



Date: April 2, 2025

229 NEELYTOWN ROAD
TOWN OF HAMPTONBURGH, ORANGE COUNTY, NY
FIRE PROTECTION WATER SUPPLY ANALYSIS
M/E Reference: 243322.00

The following letter outlines the Fire Protection / Sprinkler system requirements for the proposed Warehouse facility(s) currently being designed for new construction. Two buildings to be built in Neelytown Business Park, 222 Neelytown Road, Montgomery NY. Orange County. Specifically, it relates to the available existing municipal water supply and the new 8" tap that will be required at the new building site.

Municipal Water Supply

A documented flow test was performed on the existing water mains near the proposed building site. Flow test was conducted on 02/15/2023, on the assumed existing water main (size not recorded on flow test) in Neelytown Road. Control hydrant was noted at 497 Neelytown Road, intersection with Beaver Dam Road. Flow hydrant was noted just east before the creek crossing. Documented data: 65 psi static pressure / 35 psi residual pressure / flowing 1920 GPM. Flow test report is included with this document. The data from this flow test was used to generate the ensuing Sprinkler Hydraulic Calculations.

Proposed Building Classification

Per NYS Building Code, the new building Occupancy / Classification will be S-1 Moderate Hazard Storage. Rack type storage is possible with a currently unknown commodity.

Acceptable Sprinkler Systems

With the S-1 classification and warehouse use, (3) three sprinkler system types would meet or exceed the code and NFPA 13 applicable requirements specific to the classification. The three systems are outlined below:

ESFR (Early Suppression Fast Response)

ESFR ceiling mounted sprinklers can be used in warehouses in place of in-rack fire sprinkler systems. ESFR provides protection that exceeds that of in-rack systems.

ESFR Sprinkler Systems employ the use of an Early Suppression Fast Response Sprinkler type and are predominately used for the protection of High Piled Storage. Storage arrangements may include palletized, solid pile, shelf, bin box, or rack storage of materials. The primary advantage associated with ESFR Sprinkler Systems, again, is a protection scheme that does not require the use of in-rack sprinklers in a rack storage configuration.

ESFR sprinklers are intended to operate differently than most other types of sprinklers. While most other sprinklers are intended to control the growth of a fire, an ESFR sprinkler system is designed to suppress a fire. To suppress a fire does not necessarily mean it will extinguish the fire but rather it is meant to "knock" the fire back down to its original point of origin. ESFR sprinklers accomplish this design objective by using large volumes of water, nearly 100 gallons per minute of water per sprinkler.

CMDA (Control Mode Density Area)

The “control-mode” in a control mode density area (CMDA) sprinkler refers to the fact that these heads provide wetting and cooling to control a fire until first responders can arrive. “Density-area” refers to how CMDA systems are designed. A set of density-area curves specifies the amount of water flow required for a given area. The system and its water source are engineered based on them to provide the necessary flow and pressure. The two things separating a CMDA sprinkler from a regular sprinkler are larger **K-factors and higher temperature ratings. The bigger K-factor in CMDA sprinklers (and most storage sprinklers) enables greater water flow.

In-Rack Sprinkler Systems

Traditional Warehouse and Storage sprinklers systems utilize a design where sprinkler heads and the associated piping are installed within each storage rack. With in-rack sprinklers employed an overhead sprinkler system is still required. Cost prohibitive with newer technology of sprinkler heads and system designs specific to our type of building classification as a Storage and Warehouse.

*(** K-Factor is defined as the discharge characteristics of a sprinkler head specific to flow and pressure. Larger the number the greater flow discharge)*

New Warehouse(s) Fire Sprinkler Design

Proposed Warehouse 1 is 850,000 square feet. Proposed Warehouse 2 is 278,270 square feet. Civil Engineering has indicated the installation of (1) one new water service laterals/entrance be extended to the warehouse from Neelytown Road From a fire protection standpoint and the s.f. area of the building we recommend the new service be 8” pipe size. This would be ideal for the fire zoning, but, as you will note in our conclusion, we believe the municipal water supply alone will not support either an ESFR or CDMA type sprinkler design.

NFPA requires a single fire zone not exceed 52,000 s.f. Based on this guideline, we are assuming (2) two fire zones on each side of the building. Meaning, two 6” riser assemblies from each of the new underground water supplies. These fire zones would be hydraulically calculated as individual sprinkler systems.

For the purposes of this report, we have generated hydraulic calculations to demonstrate the required water demand for a fully sprinklered building under the design criteria outlined in the NYS Building / Fire Codes and NFPA 13. Not to exclude the requirements for pre-construction approval from the Town of Montgomery Engineer, Town of Montgomery Code and Building Department and the local Water Authority.

Enclosed hydraulic calculations include an ESFR type sprinkler system. In-rack sprinkler system will not be considered for the new warehouse. To determine maximum sprinkler shadow coverage, we calculated an ESFR sprinkler system with ESFR heads at a K-Factor of 25.2. ESFR sprinkler system are designed to suppress a fire in as much as possible until the firefighters arrive on scene. ESFR hydraulic design guidelines, per NFPA, allow the hydraulically remote section of the sprinkler system to be able to discharge 12 ESFR heads for 90 minute duration. Again, referring to the enclosed hydraulic calculation documents, please note that the municipal water supply will not be enough for either an ESFR type system. The sprinkler flow demands are well above the water supply curve as noted.

Proposed Warehouse 1 and Warehouse 2, Neelytown Business Park, will be constructed /classified type 2b, moderate hazard with high piled storage. Buildings will be required to be fitted with a complete automatic fire sprinkler system per NYS Building and Fire Codes. Referencing NFPA 13 “Installation of Sprinkler Systems” as the design guideline. Based on the building classification and listed hazard, the automatic sprinkler system will be required to be designed and fit out with an ESFR (Early Suppression Fast Response) type sprinkler head throughout the building. The ESFR system will be required to be installed as an overhead system covering all floor areas and rooms, including overhead water coverage of any racked storage. The automatic system will need to have water supply duration at a minimum of 90 minutes per NFPA 13 requirements. Preliminary

hydraulic sprinkler calculations resulted in a minimum sprinkler water flow demand at 137 psi @ 1512 gpm. This would be similar in both Warehouses. Basic charting of the available municipal water supply (flow test data) and the minimum sprinkler demand shows the incoming water supply will not be enough to meet the sprinkler demands of the proposed buildings. (see page 1 of the enclosed hydraulic calculation data) Available pressure at the calculated 1512 gpm sprinkler demand (not included is the required 500 gpm hose allowance) is at 32.28 psi. We will need 137 psi as indicated above. Approx. 105 psi short. In addition, the calculations show that at the 32.28 psi available pressure the municipal supply can only flow approx. 1495 gpm. Again, showing a deficiency in available water flow to meet the 1512 gpm + 500 hose allowance sprinkler demand. Conclusions warrant the available municipal water supply will need to be supplemented to meet sprinkler requirements. Based on the above data we will propose the following infrastructure to provide the required fire protection needs of the proposed warehouses:

Fire Pump: 2000 gpm with a minimum 150 psi pressure boost.

External Water Storage Tank dedicated to fire protection water supply. Maximum 180,000 gallons (1512 gpm sprinkler demand x 90 minute duration). 500 gpm hose allowance as required by the local AHJ.

Consideration of a smaller tank volume if local authorities allow an offset of incoming water flow to work with in concert with a fire pump discharge event. Initial recommendation is to provide a dedicated tank, fire pump, and sprinkler system.

Local authority approved, NFPA allows multiple buildings with the same owner and on the same property the following: A shared water source with a single fire pump system can serve multiple buildings on the site. This includes a single site storage tank. As long as you meet the most demanding sprinkler location/building anything in between will be ok on the system. Meaning, buildings on the same property would not be cumulative from a water supply standpoint.

Conclusion / Summary

The new proposed warehouse construction poses a challenge, specifically to fire protection / sprinkler system design to contend with fire events. NFPA 13 establishes stringent guidelines when it comes to storage, racked storage, or commodity type. ESFR sprinkler systems have been developed specifically to meet the storage and warehouse applications. In turn, allowing the owner to have a more cost effective installation that will be flexible for most storage applications. Calculated sprinkler demands based on system noted below:

Most dense water coverage ESFR w/ K-factor 25.2 = 1512 gpm sprinkler demand

Comparing these demands to the available municipal water supply we can safely conclude that we will not be able meet the sprinkler demand with a direct connection to the incoming water supplies. The new building sprinkler design will need to incorporate a fire pump(s) to supplement the incoming water flow. Again, this will require the new incoming water service lateral to be sized at 8" pipe size. 8" ductile iron piping will allow flows up to 1600 gpm. The need for on-site water storage for the sprinkler system will be needed based on correct sizing of the new piping, the current available water supply / flow test data and the calculated sprinkler demand with a supplemental fire pump.

Sincerely,

M/E ENGINEERING, P.C.

Jeff Esposito
Senior Designer



Fire Sprinklers
and standpipe
systems

128 Museum Village Road
Monroe, NY 10950
845.782.7494 #401
866.903.9949
www.afpfs.com

Hydrant Flow Test

February 16, 2023

RE: 497 Neelytown Rd, (Corner of Beaver Dam Rd)
Montgomery, NY 12549

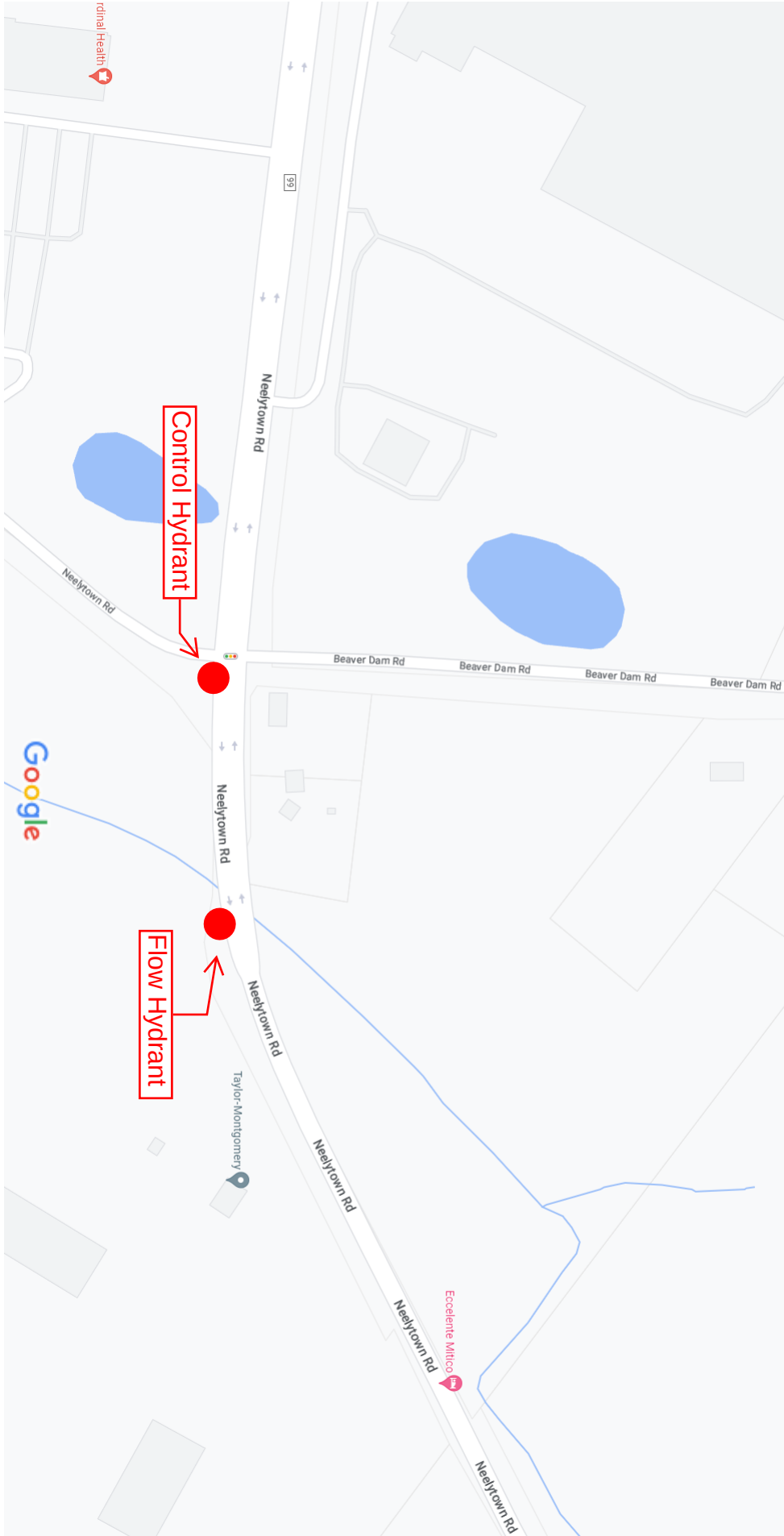
Following are the results for the flow test:

Date Tested:	02/15/2023
Time Tested:	8:30am
Hydrant Locations:	See Map
Static Pressure (PSI)	65
Residual Pressure (PSI)	35
Hydrant Discharge Observed (GPM)	1920
Pitot Pressure (PSI)	20
AFP Technician	SC
Water Company:	Town of Montgomery Water Dept.
Witnessed by:	Jim Farr

Please feel free to contact our office with any further questions at 845-782-7494.

Thank you.

Active Fire Protection Inc.



SPRINKLER SYSTEM HYDRAULIC ANALYSIS

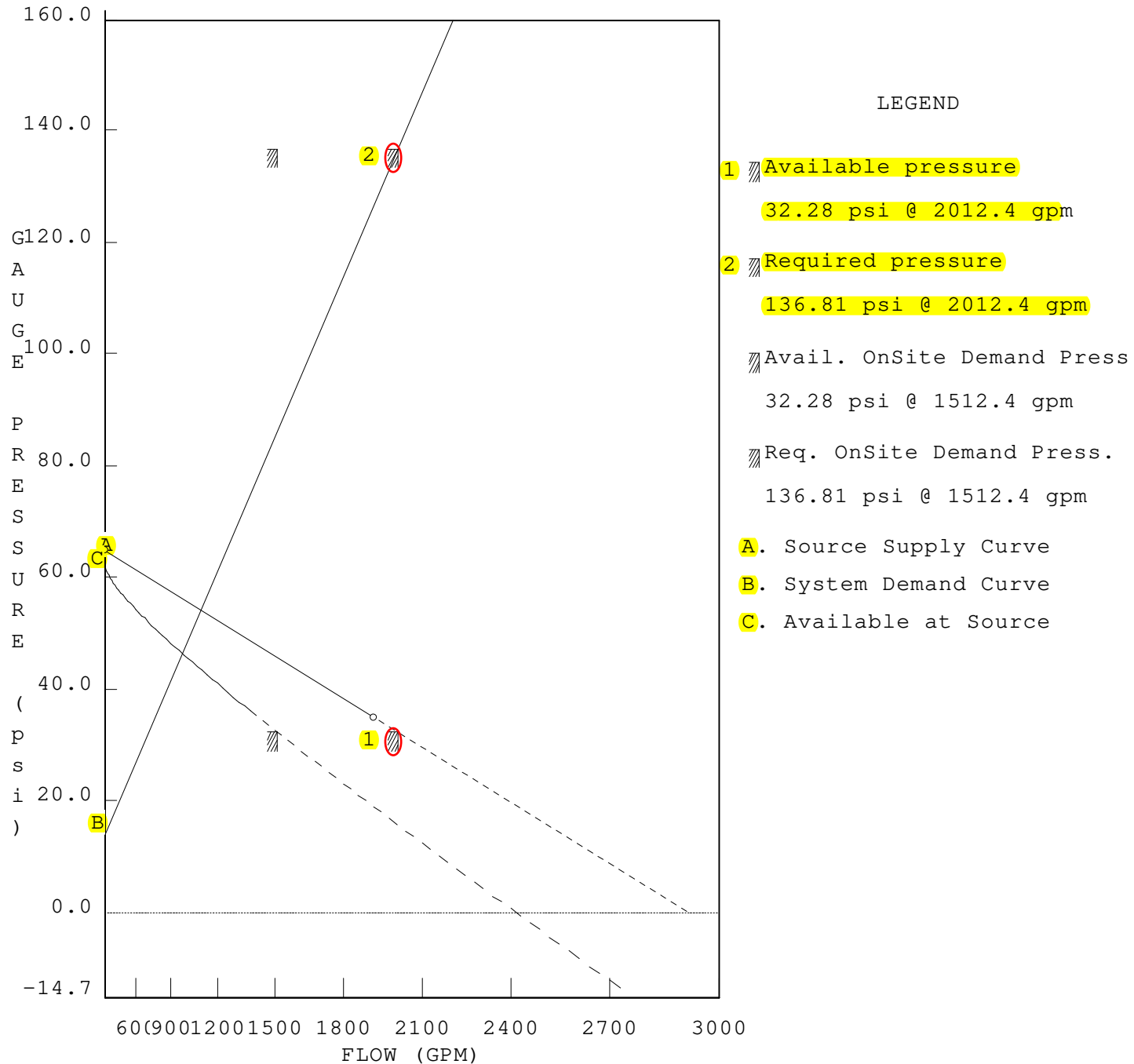
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JOB TITLE: 243322.00 Neelytown

WATER SUPPLY ANALYSIS

Static: 65.00 psi Resid: 35.00 psi Flow: 1920.0 gpm



Note: (1) Dashed Lines indicate extrapolated values from Test Results

(2) On Site pressures are based on hose stream deduction at the source

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NFPA WATER SUPPLY DATA

SOURCE NODE TAG	STATIC PRESS. (PSI)	RESID. PRESS. (PSI)	FLOW @ (GPM)	AVAIL. PRESS. (PSI)	TOTAL @ DEMAND (GPM)	REQ'D PRESS. (PSI)
TEST	65.0	35.0	1920.0	32.3	2012.4	136.8

AGGREGATE FLOW ANALYSIS:

TOTAL FLOW AT SOURCE	2012.4 GPM
TOTAL HOSE STREAM ALLOWANCE AT SOURCE	500.0 GPM
OTHER HOSE STREAM ALLOWANCES	0.0 GPM
TOTAL DISCHARGE FROM ACTIVE SPRINKLERS	1512.4 GPM

NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)
S1	35.0	K=25.20	15.0	97.6
S2	35.0	K=25.20	15.7	99.9
S3	35.0	K=25.20	18.4	108.2
S4	35.0	K=25.20	24.5	124.6
S5	35.0	K=25.20	35.8	150.8
S6	35.0	K=25.20	15.0	97.7
S7	35.0	K=25.20	15.7	100.0
S8	35.0	K=25.20	18.4	108.2
S9	35.0	K=25.20	24.5	124.7
S10	35.0	K=25.20	35.9	150.9
S11	35.0	K=25.20	47.1	173.0
S12	35.0	K=25.20	49.2	176.8
S13	35.0	- - - -	57.0	- - -
S14	35.0	- - - -	64.7	- - -
S15	35.0	- - - -	72.5	- - -
101	35.0	- - - -	37.8	- - -
102	30.0	- - - -	97.4	- - -
103	35.0	- - - -	37.8	- - -
104	30.0	- - - -	97.5	- - -
105	35.0	- - - -	73.2	- - -
106	30.0	- - - -	97.9	- - -
108	30.0	- - - -	98.5	- - -
109	30.0	- - - -	99.1	- - -
110	30.0	- - - -	99.7	- - -
111	30.0	- - - -	100.3	- - -
112	30.0	- - - -	100.9	- - -
113	30.0	- - - -	101.5	- - -
114	30.0	- - - -	102.1	- - -
115	30.0	- - - -	104.9	- - -
116	30.0	- - - -	106.3	- - -
117	30.0	- - - -	109.1	- - -
118	30.0	- - - -	110.5	- - -

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NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)
119	30.0	- - - -	111.3	- - -
120	30.0	- - - -	112.6	- - -
TOR1	30.0	- - - -	113.1	- - -
BOR1	5.5	- - - -	127.3	- - -
BFP	3.0	- - - -	130.4	- - -
UG1	1.0	- - - -	133.8	- - -
UG2	-3.0	- - - -	137.7	- - -
TEST	3.0	SOURCE	136.8	1512.4

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NFPA PIPE DATA 5

Pipe Tag		K-fac	Add Fl	Add Fl To	Fit:	L	C	(Pt	
Frm Node	El (ft)	PT	(q)	Node/	Nom ID	Eq.Ln.	F	(Pe)	
To Node	El (ft)	PT	Tot.(Q)	Disch	Act ID	(ft.)	T	(Pf)	
Pipe: 1		25.20	97.6	Disch			10.00	120	0.7
S2	35.0	15.7	0.0		B2.000	----	0.00		-0.0
S1	35.0	15.0	97.6		2.157		10.00	0.073	0.7
Pipe: 2		25.20	99.9	Disch			10.00	120	2.7
S3	35.0	18.4	97.6		B2.000	----	0.00		-0.0
S2	35.0	15.7	197.5		2.157		10.00	0.269	2.7
Pipe: 3		25.20	108.2	Disch			10.00	120	6.0
S4	35.0	24.5	197.5	S2	B2.000	----	0.00		-0.0
S3	35.0	18.4	305.7		2.157		10.00	0.603	6.0
Pipe: 4		25.20	124.6	Disch			10.00	120	11.4
S5	35.0	35.8	305.7	S3	B2.000	----	0.00		-0.0
S4	35.0	24.5	430.3		2.157		10.00	1.136	11.4
Pipe: 5		25.20	150.8	Disch			1.00	120	2.0
101	35.0	37.8	430.3	S4	B2.000	----	0.00		-0.0
S5	35.0	35.8	581.1		2.157		1.00	1.980	2.0
Pipe: 6		0.0	0.0				11.00	120	59.6
102	30.0	97.4	581.1	S5	B2.000	E: 6.0	18.00		2.2
101	35.0	37.8	581.1		2.157	T:12.0	29.00	1.980	57.4
Pipe: 7		0.0	0.0				10.00	120	0.1
104	30.0	97.5	581.1	101	B6.000	----	0.00		-0.0
102	30.0	97.4	581.1		6.357		10.00	0.010	0.1
Pipe: 8		25.20	97.7	Disch			10.00	120	0.7
S7	35.0	15.7	0.0		B2.000	----	0.00		-0.0
S6	35.0	15.0	97.7		2.157		10.00	0.073	0.7
Pipe: 9		25.20	100.0	Disch			10.00	120	2.7
S8	35.0	18.4	97.7		B2.000	----	0.00		-0.0
S7	35.0	15.7	197.7		2.157		10.00	0.269	2.7
Pipe: 10		25.20	108.2	Disch			10.00	120	6.0
S9	35.0	24.5	197.7	S7	B2.000	----	0.00		-0.0
S8	35.0	18.4	305.9		2.157		10.00	0.604	6.0
Pipe: 11		25.20	124.7	Disch			10.00	120	11.4
S10	35.0	35.9	305.9	S8	B2.000	----	0.00		-0.0
S9	35.0	24.5	430.6		2.157		10.00	1.137	11.4
Pipe: 12		25.20	150.9	Disch			1.00	120	2.0
103	35.0	37.8	430.6	S9	B2.000	----	0.00		-0.0
S10	35.0	35.9	581.4		2.157		1.00	1.982	2.0

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JOB TITLE: 243322.00 Neelytown

Pipe Tag		K-fac	Add Fl	Add Fl To	Fit:	L	C	(Pt	
Frm Node	El (ft)	PT	(q)	Node/	Nom ID	Eq.Ln.	F	(Pe)	
To Node	El (ft)	PT	Tot.(Q)	Disch	Act ID	(ft.)	T	(Pf)	
Pipe: 13		0.0	0.0				11.00	120	59.7
104	30.0	97.5	581.4	S10	B2.000	E: 6.0	18.00		2.2
103	35.0	37.8	581.4		2.157	T:12.0	29.00	1.982	57.5
Pipe: 25		0.0	581.4	103			10.00	120	0.4
106	30.0	97.9	581.1	102	B6.000	----	0.00		-0.0
104	30.0	97.5	1162.6		6.357		10.00	0.037	0.4
Pipe: 26		25.20	173.0	Disch			10.00	120	2.1
S12	35.0	49.2	0.0		B2.000	----	0.00		-0.0
S11	35.0	47.1	173.0		2.157		10.00	0.210	2.1
Pipe: 27		25.20	176.8	Disch			10.00	120	7.7
S13	35.0	57.0	173.0		B2.000	----	0.00		-0.0
S12	35.0	49.2	349.8		2.157		10.00	0.774	7.7
Pipe: 28		0.0	0.0				10.00	120	7.7
S14	35.0	64.7	349.8	S12	B2.000	----	0.00		-0.0
S13	35.0	57.0	349.8		2.157		10.00	0.774	7.7
Pipe: 29		0.0	0.0				10.00	120	7.7
S15	35.0	72.5	349.8	S13	B2.000	----	0.00		-0.0
S14	35.0	64.7	349.8		2.157		10.00	0.774	7.7
Pipe: 30		0.0	0.0				1.00	120	0.8
105	35.0	73.2	349.8	S14	B2.000	----	0.00		-0.0
S15	35.0	72.5	349.8		2.157		1.00	0.774	0.8
Pipe: 31		0.0	0.0				11.00	120	24.6
106	30.0	97.9	349.8	S15	B2.000	E: 6.0	18.00		2.2
105	35.0	73.2	349.8		2.157	T:12.0	29.00	0.774	22.5
Pipe: 32		0.0	349.8	105			10.00	120	0.6
108	30.0	98.5	1162.6	104	B6.000	----	0.00		-0.0
106	30.0	97.9	1512.4		6.357		10.00	0.060	0.6
Pipe: 33		0.0	0.0				10.00	120	0.6
109	30.0	99.1	1512.4	106	B6.000	----	0.00		-0.0
108	30.0	98.5	1512.4		6.357		10.00	0.060	0.6
Pipe: 34		0.0	0.0				10.00	120	0.6
110	30.0	99.7	1512.4	108	B6.000	----	0.00		-0.0
109	30.0	99.1	1512.4		6.357		10.00	0.060	0.6
Pipe: 35		0.0	0.0				10.00	120	0.6
111	30.0	100.3	1512.4	109	B6.000	----	0.00		-0.0
110	30.0	99.7	1512.4		6.357		10.00	0.060	0.6

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JOB TITLE: 243322.00 Neelytown

Pipe Tag		K-fac	Add Fl	Add Fl To	Fit:	L	C	(Pt	
Frm Node	El (ft)	PT	(q)	Node/	Nom ID	Eq.Ln.	F	(Pe)	
To Node	El (ft)	PT	Tot.(Q)	Disch	Act ID	(ft.)	T	(Pf)	
Pipe: 36		0.0	0.0				10.00	120	0.6
112	30.0	100.9	1512.4	110	B6.000	----	0.00		-0.0
111	30.0	100.3	1512.4		6.357		10.00	0.060	0.6
Pipe: 37		0.0	0.0				10.00	120	0.6
113	30.0	101.5	1512.4	111	B6.000	----	0.00		-0.0
112	30.0	100.9	1512.4		6.357		10.00	0.060	0.6
Pipe: 38		0.0	0.0				10.00	120	0.6
114	30.0	102.1	1512.4	112	B6.000	----	0.00		-0.0
113	30.0	101.5	1512.4		6.357		10.00	0.060	0.6
Pipe: 39		0.0	0.0				10.00	120	2.9
115	30.0	104.9	1512.4	113	B6.000	T:38.0	38.00		-0.0
114	30.0	102.1	1512.4		6.357		48.00	0.060	2.9
Pipe: 40		0.0	0.0				50.00	100	1.4
116	30.0	106.3	1512.4	114	8.000	----	0.00		-0.0
115	30.0	104.9	1512.4		7.981		50.00	0.028	1.4
Pipe: 41		0.0	0.0				100.00	100	2.8
117	30.0	109.1	1512.4	115	8.000	----	0.00		-0.0
116	30.0	106.3	1512.4		7.981		100.00	0.028	2.8
Pipe: 42		0.0	0.0				50.00	100	1.4
118	30.0	110.5	1512.4	116	8.000	----	0.00		-0.0
117	30.0	109.1	1512.4		7.981		50.00	0.028	1.4
Pipe: 43		0.0	0.0				25.00	120	0.8
119	30.0	111.3	1512.4	117	B8.000	E:21.0	21.00		-0.0
118	30.0	110.5	1512.4		8.249		46.00	0.017	0.8
Pipe: 44		0.0	0.0				80.00	120	1.4
120	30.0	112.6	1512.4	118	B8.000	----	0.00		-0.0
119	30.0	111.3	1512.4		8.249		80.00	0.017	1.4
Pipe: 45		0.0	0.0				4.00	120	0.4
TOR1	30.0	113.1	1512.4	119	B8.000	E:21.0	21.00		-0.0
120	30.0	112.6	1512.4		8.249		25.00	0.017	0.4
Pipe: 46		0.0	0.0			TCGA	80.00	120	14.3
BOR1	5.5	127.3	1512.4	120	B8.000		136.00		10.6
TOR1	30.0	113.1	1512.4		8.249		216.00	0.017	3.7
Pipe: 47		0.0	0.0			3E:63.0	10.00	120	3.0
BFP	3.0	130.4	1512.4	TOR1	B8.000	G: 5.0	105.00		1.1
BOR1	5.5	127.3	1512.4		8.249	A:37.0	115.00	0.017	1.9

SPRINKLER SYSTEM HYDRAULIC ANALYSIS

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DATE: 3/25/2025 M E ENGINEERING\DOCUMENTS\NEELYTOWN\NTP229_ 24-03-04FF.SDF
 JOB TITLE: 243322.00 Neelytown

Pipe Tag		K-fac	Add Fl	Add Fl To		Fit:	L	C	(Pt
Frm Node	El (ft)	PT	(q)	Node/	Nom ID	Eq.Ln.	F		(Pe)
To Node	El (ft)	PT	Tot.(Q)	Disch	Act ID	(ft.)	T	Pf/ft.	(Pf)
Pipe: 50		0.0	0.0			2L:34.6	10.00	140	3.5
UG1	1.0	133.8	1512.4	BOR1	8.000	2C119.7	164.92		0.9
BFP	3.0	130.4	1512.4		7.981	2G:10.6	174.92	0.015	2.6
Pipe: 51		0.0	0.0			2E:62.0	50.00	140	3.8
UG2	-3.0	137.7	1512.4	BFP	D8.000	T:59.0	128.00		1.7
UG1	1.0	133.8	1512.4		8.390	G: 7.0	178.00	0.012	2.1
Pipe: 52	Source		0.0				150.00	140	-0.
TEST	3.0	136.8	1512.4	UG1	D8.000	----	0.00		-2.6
UG2	-3.0	137.7	1512.4		8.390		150.00	0.012	1.8

NOTES (HASS):

(1) Calculations were performed by the HASS 2023 D computer program in accordance with NFPA (2020) under license no. 64621593 granted by
 HRS Systems, Inc.
 208 Southside Square
 Petersburg, TN 37144
 (931) 659-9760

(2) The system has been calculated to provide an average imbalance at each node of 0.001 gpm and a maximum imbalance at any node of 0.053 gpm.

(3) Total pressure at each node is used in balancing the system. Maximum water velocity is 51.1 ft/sec at pipe 12.

(4) Items listed in bold print on the cover sheet

are automatically transferred from the calculation report.

(5) Fullflow calculations are not done for systems with variable speed pumps.

(6) PIPE FITTINGS TABLE

HASS Pipe Table Name: standard

SPRINKLER SYSTEM HYDRAULIC ANALYSIS

Page 9

DATE: 3/25/2025M E ENGINEERING\DOCUMENTS\NEELYTOWN\NTP229_ 24-03-04FF.SDF
JOB TITLE: 243322.00 Neelytown

PAGE: A MATERIAL: S40 HWC: 120

Diameter (in)	Equivalent Fitting Lengths in Feet								
	E Ell	T Tee	L LngEll	C ChkVlv	B BfyVlv	G GatVlv	A AlmChk	D DPVlv	N NTee
7.981	18.00	35.00	13.00	45.00	12.00	4.00	31.00	31.00	35.00

PAGE: B MATERIAL: THNWL HWC: 120

Diameter (in)	Equivalent Fitting Lengths in Feet								
	E Ell	T Tee	L LngEll	C ChkVlv	B BfyVlv	G GatVlv	A AlmChk	D DPVlv	N NTee
2.157	6.00	12.00	3.00	14.00	8.00	1.00	12.00	12.00	12.00
6.357	18.00	38.00	11.00	40.00	13.00	4.00	35.00	35.00	38.00
8.249	21.00	41.00	15.00	53.00	14.00	5.00	37.00	37.00	41.00

PAGE: D MATERIAL: DIRON HWC: 140

Diameter (in)	Equivalent Fitting Lengths in Feet								
	E Ell	T Tee	L LngEll	C ChkVlv	B BfyVlv	G GatVlv	N NPTee	F F45Ell	
8.390	31.00	59.00	22.00	76.00	20.00	7.00	59.00	15.50	



Engineering
& Design

Engineer's Report for Domestic Water Demand

May 29, 2026

For

RDM Group, LLC
Neelytown Business Park Development

296 Neelytown Road

**Tax Lot: 36-1-33, 36-1-11.221, 36-1-11.23, 36-1-11.212, 36-1-11.211,
36-1-11.1, 36-1-10.1, 33-1-91**

Town of Montgomery, Orange County, NY

Prepared for:

RDM Group, LLC
21 Philips Parkway
Montvale, NJ 07645

Prepared by:

Jesse B. Cokeley, P.E.
NY Professional Engineer
License No. 90987



Colliers Engineering & Design
300 Tice Boulevard, Suite 101
Woodcliff Lake, New Jersey 07677
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Colliersengineering.com

Project No. 21000327A

Maser Consulting is now Colliers Engineering & Design

Accelerating success.

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Project Description

The proposed development, Neelytown Business Park Development, also known as Tax Lot 36-1-33, 36-1-11.221, 36-1-11.23, 36-1-11.212, 36-1-11.211, 36-1-11.1, 36-1-10.1, and 33-1-91 is an +/- 112.4-acre site located on Neelytown and Beaver Dam Road in the Town of Montgomery. Currently, the site is largely undeveloped, containing mostly wooded areas with two dirt access roads. There does exist a silo and multiple small areas of minor foundation remains adjacent to the southeast access road off of Neelytown Road. The large majority of the site however is a mixture of dense woodland, bush/meadow areas and wetlands. Per the latest FEMA mapping there are no existing floodplain areas on the project site.

The proposed project will consist of 2 warehouse buildings totaling 1,128,270 SF, with 24,000 SF of that total to be office space. The two buildings will have a combined 184 loading docks, 456 standard parking spaces and 301 trailer storage spaces. Other improvements include driveways, sidewalks, and associated utilities to service the users.

The project site has frontage on Neelytown Road to the east and Beaver Dam Road to the west. The site is located within the Town of Montgomery's Water District 1 but is not currently served by the district as the lot is largely undeveloped. Per a map entitled "Sheet 2, water & sewer utilities, town of Montgomery" prepared by Michael J Aiello, PE, PLLC last revised 2019 it is shown that there is an existing 12" water main within Neelytown Road.

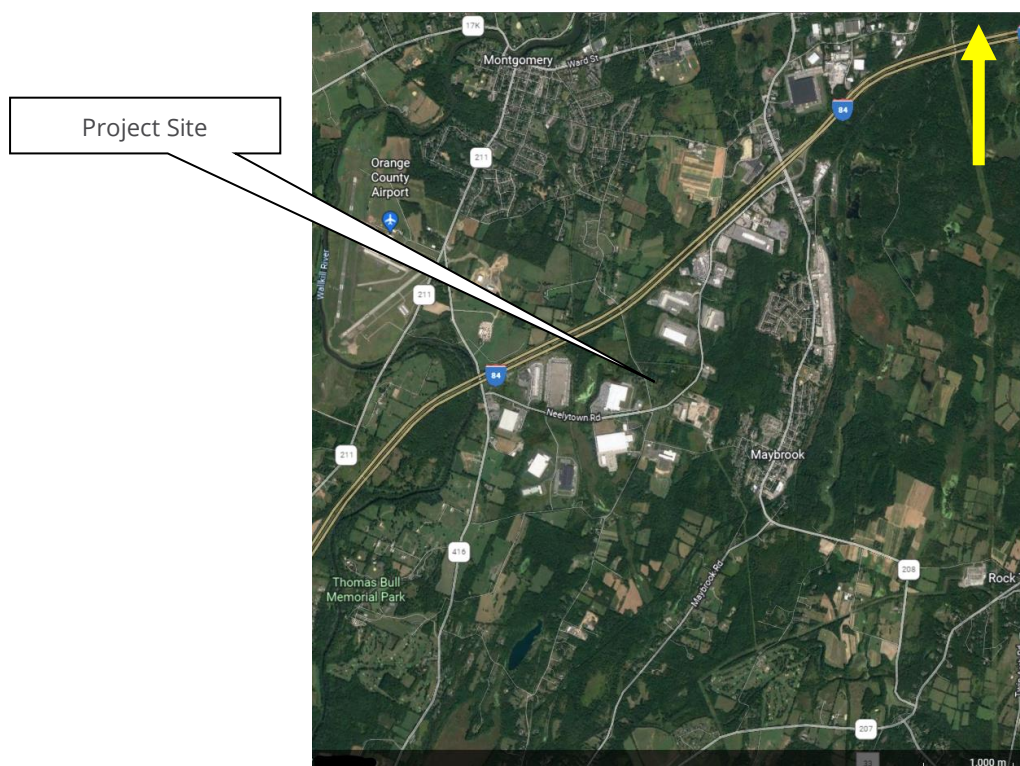


Figure 1: Location Map (source: Google Earth)

Scope of Water System

Proposed Lot One (1) and Lot Two (2) system shall consist of furnishing and installing approximately 9,073 LF of 8" ductile iron water pipe, along with One (1) hot box, eight (8) hydrants, thirteen (13) valves, and an on-site fire water storage tank. The proposed system will connect to the existing 12" water main within Neelytown Road at the proposed southern driveway.

Work shall also include, but not be limited to excavation, backfilling, laying and jointing of pipe, installation of sewer manholes, installation of service lines, testing, and restoration of existing structures & road surfaces as required to complete the work specified on the plans.

Determination of Water Demand and Capacities

Proposed domestic water demands were determined based on the New York State Design Standards for Intermediate Sized Wastewater Treatment Systems (NYS Design Manual), dated March 5, 2014. Calculations are shown below:

Estimated Design Flows:

In order to provide an estimated water demand we have the estimated employee count used for this analysis based on the Institute of Transportation Engineers (ITE) Parking Generation, 4th Edition. Using Land Code 150 – Warehouse, and 701- Office Building, and a total building area of 1,128,270 SF (24,000 SF of which is anticipated to be office area) we can estimate the following.

As per NYSDEC Design Standards for Intermediate Sized Wastewater Treatment Systems (2014):

$$\text{GPD} = 15 \text{ GPD} * \# \text{ employees (same for office and warehouse uses)}$$

Unit Type	Projected Flow	Number of Units	Demand
Warehouse 1 (First Shift)¹	15 GPD/employee	204 employees	3,060 GPD
Warehouse 1 (Second Shift)¹	15 GPD/employee	204 employees	3,060 GPD
Warehouse 1 (Third Shift)¹	15 GPD/employee	204 employees	3,060 GPD
Warehouse 2 (First Shift)¹	15 GPD/employee	66 employees	990 GPD
Warehouse 2 (Second Shift)¹	15 GPD/employee	66 employees	990 GPD
Warehouse 2 (Third Shift)¹	15 GPD/employee	66 employees	990 GPD
Warehouse 1 Office (First Shift)²	15 GPD/employee	107 employees	1,605 GPD
Warehouse 1 Office (Second Shift)²	15 GPD/employee	107 employees	1,605 GPD

Warehouse 1 Office (Third Shift)²	15 GPD/employee	107 employees	1,605 GPD
Warehouse 2 Office (First Shift)²	15 GPD/employee	54 employees	810 GPD
Warehouse 2 Office (Second Shift)²	15 GPD/employee	54 employees	810 GPD
Warehouse 2 Office (Third Shift)²	15 GPD/employee	54 employees	810 GPD
Visitors³	5 GPD/Visitor	101 visitors	505 GPD
Total			19,900 GPD
Total based on flow saving devices			15,920 GPD

¹Number of employees was determined using 4,100 SF of warehouse space per employee per shift

²Number of employees was determined using 1 employee per 150 SF per shift

³Number of visitors was determined using 1/3 of the total number of tractor trailer stalls

Pipe Capacity:

(1 GPD=1.547 × 10⁻⁶ cubic feet per second)

Total design flow in cfs * peaking factor (4.1) = 0.0246 * 4.1 = 0.101 cfs

Manning's Formula: $Q = \frac{1.49}{n} A * R^{\frac{2}{3}} * S^{\frac{1}{2}}$

For a full flowing 12" ductile iron pipe main within Neelytown road:

n = 0.22

$A = \pi r^2 = \pi$ sq. ft.

$R = \frac{A}{P} = 0.5$

S = 0.004 (min. allowable design slope for 8" pipe)

Solved: **Q(peak) = 0.847 cfs**

For a full flowing 8" ductile iron pipe main within the subject site:

Manning's Formula: $Q = \frac{1.49}{n} A * R^{\frac{2}{3}} * S^{\frac{1}{2}}$

$n = 0.40$

$A = \pi r^2 = \pi \text{ sq. ft.}$

$R = \frac{A}{P} = 0.33$

$S = 0.004$ (min. allowable design slope for 8" pipe)

Solved: **Q(peak) = 0.158 cfs**

Since the pipe capacity Q (0.847 cfs for 12" DIP main & 0.158 cfs for 8" DIP) is greater than the total design flow (0.101 cfs) the proposed pipes have adequate hydraulic capacity to serve the proposed peak demand.

Installation and Testing

All installations shall conform to *Recommended Standards for Wastewater Facilities*, Latest Edition, New York State Sanitary Code Part 5, and the standards of the Town of Montgomery.

All construction and any necessary testing will conform to the specifications of the Town of Montgomery as well as County and State Environmental Health Standards and Requirements.

The proposed backflow preventers will be located in the proposed hotbox along Neelytown Road. The hotbox will have adequate heating to prevent freezing of the devices, adequate lighting, and will have enough room for access. The total square footage of the two buildings are ±850,000 SF on lot 1 and ±278,270 SF on lot 2.

Horizontal and Vertical Separations

Horizontal Separation

Horizontal separation between the proposed water main and storm (structures, piping, swales, etc.) or sanitary sewer (structures, mains, services, etc.) will be ten (10) feet or greater, unless due to constructability and impact to existing utilities warrant otherwise at which time deviation will require approval by the Engineer and/or a Town of Montgomery representative.

Vertical Separation

Vertical separation between storm or sanitary sewers and proposed water main crossings will be maintained at 18" minimum unless due to constructability and impact to existing utilities warrant

otherwise at which time deviation will require approval by the Engineer and/or a Town of Montgomery representative.

Appendices

APPENDIX A - WATER WILL SERVE- ADDRESSED TO TOWN OF MONTGOMERY WATER & SEWER

R:\AllOffices\Newburgh\Projects\2021\21000327A\Reports\Utility\260217_Engineers Water Report.docx

Submersible Grinder Pump Type ABS Piranha

Piranha PE | 1-1/4", 2 Pole, 3-Phase, 60 Hz, PE1

Submersible Motor Specifications, PE1 Frame

Motor Design			NEMA design B, squirrel cage induction
Motor Type			Fully enclosed Premium Efficiency submersible, IP68 protection rating
Motor Efficiency Standard and Rating			IEC 60034-30, IE3 rating
Motor Efficiency Test Protocol			IEC 60034-2-1
Insulation Material			Class H, 180°C (356°F), copper windings
Motor Filling Medium			Air
Temperature Rise			Class A
Maximum Fluid Temperature			40°C (104°F) continuous, 50°C (122°F) intermittent
Motor Protection	Thermal	STD	Normally closed bimetallic switch in each phase, connected in series, 140°C (284°F) +/- 5°C (41°F) opening temperature
	Leakage	STD	Moisture detection probe in seal sensing chamber (for use with appropriate relay)
Sensing Chamber Filling Medium			Environmentally safe, non-toxic oil
Bearing Type	Upper		Single row, deep groove ball bearing, permanently lubricated
	Lower		Double row, angular contact ball bearing, permanently lubricated
Motor Starter Types			Use with Direct-On-Line starting (DOL) recommended
Maximum Starts per Hour			15, evenly spaced
Maximum Submergence			20 meters (65 feet)
Available Voltages			208, 230, 460, 600 (consult factory for other voltages)
Voltage Tolerance from Rated			+/-10%
Agency Approvals			Factory Mutual, CSA
Explosion Proof Rating			NEC 500 Class 1, Division 1, Group C & D, Class T3C max surface temp



Motor Ratings, PE1 Frame

Motor Model	Input Power (P1)	Rated Power Output (P2)	Nominal RPM	Rated Voltage	Full Load Amps	Locked Rotor Amps	NEMA Code Letter	NEMA Service Factor	Motor Efficiency at % Load			Power Factor at % Load		
									100	75	50	100	75	50
PE 28/2	3.2 kW	2.8 kW 3.75 HP	3534	208 230 460 600	10.4 9.4 4.7 3.6	132.7 120.0 60.0 46.0	P	1.3	87.2	86.4	82.9	.853	.833	.747
PE 35/2	4.5 kW	4.0 kW 5.4 HP	3531	208 230 460 600	14.3 13.0 6.5 5.0	132.7 120.0 60.0 46.0	K	1.3	89.2	89.0	86.0	.868	.823	.737
PE 45/2	5.6 kW	5.0 kW 6.7 HP	3503	208 230 460 600	17.7 16.0 8.0 6.1	132.7 120.0 60.0 46.0	J	1.3	89.1	89.6	87.3	.882	.857	.793

DS-P01-022 REV: 5 DATE: 08/15 Specifications Subject to Change Without Notice



Submersible Grinder Pump Type ABS Piranha

Piranha PE | 1-1/4", 2 Pole, 3-Phase, 60 Hz, PE1

Cable Data, PE1 Frame

	Motor	Motor Voltage	Cable Qty	Cable Type	Cable Nominal Outside Diameter +/- .5mm (.02")	
					Power	Ground
Power Cable	PE 28/2	208	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
		230	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
		460	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
		600	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
	PE 35/2	208	1	SOOW 12/7	18.8mm (0.74")	Integrated w/ Power
		230	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
		460	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
		600	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
	PE 45/2	208	1	SOOW 10/7	20.7mm (0.82")	Integrated w/ Power
		230	1	SOOW 12/7	18.8mm (0.74")	Integrated w/ Power
		460	1	SOOW 12/7	18.8mm (0.74")	Integrated w/ Power
		600	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
Control Cable	Motor Monitoring Type ³		Cable Qty	Cable Type	Cable Nominal Outside Diameter +/- .5mm (.02")	
	Std monitoring					
Cable Length	Standard: 10m (32 feet)		Optional: 15m (49 feet), 20m (65 feet), 30m (98 feet); Consult Factory for longer lengths			

³ See motor protection on page 1.

Pump Data

Discharge Size	DN32 oblong flanged, 1-1/4" female NPT w/ the use of discharge adapter kit							
Suction Size	N/A							
Volute Pressure Rating	10 bar (145 psi)							
Impeller Type	Semi-Open, Multi-vane, w/ Cutter Assembly & Seal Protection System							
Impeller	Code	PE28/2	PE35/2	PE45/2				
	Diameter, mm (in.)	133 (5.2)	150 (5.9)	160 (6.3)				
Solids Passage Size, mm (in.)	N/A (N/A)	N/A (N/A)	N/A (N/A)					
Min. Recommended Flow, GPM ⁶	20	20	20					

⁶ Recommend minimum continuous flow. Discharge pipe size can affect minimum flow rate required for solids transport. Consult factory for applications below this flow rate.

Materials of Construction

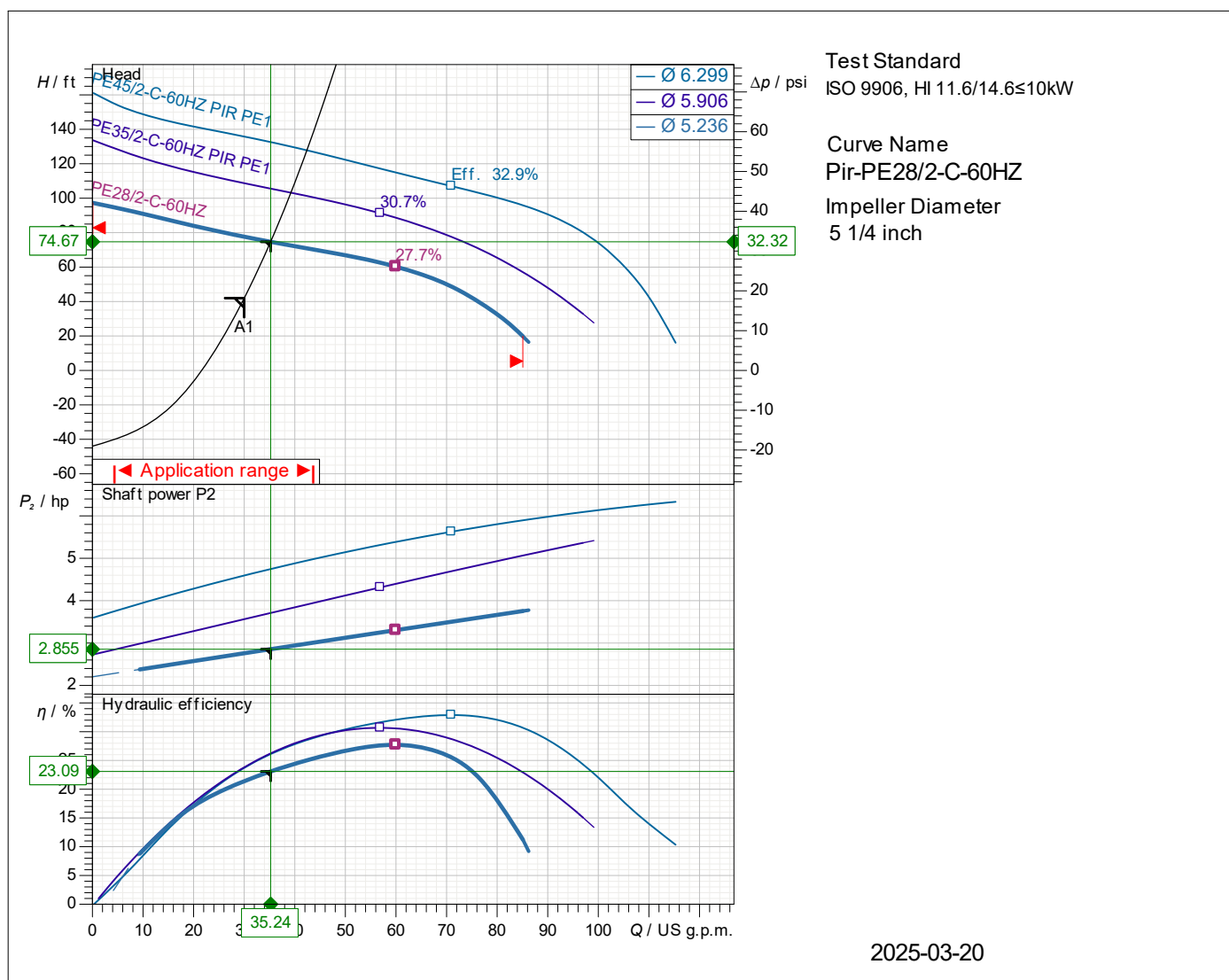
	Standard	Optional
Power/Control Cable Jacket	Chlorinated Polyethylene (CPE)	
Lifting Hoop	Stainless Steel 1.4401 (AISI 316)	
Cable Connection Chamber	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Motor Housing	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Intermediate Housing	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Seal Plate	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Pump and Motor Shaft	Stainless Steel 1.4021 (AISI 420)	
Impeller	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Wear Parts	Rotating Cutter	Stainless Steel 1.4528 (AISI 440B+Co), 58-62 HRC
	Stationary Cutter	Stainless Steel 1.4528 (AISI 440B+Co), 58-62 HRC
	Bottom/Wear Plate	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)
Volute	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
External Hardware	Stainless Steel 1.4401 (AISI 316)	
O-Rings and Cable Glands	Nitrile (Buna-N)	
Mechanical Lower	Silicon Carbide / Silicon Carbide, Nitrile, 316 SS	
Seals Upper	Silicon Carbide / Silicon Carbide, Nitrile, 316 SS	
Coating/Protection	Two-part epoxy, blue, 120µm (4.7 mil) DFT	Two-part epoxy, blue, 400µm (15.7 mil)

General Data

	PE 28/2	PE 35/2	PE 45/2		
Overall Height	604mm (23.8")	604mm (23.8")	604mm (23.8")		
Pump Weight	94 kg (207 lb)	94 kg (207 lb)	94 kg (207 lb)		

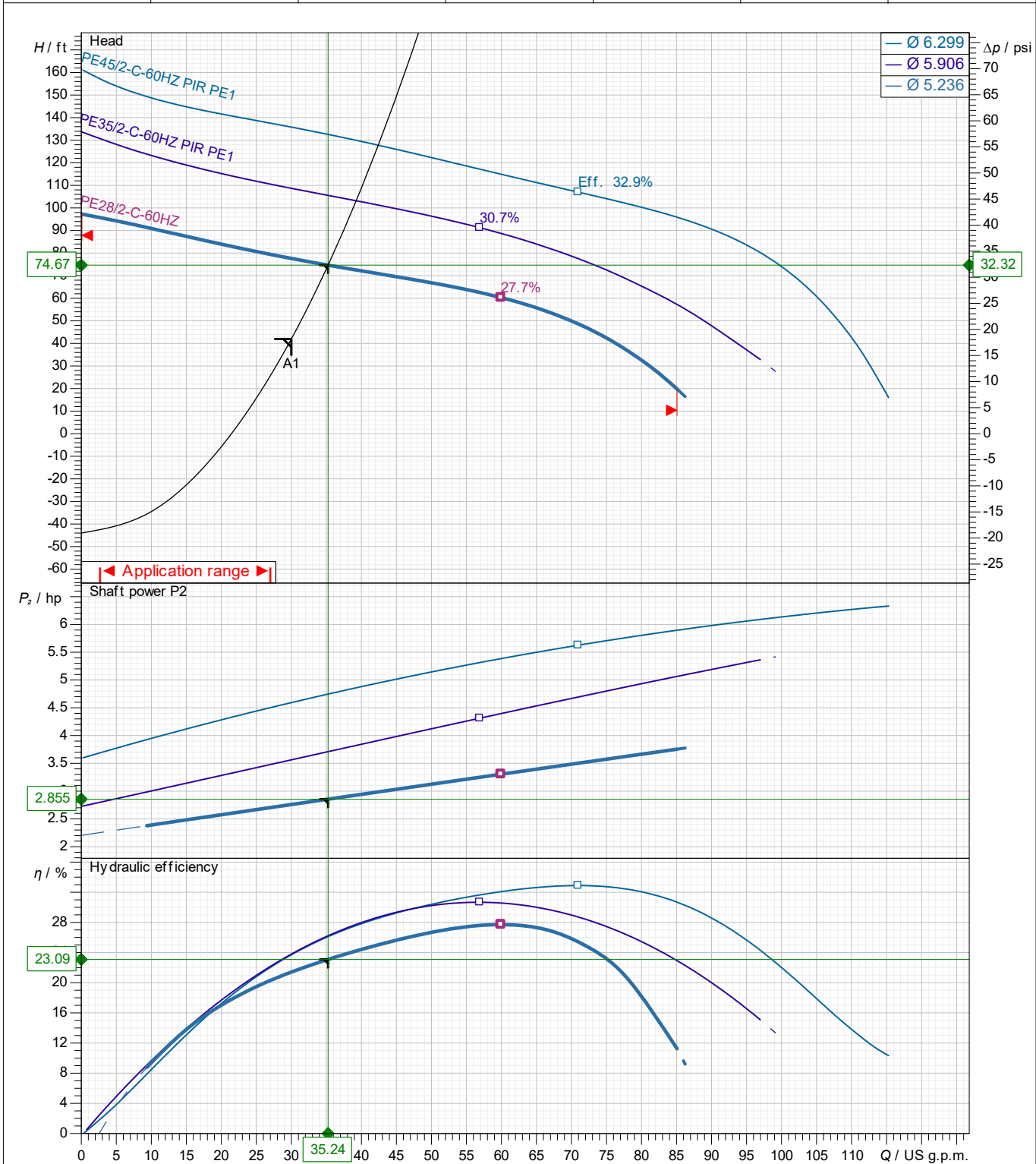


PIR PE1 60 HZ



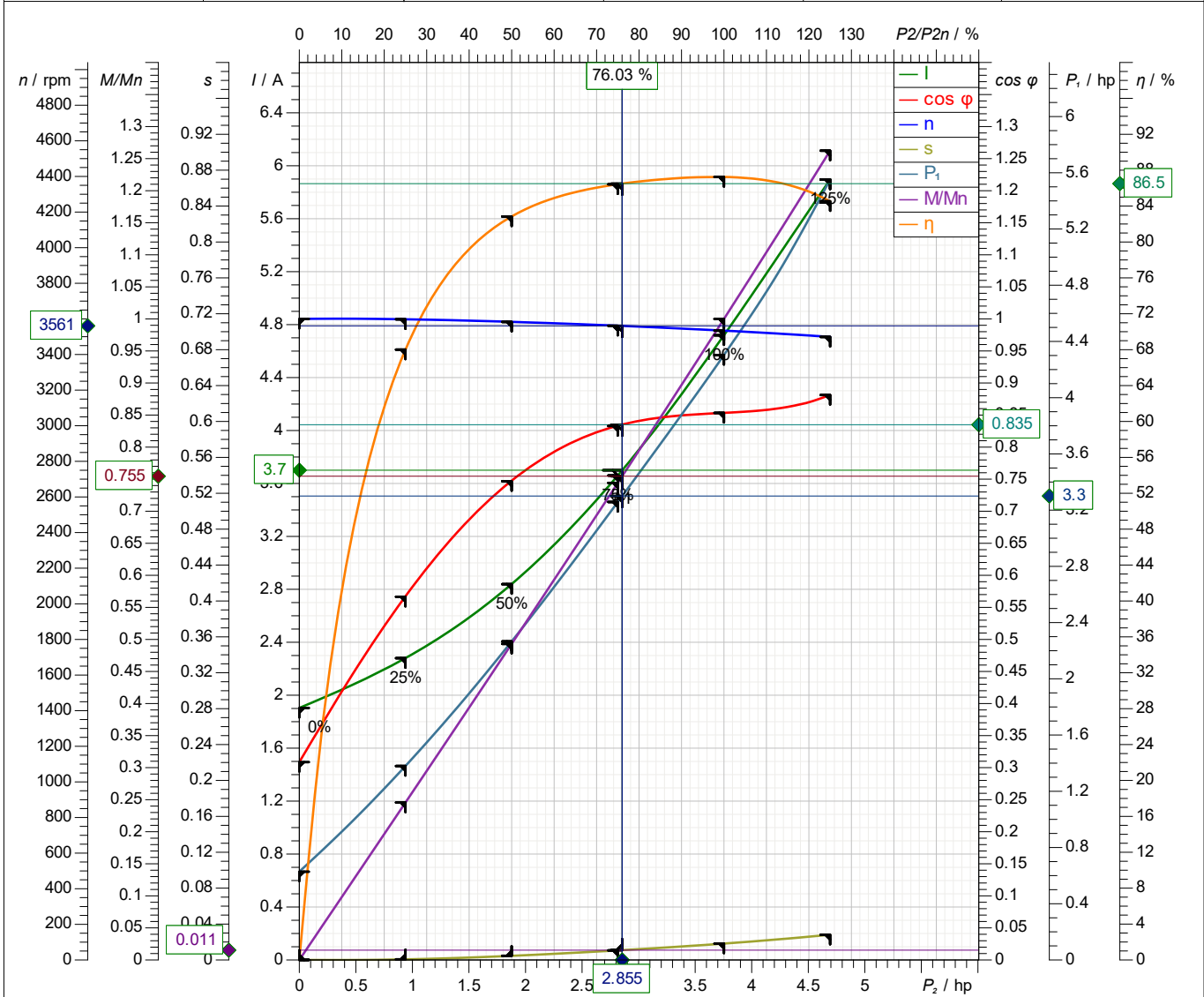
Operating data specification		Power input	
Flow	35.24 US g.p.m.	Head	3.3 hp
Efficiency	23.1 %	Head	74.7 ft
NPSH		Shaft power	2.85 hp
Temperature	68 °F	Fluid	Water
No. of pumps	1	Nature of system	Single head pump
Pump data		Make	
Type	PIR PE1 60 HZ	Make	SULZER
Series	PIRANHA & PIRANHA PE	Impeller	Macerator
N° of vanes	5	Impeller size	5 1/4 inch
Free passage		Suction flange	
Discharge flange	DN32	Type of installation	Installation wet well
Moment of inertia	0.0498 lb ft²		
Motor data		Frequency	
Rated voltage	460 V	Frequency	60 Hz
Rated power P2	3.75 hp	Nominal Speed	3530 rpm
Number of poles	2	Efficiency	86.5 %
Power factor	0.86	Rated current	4.7 A
Starting current	60 A	Rated torque	5.58 lbf ft
Starting torque	19.5 lbf ft	Degree of protection	IP 68
Insulation class	H	No. starts per hour	15

Curve number		Pump performance curves PIR PE1 60 HZ				SULZER	
Reference curve PIR-PE-C-60HZ							
					Discharge DN32	Frequency 60 Hz	
Density 62.32 lb/ft³	Viscosity 1.082E-5 ft²/s	Test Standard ISO 9906, HI 11.6/14.6≤10kW			Rated speed 3561 rpm	Date 2025-03-20	
Flow 35.24 US g.p.m.	Head 74.7 ft	Shaft pow er 2.85 hp	Pow er input 3.3 hp	Rated pow er P2 3.75 hp	Hyd. efficiency 23.1 %	NPSH	



Installation wet well				
Impeller size 5 1/4 inch	N° of vanes 5	Impeller Macerator	Solid size	Revision

Rated power 3.75 hp	Service factor 1.3	Nominal Speed 3534 rpm	Number of poles 2	Rated voltage 460 V	Date 2025-03-20
------------------------	-----------------------	---------------------------	----------------------	------------------------	--------------------



Symbol	No load	25 %	50 %	75 %	100 %	125 %
P_2 / hp	0	0.9387	1.877	2.816	3.755	4.694
P_1 / hp	0.628	1.38	2.266	3.258	4.304	5.552
I / A	1.904	2.28	2.84	3.66	4.72	5.896
$\cos \phi$	0.3087	0.5665	0.7469	0.8331	0.8535	0.8813
n / rpm	3600	3598	3583	3562	3534	3499
s / %	0.0007573	0.06713	0.4597	1.068	1.826	2.806
M / lbf ft	0	1.37	2.752	4.153	5.58	7.046
η / %	0	68.01	82.85	86.43	87.24	84.54

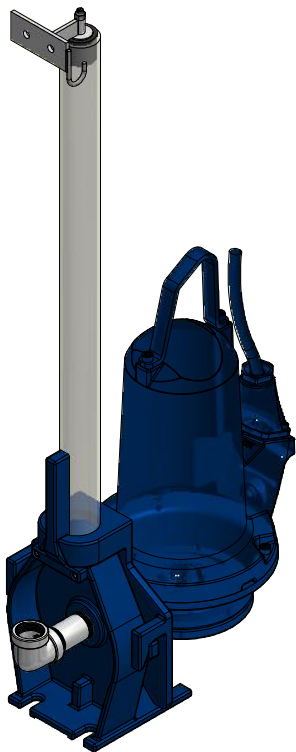
Tolerance according to VDE 0530 T1 12.84 for rated power

Starting current 60 A	Starting torque 19.5 lbf ft	Moment of inertia 0.104 lb ft ²	No. starts per hour 15	
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Piranha PE1 | Wet-Pit, 2" Single Rail, 1.25" Discharge

NOTES:

- Weight Includes Pump, Slide Bracket & 32ft of Cable
- SHOWN WITH:
 - 62320501 OR 4059130-23 Guide Rail Assembly
- Appurtenances such as guide rail and anchor bolts are to be supplied by others



Submersible Grinder Pump Type ABS Piranha

Piranha PE | 1-1/4", 2 Pole, 3-Phase, 60 Hz, PE1

Submersible Motor Specifications, PE1 Frame

Motor Design			NEMA design B, squirrel cage induction
Motor Type			Fully enclosed Premium Efficiency submersible, IP68 protection rating
Motor Efficiency Standard and Rating			IEC 60034-30, IE3 rating
Motor Efficiency Test Protocol			IEC 60034-2-1
Insulation Material			Class H, 180°C (356°F), copper windings
Motor Filling Medium			Air
Temperature Rise			Class A
Maximum Fluid Temperature			40°C (104°F) continuous, 50°C (122°F) intermittent
Motor Protection	Thermal	STD	Normally closed bimetallic switch in each phase, connected in series, 140°C (284°F) +/- 5°C (41°F) opening temperature
	Leakage	STD	Moisture detection probe in seal sensing chamber (for use with appropriate relay)
Sensing Chamber Filling Medium			Environmentally safe, non-toxic oil
Bearing Type	Upper		Single row, deep groove ball bearing, permanently lubricated
	Lower		Double row, angular contact ball bearing, permanently lubricated
Motor Starter Types			Use with Direct-On-Line starting (DOL) recommended
Maximum Starts per Hour			15, evenly spaced
Maximum Submergence			20 meters (65 feet)
Available Voltages			208, 230, 460, 600 (consult factory for other voltages)
Voltage Tolerance from Rated			+/-10%
Agency Approvals			Factory Mutual, CSA
Explosion Proof Rating			NEC 500 Class 1, Division 1, Group C & D, Class T3C max surface temp

PIRANHA GRINDER



The picture above may differ from the actual product. For illustrative purposes only.

Motor Ratings, PE1 Frame

Motor Model	Input Power (P1)	Rated Power Output (P2)	Nominal RPM	Rated Voltage	Full Load Amps	Locked Rotor Amps	NEMA Code Letter	NEMA Service Factor	Motor Efficiency at % Load			Power Factor at % Load		
									100	75	50	100	75	50
PE 28/2	3.2 kW	2.8 kW 3.75 HP	3534	208 230 460 600	10.4 9.4 4.7 3.6	132.7 120.0 60.0 46.0	P	1.3	87.2	86.4	82.9	.853	.833	.747
PE 35/2	4.5 kW	4.0 kW 5.4 HP	3531	208 230 460 600	14.3 13.0 6.5 5.0	132.7 120.0 60.0 46.0	K	1.3	89.2	89.0	86.0	.868	.823	.737
PE 45/2	5.6 kW	5.0 kW 6.7 HP	3503	208 230 460 600	17.7 16.0 8.0 6.1	132.7 120.0 60.0 46.0	J	1.3	89.1	89.6	87.3	.882	.857	.793



Submersible Grinder Pump Type ABS Piranha

Piranha PE | 1-1/4", 2 Pole, 3-Phase, 60 Hz, PE1

Cable Data, PE1 Frame

	Motor	Motor Voltage	Cable Qty	Cable Type	Cable Nominal Outside Diameter +/- .5mm (.02")	
					Power	Ground
Power Cable	PE 28/2	208	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
		230	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
		460	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
		600	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
	PE 35/2	208	1	SOOW 12/7	18.8mm (0.74")	Integrated w/ Power
		230	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
		460	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
		600	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
	PE 45/2	208	1	SOOW 10/7	20.7mm (0.82")	Integrated w/ Power
		230	1	SOOW 12/7	18.8mm (0.74")	Integrated w/ Power
		460	1	SOOW 12/7	18.8mm (0.74")	Integrated w/ Power
		600	1	SOOW 14/7	17.6mm (0.69")	Integrated w/ Power
Control Cable	Motor Monitoring Type ³		Cable Qty	Cable Type	Cable Nominal Outside Diameter +/- .5mm (.02")	
	Std monitoring					
Cable Length	Standard: 10m (32 feet)		Optional: 15m (49 feet), 20m (65 feet), 30m (98 feet); Consult Factory for longer lengths			

³ See motor protection on page 1.

Pump Data

Discharge Size	DN32 oblong flanged, 1-1/4" female NPT w/ the use of discharge adapter kit							
Suction Size	N/A							
Volute Pressure Rating	10 bar (145 psi)							
Impeller Type	Semi-Open, Multi-vane, w/ Cutter Assembly & Seal Protection System							
Impeller	Code	PE28/2	PE35/2	PE45/2				
	Diameter, mm (in.)	133 (5.2)	150 (5.9)	160 (6.3)				
Solids Passage Size, mm (in.)	N/A (N/A)	N/A (N/A)	N/A (N/A)					
Min. Recommended Flow, GPM ⁶	20	20	20					

⁶ Recommend minimum continuous flow. Discharge pipe size can affect minimum flow rate required for solids transport. Consult factory for applications below this flow rate.

Materials of Construction

	Standard	Optional
Power/Control Cable Jacket	Chlorinated Polyethylene (CPE)	
Lifting Hoop	Stainless Steel 1.4401 (AISI 316)	
Cable Connection Chamber	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Motor Housing	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Intermediate Housing	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Seal Plate	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Pump and Motor Shaft	Stainless Steel 1.4021 (AISI 420)	
Impeller	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
Wear Parts	Rotating Cutter	Stainless Steel 1.4528 (AISI 440B+Co), 58-62 HRC
	Stationary Cutter	Stainless Steel 1.4528 (AISI 440B+Co), 58-62 HRC
	Bottom/Wear Plate	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)
Volute	Cast Iron EN-GJL-250 (ASTM A-48, Class 35B)	
External Hardware	Stainless Steel 1.4401 (AISI 316)	
O-Rings and Cable Glands	Nitrile (Buna-N)	
Mechanical Lower	Silicon Carbide / Silicon Carbide, Nitrile, 316 SS	
Seals Upper	Silicon Carbide / Silicon Carbide, Nitrile, 316 SS	
Coating/Protection	Two-part epoxy, blue, 120µm (4.7 mil) DFT	Two-part epoxy, blue, 400µm (15.7 mil)

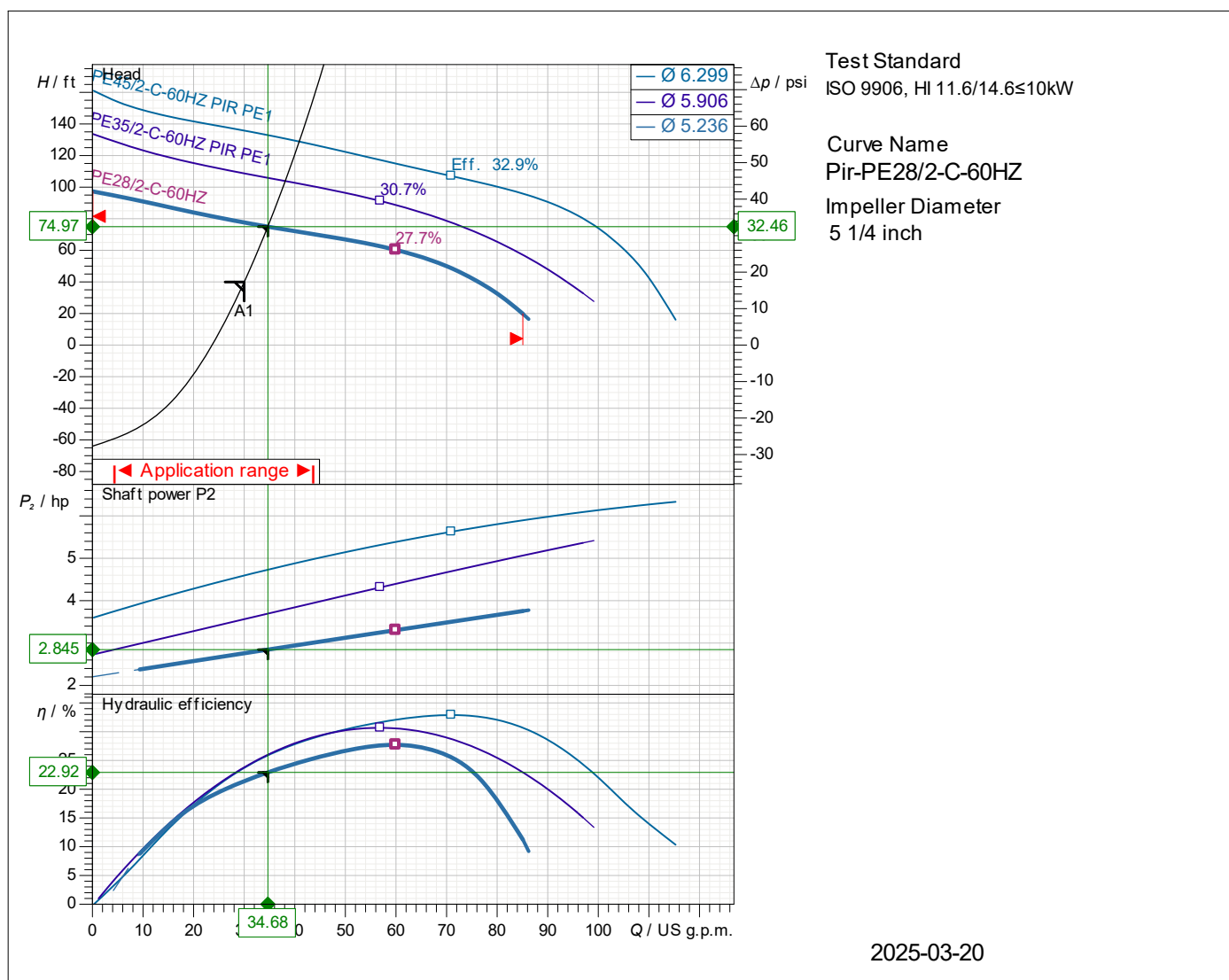
General Data

	PE 28/2	PE 35/2	PE 45/2			
Overall Height	604mm (23.8")	604mm (23.8")	604mm (23.8")			
Pump Weight	94 kg (207 lb)	94 kg (207 lb)	94 kg (207 lb)			

DS-P01-022 REV: 5 DATE: 08/15 Specifications Subject to Change Without Notice

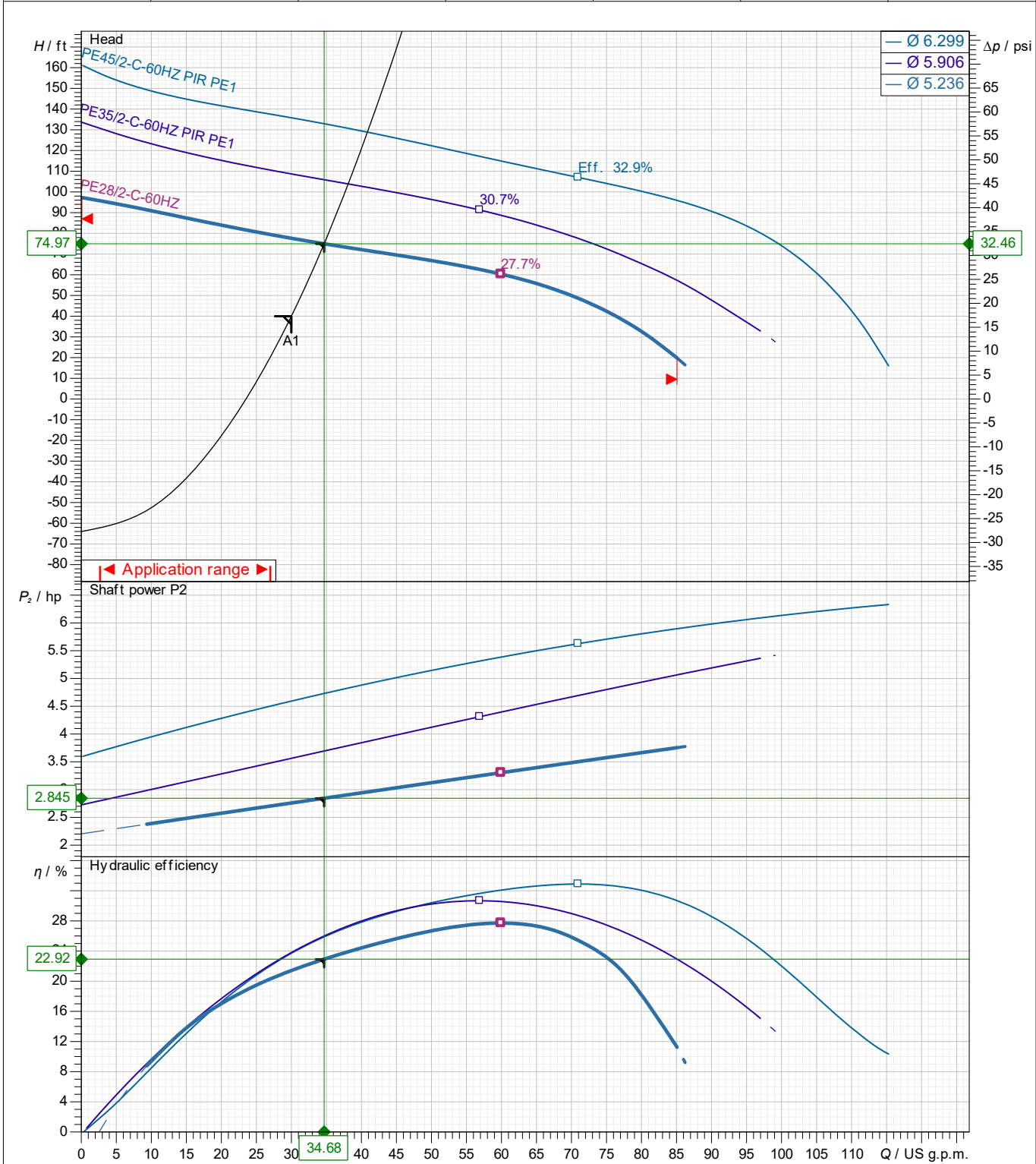


PIR PE1 60 HZ



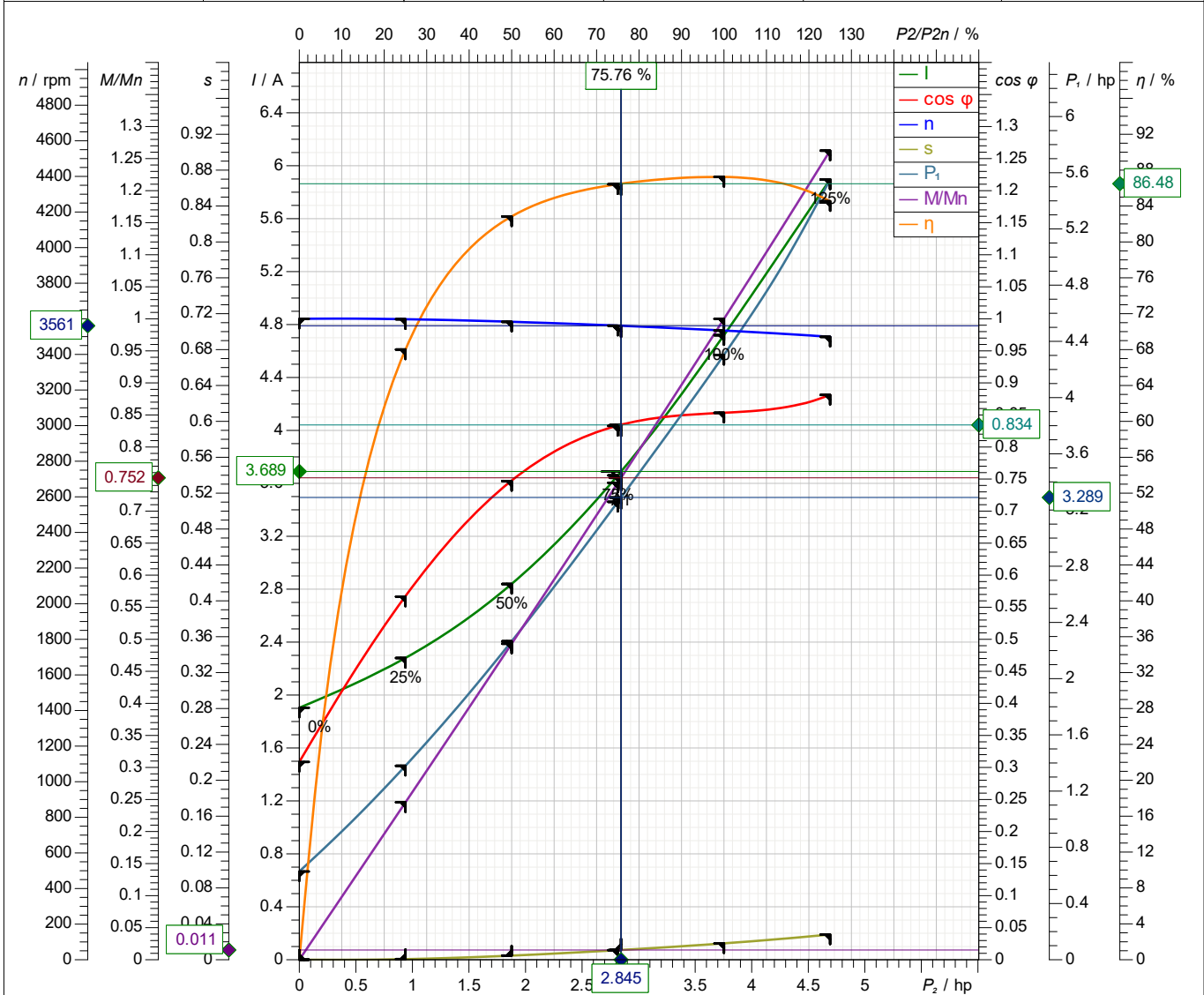
Operating data specification		Power input		3.29 hp
Flow	34.68 US g.p.m.	Head		75 ft
Efficiency	22.9 %	Shaft power		2.84 hp
NPSH		Fluid		Water
Temperature	68 °F	Nature of system		Single head pump
No. of pumps	1			
Pump data				
Type	PIR PE1 60 HZ	Make		SULZER
Series	PIRANHA & PIRANHA PE	Impeller		Macerator
N° of vanes	5	Impeller size		5 1/4 inch
Free passage		Suction flange		
Discharge flange	DN32	Type of installation		Installation wet well
Moment of inertia	0.0498 lb ft²			
Motor data				
Rated voltage	460 V	Frequency		60 Hz
Rated power P2	3.75 hp	Nominal Speed		3530 rpm
Number of poles	2	Efficiency		86.5 %
Power factor	0.86	Rated current		4.7 A
Starting current	60 A	Rated torque		5.58 lbf ft
Starting torque	19.5 lbf ft	Degree of protection		IP 68
Insulation class	H	No. starts per hour		15

Curve number		Pump performance curves PIR PE1 60 HZ				SULZER	
Reference curve PIR-PE-C-60HZ							
					Discharge DN32	Frequency 60 Hz	
Density 62.32 lb/ft³	Viscosity 1.082E-5 ft²/s	Test Standard ISO 9906, HI 11.6/14.6≤10kW			Rated speed 3561 rpm	Date 2025-03-20	
Flow 34.68 US g.p.m.	Head 75 ft	Shaft power 2.84 hp	Power input 3.29 hp	Rated power P2 3.75 hp	Hyd. efficiency 22.9 %	NPSH	



Installation wet well				
Impeller size 5 1/4 inch	N° of vanes 5	Impeller Macerator	Solid size	Revision

Rated power 3.75 hp	Service factor 1.3	Nominal Speed 3534 rpm	Number of poles 2	Rated voltage 460 V	Date 2025-03-20
------------------------	-----------------------	---------------------------	----------------------	------------------------	--------------------



Symbol	No load	25 %	50 %	75 %	100 %	125 %
P ₂ / hp	0	0.9387	1.877	2.816	3.755	4.694
P ₁ / hp	0.628	1.38	2.266	3.258	4.304	5.552
I / A	1.904	2.28	2.84	3.66	4.72	5.896
cos φ	0.3087	0.5665	0.7469	0.8331	0.8535	0.8813
n / rpm	3600	3598	3583	3562	3534	3499
s / %	0.0007573	0.06713	0.4597	1.068	1.826	2.806
M / lbf ft	0	1.37	2.752	4.153	5.58	7.046
η / %	0	68.01	82.85	86.43	87.24	84.54

Tolerance according to VDE 0530 T1 12.84 for rated power

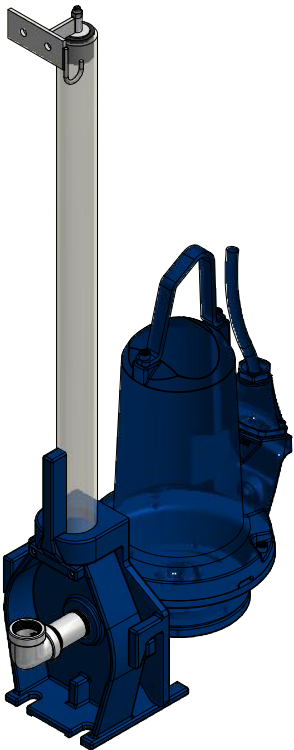
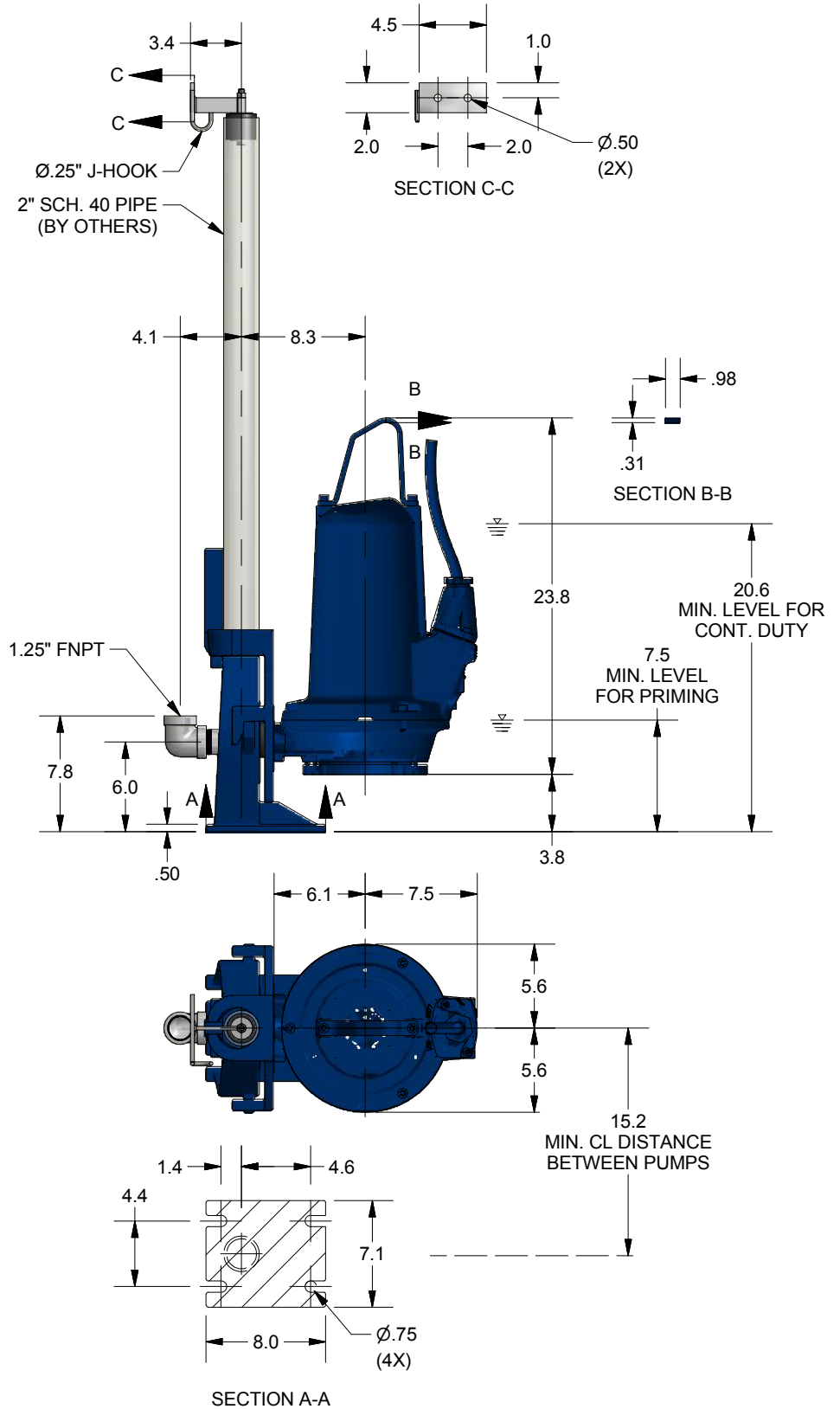
Starting current 60 A	Starting torque 19.5 lbf ft	Moment of inertia 0.104 lb ft ²	No. starts per hour 15	
--------------------------	--------------------------------	---	---------------------------	--

Submersible Grinder Pump Type ABS Piranha

Piranha PE1 | Wet-Pit, 2" Single Rail, 1.25" Discharge

60Hz Data	
Motor	Weight (lbs.)
PE 25/2W	207.2
PE 35/2W	207.2
PE 45/2W	207.2
PE 28/2	207.2
PE 35/2	207.2
PE 45/2	207.2

NOTES:
 •Weight Includes Pump, Slide Bracket & 32ft of Cable
 •SHOWN WITH:
 •62320501 OR 4059130-23 Guide Rail Assembly
 •Appurtenances such as guide rail and anchor bolts are to be supplied by others



Stefanie Faivre

From: Chris Reiner <creiner@reinerpump.com>
Sent: Friday, March 21, 2025 12:23 PM
To: Justin Ferrazzano
Cc: Justin Wagner; Michaela Nicodemo
Subject: RE: Pump Station Sizing for Neelytown Development

This Message originated outside your organization.

yes

Chris Reiner, VP and Territory Mngr



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973-347-9000

creiner@reinerpump.com

<https://reinerpump.com/>

From: Justin Ferrazzano <justin.ferrazzano@collierseng.com>
Sent: Friday, March 21, 2025 10:29 AM
To: Chris Reiner <creiner@reinerpump.com>
Cc: Justin Wagner <justin.wagner@collierseng.com>; Michaela Nicodemo <michaela.nicodemo@collierseng.com>
Subject: RE: Pump Station Sizing for Neelytown Development

Chris,

This is great, thank you.

I have to respond back with some proof or calc that this will work and not overload the existing 6" main in Neelytown Road. Does it make sense to say:

"At this time based on our analysis the existing 6" force main within Neelytown Road appears to be acting more like a gravity line and our effluent should not exacerbate the main, however prior to final approval and prior to filing an application with the NYSDEC for the force main connection, additional metering and testing of the existing 6" main will be performed to confirm static pressure and capacity."

Justin Ferrazzano

Senior Project Manager | Principal Associate | Civil/Site

justin.ferrazzano@collierseng.com

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From: Chris Reiner <creiner@reinerpump.com>
Sent: Thursday, March 20, 2025 5:55 PM
To: Justin Ferrazzano <justin.ferrazzano@collierseng.com>
Cc: Justin Wagner <justin.wagner@collierseng.com>; Michaela Nicodemo <michaela.nicodemo@collierseng.com>
Subject: RE: Pump Station Sizing for Neelytown Development

This Message originated outside your organization.

You're going to love this. I think I got it.

PS1, Warehouse 1

Invert IN 420

To invert 376 = -44ft (minus) static head

1100ft of 2" FM SDR21

Assume 30gpm = 1.34ft loss/100ft pipe = 11ft friction (will not offset negative static)

Go to 1.25" FM, now 7.8ft/100ft loss = 86ft friction

86ft friction – 44ft static = 42ft TDH

Works, see curve

PS2, Warehouse 2

Invert IN 440

To invert 376 = -64ft (minus) static head

2600ft of 2" FM SDR21

Assume 30gpm = 1.34ft loss/100ft pipe = 35ft friction (will not offset negative static)

Go to 1.5" FM, now 4ft/100ft loss = 104ft friction

104ft friction – 64ft static = 40ft TDH

Works, see curve.

At 30gpm +/-, there is no measurable friction loss in the existing 6" FM.

This is a little crazy, but I think it's correct.

What I'm struggling with is if that existing 6" FM is acting as a gravity line (it's possible based on my history with that FM). IF so, then we would not have the negative static, and just the friction I calc'd above and a static only going to the street, about 0 EL +/-.

If this is true, then the system curves would go from 0 static to just the friction listed above and we would have to increase the new FM size accordingly to lower the friction.

Probably going to 1.5" for PS1 and 2" for PS2 would work.

What I don't know is if that FM is full and if so what it is flowing at. This could potentially add some friction and we don't have a lot of room to the left of my curve, which has a max shutoff pressure of 100ft. Maybe enough margin?

See attached pump data. I'm adding typical drawing for our TopVault system assuming a 4ft or 5ft dia wetwell. 6ft dia would be too big.

Hope this helps. Let me know.

Chris Reiner, VP and Territory Mngr



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From: Justin Ferrazzano <justin.ferrazzano@collierseng.com>

Sent: Thursday, March 20, 2025 1:01 PM

To: Chris Reiner <creiner@reinerpump.com>

Cc: Justin Wagner <justin.wagner@collierseng.com>; Michaela Nicodemo <michaela.nicodemo@collierseng.com>

Subject: RE: Pump Station Sizing for Neelytown Development

Sorry to hear but I trust whatever you think is best... staying tuned!

Justin Ferrazzano

Senior Project Manager | Principal Associate | Civil/Site

justin.ferrazzano@collierseng.com

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From: Chris Reiner <creiner@reinerpump.com>

Sent: Thursday, March 20, 2025 12:59 PM

To: Justin Ferrazzano <justin.ferrazzano@collierseng.com>

Cc: Justin Wagner <justin.wagner@collierseng.com>; Michaela Nicodemo <michaela.nicodemo@collierseng.com>

Subject: RE: Pump Station Sizing for Neelytown Development

This Message originated outside your organization.

So negative static. Ugggg.

I am remembering this long FM and the negative static now in Montgomery.

We've put in some PS's along this FM in the past through Contractors (like TAM).

If I remember correctly, the negative static presented some challenges that we didn't know about at the time. We've changed pumps to much lower head units over a long period of time and they are working well.

This is absolutely a challenge, and I will do what I think is best.

Stay tuned.

Thx.

Chris Reiner, VP and Territory Mngr



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<https://reinerpump.com/>

From: Justin Ferrazzano <justin.ferrazzano@collierseng.com>

Sent: Wednesday, March 19, 2025 11:59 PM

To: Chris Reiner <creiner@reinerpump.com>

Cc: Justin Wagner <justin.wagner@collierseng.com>; Michaela Nicodemo <michaela.nicodemo@collierseng.com>

Subject: RE: Pump Station Sizing for Neelytown Development

A pulled a USGS map which looks to be consistent with our grades on site and when I follow it down to the treatment plant, the grade in that area is roughly 380.

So I would say an estimated invert would be 376.

Let me know if that gives you everything you need.

Justin Ferrazzano

Senior Project Manager | Principal Associate | Civil/Site

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From: Chris Reiner <creiner@reinerpump.com>
Sent: Wednesday, March 19, 2025 7:03 PM
To: Justin Ferrazzano <justin.ferrazzano@collierseng.com>
Cc: Justin Wagner <justin.wagner@collierseng.com>; Michaela Nicodemo <michaela.nicodemo@collierseng.com>
Subject: RE: Pump Station Sizing for Neelytown Development

This Message originated outside your organization.

Can you get me EL of the treatment plant?
I think I can figure it out close enough from there.
Thanks

Chris Reiner, VP and Territory Mngr



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creiner@reinerpump.com

<https://reinerpump.com/>

From: Justin Ferrazzano <justin.ferrazzano@collierseng.com>
Sent: Wednesday, March 19, 2025 12:52 PM
To: Chris Reiner <creiner@reinerpump.com>
Cc: Justin Wagner <justin.wagner@collierseng.com>; Michaela Nicodemo <michaela.nicodemo@collierseng.com>
Subject: RE: Pump Station Sizing for Neelytown Development

Chris,

Regarding your last email:

BTW, it may not be possible to get the info on the existing FM you are pumping into.

- This is still preliminary design so I think we can make assumptions where needed and then just note that in our response.
- One of their comments is they are looking for the calculation for the sizing of the pump stations, so if you could include the calc we can note where assumptions are made.

If this happens, then we will have to guess.

- I'm not sure what information I'll be able to get other than the size and material. We'll be tying into an 6" SDR-26 Force Main.
- They do want us to evaluate the exiting main to see if our flow requires upsizing. Again, is there any calc you can provide to show that? We can again note assumptions and that follow up testing is required prior to final approval.

I will still need where its going EL (for static) and approx.. how long and what size.

- I provided the approximate inverts and lengths on our site (see attached Force Main Sketch) – the size of those I would ask for your help with.

- Once it meets the main, it runs about 8,800 LF to the treatment plant via the 6" force main (see attached RECORD plans from the Town)

We can then get pretty close with a pump, and then guess what flow is going through it.

- If we can get close and design information on all of the above that works for now.

The good news is we are likely going to use Sulzer-ABS's Piranha PE series, which have pretty steep curves.

So once we pick a duty point close to our guesses, we will likely have enough margin to handle when the other FM is in use and not dead head our pumps

- Please review and let me know if you can address all of this and provide the design.

Thanks Chris!

Justin Ferrazzano

Senior Project Manager | Principal Associate | Civil/Site

justin.ferrazzano@collierseng.com

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From: Chris Reiner <creiner@reinerpump.com>

Sent: Wednesday, March 19, 2025 9:26 AM

To: Justin Ferrazzano <justin.ferrazzano@collierseng.com>

Cc: Justin Wagner <Justin.Wagner@collierseng.com>; Michaela Nicodemo <michaela.nicodemo@collierseng.com>

Subject: RE: Pump Station Sizing for Neelytown Development

This Message originated outside your organization.

BTW, it may not be possible to get the info on the existing FM you are pumping into.

If this happens, then we will have to guess.

I will still need where its going EL (for static) and approx.. how long and what size.

We can then get pretty close with a pump, and then guess what flow is going through it.

The good news is we are likely going to use Sulzer-ABS's Piranha PE series, which have pretty steep curves.

So once we pick a duty point close to our guesses, we will likely have enough margin to handle when the other FM is in use and not dead head our pumps.

Hope this helps.

If you need budgets now, attached is what I'm thinking. I'm guessing a 4 or 5ft dia. precast wetwell, and then our unit sits on top. Pretty simple. Can use a budget price of \$50K for this station including 3-5HP Piranha grinder pumps. Deliveries are usually less than 4-6 weeks if that matters.

Chris Reiner, VP and Territory Mngr



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973-347-9000

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<https://reinerpump.com/>

From: Chris Reiner

Sent: Tuesday, March 18, 2025 6:55 PM

To: Justin Ferrazzano <justin.ferrazzano@collierseng.com>

Cc: Justin Wagner <Justin.Wagner@collierseng.com>; Michaela Nicodemo <michaela.nicodemo@collierseng.com>

Subject: RE: Pump Station Sizing for Neelytown Development

Hi Justin. If you are pumping into another FM, then it gets a little more complicated.

For the rise, we need EL of water level (or just invert IN) in each PS to the FINAL EL of the FM at the final discharge point. We will also need information in the existing FM you are pumping into.

The reason for this, is we will need to calculate two system curves. One with the existing FM being used (and at what flow rate is if known) and one with it not being used. These two new system curves will need to fit the proposed pump curve at both duty points.

Thanks.

Chris Reiner, VP and Territory Mngr



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creiner@reinerpump.com

<https://reinerpump.com/>

From: Justin Ferrazzano <justin.ferrazzano@collierseng.com>

Sent: Tuesday, March 18, 2025 6:41 PM

To: Chris Reiner <creiner@reinerpump.com>

Cc: Justin Wagner <Justin.Wagner@collierseng.com>; Michaela Nicodemo <michaela.nicodemo@collierseng.com>

Subject: Re: Pump Station Sizing for Neelytown Development

Justin W - can you send Chris rise and run? It can be approximate and he just needs to know roughly how far we are pumping to the force main in the road and the elevation change which shouldn't be too much.

Chris - not sure of voltage but assume whatever we need is available, there's an gas/electric easement that runs along the lot. These will be privately owned and operated. Packaged solution would be best yes. They don't require any building or back up generator in NY.

Thank you sir!

Justin Ferrazzano

Senior Project Manager | Principal Associate | Civil/Site

justin.ferrazzano@collierseng.com

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300 Tice Boulevard Suite 101 | Woodcliff Lake, New Jersey

On Mar 18, 2025, at 6:25 PM, Chris Reiner <creiner@reinerpump.com> wrote:

This Message originated outside your organization.

Hi guys, those are very low flows.

4164 gpd / 1440 = 2.9 gpm, time's about a peaking factor of 5 = 15gpm.

Do you have rise and run?

Site voltage avail.?

Will the Town of Montgomery be owning these (they mostly use Sulzer-ABS pumps)

If private, we can probably deviate with pump selection.

Do you want a packaged solution? We have some nice commercial/Muni grade pre-engineered systems that we are using for these sizes of station.

Let me know.

Thank you.

Ps: our latest line-card is attached, FYI.

Chris Reiner, VP and Territory Mngr

<image002.jpg>

<image003.png>

855-758-1188

973-347-9000

creiner@reinerpump.com

<https://reinerpump.com/>

From: Justin Ferrazzano <justin.ferrazzano@collierseng.com>

Sent: Tuesday, March 18, 2025 3:42 PM

To: Justin Wagner <Justin.Wagner@collierseng.com>

Cc: Chris Reiner <creiner@reinerpump.com>; Michaela Nicodemo <michaela.nicodemo@collierseng.com>

Subject: Re: Pump Station Sizing for Neelytown Development

Just to clarify we need two pump stations one for each building

Justin Ferrazzano

Senior Project Manager | Principal Associate | Civil/Site

justin.ferrazzano@collierseng.com

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300 Tice Boulevard Suite 101 | Woodcliff Lake, New Jersey

On Mar 18, 2025, at 3:28 PM, Justin Wagner <justin.wagner@collierseng.com> wrote:

Chris,

On behalf of Justin Ferrazzano, I am reaching out because we need your assistance to determine an adequate pump station size for a project within the Town of Montgomery. To provide you with a little background on the development:

We have the estimated employee count used for this analysis based on the Institute of Transportation Engineers (ITE) Parking Generation, 4th Edition. Using Land Code 150 – Warehouse and 701 – Office Building and a total building area of 1,128,270 SF, 24,000 SF of which is anticipated to be office area, we can estimate the following:

1,104,270 SF (0.24 employees / 1,000 SF) = 265 projected employees for a Warehouse use

24,000 (3.4 employees / 1,000 SF) = 82 Projected employees for an Office use

As per NYSDEC Design Standards for Intermediate Sized Wastewater Treatment Systems (2014);

$$\text{GPD} = 15 \text{ GPD} * \# \text{ employees (same for office and warehouse uses)}$$
$$15 \times 347 = 5,205 \text{ GPD}$$

Total Design Flow = **5,205 GPD**

As per NYSDEC Design Standards for Intermediate Sized Wastewater Treatment Systems (2014):

20% reduction for installation of water-saving plumbing fixtures

$5,205 \text{ GPD} \times 0.8 = 4,164 \text{ GPD}$

Please also provide us with your calculations as the town has requested to review the associated calcs. with the proposed pump station. Let me know if you need any additional information.

Thank you,

Justin Wagner

Project Engineer | Civil/Site

Woodcliff Lake, New Jersey 07677

Colliers Engineering & Design

justin.wagner@collierseng.com

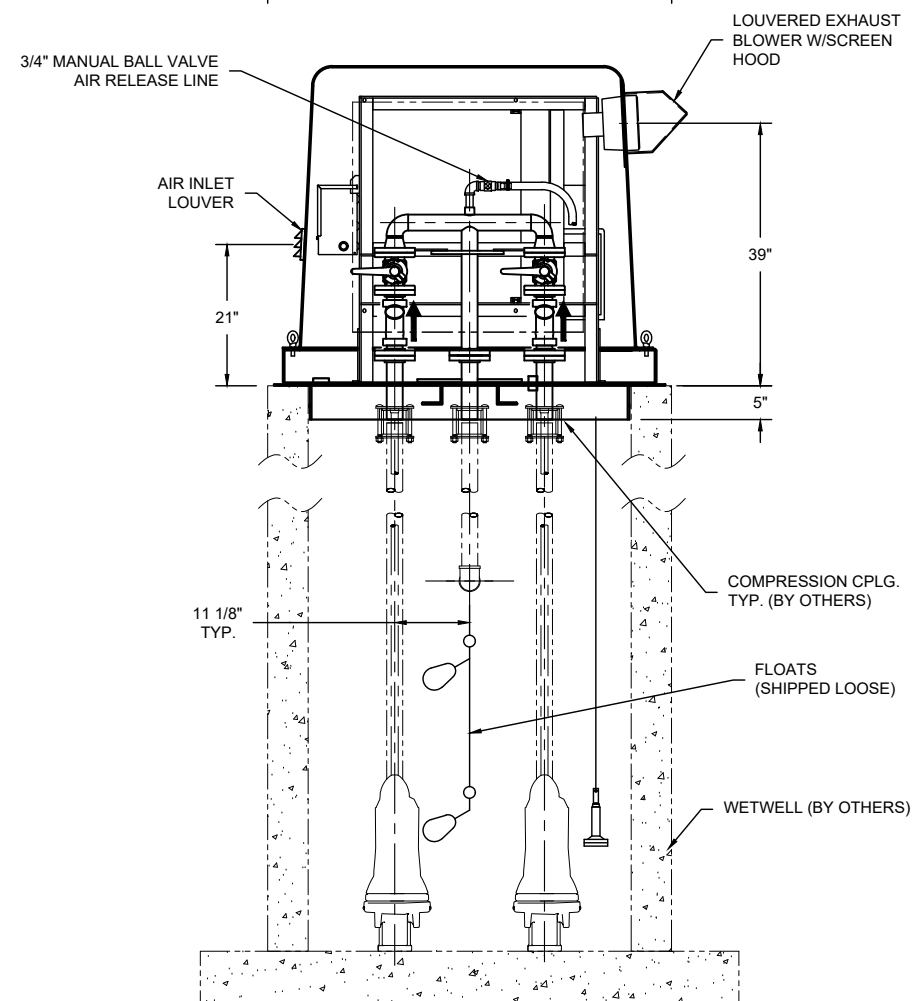
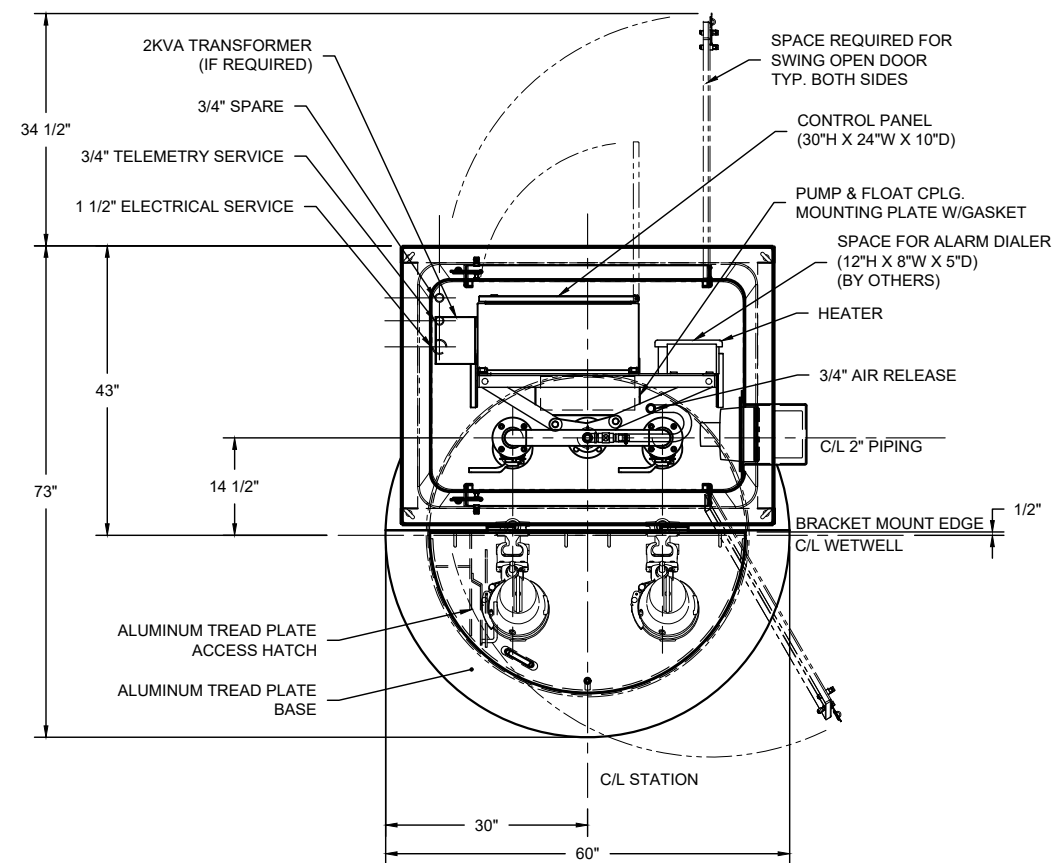
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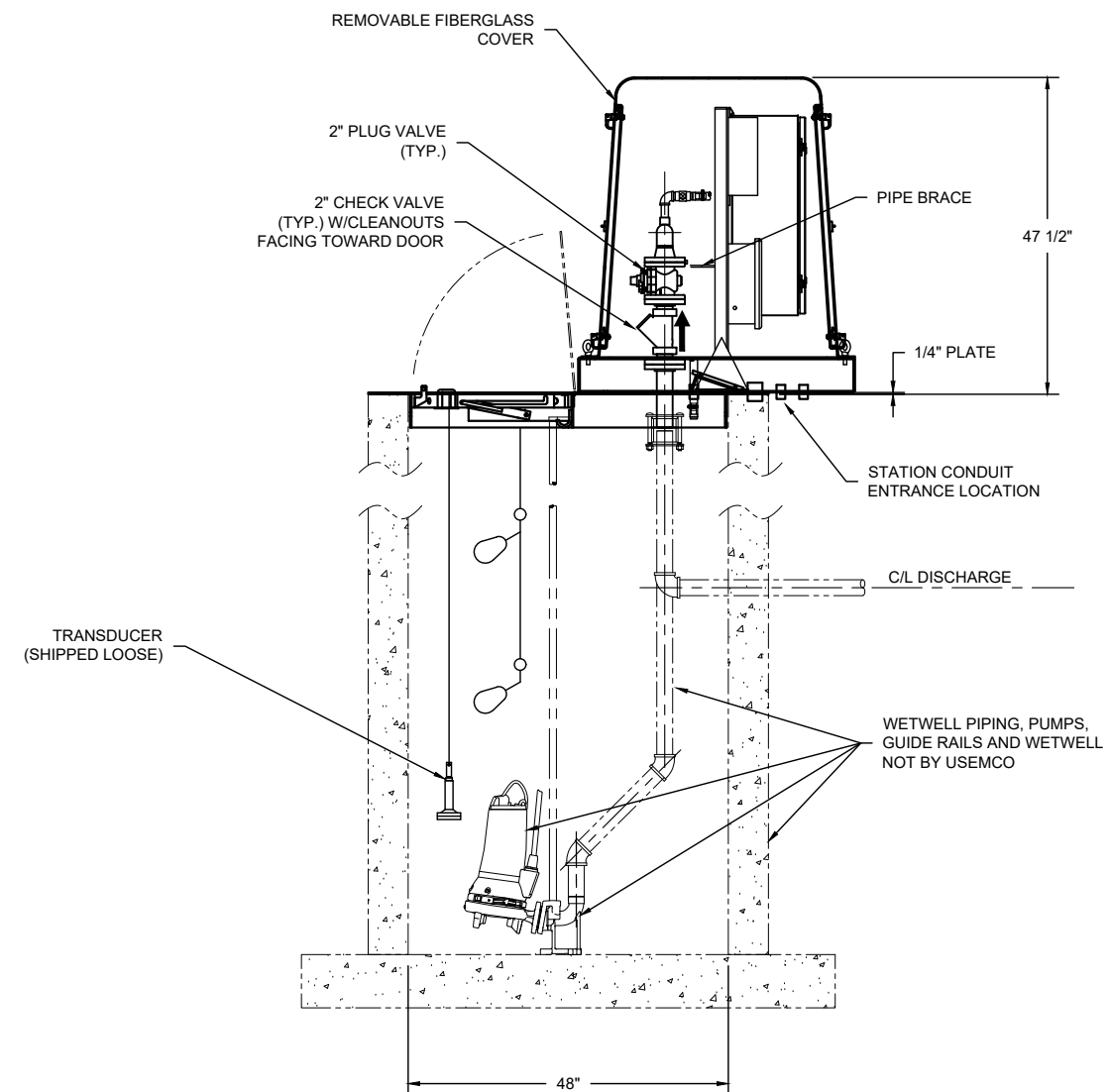
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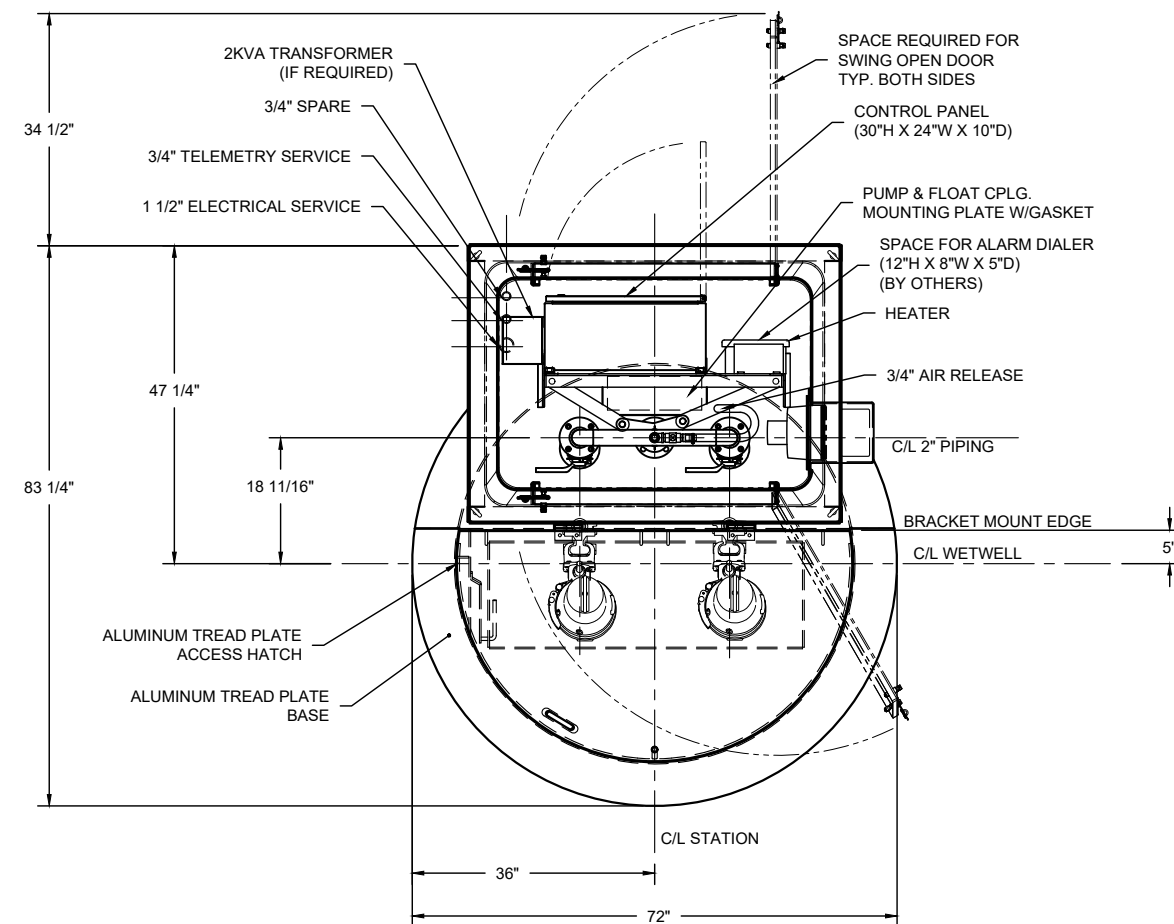


PAINT REQUIREMENTS
 PIPING EXTERIOR AND STEEL SURFACES
 APPLY 6 MILS EPOXY ENAMEL

CONDUITS REQUIRED:
 1 1/2" ELECTRICAL SERVICE
 3/4" TELEMETRY SERVICE
 3/4" SPARE

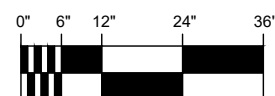
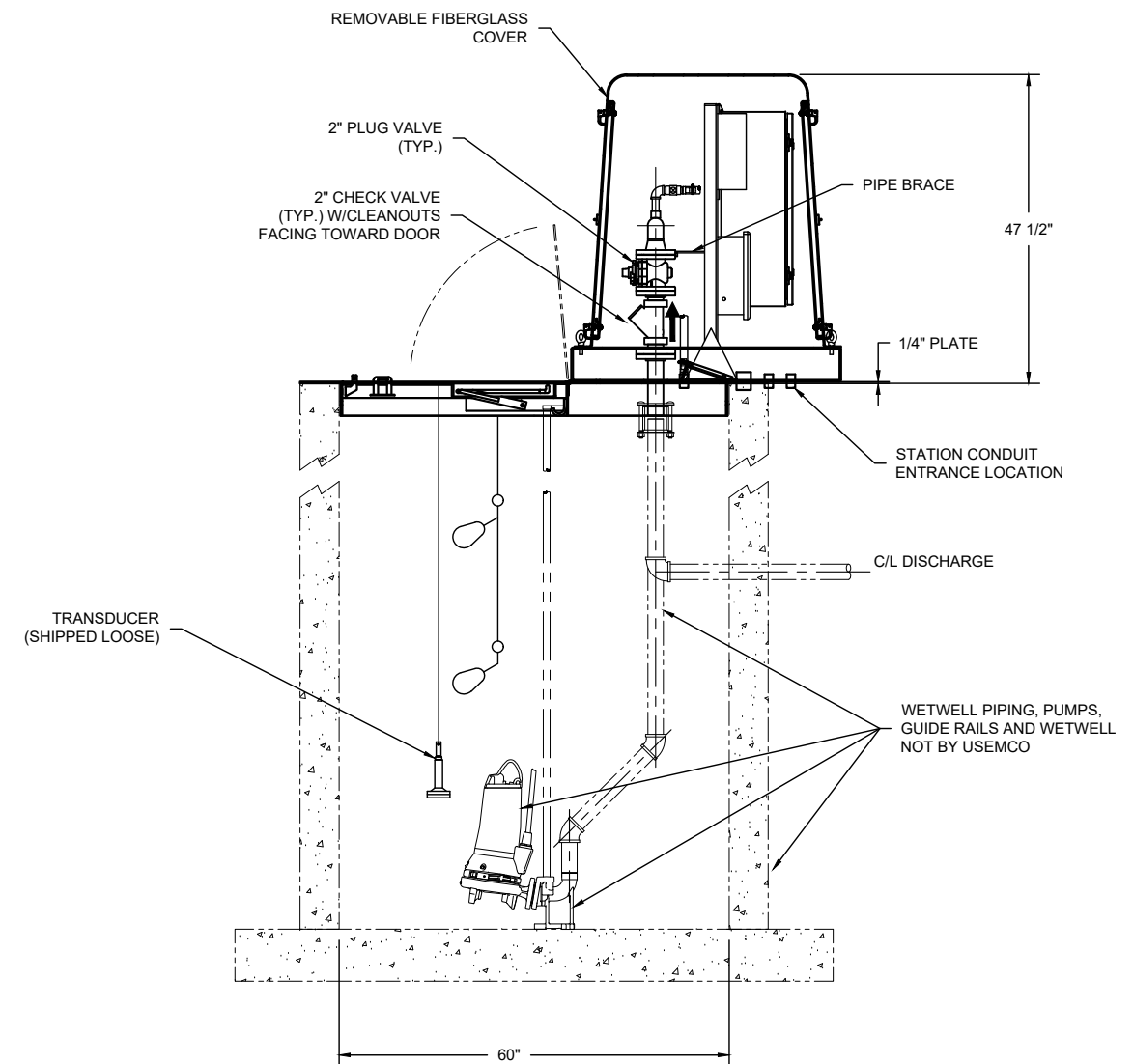
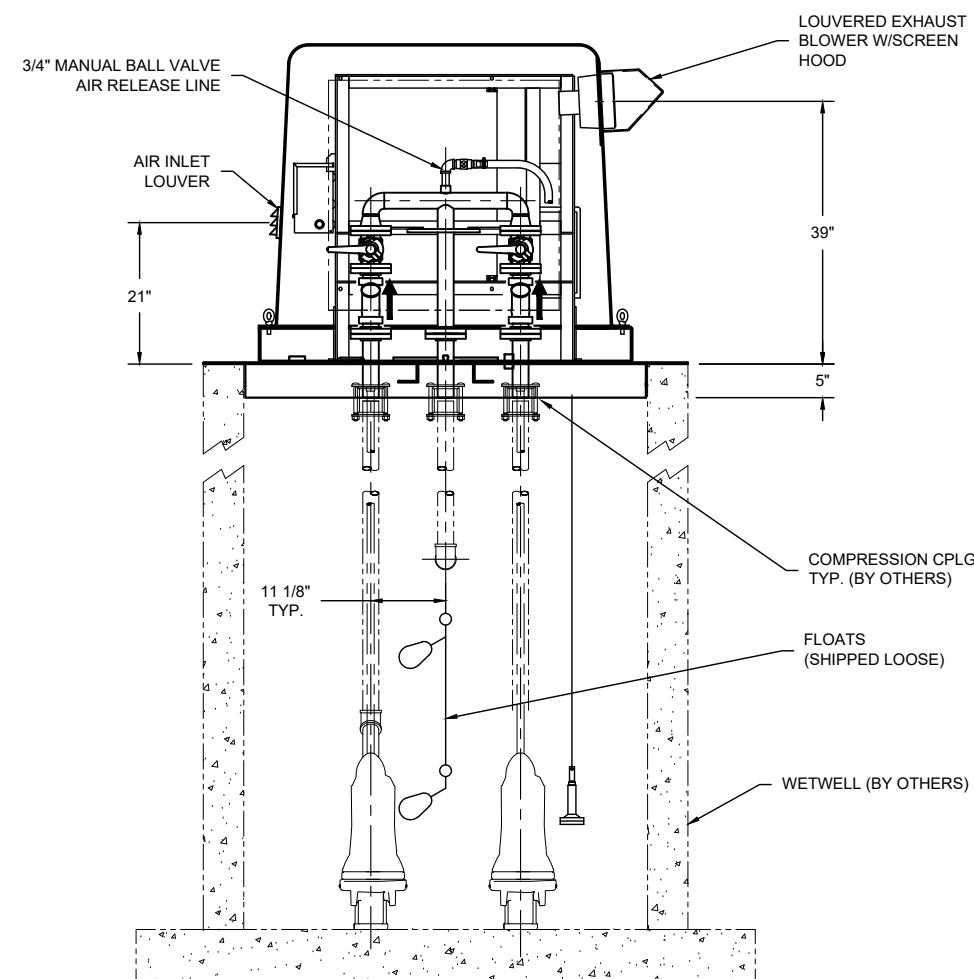


REV. NO.	REVISION	BY	DATE	DESIGNED BY:	DATE	USEMCO USEMCO INCORPORATED P.O. BOX 550 (608) 372-5911 TOMAH WI. 54660 DESCRIPTION TOP VAULT 48" WETWELL, 2" PIPING	CODE NO. 500997.4820 F7
		CHKD		DRAWN BY:	DATE		
				DS	6/23		
				CHECKED BY:	DATE		
				BD	22		
				SCALE		DWG. NO.	

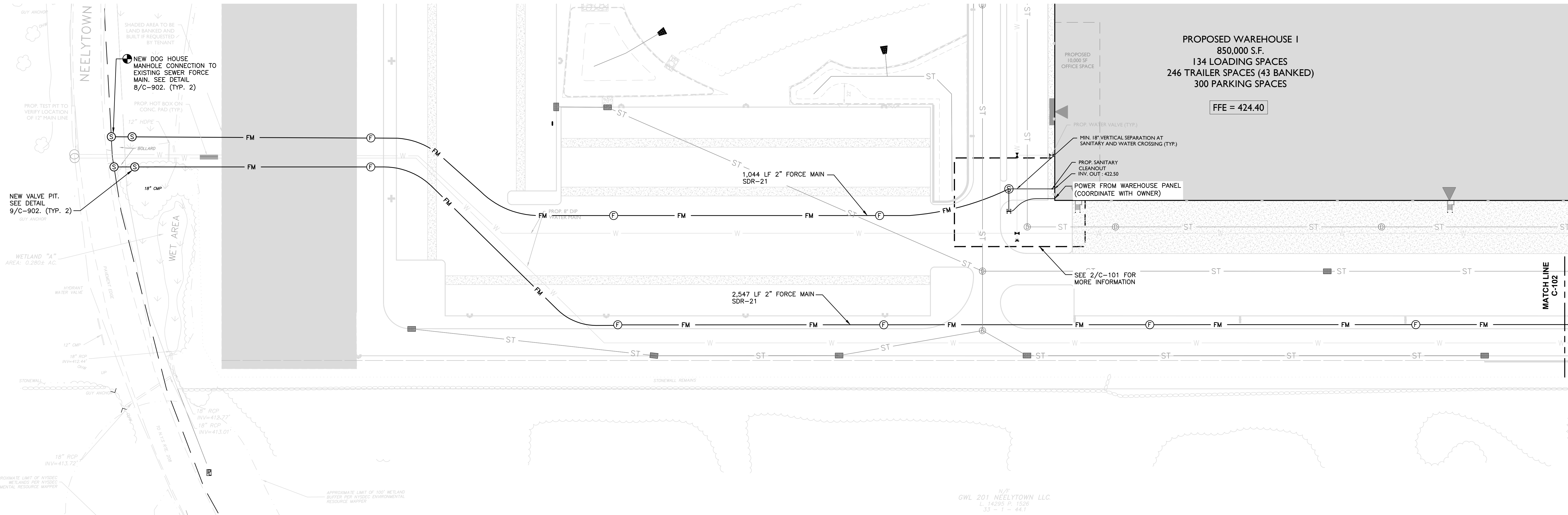


CONDUITS REQUIRED:
 1 1/2" ELECTRICAL SERVICE
 3/4" TELEMETRY SERVICE
 3/4" SPARE

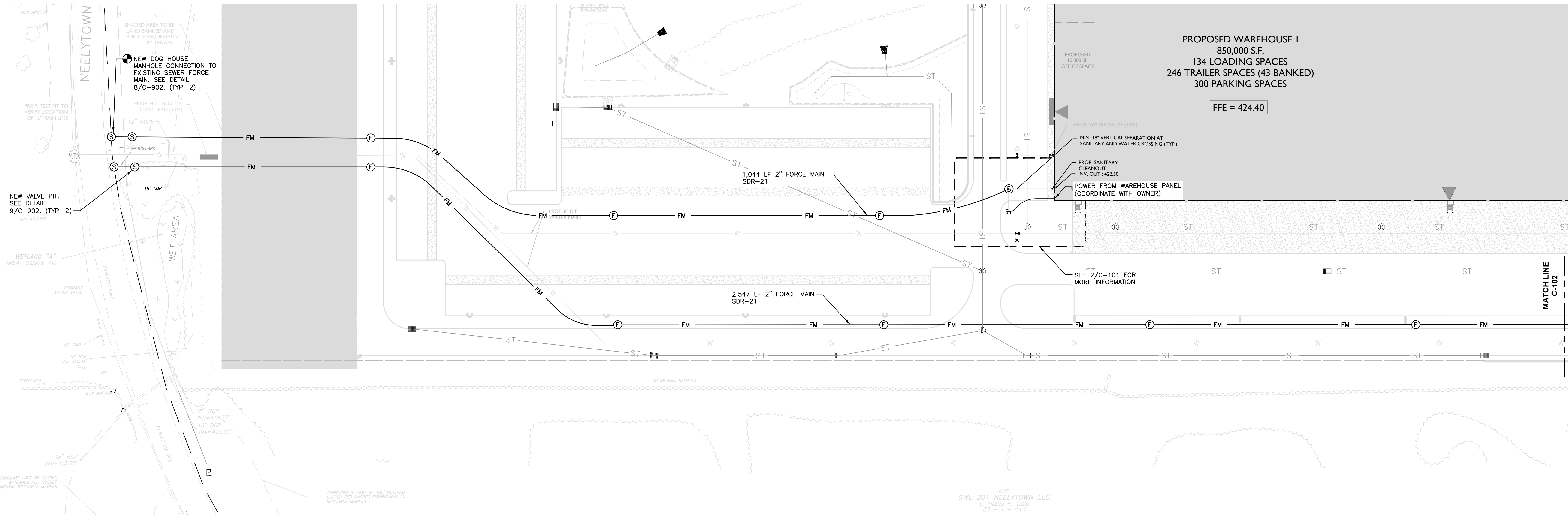
PAINT REQUIREMENTS
 PIPING EXTERIOR AND STEEL SURFACES
 APPLY 6 MILS EPOXY ENAMEL



REV. NO.	REVISION	BY	DATE	DESIGNED BY:	DATE	USEMCO USEMCO INCORPORATED P.O. BOX 550 (608) 372-5911 TOMAH WI. 54660	
		CHKD		DRAWN BY:	DATE		
				DS	6/23	DESCRIPTION TOP VAULT 60" WETWELL, 2" PIPING	
				CHECKED BY:	DATE		
				BD	22	DWG. NO. 500997.6020 CODE NO. F7	
				SCALE			



1 SITE PLAN
1"=50'



2 PUMP STATION 1 AREA
1"=10'

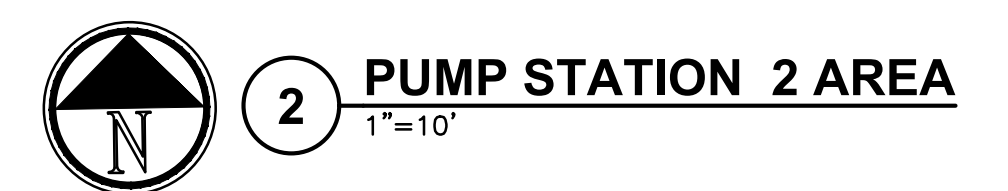
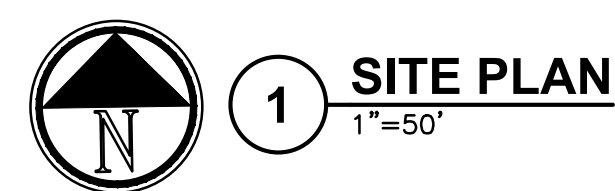
LEGEND:

— G —	GASLINE
— ST —	STORMLINE
— COM —	TELECOMMUNICATIONS
— UGE —	UNDERGROUND ELECTRIC
— W —	WATERLINE
— UGE —	PROPOSED UNDERGROUND ELECTRIC
— SAN —	PROPOSED SEWER LINE
— FM —	PROPOSED SANITARY FORCEMAIN
⊙	EXISTING SANITARY MANHOLE
⊙	PROPOSED SANITARY MANHOLE
⊕	PROPOSED FLUSHING MANHOLE
⊞	EXISTING CATCH BASIN
⊞	EXISTING WELL
⊞	EXISTING DRAINAGE MANHOLE

REV #	DATE	REMARKS:	ISSUE #	DATE	ISSUED FOR:
1/8" 1/4" 1/2" 0 1" 2" REFERENCE SCALE					
UNAUTHORIZED ALTERATION OR ADDITION TO A PLAN BEARING A LICENSED PROFESSIONAL ENGINEER'S SEAL IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2 OF THE N.Y. STATE EDUCATION LAW.					
FELLENZER ENGINEERING LLP 22 Mulberry St., Suite 2A, Middletown, NY 10940 t 845-343-1481 fx 845-343-4986 181 Church St., Suite 100, Poughkeepsie, NY 12601 t 845-454-9704 fx 855-320-8735 www.felip.com					
PROJECT TITLE: NEELYTOWN BUSINESS PARK TOWN OF MONTGOMERY, ORANGE COUNTY, NEW YORK					
DRAWING TITLE: SITE PLAN					
DESIGNED BY: JB	DRAWN BY: VMB	APPROVED BY PM: RDF	APPROVED BY PG: MDF	DRAWING #: C-101	
DATE: 02/20/2026	SCALE: AS SHOWN	FE PROJECT #: 25-168	PAGE 1 OF 5		



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2/27/26
FOR PLANNING BOARD



_____ G _____	GASLINE
_____ ST _____	STORMLINE
_____ COM _____	TELECOMMUNICATIONS
----- UGE -----	UNDERGROUND ELECTRIC
_____ W _____	WATERLINE
----- UGE -----	PROPOSED UNDERGROUND ELECTRIC
_____ SAN _____	PROPOSED SEWER LINE
_____ FM _____	PROPOSED SANITARY FORCEMAIN
Ⓒ	EXISTING SANITARY MANHOLE
Ⓔ	PROPOSED SANITARY MANHOLE
Ⓕ	PROPOSED FLUSHING MANHOLE
	EXISTING CATCH BASIN
Ⓖ	EXISTING WELL
Ⓓ	EXISTING DRAINAGE MANHOLE

[illegible]

OSHA REQUIREMENTS

- (1) SOIL CLASSIFICATION. SOIL AND ROCK DEPOSITS SHALL BE CLASSIFIED IN ACCORDANCE WITH APPENDIX A TO SUBPART P OF PART 1926.
- (2) MAXIMUM ALLOWABLE SLOPE. THE MAXIMUM ALLOWABLE SLOPE FOR A SOIL OR ROCK DEPOSIT SHALL BE DETERMINED FROM TABLE B-1 OF THIS APPENDIX.
- (3) ACTUAL SLOPE. (i) THE ACTUAL SLOPE SHALL NOT BE STEEPER THAN THE MAXIMUM ALLOWABLE SLOPE.
- (ii) THE ACTUAL SLOPE SHALL BE LESS STEEP THAN THE MAXIMUM ALLOWABLE SLOPE, WHEN THERE ARE SIGNS OF DISTRESS. IF THAT SITUATION OCCURS, THE SLOPE SHALL BE CUT BACK TO AN ACTUAL SLOPE WHICH IS AT LEAST ½ HORIZONTAL TO ONE VERTICAL (½H:1V) LESS STEEP THAN THE MAXIMUM ALLOWABLE SLOPE.
- (iii) WHEN SURCHARGE LOADS FROM STORED MATERIAL OR EQUIPMENT, OPERATING EQUIPMENT, OR TRAFFIC ARE PRESENT, A COMPETENT PERSON SHALL DETERMINE THE DEGREE TO WHICH THE ACTUAL SLOPE MUST BE REDUCED BELOW THE MAXIMUM ALLOWABLE SLOPE, AND SHALL ASSURE THAT SUCH REDUCTION IS ACHIEVED. SURCHARGE LOADS FROM ADJACENT STRUCTURES SHALL BE EVALUATED IN ACCORDANCE WITH § 1926.651(i).
- (4) CONFIGURATIONS. CONFIGURATIONS OF SLOPING AND BENCHING SYSTEMS SHALL BE IN ACCORDANCE WITH FIGURE B-1.

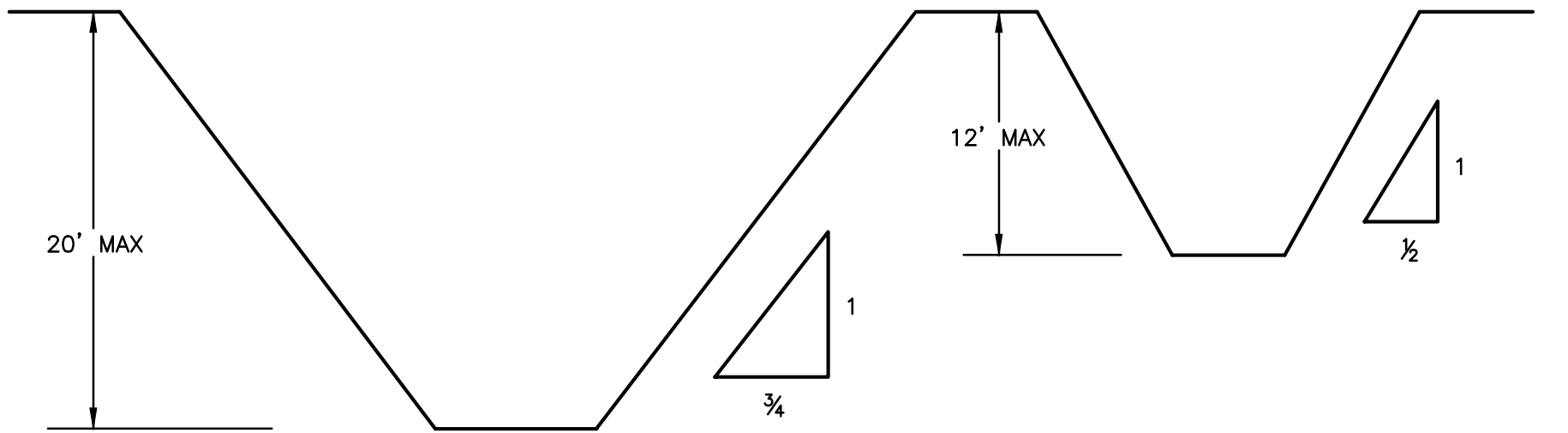
TABLE B-1- MAXIMUM ALLOWABLE SLOPES

SOIL OR ROCK TYPE	MAXIMUM ALLOWABLE SLOPES (H:V) ¹ FOR EXCAVATION LESS THAN 20 FEET DEEP ³
STABLE ROCK	VERTICAL (90 DEG.)
TYPE A ²	3/4:1 (53 DEG.)
TYPE B	1:1 (45 DEG)
TYPE C	1 1/2 :1 (34 DEG)

- (1) NUMBERS SHOWN IN PARENTHESES NEXT TO MAXIMUM ALLOWABLE SLOPES ARE ANGLES EXPRESSED IN DEGREES FROM THE HORIZONTAL. ANGLES HAVE BEEN ROUNDED OFF.
- (2) A SHORT-TERM MAXIMUM ALLOWABLE SLOPE OF 1/2H:1V (63°) IS ALLOWED IN EXCAVATIONS IN TYPE A SOIL THAT ARE 12 FEET (3.67 M) OR LESS IN DEPTH. SHORT-TERM MAXIMUM ALLOWABLE SLOPES FOR EXCAVATIONS GREATER THAN 12 FEET (3.67 M) IN DEPTH SHALL BE 3/4H:1V (53°).
- (3) SLOPING OR BENCHING FOR EXCAVATIONS GREATER THAN 20 FEET DEEP SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER.

EXCAVATIONS MADE IN TYPE A SOIL

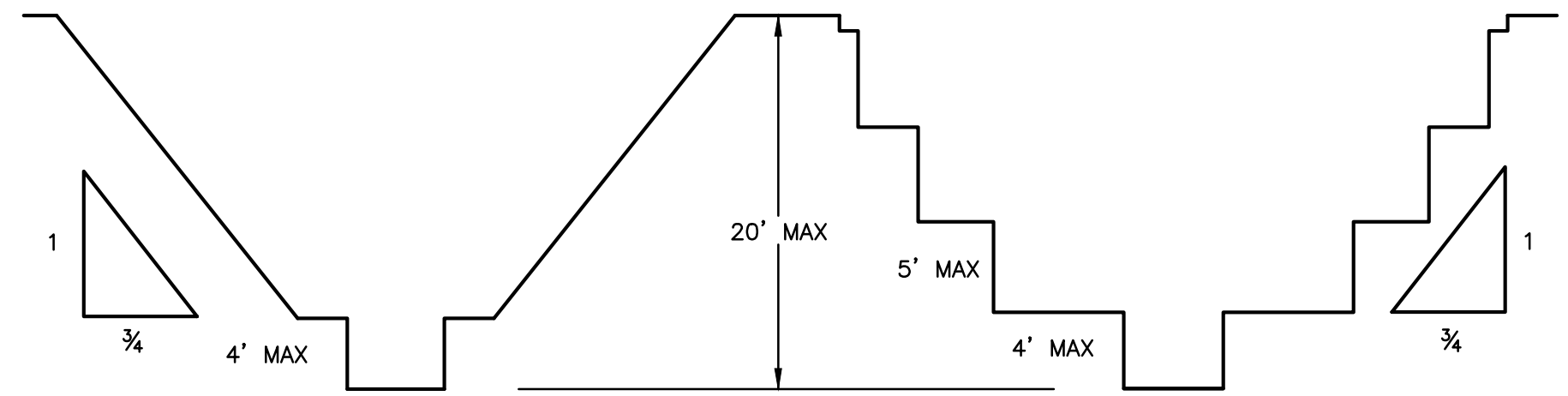
1. ALL SIMPLE SLOPE EXCAVATION 20 FEET OR LESS IN DEPTH SHALL HAVE A MAXIMUM ALLOWABLE SLOPE OF ¾:1.
- EXCEPTION: SIMPLE SLOPE EXCAVATIONS WHICH ARE OPEN 24 HOURS OR LESS (SHORT TERM) AND WHICH ARE 12 FEET OR LESS IN DEPTH SHALL HAVE A MAXIMUM ALLOWABLE SLOPE OF ½:1.



SIMPLE SLOPE-GENERAL

SIMPLE SLOPE-SHORT TERM

2. ALL BENCHED EXCAVATIONS 20 FEET OR LESS IN DEPTH SHALL HAVE A MAXIMUM ALLOWABLE SLOPE OF 3/4 TO 1 AND MAXIMUM BENCH DIMENSIONS AS FOLLOWS:



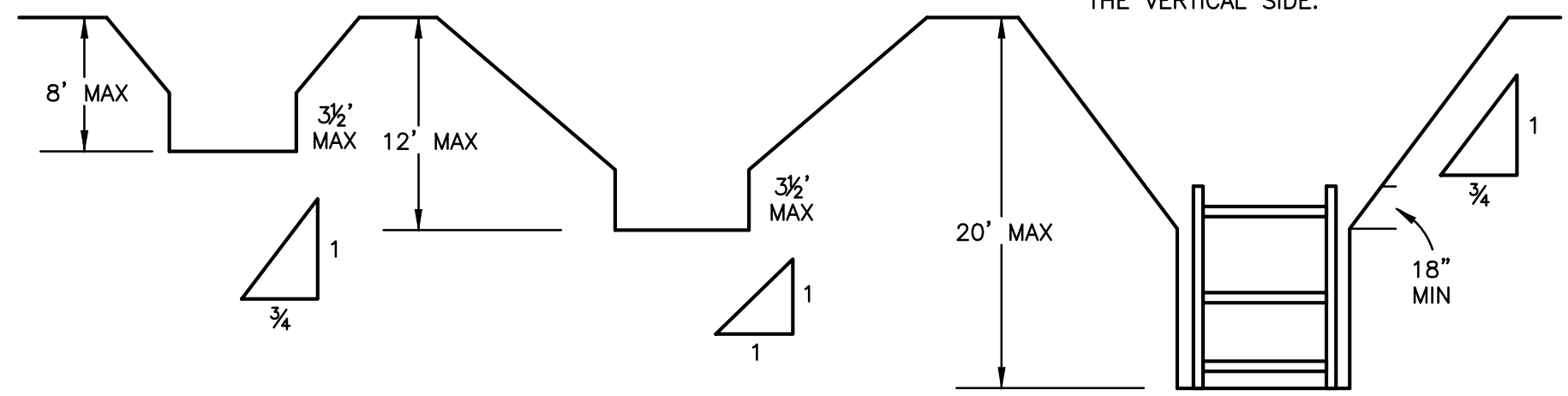
SIMPLE BENCH

MULTIPLE BENCH

3. ALL EXCAVATIONS 8 FEET OR LESS IN DEPTH WHICH HAVE UNSUPPORTED VERTICALLY SIDED LOWER PORTIONS SHALL HAVE A MAXIMUM VERTICAL SIDE OF 3 ½ FEET.

- ALL EXCAVATIONS MORE THAN 8 FEET BUT NOT MORE THAN 12 FEET IN DEPTH WITH UNSUPPORTED VERTICALLY SIDED LOWER PORTIONS SHALL HAVE A MAXIMUM ALLOWABLE SLOPE OF 1:1 AND A MAXIMUM VERTICAL SIDE OF 3 ½ FEET.

- ALL EXCAVATIONS 20 FEET OR LESS IN DEPTH WHICH HAVE VERTICALLY SIDED LOWER PORTIONS THAT ARE SUPPORTED OR SHIELDED SHALL HAVE A MAXIMUM ALLOWABLE SLOPE OF ¾:1. THE SUPPORT OR SHIELD SYSTEM MUST EXTEND AT LEAST 18 INCHES ABOVE THE TOP OF THE VERTICAL SIDE.



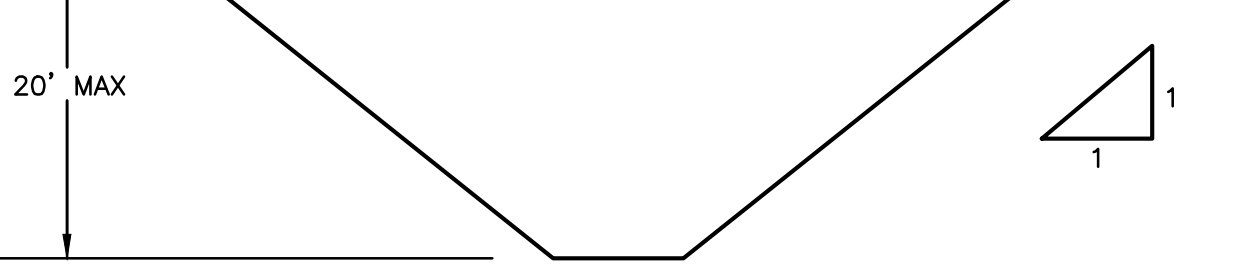
UNSUPPORTED VERTICALLY SIDED LOWER PORTION -- MAXIMUM 8 FEET IN DEPTH)

UNSUPPORTED VERTICALLY SIDED LOWER PORTION -- MAXIMUM 12 FEET IN DEPTH)

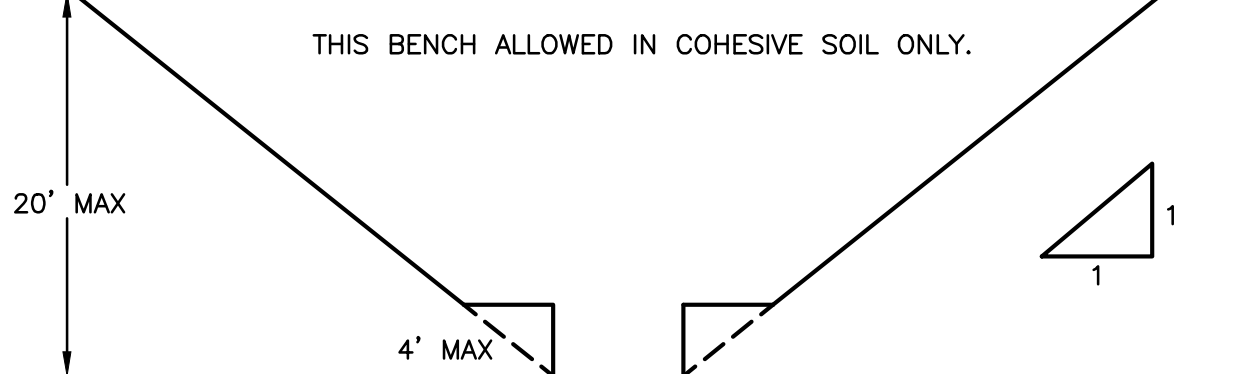
SUPPORTED OR SHIELDED VERTICALLY SIDED LOWER PORTION

EXCAVATIONS MADE IN TYPE B SOIL

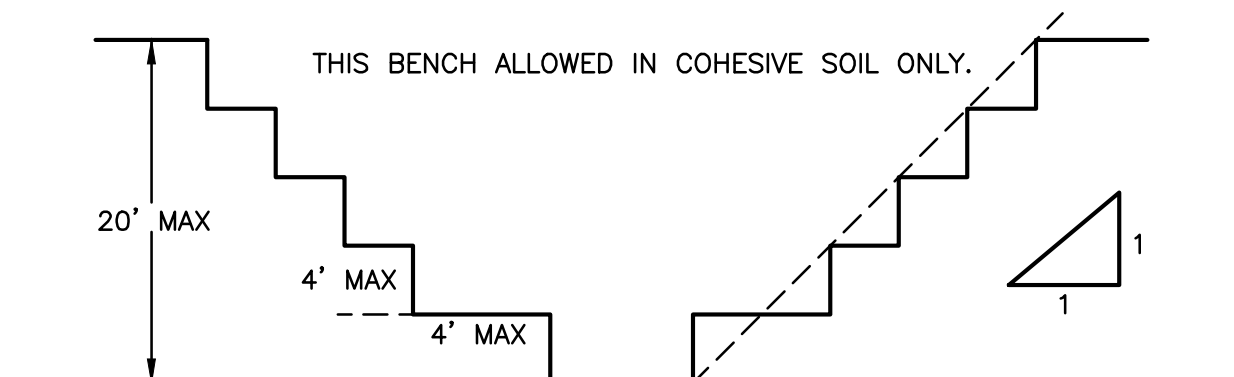
1. ALL SIMPLE SLOPE EXCAVATION 20 FEET OR LESS IN DEPTH SHALL HAVE A MAXIMUM ALLOWABLE SLOPE OF ¾:1.



SIMPLE SLOPE

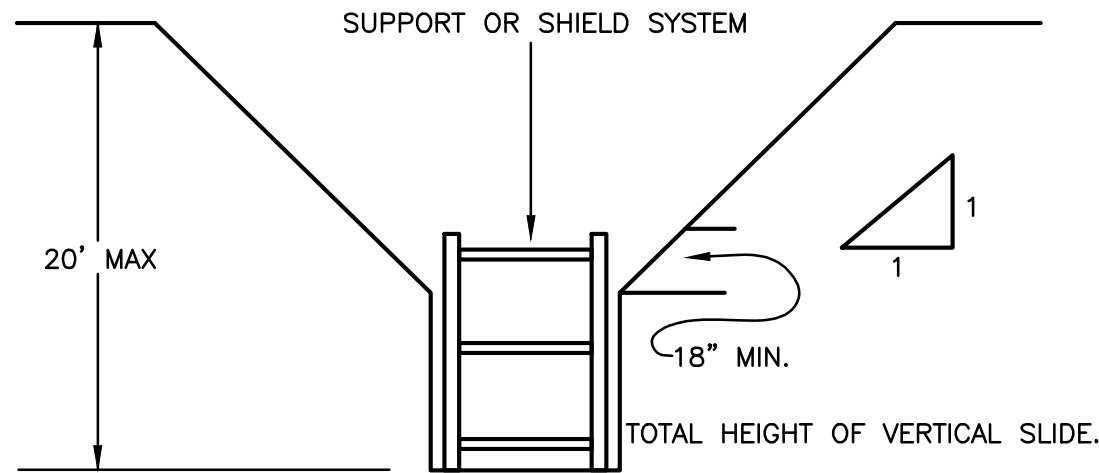


SINGLE BENCH



MULTIPLE BENCH

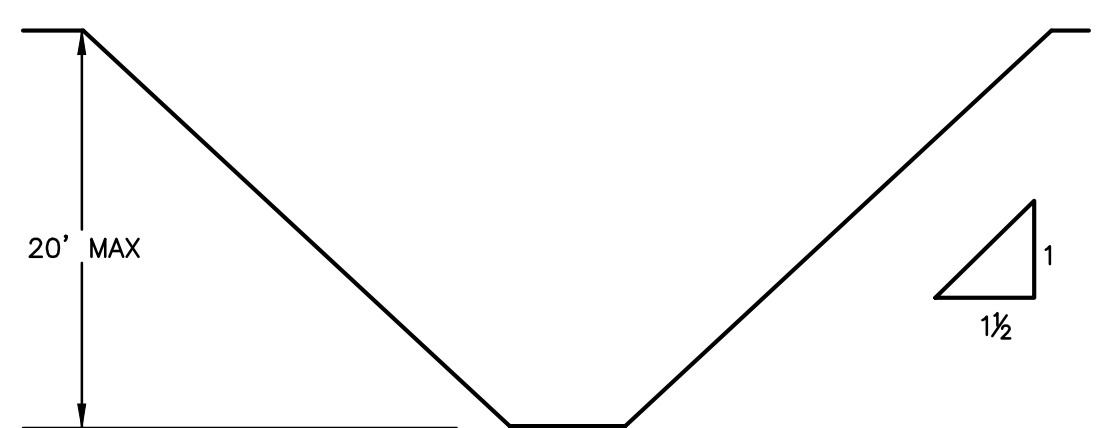
2. ALL BENCHED EXCAVATIONS 20 FEET OR LESS IN DEPTH SHALL HAVE A MAXIMUM ALLOWABLE SLOPE OF 1:1 AND MAXIMUM BENCH DIMENSIONS AS FOLLOWS:



VERTICAL SIDED LOWER PORTION

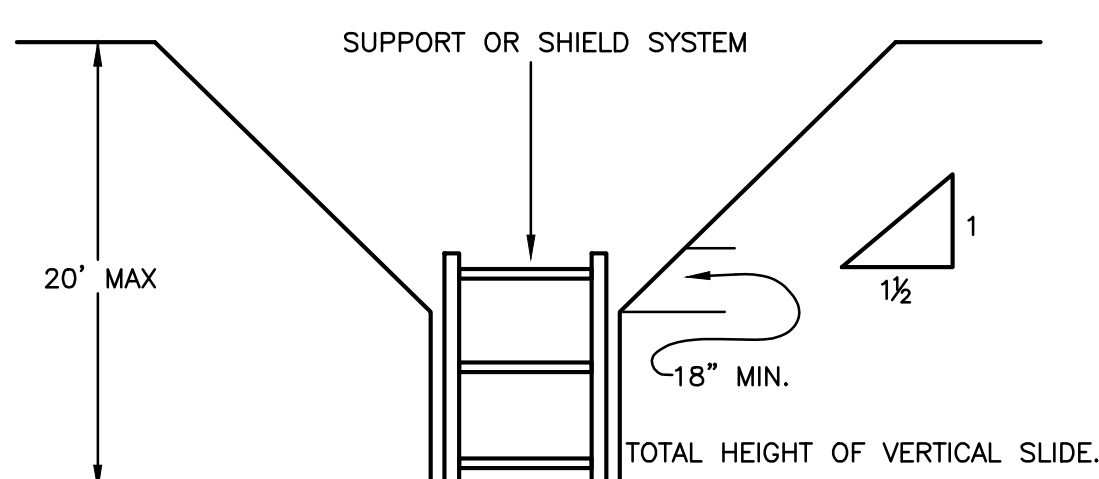
4. ALL OTHER SLOPED EXCAVATIONS SHALL BE IN ACCORDANCE WITH THE OTHER OPTIONS PERMITTED IN § 1926.652(B).

EXCAVATIONS MADE IN TYPE C SOIL



SIMPLE SLOPE

2. ALL EXCAVATIONS 20 FEET OR LESS IN DEPTH WHICH HAVE VERTICALLY SIDED LOWER PORTIONS SHALL BE SHIELDED OR SUPPORTED TO A HEIGHT AT LEAST 18 INCHES ABOVE THE TOP OF THE VERTICAL SIDE. ALL SUCH EXCAVATIONS SHALL HAVE A MAXIMUM ALLOWABLE SLOPE OF 1 ½:1.



VERTICAL SIDED LOWER PORTION

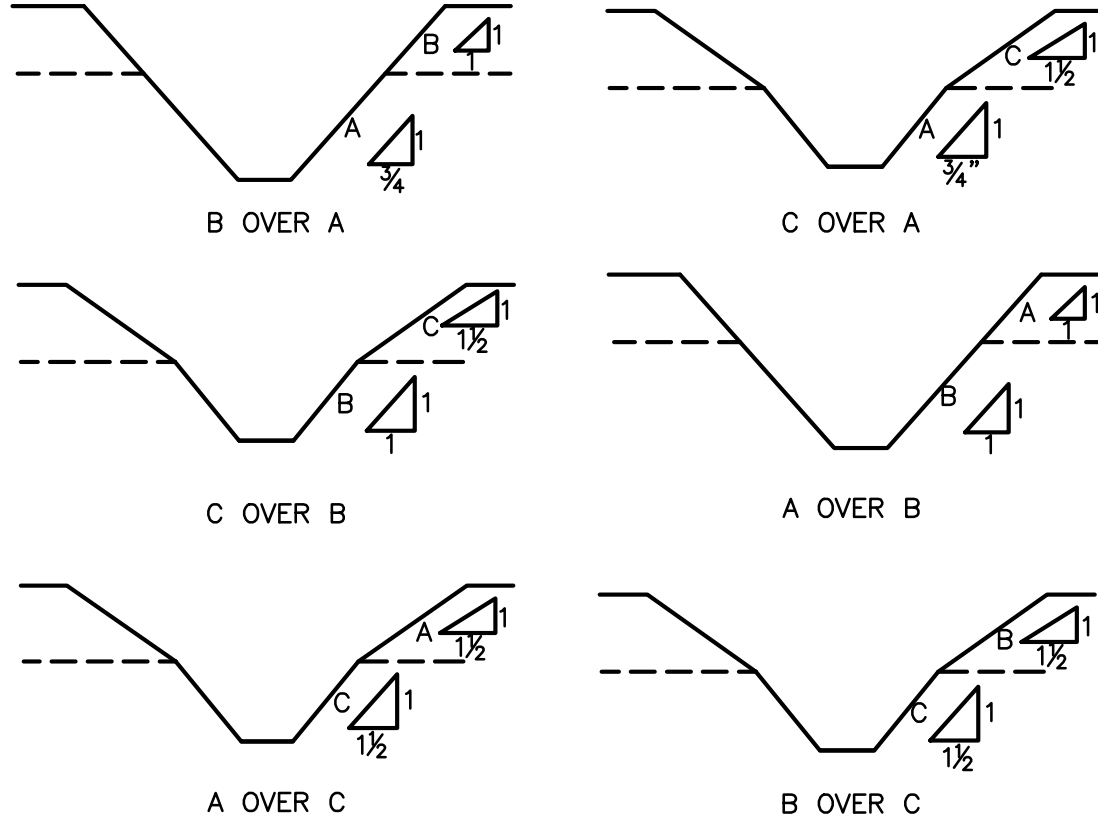
3. ALL OTHER SLOPED EXCAVATIONS SHALL BE IN ACCORDANCE WITH THE OTHER OPTIONS PERMITTED IN § 1926.652(B).

SITE - CIVIL GENERAL NOTES:

1. CONTRACTOR, AT THEIR OWN EXPENSE, SHALL ABIDE BY THE LATEST EDITIONS OF ALL OSHA REGULATIONS AND REQUIREMENTS.
2. THERE SHALL BE NO CLAIMS AGAINST OWNER FOR WORK STOPPAGES DUE TO ACTS OF GOD, WEATHER CONDITIONS, STOP WORK ORDERS (VERBAL AND/OR WRITTEN), UNDERESTIMATION OF WORK, ESTIMATED QUANTITIES, MATERIALS, SUPPLIES, TOOLS, CORRECTION OF SAFETY PROBLEMS, OR ANY OTHER REASON.
3. ALL QUANTITIES SHOWN ON THE DRAWING ARE ESTIMATED QUANTITIES ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY AND ASCERTAIN ALL EXISTING CONDITIONS, DIMENSIONS AND QUANTITIES.
4. ALL WORK SHALL BE PERFORMED BY THOSE WHO ARE SKILLED IN THEIR TRADE TO PRODUCE A FIRST CLASS JOB. THE CONTRACTOR IS ADVISED THAT WORK DEEMED UNSUITABLE, UNACCEPTABLE, SECOND CLASS IN NATURE BY OWNER SHALL BE DEEMED NON-ACCEPTABLE AND THE CONTRACTOR SHALL REMOVE, REPLACE, RE-DO, TO THE SATISFACTION OF OWNER. THE UNACCEPTABLE WORK AT NO ADDITIONAL COST TO THE OWNER. THERE SHALL BE NO ADDITIONAL CLAIMS AGAINST OWNER FOR THE ABOVE.
5. ROAD WAYS, BUILDING EMERGENCY ACCESS AREAS, AND BUILDING ENTRY AND EXITS AREAS ARE TO BE KEPT CLEAR AT ALL TIMES.
6. CONTRACTOR SHALL USE DIG SAFELY NY. "CALL 811".
7. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY AND ASCERTAIN IN THE FIELD, ALL EXISTING UTILITIES, EXISTING CONDITIONS, FIELD MEASUREMENTS, DIMENSIONS, AND QUANTITIES RELATED TO THE PROJECT.
8. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY AND ASCERTAIN THE LOCATION, DEPTH, DIRECTION, AND SIZE OF ANY AND ALL UTILITIES EXISTING IN THE GENERAL VICINITY OF THE WORK AREA.
9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR ANY UTILITY DISRUPTED, BROKEN OR OTHERWISE RENDERED NON-FUNCTIONAL DUE TO THE WORK PERFORMED AT NO ADDITIONAL COST TO OWNER DURING THIS COURSE OF WORK.
10. THE CONTRACTOR SHALL IDENTIFY ANY NON-FUNCTIONING UTILITY/SYSTEM, PRIOR TO THE START OF WORK TO OWNER. IDENTIFICATION OF SUCH AFTER THE START OF WORK SHALL BE DEEMED AS DISTURBED/DAMAGED BY THE CONTRACTOR AND SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR.
11. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROPERLY SUPPORT ANY UTILITY ENCOUNTERED IN THE COURSE OF THIS WORK.
12. THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT AT THE CONTRACTOR'S EXPENSE.
13. THE CONTRACTOR SHALL ADD BARRIERS, SECURE ALL EXTERIOR WORK AND STAGING AREAS WITH ACCEPTABLE FENCING.
14. THE CONTRACTOR SHALL NOT LEAVE THE WORK AREA UNATTENDED FOR ANY REASON, UNLESS SAFETY PARTITIONS, SAFETY FENCING AND COVERING FOR ALL OPEN TRENCHES ARE INSTALLED AND SECURED.
15. THE CONTRACTOR SHALL LEAVE THE WORK SITE CLEAN AND SECURED AT THE END OF EACH WORKING DAY. THE WORK SITE SHALL NOT BE LEFT UNATTENDED AT ANY TIME BY THE CONTRACTOR UNLESS THE WORK AREA IS PROPERLY SECURED BY THE CONTRACTOR.
16. THE CONTRACTOR IS ADVISED THAT THEY ARE SOLELY RESPONSIBLE FOR THE SAFETY OF THE WORK SITE AND SHALL TAKE ALL ACTIONS TO ELIMINATE ANY SAFETY HAZARDS THAT SHALL EXIST AND POSE A THREAT OF HARM TO STUDENTS, EMPLOYEES OF OWNER, EMPLOYEES OF THE CONTRACTOR OR OTHER(S). IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO TAKE IMMEDIATE ACTION TO ALLEVIATE ANY SAFETY HAZARD THAT MAY EXIST WITHOUT DIRECTION FROM OWNER.
17. CONTRACTOR SHALL SAW CUT WITH PROPER BLADE ANY ROADS, CURBS AND SIDEWALKS ENCOUNTERED IN THE COURSE OF THIS WORK.
18. ALL HOLES SHALL BE CORE-DRILLED WITH DIAMOND CORE BITS.
19. CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE ANY AND ALL DEBRIS FROM THE SITE DAILY AND DISPOSE OF SAME OFF SITE IN ACCORDANCE WITH ALL LOCAL AND STATE REGULATIONS.
20. THE CONTRACTOR SHALL MAINTAIN THE WORK SITE IN A NEAT AND CLEAN CONDITION. THE WORK SITE SHALL BE CLEANED DAILY OF CONSTRUCTION DEBRIS.
21. SUB-GRADE FILL TO BE COMPACTED TO 95% STANDARD PROCTOR RELATIVE DENSITY AND PAVEMENT AREAS SHALL HAVE SUB-GRADE COMPACTED TO 95% MODIFIED RELATIVE DENSITY PER AASHTO REQUIREMENTS.
22. ALL ESTABLISHED EGRESS ROUTES SHALL REMAIN CLEAR AT ALL TIMES.
23. ALL WORK SHALL BE CONDUCTED WITHIN THE APPROVED FENCING PLAN AREA.
24. ALL CONSTRUCTION VEHICLES WILL HAVE A FUNCTIONING BACKUP ALARM.
25. CONTRACTOR SHALL OBTAIN ALL NECESSARY LOCAL AND STATE PERMITS PRIOR TO COMMENCEMENT OF WORK.
26. THESE DRAWINGS PERTAIN TO THE INDIVIDUAL SANITARY FORCE MAIN DESIGN BETWEEN PUMP STATIONS #1 AND #2 AND ASSOCIATED CONNECTIONS TO THE MUNICIPAL MAIN. ALL OTHER SITE AND UTILITY DESIGN PROVIDED BY OTHERS.

EXCAVATIONS MADE IN LAYERED SOILS

1. ALL EXCAVATIONS 20 FEET OR LESS IN DEPTH MADE IN LAYERED SOILS SHALL HAVE A MAXIMUM ALLOWABLE SLOPE FOR EACH LAYER AS SET FORTH BELOW.

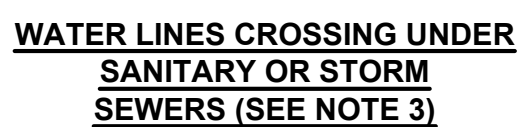
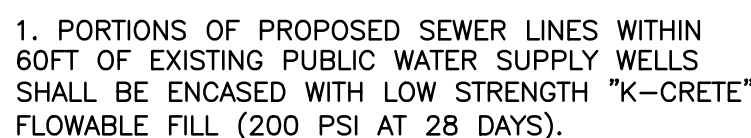
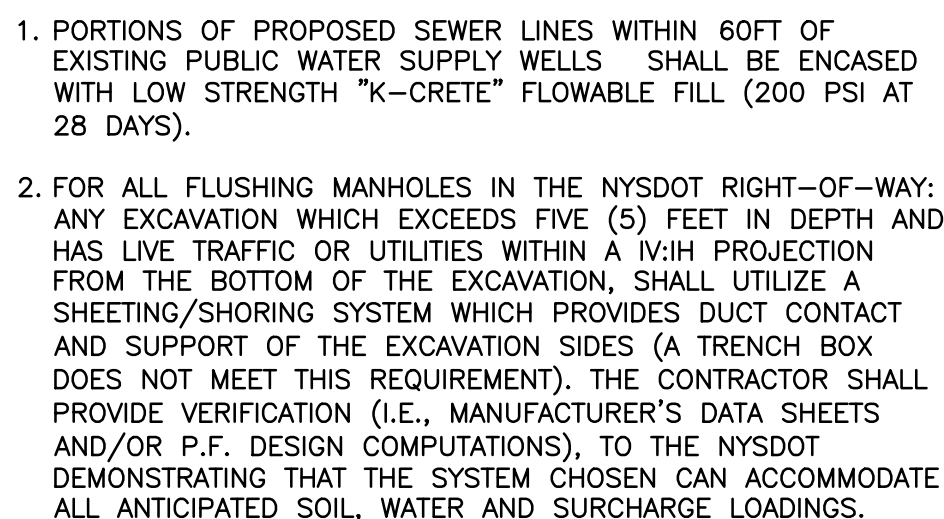


2. ALL OTHER SLOPED EXCAVATIONS SHALL BE IN ACCORDANCE WITH THE OTHER OPTIONS PERMITTED IN § 1926.652(B).

REV #	DATE	REMARKS:	ISSUE #	DATE	ISSUED FOR:
REFERENCE SCALE					
UNAUTHORIZED ALTERATION OR ADDITION TO A PLAN BEARING A LICENSED PROFESSIONAL ENGINEER'S SEAL IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2 OF THE N.Y. STATE EDUCATION LAW.					
FELLENZER III ENGINEERING LLP www.fellp.com 22 Mulberry St., Suite 2A, Middletown, NY 10940 1 845-343-1481 fx 845-343-4986 181 Church St., Suite 100, Poughkeepsie, NY 12601 1 845-454-9704 fx 855-320-8735					
PROJECT TITLE: NEELYTOWN BUSINESS PARK TOWN OF MONTGOMERY, ORANGE COUNTY, NEW YORK					
DRAWING TITLE: DETAILS					
DESIGNED BY: JB	DRAWN BY: JCL	APPROVED BY PM: RDF	APPROVED BY PG: MDF	DRAWING #: C-901	
DATE: 02/20/2026	SCALE: AS SHOWN	FE PROJECT #: 25-168	PAGE 3 OF 5		



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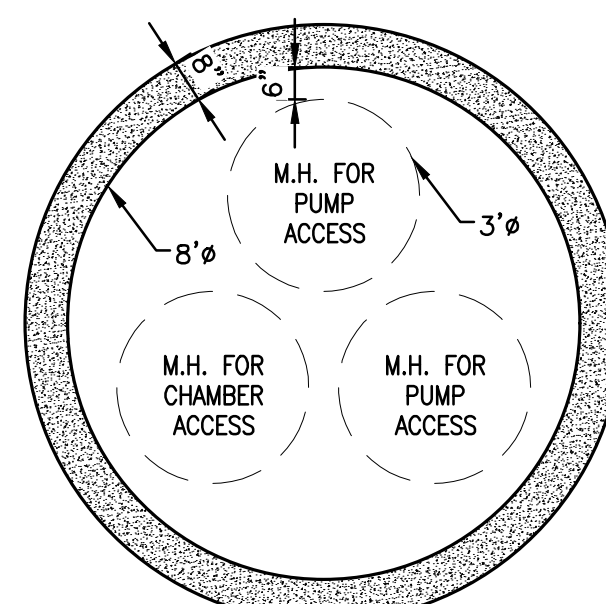


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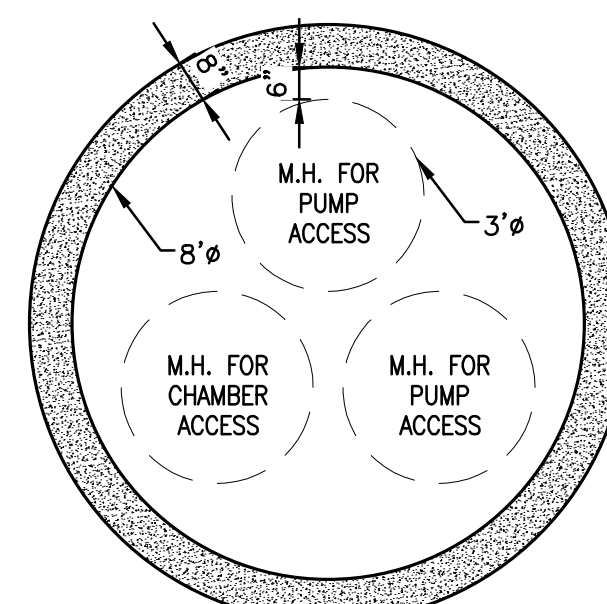
1. WATER LINES CROSSING OVER SANITARY OR STORM SEWERS SHALL HAVE A MINIMUM VERTICAL SEPARATION OF 18 INCHES FROM TOP OF SEWER TO BOTTOM OF WATER LINE.
2. WATER LINES RUNNING PARALLEL TO SANITARY SEWERS SHALL MAINTAIN A VERTICAL SEPARATION OF 18 INCHES FROM THE HORIZONTAL CENTERLINE OF THE SEWER. SANITARY SEWERS LOCATED NEARER THAN THIS MINIMUM SEPARATION REQUIREMENT SHALL BE DUCTILE-IRON, CLASS 30, WITH A MINIMUM WALL THICKNESS OF 4 INCHES.
3. WATER LINES CROSSING UNDER SANITARY OR STORM SEWERS SHALL HAVE:
 - A. A MINIMUM VERTICAL SEPARATION OF 18 INCHES FROM TOP OF WATER LINE TO BOTTOM SEWER (UNLESS SHOWN OTHERWISE).
 - B. ADDITIONAL STRONG SUPPORTS TO PREVENT SEWER TO PREVENT SEWER DEFLECTION.
 - C. THE 18 FOOT LENGTH OF WATER PIPE CENTERED AT THE POINT OF CROSSING SO THAT THE JOINT WILL BE AT LEAST 10 FEET FROM THE CROSSING.



N.T.S.



N.T.S.



N.T.S.



1. ELECTRICAL CONTRACTOR SHALL SUPPLY ALL CONDUIT REQUIRED FROM POWER SUPPLY TO CONTROL PANEL TO PROVIDE A FULLY COMPLETE AND OPERABLE SYSTEM.
2. ALL UNISTRUTS SHALL BE OF HEAVY GAUGE ALUMINUM, AND SHALL BE SIZED TO PROPERLY SUPPORT WEIGHT OF REQUIRED ELECTRICAL PANELS.
3. ALL ELECTRICAL WORK SHALL BE IN CONFORMANCE WITH THE NATIONAL ELECTRIC CODE.
4. ALL CONNECTING HARDWARE SHALL BE STAINLESS STEEL.

N.T.S.



N.T.S.



N.T.S.



LIFT STATION 1
PUMP STATION DESIGN CRITERIA:

- DAILY FLOW OF 14,200 GALLONS.
- 15 DOSES PER DAY
- DOSE VOLUME OF 947 GALLONS
- THE VOLUME OF A 8' X 8' LIFT STATION PER FOOT OF DEPTH IS 375.99 GALLONS, OR 31.33 GALLONS PER INCH
- THE REQUIRED ELEVATION DIFFERENCE BETWEEN PUMP ON AND OFF IS TO BE 30.96 INCHES OR 969.98 GALLONS.
- THE REQUIRED ELEVATION DIFFERENCE BETWEEN PUMP ON #2 AND ALARM LEVEL IS TO BE 2" OR 62.66 GALLONS.
- PROVIDE CONTROLS MOUNTED ON SQUARE-TYPE UNISTRUT STANCHION WITH 3,000 PSI CONCRETE FOOTINGS NEAR PUMP CHAMBER

ITEM	QTY	FACTOR	OF PIPE (IN FEET)
90° ELBOWS**	2	x 6	= 12
45° ELBOWS**	1	x 2.5	= 2.5
TRUE WYE**	2	x 12	= 24
CHECK VALVE**	2	x 13	= 26
GATE VALVE**	2	x 1.5	= 7.5
FEET OF PIPE	1031	x 1	= 1031
TOTAL PIPE LENGTH EQUIVALENT=			1103
FRICTION LOSS PER 100FT. @ 30 GPM			0.66
TOTAL FRICTION LOSS			7.28
VERTICAL ELEVATION FROM PUMP OFF			7.28
PRESSURE REQ.			92
TOTAL DYNAMIC HEAD, MAXIMUM			81.67
MINIMUM FLOW REQUIRED TO MAINTAIN SCOURING VELOCITY OF 2ft/SECOND IN A 2" SIZE PIPE = 20 GPM.			

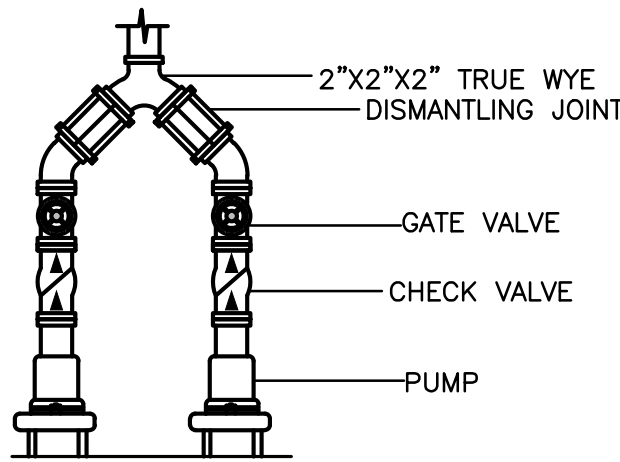
CALCULATION FOR STATIC HEAD LOSS	
LOCATION	ELEVATION(FT)
INVERT(S) IN	420.46
PUMP #2 ON	416.46
PUMP #1 ON	416.29
PUMP OFF	413.17
TOTAL	406.1-413.71
	-7.61

LIFT STATION 2
PUMP STATION DESIGN CRITERIA:

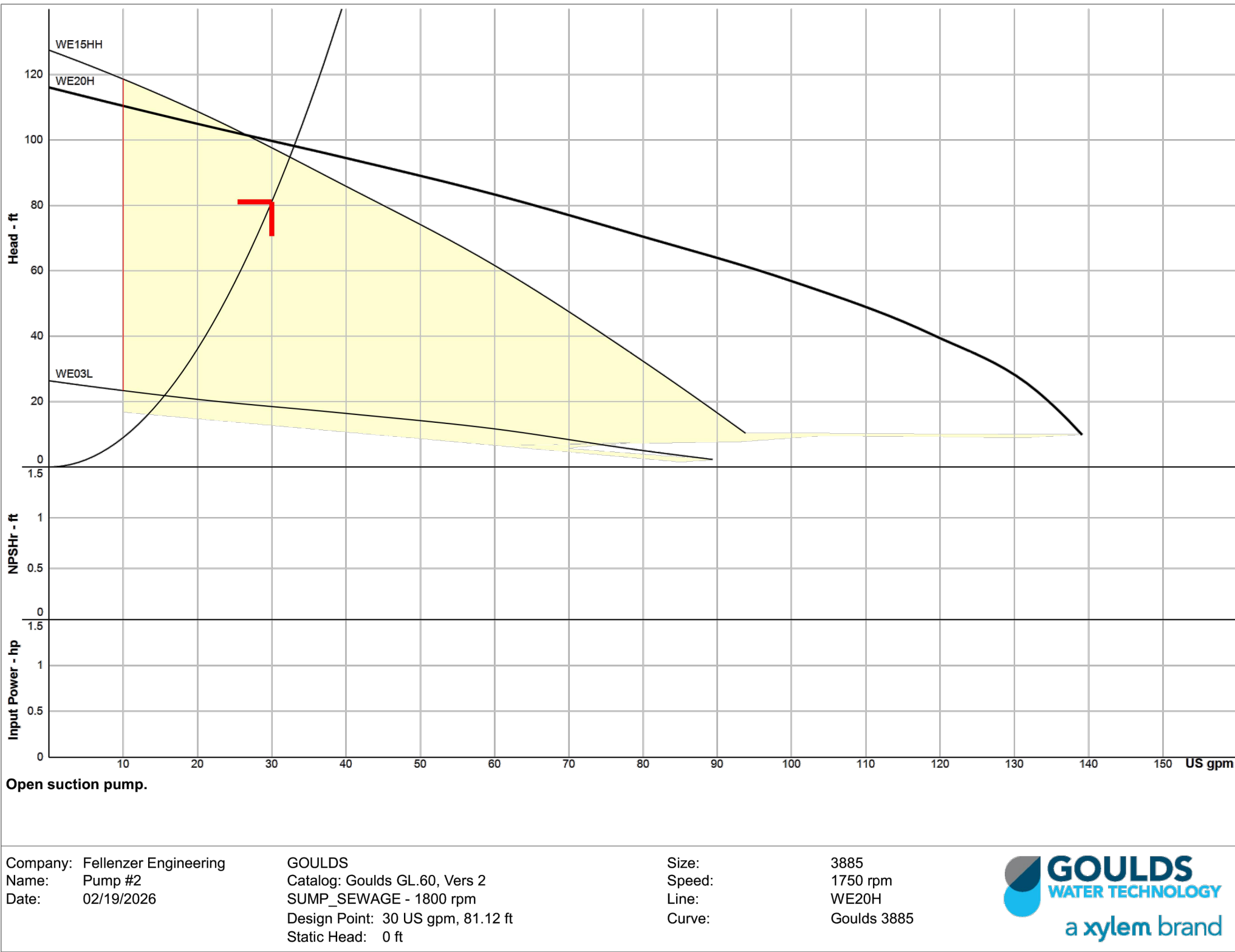
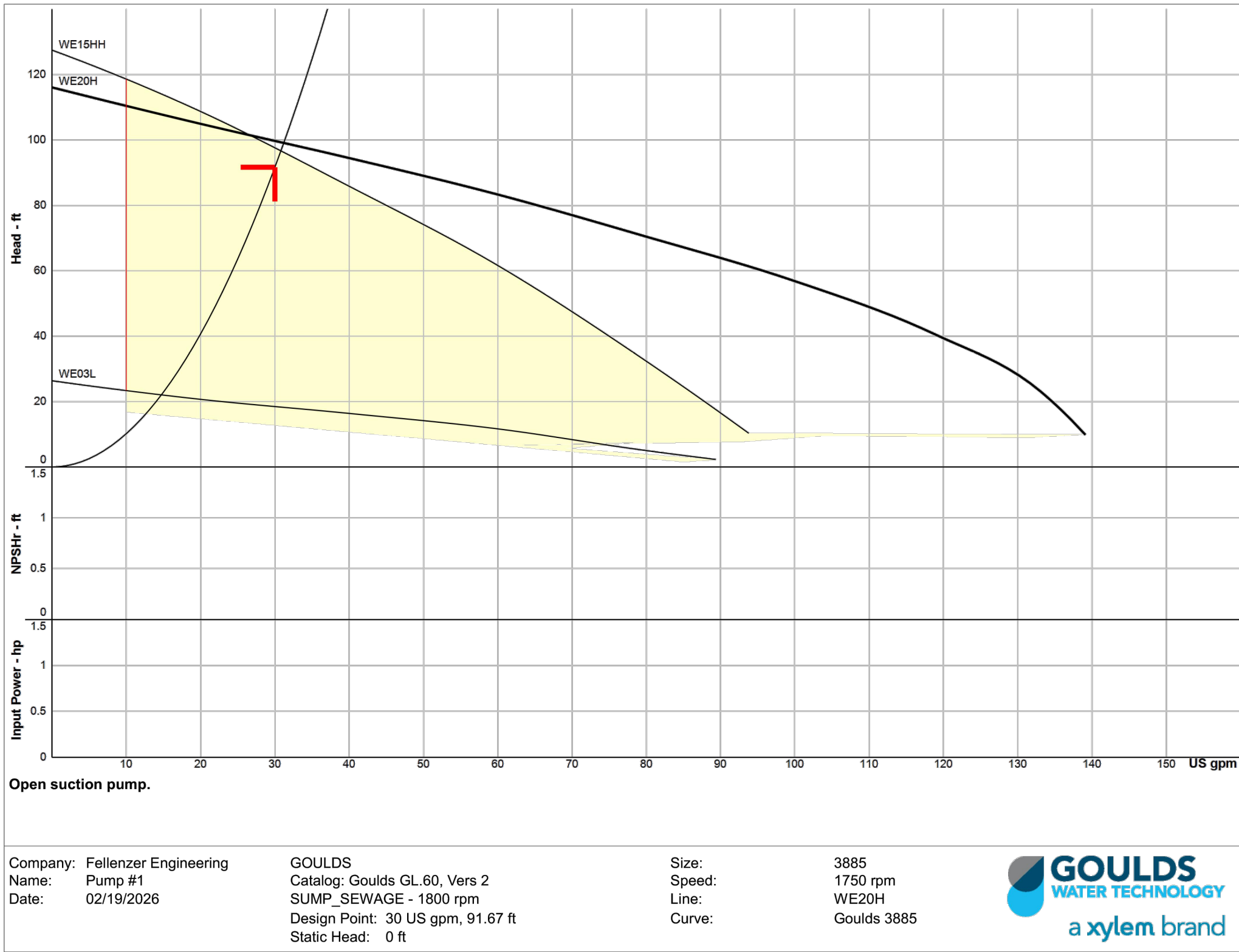
- DAILY FLOW OF 5,605 GALLONS.
- 5 DOSES PER DAY
- DOSE VOLUME OF 1121 GALLONS
- THE VOLUME OF A 8' X 8' LIFT STATION PER FOOT OF DEPTH IS 375.99 GALLONS, OR 31.33 GALLONS PER INCH
- THE REQUIRED ELEVATION DIFFERENCE BETWEEN PUMP ON AND OFF IS TO BE 30.96 INCHES OR 1,127.88 GALLONS.
- THE REQUIRED ELEVATION DIFFERENCE BETWEEN PUMP ON #2 AND ALARM LEVEL IS TO BE 2" OR 62.66 GALLONS.
- PROVIDE CONTROLS MOUNTED ON SQUARE-TYPE UNISTRUT STANCHION WITH 3,000 PSI CONCRETE FOOTINGS NEAR PUMP CHAMBER

ITEM	QTY	FACTOR	OF PIPE (IN FEET)
90° ELBOWS**	2	x 6	= 12
45° ELBOWS**	1	x 2.5	= 2.5
TRUE WYE**	2	x 12	= 24
CHECK VALVE**	2	x 13	= 26
GATE VALVE**	2	x 1.5	= 7.5
FEET OF PIPE	2557	x 1	= 2557
TOTAL PIPE LENGTH EQUIVALENT=			2635
FRICTION LOSS PER 100FT. @ 30 GPM			0.66
TOTAL FRICTION LOSS			17.4
VERTICAL ELEVATION FROM PUMP OFF			17.4
PRESSURE REQ.			92
TOTAL DYNAMIC HEAD, MAXIMUM			81.67
MINIMUM FLOW REQUIRED TO MAINTAIN SCOURING VELOCITY OF 2ft/SECOND IN A 2" SIZE PIPE = 20 GPM.			

CALCULATION FOR STATIC HEAD LOSS	
LOCATION	ELEVATION(FT)
INVERT(S) IN	441.47
PUMP #2 ON	437.55
PUMP #1 ON	437.38
PUMP OFF	434.38
TOTAL	406.1-434.38
	-28.29



LEGEND AND SCHEDULE OF PLUMBING EQUIPMENT	
SYMBOL	DESCRIPTION
	KENNEDY VALVE KS-FW RESILIENT WEDGE VALVE, AWWA C509, UL262/FM-1120/1130, UCL, 2" & 1½"
	US PIPE DUCTILE IRON FLANGED FITTINGS, ASTM A536, ANSI/AWWA C110/A21.10, RATED 250PSI PER ANSI/AWWA C111/A21/11, 2" & 1½"
	ROMAC INDUSTRIES D-400 DISMANTLING JOINT WITH TIE RODS, AWWA C207 CLASS D STEEL RING FLANGE, COMPATIBLE WITH ANSI CLASS 125 AND 150 BOLT CIRCLES, STANDARD WEIGHT CLASS PER ASTM A53
	KENNEDY CHECK VALVE 1106 LW, MSS SP-71, AWWA C508, 2" & 1½"



EQUIPMENT SCHEDULE:

MODEL	QTY	DESCRIPTION
WE2038H	2	GOULDS WE SERIES SUMP PUMP, 2HP, 200 VOLTS, THREE PHASE, AND 5.38" IMPELLER. PROVIDE WITH FLANGED DISCHARGE AND RAIL SYSTEM FOR CONNECTION TO 2-INCH SDR-21 FORCEMAIN.
C4D31016	1	GOULDS DUPLEX WASTEWATER PANEL, 4 FLOATS (OFF, ON #1, ON #2, HIGH LEVEL ALARM) NEMA 4X THERMOPLASTIC ENCLOSURE WITH AUDIBLE/VISUAL HIGH LEVEL ALARM SYSTEM ON SEPARATE CIRCUIT, AND ANTI-CONDENSATION HEATER.

EQUIPMENT SCHEDULE:

MODEL	QTY	DESCRIPTION
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REV #	DATE	REMARKS:	ISSUE #	DATE	ISSUED FOR:
UNAUTHORIZED ALTERATION OR ADDITION TO A PLAN BEARING A LICENSED PROFESSIONAL ENGINEER'S SEAL IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2 OF THE N.Y. STATE EDUCATION LAW.					
FELLENZER ENGINEERING III 22 Mulberry St., Suite 2A, Middletown, NY 10940 t 845-343-1481 fx 845-343-4986					
PROJECT TITLE: NEELYTOWN BUSINESS PARK TOWN OF MONTGOMERY, ORANGE COUNTY, NEW YORK					
DRAWING TITLE: DETAILS					
DESIGNED BY: JB	DRAWN BY: JCL	APPROVED BY PM: RDF	APPROVED BY PG: MDF	DRAWING #: C-903	
DATE: 02/20/2026	SCALE: AS SHOWN	FE PROJECT #: 25-168	PAGE 5 OF 5		



PROGRESS PRINT
2/27/26
FOR PLANNING BOARD



TOWN OF MONTGOMERY

Carl L. Helstrom Government Center

110 BRACKEN ROAD
MONTGOMERY, NEW YORK 12549

Building (845) 457-2640 Planning (845) 457-2643
Engineering (845) 457-2642 Zoning (845) 457-2644

www.townofmontgomery.com
Fax (845) 457-2760

15 February 2026

Colliers Engineering and Design
Attn: Jesse Cokeley, P.E.
300 Tice Boulevard, Suite 101
Woodcliff Lake, New Jersey 07677

Re: Water Supply Will Serve Letter for
296 Neelytown Road (Lots 36-1-33, 33-1-91, 33-1-11.221, 33-1-11.23, 33-1-11.212, 33-1-11.211, 33-1-11.1, 33-1-10.1)
Town of Montgomery, Water District 1

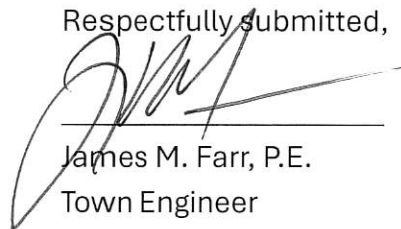
Dear Jesse,

I have reviewed your attached letter dated 6 February 2026 requesting the use of up to 15,920 gpd of water from Town of Montgomery Water District 1 for the two proposed warehouses to be constructed at the above referenced tax lots, also known as 296 Neelytown Road. The water district has adequate capacity to serve the project needs.

The project can connect to the existing watermain in Neelytown Road. We will provide that available water system mapping under separate cover.

Should you have any questions, please call or e-mail me.

Respectfully submitted,


James M. Farr, P.E.
Town Engineer

Cc: Planning Board and Consultants

300 Tice Boulevard, Suite 101
Woodcliff Lake, New Jersey 07677
Main: 877 627 3772



VIA EMAIL

February 6, 2026

Jim Farr, P.E.
Town of Montgomery Water & Sewer
110 Bracken Road
Hackensack, NJ 12549

296 Neelytown Road
(Lots 36-1-33, 33-1-91, 33-1-11.221, 33-1-11.23, 33-1-11.212, 33-1-11.211, 33-1-11.1, 33-1-10.1)
Town of Montgomery, Orange County, NJ
Colliers Engineering & Design Project No. 21000327A

Dear Mr. Farr,

We are gathering information for the above referenced project. We are writing to request a letter stating that the Town of Montgomery will be able to provide water service to this project. This project will generally consist of constructing two warehouse buildings totaling approximately 1,128,270 square feet (SF) (24,000 square feet (SF) of which is anticipated to be office space) along with site appurtenances such as parking lighting, landscaping, and stormwater management features.

In order to provide an estimated water demand, we have the estimated employee count used for this analysis based on the Institute of Transportation Engineers (ITE) Parking Generation, 4th Edition. Using Land Code 150 – Warehouse and 701 – Office Building and a total building area of 1,128,270 SF, 24,000 SF of which is anticipated to be office area, we can estimate the following:

As per NYSDEC Design Standards for Intermediate Sized Wastewater Treatment Systems (2014);
GPD = 15 GPD * # employees (same for office and warehouse uses)

Unit Type	Projected Flow	Number of Units	Demand
Warehouse 1 (First Shift)¹	15 GPD/employee	204 employees	3,060 GPD
Warehouse 1 (Second Shift)¹	15 GPD/employee	204 employees	3,060 GPD
Warehouse 1 (Third Shift)¹	15 GPD/employee	204 employees	3,060 GPD
Warehouse 2 (First Shift)¹	15 GPD/employee	66 employees	990 GPD
Warehouse 2 (Second Shift)¹	15 GPD/employee	66 employees	990 GPD
Warehouse 2 (Third Shift)¹	15 GPD/employee	66 employees	990 GPD
Warehouse 1 Office (First Shift)²	15 GPD/employee	107 employees	1,605 GPD
Warehouse 1 Office (Second Shift)²	15 GPD/employee	107 employees	1,605 GPD
Warehouse 1 Office (Third Shift)²	15 GPD/employee	107 employees	1,605 GPD
Warehouse 2 Office (First Shift)²	15 GPD/employee	54 employees	810 GPD
Warehouse 2 Office (Second Shift)²	15 GPD/employee	54 employees	810 GPD
Warehouse 2 Office (Third Shift)²	15 GPD/employee	54 employees	810 GPD
Visitors³	5 GPD/Visitor	101 visitors	505 GPD
Total			19,900 GPD

¹Number of employees was determined using 4,100 SF of warehouse space per employee per shift

²Number of employees was determined using 1 employee per 150 SF per shift

³Number of visitors was determined using 1/3 of the total number of tractor trailer stalls.

As per NYSDEC Design Standards for Intermediate Sized Wastewater Treatment Systems (2014):

20% reduction for installation of water-saving plumbing fixtures

$19,900 \text{ GPD} \times 0.8 = 15,920 \text{ GPD}$

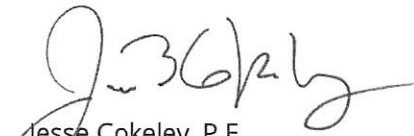
Please review this material and forward a "Letter of Serviceability," along with any as-built maps available and/or description of existing utility facilities adjacent to or near the project site to our office. We kindly request this information for water services. Also, please indicate whether you have any existing or proposed facilities that may be in conflict with the proposed project. If this project is within your service area, please identify how (route into the site) you will service the proposed development so that we can add the same to our plans.

Please advise us if the proposed services can be located underground and of the associated specifications or requirements that may apply to servicing the site.

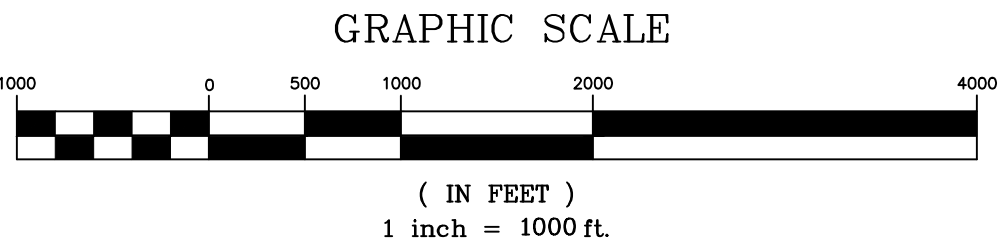
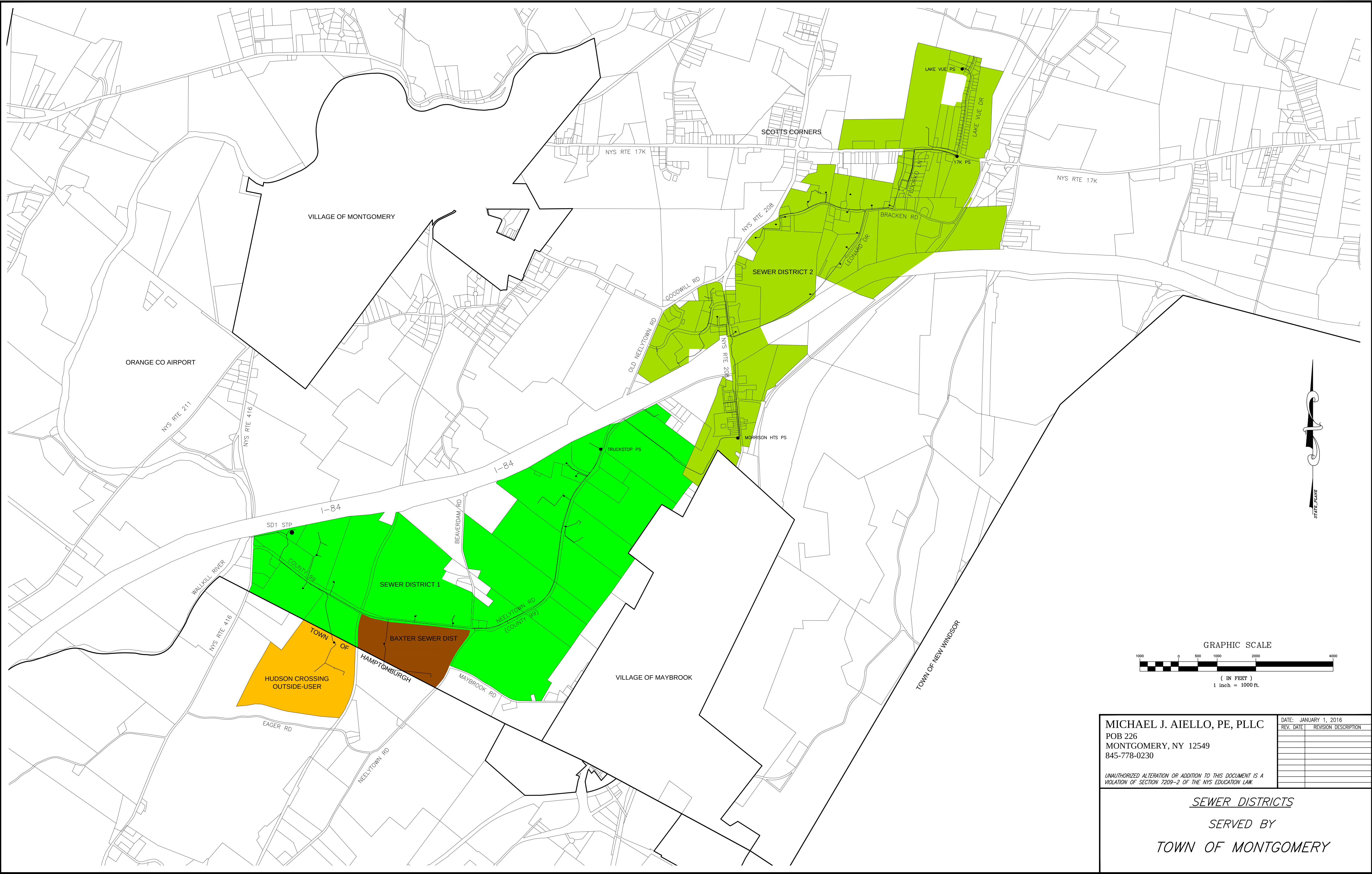
If you prefer to send the information electronically, please email jesse.cokeley@collierseng.com. Should you have any questions and/or concerns regarding our request, please do not hesitate to contact this office directly. Thank you for your assistance in this matter.

Sincerely,

Colliers Engineering & Design CT, P.C.



Jesse Cokeley, P.E.
Geographic Discipline Leader



MICHAEL J. AIELLO, PE, PLLC
POB 226
MONTGOMERY, NY 12549
845-778-0230

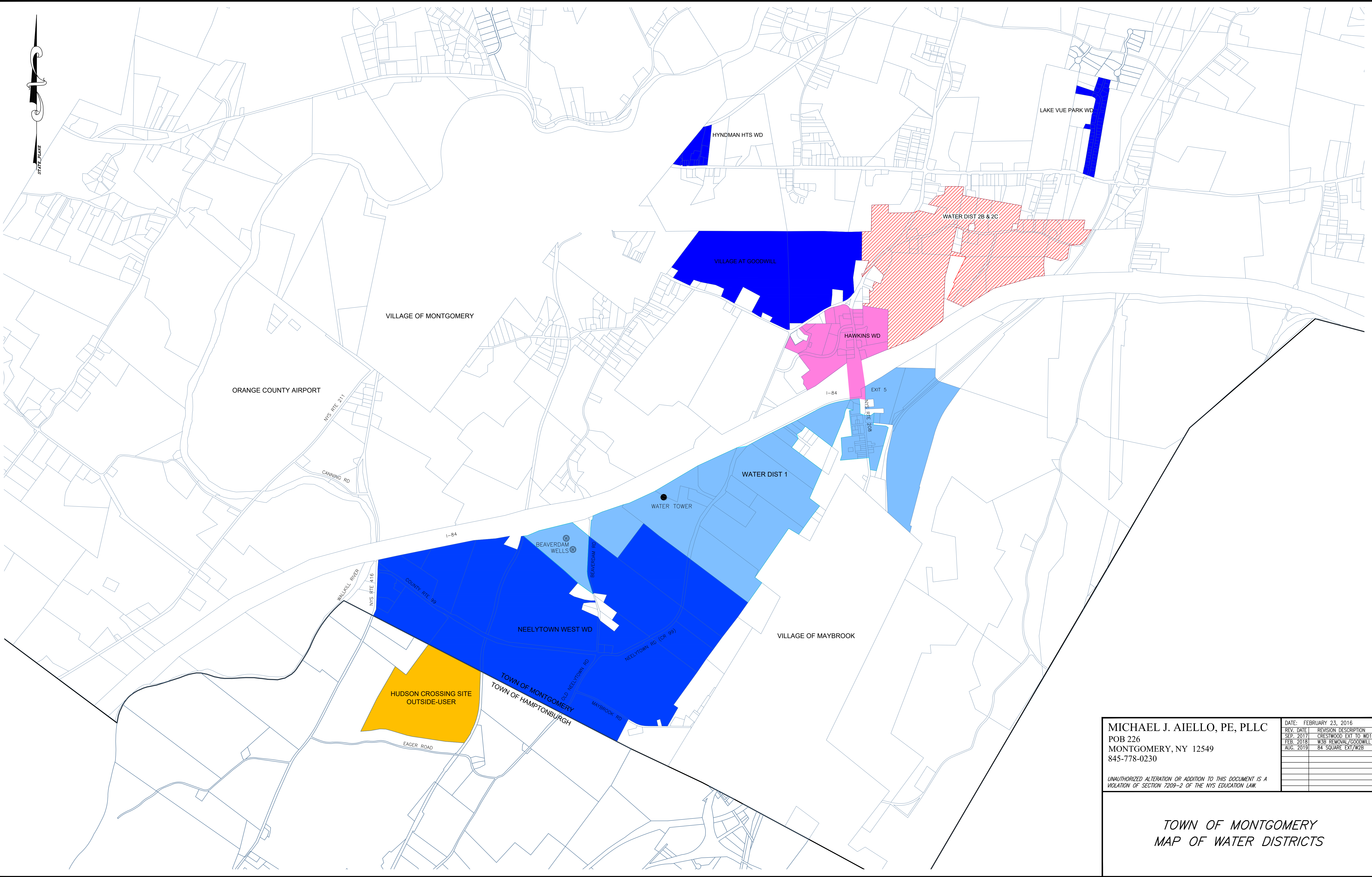
UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209-2 OF THE NYS EDUCATION LAW.

DATE:	JANUARY 1, 2016
REV. DATE	REVISION DESCRIPTION

SEWER DISTRICTS

SERVED BY

TOWN OF MONTGOMERY



MICHAEL J. AIELLO, PE, PLLC
POB 226
MONTGOMERY, NY 12549
845-778-0230

DATE:	FEBRUARY 23, 2016
REV. DATE	REVISION DESCRIPTION
SEP. 2017	CRESTWOOD EXT TO WD1
FEB. 2018	W3B REMOVAL/GOODWILL
AUG. 2019	84 SQUARE EXT/W2B

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF SECTION 7209-2 OF THE NYS EDUCATION LAW.

TOWN OF MONTGOMERY
MAP OF WATER DISTRICTS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
**WASTEWATER TREATMENT FACILITY
DESIGN, PLANNING AND FLOW MANAGEMENT
2022 ANNUAL CERTIFICATION FORM**

PERMITTEE NAME	FACILITY NAME	NYSDEC REGION	SPDES NUMBER
Town Of Montgomery	Montgomery WWTP	3	0247782

Section 1 - Flow: Compare the annual average flow to the flow limit in the permit:

For WWTFs monitoring **monthly average** flow, calculate annual average flow by averaging the 12 monthly average flows for 2022.

For WWTFs monitoring **quarterly average** flow, calculate annual average flow by averaging the 4 quarterly flows for 2022.

For WWTFs monitoring **semiannual** flow, calculate annual average flow by averaging the 2 semiannual measurements for 2022.

For WWTFs monitoring **annual average** flow or **12 month rolling average** flow, use the annual average flow calculated for 2022.

Indicate dates that seasonal limits apply:

Year-round value (or Season 1)	Season 2 (if applicable)	
134		☐ MGD ☐ GPD
1475		☒ MGD ☐ GPD
0.140125		☐ MGD ☐ GPD

a. What was the actual annual average flow, using the appropriate method above?

b. What is the design flow of the WWTF?

c. What is 95% of the design flow of the WWTF? Design flow multiplied by 0.95

Note: 1c will automatically be calculated after the design flow is entered in 1b.

d. Did the annual average flow exceed 95% of the design flow? (Is line 1a greater than line 1c?) ☐ Yes ☒ No

e. Has a Flow Management Plan been submitted to NYSDEC?



Yes



No

If yes, date submitted:

01/29/2021

If the answer to 1d above is "Yes", a Flow Management Plan must be prepared in accordance with 6 NYCRR Part 750-2.9(c)(1) and be submitted to the Regional Water Engineer no later than August 1, 2023. If previously submitted, indicate date on Line 1e above.

Section 2 - Loadings: Compare the design BOD and TSS influent loadings to the actual BOD and TSS loadings:

For WWTFs monitoring **monthly average** loadings, use the actual loadings (as reported in accordance with SPDES permit requirements - DMRs or Facility Operations Reports, Annual Report, etc.) during calendar year 2022.

For WWTFs monitoring **quarterly, semiannual, or annual** loadings, calculate the actual loadings by averaging the loadings as reported during calendar year 2022.

For WWTFs that have no influent monitoring requirements please check this box and proceed to Section 4:



Year-round value Season 2
(or Season 1) (if applicable)

a. The design influent loading for BOD (or CBOD if applicable) is:

438 lbs/d

b. The design influent loading for Total Suspended Solids is:

250 lbs/d

- Form continues other side -

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WWTF DESIGN, PLANNING AND FLOW MANAGEMENT
2022 ANNUAL CERTIFICATION FORM
Page 2 of 2

Section 2. Loadings (continued):

- Answer question 2c for the MOST FREQUENT monitoring period required by the SPDES permit and **check only ONE BOX.**
- Provide a response for questions 2d and 2e.
- If the answer to 2c is "Yes", a Plan for Future Growth must be submitted to the Regional Water Engineer in accordance with 6 NYCRR Part 750-2.9(c)(1) no later than August 1, 2023.

Using the WWTF operational data submitted for 2022, determine whether the actual influent loading for either BOD (or CBOD) or TSS exceeded the design influent loading (from 2a and 2b) for the time periods listed below.

- c. For WWTFs monitoring **monthly** loadings: Was design exceeded for **any** eight months in 2022? ☐ Yes ☒ No
- c. For WWTFs monitoring **quarterly** loadings: Was design exceeded for **any** three quarters? ☐ Yes ☐ No
- c. For WWTFs monitoring **semiannual** loadings: Was design exceeded for **both** semiannual periods? ☐ Yes ☐ No
- c. For WWTFs monitoring **annual** loadings: Was design exceeded for the annual period? ☐ Yes ☐ No
- d. Has a Plan for Future Growth been submitted to NYSDEC? ☐ Yes ☒ No If yes, date submitted:
- e. Has the WWTF discharge exceeded the SPDES permit effluent limit for BOD, CBOD, Ultimate Oxygen Demand or Total Suspended Solids for any four or more months during two consecutive calendar quarters, or (for facilities with quarterly monitoring) for two consecutive quarters? ☐ Yes ☒ No

Section 3 - Implementation of Plan for Future Growth and Sewer Moratorium:

If the answers to **BOTH 2c and 2e** are **Yes**, the permittee must begin implementation of the Plan for Future Growth and immediately cease the approval of further sewer connections to the WWTF in accordance with 6 NYCRR 750-2.9(c)(3).

Section 4 - Additional Information:

- a. Is the WWTF currently under an Order on Consent to address flow and/or loading concerns? ☐ Yes ☒ No
- b. Are additional comments and explanations attached to this form? ☐ Yes ☒ No

Certification Statement

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Print Name:

Title:

Signature:

Date:

This form must be signed by the **Chief Fiscal Officer** of the permittee (NOTE: refer to instructions for qualifying individuals)



NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WASTEWATER TREATMENT FACILITY
DESIGN, PLANNING AND FLOW MANAGEMENT
ANNUAL CERTIFICATION FORM INSTRUCTIONS

Please complete the attached form in accordance with the instructions below. If you have questions regarding the information or calculations required to complete this form, please contact the Regional Water Engineer at the NYSDEC regional office listed below or identified on the RECORDING, REPORTING AND MONITORING page of your SPDES Permit.

Section 1 - Flow: Compare the annual average flow to the flow limit in the permit:

All flow calculations must be based on total flow. For wastewater treatment facilities (WWTF) with one monthly average flow limit, calculate the average annual flow by averaging the 12 monthly average flows as reported on the monthly DMRs (or if DMRs are not required by the SPDES permit, use the Facility Operations Report, Annual Report, etc.) for calendar year 2022. For WWTFs monitoring quarterly average flow, calculate the average annual flow by averaging the 4 quarterly flows for 2022. For WWTFs monitoring semi-annual flow, calculate the average annual flow by averaging the 2 semi-annual measurements for 2022. For WWTFs monitoring annual average flow or 12 month rolling average flow, use the annual average flow calculated for 2022.

For WWTFs with seasonal flow limits, calculate the average flow for each of the seasonal flow limits based on the data collected during calendar year 2022, and include the dates used for the seasonal flow rate calculations in the spaces provided. For example, if the facility has seasonal limits that apply from May through October, Season 1 would be the average flow from May through October, while Season 2 would be the average flow from November through December and January through April. If either of the seasonal calculations exceeds 95% of the design flow, the "Yes" box for question 1d must be checked and a Flow Management Plan must be prepared in accordance with 6 NYCRR Part 750-2.9(c)(1) and submitted to the Regional Water Engineer no later than August 1, 2023.

If a Flow Management Plan has previously been submitted to NYSDEC, check "Yes" for question 1e and provide the date the plan was submitted.

The design flow of the WWTF shall be in accordance with that listed in the most recent design documents or treatment plant rating submitted to and approved by this Department. If the design flow for the WWTF is unknown, the design flow should be estimated using the "Recommended Standards for Wastewater Facilities", 2014 Edition ("Ten States Standards"), which is available for free download at: <https://www.health.state.mn.us/communities/environment/water/tenstates/index.html>

The requirements for the flow management plan contained in 6 NYCRR Part 750-2.9(c)(1) can be found on the NYSDEC website at: <http://www.dec.ny.gov/regs/2485.html>

Section 2 - Loadings: Compare design BOD and TSS influent loadings to actual BOD and TSS loadings:

The design influent loadings are not included on the preprinted DMR. These numbers may be found in the WWTF's engineering design documents, O&M plans, or in more recent engineering reports if the WWTF had a recent upgrade. Use the most recent design loadings data available for purposes of this calculation. If you cannot locate the WWTF's design influent loadings criteria, please contact the WWTF's design engineer. If the design loadings for the WWTF facility are unknown, the loadings should be estimated using the "Recommended Standards for Wastewater Facilities", 2014 Edition ("Ten States Standards"), which is available for free download at: <https://www.health.state.mn.us/communities/environment/water/tenstates/index.html>

If the WWTF uses Biochemical Oxygen Demand (BOD) as a measure of treatment system performance, use BOD loadings in the calculation of influent loadings. If the facility uses CBOD as a measure of treatment system performance, use CBOD loadings in these calculations.

If no influent monitoring is required in the SPDES permit, check the box under Section 2 and proceed to Section 4.

To calculate the actual influent loadings in lbs/day, WWTFs that perform daily sampling should multiply the average monthly concentration (in mg/l) by the average monthly flow (in MGD) and a conversion factor of 8.34. For WWTFs with less than daily sampling, i.e., monthly, weekly, etc., the daily flow from the WWTF on the date that the sample was collected shall be used to determine the loadings. These individual daily loadings should be averaged for the monthly actual influent loading. For WWTFs monitoring quarterly, semiannual, or annual loadings, calculate the actual loadings by averaging the loadings as reported during calendar year 2022.

If either of the seasonal calculations exceeds the design loading, the "Yes" box for question c. must be checked. Should the actual influent loading for either BOD (or CBOD) or TSS exceed the design influent loading, an explanation for these exceedances may be submitted with the completed form. If a written explanation is attached, check the "Yes" box for question 4b. If a Plan for Future Growth was previously submitted to NYSDEC, indicate the date that the plan was submitted in question 2d.

The requirements for the plan for future growth contained in 6 NYCRR Part 750-2.9(c)(2) can be found on the NYSDEC website at:

<http://www.dec.ny.gov/regs/2485.html>

Section 3 - Implementation of Plan for Future Growth and Sewer Moratorium:

Review the WWTF's DMRs (or if DMRs are not required by the SPDES permit, use the Facility Operations Report, Annual Report, etc.) to determine whether the discharge from the WWTF has exceeded the SPDES permit effluent limit for BOD, CBOD, Ultimate Oxygen Demand (including 28 day BOD), or Total Suspended Solids for any four or more months during two consecutive calendar quarters during 2022. If the answer to this question and question 2c is "Yes", an immediate moratorium on additional sewer connections shall be imposed and the approval of sewer connections to the WWTF must cease immediately. The requirements for the sewer connection moratorium contained in 6 NYCRR Part 750-2.9(c)(3) can be found on the NYSDEC website at: <http://www.dec.ny.gov/regs/2485.html>

Section 4 - Additional Information:

If the facility is currently under a NYSDEC-issued Order on Consent that addresses flow and/or loadings concerns, check the "Yes" box for question 4a.

If additional comments or explanations are attached, check the "Yes" box for question 4b.

Certification Statement:

This form must be signed by the municipality's chief fiscal officer, mayor, comptroller, treasurer, town supervisor, or chief financial officer. This person may differ from the person who signs the facility's DMR (i.e. chief operator, DPW superintendent, or facility manager). Please note that a digital signature will be accepted and remains consistent with U.S. Environmental Protection Agency's Electronic Reporting Rule, including electronic submission of SPDES permit data and reports.

Submittal Instructions:

In accordance with 6 NYCRR Part 750-2.9(c)(4), complete the form, with signature and attach submit electronically via NY.gov or with the February 2023 NetDMR submittal by **March 28, 2023.**

REGIONAL WATER ENGINEER CONTACT INFORMATION

NYSDEC Regional Offices	
Address: (Mail form to "Regional Water Engineer")	Phone Number
NYSDEC Region 1, SUNY Stony Brook, 50 Circle Road, Stony Brook, NY 11790-3409 Nassau and Suffolk Counties	(631) 444-0405
NYSDEC Region 2, One Hunters Point Plaza, 47-40 21st St, Long Island City, NY 11101-5407 Bronx, Kings, New York, Queens and Richmond Counties	(718) 482-4933
NYSDEC Region 3 Sub-Office, 100 Hillside Ave, Suite 1W White Plains, NY 10603 Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester Counties	(845) 256-3000
NYSDEC Region 4, 1130 North Westcott Road., Schenectady, NY 12306-2014 Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady, and Schoharie Counties	(518) 357-2045
NYSDEC Region 5 Sub-Office, 232 Golf Course Road, Warrensburg, NY 12885 Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington Counties	(518) 897-1241
NYSDEC Region 6, State Office Bldg., 317 Washington St., Watertown, NY 13601-2245 Herkimer, Jefferson, Lewis, Oneida and St. Lawrence Counties	(315) 785-2513
NYSDEC Region 7, 615 Erie Boulevard West, Syracuse, NY 13204-2400 Broome, Cayuga, Chenango, Cortland, Madison, Onondaga, Oswego, Tioga and Tompkins Counties	(315) 426-7500
NYSDEC Region 8, 6274 East Avon-Lima Rd., Avon, NY 14414-9519 Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Seneca, Schuyler, Steuben, Wayne and Yates Counties	(585) 226-2466
NYSDEC Region 9, 270 Michigan Ave., Buffalo, NY 14203-2999 Allegany, Cattaraugus, Chautauqua, Erie, Niagara and Wyoming Counties	(716) 851-7070

Stan Pajak
Associate District Director
Business Development



March 24th, 2022

Justin Goldstein, Colliers Engineering & Design
C/O Parcel 36-1-33 – 296 Neelytown Road, Montgomery, Orange County, New York
50 Chestnut Street
Montvale, NJ 07465

Re: Dollar General - Elec/Gas CHG&E

Dear Justin Goldstein:

The proposed commercial development in Montgomery, New York (Parcel 36-1-33) is within the service franchise area of Central Hudson Gas & Electric Corp.

Central Hudson shall supply Electric and Gas services, in compliance with our New York State filed tariff. Specifics to costs and layout to be determined.

If you need additional information, please feel free to contact me by e-mail at spajak@cenhud.com or by telephone at 845-309-8758.

Sincerely,

Stan Pajak

Stan Pajak
Associate District Director
Central Hudson Gas & Electric - Newburgh, NY



Engineering
& Design

Engineer's Report for Proposed Sanitary Sewer System

February 17, 2026

For

Neelytown Business Park Development

296 Neelytown Road

**Tax Lot: 36-1-33, 36-1-11.221, 36-1-11.23, 36-1-11.212, 36-1-11.211,
36-1-11.1, 36-1-10.1, 33-1-91**

Town of Montgomery, Orange County, NY

Prepared for:

Neelytown BD Developers, LLC
PO Box 351
Monsey, NY 10952

Prepared by:



Jesse B. Cokeley, P.E.
NY Professional Engineer
License No. 90987

Colliers Engineering & Design
300 Tice Boulevard, Suite 101,
Woodcliff Lake, New Jersey 07677
Main: 201 775 1288
Colliersengineering.com

Project No. 21000327A

Maser Consulting is now Colliers Engineering & Design

Accelerating success.

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<i>APPENDIX A – WASTEWATER WILL SERVE - ADDRESSED TO TOWN OF MONTGOMERY WATER & SEWER.</i>	6

Project Description

The proposed development, Neelytown Business Park Development, also known as Tax Lot 36-1-33, 36-1-11.221, 36-1-11.23, 36-1-11.212, 36-1-11.211, 36-1-11.1, 36-1-10.1, and 33-1-91 is an +/- 112.4-acre site located on Neelytown and Beaver Dam Road in the Town of Montgomery. Currently, the site is largely undeveloped, containing mostly wooded areas with two dirt access roads. There does exist a silo and multiple small areas of minor foundation remains adjacent to the southeast access road off of Neelytown Road. The large majority of the site however is a mixture of dense woodland, bush/meadow areas and wetlands. Per the latest FEMA mapping there are no existing floodplain areas on the project site.

The proposed project will consist of 2 warehouse buildings totaling 1,128,270 SF, with 24,000 SF of that total to be office space. The two buildings will have a combined 190 loading docks, 456 standard parking spaces and 302 trailer storage spaces. Other improvements include driveways, sidewalks, and associated utilities to service the users. The project site has frontage on Neelytown Road to the east and Beaver Dam Road to the west. The site is located within Orange County Sewer District 1, more specifically, the site is located within the Town of Montgomery's Sewer District 1; however, the site is not currently served by the district as the lot is largely undeveloped. As the property lies within Orange County Sewer District 1, the treatment plant for the site will be the Harriman Sewage Treatment Plant. Per a map entitled "Sheet 2, water & sewer utilities, Town of Montgomery" prepared by Michael J Aiello, PE, PLLC last revised 2019 it is shown that there is an existing 6" force main near the intersection of Neelytown & Beaver Dam Road as well as an existing 6" forcemain further East along Neelytown Road.



Figure 1: Location Map (source: Google Earth)

Scope of Sanitary Sewer System

The proposed Lot One (1) system shall consist of furnishing and installing gravity fed 8" SDR 35 PVC sanitary sewer main to a designated on-site pump station on lot 1 before being pumped to the existing 6" force main within Neelytown Road.

The proposed Lot Two (2) system shall consist of furnishing and installing gravity fed 8" SDR 35 PVC sanitary sewer main to a separate designated on-site pump station also on lot 1 before being pumped to the existing 6" force main within Neelytown Road.

Work shall also include, but not be limited to excavation, backfilling, laying and jointing of pipe, installation of sewer manholes, installation of service lines, testing, and restoration of existing structures & road surfaces as required to complete the work specified on the plans.

Determination of Sanitary Sewer Flows and Capacities

Proposed wastewater flows were determined based on the New York State Design Standards for Intermediate Sized Wastewater Treatment Systems (NYS Design Manual), dated March 5, 2014. Calculations are shown below:

Estimated Design Flows:

In order to provide an estimated sanitary sewer demand we have the estimated employee count used for this analysis based on the Institute of Transportation Engineers (ITE) Parking Generation, 4th Edition. Using Land Code 150 – Warehouse, and 701- Office Building, and a total building area of 1,128,270 SF (24,000 SF of which is anticipated to be office area) we can estimate the following.

As per NYSDEC Design Standards for Intermediate Sized Wastewater Treatment Systems (2014);
 $GPD = 15 \text{ GPD} * \# \text{ employees (same for office and warehouse uses)}$

Unit Type	Projected Flow	Number of Units	Demand
Warehouse 1 (First Shift)¹	15 GPD/employee	204 employees	3,060 GPD
Warehouse 1 (Second Shift)¹	15 GPD/employee	204 employees	3,060 GPD
Warehouse 1 (Third Shift)¹	15 GPD/employee	204 employees	3,060 GPD
Warehouse 2 (First Shift)¹	15 GPD/employee	66 employees	990 GPD
Warehouse 2 (Second Shift)¹	15 GPD/employee	66 employees	990 GPD
Warehouse 2 (Third Shift)¹	15 GPD/employee	66 employees	990 GPD

Warehouse 1 Office (First Shift)²	15 GPD/employee	107 employees	1,605 GPD
Warehouse 1 Office (Second Shift)²	15 GPD/employee	107 employees	1,605 GPD
Warehouse 1 Office (Third Shift)²	15 GPD/employee	107 employees	1,605 GPD
Warehouse 2 Office (First Shift)²	15 GPD/employee	54 employees	810 GPD
Warehouse 2 Office (Second Shift)²	15 GPD/employee	54 employees	810 GPD
Warehouse 2 Office (Third Shift)²	15 GPD/employee	54 employees	810 GPD
Visitors³	5 GPD/Visitor	101 visitors	410 GPD
Total			19,805 GPD

¹Number of employees was determined using 4,100 SF of warehouse space per employee per shift

²Number of employees was determined using 1 employee per 150 SF per shift

³Number of visitors was determined using 1/3 of the total number of tractor trailer stalls

Pipe Capacity:

(1 GPD=1.547 × 10⁻⁶ cubic feet per second)

Total design flow in cfs * peaking factor (4.1) = 0.008817 * 4.1 = 0.036 cfs

Manning's Formula: $Q = \frac{1.49}{n} A * R^{\frac{2}{3}} * S^{\frac{1}{2}}$

For a full flowing 8" PVC pipe:

n = 0.009

$A = \pi r^2 = 0.349$ sq. ft.

$R = \frac{A}{P} = 0.167$

S = 0.004 (min. allowable design slope for 8" sewer pipe)

Solved: **Q(peak) = 1.11 cfs**

Since the pipe capacity Q (0.762 cfs) is greater than the total design flow (0.036 cfs) the proposed pipes have adequate hydraulic capacity to serve the proposed peak demand.

Sanitary Sewer System Installation and Testing

All installations shall conform to *Recommended Standards for Wastewater Facilities*, Latest Edition, New York State Sanitary Code Part 5, and the standards of the Town of Montgomery.

All construction and testing will conform to the specifications of the Town of Montgomery as well as County and State Environmental Health Standards and Requirements.

Horizontal and Vertical Separations

Horizontal Separation

Horizontal separation between the proposed water main and storm (structures, piping, swales, etc.) or sanitary sewer (structures, mains, services, etc.) will be ten (10) feet or greater, unless due to constructability and impact to existing utilities warrant otherwise at which time deviation will require approval by the Engineer and/or a Town of Montgomery representative.

Vertical Separation

Vertical separation between storm or sanitary sewers and proposed water main crossings will be maintained at 18" minimum unless due to constructability and impact to existing utilities warrant otherwise at which time deviation will require approval by the Engineer and/or a Town of Montgomery representative.

Appendices

APPENDIX A - WASTEWATER WILL SERVE- ADDRESSED TO TOWN OF MONTGOMERY WATER & SEWER

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Central Hudson service territory

DIVISIONS & SERVICE TYPES

LEGEND: SERVICE TYPES



Gas & Electric



Electric Only



Gas Only

**KINGSTON
DIVISION**

**CATSKILL
DIVISION**

**POUGHKEEPSIE
DIVISION**

**FISHKILL
DIVISION**

**NEWBURGH
DIVISION**

○ Locations of villages included in the Central Hudson service territory: Albany County (Ravena); Greene County (Coxsackie, Athens, Catskill, Hunter and Tannersville); Ulster County (Saugerties, Ellenville and New Paltz); Orange County (Montgomery, Maybrook, Cornwall and Highland Falls); Putnam County (Cold Spring and Nelsonville); Dutchess County (Fishkill, Wappingers Falls, Millbrook, Rhinebeck, Red Hook, Tivoli and Millerton).

● Locations of cities included in the Central Hudson service territory.

