

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF WATER
21309 Berlin Road, Suite 2
GEORGETOWN, DELAWARE 19947

June 21, 2017

Kim Yanaitis.
Septic Solutions, LLC
13 Charles Point
Newark, DE 19702-2227

RE: Approval of the SLLC-Gillespie 36 Pre-Engineered Lift Station

Dear Ms. Yanaitis,

The Division of Water Resources has received and reviewed your request to approve your SLLC- Gillespie 36 pre-engineered lift station; to be used in conjunction with Class B designed or other gravity fed on-site wastewater treatment and disposal systems in Delaware. We are pleased to inform you that we are able to **approve** the lift station referenced above, provided that they are installed in accordance with the designers proposed components and specific permit conditions.

Additionally, specific components (brands, model numbers, etc...) should be listed on permit insert sheet. As a condition of this approval, no substitution of components is allowed without written approval from the design engineer and pre-approval from the Department.

If you have any other questions please contact me at 856-4561.

Sincerely,

A handwritten signature in black ink, appearing to read "James Cassidy".

James Cassidy
Program Manager I
Ground Water Discharges Section

Cc: file

Delaware's good nature depends on you!

SEPTIC SOLUTIONS, LLC

13 Charles Pointe
Newark, DE 19702-2227
(302) 438-7498
kyanaitis@comcast.net

June 8, 2017

James Cassidy
DNREC
21309 Berlin Road
Georgetown, DE 19947

RE: PRE-ENGINEERED LIFT STATION
SSLLC-GILLESPIE 36

Dear Jim,

Enclosed please find the design package for a pre-engineered lift station.

The station has been designed for a 4 Bedroom house with a maximum static head of 15'. The transmission line ranges from 1 lf to 300 lf.

Please review the design at your earliest convenience. If you should have any questions or require additional information, please do not hesitate to contact me.

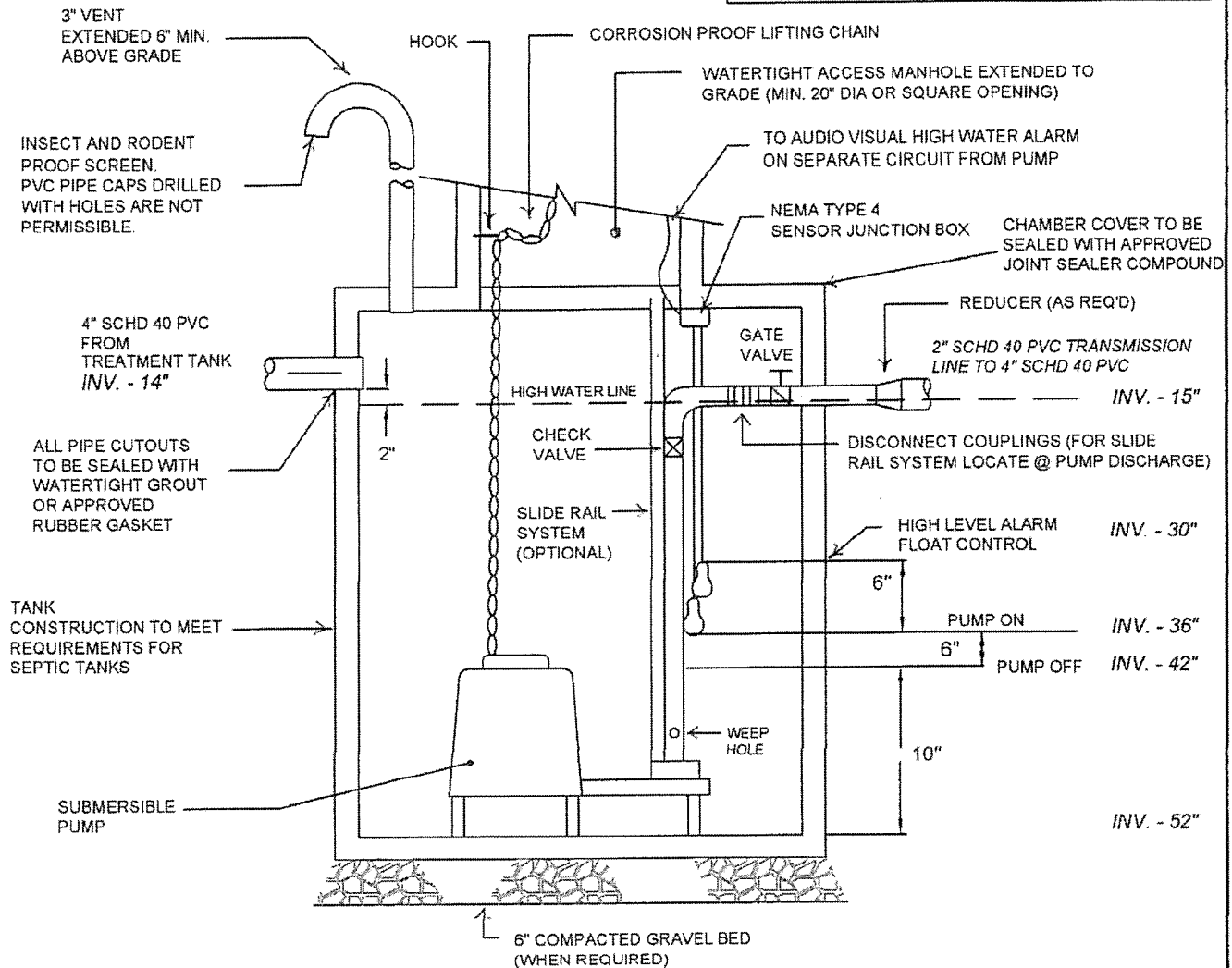
Sincerely,


Kimberly A. Yanaitis, P.E.

GRADE 0" (ASSUMED)

INSTALLATION RESTRICTIONS

Maximum Length of 2" Transmission Line = 300 LF
Maximum Vertical Lift = 15'



NOTES:

1. EXCAVATION LIMITS SHALL EXTEND AT LEAST 2 FEET BEYOND TANK PERIMETER.
2. ALL PIPE TO BE SCHEDULE 40 PVC.
3. CHAMBER TO BE SIZED ACCORDING TO REQUIREMENTS OF DOSING VOLUME AND STORAGE. SEE EXHIBIT I.
4. ALL DOSING CHAMBER COMPONENTS SHALL BE FIELD TESTED TO INSURE ACCURACY, WATER TIGHTNESS AND PROPER OPERATION OF ALL PUMPS AND ALARM CONTROLS.
5. ALL ELECTRICAL CONNECTIONS SHALL BE WATERPROOF, CORROSION RESISTANT AND EXPLOSION PROOF.

TYPICAL DIMENSIONS (ID)

WIDTH: 36" DIA.
HEIGHT: 40"
HEIGHT TO INLET: 32"

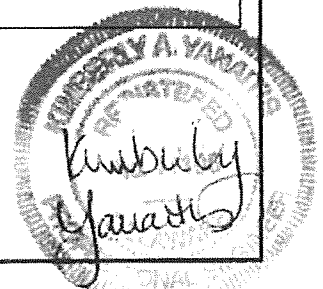
USING GATE VALVE, ADJUST FLOW FOR APPROX. 20 GPM (1 GAL / 3 SEC)

PARTS LIST

PUMP: GOULDS MODEL 3885, WE0311M, 1/3 HP, 1 PHASE, 115 V, 1750 RPM
CONTROL PANEL: SJE RHOMBUS TANK ALERT XT SIMPLEX CONTROL PANEL
FLOAT: SJE RHOMBUS DOUBLE FLOAT MASTER PUMP SWITCH

SSLLC-Gillespie 36

GILLESPIE 36" DIA.
PRE-ENGINEERED LIFT STATION
(N.T.S.)



TECHNICAL BROCHURE

B3885



FEATURES

Impeller: Cast iron, semi-open, non-clog with pump-out vanes for mechanical seal protection. Balanced for smooth operation. Silicon bronze impeller available as an option.

Casing: Cast iron volute type for maximum efficiency. 2" NPT discharge.

Mechanical Seal: Silicon Carbide vs. Silicon Carbide sealing faces. Stainless steel metal parts, BUNA-N elastomers.

Shaft: Corrosion-resistant, stainless steel. Threaded design. Locknut on all models to guard against component damage on accidental reverse rotation.

Fasteners: 300 series stainless steel.

Capable of running dry without damage to components.

Designed for continuous operation when fully submerged.

EXTENDED WARRANTY AVAILABLE FOR RESIDENTIAL APPLICATIONS.

WE Series Model 3885

SUBMERSIBLE EFFLUENT PUMPS

 **GOULDS**
WATER TECHNOLOGY
a xylem brand

Wastewater

APPLICATIONS

Specifically designed for the following uses:

- Homes, Farms, Trailer Courts, Motels, Schools, Hospitals, Industry, Effluent Systems

SPECIFICATIONS

Pump

- Solids handling capabilities: 3/4" maximum.
- Discharge size: 2" NPT.
- Capacities: up to 140 GPM.
- Total heads: up to 128 feet TDH.
- Temperature: 104°F (40°C) continuous, 140°F (60°C) intermittent.
- See order numbers on reverse side for specific HP, voltage, phase and RPM's available.

MOTORS

- Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.
- Class B insulation on 1/2 - 1 1/2 HP models.
- Class F insulation on 2 HP models.

Single phase (60 Hz):

- Capacitor start motors for maximum starting torque.
- Built-in overload with automatic reset.

- SJTOW or STOW severe duty oil and water resistant power cords.
- 1/2 - 1 HP models have NEMA three prong grounding plugs.
- 1 1/2 HP and larger units have bare lead cord ends.

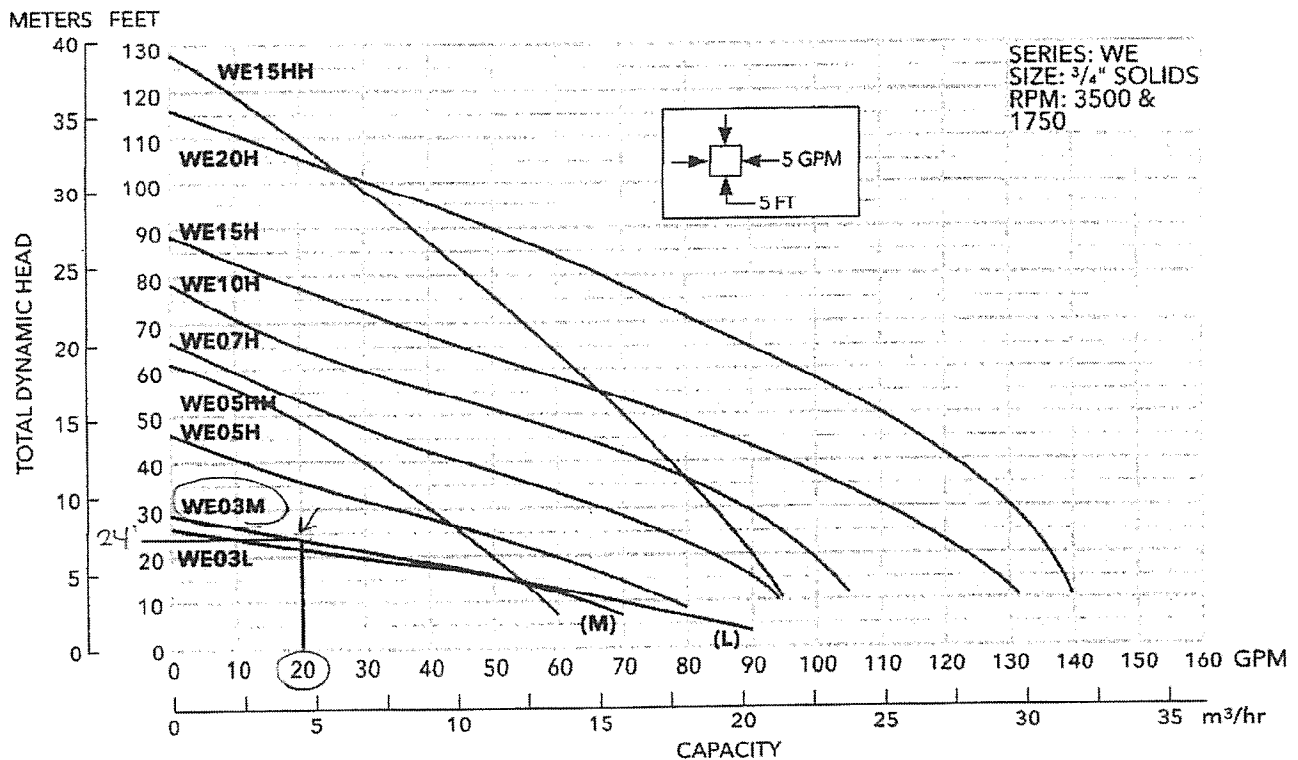
Three phase (60 Hz):

- Class 10 overload protection must be provided in separately ordered starter unit.
- STOW power cords all have bare lead cord ends.
- Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.
- Bearings: Upper and lower heavy duty ball bearing construction.
- Power Cable: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. Standard cord is 20'. Optional lengths are available.
- O-ring: Assures positive sealing against contaminants and oil leakage.

AGENCY LISTINGS



Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association File #LR38549



Goulds Water Technology

Wastewater

MODELS

Order Number	HP	Phase	Volts	RPM	Impeller Diameter (in.)	Maximum Amps	Locked Rotor Amps	KVA Code	Full Load Efficiency %	Resistance		Power Cable Size	Weight (lbs.)
										Start	Line-Line		
WE0311L	0.33	1	115	1750	5.38	10.7	30.0	M	54	11.9	1.7	16/3	56
WE0318L			208			6.8	19.5	K	51	9.1	4.2		
WE0312L			230			4.9	14.1	L	53	14.5	8.0		
WE0311M			115			10.7	30.0	M	54	11.9	1.7		
WE0318M			208			6.8	19.5	K	51	9.1	4.2		
WE0312M			230			4.9	14.1	L	53	14.5	8.0		
WE0511H	0.5	1	115	3450	3.56	14.5	46.0	M	54	7.5	1.0	14/3	60
WE0518H			208			8.1	31.0	K	68	9.7	2.4	16/3	60
WE0512H			230			7.3	34.5	M	53	9.6	4.0	14/4	60
WE0538H		3	200			4.9	22.6	R	68	NA	3.8		
WE0532H			230			3.3	18.8	R	70	NA	5.8		
WE0534H			460			1.7	9.4	R	70	NA	23.2		
WE0537H		575	1.4		7.5	R	62	NA	35.3	14/3	60		
WE0511HH		1	115		14.5	46.0	M	54	7.5			1.0	
WE0518HH			208		8.1	31.0	K	68	9.7			2.4	16/3
WE0512HH			230		7.3	34.5	M	53	9.6	4.0	14/4	60	
WE0538HH		3	200		4.9	22.6	R	68	NA	3.8			
WE0532HH			230		3.6	18.8	R	70	NA	5.8			
WE0534HH	460		1.8	9.4	R	70	NA	23.2	14/4	60			
WE0537HH	575	1.5	7.5	R	62	NA	35.3						
WE0718H	0.75	1	208	3450	4.06	11.0	31.0	K			68	9.7	2.4
WE0712H			230			10.0	27.5	J	65	12.2	2.7	14/4	70
WE0738H		3	200			6.2	20.6	L	64	NA	5.7		
WE0732H			230			5.4	15.7	K	68	NA	8.6		
WE0734H			460			2.7	7.9	K	68	NA	34.2		
WE0737H			575			2.2	9.9	L	78	NA	26.5		
WE1018H	1	1	208	3450	4.44	14.0	59.0	K	68	9.3	1.1	14/3	70
WE1012H			230			12.5	36.2	J	69	10.3	2.1	14/4	70
WE1038H		3	200			8.1	37.6	M	77	NA	2.7		
WE1032H			230			7.0	24.1	L	79	NA	4.1		
WE1034H			460			3.5	12.1	L	79	NA	16.2		
WE1037H			575			2.8	9.9	L	78	NA	26.5		
WE1518H	1.5	1	208	3450	4.56	17.5	59.0	K	68	9.3	1.1	14/3	80
WE1512H			230			15.7	50.0	H	68	11.3	1.6	14/4	80
WE1538H			3			200	10.6	40.6	K	79	NA		
WE1532H		230				9.2	31.7	K	78	NA	2.9		
WE1534H		460				4.6	15.9	K	78	NA	11.4		
WE1537H		575	3.7			13.1	K	75	NA	16.9	14/3	80	
WE1518HH		1	208		17.5	59.0	K	68	9.3	1.1			
WE1512HH			230		15.7	50.0	H	68	11.3	1.6			14/4
WE1538HH			3		200	10.6	40.6	K	79	NA	1.9		
WE1532HH		230			9.2	31.7	K	78	NA	2.9			
WE1534HH		460			4.6	15.9	K	78	NA	11.4	14/4	80	
WE1537HH		575	3.7		13.1	K	75	NA	16.9				
WE2012H	2	1	230	3450	5.38	18.0	49.6	F	78	3.2			1.2
WE2038H			200			12.0	42.4	K	78	NA	1.7	14/4	83
WE2032H		3	230			11.6	42.4	K	78	NA	1.7		
WE2034H			460			5.8	21.2	K	78	NA	6.6		
WE2037H			575			4.7	16.3	L	78	NA	10.5		

TANK ALERT® XT Alarm System

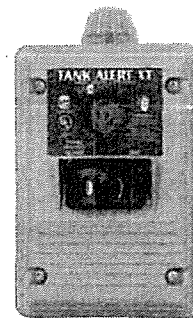
Versatile, indoor or outdoor liquid level alarm system.

This alarm system monitors liquid levels in lift pump chambers, sump pump basins, holding tanks, sewage, agricultural, and other water applications.

The Tank Alert® XT indoor/outdoor alarm can serve as a high or low level alarm depending on the float switch model used.

The alarm horn sounds and the red beacon illuminates when a potentially threatening liquid level condition occurs. The horn can be silenced, but the alarm light remains on until the condition is remedied. Once the condition is cleared, the alarm will automatically reset.

A "power on" light on the switch indicates power to the alarm panel.



FEATURES

- Enclosure meets Type 3R water-tight standard.
- Automatic alarm reset, horn silence switch, and alarm test switch.
- Alarm horn sounds at 85 decibels at 10 feet (3 meters).
- Alarm system (when installed on separate circuit) operates even if pump circuit fails.
- Complete package includes standard SJE SignalMaster® control switch with 15 feet (4.57 meters) of cable (other lengths available) and mounting clamp.
- UL Listed for indoor or outdoor use.
- CSA Certified.
- Five-year limited warranty.



OPTIONS

When ordered with the alarm, the system is available with:

- alternate float switch models for high or low liquid level warning.
- auxiliary dry normally open contacts for easy attachment of remote devices.
- premounted terminal block so enclosure can also be used as a junction box for splicing pump, pump switch, and pump power. Meets NEC standard for junction boxes.
- 6 foot (1.8 meter) power cord and liquid-tight connectors.

SPECIFICATIONS

VOLTAGE: 120 VAC, 50/60 Hz

ALARM ENCLOSURE: 6.5 x 4.5 x 3.0 inch (16.51 x 11.43 x 7.62 cm), indoor-outdoor, weatherproof, thermoplastic meets Type 3R water-tight standard

ALARM HORN: 85 decibels at 10 feet (3 meters), meets Type 3R water-tight standard as installed by factory

ALARM BEACON: UL Listed, Type 4x beacon assembly

TEST/SILENCE SWITCH: certified to IP66 and IP68 standards

AUXILIARY ALARM CONTACTS (OPTIONAL): 120 VAC, 5 amps max., 50/60 Hz

PRE-MOUNTED TERMINAL BLOCK (OPTIONAL): 20 amps, 120/230 VAC

POWER CORD (OPTIONAL): 6 foot (1.8 meter) cord with 120 VAC plug

FLOAT SWITCH: SJE SignalMaster® control switch with mounting clamp
Cable: 15 feet (4.57 meters), flexible 18 gauge, 2 conductor (UL) SJOW, water-resistant (CPE)

Float: 2.74 inch diameter x 4.83 inch long (7 cm x 12.3 cm), high impact, corrosion resistant polypropylene housing for use in sewage and non-potable water up to 140°F (60°C)

SEE BACKSIDE FOR ORDERING INFORMATION.

**SJE
Rhombus**

PO Box 1708, Detroit Lakes, MN 56502

1-888-DIAL-SJE • 1-218-847-1317

1-218-847-4617 Fax

email: customer.service@sjerhombus.com

www.sjerhombus.com

101

DOUBLE FLOAT® MASTER Pump Switch

Mechanically activated switch designed to control pumps up to 15 FLA, 90 LRA, 120 VAC or 240 VAC.

This mechanically activated, pump switch provides automatic control of pumps in non-potable water and sewage applications. It is well-suited for confined applications requiring an accurate pumping range. It is not sensitive to rotation or turbulence. This switch is voltage sensitive - use with correct voltage.

The Double Float® Master pump switch consists of two mechanical floats and a splice tube. The splice tube contains a holding relay which enables the floats to function in series.

The holding relay eliminates pump chatter in turbulent conditions allowing the Double Float® Master pump switch to operate relay control panels for larger pump applications.



FEATURES

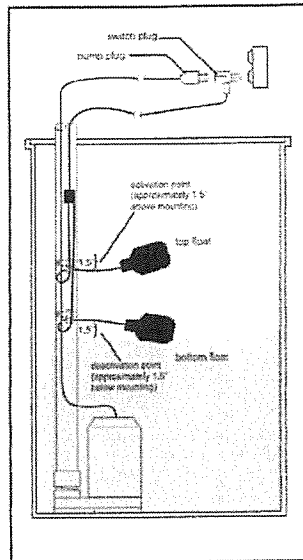
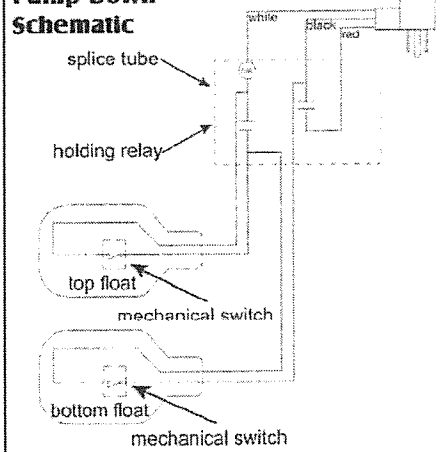
- Controls pumps up to 15 FLA, 90 LRA, 120 VAC or 240 VAC.
- Adjustable pumping range of 3 to 48 inches (7.6 to 122 cm) with increased pumping range up to 6 feet (1.8 meters) available.
- Includes standard mounting clamps and boxed packaging.
- CSA Certified.
- Five-year limited warranty.



Hydraulic



Pump Down Schematic



SPECIFICATIONS

Cable attached to float housing: flexible 18 gauge, 2 conductor (UL, CSA) SJOW, water-resistant (CPE)

Cable above splice: flexible 14 gauge, 3 conductor (UL, CSA) SJTW, water-resistant, thermoplastic

FLOATS: 2.74 inch diameter x 4.83 inch long (7.0 x 12.3 cm) high impact, corrosion resistant, PP housing for use in sewage and non-potable water up to 140°F (60°C)

ELECTRICAL:

120 VAC 50/60Hz Single Phase:

Maximum Pump Running Current (FLA):
15 amps
Maximum Pump Starting Current (LRA):
90 amps

240 VAC 50/60Hz Single Phase:

Maximum Pump Running Current (FLA):
15 amps
Maximum Pump Starting Current (LRA):
90 amps

NOTE: This switch must be used with pumps that provide integral thermal overload protection.

OPTIONS

This switch is available:

- for pump down or pump up applications as specified by part number.
- with a 120 VAC or 240 VAC piggy-back plug.
- without a plug for direct wiring (120 VAC units can only be used with 120 VAC applications within specified amp ratings. 240 VAC units can only be used with 240 VAC applications within specified amp ratings).
- in standard cable lengths of 15, 20, or 30 feet and 5 or 10 meters (longer lengths available).

SEE BACKSIDE FOR ORDERING INFORMATION.

SJE
Rhombus

PO Box 1708, Detroit Lakes, MN 56502
1-888-DIAL-SJE • 1-218-847-1317
1-218-847-4617 Fax

email: customer.service@sjerhombus.com

www.sjerhombus.com

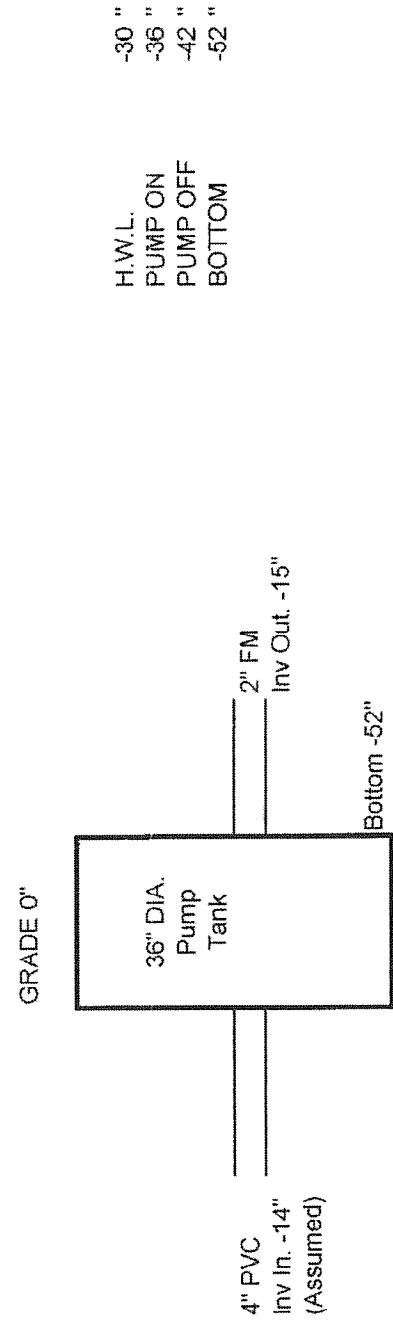
F.9

1 LF TRANSMISSION LINE, 15' STATIC HEAD (MAX)

AVERAGE FLOW: 480 GPD (0.33 GPM)

FORCE MAIN SIZE:
 $D_{max} = 0.404 * \sqrt{Q \text{ peak}}$
 $D_{max} = 0.404 * \sqrt{Q_{0.33 \text{ GPM}}}$
 $D_{max} = 0.23"$

Use 2" SCHD 40 PVC



STATIC HEAD: SH = HIGH POINT - PUMP OFF
 SH = 15 FT

PIPE AND FITTING SCHEDULE

Date: 7/7/2014
 Design: KAY
 Page: 2 of 2

Q (GPM)	2" STEEL		2" PVC (SCHD 40)		K-VALUE
	V ² / 2G	Hf (ft/100 ft)	V ² / 2G	Hf (ft/100 ft)	
20	0.0568	0.868	0.05031	0.63	
					2" CHECK VALVE 0.04
					2" GATE VALVE 0.16
					2" 90 BEND 1
					2" 45 BEND 0.32

Note: K-values per Supplement to NCC Std. Spec
 Construction Section 35.16, Part 5
 Sample Designs for Sewage Pumping Stations

LOSSES

20 GPM	2" CHECK VALVE (STEEL)	*	0.154	*	0.04	=	0.00616
	2" GATE VALVE (STEEL)	*	0.154	*	0.16	=	0.02464
	2" 90 BEND (STEEL)	*	0.154	*	1	=	0.15400
	2" 45 BEND (PVC)	*	0.124	*	0.32	=	0.07959
	2" STEEL FM	*	2.94	(/100)		=	0.1176
	2" PVC FM	*	1.89	(/100)		=	0.01890
	STATIC HEAD					=	15.00
	TOTAL						15.40

WET WELL VOLUME (36" DIA. TANK)

AREA OF WET WELL (ID) = 3.14 * (1.5')² SF
 PUMP ON TO PUMP OFF = 6" SF
 VOLUME = 7.1 SF * (6"/12") FT * 7.48 GAL/CF = 26.5 GAL

PROJECT NAME: GILLESPIE 36
LIFT PUMP PACKAGE

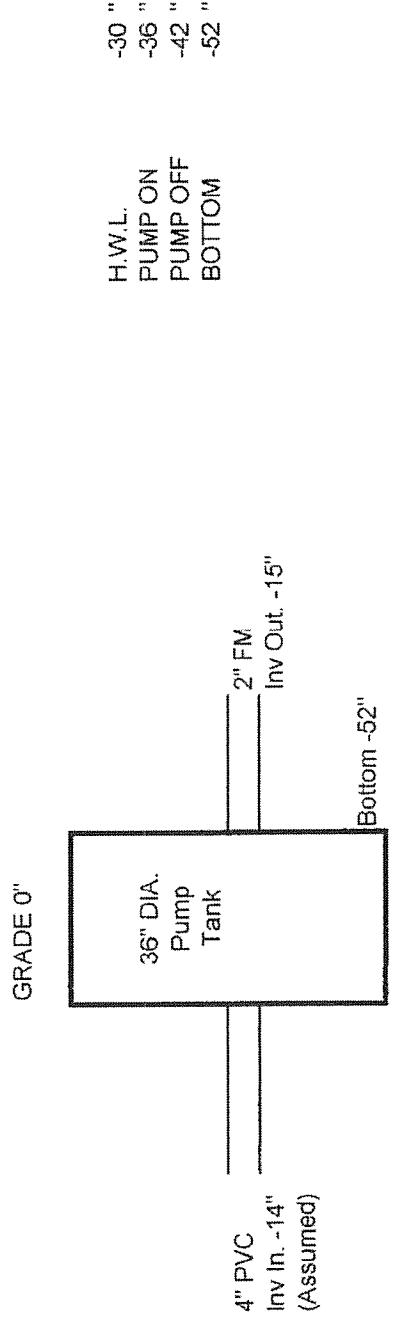
Date: 6/8/2017
Design: KAY
Page: 1 of 2

300 LF TRANSMISSION LINE, 15' STATIC HEAD (MAX)

AVERAGE FLOW: 480 GPD (0.33 GPM)

FORCE MAIN SIZE:
 $D_{max} = 0.404 * \sqrt{Q \text{ peak}}$
 $D_{max} = 0.404 * \sqrt{0.33 \text{ GPM}}$
 $D_{max} = 0.23"$

Use 2" SCHD 40 PVC



STATIC HEAD: SH = HIGH POINT - PUMP OFF
 SH = 15 FT

PIPE AND FITTING SCHEDULE

Date: 7/7/2014
 Design: KAY
 Page: 2 of 2

Q (GPM)	V ² / 2G	Hf (ft/100 ft)	2" STEEL	2" PVC (SCHD 40)	V ² / 2G	Hf (ft/100 ft)	FITTING	K-VALUE
20	0.0568	0.868		0.05031		0.63	2" CHECK VALVE	0.04
							2" GATE VALVE	0.16
							2" 90 BEND	1
							2" 45 BEND	0.32

Note: K-values per Supplement to NCC Std. Spec
 Construction Section 35.16, Part 5
 Sample Designs for Sewage Pumping Stations

LOSSES

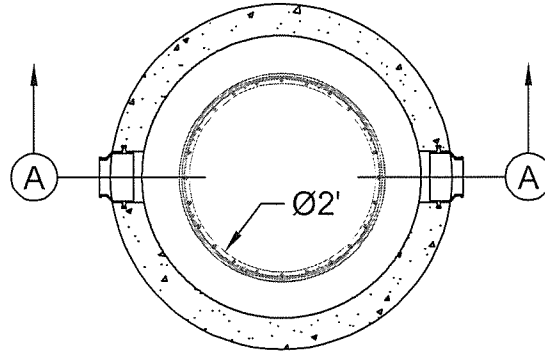
20 GPM	2" CHECK VALVE (STEEL)	1	*	0.154	*	0.04	=	0.00616
	2" GATE VALVE (STEEL)	1	*	0.154	*	0.16	=	0.02464
	2" 90 BEND (STEEL)	1	*	0.154	*	1	=	0.15400
	2" 45 BEND (PVC)	2	*	0.124	*	0.32	=	0.07959
	2" STEEL FM	4	*	2.94	(/100)		=	0.1176
	2" PVC FM	300	*	1.89	(/100)		=	5.67000
	STATIC HEAD						=	15.00
	TOTAL							21.05

WET WELL VOLUME (36" DIA. TANK)

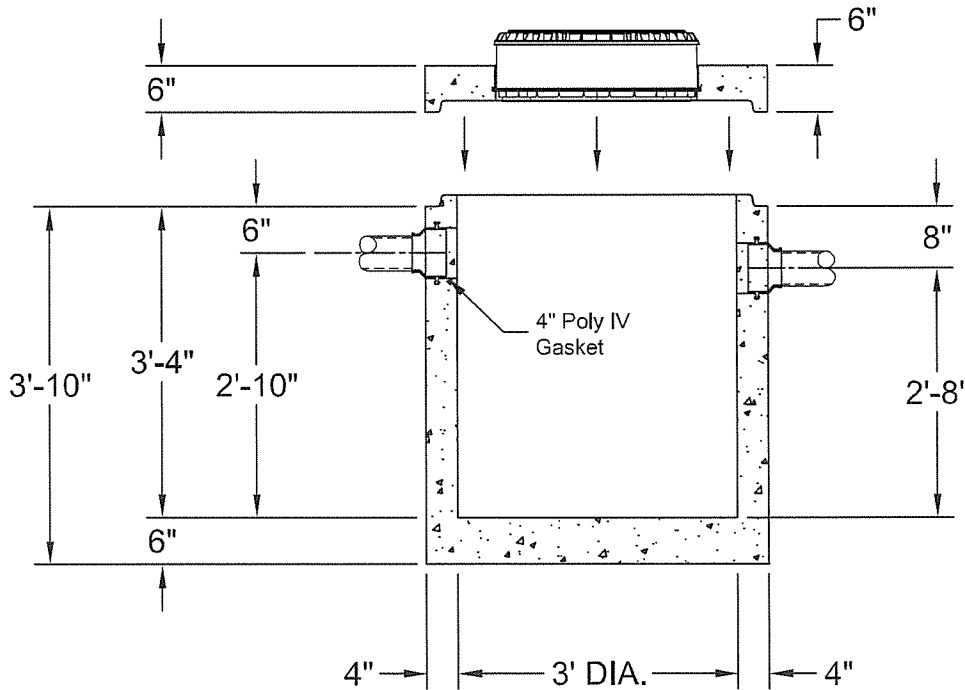
AREA OF WET WELL (ID) = 3.14 * (1.5')² = SF
 PUMP ON TO PUMP OFF = 6" SF
 VOLUME = 7.1 SF * (6"/12") FT * 7.48 GAL/CF = 26.5 GAL

GENERAL NOTES:

1. Manhole is manufactured I.A.W. ASTM C-478.
F'c= 5000 psi @ 28 days.
2. Dimensions to meet field requirements and project elevations.
3. Reinforcing: ASTM A-185 area 0.12 In./vertical ft.
4. Pipe to manhole seal to be Poly Seal
5. Polylok Riser & Lid Ø24"



PLAN VIEW



SECTION VIEW A-A



1-800-638-6884
www.gillespieprecast.com

Ø36" Concrete Pump / Filter Basin

DRAWN BY:	klS	DATE:	9-14-16
SCALE:	NOT TO SCALE	DWG. #:	1 of 1