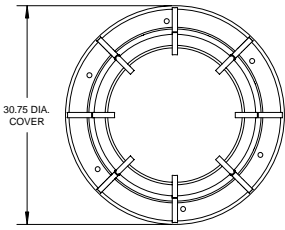


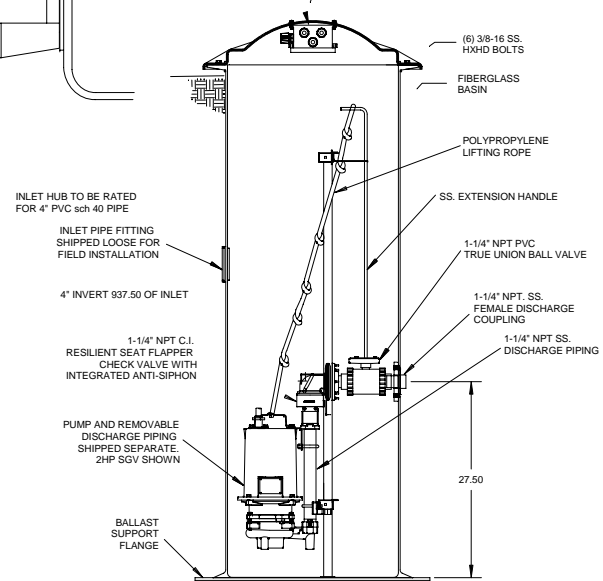
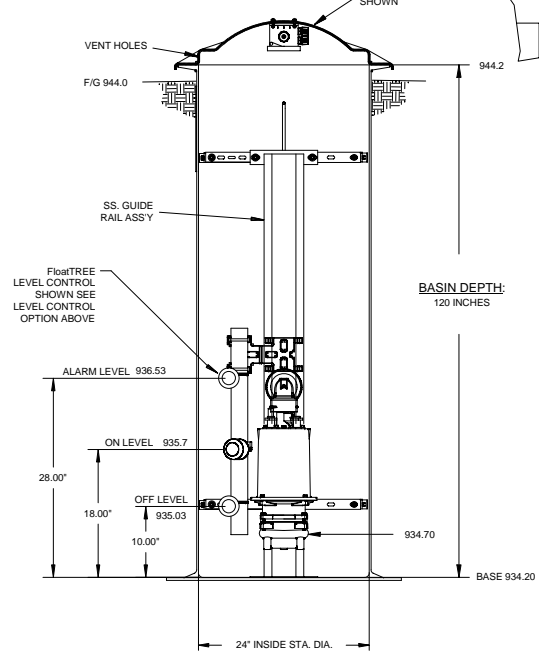
MOUNT CONTROL PANEL TO THE OUTSIDE OF THE NEW BUILDING



**NOTES:**

- 1) ALL DIMENSIONS TO BE ± 1/4" UNLESS OTHERWISE SPECIFIED.
- 2) INTERMEDIATE SUPPORT SUPPLIED FOR DEPTHS 12 FT. AND DEEPER.
- 3) CONSULT FACTORY FOR OTHER DEPTHS

CONTROL PANEL MUST BE LOCKABLE WITH A PAD LOCK



**DESIGN NOTES - SANITARY PUMP STA PREFABRICATED SIMPLEX GRINDER STA.**

WILL SERVICE A SMALL RESTROOM IN A REMOTE LOCATION  
**PEAK/AVERAGE DAILY SEWAGE FLOW RATE:**  
 - If all fixtures in use within building Peak Flow = 17gpm  
 - An average daily flow is 1/4 of the Peak Flow = 4.25gpm  
**STATIC HEAD:**  
 - Max. HDSZ C/L pipe at specific task = 934.70 C/L of pump volume = 17.8ft  
 - Max. HDSZ = 902.5 pump OH elevation = 16.8ft  
**FORCE MAIN SIZING & VELOCITIES:**  
 - Force Main piping to be 2" PVC sch 40 = 12ft/24ft  
 - (The 2" PVC Force main must be installed with back fall from the station to the discharge point)  
 - Station piping to be 1-1/4" PVC sch 80 = 12ft/25ft  
 - Velocity of 4.28ft/sec in the 2" Force main.  
**FORCE MAIN PIPING:**  
 - 504LF of 2" PVC sch 40 pipe @ 35gpm in force main  
 - 40LF of 1-1/4" PVC sch 80 pipe @ 35gpm in station piping  
**LOSSES IN FITTING - FORCE MAIN:**

Fitting	Equip. Length	Qty.	Total Equip. Length
2" 90 degree bend	1.38	1	1.38
2" 45 degree bend	0.78	1	0.78
2" 90 degree bend	0.17	1	0.17
2" swing check	1.72	1	1.72
2" outlet	1.7	1	1.7
<b>Total of FM fittings equip. lengths</b>			<b>5.82</b>

**LOSSES IN FITTING - STATION:**

Fitting	Equip. Length	Qty.	Total Equip. Length
1/4" tee	1.84	1	1.84
1-1/4" 90 degree bend	3.45	1	3.45
2" swing check	3.45	1	3.45
1-1/4" Ball Valve	.86	1	.86
1-1/4" Ball Check	.10	1	.10
<b>Total of STA fittings equip. lengths</b>			<b>10.30</b>

**EQUIVALENT LENGTH:**  
 - FM piping = 504LF      Hf = 16.3341337  
 - STA piping = 40LF      Hf = 1.404887979  
 - FM fittings = 58.55LF      Hf = 1.679820779  
 - STA fittings = 23.05LF      Hf = 7.470507749  
**TOTAL = 579.45LF      Hf = 26.792850666 or 26.79ft**  
**TOTAL DYNAMIC HEAD:**  
 - Static Head (H<sub>s</sub>) + Head Losses (H<sub>f</sub>) = 44.59ft  
**DESIGN POINTS:**  
 - 35gpm @ 45' TDH

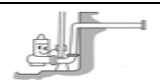
**Buoyancy Calculations:** 2 ft. Dia. Wet Well  
 Assume maximum ground water is at finish grade.  
 Buoyant Force = Weight of displaced water  
 Volume of displaced water:  

$$= (10') \times (\frac{\pi}{4}) \times (14')^2 = 314.16 \text{ ccf}$$
 Weight of displaced water = 31.42ccf x 62.4lbs/ccf = 1,960.61lbs  
 Volume of fiberglass structure:  
 Weight of fiberglass structure = 10ccf x 150lbs/ccf = 1,500lbs  
 Volume of dirt on base:  

$$= (\frac{2.5'}{4})^2 \times (\frac{\pi}{4}) \times 314.16 \text{ ccf} = 17.66 \text{ ccf}$$
 Weight of dirt on base = 17.66ccf x 100lbs/ccf = 1,766.25lbs.  
 There for:  
 Weight of Structure and Dirt over base lip (1,916.25lbs) < Weight of Displaced Water (1,960.60lbs) = BALLAST IS NEEDED  
 THE MANUFACTURE SUGGEST THAT AT LEAST 0.78 CU. YARDS OF CONCRETE BE POURED IN AROUND AND ON THE FLANGE AT THE BOTTOM OF THE STATION.

**EQUIPMENT SUPPLIER:** JETT Pump & Valve, LLC  
 4770 Pontiac Lk. Rd.  
 Waterford, MI 48328  
 Phone: 248-673-2530  
 Fax: 248-673-2574

REV. NO.	REV. NO.	DATE
1	FIRST DESIGN	03-10-05
2	EDITS AFTER REVIEW	04-09-05



**JETT Pump & Valve, LLC**  
 4770 Pontiac Lake Rd.  
 Waterford, MI 48328

WALLED LAKE SCHOOLS  
 OUTDOOR EDUCATION CENTER

SIMPLEX GRINDER STATION

DWG BY: JMB  
 DATE: 03/10/05  
 DWG NO:

PS1