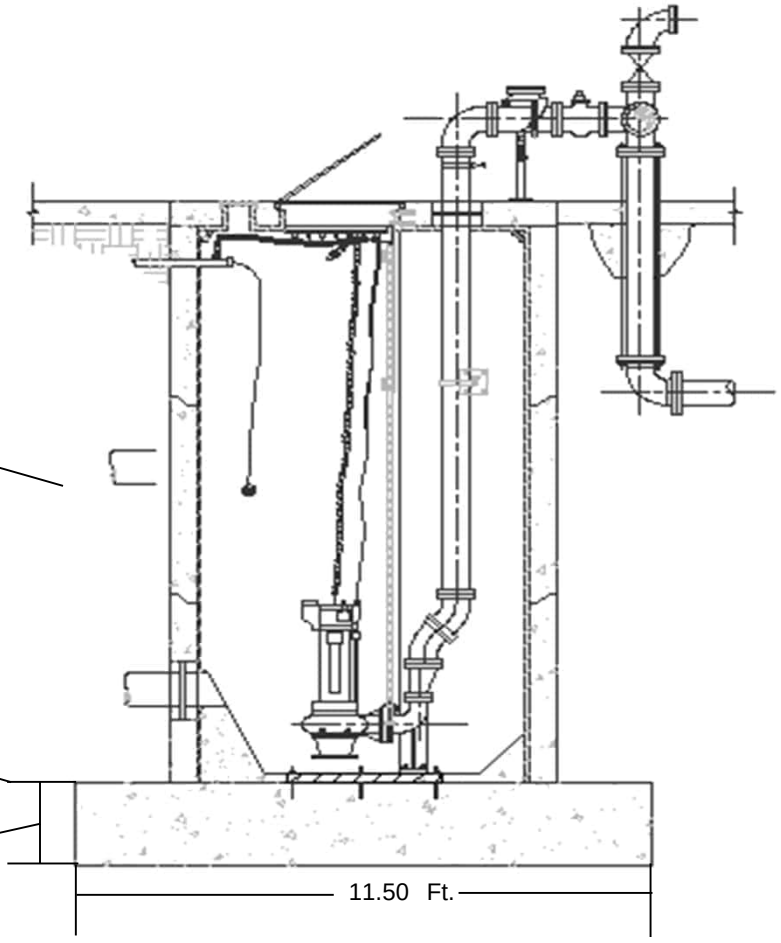
Alarm El. 72.87

Lag Pump On El. 72.37

Lead Pump On El. 71.87
All Pumps Off El. 70.87
Redundant All Pumps Off El. 70.72

Bottom El. 68.72

Bottom Pad Thickness 1.00



LIFT STATION FOR: HILLSIDE GROVE PHASES 2-4 (PHASE 3)
PROJECT NO.: 24-01-0079

Connelly & Wicker | PrimeAE

VERIFY THE STABILITY OF THE WET WELL

Assume:

Submerged Unit Weight of Soil	=	60	Lbs. Per Cu.Ft.
Unit Weight of Fiberglass	=	110	Lbs. Per Cu.Ft.
Unit Weight of Concrete	=	150	Lbs. Per Cu.Ft.
Angle of Repose ϕ =		5	Degrees

Wet Well:

Outer Diameter of Wet Well (D_{WW})	=	9.50	Ft.
Diameter of Base	=	11.50	Ft.
Thickness of Top Cover	=	0.83	Ft.
Thickness of Walls (t)	=	0.75	Ft.
Thickness of Bottom Pad	=	1.00	Ft.
Depth of Wetwell below Grade (H)	=	18.23	Ft.
Width of Collar	=	1.00	Ft.
Depth of Collar (if any)	=	0.00	Ft.
Hatch Size	=	36" X 54"	

Assume Saturated Conditions

Ground Water Elevation	=	86.95	

SELF WEIGHT OF WET WELL

Self Weight of Slabs (Lbs.) = (Volume) * (Unit Weight)

Weight of Soil Acting on Wet Well* (Lbs.) = (V_s)*(Unit Weight) Based on Angle of Repose (ϕ)

$$V_S = \left(\pi * (H) * \left((L)^2 + 2\left(\frac{D_{WW}}{2}\right)(L) + \left(\frac{D_{WW}}{2}\right)(H)(\mathrm{Tan}(\phi)) + (L)(H)(\mathrm{Tan}(\phi)) + \left(\frac{((H)(\mathrm{Tan}(\phi)))^2}{3}\right) \right) \right)$$

	Volume (CF)	*	Unit Weight (lb/CF)	=	Force	Lbs.
Top Cover :	47.63	*	150	=	7144.08	Lbs.
Bottom Pad :	103.87		150	=	15580.34	Lbs.
Collar	0.00		150	=	0.00	Lbs.
Walls :	369.04			=	55355.84	Lbs.
Soil :	1175.13	*	60			Lbs.
			Total Downward Force:		148588.15	Lbs.

UPLIFT FORCE

Uplift Force = (Volume Displaced) * (Unit Weight of Water)

Uplift Force =	1396.05	*	62.4	=	87113.59	Lbs.

FACTOR OF SAFETY

$$\text{Factor of Safety} = \frac{\text{Downward Force}}{\text{Uplift Force}} = \frac{148588.15}{87113.59} = \mathbf{1.71}$$

LIFT STATION FOR: HILLSIDE GROVE PHASES 2-4 (PHASE 3)
PROJECT NO.: 24-01-0079

Connelly & Wicker | PrimeAE

Pump Information - Hydromatic					
Pump Type			2 Submersible Pumps		
Pump Model			Flygt 3127 SH 3~ Adaptive 249		
Motor			N3127.060 21-11-2AL-W		
H.P. / Voltage / Phases / Amps			11 HP / 230V / 3 Phase / 26 A		
RPM			2505	R.P.M.	
Impeller Diameter			146	mm	
Discharge Pipe Size			3	Inches	
Force Main Size			4	Inches	
Design Point	90.00	GPM @	107.64'	TDH	
Operating Point - Manifold Condition	101.72	GPM @	110.80'	TDH	
Operating Point - Runout Condition	208.05	GPM @	87.33'	TDH	

Pump Definition Detailed Report: Flygt NP 3127 SH

Hillside Grove Phases 2-4

Element Details

ID	257	Notes	
Label	Flygt NP 3127 SH		

Pump Curve

Flow (gpm)	Head (ft)
0.27	135.81
19.52	130.51
38.77	125.06
58.02	119.79
77.26	114.88
96.51	110.34
115.76	106.12
135.01	102.14
154.26	98.31
173.51	94.54
192.76	90.76
212.00	86.93
231.25	83.03
250.50	79.06
269.75	75.01
289.00	70.89
308.25	66.71
327.50	62.47
346.74	58.17
365.99	53.80
385.24	49.35
404.49	44.83
423.74	40.22
442.99	35.48
475.51	26.96

Pump Efficiency Type

Pump Efficiency Type	Best Efficiency Point	Motor Efficiency	100.0 %
BEP Efficiency	100.0 %	Is Variable Speed Drive?	False
BEP Flow	0.00 gpm		

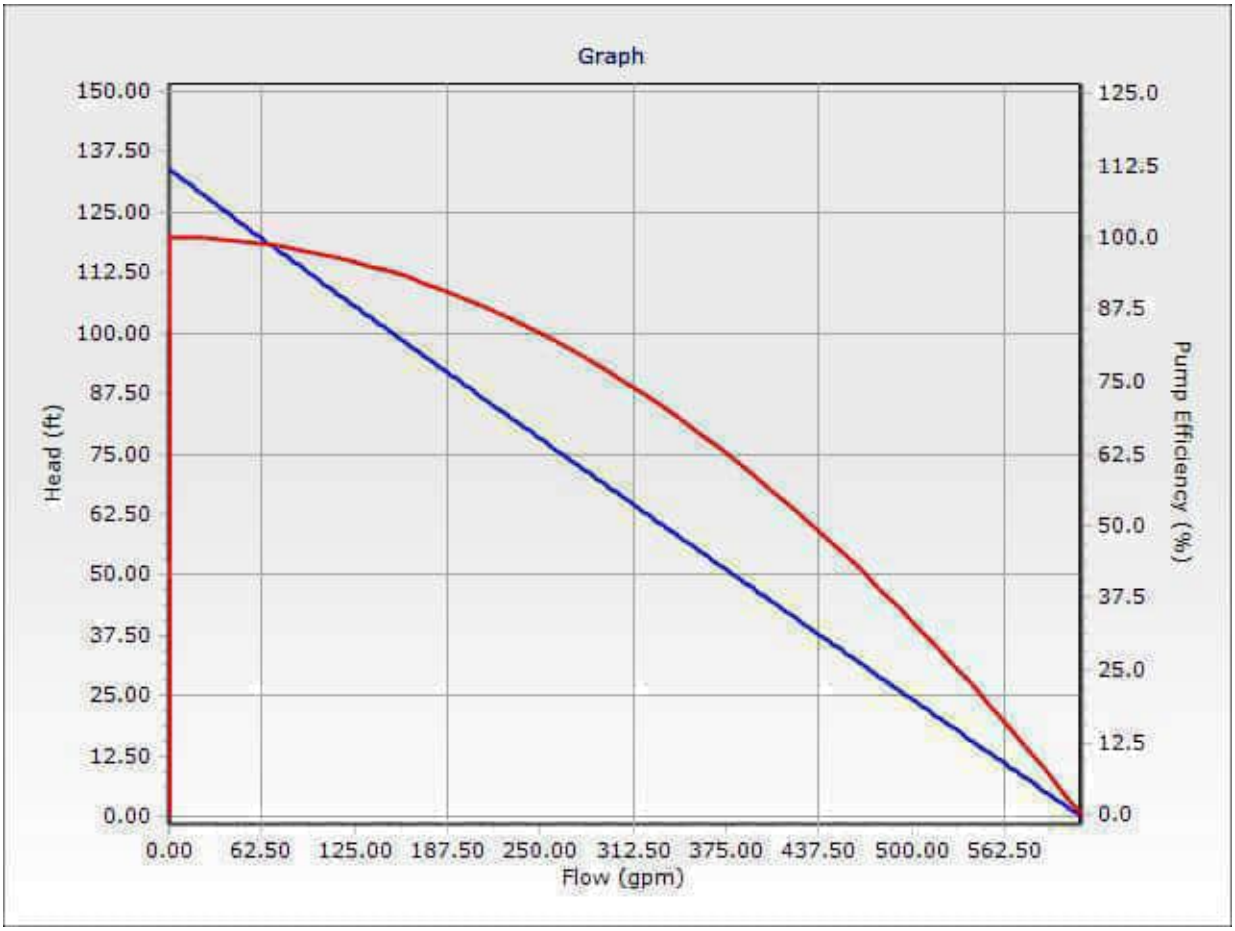
Transient (Physical)

Inertia (Pump and Motor)	0.000 lb·ft²	Specific Speed	SI=25, US=1280
Speed (Full)	0 rpm	Reverse Spin Allowed?	True

Bentley Systems, Inc. Haestad Methods Solution Center
76 Watertown Road, Suite 2D Thomaston, CT 06787
USA +1-203-755-1666

Pump Definition Detailed Report: Flygt NP 3127 SH

Hillside Grove Phases 2-4



DESIGN OF SANITARY LIFT STATION

Connelly & Wicker | PrimeAE
Project Name: HILLSIDE GROVE PHASES 2-4 (PHASE 4A)
Project No: 24-01-0079
Date: September 10, 2025

COMPUTATION OF AVERAGE DAILY FLOW

Type of Development	Units	Average Flow (GPD)	/	Unit	G.P.D.	G.P.M.
Direct Flow to PS-3 (in Ph 4A)			/	Unit	0	0.00
Single Family - Phase 4A	131	300	/	Unit	39300	27.29
Single Family - Phase 4B	40	300	/	Unit	12000	8.33
			/	Unit	0	0.00
			/	Unit	0	0.00
			/	Unit	0	0.00
			/	Unit	0	0.00
			/	Unit	0	0.00
			/	Unit	0	0.00
			/	Unit	0	0.00
			/	Unit	0	0.00
			/	Unit	0	0.00

Average Daily Flow = 51300 G.P.D. = 35.63 G.P.M.

Runout Peaking Factor = (Per CSM Section 17 Part 1.03.C) 3.00

Total Peak Flow = (A.D.F.)*(P.F.) = 107 G.P.M.

Use Total Peak Flow = Q = 107 G.P.M.

FORCE MAIN SIZE

Maximum Flow in Pipe = = 0.238 Cfs.

Pipe Diameter			Cross-Sectional Area		Flow (Cfs.)	Flow Velocity	
1. Use	4.27	Inch Pipe	0.099	Sq. Ft.	0.238	2.40	Ft/Sec.
2. Use	6.13	Inch Pipe	0.205	Sq. Ft.	0.238	1.16	Ft/Sec.
3. Use	8.04	Inch Pipe	0.353	Sq. Ft.	0.238	0.68	Ft/Sec.
4. Use	9.87	Inch Pipe	0.531	Sq. Ft.	0.238	0.45	Ft/Sec.
5. Use	11.73	Inch Pipe	0.750	Sq. Ft.	0.238	0.32	Ft/Sec.

Use Force Main of Diameter = 6.13 Inches

LIFT STATION FOR: HILLSIDE GROVE PHASES 2-4 (PHASE 4A)
PROJECT NO.: 24-01-0079

Connelly & Wicker | PrimeAE

DESIGN OF WET WELL

Use a cycle time (T) = 10 Minutes

Storage Required (Vr) = (T*Q) / 4 = $10 \text{ Min.} * \left(\frac{107 \text{ G.P.M.}}{4}\right) * \left(\frac{1 \text{ Cu.Ft.}}{7.48 \text{ Gal.}}\right) = 35.72 \text{ Cu.Ft.}$

Storage Height Required for Each Size Wet Well

Diameter of Wet Well (Ft.)	4.00	5.00	6.00	8.00	10.00	12.00
Storage Height (Ft.)	2.84	1.82	1.26	0.71	0.45	0.32

Provide Wet Well Diameter = 8.00 Ft. Storage Height Required (Vr) = 0.71 Ft.

Provide Storage Height = 1.00 Ft. Actual Cycle Time = 14 Min.

Volume Provide (Vp) = 50.27 Cu.Ft.

Since Vr < Vp , Then, Adequate Storage is Provided

WET WELL INFORMATION

Wet Well Diameter = 8.00 Ft.
Wall Thickness (t) = 0.75 Ft.
Over Hang (L) = 1.00 Ft.

Top El. 87.55
Grade El. 87.05

Effluent El.
(Force Main) 84.55

Control El. 73.26

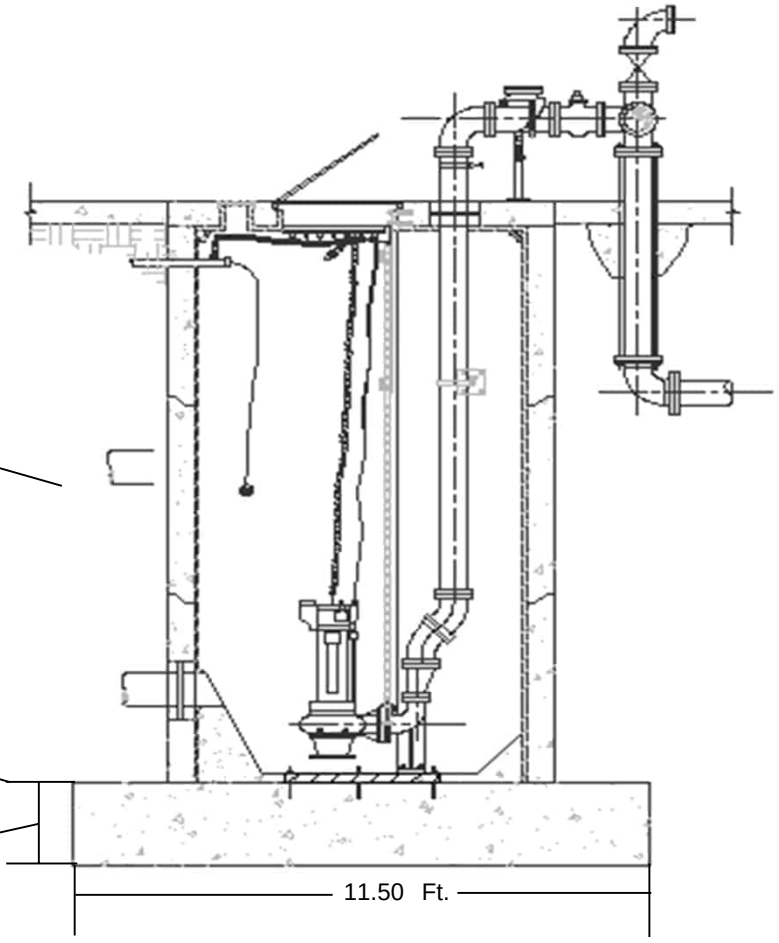
Alarm El. 72.76

Lag Pump On El. 72.26

Lead Pump On El. 71.76
All Pumps Off El. 70.76
Redundant All Pumps Off El. 70.61

Bottom El. 68.61

Bottom Pad Thickness 1.00



LIFT STATION FOR: HILLSIDE GROVE PHASES 2-4 (PHASE 4A)
PROJECT NO.: 24-01-0079

Connelly & Wicker | PrimeAE

VERIFY THE STABILITY OF THE WET WELL

Assume:

Submerged Unit Weight of Soil	=	60	Lbs. Per Cu.Ft.
Unit Weight of Fiberglass	=	110	Lbs. Per Cu.Ft.
Unit Weight of Concrete	=	150	Lbs. Per Cu.Ft.
Angle of Repose ϕ =		5	Degrees

Wet Well:

Outer Diameter of Wet Well (D_{WW})	=	9.50	Ft.
Diameter of Base	=	11.50	Ft.
Thickness of Top Cover	=	0.83	Ft.
Thickness of Walls (t)	=	0.75	Ft.
Thickness of Bottom Pad	=	1.00	Ft.
Depth of Wetwell below Grade (H)	=	18.44	Ft.
Width of Collar	=	1.00	Ft.
Depth of Collar (if any)	=	0.00	Ft.
Hatch Size	=	36" X 54"	

Assume Saturated Conditions

Ground Water Elevation	=	87.05	

SELF WEIGHT OF WET WELL

Self Weight of Slabs (Lbs.) = (Volume) * (Unit Weight)

Weight of Soil Acting on Wet Well* (Lbs.) = (V_s)*(Unit Weight) Based on Angle of Repose (ϕ)

$$V_S = \left(\pi * (H) * \left((L)^2 + 2\left(\frac{D_{WW}}{2}\right)(L) + \left(\frac{D_{WW}}{2}\right)(H)(\mathrm{Tan}(\phi)) + (L)(H)(\mathrm{Tan}(\phi)) + \left(\frac{((H)(\mathrm{Tan}(\phi)))^2}{3}\right)\right)\right)$$

	Volume (CF)	*	Unit Weight (lb/CF)	=	Force	Lbs.
Top Cover :	47.63	*	150	=	7144.08	Lbs.
Bottom Pad :	103.87		150	=	15580.34	Lbs.
Collar	0.00		150	=	0.00	Lbs.
Walls :	373.37			=	56005.27	Lbs.
Soil :	1195.93	*	60			Lbs.
			Total Downward Force:		150485.28	Lbs.

UPLIFT FORCE

Uplift Force = (Volume Displaced) * (Unit Weight of Water)

Uplift Force =	1410.94	*	62.4	=	88042.43	Lbs.

FACTOR OF SAFETY

$$\text{Factor of Safety} = \frac{\text{Downward Force}}{\text{Uplift Force}} = \frac{150485.28}{88042.43} = \mathbf{1.71}$$

LIFT STATION FOR: HILLSIDE GROVE PHASES 2-4 (PHASE 4A)
PROJECT NO.: 24-01-0079

Connelly & Wicker | PrimeAE

Pump Information - Hydromatic					
Pump Type			2 Submersible Pumps		
Pump Model			Flygt NP 3102 MT 3~ Adaptive 465		
Motor			N3102.060 18-11-4AL-W		
H.P. / Voltage / Phases / Amps			5 HP / 230V / 3 Phase / 13 A		
RPM			1745	R.P.M.	
Impeller Diameter			152	mm	
Discharge Pipe Size			4	Inches	
Force Main Size			4	Inches	
Design Point	107.00	GPM @	29.35'	TDH	
Operating Point - Manifold Condition	-	GPM @	-	TDH	
Operating Point - Runout Condition	124.45	GPM @	31.83'	TDH	

Pump Definition Detailed Report: Flygt NP 3102 MT

Hillside Grove Phases 2-4

Element Details

ID	266	Notes	
Label	Flygt NP 3102 MT		

Pump Curve

Flow (gpm)	Head (ft)
0.00	37.56
34.75	35.90
69.49	34.25
104.24	32.62
138.98	31.02
173.73	29.42
208.48	27.83
243.22	26.27
277.97	24.74
312.72	23.24
347.46	21.76
382.21	20.30
416.95	18.82
451.70	17.30
486.45	15.73
521.19	14.10
555.94	12.41
590.69	10.68
625.43	8.93
660.18	7.19
719.52	4.33

Pump Efficiency Type

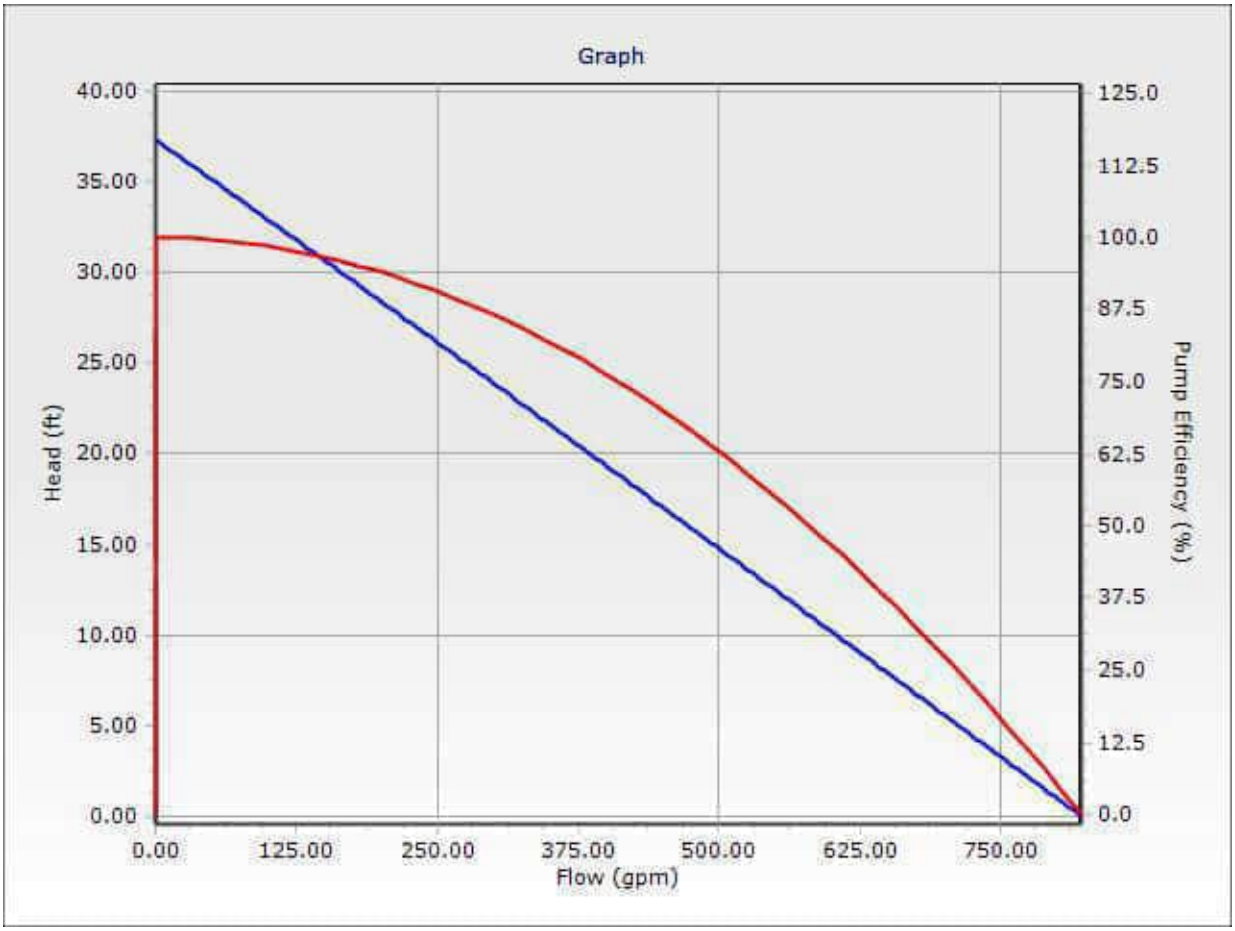
Pump Efficiency Type	Best Efficiency Point	Motor Efficiency	100.0 %
BEP Efficiency	100.0 %	Is Variable Speed Drive?	False
BEP Flow	0.00 gpm		

Transient (Physical)

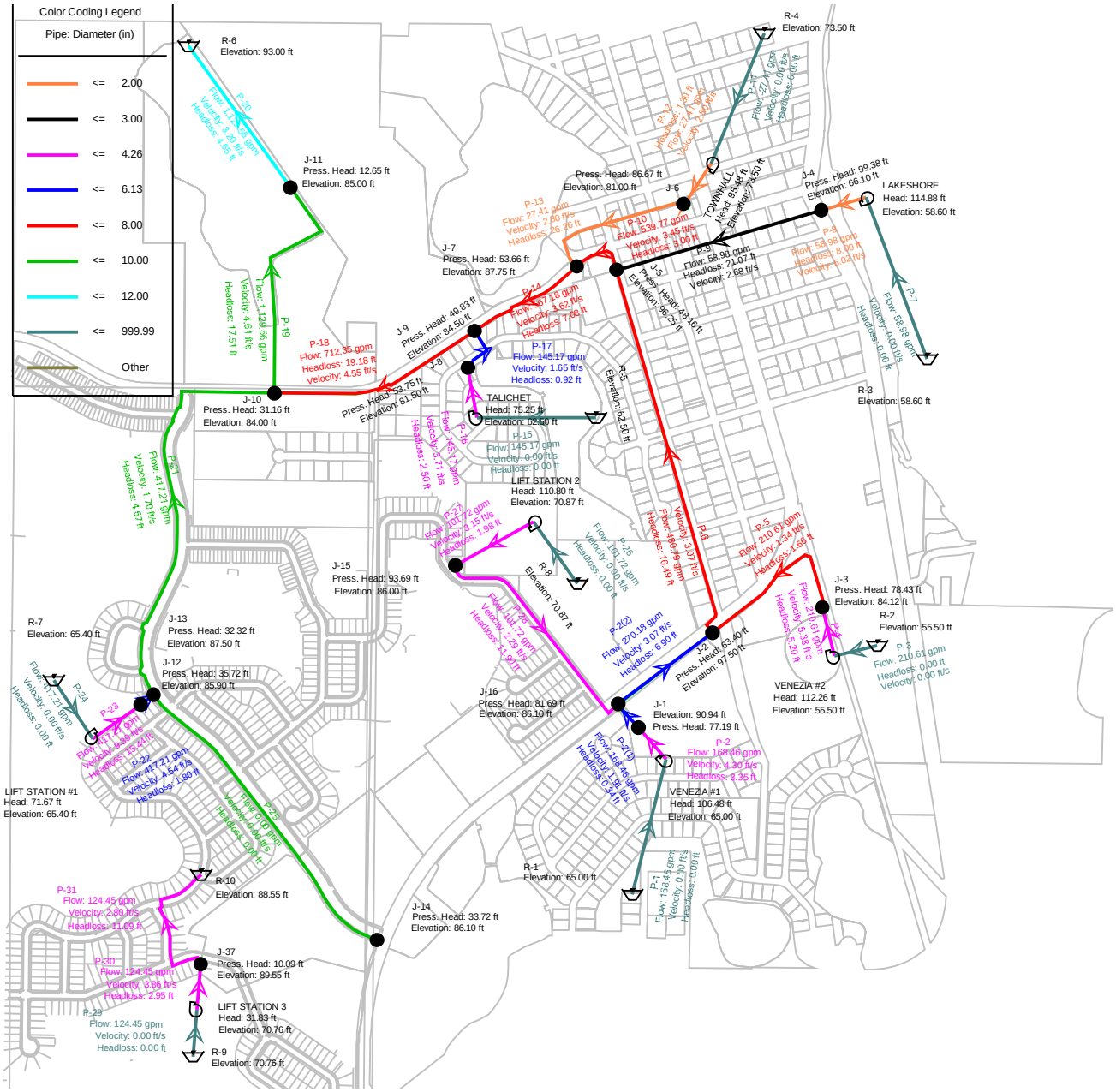
Inertia (Pump and Motor)	0.000 lb·ft²	Specific Speed	SI=25, US=1280
Speed (Full)	0 rpm	Reverse Spin Allowed?	True

Pump Definition Detailed Report: Flygt NP 3102 MT

Hillside Grove Phases 2-4



Scenario: Base
Hillside Grove Phases 2-4



FlexTable: Junction Table

Hillside Grove Phases 2-4

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)
J-1	0.00	90.94	168.13	33.4	77.19
J-2	0.00	97.50	160.90	27.4	63.40
J-3	0.00	84.12	162.55	33.9	78.43
J-4	0.00	66.10	165.48	43.0	99.38
J-5	0.00	96.25	144.41	20.8	48.16
J-6	0.00	81.00	167.67	37.5	86.67
J-7	0.00	87.75	141.41	23.2	53.66
J-8	0.00	81.50	135.25	23.3	53.75
J-9	0.00	84.50	134.33	21.6	49.83
J-10	0.00	84.00	115.16	13.5	31.16
J-11	0.00	85.00	97.65	5.5	12.65
J-12	0.00	85.90	121.62	15.5	35.72
J-13	0.00	87.50	119.82	14.0	32.32
J-14	0.00	86.10	119.82	14.6	33.72
J-15	0.00	86.00	179.69	40.5	93.69
J-16	0.00	86.10	167.79	35.3	81.69
J-37	0.00	89.55	99.64	4.4	10.09

FlexTable: Pipe Table

Hillside Grove Phases 2-4

Label	Diameter (in)	Has User Defined Length?	Length (ft)	Material	Hazen-Williams C	Status (Initial)	Flow (gpm)	Velocity (ft/s)	Minor Loss Coefficient (Unified)	Headloss (Friction) (ft)	Headloss (Minor) (ft)	Headloss (ft)
P-1	999.00	True	1	PVC	120.0	Open	168.46	0.00	0.000	0.00	0.00	0.00
P-2	4.00	True	28	PVC	120.0	Open	168.46	4.30	9.430	0.64	2.71	3.35
P-2(1)	6.00	True	60	PVC	120.0	Open	168.46	1.91	2.580	0.19	0.15	0.34
P-2(2)	6.00	False	855	PVC	120.0	Open	270.18	3.07	2.580	6.52	0.38	6.90
P-3	999.00	True	1	PVC	120.0	Open	210.61	0.00	0.000	0.00	0.00	0.00
P-4	4.00	True	28	PVC	120.0	Open	210.61	5.38	9.430	0.97	4.24	5.20
P-5	8.00	False	1,310	PVC	120.0	Open	210.61	1.34	3.770	1.55	0.11	1.66
P-6	8.00	False	2,771	PVC	120.0	Open	480.79	3.07	9.340	15.12	1.37	16.49
P-7	999.00	True	1	PVC	120.0	Open	58.98	0.00	0.000	0.00	0.00	0.00
P-8	2.00	True	28	PVC	120.0	Open	58.98	6.02	9.430	2.68	5.32	8.00
P-9	3.00	False	1,548	PVC	120.0	Open	58.98	2.68	4.170	20.61	0.46	21.07
P-10	8.00	False	411	PVC	120.0	Open	539.77	3.45	1.190	2.78	0.22	3.00
P-11	999.00	True	1	PVC	120.0	Open	-27.41	0.00	0.000	0.00	0.00	0.00
P-12	2.00	True	18	PVC	120.0	Open	27.41	2.80	7.270	0.42	0.89	1.30
P-13	2.00	False	1,132	HDPE	120.0	Open	27.41	2.80	0.000	26.26	0.00	26.26
P-14	8.00	False	884	PVC	120.0	Open	567.18	3.62	2.580	6.55	0.53	7.08
P-15	999.00	True	1	PVC	120.0	Open	145.17	0.00	0.000	0.00	0.00	0.00
P-16	4.00	True	28	PVC	120.0	Open	145.17	3.71	9.430	0.48	2.01	2.50
P-17	6.00	False	362	PVC	120.0	Open	145.17	1.65	1.190	0.87	0.05	0.92
P-18	8.00	False	1,578	PVC	120.0	Open	712.35	4.55	4.170	17.84	1.34	19.18
P-19	10.00	False	1,779	PVC	120.0	Open	1,129.56	4.61	4.770	15.93	1.58	17.51
P-20	12.00	False	1,262	PVC	120.0	Open	1,129.56	3.20	0.000	4.65	0.00	4.65
P-21	10.00	False	3,027	PVC	120.0	Open	417.21	1.70	8.490	4.28	0.38	4.67
P-22	6.13	False	117	PVC	120.0	Open	417.21	4.54	0.000	1.80	0.00	1.80
P-23	4.26	True	28	PVC	120.0	Open	417.21	9.39	9.430	2.52	12.93	15.44
P-24	999.00	True	1	PVC	120.0	Open	417.21	0.00	0.000	0.00	0.00	0.00
P-25	10.00	False	2,429	PVC	120.0	Open	0.00	0.00	3.900	0.00	0.00	0.00
P-26	999.00	True	1	HDPE	120.0	Open	101.72	0.00	0.000	0.00	0.00	0.00
P-27	3.63	True	28	HDPE	120.0	Open	101.72	3.15	10.220	0.40	1.58	1.98
P-28	4.26	False	1,753	PVC	120.0	Open	101.72	2.29	3.560	11.61	0.29	11.90
P-29	999.00	True	1	HDPE	120.0	Open	124.45	0.00	0.000	0.00	0.00	0.00
P-30	3.63	True	28	HDPE	120.0	Open	124.45	3.86	10.220	0.58	2.36	2.95
P-31	4.26	False	1,099	PVC	120.0	Open	124.45	2.80	4.280	10.56	0.52	11.09

FlexTable: Pump Table

Hillside Grove Phases 2-4

Label	Pump Definition	Elevation (ft)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
VENEZIA #1	VENEZIA #1	65.00	65.00	171.48	168.46	106.48
VENEZIA #2	VENEZIA #2	55.50	55.50	167.76	210.61	112.26
LAKESHORE	LAKESHORE	58.60	58.60	173.48	58.98	114.88
TOWNHALL	TOWNHALL	73.50	73.50	168.98	27.41	95.48
TALICHET	TALICHET	62.50	62.50	137.75	145.17	75.25
LIFT STATION #1	LS #1	65.40	65.40	137.07	417.21	71.67
LIFT STATION 2	Flygt NP 3127 SH	70.87	70.87	181.67	101.72	110.80
LIFT STATION 3	Flygt NP 3102 MT	70.76	70.76	102.59	124.45	31.83

FlexTable: Reservoir Table

Hillside Grove Phases 2-4

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-6	93.00	-1,129.56	93.00
R-1	65.00	168.46	65.00
R-2	55.50	210.61	55.50
R-3	58.60	58.98	58.60
R-4	73.50	27.41	73.50
R-5	62.50	145.17	62.50
R-7	65.40	417.21	65.40
R-8	70.87	101.72	70.87
R-9	70.76	124.45	70.76
R-10	88.55	-124.45	88.55

System Head Curve Detailed Report - System Head Curve - LS2

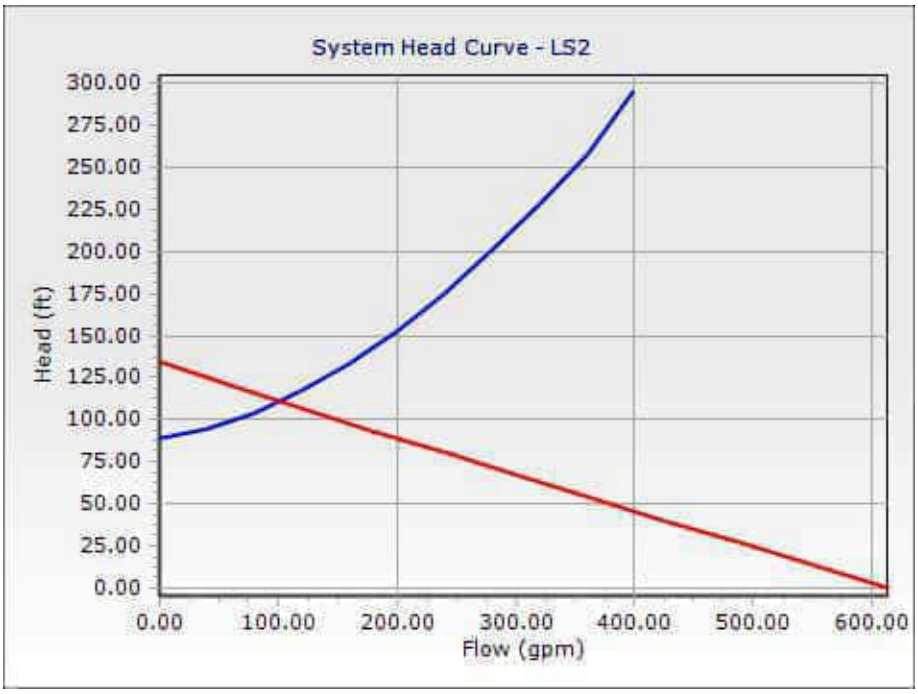
Hillside Grove Phases 2-4

Element Details

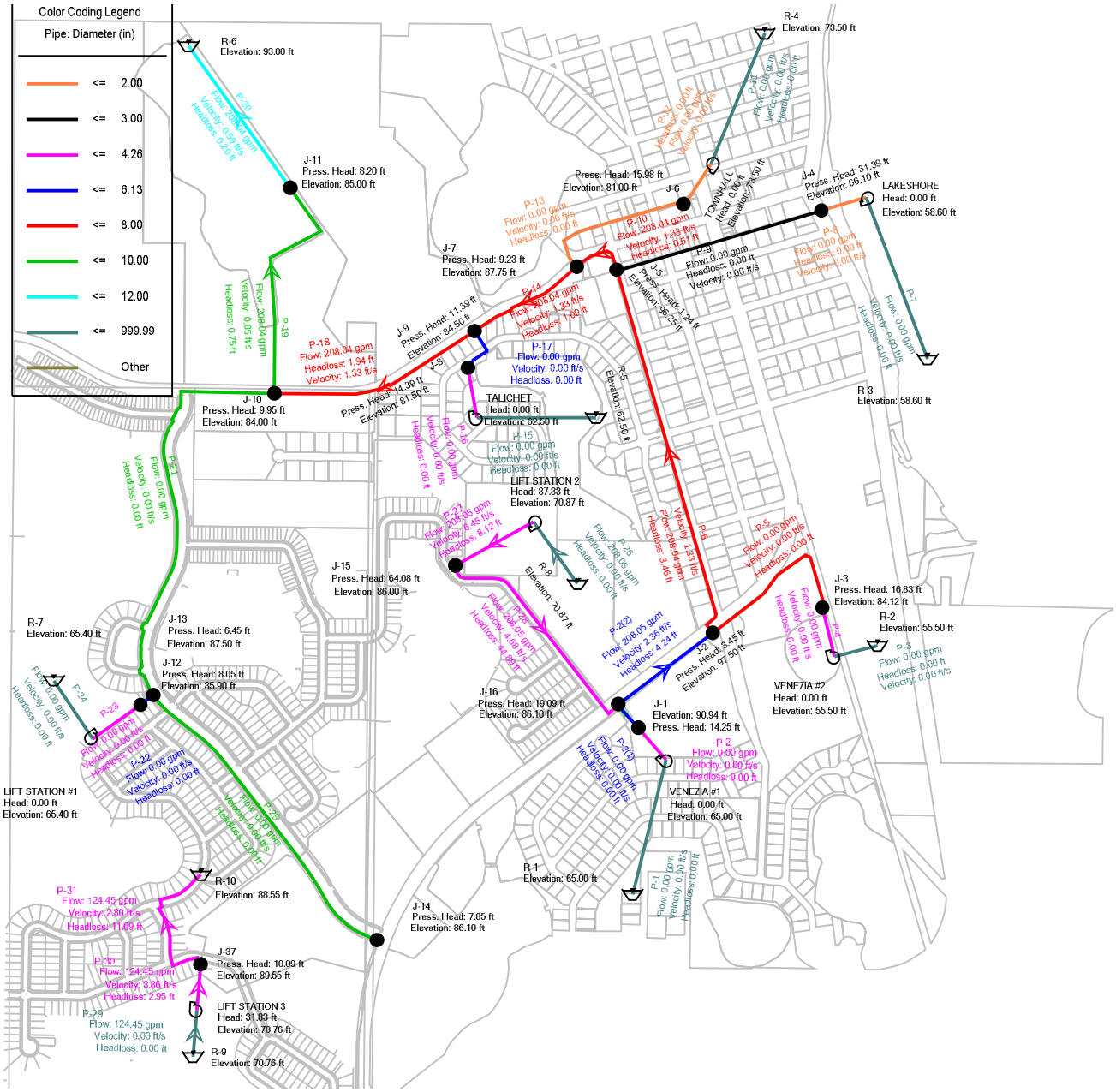
Label	System Head Curve - LS2	Number of Intervals	10
Pump	LIFT STATION 2	Specify vertical axis limits	False
Maximum Flow	400.00 gpm		

Time (hours)
0.000

System Head Curve @ 0.000 hours Flow (gpm)	System Head Curve @ 0.000 hours Head (ft)	Flygt NP 3127 SH Flow (gpm)	Flygt NP 3127 SH Head (ft)
0.00	89.48	614.19	0.00
40.00	94.84	551.12	13.41
80.00	104.22	488.25	26.83
120.00	117.12	425.61	40.24
160.00	133.34	363.22	53.66
200.00	152.70	301.12	67.07
240.00	175.05	239.37	80.49
280.00	200.25	178.07	93.90
320.00	228.09	117.36	107.32
360.00	258.27	57.54	120.73
400.00	295.04	0.00	134.15



Scenario: Base
Hillside Grove Phases 2-4
Runout Condition



FlexTable: Junction Table
Hillside Grove Phases 2-4
Runout Condition

Label	Demand (gpm)	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)
J-1	0.00	90.94	105.19	6.2	14.25
J-2	0.00	97.50	100.95	1.5	3.45
J-3	0.00	84.12	100.95	7.3	16.83
J-4	0.00	66.10	97.49	13.6	31.39
J-5	0.00	96.25	97.49	0.5	1.24
J-6	0.00	81.00	96.98	6.9	15.98
J-7	0.00	87.75	96.98	4.0	9.23
J-8	0.00	81.50	95.89	6.2	14.39
J-9	0.00	84.50	95.89	4.9	11.39
J-10	0.00	84.00	93.95	4.3	9.95
J-11	0.00	85.00	93.20	3.5	8.20
J-12	0.00	85.90	93.95	3.5	8.05
J-13	0.00	87.50	93.95	2.8	6.45
J-14	0.00	86.10	93.95	3.4	7.85
J-15	0.00	86.00	150.08	27.7	64.08
J-16	0.00	86.10	105.19	8.3	19.09
J-37	0.00	89.55	99.64	4.4	10.09

FlexTable: Pipe Table
Hillside Grove Phases 2-4
Runout Condition

Label	Diameter (in)	Has User Defined Length?	Length (ft)	Material	Hazen-Williams C	Status (Initial)	Flow (gpm)	Velocity (ft/s)	Minor Loss Coefficient (Unified)	Headloss (Friction) (ft)	Headloss (Minor) (ft)	Headloss (ft)
P-1	999.00	True	1	PVC	120.0	Open	0.00	0.00	0.000	0.00	0.00	0.00
P-2	4.00	True	28	PVC	120.0	Open	0.00	0.00	9.430	0.00	0.00	0.00
P-2(1)	6.00	True	60	PVC	120.0	Open	0.00	0.00	2.580	0.00	0.00	0.00
P-2(2)	6.00	False	855	PVC	120.0	Open	208.05	2.36	2.580	4.02	0.22	4.24
P-3	999.00	True	1	PVC	120.0	Open	0.00	0.00	0.000	0.00	0.00	0.00
P-4	4.00	True	28	PVC	120.0	Open	0.00	0.00	9.430	0.00	0.00	0.00
P-5	8.00	False	1,310	PVC	120.0	Open	0.00	0.00	3.770	0.00	0.00	0.00
P-6	8.00	False	2,771	PVC	120.0	Open	208.04	1.33	9.340	3.21	0.26	3.46
P-7	999.00	True	1	PVC	120.0	Open	0.00	0.00	0.000	0.00	0.00	0.00
P-8	2.00	True	28	PVC	120.0	Open	0.00	0.00	9.430	0.00	0.00	0.00
P-9	3.00	False	1,548	PVC	120.0	Open	0.00	0.00	4.170	0.00	0.00	0.00
P-10	8.00	False	411	PVC	120.0	Open	208.04	1.33	1.190	0.48	0.03	0.51
P-11	999.00	True	1	PVC	120.0	Open	0.00	0.00	0.000	0.00	0.00	0.00
P-12	2.00	True	18	PVC	120.0	Open	0.00	0.00	7.270	0.00	0.00	0.00
P-13	2.00	False	1,132	HDPE	120.0	Open	0.00	0.00	0.000	0.00	0.00	0.00
P-14	8.00	False	884	PVC	120.0	Open	208.04	1.33	2.580	1.02	0.07	1.09
P-15	999.00	True	1	PVC	120.0	Open	0.00	0.00	0.000	0.00	0.00	0.00
P-16	4.00	True	28	PVC	120.0	Open	0.00	0.00	9.430	0.00	0.00	0.00
P-17	6.00	False	362	PVC	120.0	Open	0.00	0.00	1.190	0.00	0.00	0.00
P-18	8.00	False	1,578	PVC	120.0	Open	208.04	1.33	4.170	1.83	0.11	1.94
P-19	10.00	False	1,779	PVC	120.0	Open	208.04	0.85	4.770	0.69	0.05	0.75
P-20	12.00	False	1,262	PVC	120.0	Open	208.04	0.59	0.000	0.20	0.00	0.20
P-21	10.00	False	3,027	PVC	120.0	Open	0.00	0.00	8.490	0.00	0.00	0.00
P-22	6.13	False	117	PVC	120.0	Open	0.00	0.00	0.000	0.00	0.00	0.00
P-23	4.26	True	28	PVC	120.0	Open	0.00	0.00	9.430	0.00	0.00	0.00
P-24	999.00	True	1	PVC	120.0	Open	0.00	0.00	0.000	0.00	0.00	0.00
P-25	10.00	False	2,429	PVC	120.0	Open	0.00	0.00	3.900	0.00	0.00	0.00
P-26	999.00	True	1	HDPE	120.0	Open	208.05	0.00	0.000	0.00	0.00	0.00
P-27	3.63	True	28	HDPE	120.0	Open	208.05	6.45	10.220	1.51	6.61	8.12
P-28	4.26	False	1,753	PVC	120.0	Open	208.05	4.68	3.560	43.67	1.21	44.89
P-29	999.00	True	1	HDPE	120.0	Open	124.45	0.00	0.000	0.00	0.00	0.00
P-30	3.63	True	28	HDPE	120.0	Open	124.45	3.86	10.220	0.58	2.36	2.95
P-31	4.26	False	1,099	PVC	120.0	Open	124.45	2.80	4.280	10.56	0.52	11.09

FlexTable: Pump Table
Hillside Grove Phases 2-4
Runout Condition

Label	Pump Definition	Elevation (ft)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
VENEZIA #1	VENEZIA #1	65.00	65.00	105.19	0.00	0.00
VENEZIA #2	VENEZIA #2	55.50	55.50	100.95	0.00	0.00
LAKESHORE	LAKESHORE	58.60	58.60	97.49	0.00	0.00
TOWNHALL	TOWNHALL	73.50	73.50	96.98	0.00	0.00
TALICHET	TALICHET	62.50	62.50	95.89	0.00	0.00
LIFT STATION #1	LS #1	65.40	65.40	93.95	0.00	0.00
LIFT STATION 2	Flygt NP 3127 SH	70.87	70.87	158.20	208.05	87.33
LIFT STATION 3	Flygt NP 3102 MT	70.76	70.76	102.59	124.45	31.83

FlexTable: Reservoir Table
Hillside Grove Phases 2-4
Runout Condition

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-6	93.00	-208.04	93.00
R-1	65.00	0.00	65.00
R-2	55.50	0.00	55.50
R-3	58.60	0.00	58.60
R-4	73.50	0.00	73.50
R-5	62.50	0.00	62.50
R-7	65.40	0.00	65.40
R-8	70.87	208.05	70.87
R-9	70.76	124.45	70.76
R-10	88.55	-124.45	88.55

System Head Curve Detailed Report - System Head Curve - LS2

Hillside Grove Phases 2-4

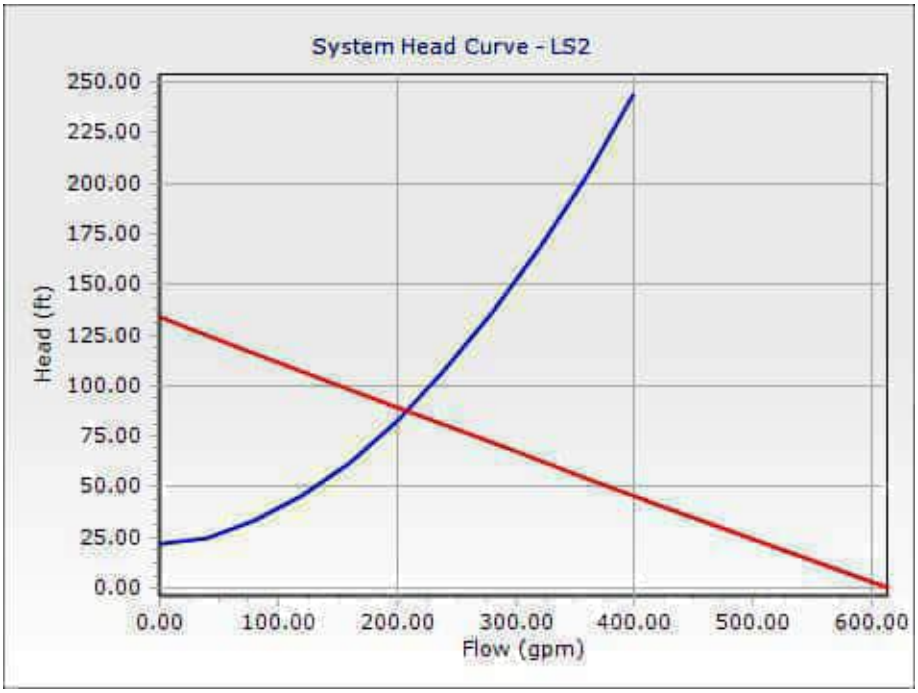
Runout Condition

Element Details

Label	System Head Curve - LS2	Number of Intervals	10
Pump	LIFT STATION 2	Specify vertical axis limits	False
Maximum Flow	400.00 gpm		

Time (hours)
0.000

System Head Curve @ 0.000 hours Flow (gpm)	System Head Curve @ 0.000 hours Head (ft)	Flygt NP 3127 SH Flow (gpm)	Flygt NP 3127 SH Head (ft)
0.00	22.13	614.19	0.00
40.00	25.12	551.12	13.41
80.00	33.04	488.25	26.83
120.00	45.42	425.61	40.24
160.00	62.02	363.22	53.66
200.00	82.69	301.12	67.07
240.00	107.32	239.37	80.49
280.00	135.82	178.07	93.90
320.00	168.11	117.36	107.32
360.00	204.14	57.54	120.73
400.00	243.84	0.00	134.15



System Head Curve Detailed Report - System Head Curve - LS3

Hillside Grove Phases 2-4

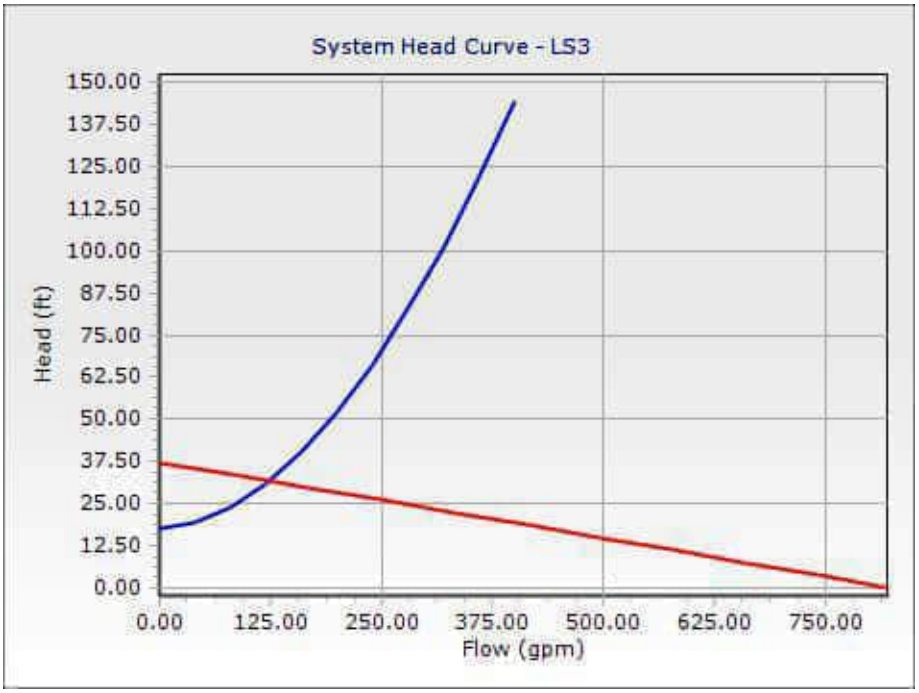
Runout Condition

Element Details

Label	System Head Curve - LS3	Number of Intervals	10
Pump	LIFT STATION 3	Specify vertical axis limits	False
Maximum Flow	400.00 gpm		

Time (hours)
0.000

System Head Curve @ 0.000 hours Flow (gpm)	System Head Curve @ 0.000 hours Head (ft)	Flygt NP 3102 MT Flow (gpm)	Flygt NP 3102 MT Head (ft)
0.00	17.79	821.63	0.00
40.00	19.45	740.71	3.73
80.00	23.90	659.66	7.46
120.00	30.90	578.43	11.19
160.00	40.32	497.03	14.92
200.00	52.09	415.40	18.65
240.00	66.15	333.51	22.38
280.00	82.46	251.29	26.11
320.00	100.97	168.62	29.84
360.00	121.67	85.25	33.57
400.00	144.51	0.00	37.30



SUMMARY OF REQUIRED VS MODELED FLOWS

Connelly & Wicker | PrimeAE
Project Name: HILLSIDE GROVE PHASES 2-4
Project No: 24-01-0079
Date: September 10, 2025

COMPUTATION OF EXISTING SYSTEM FLOWS

Talichet Pump Station	Quantity	ADF	Unit	ADF (GPD)	ADF (GPM)	Peaking Factor	Peak Flow (GPM)
Single Family Residential	93	300	/ Unit	27900	19.4	3.72	72.1
* Data taken from Construction Plans for Venezia North Subdivision obtained from the SJRWMD							

SUMMARY OF EXISTING PUMP STATION REQUIRED VS MODELED FLOWS

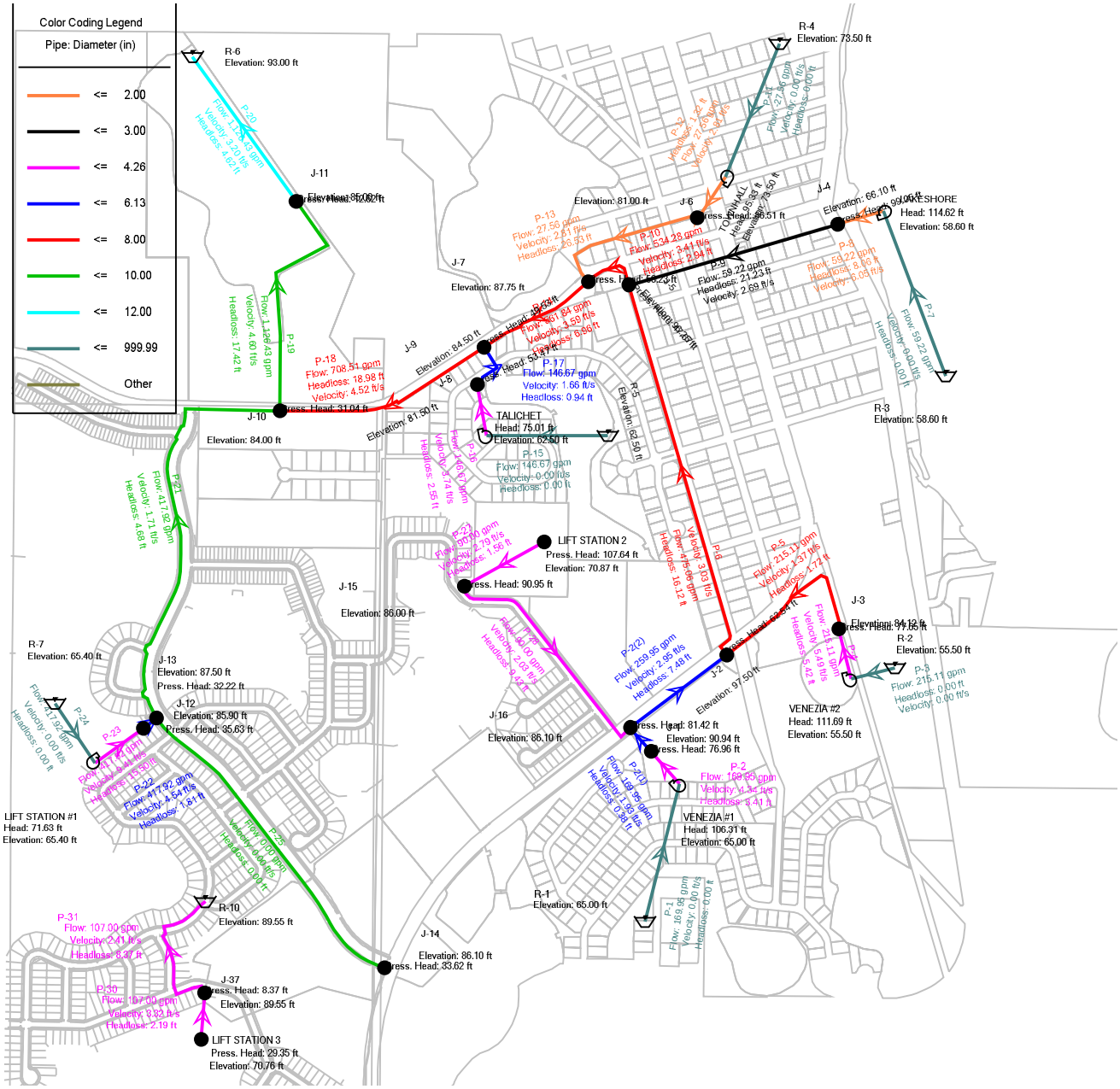
Pump Station Name	Required Peak Flow (GPM)	Peak Flow at Manifold Condition per Watercad Modeling (GPM)
Venezia Pump Station #1	133	168
* Data taken from Howey-In-The-Hills Wastewater Master Plan dated October 2018		
Venezia Pump Station #2	204	211
* Data taken from Howey-In-The-Hills Wastewater Master Plan dated October 2018		
Talichet Pump Station	72	145
* Data calculated above		
Lakeshore Pump Station	59	59
* Data taken Pump Station Engineering Plan provided by Griffey Engineering, Inc.		
Townhall Pump Station	26	28
* Data taken Pump Station Engineering Plan provided by Griffey Engineering, Inc.		

HILLSIDE GROVE PUMP STATION REQUIRED VS PROVIDED FLOWS

Pump Station Name	Required Peak Flow (GPM)	Flow at Manifold Condition per Watercad Modeling (GPM)	Flow at Runout Condition per Watercad Modeling (GPM)
Pump Station #1	351	417	499
Pump Station 2	90	102	208
Pump Station 3	107	-	124

APPENDIX

Scenario: Base
Hillside Grove
Design Conditions

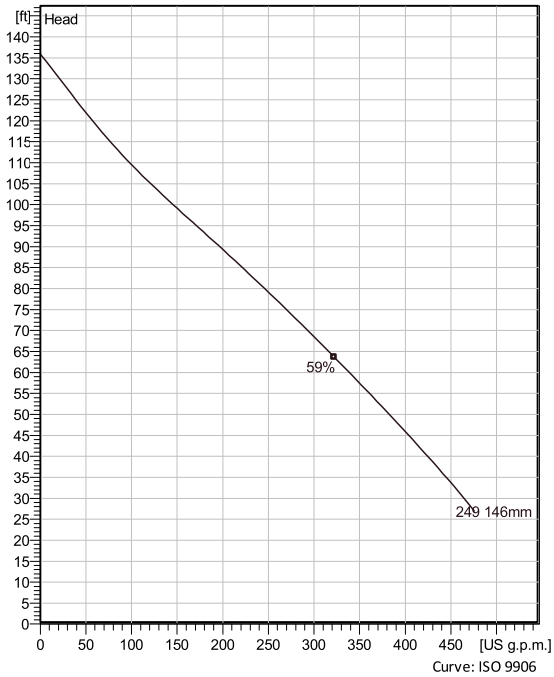


NP 3127 SH 3~ Adaptive 249

Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Modular based design with high adaptation grade.

Technical specification

Curves according to: Water, pure Water, pure [100%], 39.2 °F, 62.43 lb/ft³, 1.6889E-5 ft²/s



Curve: ISO 9906

Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

Configuration

Motor number
N3127.060 21-11-2AL-W 11hp

Installation type
P - Semi permanent, Wet

Impeller diameter
146 mm

Discharge diameter
3 inch

Pump information

Impeller diameter
146 mm

Discharge diameter
3 inch

Inlet diameter
100 mm

Maximum operating speed
3505 rpm

Number of blades
2

Max. fluid temperature
40 °C

Material

Impeller
Hard-Iron ™

Stator housing material
Grey cast iron

Project	Xylect-20119909	**Created by**	Justin Williams		
Block	0	**Created on**	9/10/2025	**Last update**	9/10/2025

NP 3127 SH 3~ Adaptive 249

Technical specification

Motor - General

Motor number N3127.060 21-11-2AL-W 11hp	**Phases** 3~	**Rated speed** 3505 rpm	**Rated power** 11 hp
ATEX approved No	**Number of poles** 2	**Rated current** 26 A	**Stator variant** 29
Frequency 60 Hz	**Rated voltage** 230 V	**Insulation class** H	**Type of Duty** S1
Version code 060			

Motor - Technical

Power factor - 1/1 Load 0.90	**Motor efficiency - 1/1 Load** 88.1 %	**Total moment of inertia** 0.434 lb ft²	**Starts per hour max.** 30
Power factor - 3/4 Load 0.87	**Motor efficiency - 3/4 Load** 88.5 %	**Starting current, direct starting** 248 A	
Power factor - 1/2 Load 0.79	**Motor efficiency - 1/2 Load** 87.3 %	**Starting current, star-delta** 82.7 A	

Project	Xylect-20119909	**Created by**	Justin Williams		
Block	0	**Created on**	9/10/2025	**Last update**	9/10/2025

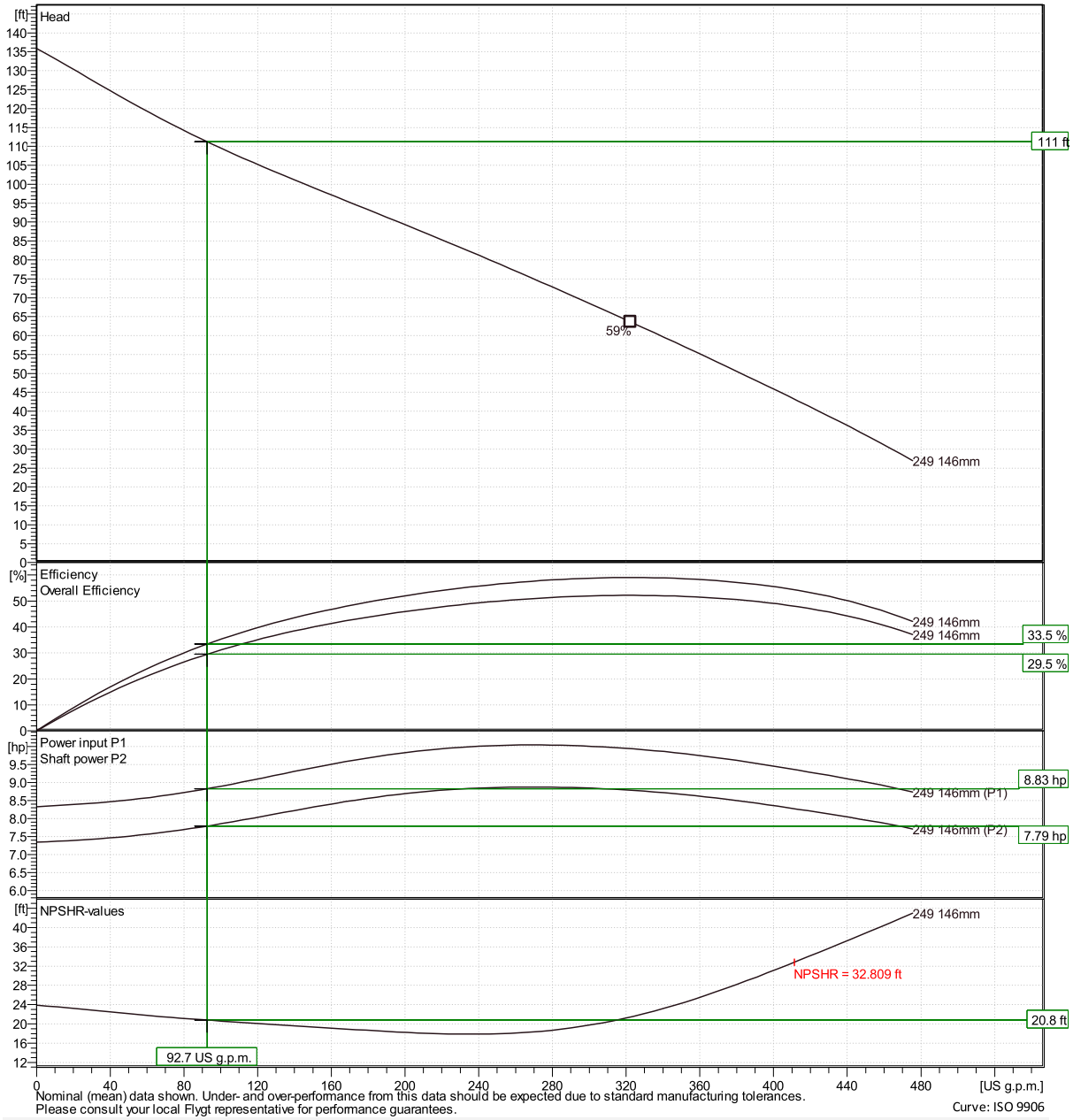
NP 3127 SH 3~ Adaptive 249

Performance curve

Duty point

Flow	Head
92.7 US g.p.m.	111 ft

Curves according to: Water, pure Water, pure [100%],39.2 °F,62.43 lb/ft³,1.6889E-5 ft²/s



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

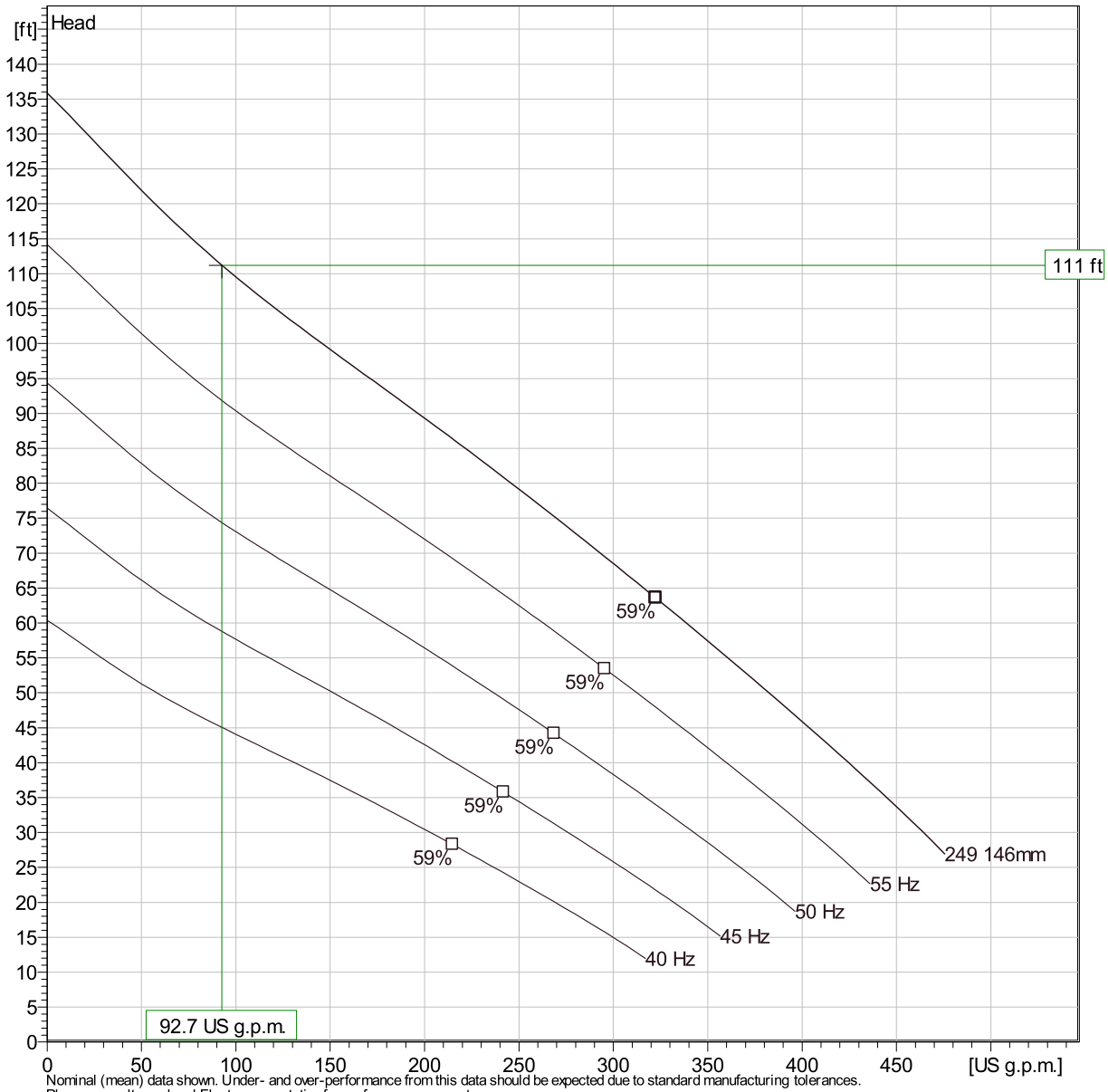
Curve: ISO 9906

Xylect-20119909			Justin Williams		
0		**Created on**	9/10/2025	**Last update**	9/10/2025

NP 3127 SH 3~ Adaptive 249

Duty Analysis

Curves according to: Water, pure [100%] ; 39.2°F; 62.43lb/ft³; 1.6889E-5ft²/s



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

Operating characteristics

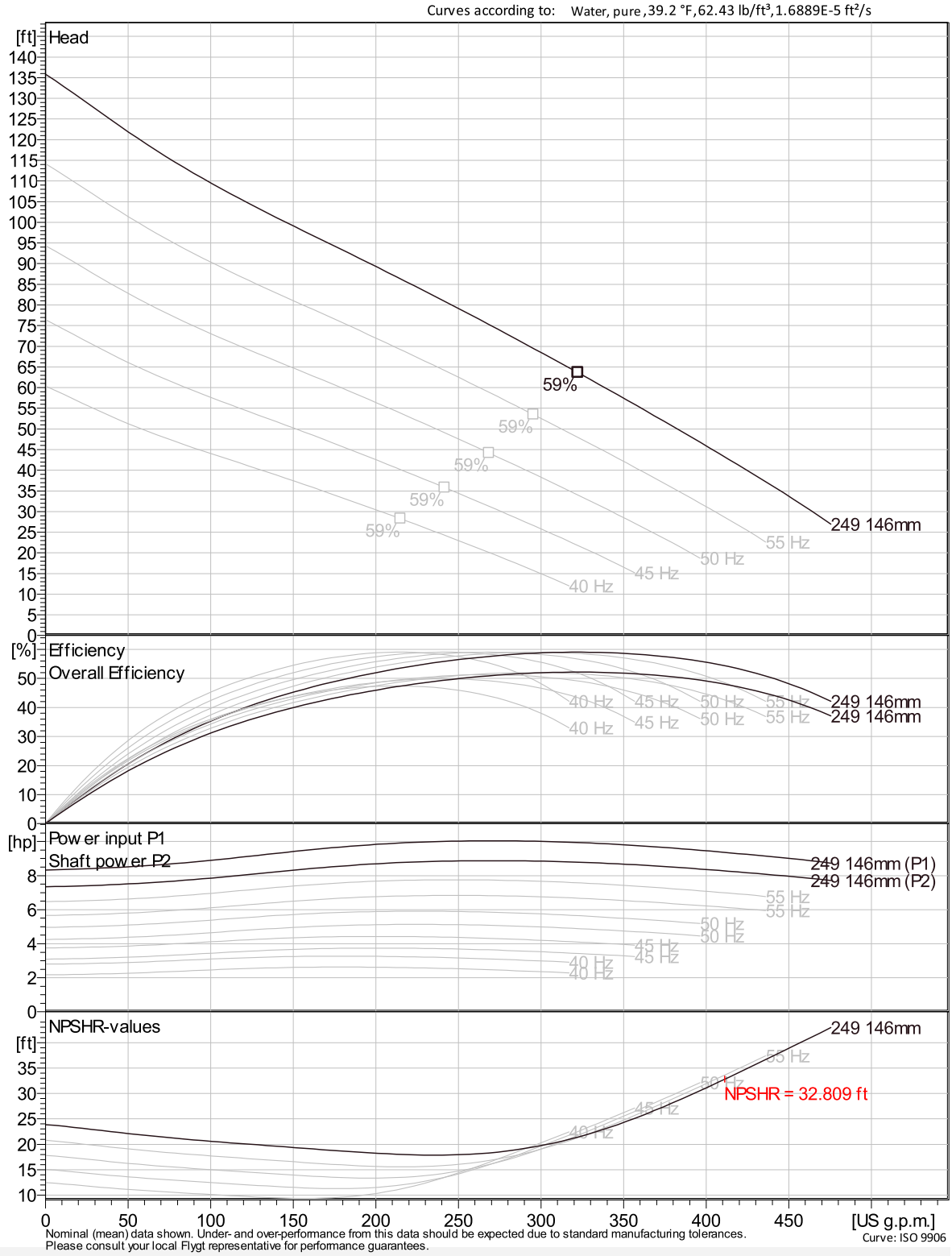
Pumps / Systems	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Spec. Energy	NPSHre
	US g.p.m.	ft	hp	US g.p.m.	ft	hp		kWh/US MG	ft
1	92.7	111	7.79	92.7	111	7.79	33.5 %	1180	20.8

Project		**Created by**	Justin Williams		
Block	Xylect-20119909	**Created on**	9/10/2025	**Last update**	9/10/2025

NP 3127 SH 3~ Adaptive 249

VFD Curve

Curves according to: Water, pure ,39.2 °F,62.43 lb/ft³,1.6889E-5 ft²/s



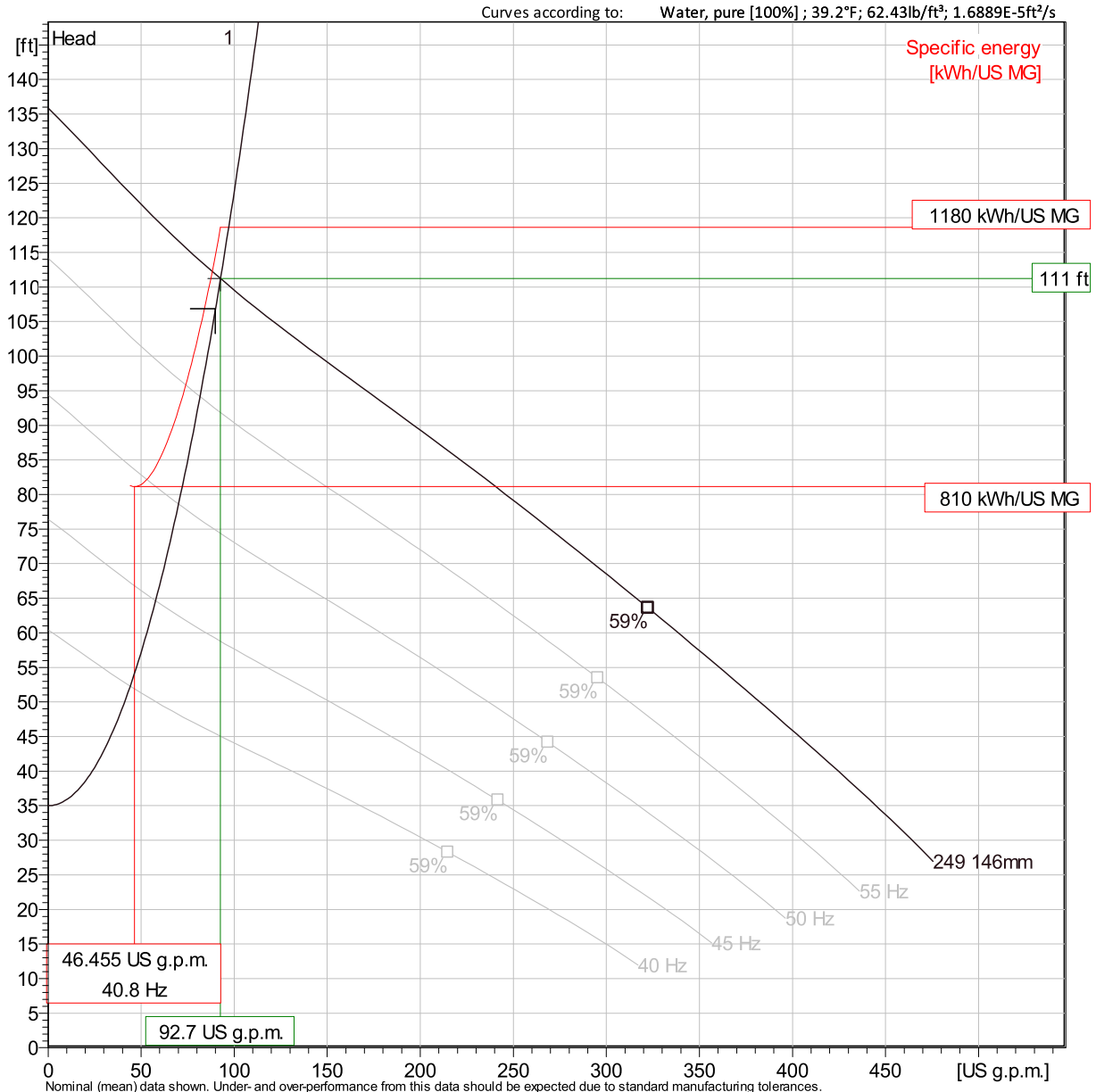
Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

Curve: ISO 9906

Project	Xylect-20119909	**Created by**	Justin Williams		
Block	0	**Created on**	9/10/2025	**Last update**	9/10/2025

NP 3127 SH 3~ Adaptive 249

VFD Analysis



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

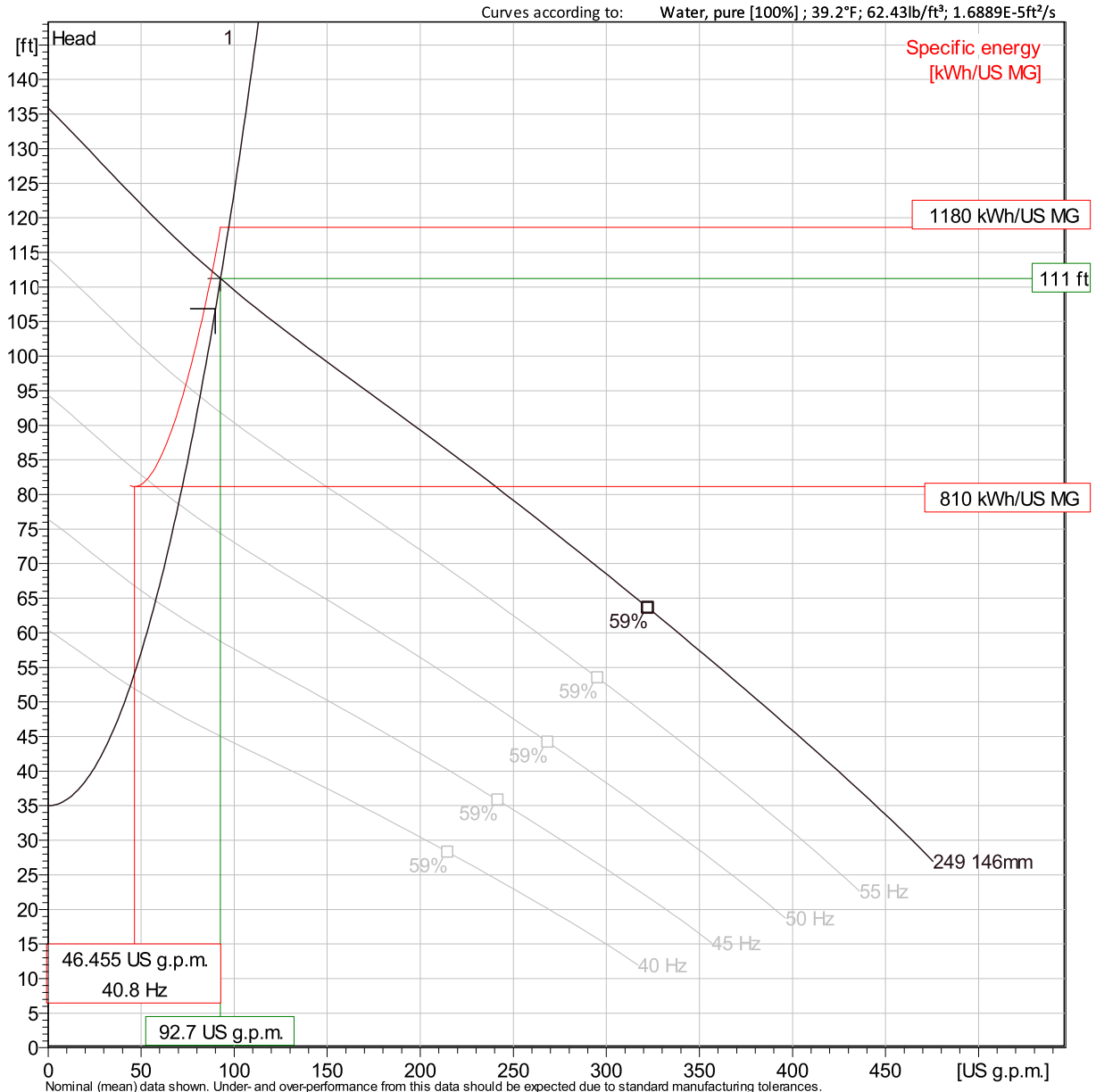
Operating Characteristics

Pumps / Systems	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Specific energy	NPSHre
		US g.p.m.	ft	hp	US g.p.m.	ft	hp		kWh/US MG	ft
1	60 Hz	92.7	111	7.79	92.7	111	7.79	33.5 %	1180	20.8
1	55 Hz	81.6	94.2	5.98	81.6	94.2	5.98	32.5 %	1040	18.2
1	50 Hz	70.1	78.6	4.47	70.1	78.6	4.47	31.2 %	921	15.7
1	45 Hz	57.8	64.6	3.24	57.8	64.6	3.24	29.2 %	838	13.4

Project	Xylect-20119909	**Created by**	Justin Williams		
Block	0	**Created on**	9/10/2025	**Last update**	9/10/2025

NP 3127 SH 3~ Adaptive 249

VFD Analysis



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

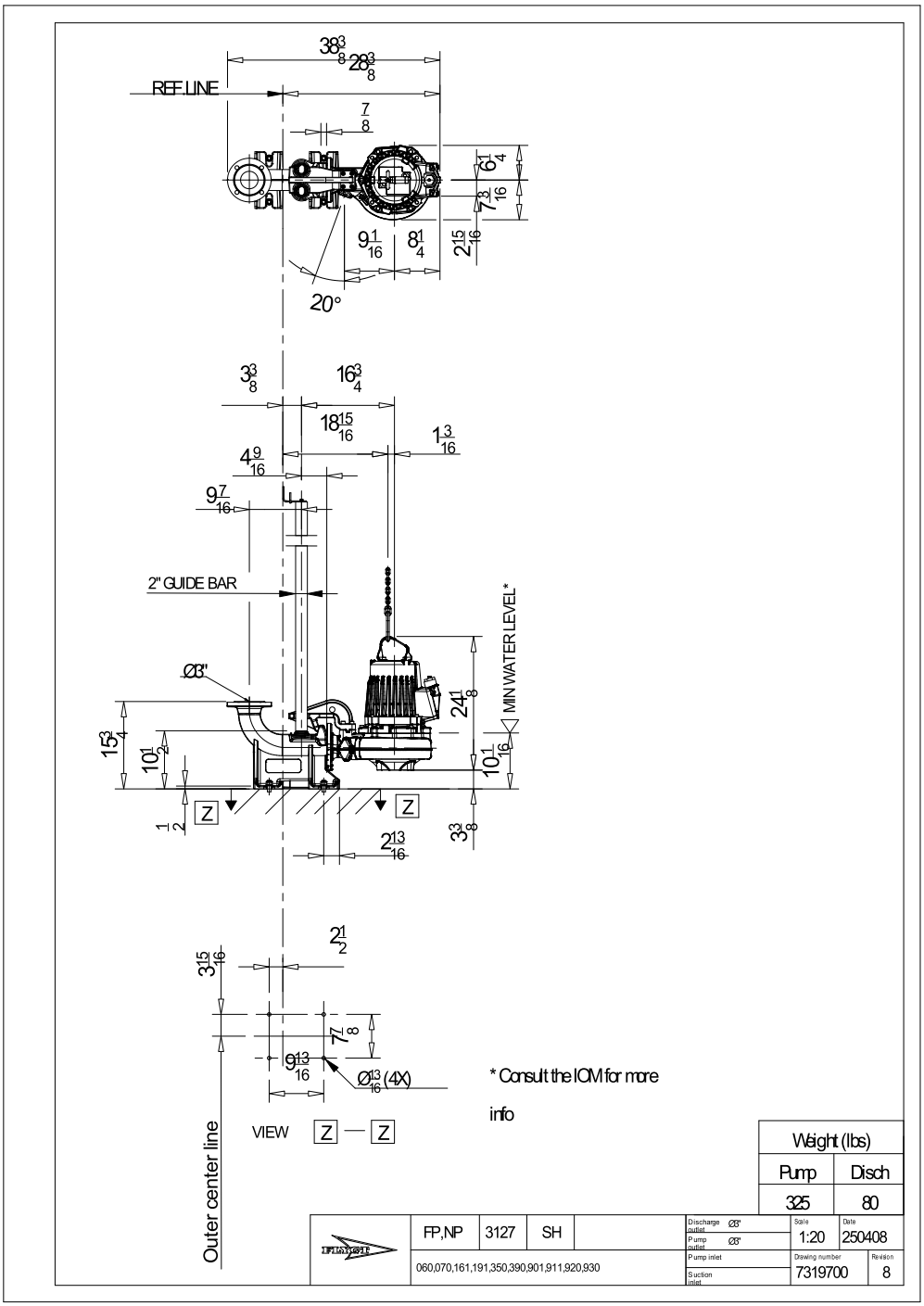
Operating Characteristics

Pumps / Systems	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Specific energy	NPSHre
		US g.p.m.	ft	hp	US g.p.m.	ft	hp		kWh/US MG	ft
1	40 Hz	44.1	52.3	2.25	44.1	52.3	2.25	25.9 %	811	11.3

Project	Xylect-20119909	**Created by**	Justin Williams		
Block	0	**Created on**	9/10/2025	**Last update**	9/10/2025

NP 3127 SH 3~ Adaptive 249

Dimensional drawing



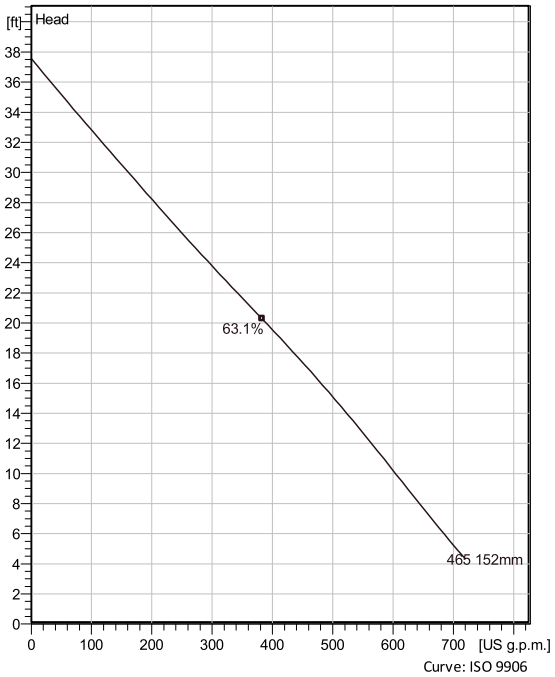
Project	Xylect-20119909	**Created by**	Justin Williams
Block	0	**Created on**	9/10/2025 **Last update** 9/10/2025

NP 3102 MT 3~ Adaptive 465

Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Modular based design with high adaptation grade.

Technical specification

Curves according to: Water, pure Water, pure [100%],39.2 °F,62.43 lb/ft³,1.6888E-5 ft²/s



Curve: ISO 9906

Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

Configuration

Motor number
N3102.060 18-11-4AL-W 5hp

Installation type
P - Semi permanent, Wet

Impeller diameter
152 mm

Discharge diameter
4 inch

Pump information

Impeller diameter
152 mm

Discharge diameter
4 inch

Inlet diameter
100 mm

Maximum operating speed
1745 rpm

Number of blades
2

Max. fluid temperature
40 °C

Material

Impeller
Hard-Iron ™

Stator housing material
Grey cast iron

Project	Xylect-20120144	**Created by**	Justin Williams		
Block	0	**Created on**	9/10/2025	**Last update**	9/10/2025

NP 3102 MT 3~ Adaptive 465

Technical specification

Motor - General

Motor number N3102.060 18-11-4AL-W 5hp	**Phases** 3~	**Rated speed** 1745 rpm	**Rated power** 5 hp
ATEX approved No	**Number of poles** 4	**Rated current** 13 A	**Stator variant** 66
Frequency 60 Hz	**Rated voltage** 230 V	**Insulation class** H	**Type of Duty** S1
Version code 060			

Motor - Technical

Power factor - 1/1 Load 0.83	**Motor efficiency - 1/1 Load** 85.3 %	**Total moment of inertia** 0.589 lb ft²	**Starts per hour max.** 30
Power factor - 3/4 Load 0.77	**Motor efficiency - 3/4 Load** 85.9 %	**Starting current, direct starting** 79 A	
Power factor - 1/2 Load 0.67	**Motor efficiency - 1/2 Load** 84.5 %	**Starting current, star-delta** 26.3 A	

Project	Xylect-20120144	**Created by**	Justin Williams		
Block	0	**Created on**	9/10/2025	**Last update**	9/10/2025

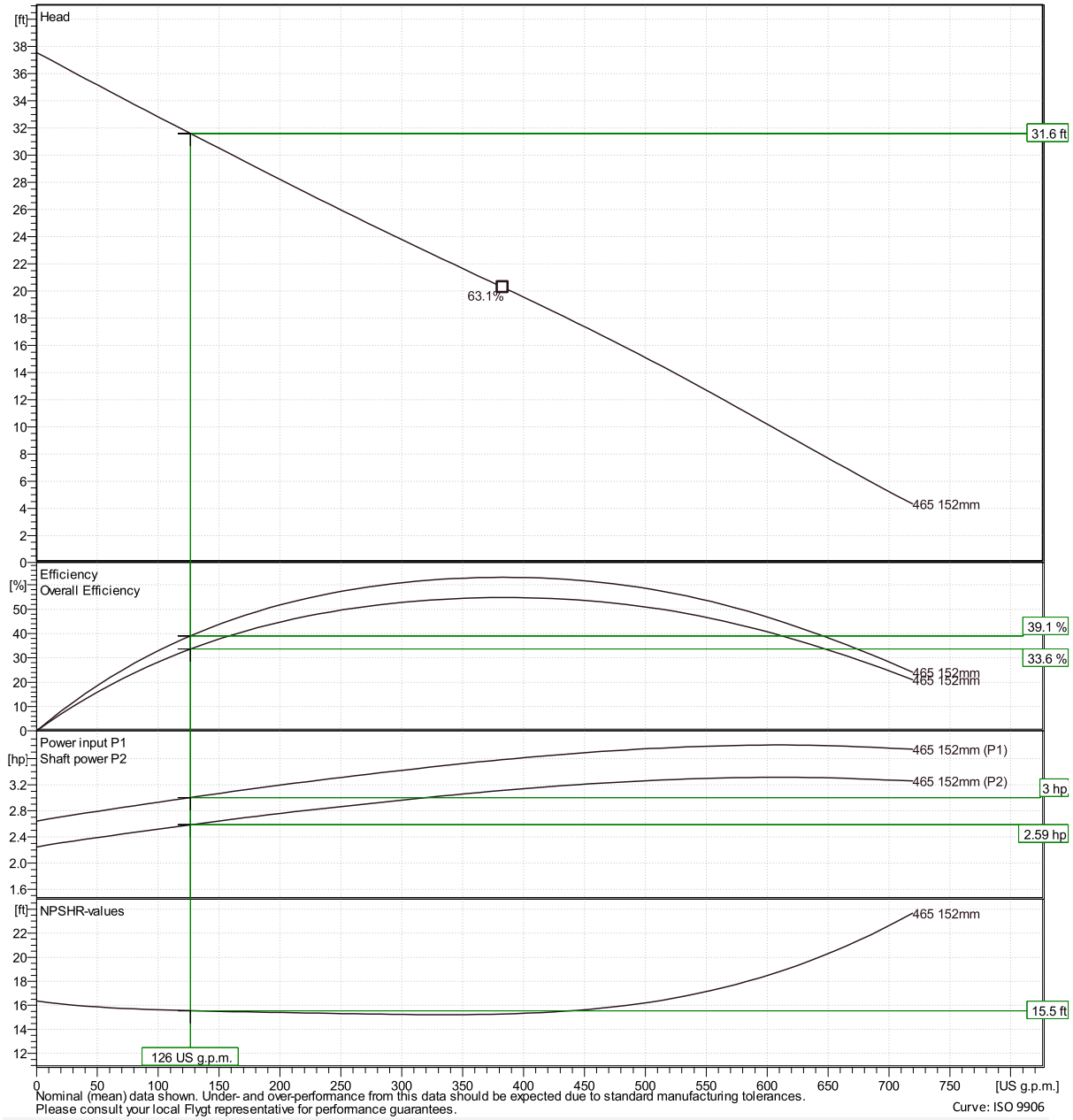
NP 3102 MT 3~ Adaptive 465

Performance curve

Duty point

Flow	Head
126 US g.p.m.	31.6 ft

Curves according to: Water, pure Water, pure [100%],39.2 °F,62.43 lb/ft³,1.6888E-5 ft²/s



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

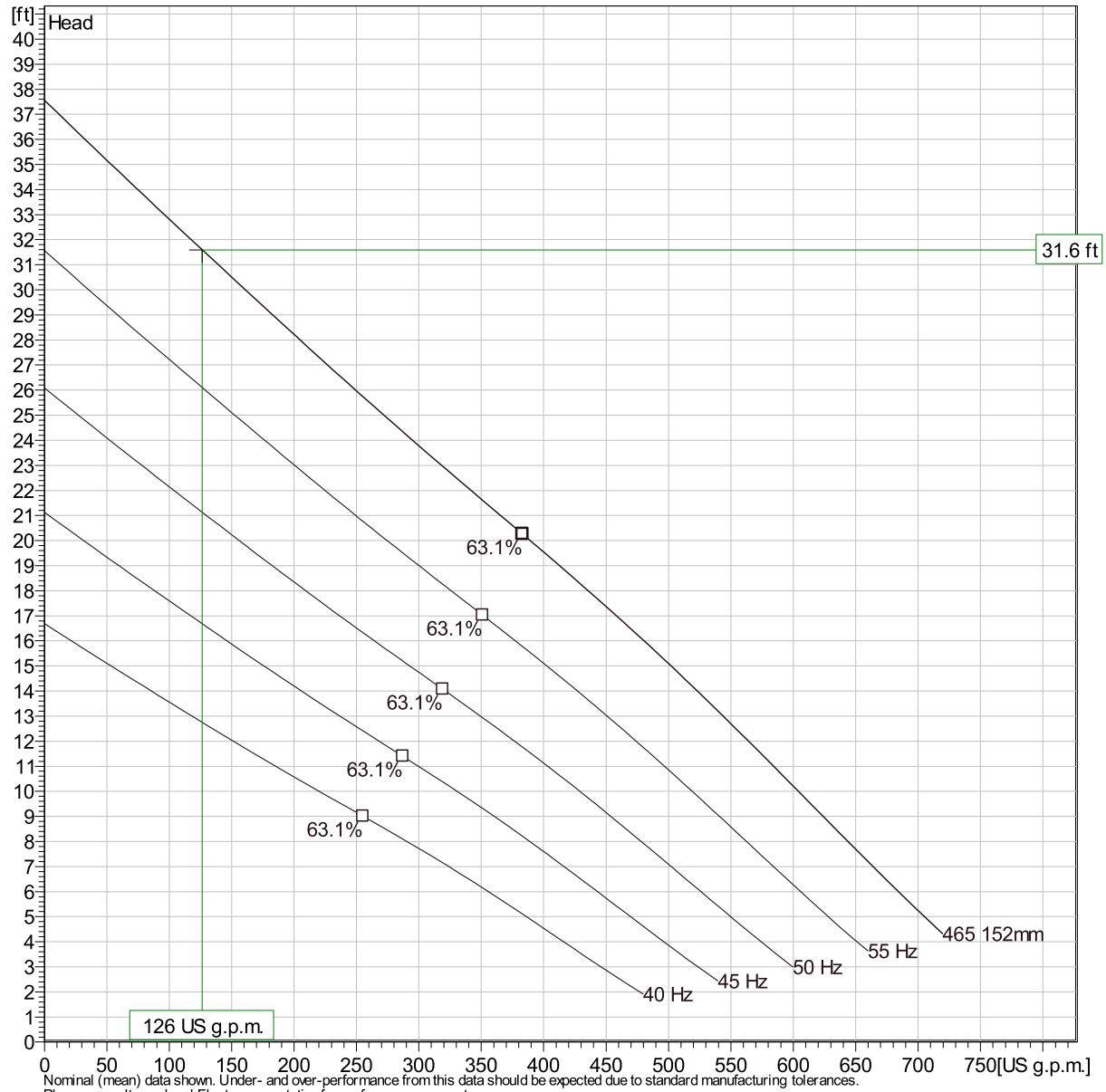
Curve: ISO 9906

Xylect-20120144			Justin Williams		
0		**Created on**	9/10/2025	**Last update**	9/10/2025

NP 3102 MT 3~ Adaptive 465

Duty Analysis

Curves according to: Water, pure [100%] ; 39.2°F; 62.43lb/ft³; 1.6888E-5ft²/s



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

Operating characteristics

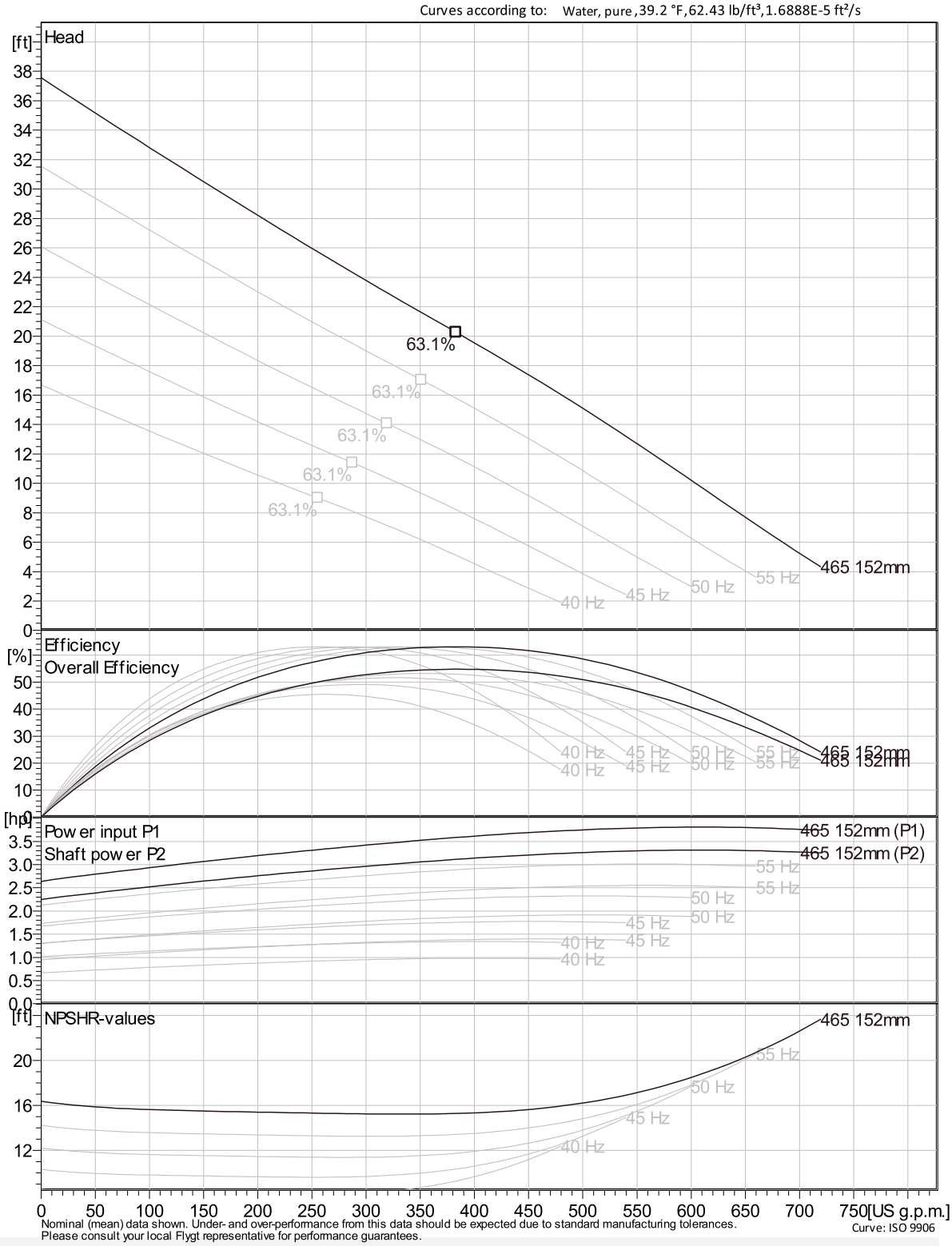
Pumps / Systems	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Spec. Energy	NPSHre
	US g.p.m.	ft	hp	US g.p.m.	ft	hp		kWh/US MG	ft
1	126	31.6	2.59	126	31.6	2.59	39.1 %	295	15.5

Project		**Created by**	Justin Williams		
Block	Xylect-20120144	**Created on**	9/10/2025	**Last update**	9/10/2025

NP 3102 MT 3~ Adaptive 465

VFD Curve

Curves according to: Water, pure ,39.2 °F,62.43 lb/ft³,1.6888E-5 ft²/s



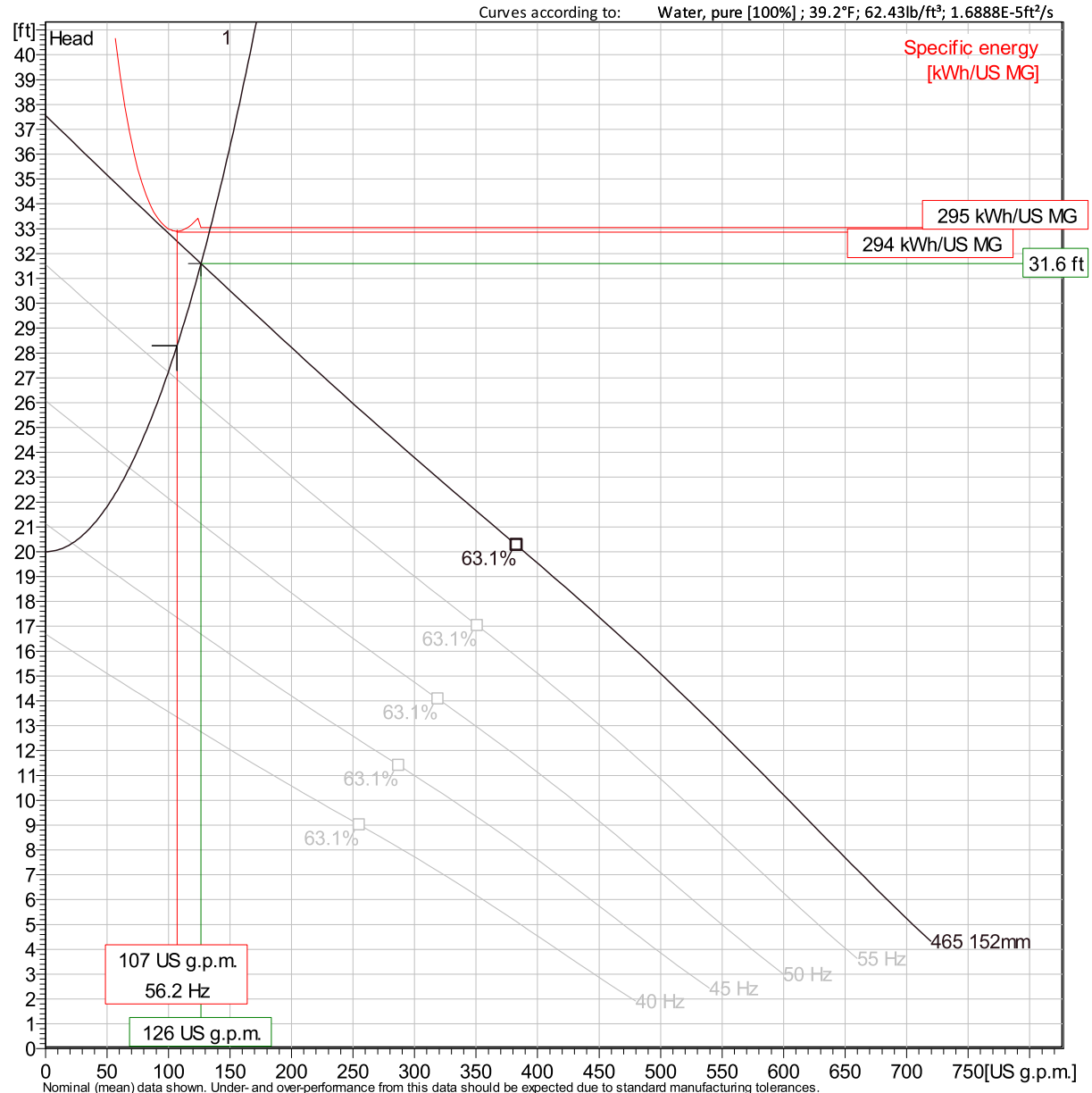
Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

Curve: ISO 9906

Project	Xylect-20120144	**Created by**	Justin Williams		
Block	0	**Created on**	9/10/2025	**Last update**	9/10/2025

NP 3102 MT 3~ Adaptive 465

VFD Analysis



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Please consult your local Flygt representative for performance guarantees.

Operating Characteristics

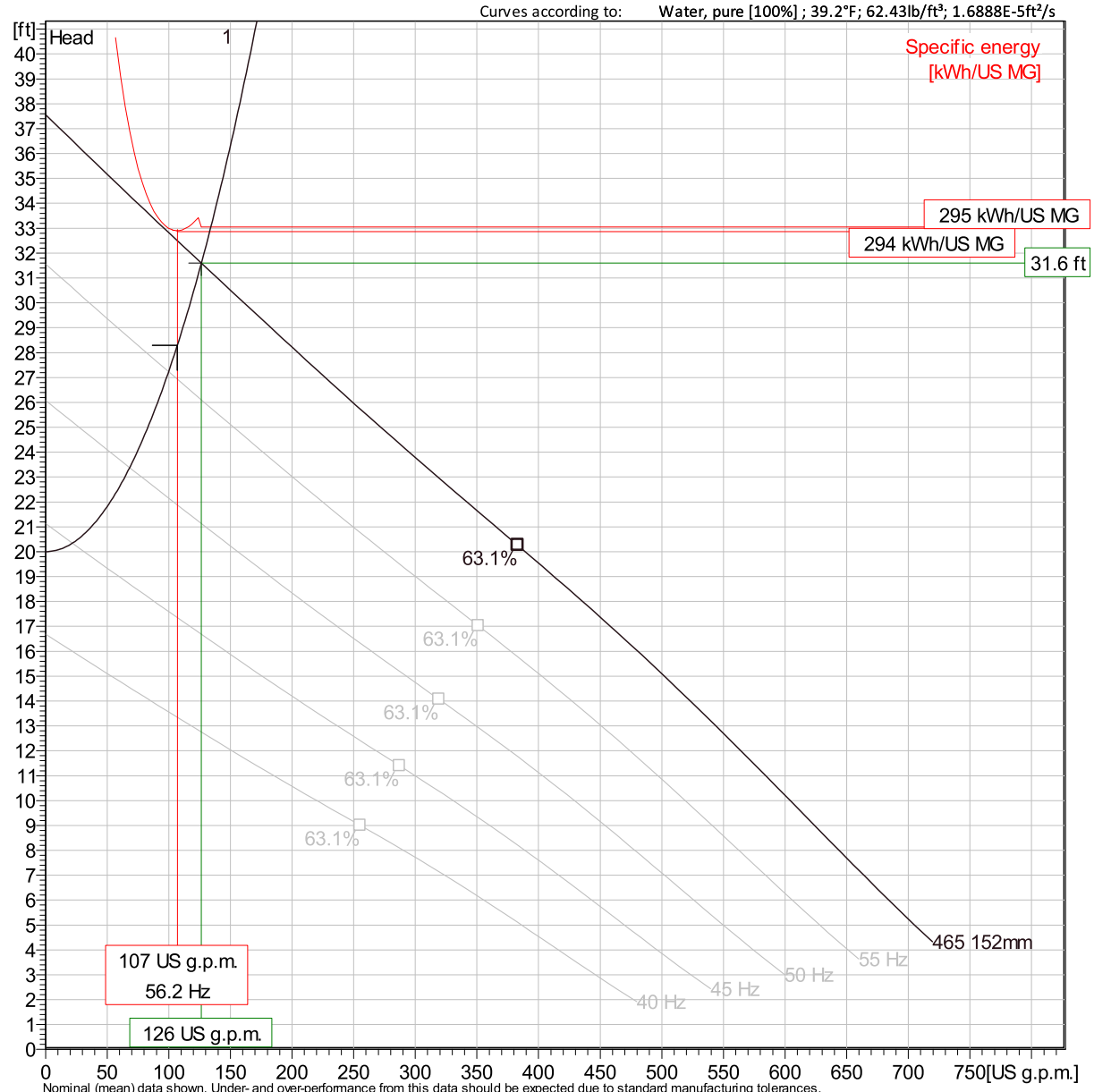
Pumps / Systems	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Specific energy	NPSHre
		US g.p.m.	ft	hp	US g.p.m.	ft	hp		kWh/US MG	ft
1	60 Hz	126	31.6	2.59	126	31.6	2.59	39.1 %	295	15.5
1	55 Hz	99.9	27.2	1.96	99.9	27.2	1.96	35.1 %	295	13.6
1	50 Hz	68.3	23.4	1.43	68.3	23.4	1.43	28.2 %	330	11.7
1	45 Hz	21.8	20.3	0.985	21.8	20.3	0.985	11.4 %	767	10.1

Project	Xylect-20120144	**Created by**	Justin Williams		
Block	0	**Created on**	9/10/2025	**Last update**	9/10/2025

NP 3102 MT 3~ Adaptive 465

VFD Analysis

Curves according to: Water, pure [100%] ; 39.2°F; 62.43lb/ft³; 1.6888E-5ft²/s



Nominal (mean) data shown. Under- and over-performance from this data should be expected due to standard manufacturing tolerances.
Please consult your local Flygt representative for performance guarantees.

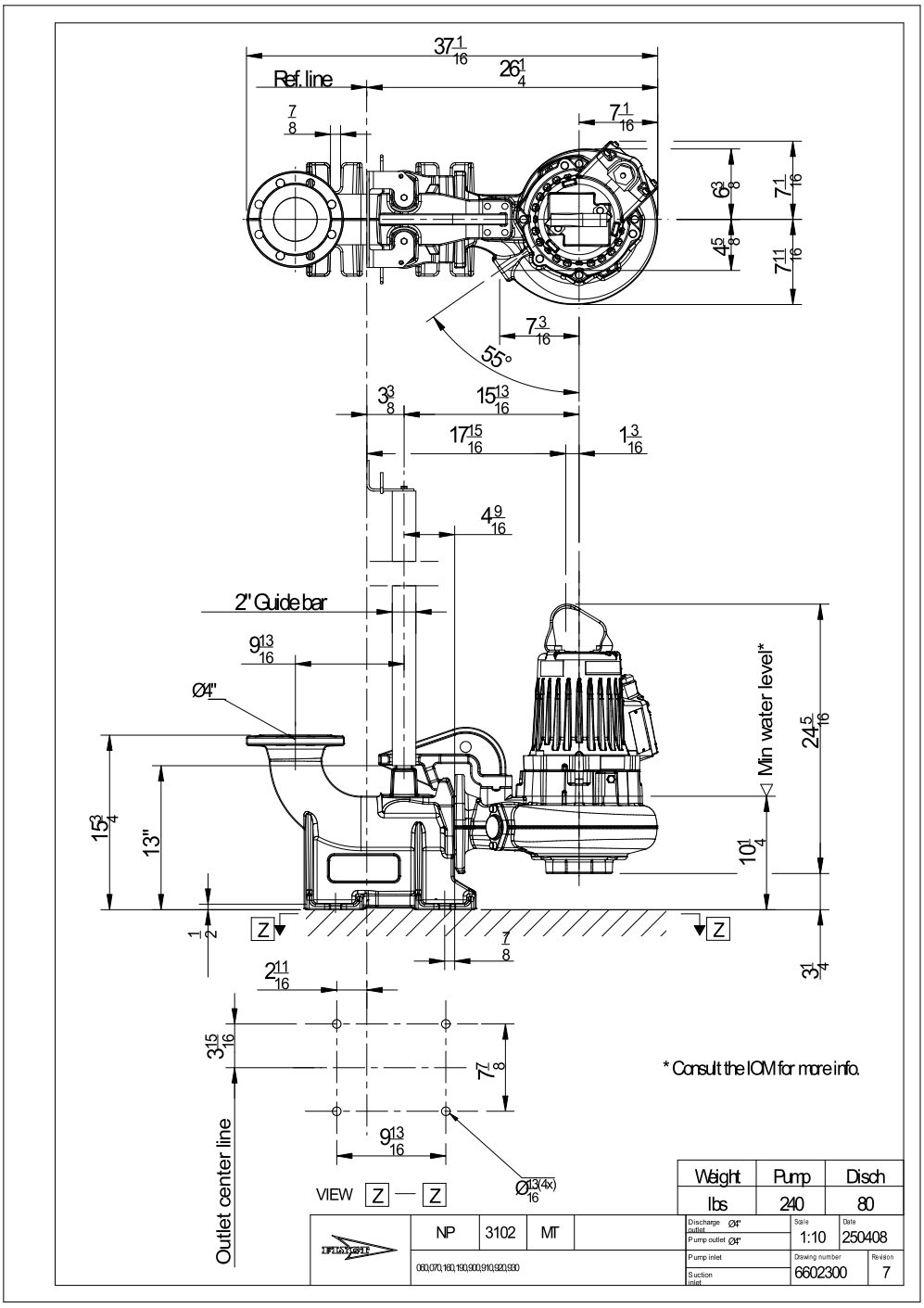
Operating Characteristics

Pumps / Systems	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Specific energy	NPSHre
		US g.p.m.	ft	hp	US g.p.m.	ft	hp		kWh/US MG	ft
1	40 Hz									

Project	Xylect-20120144	**Created by**	Justin Williams		
Block	0	**Created on**	9/10/2025	**Last update**	9/10/2025

NP 3102 MT 3~ Adaptive 465

Dimensional drawing



Project	Xylect-20120144		**Created by**	Justin Williams	
Block	0		**Created on**	9/10/2025	**Last update** 9/10/2025

1" = 600'

12" FM

10" FM

8" FM

TOWNHALL
LIFT STATION

2" FM

LAKESHORE
LIFT STATION

3" FM

8" FM

4" FM

TALICHET
LIFT STATION

8" FM

8" FM

VENEZIA
LS #2

6" FM

VENEZIA
LS #1

LIFT STATION

LIFT STATION

LIFT STATION

LIFT STATION

WASTEWATER MASTER PLAN

Town of Howey in the Hills

Public Wastewater System

Prepared For:

Prepared By:

BOOTH ERN STRAUGHAN HIOTT

ENGINEERS • SURVEYORS
LAND PLANNERS

October 2018

APPENDIX C

Venezia's Existing Lift Station Calculations

LIFT STATION CALCULATIONS

Venezia Lift Station #1

I. Design Flow Rates:

Parcel ID	Land Use Description	Unit Description	Units	Unit Flow (GPD/Unit)	Average Daily Flow (GPD)	Average Daily Flow (GPM)	Minimum Daily Flow (GPM)	Maximum Daily Flow (GPM)	Peak Daily Flow (GPM)
1	*Residential - SF (detached)*	dwelling unit	94	300	28,200	20	10	39	78
2	*Commercial - Shopping Center*	square feet	70,000	0.1	7,000	5	2	10	19
3	*Commercial - Shopping Center - Deli*	square feet	500	0.4	200	0.1	0.1	0.3	0.6
4	*Commercial - Shopping Center - Bakery*	square feet	500	0.4	200	0.1	0.1	0.3	0.6
5	*Commercial - Shopping Center - Meat*	square feet	500	0.75	375	0.3	0.1	0.5	1.0
6	*Commercial - Restaurant <16 hrs*	seat	300	40	12,000	8	4	17	33
7					0	0	0	0	0
8					0	0	0	0	0
9					0	0	0	0	0
10					0	0	0	0	0
				Total	47,975	33	17	67	133
							F_{min}	F_{max}	F_{peak}
					Design Peaking Factors:		0.5	2.0	4.0

II. Wet Well Dimensions:

Wet Well Configuration:	***Duplex***	
No. of Wet Wells:	***1***	
Layout:	***Circular***	
Inner Diameter =	8.00	feet
Volume =	376	gallons/foot
Total Volume =	**376**	gallons/foot
Wall Thickness =	8	inches
Outer Diameter =	9.33	feet
Slab Lip =	18	inches
Slab Diameter =	12.33	feet
Slab Thickness =	12	inches

III. Minimum Cycle Time & Storage Volume:

$T = (V / (Q-S)) + (V/S)$ Where: T = Cycle Time (Min.)
Note: T_{min} occurs when S = 1/2Q (Duplex) S = Peak Inflow (gpm)
$V = (QT / 4)$ Q = Pump Discharge (gpm)
V = Req. Storage Vol. (gal.)

For Minimum T =	10	Min.
S =	147	GPM
Q =	294	GPM (per pump)
Then V =	735	Gallons
Min. Storage Depth =	1.95	**Feet** (Pump ON - Pump OFF)

Cycle Time for Peak Flow Condition, T = 10 Minutes > 5 minutes, OK

Note: Allow an additional 50% Storage Depth for Triplx and 100% for Quadplex
Note: Rule of Thumb: Min. Q = 150 gpm

IV. Wet Well Control Levels:

Wet Well Top Elevation	**89.00**	
Assume Ground Water Table @ Elevation	88.50	
Influent Gravity Sewer Invert Elev.	71.54	
Freeboard =	0.54	Feet
Audible Alarm ON Elevation	71.00	
Freeboard =	1.00	Feet
~~4TH Pump & Alarm Light ON Elev.~~	~~0.00~~	
~~Freeboard =~~	~~0.00~~	~~Feet~~
~~3RD Pump & Alarm Light ON Elev.~~	~~0.00~~	
~~Freeboard =~~	~~0.00~~	~~Feet~~
2ND Pump & Alarm Light ON Elev.	70.00	
Freebaord =	1.00	Feet
Lead Pump ON Elev.	69.00	
Storage Depth =	4.00	Feet
Both Pumps OFF Elev.	65.00	
Sump Depth =	1.50	Feet
Wet Well Bottom Elevation	**63.50**	
Total Depth of Wet Well =	25.50	Feet
Station Yard Finish Grade Elevation =	88.50	
Minimum Station Yard Width =	25.0	Feet
Min. Station Easement Length & Width =	59.3	Feet
Forcemain High Point Elevation =	125.00	ft
Connection Point Elevation =	0.00	ft
Connection Pressure =	0.00	psi
Static Head for Pumps =	**60.00**	**Feet**

V. Buoyancy Calculation:

Structure Rim El. =	89.00	feet
Structure Base El. =	63.50	feet
Structure Depth =	25.50	feet
Structure Volume =	1,282	CF
Wall Volume =	463	CF
Slab Volume =	119	CF
Volume of Concrete =	582	CF
Density of Concrete =	144	lbs/CF
Weight of Concrete =	83,855	lbs.
Volume of Soil Above Slab =	1,302	CF
Density of Soil =	47	lbs/CF
Weight of Soil Above Slab =	61,184	lbs.
Total Resistance Force =	**145,040**	**lbs.**
Ground Water Table @ Elevation	88.50	feet
Volume of Water Displaced =	1,830	CF
Density of Water =	62.4	lbs/CF
Total Uplift Force =	**114,185**	**lbs.**
Factor of Safety =	**1.3**	

LIFT STATION CALCULATIONS (Cont'd)
Venezia Lift Station #1

VI. Calculation of System Head Curve:

Total Static Head = 60.00 Feet

		Station Piping	Force Main Piping			
			New On-Site	*New On-Site*	*New Off-Site*	*N/A*
Pipe Length (feet)		27	947	5,600	3,140	0
Pipe Inside Dia. (inches)		*6*	*6*	*8*	*10*	*12*
Pipe Area (Sq.-Ft.)		0.196	0.196	0.349	0.545	0.785
Pipe Material		*DIP*	*PVC*	*PVC*	*PVC*	*PVC*
Roughness C		100	120	120	120	120
Fittings:	K-Value	No. / Tot K	No. / Tot K	No. / Tot K	No. / Tot K	No. / Tot K
Discharge	1.0	1 / 1.0	0 / 0.0	0 / 0.0	1 / 1.0	0 / 0.0
90° Bend	0.6	2 / 1.2	0 / 0.0	0 / 0.0	2 / 1.2	0 / 0.0
45° Bend	0.4	2 / 0.8	4 / 1.6	4 / 1.6	4 / 1.6	0 / 0.0
22.5° Bend	0.25	0 / 0.0	4 / 1.0	4 / 1.0	4 / 1.0	0 / 0.0
11.25° Bend	0.15	0 / 0.0	0 / 0	0 / 0.0	0 / 0.0	0 / 0.0
Expansion	0.5	0 / 0.0	1 / 0.5	1 / 0.5	0 / 0.0	0 / 0.0
Plug Valve	0.4	1 / 0.4	1 / 0.4	6 / 2.4	3 / 1.2	0 / 0.0
Check Valve	2.5	1 / 2.5	0 / 0.0	0 / 0.0	0 / 0.0	0 / 0.0
Wye Branch	0.5	1 / 0.5	0 / 0.0	0 / 0.0	0 / 0.0	0 / 0.0
Contraction	0.5	0 / 0.0	0 / 0.0	0 / 0.0	0 / 0.0	0 / 0.0
Total K-Value		6.4	3.5	5.5	6.0	0.0

Pump Selection *Flygt* *15* hp
Model: NP3151. Curve: 63-464-00-4550
Impeller: 253 mm
No. Pumps In Parallel = *1* Duplex
Operating Point = 294 gpm @ 87 ft TDH
OP 2 Pumps = gpm @ ft TDH
OP 3 pumps = gpm @ ft TDH

Wet Well Area = 50.3 sf per wet well
Pump On El. = 69.00 ft
Pump Off El. = 65.00 ft
Storage Volume = 201 cf
1,504 gallons per wet well

Pump On Time = Storage Volume / (Outflow - Inflow)
= 9.4 minutes (Peak)
= 5.8 minutes (Average)
Pump Off Time = Storage Volume / (Inflow)
= 11.3 minutes (Peak)
= 45.1 minutes (Average)

Inflow = 33 gpm (Average)
Inflow = 133 gpm (Peak)
Outflow = 294 gpm

Step Interval = 25 gpm Add. Manifold Flows (gpm): 6: 0; 8: 0; 10: 0; 12: 0

System Head Curve

Q (gpm)	6 Pipe (ft)	6 Fittings (ft)	6 Velocity (fps)	6 Pipe (ft)	6 Fittings (ft)	6 Velocity (fps)	8 Pipe (ft)	8 Fittings (ft)	8 Velocity (fps)	10 Pipe (ft)	10 Fittings (ft)	10 Velocity (fps)	12 Pipe (ft)	12 Fittings (ft)	12 Velocity (fps)	Friction Head (feet)	TDH (feet)
	Pipe & Fitting Friction Losses in Feet - Velocity in Feet per Second																
0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	**60.00**
25	0.00	0.01	0.3	0.09	0.00	0.3	0.13	0.00	0.2	0.02	0.00	0.1	0.00	0.00	0.0	0.27	**60.27**
50	0.02	0.03	0.6	0.33	0.02	0.6	0.47	0.01	0.3	0.09	0.00	0.2	0.00	0.00	0.0	0.96	**60.96**
75	0.04	0.07	0.9	0.69	0.04	0.9	0.99	0.02	0.5	0.19	0.01	0.3	0.00	0.00	0.0	2.05	**62.05**
100	0.07	0.13	1.1	1.17	0.07	1.1	1.69	0.03	0.6	0.32	0.02	0.4	0.00	0.00	0.0	3.50	**63.50**
125	0.10	0.20	1.4	1.78	0.11	1.4	2.55	0.05	0.8	0.49	0.02	0.5	0.00	0.00	0.0	5.31	**65.31**
150	0.14	0.29	1.7	2.49	0.16	1.7	3.58	0.08	1.0	0.68	0.03	0.6	0.00	0.00	0.0	7.45	**67.45**
175	0.19	0.39	2.0	3.31	0.21	2.0	4.76	0.11	1.1	0.91	0.05	0.7	0.00	0.00	0.0	9.93	**69.93**
200	0.25	0.51	2.3	4.24	0.28	2.3	6.10	0.14	1.3	1.16	0.06	0.8	0.00	0.00	0.0	12.74	**72.74**
225	0.31	0.65	2.6	5.28	0.35	2.6	7.58	0.18	1.4	1.44	0.08	0.9	0.00	0.00	0.0	15.87	**75.87**
250	0.38	0.80	2.8	6.42	0.44	2.8	9.21	0.22	1.6	1.75	0.10	1.0	0.00	0.00	0.0	19.31	**79.31**
275	0.45	0.97	3.1	7.65	0.53	3.1	10.99	0.26	1.8	2.09	0.12	1.1	0.00	0.00	0.0	23.07	**83.07**
294	0.51	1.11	3.3	8.66	0.60	3.3	12.44	0.30	1.9	2.37	0.13	1.2	0.00	0.00	0.0	26.13	**86.13**
300	0.53	1.15	3.4	8.99	0.63	3.4	12.91	0.31	1.9	2.46	0.14	1.2	0.00	0.00	0.0	27.13	**87.13**
325	0.62	1.35	3.7	10.43	0.74	3.7	14.97	0.37	2.1	2.85	0.16	1.3	0.00	0.00	0.0	31.50	**91.50**
350	0.71	1.57	4.0	11.97	0.86	4.0	17.18	0.43	2.2	3.27	0.19	1.4	0.00	0.00	0.0	36.17	**96.17**
375	0.81	1.80	4.3	13.60	0.98	4.3	19.51	0.49	2.4	3.71	0.22	1.5	0.00	0.00	0.0	41.13	**101.13**
400	0.92	2.05	4.5	15.33	1.12	4.5	21.99	0.56	2.6	4.19	0.25	1.6	0.00	0.00	0.0	46.39	**106.39**
425	1.03	2.31	4.8	17.15	1.26	4.8	24.60	0.63	2.7	4.68	0.28	1.7	0.00	0.00	0.0	51.95	**111.95**
450	1.15	2.59	5.1	19.06	1.42	5.1	27.35	0.70	2.9	5.21	0.31	1.8	0.00	0.00	0.0	57.79	**117.79**
475	1.27	2.89	5.4	21.07	1.58	5.4	30.22	0.78	3.0	5.75	0.35	1.9	0.00	0.00	0.0	63.93	**123.93**
500	1.41	3.20	5.7	23.18	1.75	5.7	33.23	0.87	3.2	6.33	0.39	2.0	0.00	0.00	0.0	70.35	**130.35**
525	1.54	3.53	6.0	25.37	1.93	6.0	36.37	0.96	3.4	6.93	0.43	2.1	0.00	0.00	0.0	77.05	**137.05**
550	1.69	3.87	6.2	27.65	2.12	6.2	39.65	1.05	3.5	7.55	0.47	2.2	0.00	0.00	0.0	84.04	**144.04**
575	1.83	4.23	6.5	30.03	2.31	6.5	43.04	1.15	3.7	8.20	0.51	2.3	0.00	0.00	0.0	91.31	**151.31**
600	1.99	4.61	6.8	32.49	2.52	6.8	46.57	1.25	3.8	8.87	0.56	2.5	0.00	0.00	0.0	98.86	**158.86**
625	2.15	5.00	7.1	35.05	2.73	7.1	50.23	1.36	4.0	9.56	0.61	2.6	0.00	0.00	0.0	106.68	**166.68**
650	2.32	5.41	7.4	37.69	2.96	7.4	54.01	1.47	4.1	10.28	0.66	2.7	0.00	0.00	0.0	114.79	**174.79**
675	2.49	5.83	7.7	40.42	3.19	7.7	57.92	1.59	4.3	11.03	0.71	2.8	0.00	0.00	0.0	123.16	**183.16**
700	2.67	6.27	7.9	43.24	3.43	7.9	61.95	1.70	4.5	11.80	0.76	2.9	0.00	0.00	0.0	131.81	**191.81**
725	2.85	6.72	8.2	46.14	3.68	8.2	66.10	1.83	4.6	12.59	0.82	3.0	0.00	0.00	0.0	140.74	**200.74**
750	3.04	7.20	8.5	49.13	3.94	8.5	70.39	1.96	4.8	13.40	0.87	3.1	0.00	0.00	0.0	149.93	**209.93**

LIFT STATION CALCULATIONS

Venezia Lift Station #2

I. Design Flow Rates:

Parcel ID	Land Use Description	Unit Description	Units	Unit Flow (GPD/Unit)	Average Daily Flow (GPD)	Average Daily Flow (GPM)	Minimum Daily Flow (GPM)	Maximum Daily Flow (GPM)	Peak Daily Flow (GPM)
1	*Residential - SF (detached)*	dwelling unit	77	300	23,100	16	8	32	64
2	*Residential - SF (attached)*	dwelling unit	113	300	33,900	24	12	47	94
3	*Institutional - School*	student	494	33	16,302	11	6	23	45
4					0	0	0	0	0
5					0	0	0	0	0
6					0	0	0	0	0
7					0	0	0	0	0
8					0	0	0	0	0
9					0	0	0	0	0
10					0	0	0	0	0
				Total	73,302	51	25	102	204
							F_{min}	F_{max}	F_{peak}
						Design Peaking Factors:	0.5	2.0	4.0

II. Wet Well Dimensions:

Wet Well Configuration:	***Duplex***		
No. of Wet Wells:	*1*		
Layout:	***Circular***		
Inner Diameter =	8.00	feet	
Volume =	376	gallons/foot	
Total Volume =	**376**	gallons/foot	
Wall Thickness =	8	inches	
Outer Diameter =	9.33	feet	
Slab Lip =	18	inches	
Slab Diameter =	12.33	feet	
Slab Thickness =	12	inches	

III. Minimum Cycle Time & Storage Volume:

$T = (V / (Q-S)) + (V/S)$
Note: T_{min} occurs when S = 1/2Q (Duplex)
$V = (QT / 4)$

Where: T = Cycle Time (Min.)
S = Peak Inflow (gpm)
Q = Pump Discharge (gpm)
V = Req. Storage Vol. (gal.)

For Minimum T =	10	Min.
S =	163	GPM
Q =	326	GPM (per pump)
Then V =	815	Gallons
Min. Storage Depth =	**2.17**	**Feet** (Pump ON - Pump OFF)

Cycle Time for Peak Flow Condition, T = 10 Minutes > 5 minutes, OK

Note: Allow an additional 50% Storage Depth for Triplx and 100% for Quadplex
Note: Rule of Thumb: Min. Q = 150 gpm

IV. Wet Well Control Levels:

Wet Well Top Elevation	**82.00**	
Assume Ground Water Table @ Elevation	81.50	
Influent Gravity Sewer Invert Elev.	61.72	
Freeboard =	0.72	Feet
Audible Alarm ON Elevation	61.00	
Freeboard =	1.00	Feet
~~4TH Pump & Alarm Light ON Elev.~~	~~0.00~~	
~~Freeboard =~~	~~0.00~~	~~Feet~~
~~3RD Pump & Alarm Light ON Elev.~~	~~0.00~~	
~~Freeboard =~~	~~0.00~~	~~Feet~~
2ND Pump & Alarm Light ON Elev.	60.00	
Freebaord =	1.00	Feet
Lead Pump ON Elev.	59.00	
Storage Depth =	3.00	Feet
Both Pumps OFF Elev.	56.00	
Sump Depth =	1.50	Feet
Wet Well Bottom Elevation	**54.50**	
Total Depth of Wet Well =	27.50	Feet
Station Yard Finish Grade Elevation =	81.50	
Minimum Station Yard Width =	27.0	Feet
Min. Station Easement Length & Width =	63.3	Feet
Forcemain High Point Elevation =	125.00	ft
Connection Point Elevation =	0.00	ft
Connection Pressure =	0.00	psi
Static Head for Pumps =	**69.00**	**Feet**

V. Buoyancy Calculation:

Structure Rim El. =	82.00	feet
Structure Base El. =	54.50	feet
Structure Depth =	27.50	feet
Structure Volume =	1,382	CF
Wall Volume =	499	CF
Slab Volume =	119	CF
Volume of Concrete =	619	CF
Density of Concrete =	144	lbs/CF
Weight of Concrete =	89,083	lbs.
Volume of Soil Above Slab =	1,404	CF
Density of Soil =	47	lbs/CF
Weight of Soil Above Slab =	65,983	lbs.
Total Resistance Force =	**155,066**	**lbs.**
Ground Water Table @ Elevation	81.50	feet
Volume of Water Displaced =	1,967	CF
Density of Water =	62.4	lbs/CF
Total Uplift Force =	**122,724**	**lbs.**
Factor of Safety =	**1.3**	

11/15/2007

LIFT STATION CALCULATIONS (Cont'd)
Venezia Lift Station #2

VI. Calculation of System Head Curve:

Total Static Head = 69.00 Feet

		Station Piping		Force Main Piping							
				New On-Site		New On-Site		New Off-Site		N/A	
Pipe Length (feet)		30		1,260		5,600		3,140		0	
Pipe Inside Dia. (inches)		6		8		8		10		12	
Pipe Area (Sq.-Ft.)		0.196		0.349		0.349		0.545		0.785	
Pipe Material		DIP		PVC		PVC		PVC		PVC	
Roughness C		100		120		120		120		120	
Fittings:	K-Value	No.	Tot K	No.	Tot K	No.	Tot K	No.	Tot K	No.	Tot K
Discharge	1.0	1	1.0	0	0.0	0	0.0	1	1.0	0	0.0
90° Bend	0.6	2	1.2	0	0.0	0	0.0	2	1.2	0	0.0
45° Bend	0.4	2	0.8	4	1.6	4	1.6	4	1.6	0	0.0
22.5° Bend	0.25	0	0.0	4	1.0	4	1.0	4	1.0	0	0.0
11.25° Bend	0.15	0	0.0	0	0	0	0.0	0	0.0	0	0.0
Expansion	0.5	0	0.0	1	0.5	1	0.5	0	0.0	0	0.0
Plug Valve	0.4	1	0.4	2	0.8	6	2.4	3	1.2	0	0.0
Check Valve	2.5	1	2.5	0	0.0	0	0.0	0	0.0	0	0.0
Wye Branch	0.5	1	0.5	0	0.0	0	0.0	0	0.0	0	0.0
Contraction	0.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total K-Value			6.4		3.9		5.5		6.0		0.0

Pump Selection *Flygt* *15* hp
Model: CP3152. Curve: 63-487-00-3855
Impeller: 265 mm
No. Pumps in Parallel = *1* Duplex
Operating Point = 326 gpm @ 94 ft TDH
OP 2 Pumps = gpm @ ft TDH
OP 3 pumps = gpm @ ft TDH

Wet Well Area = 50.3 sf per wet well
Pump On El. = 59.00 ft
Pump Off El. = 56.00 ft
Storage Volume = 151 cf
1,128 gallons per wet well

Pump On Time = Storage Volume / (Outflow - Inflow)
= 9.2 minutes (Peak)
= 4.1 minutes (Average)
Pump Off Time = Storage Volume / (Inflow)
= 5.5 minutes (Peak)
= 22.2 minutes (Average)

Inflow = 51 gpm (Average)
Inflow = 204 gpm (Peak)
Outflow = 326 gpm

Step Interval = 25 gpm Add. Manifold Flows (gpm): 8: 0; 8: 0; 10: 0; 12: 0

System Head Curve

Q (gpm)	6 Pipe (ft)	6 Fittings (ft)	6 Velocity (fps)	8 Pipe (ft)	8 Fittings (ft)	8 Velocity (fps)	8 Pipe (ft)	8 Fittings (ft)	8 Velocity (fps)	10 Pipe (ft)	10 Fittings (ft)	10 Velocity (fps)	12 Pipe (ft)	12 Fittings (ft)	12 Velocity (fps)	Friction Head (feet)	TDH (feet)
	Pipe & Fitting Friction Losses in Feet - Velocity in Feet per Second																
0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	**69.00**
25	0.01	0.01	0.3	0.03	0.00	0.2	0.13	0.00	0.2	0.02	0.00	0.1	0.00	0.00	0.0	0.20	**69.20**
50	0.02	0.03	0.6	0.11	0.01	0.3	0.47	0.01	0.3	0.09	0.00	0.2	0.00	0.00	0.0	0.73	**69.73**
75	0.04	0.07	0.9	0.23	0.01	0.5	0.99	0.02	0.5	0.19	0.01	0.3	0.00	0.00	0.0	1.56	**70.56**
100	0.07	0.13	1.1	0.39	0.02	0.6	1.69	0.03	0.6	0.32	0.02	0.4	0.00	0.00	0.0	2.67	**71.67**
125	0.11	0.20	1.4	0.58	0.04	0.8	2.55	0.05	0.8	0.49	0.02	0.5	0.00	0.00	0.0	4.05	**73.05**
150	0.15	0.29	1.7	0.82	0.06	1.0	3.58	0.08	1.0	0.68	0.03	0.6	0.00	0.00	0.0	5.69	**74.69**
175	0.21	0.39	2.0	1.09	0.08	1.1	4.76	0.11	1.1	0.91	0.05	0.7	0.00	0.00	0.0	7.58	**76.58**
200	0.26	0.51	2.3	1.39	0.10	1.3	6.10	0.14	1.3	1.16	0.06	0.8	0.00	0.00	0.0	9.73	**78.73**
225	0.33	0.65	2.6	1.73	0.12	1.4	7.58	0.18	1.4	1.44	0.08	0.9	0.00	0.00	0.0	12.11	**81.11**
250	0.40	0.80	2.8	2.10	0.15	1.6	9.21	0.22	1.6	1.75	0.10	1.0	0.00	0.00	0.0	14.74	**83.74**
275	0.48	0.97	3.1	2.51	0.19	1.8	10.99	0.26	1.8	2.09	0.12	1.1	0.00	0.00	0.0	17.61	**86.61**
300	0.57	1.15	3.4	2.95	0.22	1.9	12.91	0.31	1.9	2.46	0.14	1.2	0.00	0.00	0.0	20.72	**89.72**
325	0.66	1.35	3.7	3.42	0.26	2.1	14.97	0.37	2.1	2.85	0.16	1.3	0.00	0.00	0.0	24.05	**93.05**
326	0.67	1.36	3.7	3.44	0.26	2.1	15.06	0.37	2.1	2.87	0.17	1.3	0.00	0.00	0.0	24.19	**93.19**
350	0.77	1.57	4.0	3.92	0.30	2.2	17.18	0.43	2.2	3.27	0.19	1.4	0.00	0.00	0.0	27.62	**96.62**
375	0.87	1.80	4.3	4.46	0.35	2.4	19.51	0.49	2.4	3.71	0.22	1.5	0.00	0.00	0.0	31.41	**100.41**
400	0.99	2.05	4.5	5.03	0.39	2.6	21.99	0.56	2.6	4.19	0.25	1.6	0.00	0.00	0.0	35.44	**104.44**
425	1.11	2.31	4.8	5.62	0.45	2.7	24.60	0.63	2.7	4.68	0.28	1.7	0.00	0.00	0.0	39.68	**108.68**
450	1.23	2.59	5.1	6.25	0.50	2.9	27.35	0.70	2.9	5.21	0.31	1.8	0.00	0.00	0.0	44.15	**113.15**
475	1.37	2.89	5.4	6.91	0.56	3.0	30.22	0.78	3.0	5.75	0.35	1.9	0.00	0.00	0.0	48.83	**117.83**
500	1.51	3.20	5.7	7.60	0.62	3.2	33.23	0.87	3.2	6.33	0.39	2.0	0.00	0.00	0.0	53.74	**122.74**
525	1.65	3.53	6.0	8.32	0.68	3.4	36.37	0.96	3.4	6.93	0.43	2.1	0.00	0.00	0.0	58.87	**127.87**
550	1.81	3.87	6.2	9.07	0.75	3.5	39.65	1.05	3.5	7.55	0.47	2.2	0.00	0.00	0.0	64.21	**133.21**
575	1.96	4.23	6.5	9.85	0.82	3.7	43.04	1.15	3.7	8.20	0.51	2.3	0.00	0.00	0.0	69.76	**138.76**
600	2.13	4.61	6.8	10.66	0.89	3.8	46.57	1.25	3.8	8.87	0.56	2.5	0.00	0.00	0.0	75.53	**144.53**
625	2.30	5.00	7.1	11.49	0.96	4.0	50.23	1.36	4.0	9.56	0.61	2.6	0.00	0.00	0.0	81.51	**150.51**
650	2.48	5.41	7.4	12.36	1.04	4.1	54.01	1.47	4.1	10.28	0.66	2.7	0.00	0.00	0.0	87.71	**156.71**
675	2.66	5.83	7.7	13.25	1.12	4.3	57.92	1.59	4.3	11.03	0.71	2.8	0.00	0.00	0.0	94.11	**163.11**
700	2.86	6.27	7.9	14.18	1.21	4.5	61.95	1.70	4.5	11.80	0.76	2.9	0.00	0.00	0.0	100.72	**169.72**
725	3.05	6.72	8.2	15.13	1.30	4.6	66.10	1.83	4.6	12.59	0.82	3.0	0.00	0.00	0.0	107.54	**176.54**
750	3.26	7.20	8.5	16.11	1.39	4.8	70.39	1.96	4.8	13.40	0.87	3.1	0.00	0.00	0.0	114.57	**183.57**

APPENDIX D

Venezia's Existing Lift Station Record Drawings

RTU SYSTEM SPECIFICATIONS:

1. A MICROPROCESSOR-BASED PUMP CONTROLLER/TRANSCEIVER (CC) MODEL SIEMENS WATER TECHNOLOGIES LC-150 SHALL BE PROVIDED.

2. THE RTU SHALL BE MOUNTED IN A NEMA 3R 316 STAINLESS STEEL ENCLOSURE ADJACENT TO THE PUMP CONTROL PANEL AND SHALL BE PROVIDED WITH A CLASS II UL LISTED TRANSFORMER/POWER SUPPLY.

3. STANDARDS:
   A. FCC PART 15, SUBPART J, CLASS A - RADIO EMISSIONS
   B. ANSI/IEEE C37.90 - SURGE WITHSTAND CAPABILITY
   C. ANSI/IPC-S815A - QUALITY CONTROL

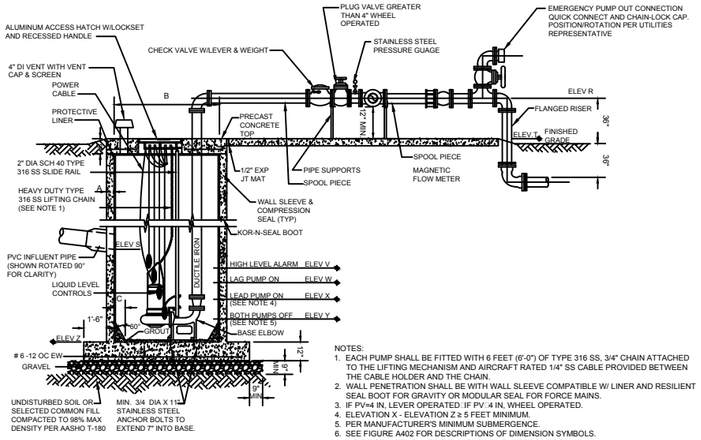
4. APPROVED SYSTEM SUPPLIER IS SIEMENS WATER TECHNOLOGIES. CONTACT RON ROBINETTE 800-247-0880.

GENERAL NOTES:

1. COATING SHALL BE AS SCHEDULED IN TABLE BELOW.
2. ALL LOCATIONS WHERE GRAVITY PIPES ENTER OR LEAVE THE WET WELL SHALL BE MADE WATERTIGHT WITH AN APPROVED BOOT.
3. ALL LOCATIONS WHERE PRESSURE PIPES ENTER THE WET WELL SHALL BE MADE WATERTIGHT WITH A WALL SLEEVE AND SEAL.
4. THERE SHALL BE NO VALVES OR ELECTRICAL JUNCTION BOXES IN THE WET WELL.
5. WET WELL COVERS SHALL BE ALUMINUM WITH 316 STAINLESS STEEL HARDWARE WITH LOCK BRACKET.
6. ALL HARDWARE IN WET WELL SHALL BE 316 STAINLESS STEEL.
7. PUMP SUBMERGENCE REQUIREMENTS SHALL BE MET AS MINIMUM.
8. ALL CONNECTIONS IN THE WET WELL SHALL BE FLANGED JOINTS. ALL REMAINING CONNECTIONS BETWEEN THE WET WELL AND THE CONNECTION TO THE FORCE MAIN SHALL BE RESTRAINED MECHANICAL JOINTS.
9. CHECK VALVE ARM SHALL BE LOCATED WITH THE SAME ORIENTATION (□□ ALL ARMS ON THE LEFT SIDE OF VALVE).

PUMP STATION COATING SCHEDULE		
AREA	APPLICABLE COATING	NOTES
O□□d□□□W□□W□□	"S□r□□□□C□□□□□□- E□□r□r"	C□□□□□CS-S5
I□□d□□□W□□W□□	"W□□W□□L□□□□ S□□□□□"	S□□r□□□PG□r □□□r□□□d □□□□□□
F□□□□d B□□□□ □□W□□ W□□	100% □□□d□E□□□□□□r □□□□□ □□□□□□□r□r"□r□□□□ □ □d□□□□	M□□□□□□r□r□□r□□□□r□r□□□□□ □□□□r
W□□W□□P□□□□	"D□□□□Ir□□P□□□C□□□□□ □□d L□□□□(□r □□□□P□□□S□□□□W□□W□□□)	Pr□□□□□401 C□r□□ □E□□□□
E□□□□d M□□□□E□□□□□ S□□□□□□□S□□□□d A□□ □□□□	"P□□□□□F□□□A□r□P□□□□(F□d Pr□□r) □□d P□□□□□F□□□□(E□□r□r)"	T□□□ □□: 37-77 H C□□□-Pr□r T□□□ □□: G□□□2H F□□□

PUMP STATION GENERAL NOTES

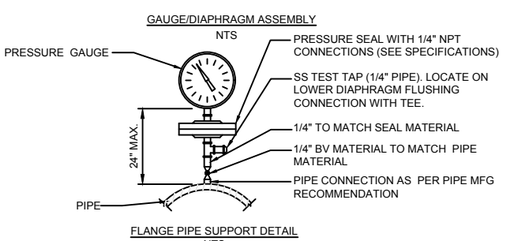


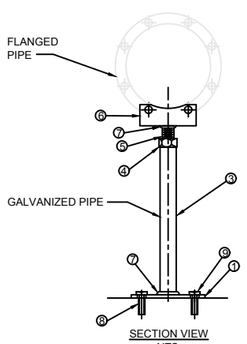
NOTES:
1. EACH PUMP SHALL BE FITTED WITH 6 FEET (6'-0") OF TYPE 316 SS, 3/4" CHAIN ATTACHED TO THE LIFTING MECHANISM AND AIRCRAFT RATED 1/4" SS CABLE PROVIDED BETWEEN THE CABLE HOLDER AND THE CHAIN.
2. WALL PENETRATION SHALL BE WITH WALL SLEEVE COMPATIBLE W/ LINER AND RESILIENT SEAL BOOT FOR GRAVITY OR MODULAR SEAL FOR FORCE MAINS.
3. IF PV=4 IN, LEVER OPERATED. IF PV .4 IN, WHEEL OPERATED.
4. ELEVATION X - ELEVATION Z ≥ 5 FEET MINIMUM.
5. PER MANUFACTURER'S MINIMUM SUBMERGENCE.
6. SEE FIGURE A402 FOR DESCRIPTIONS OF DIMENSION SYMBOLS.
7. INSIDE OF WETWELL TO BE LINED WITH SUPERCOAT PG.

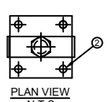
NOTES:
1. IF PV=4 IN, LEVER OPERATED□IF PV□4 IN, WHEEL OPERATED.
2.SEE FIGURE A402 FOR DESCRIPTIONS OF DIMENSION SYMBOLS.

DUPLEX PUMP STATION PLAN

FIGURE A404-2







LEGEND
1. BASE
2. MOUNTING HOLE (4-TYP)
3. SUPPORT COLUMN
4. HEIGHT ADJUSTMENT NUT
5. SUPPORT SHAFT - THREADED
6. PIPE SUPPORT FLANGE
7. WELD
8. ANCHOR (4-TYP)
9. LAG BOLT (4-TYP)

NOTE:
1. ALL PIPING TO BE 316 SS OR BRASS

PUMP DATA

WETWELL INSIDE DIA. 8'0"
FLYGT *SUBMERSIBLE PUMPS*
MODEL NUMBER NP3153.181
IMPELLER 253
HORSE POWER 15
G.P.M. 294 *T.D.H.* 87.0
ELECTRICAL REQUIREMENTS 230 V
3 PHASE □

□ NOTE: ELECTRICAL REQUIREMENT TO BE VERIFIED BY CONTRACTOR.

DESCRIPTION	SYMBOL	DIMENSION	ELEVATION
THICKNESS OF WALL	A	8"	—
DIAMETER OF WET WELL	B	8'	—
WIDTH OF BOTTOM FILLET	C	SEE NOTE 1	—
C/L TO C/L OF PUMPS	D	SEE NOTE 1	—
LENGTH OF PUMP ACCESS OPENING	E	SEE NOTE 1	—
WIDTH OF PUMP ACCESS OPENING	F	SEE NOTE 1	—
BASE ELBOW TO EDGE OF PIT	G	SEE NOTE 1	—
VALVE BOX HATCH OPENING	H	5.0'	—
VALVE BOX HATCH OPENING	I	7.0'	—
TOP OF WET WELL	T	—	~~92.00'~~ 88.94'
FINISHED GRADE	U	—	88.50'
HIGH LEVEL ALARM	V	—	71.00'
LAG PUMP ON	W	—	70.00'
LEAD PUMP ON	X	SEE NOTE 2	69.00'
PUMPS OFF (TOP OF PUMP VOLUTE)	Y	—	65.00'
FLOOR OF WET WELL	Z	—	~~89.50'~~ 63.33'

NOTE:
1. PER PUMP MANUFACTURER'S REQUIREMENTS
2. ELEVEVATION X - ELEVATION Z ≥ 5 FEET MINIMUM
3. TOP ELEVATION OF WET WELL SHALL BE A MINIMUM OF 1' ABOVE THE 100 YEAR FLOOD ELEVATION AND THE ELEVATION OF THE CROWN OF THE ROAD.

LIFT STATION #1

PUMP DATA

WETWELL INSIDE DIA. 8'0"
FLYGT *SUBMERSIBLE PUMPS*
MODEL NUMBER CP3152.181
IMPELLER 265
HORSE POWER 15
G.P.M. 326 *T.D.H.* 94.0
ELECTRICAL REQUIREMENTS 480 V
3 PHASE □

□ NOTE: ELECTRICAL REQUIREMENT TO BE VERIFIED BY CONTRACTOR.

DESCRIPTION	SYMBOL	DIMENSION	ELEVATION
THICKNESS OF WALL	A	8"	—
DIAMETER OF WET WELL	B	8'	—
WIDTH OF BOTTOM FILLET	C	SEE NOTE 1	—
C/L TO C/L OF PUMPS	D	SEE NOTE 1	—
LENGTH OF PUMP ACCESS OPENING	E	SEE NOTE 1	—
WIDTH OF PUMP ACCESS OPENING	F	SEE NOTE 1	—
BASE ELBOW TO EDGE OF PIT	G	SEE NOTE 1	—
VALVE BOX HATCH OPENING	H	5.0'	—
VALVE BOX HATCH OPENING	I	7.0'	—
TOP OF WET WELL	T	—	~~92.00'~~ 82.12'
FINISHED GRADE	U	—	81.50'
HIGH LEVEL ALARM	V	—	61.00'
LAG PUMP ON	W	—	60.00'
LEAD PUMP ON	X	SEE NOTE 2	59.00'
PUMPS OFF (TOP OF PUMP VOLUTE)	Y	—	55.50'
FLOOR OF WET WELL	Z	—	~~64.00'~~ 54.29'

NOTE:
1. PER PUMP MANUFACTURER'S REQUIREMENTS
2. ELEVEVATION X - ELEVATION Z ≥ 5 FEET MINIMUM
3. TOP ELEVATION OF WET WELL SHALL BE A MINIMUM OF 1' ABOVE THE 100 YEAR FLOOD ELEVATION AND THE ELEVATION OF THE CROWN OF THE ROAD.

LIFT STATION #2

PUMP DATA

WETWELL INSIDE DIA. 8'0"
FLYGT *SUBMERSIBLE PUMPS*
MODEL NUMBER NP3102
IMPELLER 135
HORSE POWER 6.5
G.P.M. 200 *T.D.H.* 65.0
ELECTRICAL REQUIREMENTS 230 V
3 PHASE □

□ NOTE: ELECTRICAL REQUIREMENT TO BE VERIFIED BY CONTRACTOR.

DESCRIPTION	SYMBOL	DIMENSION	ELEVATION
THICKNESS OF WALL	A	8"	—
DIAMETER OF WET WELL	B	8'	—
WIDTH OF BOTTOM FILLET	C	SEE NOTE 1	—
C/L TO C/L OF PUMPS	D	SEE NOTE 1	—
LENGTH OF PUMP ACCESS OPENING	E	SEE NOTE 1	—
WIDTH OF PUMP ACCESS OPENING	F	SEE NOTE 1	—
BASE ELBOW TO EDGE OF PIT	G	SEE NOTE 1	—
VALVE BOX HATCH OPENING	H	5.0'	—
VALVE BOX HATCH OPENING	I	7.0'	—
TOP OF WET WELL	T	—	82.00'
FINISHED GRADE	U	—	81.50'
HIGH LEVEL ALARM	V	—	69.00'
LAG PUMP ON	W	—	68.00'
LEAD PUMP ON	X	SEE NOTE 2	67.00'
PUMPS OFF (TOP OF PUMP VOLUTE)	Y	—	65.50'
FLOOR OF WET WELL	Z	—	64.00'

NOTE:
1. PER PUMP MANUFACTURER'S REQUIREMENTS
2. ELEVEVATION X - ELEVATION Z ≥ 5 FEET MINIMUM
3. TOP ELEVATION OF WET WELL SHALL BE A MINIMUM OF 1' ABOVE THE 100 YEAR FLOOD ELEVATION AND THE ELEVATION OF THE CROWN OF THE ROAD.

LIFT STATION #3

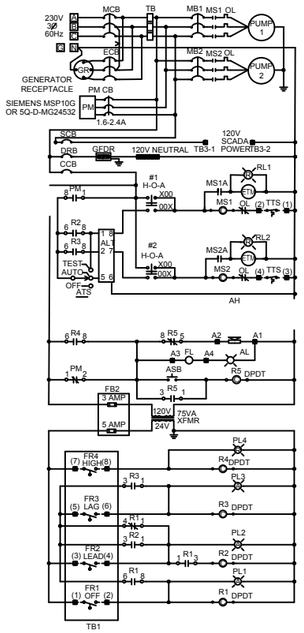
DATE	REVISIONS
1 6-29-07	ADD ALARM HORN
2 7-8-08	CHANGE VOLTAGE FOR 1 AND 3 TO 230
3 4-29-09	A□□□□Dr□□□
4	
5	
6	
7	

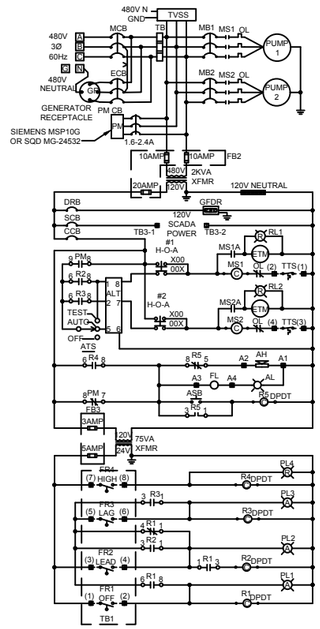
BOOTH ERN STRALEY HOTT & ALMAND
ENGINEERS • SURVEYORS • LAND PLANNERS
350 North Sinclair Ave.
Tavares, Florida 32778
Office: 352.343.8481
Fax: 352.343.8495
www.besandh.com
Certificate of Authorization Number: 27029

VENEZIA NORTH & SOUTH RESIDENTIAL SUBDIVISION
LIFT STATION DETAILS

DESIGNED BY: CCH
PROJECT NO.: 0507LS000
DATE: MAY 2007
DRAWN/CHECKED BY: CPH
SHT. 47 OF 52

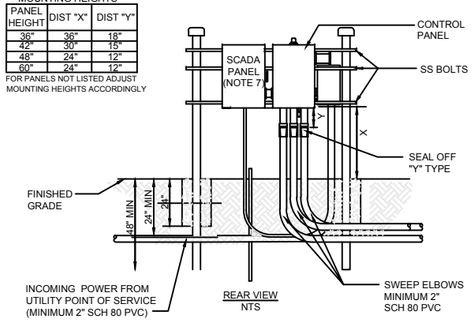
AS-BUILT DRAWING
CHARLES C. HIOTT, P.E.
PROFESSIONAL ENGINEER 54613





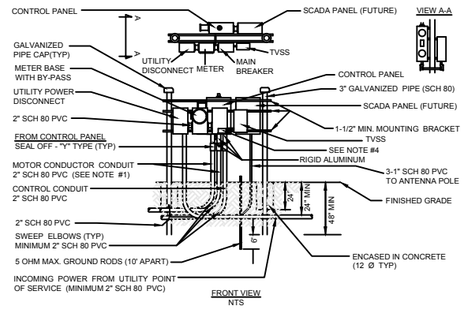
PANEL & SEAL-OFF MOUNTING HEIGHTS		
PANEL HEIGHT	DIST "X"	DIST "Y"
36"	36"	18"
42"	30"	15"
48"	24"	12"
60"	24"	12"

FOR PANELS NOT LISTED ADJUST MOUNTING HEIGHTS ACCORDINGLY



PANEL INSTALLATION NOTES:

1. PUMP MOTOR CONDUIT SHALL BE SIZE TO ACCOMODATE 40% CONDUIT FILL. MINIMUM CONDUIT SIZE TO BE 2" SCH 80 PVC.
2. POWER SUPPLY SHALL BE UNDERGROUND ON THE LIFT STATION SITE AND SHALL BE 3-PHASE, FROM A 3-PHASE SOURCE ONLY.
3. AN ELECTRICAL GROUNDING SYSTEM SHALL BE INSTALLED AS PER THE NATIONAL ELECTRICAL CODE, LOCAL CODES AND ORDINANCES. AN UNDERGROUND PERIMETER CABLE GROUNDING SYSTEM SHALL BE INSTALLED WITH CONNECTIONS TO AT LEAST WET WELL COVER, VALVE VAULT COVER, CONTROL PANELS, GENERATOR, UTILITY COMPANY TRANSFORMER, MANUAL DISCONNECT SWITCH, AND METAL FENCE. REFER TO GROUNDING DETAILS.
4. THE STATION NAME, UTILITIES ID NUMBER, AND ADDRESS SHALL BE AFFIXED TO THE FRONT OF THE METER CABINET.
5. ALL MOUNTING HARDWARE AND BRACKETS SHALL BE 316 STAINLESS STEEL.
6. ON A 4-WIRE, DELTA SYSTEM, THE HIGH-LEG SHALL BE IDENTIFIED WITH ORANGE COLOR TAPE AT ALL CONNECTION POINTS AND SHALL BE LOCATED ON THE "B" PHASE AT THE LINE SIDE OF THE MAIN DISCONNECT.
7. THE SCADA PANEL IS TO SHOWN FOR INFORMATION ONLY AND WILL BE INSTALLED IN THE FUTURE (BY OTHERS).



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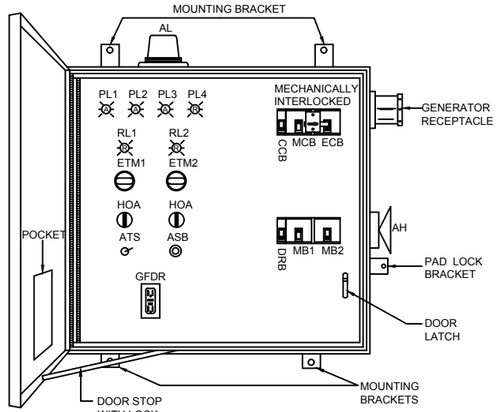
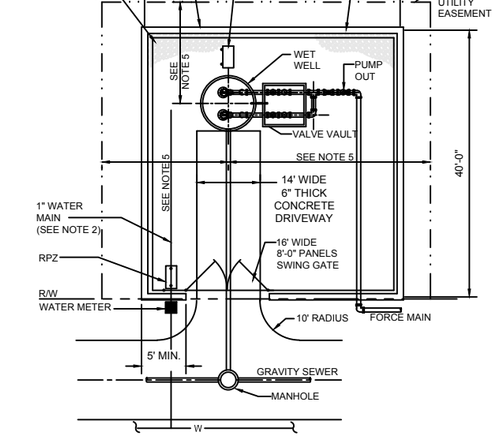
3. AN ELETRICAL GROUNDING SYSTEM SHALL BE INSTALLED AS PER THE NATIONAL ELECTRICAL CODE, LOCAL CODES AND ORDINANCES, AN UNDERGOUND PERIMETER CABLE GROUNDING SYSTEM SHALL BE INSTALLED WITH CONNECTIONS TO AT LEAST WET WELL COVER, VALVE VAULT COVER, CONTROL PANELS, GENERATOR, UTILITY COMPANY TRANSFORMER, MANUAL DISCONNECT SWITCH, AND METAL FENCE. SEE GROUNDING DETAILS.
4. THE STATION NAME, HOWEY IN THE HILLS I.D. NUMBER, AND ADDRESS SHALL BE AFFIXED TO THE FRONT OF THE METER CABINET.
5. ALL MOUNTING HARDWARE & BRACKETS SHALL BE 316 STAINLESS STEEL.
6. ON A 4-WIRE, DELTA SYSTEM, THE HIGH-LEG SHALL BE IDENTIFIED WITH ORANGE COLOR TAPE AT ALL CONNECTION POINTS AND SHALL BE LOCATED ON THE "B" PHASE AT THE LINE SIDE OF THE MAIN DISONNECT.
7. THE SCADA PANEL IS SHOWN FOR INFORMATION ONLY AND WILL BE INSTALLED IN THE FUTURE (BY OTHERS).



NOTES:

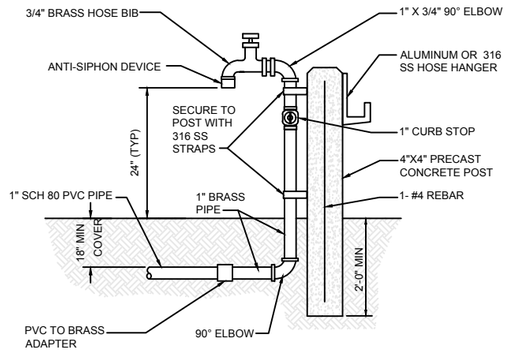
1. DEADFRONT LAYOUT NEMA TYPE 3R SS ENCLOSURE W/CONTINUOUS HINGE. ALL HARDWARE TYPE 316 SS TYPICAL, ACTUAL LAYOUT MAY VARY WITH HORSEPOWER.
2. THIS CONTROL PANEL, INCLUDING THE GENERATOR RECEPTACLE, COMPLIES WITH THE STANDARD LIST OF COMPONENTS REQUIRED BY UTILITIES.
3. ALL CONTROL WIRE TO BE #14 AWG MINIMUM.
4. CONTROL PANEL SHALL BE UL LISTED AND LABELED.
5. 30 SPARE TERMINALS (TB2).
6. PHASE MONITOR CIRCUIT BREAKER TO BE SEIMENS P/N: MSP10G, OR SQ-D P/N: MG24532.



NOTES:

1. MINIMUM 20' ACCESS DRIVEWAY FROM EDGE OF PAVEMENT TO THE GATE SHALL BE PROVIDED ON NON-RESIDENTIAL ROADS.
2. WASHDOWN WATER SOURCE SHALL BE CONNECTED TO THE POTABLE WATER MAIN.
3. ENGINEER SHALL PROVIDE A SCALED (1" = 20' MIN.) SITE SPECIFIC DETAIL.
4. MINIMUM DISTANCE BETWEEN FENCE AND ALL INSTALLED EQUIPMENT SHALL BE 5'.
5. THIS DIMENSION SHALL BE AT LEAST EQUAL TO THE DEPTH OF THE WET WELL WHEN MEASURED FROM THE CENTER OF THE WET WELL.

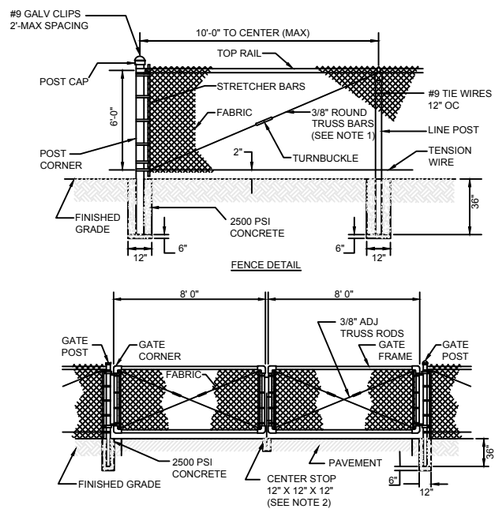
SITE PLAN



LIFT STATION POTABLE WATER SERVICE

LEGEND

AH	–	ALARM HORN
AL	–	ALARM LIGHT
ASB	–	ALARM SILENCE BUTTON
ATS	–	ALTERNATOR TEST SWITCH
CCB	–	CONTROL CIRCUIT BREAKER
DPDT	–	DOUBLE POLE DOUBLE THROW
DRB	–	DUPLEX RECEPTACLE BREAKER
ECB	–	EMERGENCY CIRCUIT BREAKER
ETM	–	ELAPSED TIME METER
F	–	FUSE
FB	–	FUSE BLOCK
FL	–	FLASHER
FR	–	FLOAT REGULATOR
GFDR	–	GROUND FAULT DUPLEX RECEPTACLE
GR	–	GENERATOR RECEPTACLE
HOA	–	HAND-OFF-AUTO SELECTOR SWITCH
MB	–	MOTOR BREAKER
MCB	–	MAIN CIRCUIT BREAKER
MS	–	MOTOR STARTER
OL	–	OVERLOAD
PL	–	PILOT LIGHT
PM	–	PHASE MONITOR
R	–	RELAY
RL	–	RUNNING LIGHT
SCB	–	SCADA CIRCUIT BREAKER
TB	–	TERMINAL BLOCK
TTS	–	THERMAL TERMINAL STRIP
TVSS	–	TRANSIENT VOLTAGE SURGE SUPPRESOR
XFMR	–	TRANSFORMER



DOUBLE SWING GATE DETAIL

NOTES:

1. TRUSS BARS ARE REQUIRED FOR EACH GATE SECTION AND THE FIRST SPAN ON EACH SIDE OF A CORNER POST ONLY.
2. PROVIDE CHAIN AND LOCK FOR SECURING GATE.
3. FENCING SHALL BE BLACK, VINYL CLAD.

DATE	REVISIONS
1 6-29-07	ADD ALARM HORN
2	
3	
4	
5	
6	
7	

BOOTH ERN STRAUGHAN HIOTT
ENGINEERS • SURVEYORS • LAND PLANNERS
350 North Sinclair Ave.
Tavares, Florida 32778
Office: 352.343.8481
Fax: 352.343.8496
www.beasndh.com
Certificate of Authorization Number: 27029

VENEZIA NORTH & SOUTH RESIDENTIAL SUBDIVISION LIFT STATION DETAILS

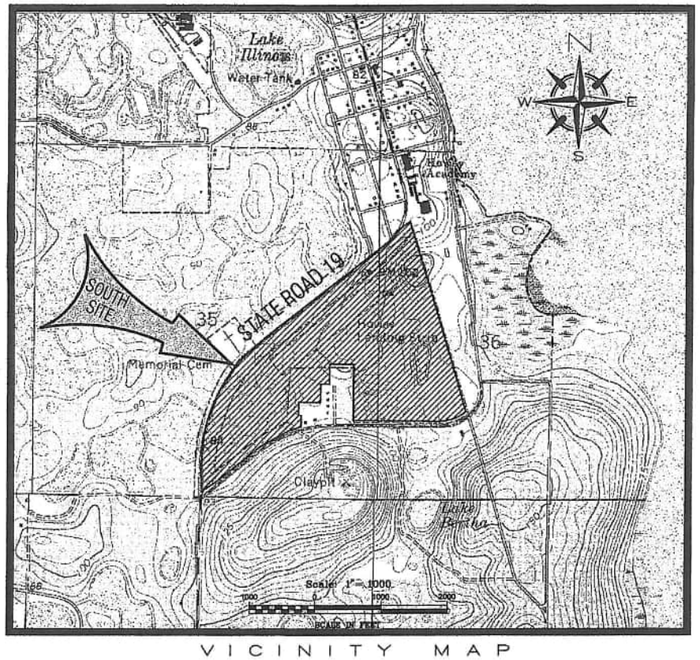
DESIGNED BY: CCH
PROJECT NO.: 05STR1000
DATE: MAY 2007
DRAWN/CHECKED BY: CTH
SHT. 48 OF 52

CHARLES C. HIOTT, P.E.
PROFESSIONAL ENGINEER 54813

CONSTRUCTION PLANS
FOR
Venezia South Subdivision

Section 35 & 36, Township 22 South, Range 25 East
Town of Howey in the Hills, Lake County, Florida

WAIVER REQUEST:
REQUEST WAIVER FOR LENGTH OF CUL - DE- SACs
TERRACOTTA TERRACE TO BE 1410' LF
CALABRIA WAY TO BE 1088' LF
INSTEAD OF THE REQUIRED 600' LF.



VICINITY MAP

SHEET INDEX

FINAL SUBMITTED PLANS
DATE 12-05-07
PM DM
18971-3X
RECEIVED
JUN 29 2007
PDS
ALTAMONTE SVC. CTR.

* See Revised Sheets Revd. 10-31-07
JUN 29 2007

OWNER:
FRED BENNETT
LYKES BROTHERS, INC.
400 NORTH TAMPA STREET
TAMPA, FLORIDA 33601
(813) 470-5509
(813) 470-5020 FAX

DEVELOPER:
FLAGSHIP HARB, LLC
916 HIGHLAND AVENUE
ORLANDO, FLORIDA 32803
(407) 246-1144
(407) 246-1155 FAX
CONTACT: TED BOLIN

ENGINEER:
BOOTH, ERN, STRAUGHAN & HIOTT, INC.
350 NORTH SINCLAIR AVENUE
TAVARES, FLORIDA-32778
(352) 343-8481
CONTACT: CHARLES HIOTT, P.E.

LEGAL DESCRIPTION:

SOUTH PARCEL.
A PARCEL OF LAND BEING A PORTION OF "HOWIE-IN-THE-HILLS" (AN UNRECORDED PLAT) LYING IN SECTIONS 35 AND 36, TOWNSHIP 20 SOUTH, RANGE 25 EAST, LAKE COUNTY, FLORIDA AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE SOUTHWEST CORNER OF THE NORTHEAST 1/4 OF THE NORTHEAST 1/4 OF SECTION 35, TOWNSHIP 20 SOUTH, RANGE 25 EAST, LAKE COUNTY, FLORIDA; THENCE ALONG THE WEST BOUNDARY OF THE SOUTHEAST 1/4 OF THE NORTHEAST 1/4 OF SAID SECTION 35 S00°52'16"W, A DISTANCE OF 1298.05 FEET TO A POINT OF INTERSECTION WITH THE SOUTHERLY RIGHT OF WAY LINE OF PALM AVENUE (STATE ROAD NO. 19) SAID POINT BEING THE POINT OF BEGINNING; THENCE ALONG SAID RIGHT OF WAY N31°23'37"E, A DISTANCE OF 1797.48 FEET TO A POINT OF CURVATURE; THENCE ALONG THE ARC OF SAID CURVE 368.66 FEET, CONCAVE NORTHWESTERLY AND HAVING A RADIUS OF 785.56 FEET, A CENTRAL ANGLE OF 27°30'40" AND A CHORD BEARING AND DISTANCE OF N40°36'15"E, 306.64 FEET; THENCE DEPARTING SAID RIGHT OF WAY N33°52'15"E, A DISTANCE OF 248.58 FEET; THENCE N72°56'02"E, A DISTANCE OF 7.90 FEET; THENCE S17°04'28"E, A DISTANCE OF 2598.56 FEET TO A POINT OF INTERSECTION WITH THE NORTHERLY RIGHT OF WAY LINE OF COUNTY ROAD, (A.K.A. REVELS ROAD), SAID POINT BEING A POINT OF CURVATURE; THENCE ALONG SAID RIGHT OF WAY AND THE ARC OF SAID CURVE 443.81 FEET, CONCAVE NORTHERLY, HAVING A RADIUS OF 610.22 FEET, A CENTRAL ANGLE OF 41°40'17" AND A CHORD BEARING AND DISTANCE OF S85°14'52"W, 434.10 FEET TO A POINT OF TANGENCY; THENCE S85°49'55"W, A DISTANCE OF 1297.20 FEET; THENCE DEPART SAID RIGHT OF WAY N00°12'13"W, A DISTANCE OF 840.49 FEET; THENCE S89°48'58"W, A DISTANCE OF 360.14 FEET; THENCE S00°07'36"E, A DISTANCE OF 305.15 FEET; THENCE S85°58'58"W, A DISTANCE OF 135.80 FEET; THENCE S00°09'02"E, A DISTANCE OF 275.36 FEET; THENCE S89°48'03"W, A DISTANCE OF 328.16 FEET; THENCE S00°37'45"W, A DISTANCE OF 300.21 FEET; THENCE N89°47'30"E, A DISTANCE OF 45.00 FEET; THENCE S00°12'22"W, A DISTANCE OF 168.40 FEET TO A POINT OF INTERSECTION WITH THE NORTHERLY RIGHT OF WAY LINE OF SAID COUNTY ROAD, SAID POINT BEING A POINT ON A CURVE; THENCE ALONG SAID RIGHT OF WAY AND THE ARC OF SAID CURVE 189.84 FEET, CONCAVE SOUTHERLY, HAVING A RADIUS OF 3270.80 FEET, A CENTRAL ANGLE OF 3°19'41" AND A CHORD BEARING AND DISTANCE OF S77°29'23"W, 189.81 FEET; THENCE DEPART SAID RIGHT OF WAY LINE S60°21'59"W, A DISTANCE OF 531.36 FEET; THENCE S51°11'36"W, A DISTANCE OF 795.56 FEET; THENCE S50°02'47"W, A DISTANCE OF 309.80 FEET TO THE EASTERLY RIGHT OF WAY LINE OF STATE ROAD NO. 19, SAID RIGHT OF WAY BEING COMPRISED IN PART BY PORTIONS OF MARIE AVENUE AND PALM AVENUE; THENCE ALONG SAID RIGHT OF WAY N00°09'53"W, A DISTANCE OF 468.11 FEET TO A POINT OF CURVATURE; THENCE ALONG THE ARC OF SAID CURVE 2017.34 FEET, CONCAVE SOUTHEASTERLY, HAVING A RADIUS OF 2241.83 FEET, A CENTRAL ANGLE OF 51°33'20" AND A CHORD BEARING AND DISTANCE OF N25°39'52"E, 1949.98 FEET TO A POINT OF TANGENCY; THENCE N51°23'32"E, A DISTANCE OF 601.65 FEET TO THE POINT OF BEGINNING.

THENCE S89°56'24"W, A DISTANCE OF 232.87 FEET TO THE POINT OF BEGINNING.

STATE OF FLORIDA CERTIFICATION OF AUTHORIZATION NO. 27029

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UTILITY CONSTRUCTION NOTES (DEP)

62-555.314 Location of Public Water System Mains: For the purpose of this section, the phrase "Water Mains" shall mean Mains, including Treatment Plant process piping, conveying either raw, partially treated, or finished drinking water; Fire Hydrantleads; and service lines that are under the control of a Public Water System and that have an inside diameter of three (3")inches or greater.

(1) Horizontal Separation Between Underground Water Mains and Sanitary or Storm Sewers, Wastewater or Storm water Force Mains, Reclaimed Water Pipelines, and On-site Sewage Treatment and Disposal Systems:

(a) New or relocated, underground WATER MAINS shall be laid to provide a horizontal distance of at least (3) Three Feet between the outside of the WATER MAIN and the outside of any existing or proposed Storm Sewer, Storm water Force Main, or pipeline conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C.

(b) New or relocated, underground WATER MAINS shall be laid to provide a horizontal distance of at least (3) three feet, and preferably (10) Ten Feet, between the outside of the WATER MAIN and the outside of any existing or proposed vacuum-type Sanitary Sewer.

(c) New or relocated, underground WATER MAINS shall be laid to provide a horizontal distance of at least (6) Six Feet, and preferably (10) Ten Feet, between the outside of the WATER MAIN and the outside of any existing or proposed Gravity- or Pressure-type Sanitary Sewer, Wastewater Force Main, or pipeline conveying reclaimed water not regulated under Part III of Chapter 62-610 F.A.C. The Minimum Horizontal Separation distance between WATER MAINS and Gravity-type Sanitary Sewers shall be reduced to (3) Three Feet where the BOTTOM of the WATER MAIN is laid at least (6) Six Inches above the Top of the Sewer.

(d) New or relocated, underground WATER MAINS shall be laid to provide a horizontal distance of at least (10) Ten Feet between the outside of the WATER MAIN and all parts of any existing or proposed "On site Sewage Treatment and Disposal System" as defined in Section 381.0065(2). F.S. and Rule 64E-6.002. F.A.C.

(2) Vertical Separation Between Underground WATER MAINS and Sanitary or Storm Sewers, Wastewater or Storm water Force Mains, and Reclaimed Water Pipelines:

(a) New or relocated underground WATER MAINS crossing any existing or proposed gravity-or vacuum-type sanitary sewer or storm sewer shall be laid so the outside of the WATER MAIN is at least (6) Six inches, and preferably 12 inches above, or at least 12 inches below the outside of the other pipeline. However, it is preferable to lay the WATER MAIN "ABOVE" the other pipeline.

(b) New or relocated, Underground WATER MAINS crossing any existing or proposed pressure-type sanitary sewer, wastewater or stormwater Force Main, or Pipeline conveying reclaimed water shall be laid so the outside of the WATER MAIN is at least (12) inches ABOVE or BELOW the Outside of the other pipeline. However, it is preferable to lay the WATER MAIN above the other pipeline.

(c) At the Utility crossings described in paragraphs (a) & (b) Above, one full length of Water Main Pipe shall be centered above or below the other pipeline so the WATER MAIN Joints will be as far as possible from the other pipeline. Alternatively, at such crossings, the pipes shall be arranged so that all WATER MAIN Joints are at least (3) Three feet from all joints in Vacuum-type Sanitary Sewers, Storm Sewers, Stormwater Force Mains, or pipelines conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C., and at least (6) Six Feet from all Joints in Gravity- or Pressure-type Sanitary Sewers, Wastewater force mains, or pipelines conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.

(3) Separation Between WATER MAINS and Sanitary or Storm Sewer Manholes:

(a) No WATER MAIN shall pass thru, or come into contact with any part of a Sanitary Manhole or a Storm Sewer Manhole.

(4) Separation Between Fire Hydrant Drains and Sanitary or Storm Sewers, Wastewater or Stormwater Force Mains, reclaimed Water Pipelines, and On-Site Sewage Treatment and Disposal Systems. New or relocated Fire Hydrants with underground Drains shall be located so that the drains are at least (3) Three Feet from any existing or proposed storm sewer, Stormwater force main, or pipeline conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C.; at least (3) Three Feet, and preferably (10) Ten Feet, from any existing or proposed gravity- or Pressure-type Sanitary Sewer, Wastewater force main, or pipeline conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.; and at least (10) Ten Feet from any existing or proposed "on-site sewage treatment and disposal system" as defined in Section 381.0065(2), F.S. and Rule 64E-6.002, F.A.C.

(5) Exceptions/Mitigation: Adherence to the above Constraints and Separations in Items 1 through 4 shall be Complied to, "WITHOUT EXCEPTION". If for some reason where it is not technically feasible or Economically Sensible that Items 1 through 4 cannot be complied with, Contractor will Stop Work and Notify the Engineer of record for the appropriate solution, which will be submitted to "The Department of Environmental Protection" for APPROVAL, prior to work commencement.

COLOR CODING

All water main pipe, including fittings, installed on or after August 28, 2003, except pipe installed under a construction permit for which the Department received complete application before August 28, 2003, shall be color coded or marked using blue as a predominate color to differentiate drinking water from reclaimed or other water. Under-ground plastic pipe shall be solid-wall blue pipe, shall have a co-extruded blue external skin, or shall be white or black pipe with blue stripes incorporated into, or applied to, the pipe wall; and underground metal or concrete pipe shall have blue stripes applied to the pipe wall. Pipe striped during manufacturing of the pipe shall have continuous stripes that run parallel to the axis of the pipe, that are located at no greater than 90° intervals around the pipe, and will remain intact during and after installation of the pipe. If tape or paint is used to stripe pipe during installation of the pipe, the tape or paint shall be applied in a continuous line that runs parallel to the axis of the pipe and that is located along the top of the pipe; for pipes with an internal diameter of 24 inches or greater, tape or paint shall be applied in continuous lines along each side of the pipe as well as along the top of the pipe. Aboveground pipe as drinking water treatment plants shall be color coded and labeled in accordance with subsection 62-555.320(10),F.A.C., and all other aboveground pipe shall be painted blue or shall be color coded or marked like underground pipe.

GENERAL WATER NOTES

1. Water system components shall be installed in strict accordance with all local codes and regulations, cleaned, disinfected and bacteriologically cleared for service in accordance with the latest AWWA Standards and Chapter 62-555 Florida Administrative Code.
2. All piping shall bear the "NSF" seal for Potable Water.
3. Water mains shall be PVC conforming to AWWA C-900, DR 18 for pipe sizes 4"-12". Pipes 14" or larger shall be AWWA C-905, DR 18. All couplings, cleaning compounds, solvents, lubricants, and pipe preparation, for laying, shall be in accordance with the pipe manufacturers latest recommendations.
4. Depth of water lines to be 36" minimum cover from finish grade.
5. Water mains to be located 6.00' from back of curb or edge of pavement unless otherwise noted.
6. All sleeves under pavement shall extend 5' beyond the back of curb.
7. Disinfecting: Following the pressure testing, the Contractor shall disinfect all sections of the water distribution system. Disinfection shall be in accordance with the applicable provisions of AWWA Standard C651 "Disinfecting Water Mains", and all appropriate agency approval.
8. All Hydrostatic Tests shall be in accordance with AWWA C600 for Ductile Iron Pipe and C605/M23 for PVC pipe.
9. All water mains shall be installed, pressure and leak tested in accordance with AWWA C600, (62-555.320(21)(b)1 AND 62-555.330, F.A.C. All installation, testing and field procedures must be provided and must conform to the applicable AWWA Standards.
10. All piping materials and specifications covering pipes, joints and packing materials, internal coating and linings, fittings, specials and appurtenances shall all be in accordance with he corresponding AWWA Standards and be conforming to NSF requirements, as may be applicable, with exceptions allowed only if documentation and assurances are provided in compliance with Paragraphs 62-555.320(3) (d) 62-555.320 (3) (b), and 62-555.320 (21) (n), F.A.C. The Lead Use Prohibition in Rule 62-555.322, F.A.C. shall also apply. Polyethylene tubing shall be per AWWA C901. Underground service lines and valves shall be per AWWA C800.
11. All existing wells on site to be abandoned in accordance with all applicable FDEP and SJRWMD requirements.

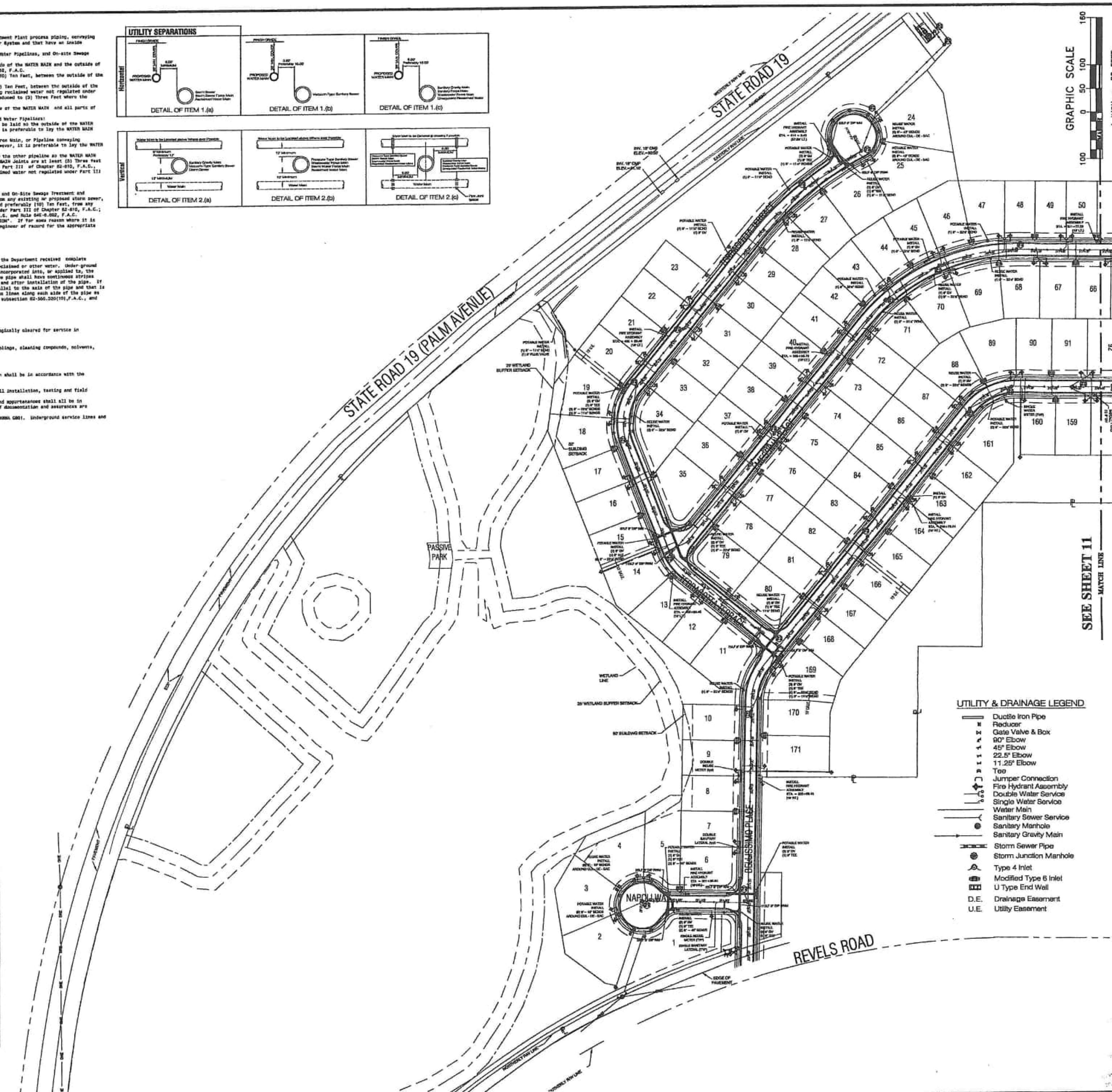
SANITARY PIPE CHART

MANHOLE ID	STATION	RIM	INV	TO	INV	PIPE	LENGTH	SLOPE
LS1 MH #22	215+43.02	101.05	97.05	MH #21	96.07	8" SDR-35	128LF	0.76%
LS1 MH #21	214+13.12	100.07	95.87	MH #20	94.54	8" SDR-35	99LF	1.44%
LS1 MH #20	213+10.52	98.54	94.44	MH #19	85.64	8" SDR-35	344LF	2.28%
LS1 MH #19	209+64.65	90.66	85.54	MH #15	84.35	8" SDR-35	298LF	0.40%
LS1 MH #18	302+22.76	87.52	83.32	MH #17	81.64	8" SDR-35	220LF	0.76%
LS1 MH #17	201+11.90 300+00.00	85.64	81.54	MH #16	79.94	8" SDR-35	400LF	0.40%
LS1 MH #16	205+14.51	92.64	79.84	MH #15	79.27	8" SDR-35	143LF	0.40%
LS1 MH #15	208+84.40 400+00.00	93.88	79.17	MH #9	77.98	8" SDR-35	298LF	0.40%
LS1 MH #14	512+22.76	100.83	96.73	MH #13	95.42	8" SDR-35	212LF	0.62%
LS1 MH #13	510+08.06	89.42	95.32	MH #12	93.88	8" SDR-35	166LF	0.89%
LS1 MH #12	508+38.82	87.88	93.50	MH #11	92.30	8" SDR-35	132LF	0.87%
LS1 MH #11	507+04.47	96.30	92.20	MH #10	88.49	8" SDR-35	368LF	1.01%
LS1 MH #10	503+34.27	92.49	88.39	MH #8	78.98	8" SDR-35	331LF	2.84%
LS1 MH #9	403+01.75	89.07	77.88	MH #8	76.89	8" SDR-35	247LF	0.40%
LS1 MH #8	405+50.78	90.69	76.79	MH #7	76.30	8" SDR-35	123LF	0.40%
LS1 MH #7	406+82.39	91.02	76.20	MH #6	75.59	8" SDR-35	153LF	0.40%
LS1 MH #6	408+37.89	89.88	75.49	MH #5	73.93	8" SDR-35	390LF	0.40%
LS1 MH #5	412+30.40	90.18	73.83	MH #4	73.27	8" SDR-35	140LF	0.40%
LS1 MH #4	413+74.13	88.35	73.17	MH #3	72.83	8" SDR-35	85LF	0.40%
LS1 MH #3	——	xx	72.73	MH #2	71.92	8" SDR-35	202LF	0.40%
LS1 MH #2	——	xx	71.82	MH #1	71.68	8" SDR-35	34LF	0.40%
LS1 MH #1	——	xx	71.58	LS	71.54	8" SDR-35	11LF	0.40%

MANHOLE ID	STATION	RIM	INV	TO	INV	PIPE	LENGTH	SLOPE
LS2 MH #26	234+30.58	83.30	78.39	MH #25	77.51	8" SDR-35	221LF	0.40%
LS2 MH #25	232+17.65	82.42	75.57	MH #24	74.46	8" SDR-35	278LF	0.40%
LS2 MH #24	229+35.38	83.47	74.36	MH #19	73.34	8" SDR-35	255LF	0.40%
LS2 MH #23	610+77.23	85.89	81.89	MH #22	81.23	8" SDR-35	166LF	0.40%
LS2 MH #22	608+07.86	87.77	81.13	MH #21	79.88	8" SDR-35	313LF	0.40%
LS2 MH #21	605+90.45	89.31	79.78	MH #20	78.59	8" SDR-35	298LF	0.40%
LS2 MH #20	602+88.20	86.92	78.49	MH #19	77.35	8" SDR-35	285LF	0.40%
LS2 MH #19	226+74.97 600+00.00	83.80	73.24	MH #13	72.57	8" SDR-35	168LF	0.40%
LS2 MH #18	217+40.71	100.51	96.51	MH #17	95.20	8" SDR-35	104LF	1.26%
LS2 MH #17	218+46.58	99.20	95.10	MH #16	93.59	8" SDR-35	85LF	1.78%
LS2 MH #16	219+36.42	97.59	93.49	MH #15	87.55	8" SDR-35	321LF	1.85%
LS2 MH #15	222+59.89	91.55	87.45	MH #14	86.08	8" SDR-35	76LF	1.80%
LS2 MH #14	223+38.77	90.08	85.98	MH #13	79.50	8" SDR-35	162LF	4.00%
LS2 MH #13	225+03.90 119+36.07	87.00	72.47	MH #12	70.90	8" SDR-35	393LF	0.40%
LS2 MH #12	115+40.97	94.00	70.80	MH #11	69.81	8" SDR-35	248LF	0.40%
LS2 MH #11	112+90.97	90.28	69.71	MH #8	68.69	8" SDR-35	240LF	0.40%
LS2 MH #10	513+78.47	100.16	96.16	MH #9	94.88	8" SDR-35	103LF	1.26%
LS2 MH #9	514+80.65	98.86	94.78	MH #8	80.00	8" SDR-35	390LF	4.01%
LS2 MH #8	518+46.67 110+40.66	81.39	68.59	MH #7	67.30	8" SDR-35	322LF	0.40%
LS2 MH #7	107+17.77	88.85	67.20	MH #6	66.28	8" SDR-35	231LF	0.40%
LS2 MH #6	104+86.40	100.38	66.18	MH #5	65.44	8" SDR-35	186LF	0.40%
LS2 MH #5	——	xx	65.34	MH #4	64.25	8" SDR-35	272LF	0.40%
LS2 MH #4	——	xx	64.15	MH #3	63.34	8" SDR-35	203LF	0.40%
LS2 MH #3	——	xx	63.24	MH #2	62.49	8" SDR-35	187LF	0.40%
LS2 MH #2	——	xx	62.39	LS	61.72	8" SDR-35	154LF	0.40%

GENERAL NOTES:

1. ALL PIPE LENGTHS ARE APPROXIMATE AND ROUNDED OFF TO THE NEAREST FOOT. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL MATERIAL LISTS PRIOR TO FINAL BIDDING.
2. ALL STRUCTURE INVERTS SHALL BE POURED AND SHAPED TO PROMOTE FLOW AND TO PREVENT STANDING WATER.
3. ALL CONSTRUCTION MATERIALS SHALL CONFORM TO THE LATEST TOWN OF HOWEY-IN-THE-HILLS STANDARDS AND SPECIFICATIONS.
4. ALL CONSTRUCTION SHALL BE SUBJECT TO INSPECTIONS AND APPROVALS BY THE PROJECT ENGINEER AND THE TOWN OF HOWEY-IN-THE-HILLS.



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BESH
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VENEZIA SOUTH RESIDENTIAL SUBDIVISION

UTILITY PLAN

Sheet A

CHECKED BY: CCH
PROJECT NO.: 051373.0000
DATE: JUNE 2006
DESIGNED/DRAWN BY: LCS
SHT. 10 OF 37

JUN 29 2007
CHARLES C. HIOTT, P.E.
PROFESSIONAL ENGINEER 54813

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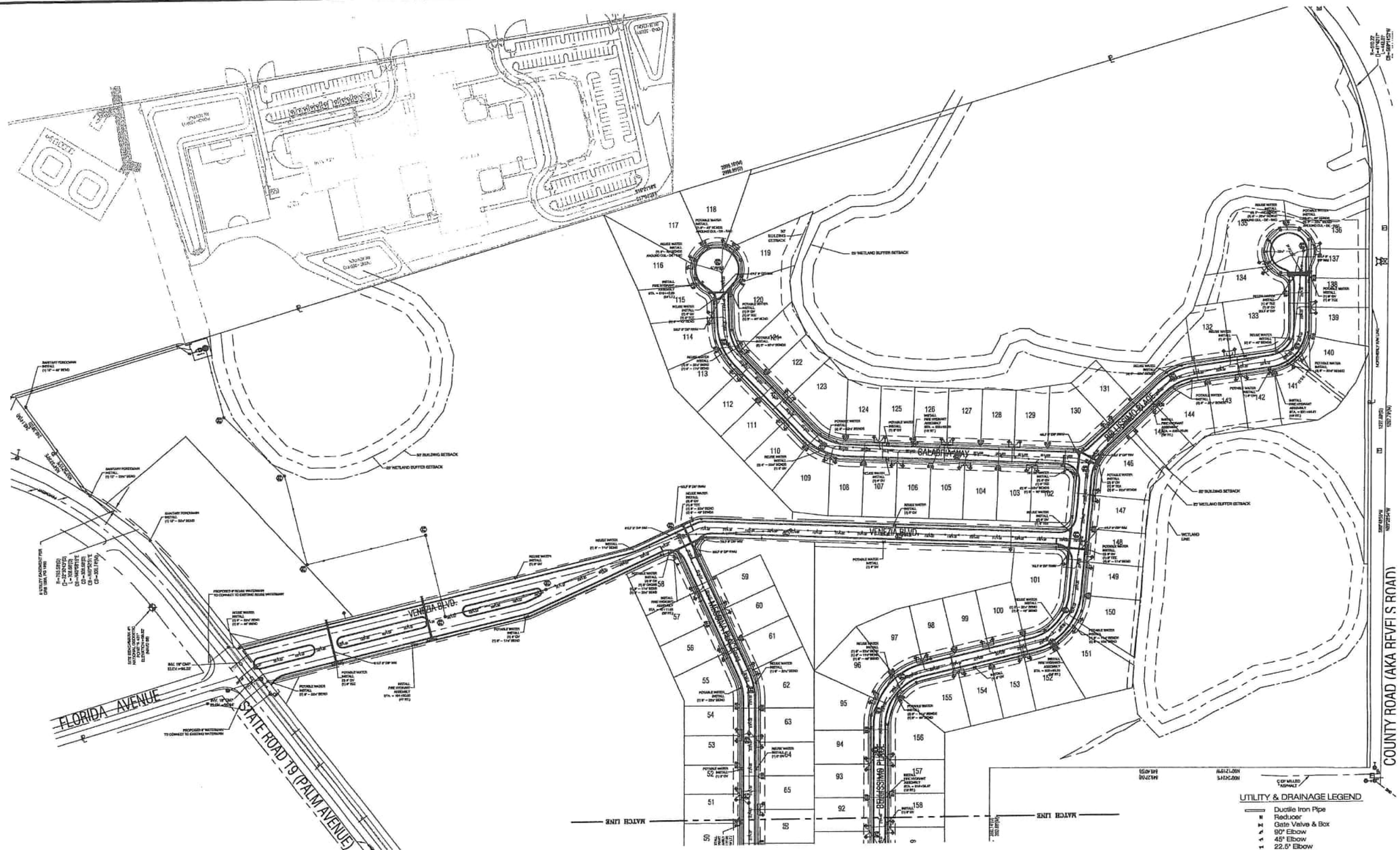

REVISIONS

DATE	-	1	2	3	4	5	6	7

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VENEZIA SOUTH RESIDENTIAL SUBDIVISION

UTILITY PLAN

Sheet B

CHECKED BY:	CCH
PROJECT NO.:	051373.0000
DATE:	JUNE 2006
DESIGNED/DRAWN BY:	LCS
SHT.	11 OF 37

JUN 29 2007

CHARLES C. HOTT, P.E.
PROFESSIONAL ENGINEER 54813

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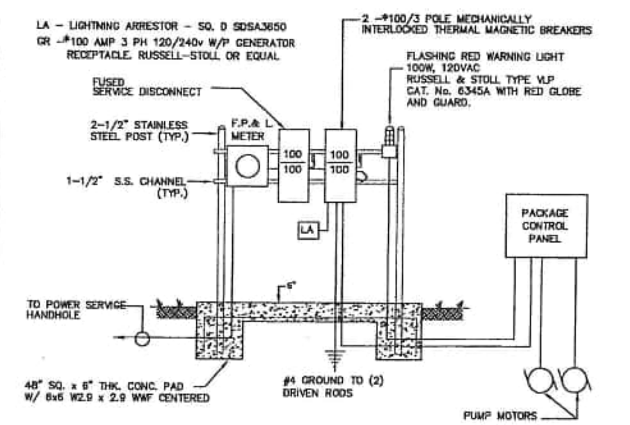


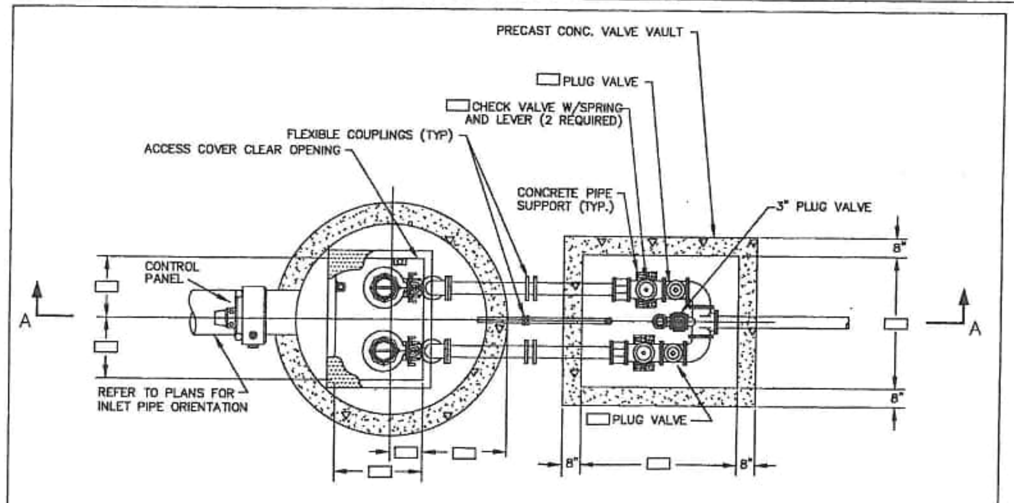
NOTES:

1. SUPPORT FRAME TO BE FABRICATED FROM 316 STAINLESS STEEL. ALL SCREWS, NUTS, BOLTS, STRAPS, AND SIMILAR CONNECTORS SHALL BE 316 STAINLESS STEEL. PROVIDE NEOPRENE PAD AND/OR FIBER WASHERS BETWEEN DISSIMILAR METALS.
2. ALL CONDUIT AND FITTINGS WITHIN 12" OF EQUIPMENT PAD AND GRADE TO BE RGS.
3. ALL BOXES, FITTINGS AND PIPES TO BE NEMA 4X STAINLESS STEEL.
4. MINIMUM 2 GROUND RODS SPACED A MINIMUM OF 6.0' APART.
5. * THIS INFO APPLIES TO TYPICAL 25 HP OR LESS LIFT STATION INSTALLATIONS. ENGINEER/CONTRACTOR SHALL VERIFY SPECIFIC ELECTRICAL AMPERAGE REQUIREMENTS PRIOR TO ORDERING AND INSTALLING EQUIPMENT

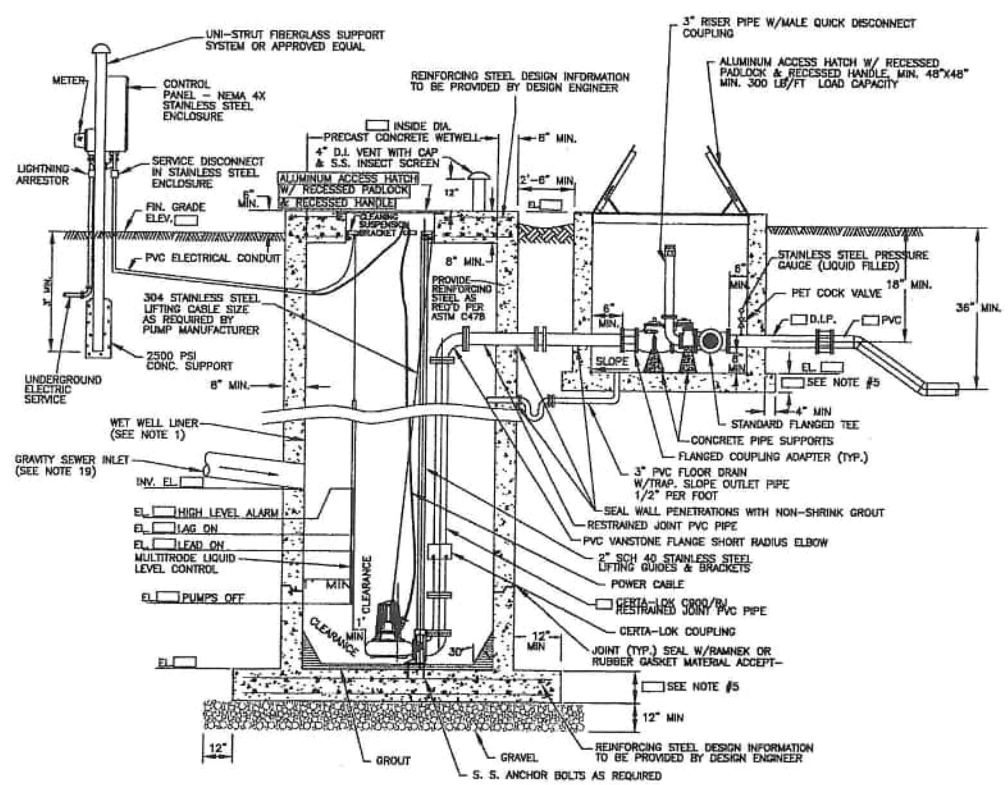
PACKAGED LIFT STATION ELECTRICAL EQUIPMENT RACK

GENERAL NOTES SUBMERSIBLE PUMP STATION:

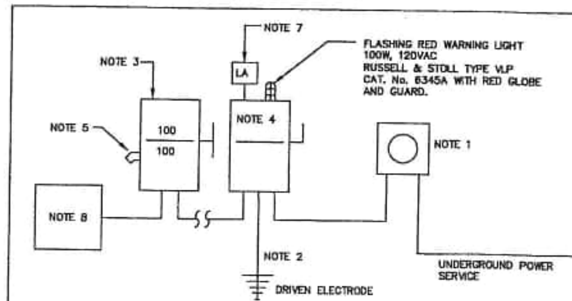
1. WET WELL SHALL BE LINED WITH "AGRU SURE GRIP" CONCRETE PROTECTIVE LINER OR APPROVED EQUAL. WET WELL EXTERIOR SHALL BE COATED WITH COAL TAR EPOXY.
2. BASE AND FIRST RISER UNIT TO BE CAST MONOLITHIC.
3. VALVE VAULT AND ACCESS COVERS SHALL BE SIZED TO PERMIT EASY REMOVAL OF CHECK VALVE.
4. VALVE VAULT SHALL HAVE SEALED FLOOR W/DRAIN TO WET WELL – TRAP REQUIRED.
5. ALL LOCATIONS WHERE PIPES ENTER OR LEAVE THE WET WELL OR VALVE VAULT SHALL BE MADE WATERTIGHT WITH WALL SLEEVE OR NON–SHRINK GROUT.
6. PUMP LIFTING DEVICE SHALL BE 304 SS LIFTING CABLE.
7. THERE SHALL BE NO ELECTRICAL JUNCTION BOXES IN WET WELL OR VALVE VAULT.
8. CHECK VALVES SHALL BE OUTSIDE WEIGHT & LEVER.
9. WET WELL & VALVE VAULT COVERS SHALL BE ALUMINUM WITH 304S.S HARDWARE, AS RECOMMENDED AND REQUIRED BY PUMP MANUFACTURER (LOADING 300 P.S.F.) AND PROVIDED WITH RECESSED LOCKS.
10. CONTROL PANEL SHALL BE AS MANUFACTURED BY THE PUMP SUPPLIER OR APPROVED EQUAL.
11. WET WELL DIAMETER SHALL BE 8' NOMINAL.
12. ACCESS HATCH DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE PUMPING EQUIPMENT, PIPING AND CONCRETE STRUCTURES TO ENSURE ADEQUATE ACCESS OPENINGS FOR INSTALLATION, OPERATION AND MAINTENANCE OF ALL EQUIPMENT.
13. FURNISH AND INSTALL GENERATOR RECEPTACLE
14. VALVE VAULT AND WET WELLS SHALL BE PRECAST CONCRETE. SUBMIT SHOP DRAWINGS WITH REINFORCING DETAILS FOR APPROVAL PRIOR TO FABRICATION.
15. CHAIN LINK FENCE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:
    A) POSTS SHALL BE SCHEDULE 40, GALVANIZED STEEL (2" OUTSIDE DIAMETER MIN.), MAXIMUM 10 FOOT SPACING
    B) FABRIC FOR FENCING AND GATES SHALL BE 9 GAUGE 2" MESH, CLASS 1, CONFORMING TO A.S.T.M. A–392D, 1.2 OZ. GALVANIZED COATING.
    C) POSTS SHALL BE SET IN 2500 PSI CONCRETE IN AN 8" DIAMETER HOLE WITH A DEPTH OF 36 INCHES.
    D) FENCING SHALL BE SCREENED WITH PVC SLATS, FEATHERLOCK OR APPROVED EQUAL. COLOR SHALL BE GREEN OR BLACK.
16. AUXILIARY POWER CONNECTION:
    A) FOR PUMPS < 10HP – RUSSELL & STOLL CAT. NO. FCF 3134–W–72, 100 AMP, 230 VOLT OR APPROVED EQUAL
    B) FOR PUMPS ≥ 10HP – RUSSELL & STOLL CAT. NO. FCF 3134–W–72, 200 AMP, 230 VOLT AR2042 – CROUSE–HINDS, OR APPROVED EQUAL
17. • HAND – (ON–OFF) – AUTOMATIC SWITCHES ON ALL PUMPS.
    • MANUAL – (ON–OFF) – SWITCH ON ALL ALTERNATORS.
    • ONE ELAPSED TIME METER FOR EACH PUMP.
    • 120 VOLT RECEPTACLE INSIDE CONTROL BOX.
    • 3 PHASE CURRENT (WILL NOT ACCEPT ADD A PHASE OR CAPACITOR PHASE CHANGERS).
    • POWER CABLE TO PUMPS RUN IN CONDUIT SEPARATE FROM FLOAT SWITCH CONDUIT.
    • LIQUID FILLED PRESSURE GAUGE ON FORCE MAIN.
18. FLOAT SWITCHES, MUST BE TRANSFORMER ISOLATED–24 VOLT MAX. ALL CONNECTIONS MUST TERMINATE IN CONTROL PANEL OUTSIDE OF WET WELL.
19. KNIFE SWITCH DISCONNECT BETWEEN POWER SUPPLY AND LIFT STATION CONTROL PANEL.
20. SHAKESPEARE FIBERGLASS LIGHT POLE CATALOG #B520 OR #B524 OR APPROVED EQUAL.
21. RUDD LIGHT 250W #F53425–M OR APPROVED EQUAL.
22. SEAL GRAVITY PIPE AT WETWELL WITH RUBBER BOOT SEAL.
23. PUMP CONTROLLERS SHALL BE MULTI–TRODE MODEL MTPC CONTROLLER AND MTTS–5 SUPPRESSOR.



PLAN VIEW



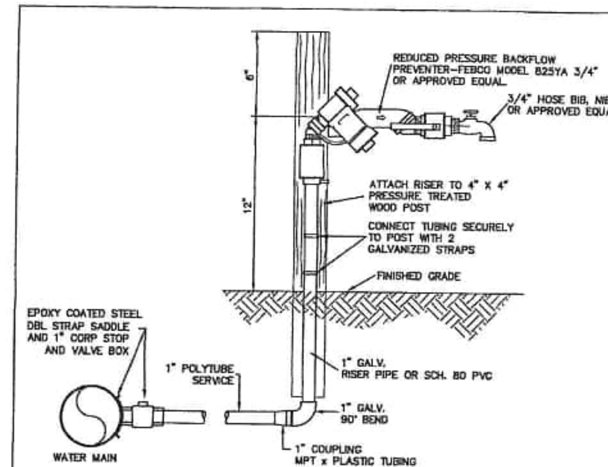
SUBMERSIBLE WET WELL SECTION



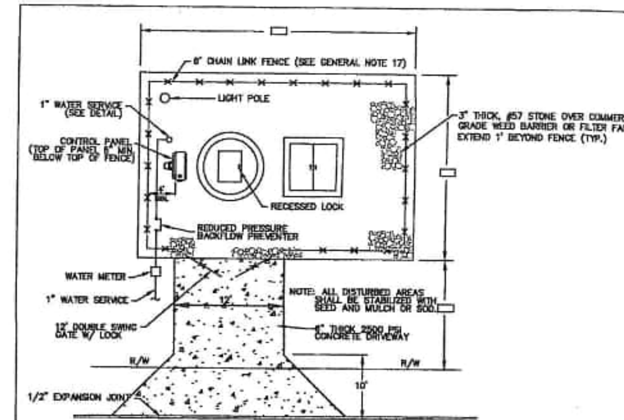
NOTES:

1. ALL BOXES, INCLUDING SWITCH GEAR, ELECTRIC METER CANS, DISCONNECT, AND ALL MISC. ELECTRICAL BOXES SHALL BE NEMA 4X STAINLESS STEEL. ALL BRACKETS, PIPING, BOLTS, NUTS, WASHERS, AND ANY FASTENERS SHALL BE 316 SS.
2. METER WITH BYPASS.
3. SERVICE GROUND TO INCLUDE 3 – 10' ELECTRODES ON 10' CENTERS BOND TO SLAB REBAR. USE #4 BARE COPPER MIN.
4. 100 AMP 3–POLE, CIRCUIT BREAKER MANUAL TRANSFER SWITCH IN WEATHERPROOF ENCLOSURE.
5. 100 AMP 3 POLE S–N FUSED 240 VOLT WEATHERPROOF DISCONNECT.
6. GENERATOR RECEPTACLE, RUSSELL & STOLL
7. PACKAGE PUMP STATION CONTROL PANEL
8. LIGHTNING ARRESTOR – SQUARE D No. SDSA 3650.

PACKAGED LIFT STATION ELECTRICAL SERVICE SCHEMATIC



LIFT STATION POTABLE WATER SERVICE



LIFT STATION SITE PLAN

N.T.S.

REVISIONS

DATE

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Certificate of Authorization Number: 27029

VENEZIA SOUTH RESIDENTIAL SUBDIVISION

LIFT STATION DETAILS

CHECKED BY:	CCH
PROJECT NO.:	051373.0000
DATE:	JUNE 2006
DRAWN BY:	LCS
DESIGNED BY:	LCS

SHT. 33 OF 37

JUN 19 2007

CHARLES C. HIOTT, P.E.
PROFESSIONAL ENGINEER 54813

18971-3

(2)

CONSTRUCTION PLANS
FOR
Venezia North Subdivision

Section 35 & 36, Township 22 South, Range 25 East
Town of Howey in the Hills, Lake County, Florida

OWNER:
FRED BENNETT
LYKES BROTHERS, INC.
400 NORTH TAMPA STREET
TAMPA, FLORIDA 33601
(813) 470-5509
(813) 470-5020 FAX

DEVELOPER:
FLAGSHIP HARB, LLC
916 HIGHLAND AVENUE
ORLANDO, FLORIDA 32803
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ENGINEER:
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350 NORTH SINCLAIR AVENUE
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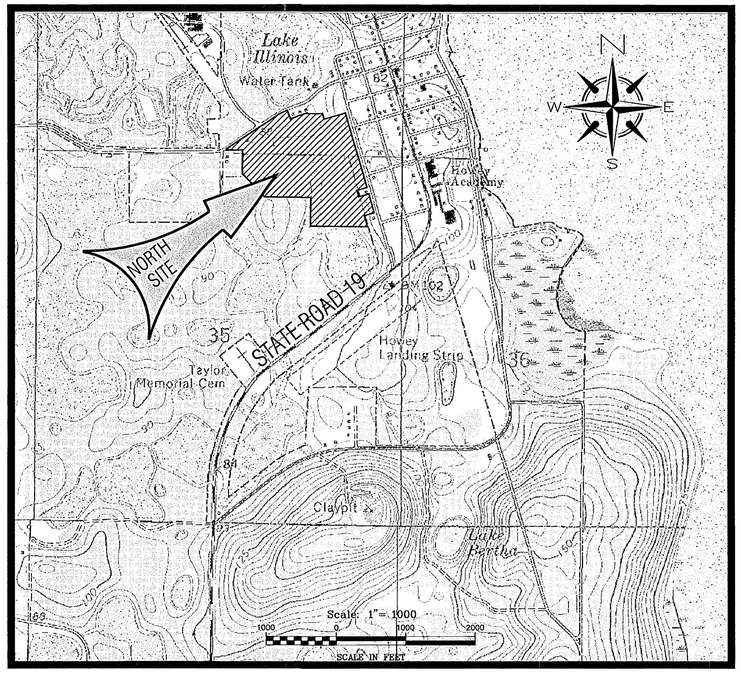
CONTACT: CHARLES HIOTT, P.E.



VICINITY MAP

SHEET INDEX

LEGAL DESCRIPTION:

NORTH PARCEL
A PARCEL OF LAND BEING A PORTION OF "GROVE GARDENS" (PLAT BOOK 17, PAGE 2) AND "HOWIE-IN-THE-HILLS" (AN UNRECORDED PLAT) LYING IN SECTIONS 26 AND 35, TOWNSHIP 20 SOUTH, RANGE 25 EAST, LAKE COUNTY, FLORIDA AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHWEST CORNER OF THE NORTHEAST 1/4 OF SECTION 35, TOWNSHIP 20 SOUTH, RANGE 25 EAST, LAKE COUNTY, FLORIDA; THENCE ALONG THE NORTH BOUNDARY OF SAID SECTION N89°49'22"E, A DISTANCE OF 97.92 FEET TO THE POINT OF BEGINNING; THENCE DEPART SAID SECTION BOUNDARY N00°00'07"E, A DISTANCE OF 29.70 FEET TO A POINT ON THE SOUTHERLY RIGHT OF WAY LINE OF GRANT STREET; THENCE ALONG SAID RIGHT OF WAY N56°00'00"E, A DISTANCE OF 921.20 FEET; THENCE N64°54'03"E, A DISTANCE OF 134.15 FEET; THENCE DEPART SAID RIGHT OF WAY LINE S32°46'58"E, A DISTANCE OF 134.90 FEET; THENCE N67°23'40"E, A DISTANCE OF 249.96 FEET; THENCE S06°03'40"E, A DISTANCE OF 12.16 FEET; THENCE N89°52'29"E, A DISTANCE OF 222.15 FEET; THENCE S17°01'37"E, A DISTANCE OF 79.32 FEET; THENCE N72°54'16"E, A DISTANCE OF 315.08 FEET TO A POINT ON THE WEST RIGHT OF WAY LINE OF FLORIDA AVENUE; THENCE ALONG SAID RIGHT OF WAY S17°04'04"E, A DISTANCE OF 1132.61 FEET; THENCE DEPART SAID RIGHT OF WAY S72°57'38"W, A DISTANCE OF 149.84 FEET; THENCE S17°10'01"E, A DISTANCE OF 74.94 FEET; THENCE N72°58'13"E, A DISTANCE OF 149.82 FEET TO A POINT ON THE WEST RIGHT OF WAY LINE OF FLORIDA AVENUE; THENCE ALONG SAID RIGHT OF WAY S17°02'44"E, A DISTANCE OF 300.03 FEET; THENCE DEPART SAID RIGHT OF WAY S72°56'09"W, A DISTANCE OF 149.83 FEET; THENCE S17°02'42"E, A DISTANCE OF 164.96 FEET; THENCE N90°00'00"W, A DISTANCE OF 835.94 FEET TO A POINT ON THE WEST BOUNDARY OF THE NORTHEAST 1/4 OF THE NORTHEAST 1/4 OF SAID SECTION 35; THENCE ALONG SAID SECTION BOUNDARY N00°19'41"W, A DISTANCE OF 404.92 FEET; THENCE DEPARTING SAID SECTION BOUNDARY S89°51'12"W, A DISTANCE OF 609.75 FEET; THENCE N45°09'29"W, A DISTANCE OF 468.37 FEET; THENCE N00°06'38"W, A DISTANCE OF 331.44 FEET; THENCE S89°50'24"W, A DISTANCE OF 232.87 FEET TO THE POINT OF BEGINNING.

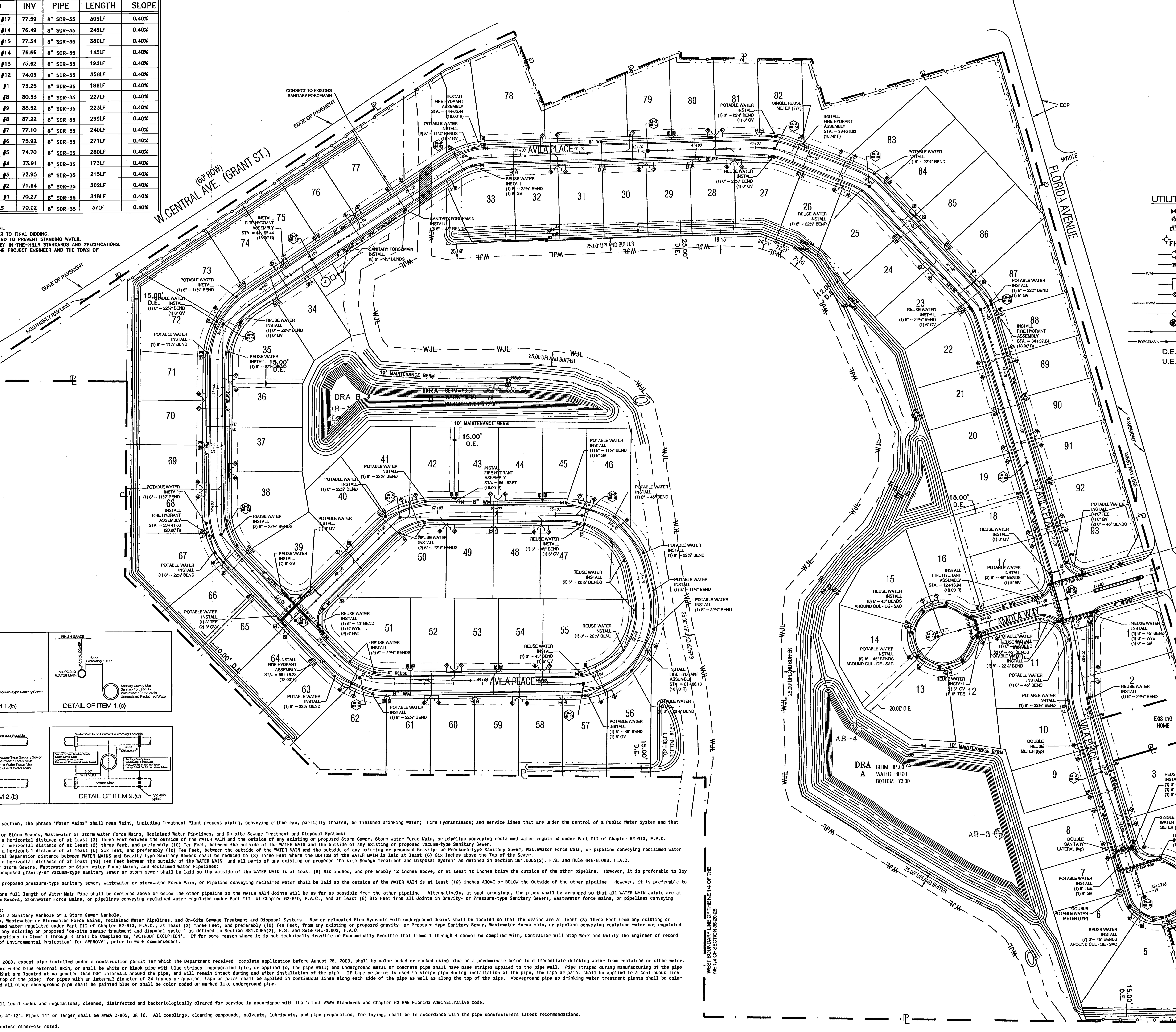
STATE OF FLORIDA CERTIFICATION OF AUTHORIZATION NO. 27029

SANITARY PIPE CHART

MANHOLE ID	STATION	RIM	INV	TO	INV	PIPE	LENGTH	SLOPE
MH #18	64+54.35	84.68	78.83	MH #17	77.59	8" SDR-35	309LF	0.40%
MH #17	67+63.37	86.88	77.49	MH #14	76.49	8" SDR-35	249LF	0.40%
MH #16	60+71.72	85.09	78.86	MH #15	77.34	8" SDR-35	380LF	0.40%
MH #15	56+89.57	88.56	77.24	MH #14	76.66	8" SDR-35	145LF	0.40%
MH #14	55+42.88 70+11.63	89.47	76.39	MH #13	75.62	8" SDR-35	193LF	0.40%
MH #13	53+48.70	89.36	75.52	MH #12	74.09	8" SDR-35	358LF	0.40%
MH #12	49+90.52	86.02	73.99	MH #1	73.25	8" SDR-35	186LF	0.40%
MH #11	13+85.83	85.24	81.24	MH #8	80.33	8" SDR-35	227LF	0.40%
MH #10	25+29.01	93.29	89.41	MH #9	88.52	8" SDR-35	223LF	0.40%
MH #9	23+01.41	91.99	88.42	MH #8	87.22	8" SDR-35	299LF	0.40%
MH #8	11+57.71 20+00.00	95.00	80.23	MH #7	77.10	8" SDR-35	240LF	0.40%
MH #7	32+40.68	87.39	77.00	MH #6	75.92	8" SDR-35	271LF	0.40%
MH #6	35+12.71	87.45	75.82	MH #5	74.70	8" SDR-35	280LF	0.40%
MH #5	37+93.82	86.67	74.60	MH #4	73.91	8" SDR-35	173LF	0.40%
MH #4	39+67.93	84.92	73.81	MH #3	72.95	8" SDR-35	215LF	0.40%
MH #3	41+83.97	84.36	72.85	MH #2	71.64	8" SDR-35	302LF	0.40%
MH #2	44+86.36	87.35	71.54	MH #1	70.27	8" SDR-35	318LF	0.40%
MH #1	48+05.39	86.24	70.17	LS	70.02	8" SDR-35	37LF	0.40%

GENERAL NOTES:

1. ALL PIPE LENGTHS ARE APPROXIMATE AND ROUNDED OFF TO THE NEAREST FOOT. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL MATERIAL LISTS PRIOR TO FINAL BIDDING.
2. ALL STRUCTURE INVERTS SHALL BE POURED AND SHAPED TO PROMOTE FLOW AND TO PREVENT STANDING WATER.
3. ALL CONSTRUCTION MATERIALS SHALL CONFORM TO THE LATEST TOWN OF HOWEY-IN-THE-HILLS STANDARDS AND SPECIFICATIONS.
4. ALL CONSTRUCTION SHALL BE SUBJECT TO INSPECTIONS AND APPROVALS BY THE PROJECT ENGINEER AND THE TOWN OF HOWEY-IN-THE-HILLS.



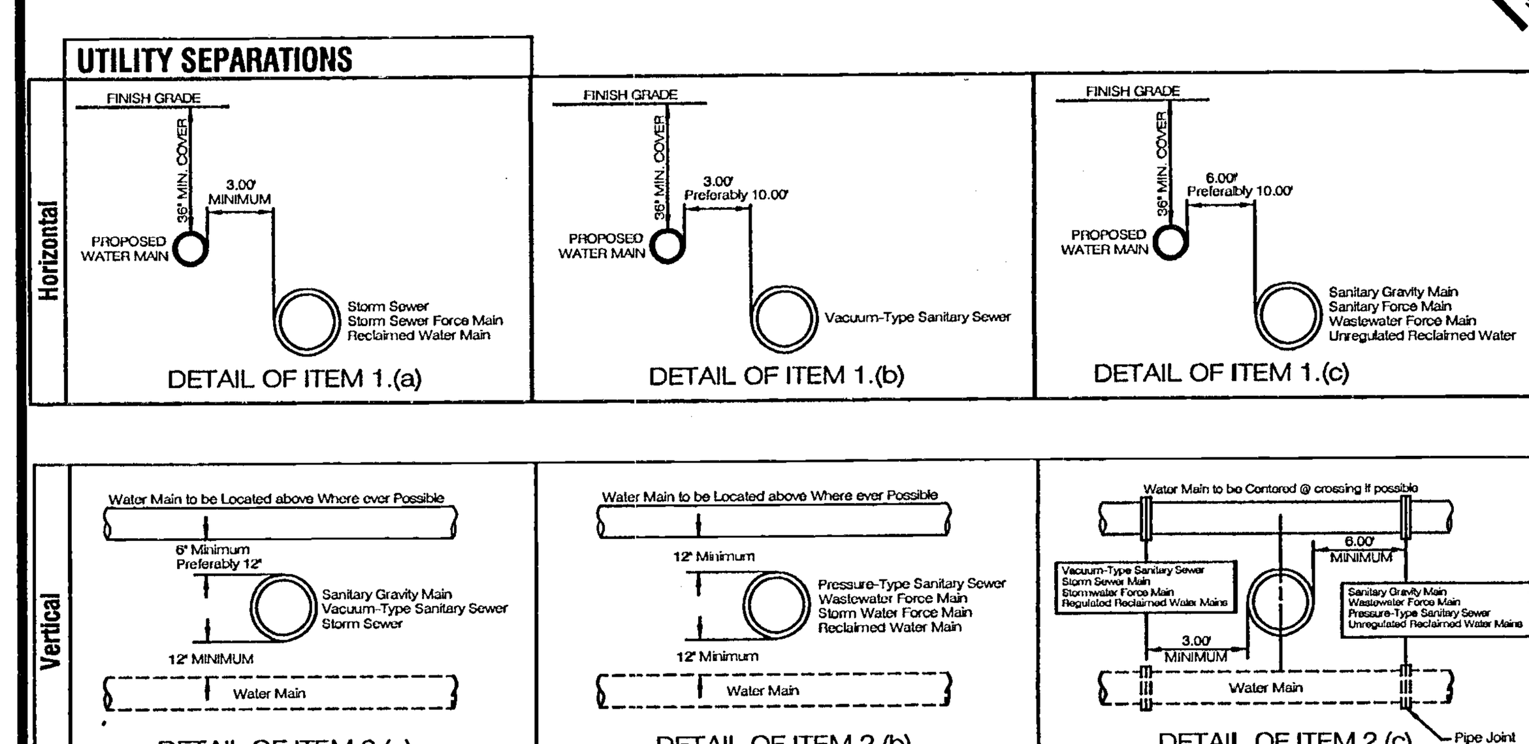
UTILITY LEGEND

- Gate Valve & Box
- Pipe Elbow
- Tee
- FH Fire Hydrant Assembly
- Double Water Service
- Single Water Service
- WM Water Main
- Double Re-use Water Service
- Single Re-use Water Service
- RWM Re-use Water Main
- Sanitary Sewer Service
- Sanitary Manhole
- Sanitary Gravity Main
- FORCEMAIN Sanitary Force Main
- D.E. Drainage Easement
- U.E. Utility Easement

NOTE:
ALL UTILITY CONSTRUCTION SHALL BE IN ACCORDANCE WITH TOWN OF HOWEY UTILITY CONSTRUCTION SPECIFICATIONS.

GRAPHIC SCALE
1 INCH = 100 FEET

UTILITY SEPARATIONS



UTILITY CONSTRUCTION NOTES (DEP)

62-555.314 Location of Public Water System Mains: For the purpose of this section, the phrase "Water Mains" shall mean Mains, including Treatment Plant process piping, conveying either raw, partially treated, or finished drinking water; Fire Hydrantleads; and service lines that are under the control of a Public Water System and that have an inside diameter of three (3")inches or greater.

(1) Horizontal Separation Between Underground Water Mains and Sanitary or Storm Sewers, Wastewater or Storm water Force Mains, Reclaimed Water Pipelines, and On-site Sewage Treatment and Disposal Systems:
(a) New or relocated, underground WATER MAINS shall be laid to provide a horizontal distance of at least (3) Three Feet between the outside of the WATER MAIN and the outside of any existing or proposed Storm Sewer, Storm water Force Main, or pipeline conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C.
(b) New or relocated, underground WATER MAINS shall be laid to provide a horizontal distance of at least (3) three feet, and preferably (10) Ten Feet, between the outside of the WATER MAIN and the outside of any existing or proposed vacuum-type Sanitary Sewer.
(c) New or relocated, underground WATER MAINS shall be laid to provide a horizontal distance of at least (6) Six Feet, and preferably (10) Ten Feet, between the outside of the WATER MAIN and the outside of any existing or proposed Gravity- or Pressure-type Sanitary Sewer, Wastewater Force Main, or pipeline conveying reclaimed water not regulated under Part III of Chapter 62-610 F.A.C. The Minimum Horizontal Separation distance between WATER MAINS and Gravity-type Sanitary Sewers shall be reduced to (3) Three Feet where the BOTTOM of the WATER MAIN is laid at least (6) Six Inches above the Top of the Sewer.
(d) New or relocated, underground WATER MAINS shall be laid to provide a horizontal distance of at least (10) Ten Feet between the outside of the WATER MAIN and all parts of any existing or proposed "On site Sewage Treatment and Disposal System" as defined in Section 381.0065(2). F.S. and Rule 64E-6.002. F.A.C.

(2) Vertical Separation Between Underground WATER MAINS and Sanitary or Storm Sewers, Wastewater or Storm water Force Mains, and Reclaimed Water Pipelines:
(a) New or relocated underground WATER MAINS crossing any existing or proposed gravity-or vacuum-type sanitary sewer or storm sewer shall be laid so the outside of the WATER MAIN is at least (6) Six inches, and preferably 12 inches above, or at least 12 Inches below the outside of the other pipeline. However, it is preferable to lay the WATER MAIN "ABOVE" the other pipeline.
(b) New or relocated, Underground WATER MAINS crossing any existing or proposed pressure-type sanitary sewer, wastewater or stormwater Force Main, or Pipeline conveying reclaimed water shall be laid so the outside of the WATER MAIN is at least (12) inches ABOVE or BELOW the Outside of the other pipeline. However, it is preferable to lay the WATER MAIN above the other pipeline.
(c) At the Utility crossings described in paragraphs (a) & (b) Above, one full length of Water Main Pipe shall be centered above or below the other pipeline so the WATER MAIN Joints will be as far as possible from the other pipeline. Alternatively, at such crossings, the pipes shall be arranged so that all WATER MAIN Joints are at least (3) Three feet from all joints in Vacuum-type Sanitary Sewers, Storm Sewers, Stormwater Force Mains, or pipelines conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C., and at least (6) Six Feet from all Joints in Gravity- or Pressure-type Sanitary Sewers, Wastewater force mains, or pipelines conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.

(3) Separation Between WATER MAINS and Sanitary or Storm Sewer Manholes:
(a) No WATER MAIN shall pass thru, or come into contact with any part of a Sanitary Manhole or a Storm Sewer Manhole.

(4) Separation Between Fire Hydrant Drains and Sanitary or Storm Sewers, Wastewater or Stormwater Force Mains, reclaimed Water Pipelines, and On-Site Sewage Treatment and Disposal Systems. New or relocated Fire Hydrants with underground Drains shall be located so that the drains are at least (3) Three Feet from any existing or proposed storm sewer, Stormwater force main, or pipeline conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C.; at least (3) Three Feet, and preferably (10) Ten Feet, from any existing or proposed gravity- or Pressure-type Sanitary Sewer, Wastewater force main, or pipeline conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.; and at least (10) Ten Feet from any existing or proposed "on-site sewage treatment and disposal system" as defined in Section 381.0065(2), F.S. and Rule 64E-6.002, F.A.C.

(5) Exceptions/Mitigation: Adherence to the above Constraints and Separations in Items 1 through 4 shall be Complied to, "WITHOUT EXCEPTION". If for some reason where it is not technically feasible or Economically Sensible that Items 1 through 4 cannot be complied with, Contractor will Stop Work and Notify the Engineer of record for the appropriate solution, which will be submitted to "The Department of Environmental Protection" for APPROVAL, prior to work commencement.

COLOR CODING

All water main pipe, including fittings, installed on or after August 28, 2003, except pipe installed under a construction permit for which the Department received complete application before August 28, 2003, shall be color coded or marked using blue as a predominate color to differentiate drinking water from reclaimed or other water. Under-ground plastic pipe shall be solid-wall blue pipe, shall have a co-extruded blue external skin, or shall be white or black pipe with blue stripes incorporated into, or applied to, the pipe wall; and underground metal or concrete pipe shall have blue stripes applied to the pipe wall. Pipe striped during manufacturing of the pipe shall have continuous stripes that run parallel to the axis of the pipe, that are located at no greater than 90° intervals around the pipe, and will remain intact during and after installation of the pipe. If tape or paint is used to stripe pipe during installation of the pipe, the tape or paint shall be applied in a continuous line that runs parallel to the axis of the pipe and that is located along the top of the pipe; for pipes with an internal diameter of 24 inches or greater, tape or paint shall be applied in continuous lines along each side of the pipe as well as along the top of the pipe. Aboveground pipe as drinking water treatment plants shall be color coded and labeled in accordance with subsection 62-555.320(10),F.A.C., and all other aboveground pipe shall be painted blue or shall be color coded or marked like underground pipe.

GENERAL WATER NOTES

1. Water system components shall be installed in strict accordance with all local codes and regulations, cleaned, disinfected and bacteriologically cleared for service in accordance with the latest AWWA Standards and Chapter 62-555 Florida Administrative Code.
2. All piping shall bear the "NSF" seal for Potable Water.
3. Water mains shall be PVC conforming to AWWA C-900, DR 18 for pipe sizes 4"-12". Pipes 14" or larger shall be AWWA C-905, DR 18. All couplings, cleaning compounds, solvents, lubricants, and pipe preparation, for laying, shall be in accordance with the pipe manufacturers latest recommendations.
4. Depth of water lines to be 36" minimum cover from finish grade.
5. Water mains to be located 6.00' from back of curb or edge of pavement unless otherwise noted.
6. All sleeves under pavement shall extend 5' beyond the back of curb.
7. Disinfecting: Following the pressure testing, the Contractor shall disinfect all sections of the water distribution system. Disinfection shall be in accordance with the applicable provisions of AWWA Standard C651 "Disinfecting Water Mains", and all appropriate agency approval.
8. All Hydrostatic Tests shall be in accordance with AWWA C600 for Ductile Iron Pipe and C605/M23 for PVC pipe.
9. All water mains shall be installed, pressure and leak tested in accordance with AWWA C600, (62-555.320(21)(b)1 AND 62-555.330, F.A.C. All installation, testing and field procedures must be provided and must conform to the applicable AWWA Standards.
10. All piping materials and specifications covering pipes, joints and packing materials, internal coating and linings, fittings, specials and appurtenances shall all be in accordance with he corresponding AWWA Standards and be conforming to NSF requirements, as may be applicable, with exceptions allowed only if documentation and assurances are provided in compliance with Paragraphs 62-555.320(3) (d) 62-555.320 (3) (b), and 62-555.320 (21) (c), F.A.C. The Lead Use Prohibition in Rule 62-555.322, F.A.C. shall also apply. Polyethylene tubing shall be per AWWA C901. Underground service lines and valves shall be per AWWA C800.
11. All existing wells on site to be abandoned in accordance with all applicable FDEP and SJRWMD requirements.

REVISIONS

	DATE	
1		
2		
3		
4		
5		
6		
7		

BESH
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Certificate of Authorization Number: 27029

VENEZIA NORTH
RESIDENTIAL SUBDIVISION

UTILITY PLAN

CHECKED BY: CCH
PROJECT NO.: 051373.0000
DATE: JUNE 2006
DESIGNED/DRAWN BY: LCS
SHT. 6 OF 22

18971-2
RECEIVED
APR 13 2007
PDS
ALTAMONTE SVC. CTR.

APR 13 2007
CHARLES C. HIOTT, P.E.
PROFESSIONAL ENGINEER 54813

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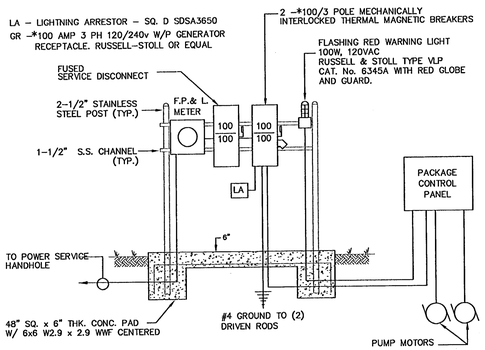


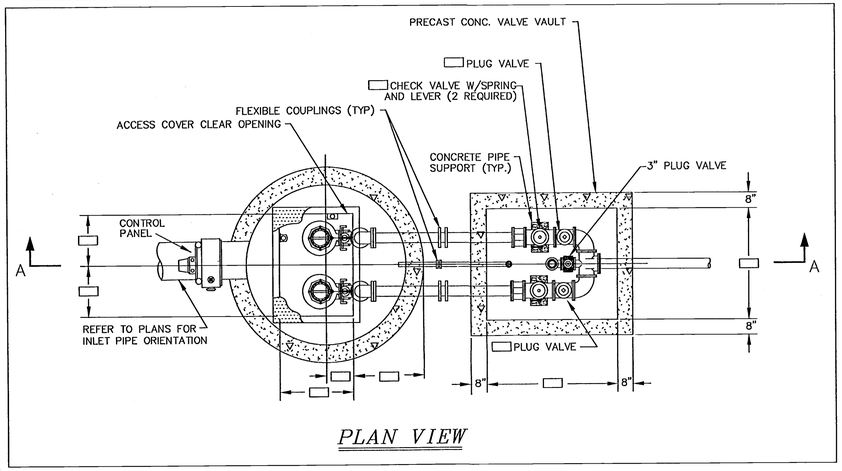
NOTES:

1. SUPPORT FRAME TO BE FABRICATED FROM 316 STAINLESS STEEL. ALL SCREWS, NUTS, BOLTS, STRAPS, AND SIMILAR CONNECTORS SHALL BE 316 STAINLESS STEEL. PROVIDE NEOPRENE PAD AND/OR FIBER WASHERS BETWEEN DISSIMILAR METALS.
2. ALL CONDUIT AND FITTINGS WITHIN 12" OF EQUIPMENT PAD AND GRADE TO BE RGS.
3. ALL BOXES, FITTINGS AND PIPES TO BE NEMA 4X STAINLESS STEEL.
4. MINIMUM 2 GROUND RODS SPACED A MINIMUM OF 6.0' APART.
5. * THIS INFO APPLIES TO TYPICAL 25 HP OR LESS LIFT STATION INSTALLATIONS. ENGINEER/CONTRACTOR SHALL VERIFY SPECIFIC ELECTRICAL AMPERAGE REQUIREMENTS PRIOR TO ORDERING AND INSTALLING EQUIPMENT

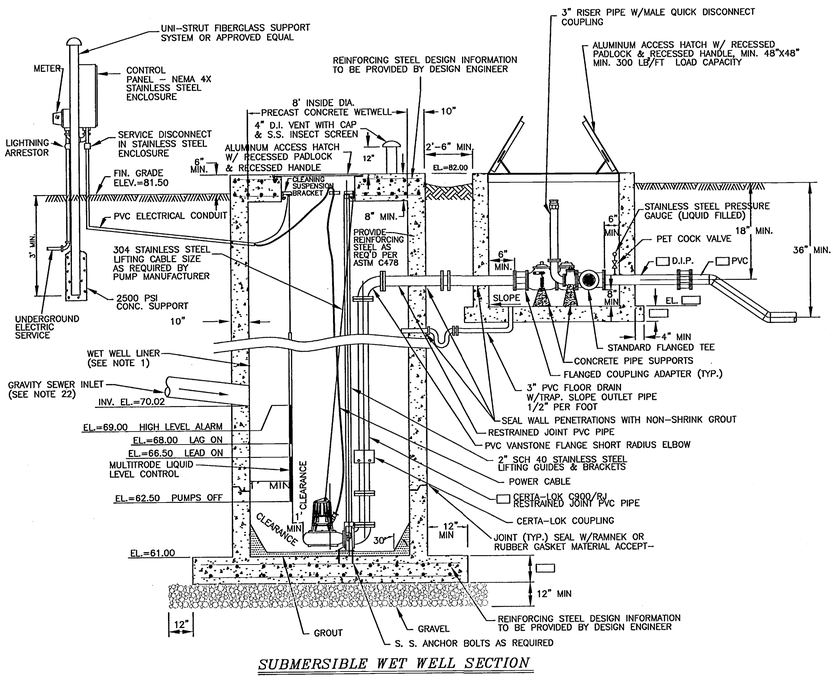
PACKAGED LIFT STATION
ELECTRICAL EQUIPMENT RACK

GENERAL NOTES SUBMERSIBLE PUMP STATION:

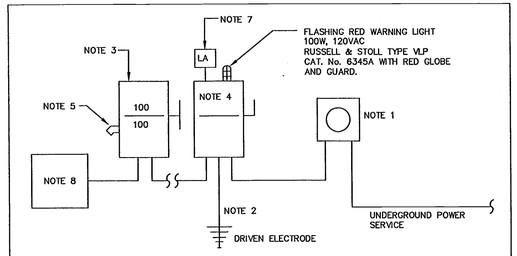
1. WET WELL SHALL BE LINED WITH "AGRU SURE GRIP" CONCRETE PROTECTIVE LINER OR APPROVED EQUAL. WET WELL EXTERIOR SHALL BE COATED WITH COAL TAR EPOXY.
2. BASE AND FIRST RISER UNIT TO BE CAST MONOLITHIC.
3. VALVE VAULT AND ACCESS COVERS SHALL BE SIZED TO PERMIT EASY REMOVAL OF CHECK VALVE.
4. VALVE VAULT SHALL HAVE SEALED FLOOR W/DRAIN TO WET WELL – TRAP REQUIRED.
5. ALL LOCATIONS WHERE PIPES ENTER OR LEAVE THE WET WELL OR VALVE VAULT SHALL BE MADE WATERTIGHT WITH WALL SLEEVE OR NON–SHRINK GROUT.
6. PUMP LIFTING DEVICE SHALL BE 304 SS LIFTING CABLE.
7. THERE SHALL BE NO ELECTRICAL JUNCTION BOXES IN WET WELL OR VALVE VAULT.
8. CHECK VALVES SHALL BE OUTSIDE WEIGHT & LEVER.
9. WET WELL & VALVE VAULT COVERS SHALL BE ALUMINUM WITH 304S.S HARDWARE, AS RECOMMENDED AND REQUIRED BY PUMP MANUFACTURER (LOADING 300 P.S.F.) AND PROVIDED WITH RECESSED LOCKS.
10. CONTROL PANEL SHALL BE AS MANUFACTURED BY THE PUMP SUPPLIER OR APPROVED EQUAL.
11. WET WELL DIAMETER SHALL BE 6' NOMINAL.
12. ACCESS HATCH DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE PUMPING EQUIPMENT, PIPING AND CONCRETE STRUCTURES TO ENSURE ADEQUATE ACCESS OPENINGS FOR INSTALLATION, OPERATION AND MAINTENANCE OF ALL EQUIPMENT.
13. FURNISH AND INSTALL GENERATOR RECEPTACLE
14. VALVE VAULT AND WET WELLS SHALL BE PRECAST CONCRETE. SUBMIT SHOP DRAWINGS WITH REINFORCING DETAILS FOR APPROVAL PRIOR TO FABRICATION.
15. CHAIN LINK FENCE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:
    A) POSTS SHALL BE SCHEDULE 40, GALVANIZED STEEL (2" OUTSIDE DIAMETER MIN.), MAXIMUM 10 FOOT SPACING
    B) FABRIC FOR FENCING AND GATES SHALL BE 9 GAUGE 2" MESH, CLASS 1, CONFORMING TO A.S.T.M. A–3920, 1.2 OZ. GALVANIZED COATING.
    C) POSTS SHALL BE SET IN 2500 PSI CONCRETE IN AN 8" DIAMETER HOLE WITH A DEPTH OF 36 INCHES.
    D) FENCING SHALL BE SCREENED WITH PVC SLATS, FEATHERLOCK OR APPROVED EQUAL. COLOR SHALL BE GREEN OR BLACK.
16. AUXILIARY POWER CONNECTION:
    A) FOR PUMPS < 10HP – RUSSELL & STOLL CAT. NO. FCF 3134–W–72, 100 AMP, 230 VOLT OR APPROVED EQUAL
    B) FOR PUMPS ≥ 10HP – RUSSELL & STOLL CAT. NO. FCF 3134–W–72, 200 AMP, 230 VOLT AR2042 – CROUSE–HINDS, OR APPROVED EQUAL
17. • HAND – (ON–OFF) – AUTOMATIC SWITCHES ON ALL PUMPS.
    • MANUAL – (ON–OFF) – SWITCH ON ALL ALTERNATORS.
    • ONE ELAPSED TIME METER FOR EACH PUMP.
    • 120 VOLT RECEPTACLE INSIDE CONTROL BOX.
    • 3 PHASE CURRENT (WILL NOT ACCEPT ADD A PHASE OR CAPACITOR PHASE CHANGERS).
    • POWER CABLE TO PUMPS RUN IN CONDUIT SEPARATE FROM FLOAT SWITCH CONDUIT.
    • LIQUID FILLED PRESSURE GAUGE ON FORCE MAIN.
18. FLOAT SWITCHES, MUST BE TRANSFORMER ISOLATED–24 VOLT MAX. ALL CONNECTIONS MUST TERMINATE IN CONTROL PANEL OUTSIDE OF WET WELL.
19. KNIFE SWITCH DISCONNECT BETWEEN POWER SUPPLY AND LIFT STATION CONTROL PANEL.
20. SHAKESPEARE FIBERGLASS LIGHT POLE CATALOG #B520 OR #B524 OR APPROVED EQUAL.
21. RUDD LIGHT 250W #FS3425–M OR APPROVED EQUAL.
22. SEAL GRAVITY PIPE AT WETWELL WITH RUBBER BOOT SEAL.
23. PUMP CONTROLLERS SHALL BE MULTI–TRODE MODEL MTPC CONTROLLER AND MTTS–5 SUPPRESSOR.



PLAN VIEW



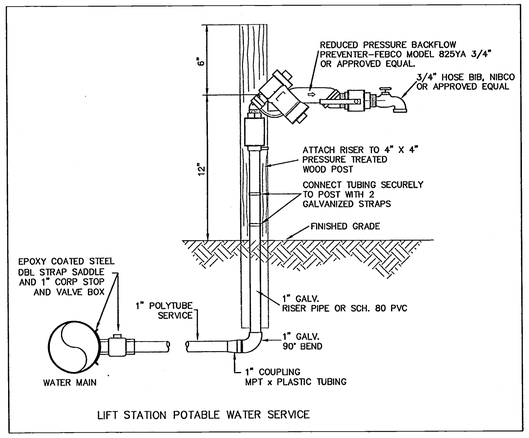
SUBMERSIBLE WET WELL SECTION



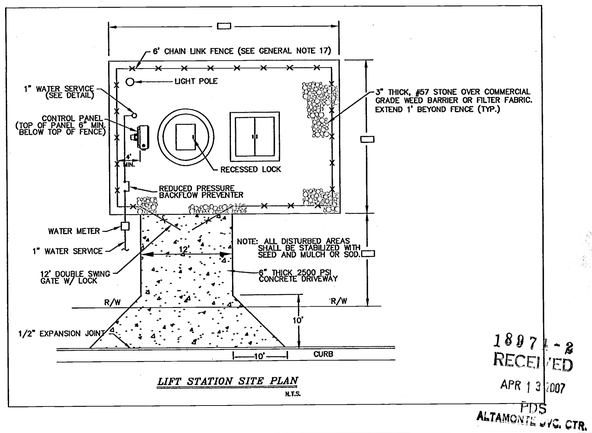
NOTES:

1. ALL BOXES, INCLUDING SWITCH GEAR, ELECTRIC METER CANS, DISCONNECT, AND ALL MISC. ELECTRICAL BOXES SHALL BE NEMA 4X STAINLESS STEEL. ALL BRACKETS, PIPING, BOLTS, NUTS, WASHERS, AND ANY FASTENERS SHALL BE 316 SS.
2. METER WITH BYPASS.
3. SERVICE GROUND TO INCLUDE 3 – 10' ELECTRODES ON 10' CENTERS BOND TO SLAB REBAR. USE #4 BARE COPPER MIN.
4. 100 AMP 3–POLE, CIRCUIT BREAKER MANUAL TRANSFER SWITCH IN WEATHERPROOF ENCLOSURE.
5. 100 AMP 3 POLE S–N FUSED 240 VOLT WEATHERPROOF DISCONNECT.
6. GENERATOR RECEPTACLE, RUSSELL & STOLL
7. PACKAGE PUMP STATION CONTROL PANEL
8. LIGHTNING ARRESTOR – SQUARE D No. SDSA 3650.

PACKAGED LIFT STATION
ELECTRICAL SERVICE SCHEMATIC



LIFT STATION POTABLE WATER SERVICE



LIFT STATION SITE PLAN
N.T.S.

REVISIONS

DATE	1	2	3	4	5	6	7

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Certificate of Authorization Number: 27029

VENEZIA NORTH
RESIDENTIAL SUBDIVISION
LIFT STATION DETAILS

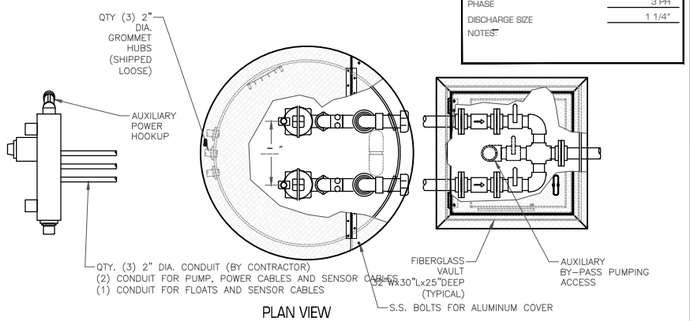
CHECKED BY:	CCH
PROJECT NO.:	051373.0000
DATE:	JUNE 2006
DRAWN BY:	LCS
DESIGNED BY:	LCS
SHT.	18 OF 22

CHARLES C. HIOTT, P.E.
PROFESSIONAL ENGINEER 54813

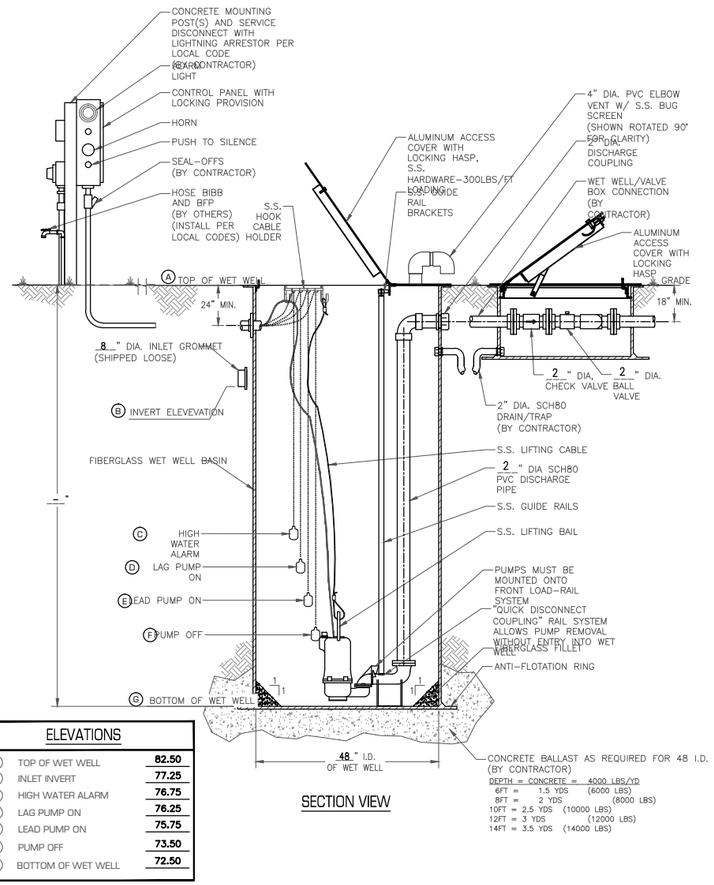
LIFT STATION #1

PUMP DATA TABLE	
PUMP MODEL	HPG200
IMPELLER DIAMETER	5.25"
PUMP DESIGN CAPACITY	28 GPM
PUMP DESIGN TDH	97 FT
SECONDARY CAPACITY	33 GPM
SECONDARY TDH	89 FT
HORSEPOWER	2 HP
VOLTAGE	230 V
PHASE	3 PH
DISCHARGE SIZE	1 1/4"
NOTES:	

WET WELL/VALVE BOX LAYOUT



PLAN VIEW



SECTION VIEW

ELEVATIONS		
A	TOP OF WET WELL	82.50
B	INLET INVERT	77.25
C	HIGH WATER ALARM	76.75
D	LAG PUMP ON	76.25
E	LEAD PUMP ON	75.75
F	PUMP OFF	73.50
G	BOTTOM OF WET WELL	72.50

GENERAL NOTES

PUMPS SHALL BE OF THE SUBMERSIBLE TYPE (MANUFACTURED BY HYDROMATIC OR HOMA). EACH PUMP SHALL BE MOUNTED ON A Ø2" RAIL SYSTEM. THE RAIL SYSTEM SHALL BE SELF ENGAGING RESULTING IN A LEAKPROOF COUPLING. THE RAIL SYSTEM SHALL INCLUDE THE BASE ELBOW, DISCHARGE FLANGE ASSEMBLY, 304SS GUIDE RAILS, 316SS UPPER GUIDE BRACKET, 316SS LIFTING BAIL AND CABLE, AND A SIX-HOOK 316SS CABLE HOLDER. THE RAIL SYSTEM SHALL BE MOUNTED AND PRE-PIPED BY THE PUMP SUPPLIER.

PUMP CONSTRUCTION
THE PUMP VOLUTE, MOTOR AND SEAL HOUSING SHALL BE CONSTRUCTED OF CAST IRON. ALL EXTERNAL FASTENERS SHALL BE SERIES 300 STAINLESS STEEL. THE PUMP SHAFT SHALL BE CONSTRUCTED OF SERIES 416 STAINLESS STEEL.

IMPELLER
THE IMPELLER SHALL BE OF MULTI-VANE, SEMI-OPEN CONSTRUCTION. THE IMPELLER SHALL BE STATICALLY AND HYDRAULICALLY BALANCED.

CUTTERS
A CUTTER ASSEMBLY SHALL BE MOUNTED ON THE SUCTION SIDE OF THE PUMP WITH DIRECT DISCHARGE INTO THE PUMP IMPELLER. THE GRINDER SHALL BE CAPABLE OF GRINDING MATERIALS FOUND IN NORMAL, DOMESTIC SEWAGE. BOTH THE STATIONARY AND ROTATING CUTTERS SHALL BE CONSTRUCTED OF HARDENED STEEL.

MOTOR
THE MOTOR SHALL BE MOUNTED IN A SEALED, SUBMERSIBLE TYPE HOUSING. THE STATOR SHALL BE SECURELY HELD IN PLACE WITH A REMOVABLE END RING AND THREADED FASTENERS FOR EASE OF REMOVAL WITHOUT THE USE OF HEAT OR A PRESS. THE MOTOR WILL HAVE TWO HEAVY-DUTY BALL BEARINGS; ONE UPPER (RADIAL) AND ONE LOWER (THRUST), TO SUPPORT THE SHAFT. THE MOTOR SHALL BE EQUIPPED WITH A WINDING THERMOSTAT THAT IS WIRED TO SHUT THE MOTOR OFF IN CASE OF MOTOR OVERHEATING.

SEAL CHAMBER
THE PUMP SHALL HAVE TWO MECHANICAL SEALS, MOUNTED IN TANDEM WITH AN OIL CHAMBER BETWEEN THE SEALS. THE PUMP SHALL BE EQUIPPED WITH A SEAL LEAK DETECTION PROBE AND WARNING SYSTEM BY USING A SEAL FAILURE SENSOR INSTALLED IN THE SEAL CHAMBER.

WET WELL
THE PUMP SUPPLIER SHALL PROVIDE THE WET WELL. THIS GLASS FIBER-REINFORCED POLYESTER BASIN SHALL BE CONSTRUCTED OF A COMMERCIAL GRADE OF GLASS FIBER AND SHALL BE PROVIDED WITH FILLET AND AN ANTI-FLOTATION RING WITH A MINIMUM DIAMETER OF THREE INCHES LARGER THAN THE BASIN DIAMETER. THE RAIL SYSTEM, INTERNAL PIPING AND DISCHARGE CONNECTIONS SHALL BE PRE-INSTALLED BY THE PUMP SUPPLIER.

HATCH COVER
THE HATCH COVER SHALL BE 2/3 HINGED TO ALLOW FOR MAXIMUM ACCESS TO THE WET WELL. THE HATCH COVER SHALL BE ALUMINUM WITH STAINLESS STEEL FASTENERS, RATED FOR 300 PSF OR GREATER. THE HATCH COVER SHALL INCLUDE A SINGLE OR DUAL DOOR OF DIMENSIONS SPECIFIED BY THE PUMP MANUFACTURER FOR PROPER PUMP CLEARANCE. THE COVER SHALL BE MANUFACTURED BY US FABRICATION, OR EQUAL.

VALVE BOX
THE VALVE BOX IS FIBERGLASS WITH ALUMINUM LOCKABLE COVER. STANDARD SIZE VALVE BOX IS 32"x30"x25".

VALVES
VALVES SHALL BE SEWAGE SWING CHECK WITH CLEAN-OUT PORTS AND BRASS GATE VALVES.

FLOATS
FLOATS SHALL BE ANCHOR SCIENTIFIC ROTO-FLOATS OR EQUAL.

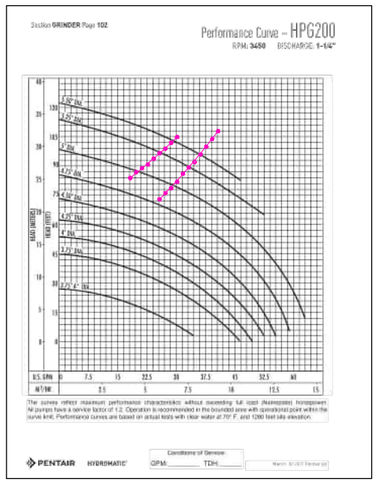
CONTROLS
THE CONTROL PANEL SHALL BE UL508 LISTED. A NEMA 3R ENCLOSURE SHALL BE PROVIDED IN 4X FIBERGLASS. THE PANEL SHALL INCLUDE AN ALTERNATING CONTROL SCHEME (DUPLEX AND ABOVE), MAIN CIRCUIT BREAKER, GENERATOR RECEPTACLE, HIGH LEVEL ALARM LIGHT AND HORN, ELAPSED TIME METERS, VOLTAGE OR PHASE MONITOR, SEAL FAILURE AND OVERLOAD SENSORS. THE LIGHTNING ARRESTOR SHALL BE PROVIDED BY CONTRACTOR.

ELECTRICAL
ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES.

SUPPLIER
PUMP SUPPLIER SHALL PROVIDE SUBMERSIBLE PUMPS, SLIDE RAIL ASSEMBLIES, FIBERGLASS BASIN AND VALVE BOX, CONTROL PANEL, FLOAT SWITCHES, ALUMINUM HATCHES AND ACCESSORIES TO INSURE PROPER OPERATIONS AND WARRANTY. THE COMPLETE PACKAGE PUMPING STATION SHALL HAVE PUMP BASES, RAIL ASSEMBLIES, AND DISCHARGE PIPING ASSEMBLED BY BARNEY'S PUMPS INC. READY FOR FIELD INSTALLATION.

PUMP PACKAGE SHALL BE SUPPLIED BY BARNEY'S PUMPS INC. IN LAKELAND (863-665-8500), CORAL SPRINGS (954-346-0669), OR JACKSONVILLE (904-260-0669), FL.

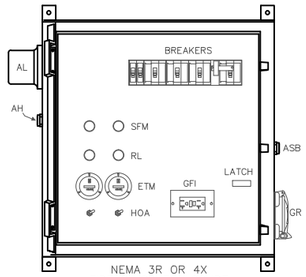
PUMP PERFORMANCE CURVE



ELECTRICAL

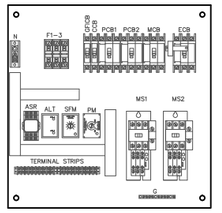
INCOMING POWER: ____V ____ ø
(CONTRACTOR TO VERIFY)

ENCLOSURE AND DEADFRONT LAYOUT (TYPICAL)
(OUTER DOOR REMOVED)



NEMA 3R OR 4X
FIBERGLASS ENCLOSURE

BASE PLATE LAYOUT (TYPICAL)



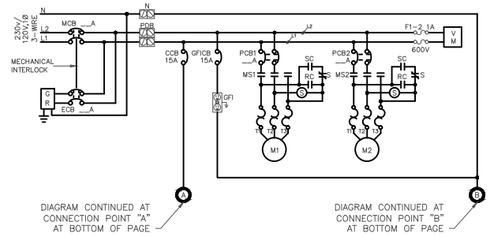
FIELD TERMINALS

PUMP SENSOR CORDS

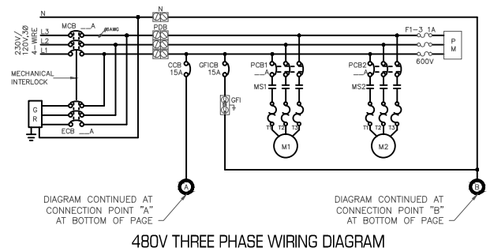
LEGEND

ABBR.	DESCRIPTION
ENC	ENCLOSURE, F.G., NEMA 4X
MCB	MAIN CIRCUIT BREAKER
ECB	EMERGENCY CIRCUIT BREAKER
N	NEUTRAL BLOCK
PDB	POWER DISTRIBUTION BLOCK
PCB1,2	PUMP CIRCUIT BREAKER
CCB	CONTROL CIRCUIT BREAKER
GFCB	GFI CIRCUIT BREAKER
MS1,2	MOTOR STARTER
OL	OVERLOAD HEATER
S	START RELAY
SC	START CAPACITOR
RC	RUN CAPACITOR
GR	GENERATOR RECEPTACLE
F_	FUSE, 1A 600V
VM	VOLTAGE MONITOR
PM	PHASE MONITOR
XFMR	TRANSFORMER
GFI	GFI RECEPTACLE
AL	ALARM LIGHT
AH	ALARM HORN
ASB	ALARM SILENCE BUTTON
ASR	ALARM SILENCE RELAY
SFM	SEAL FAIL MODULE
IL	INDICATING LIGHT, RED
ALT	ALTERNATOR
HOA	HAND OFF AUTO SWITCH
RL	RUN LIGHT, GREEN
ETM	ELAPSED TIME METER

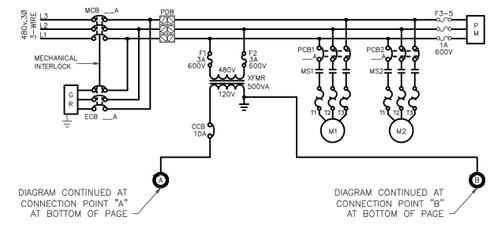
230V SINGLE PHASE WIRING DIAGRAM



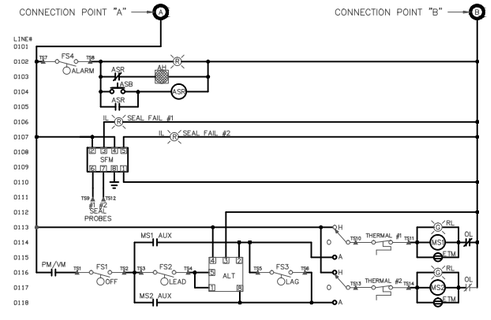
230V THREE PHASE WIRING DIAGRAM



480V THREE PHASE WIRING DIAGRAM



CONTINUATION OF WIRING DIAGRAMS FROM ABOVE



UL LISTED
ENCLOSED INDUSTRIAL CONTROL PANEL

PANEL MANUFACTURER SHALL BE UL 508 AND UL 698A LISTED.

BARNEY'S PUMPS, INC.
PO BOX 3529, LAKELAND, FL 33802
PHONE: (863) 665-8500 FAX: (863) 666-3858

PROJECT		
CUSTOMER	SALESPERSON	
TITLE: GRINDER DUPLEX FIBERGLASS LIFT STATION		REV. 0
DATE 04/26/2018	DWG. # WW2GFVFM	DRAWN BY: R.R.B.

DONALD A. GRIFFEY
FLORIDA 036799

GRIFFEY ENGINEERING, INC.
36202 East Eldorado Lake Dr.
EUSTIS, FLORIDA 32736
(352) 589-2368

Town of Howey-In-The-Hills
101 N. Palm Avenue
P.O. Box 128
Howey-In-The-Hills, FL 34737
(352) 324-2290

HOWEY-IN-THE-HILLS
DOWNTOWN SEWER

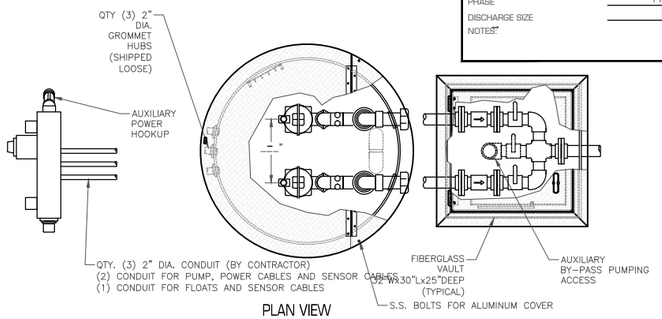
LIFT STATION 1

Date	Drawn By: DAG
	Drawing #: DWTN SEWER
	Project #: 15028
04-06-21	Scale: AS NOTED
03-08-21	

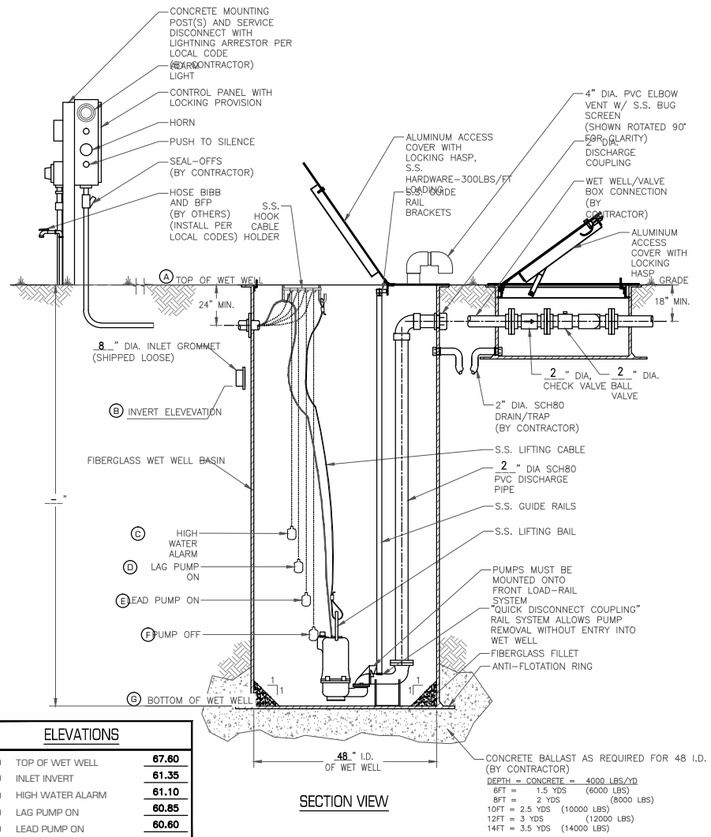
SHEET 19 of 22

LIFT STATION #2

WET WELL/VALVE BOX LAYOUT



PLAN VIEW



SECTION VIEW

ELEVATIONS

A	TOP OF WET WELL	67.60
B	INLET INVERT	61.35
C	HIGH WATER ALARM	61.10
D	LAG PUMP ON	60.85
E	LEAD PUMP ON	60.60
F	PUMP OFF	58.60
G	BOTTOM OF WET WELL	57.60

PUMP DATA TABLE

PUMP MODEL	HPGH-500
IMPELLER DIAMETER	6.25"
PUMP DESIGN CAPACITY	59 GPM
PUMP DESIGN TDH	111.7 FT
SECONDARY CAPACITY	70 GPM
SECONDARY TDH	104 FT
HORSEPOWER	5 HP
VOLTAGE	230 V
PHASE	1 PH
DISCHARGE SIZE	2"
NOTES	1

GENERAL NOTES

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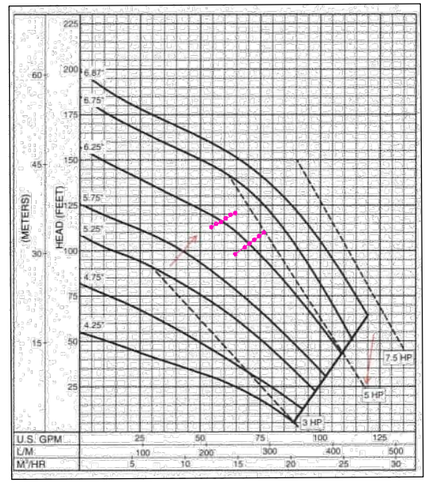
PUMP PERFORMANCE CURVE

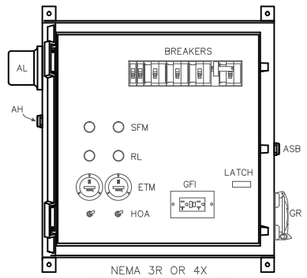


ELECTRICAL

INCOMING POWER: _____V _____ø
(CONTRACTOR TO VERIFY)

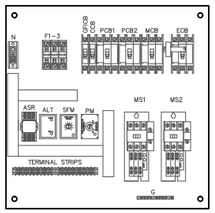
ENCLOSURE AND DEADFRONT LAYOUT (TYPICAL)

(OUTER DOOR REMOVED)

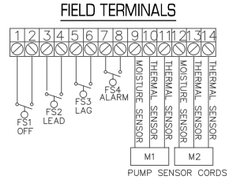


NEMA 3R OR 4X
FIBERGLASS ENCLOSURE

BASE PLATE LAYOUT (TYPICAL)



FIELD TERMINALS



PUMP SENSOR CORDS

LEGEND

ABBR.	DESCRIPTION
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CCB	CONTROL CIRCUIT BREAKER
GFICB	GFI CIRCUIT BREAKER
MS1,2	MOTOR STARTER
OL	OVERLOAD HEATER
S	START RELAY
SC	START CAPACITOR
RC	RUN CAPACITOR
GR	GENERATOR RECEPTACLE
F1	FUSE, 1A 600V
VM	VOLTAGE MONITOR
PM	PHASE MONITOR
XFMR	TRANSFORMER
GFI	GFI RECEPTACLE
AL	ALARM LIGHT
AH	ALARM HORN
ASB	ALARM SILENCE BUTTON
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SFM	SEAL FAIL MODULE
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ALT	ALTERNATOR
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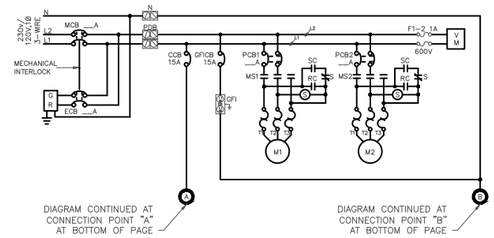
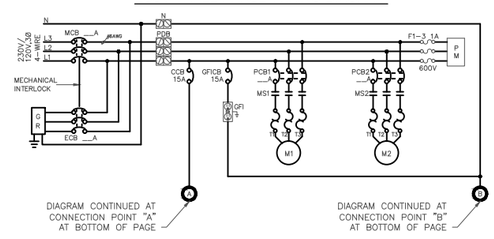
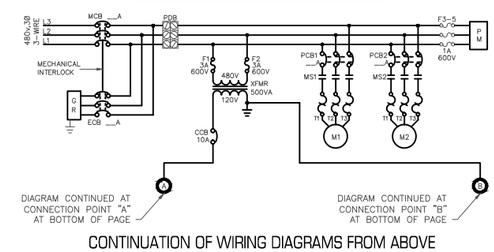
230V SINGLE PHASE WIRING DIAGRAM



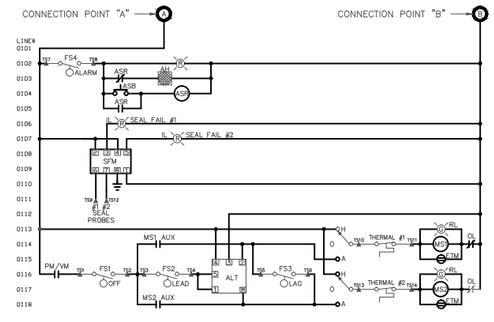
230V THREE PHASE WIRING DIAGRAM



480V THREE PHASE WIRING DIAGRAM



CONTINUATION OF WIRING DIAGRAMS FROM ABOVE



UL LISTED
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BARNEY'S PUMPS, INC.
PO BOX 3529, LAKELAND, FL 33802
PHONE: (863) 665-8500 FAX: (863) 666-3858

PROJECT		
CUSTOMER	SALESPERSON	
TITLE: GRINDER DUPLEX FIBERGLASS LIFT STATION		REV. 0
DATE: 04/26/2018	DWG. #: WW2GFVFM	DRAWN BY: R.R.B.

DONALD A. GRIFFEY
FLORIDA 036799

GRIFFEY ENGINEERING, INC.
36202 East Eldorado Lake Dr.
EUSTIS, FLORIDA 32736
(352) 589-2368

Town of Howey-In-The-Hills
101 N. Palm Avenue
P.O. Box 128
Howey-In-The-Hills, FL 34737
(352) 324-2290

HOWEY-IN-THE-HILLS
DOWNTOWN SEWER

LIFT STATION 2

Date	Drawn By:
	DAG
	Drawing #:
	DWTN SEWER
	Project #:
04-06-21	15028
2 03-19-21	Scale:
03-08-21	AS NOTED

SHEET 20 of 22