

GP 1000

Typical Installation Instructions & Warranty Information

Environment One Grinder Pump Feature Identification

1. **Grinder Pump Basin** – High density polyethylene (HDPE)
2. **Accessway Cover** – Fiberglass reinforced polyester
3. **Electrical Quick Disconnect (EQD)** – Electrical lead from pump core terminates here (NEMA 6P).
4. **Power and Alarm Lead** – Circuits to be installed in accordance with local codes.
5. **Alarm Panel** – Rainproof (NEMA 4X) enclosure. Equipped with circuit breakers. Locate according to local codes.
6. **Alarm Device** – Every installation is to have an alarm device to alert the homeowner of a potential malfunction. Visual devices should be placed in conspicuous locations.
7. **Inlet** – 4-inch PVC socket (4.5 inches ID). For solvent cementing DWV pipe.
8. **Settling Loop** – Coil wire to protect against soil settling.
9. **Gravity Service Line** – 4-inch DWV (4.5 inches OD). Supplied by others.
10. **Discharge Outlet** – 1 ¼-inch solvent weld
11. **Discharge Line** – 1 ¼-inch nominal pipe size. Supplied by others.
12. **Concrete Anchor** – See Charts 1 and 2 for correct ballast weight. Supplied by others.
13. **Bedding Material** – 6-inch minimum depth, rounded aggregate (gravel). Supplied by others.
14. **Finished Grade** – Grade line should be below the cover and slope away from the accessway.
15. **Conduit** – 1 ¼-inch PVC to burial depth required by local code. Supplied by others.
16. **Rebar** – Required to lift tank after ballast has been attached (4 places, evenly spaced around tank). Supplied by others.
17. **Grinder Pump Basin** – Fiberglass
18. **Station Lid** – Fiberglass
19. **Station Vent** – 2" PVC vent assembly
20. **Inlet** – EPDM grommet (4.5" ID). For 4.5" OD DWV pipe.

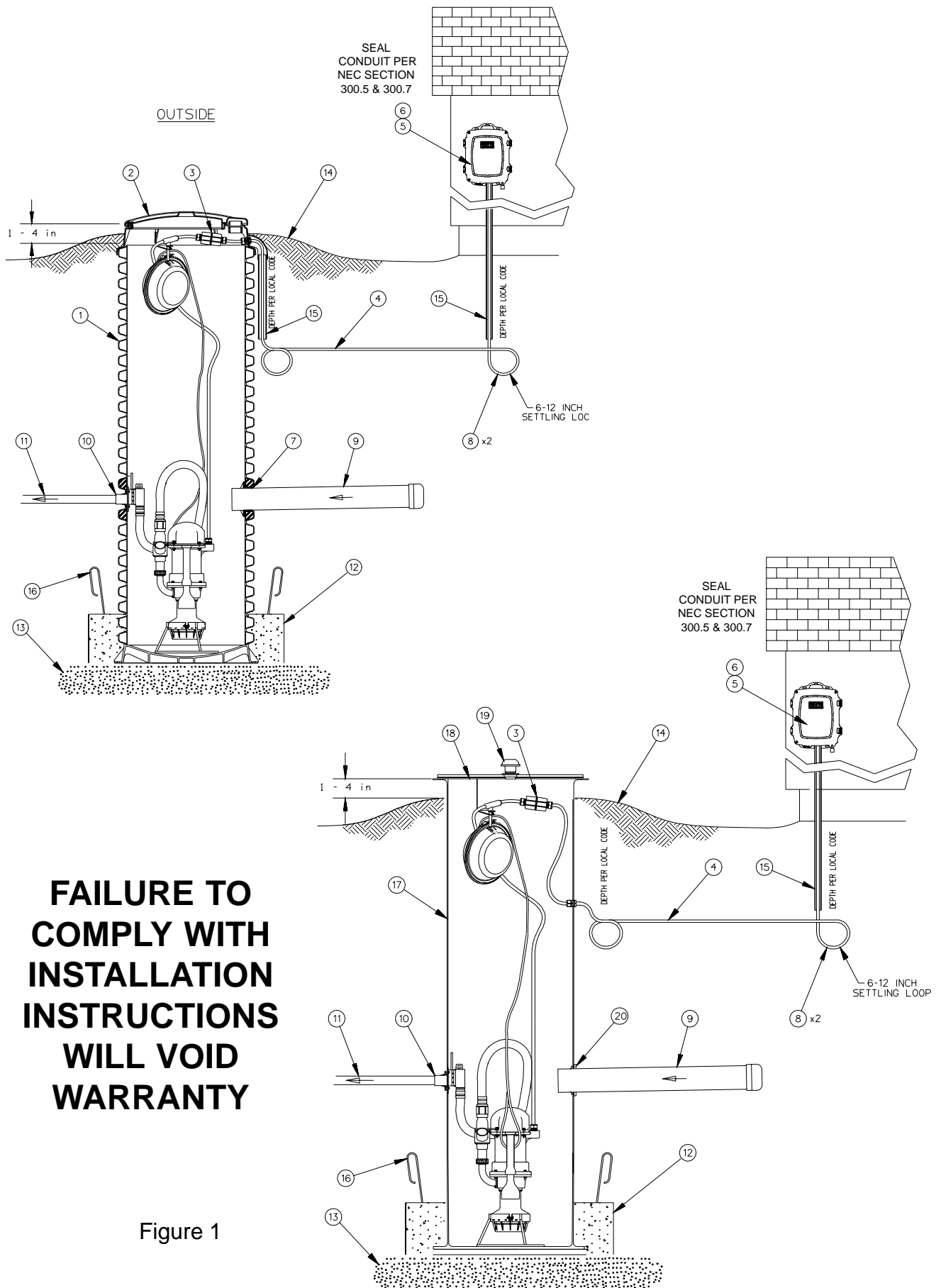


Figure 1

Installation Instructions for Model 1010 Grinder Pump

The Environment One Grinder Pump is a well-engineered, reliable and proven product; proper installation ensures years of trouble-free service. The following instructions define the recommended procedure for installing the Model 1010 Grinder Pump. The Model 1010 is a sewage-handling pump and must be vented in accordance with local plumbing codes. Do not install the unit in locations classified as hazardous in accordance with the National Electric Code, ANSI/NFPA 70. All piping and electrical systems must be in compliance with applicable local and state codes.

1. Remove Packing Material

Give the User Instructions to the homeowner. Hardware supplied with the unit, if required, will be used during installation.

2. Tank Installation (HDPE TANK)

The tank is supplied with a standard 4-inch PVC DWV (4.5 inches inside dia.) inlet for connecting the incoming sewer drain. Other inlet types and sizes are optional (caution 4" DR-35 pipe is of smaller diameter and won't create a water tight joint with the standard grommet). Please confirm that you have the correct inlet before continuing. If a concrete ballast is attached to the tank, lift only by the lifting eyes embedded in concrete. Do not drop, roll or lay the tank on its side. Doing so may damage the unit and void the warranty. Excavate a hole to a depth so the removable cover extends 2

inches above the finished grade line; the grade should slope away from the unit. The diameter of the hole must be large enough to allow a concrete anchor. Place the unit on a 6-inch bed of gravel, naturally rounded aggregate, clean and free-flowing, with particle size not less than 1/8 inch or more than 3/4 inch in diameter. The concrete anchor is required to keep the unit from floating as a result of high groundwater levels. The amount of concrete required varies for each unit (see station detail sheet for the correct ballast weight). The unit should be leveled and filled with water to the bottom of the inlet; doing so prevents the unit from shifting when pouring the cement. The cement must be manually vibrated to eliminate any voids. If pouring the cement to a level higher than the inlet piping is necessary, place an 8-inch sleeve over the inlet prior to pouring the cement.

3. Tank Installation (Fiberglass)

Improper handling of the fiberglass tank may result in damage and, ultimately, failure of the station. Care should be taken during lifting and placement to prevent impacting or otherwise damaging the tank. A non-marring sling should be used when lifting the tank by the fiberglass surfaces. Ensure that lifting sling is rated for the load being lifted. Lifting chains or cables should never be placed in direct contact with the fiberglass tank surfaces. Place the unit on a 6-inch bed of gravel, naturally rounded

aggregate, clean and free-flowing, with particle size not less than 1/8 inch or more than 3/4 inch in diameter in the excavated hole. Orient the installed discharge fitting, as required, to align it with the existing or proposed discharge piping path. Determine and mark the 4" DWV inlet pipe location on the fiberglass tank wall. The inlet pipe location corresponds with the actual or projected point where the 4" building sewer line intersects the tank wall. **The center of the inlet pipe must be a minimum of 30 inches from bottom of the tank.** The slope of the inlet pipe (per national and local code requirements) must be accounted for when determining the inlet location. The supply cable path and cord grip location should be considered when selecting the inlet location (see Section 11 and Figure 6). If the site conditions require concrete tank ballast to prevent flotation, ensure that the volume of concrete used complies with the site Engineer's recommendation. Concrete ballast, if required, should be cast in place around the tank in the excavation. **Do not pour the concrete ballast above the marked inlet pipe location.** If the ballast must be poured above this level, proceed with installation of the inlet piping (see Section 5) before pouring the concrete. The inlet pipe must be sleeved with an 8" tube prior to pouring. The tank should be filled with water, to a level above the specified ballast height to prevent shifting during the concrete pour.

Alternatively, precast concrete, around the tank bottom, may be used for ballast (see Fig. 1). Do not pour ballast above the intended inlet location. If this ballast method is used, lifting hooks must be anchored in the concrete to support subsequent handling of the tank. The lifting hooks must be adequate to support the combined weight of the tank and concrete ballast, and should be sized and installed in accordance with the site Engineer's recommendation. Place the ballasted tank in the excavated hole using the lifting hooks. **Do not lift the tank by any of the fiberglass surfaces if precast ballast is utilized.**

4. Discharge

The use of 1-1/4" PVC pressure pipe Schedule 40 and polyethylene pipe SDR 11 or SDR 7 are recommended. If polyethylene is chosen, use compression type fittings to provide a smooth inner passage. It is recommended that a Redundant Check Valve Assembly (E/One part no. PC0051GXX) be installed between the pump discharge and the street main on all installations. Never use a ball type valve as a check valve. We recommend the valve be installed as close to the public right-of-way as possible. Check local codes for applicable requirements.

CAUTION: Redundant check valves on station laterals and anti-siphon/check valve assemblies on grinder pump cores should not be used as system isolation valves during line tests.

5. Inlet Installation

The type, size and venting requirements of the inlet pipe must be in accordance with all national and local plumbing codes. The pump is a sewage-handling pump and requires ventilation for proper and safe operation.

An HDPE station is provided with The station is supplied with 4-inch PVC socket (4.5 inches ID) for solvent cementing DWV pipe.

A Fiberglass station is supplied with a standard grommet to accept a 4" DWV (4.5" outside diameter) sewer inlet pipe. The grommet is self-sealing and does not require the use of additional sealant or adhesives. Other grommet sizes are available upon request. Verify that the grommet supplied with the station will accommodate the selected inlet piping.

Using a 5" hole saw, drill through the fiberglass tank wall at the marked inlet location. Install the supplied inlet grommet in the 5" hole.

Place a mark on the inlet pipe 3-1/2" in from the end that will enter the fiberglass tank. A bevel should be ground or filed on the pipe end to aid in installation through the grommet. Clean the grommet and pipe surfaces to remove any debris. Apply a film of pipe soap or dish soap to the outside sur-

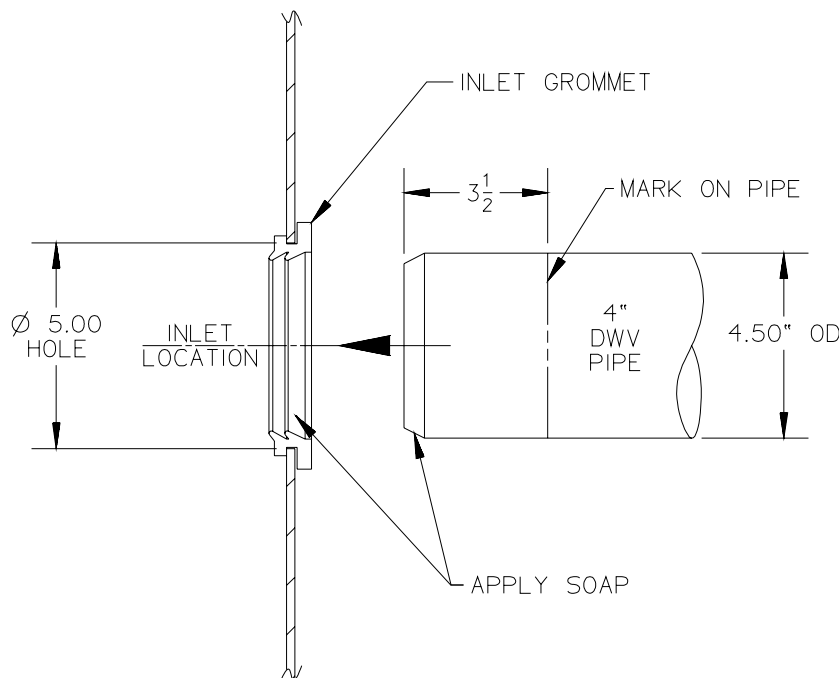


Figure 2

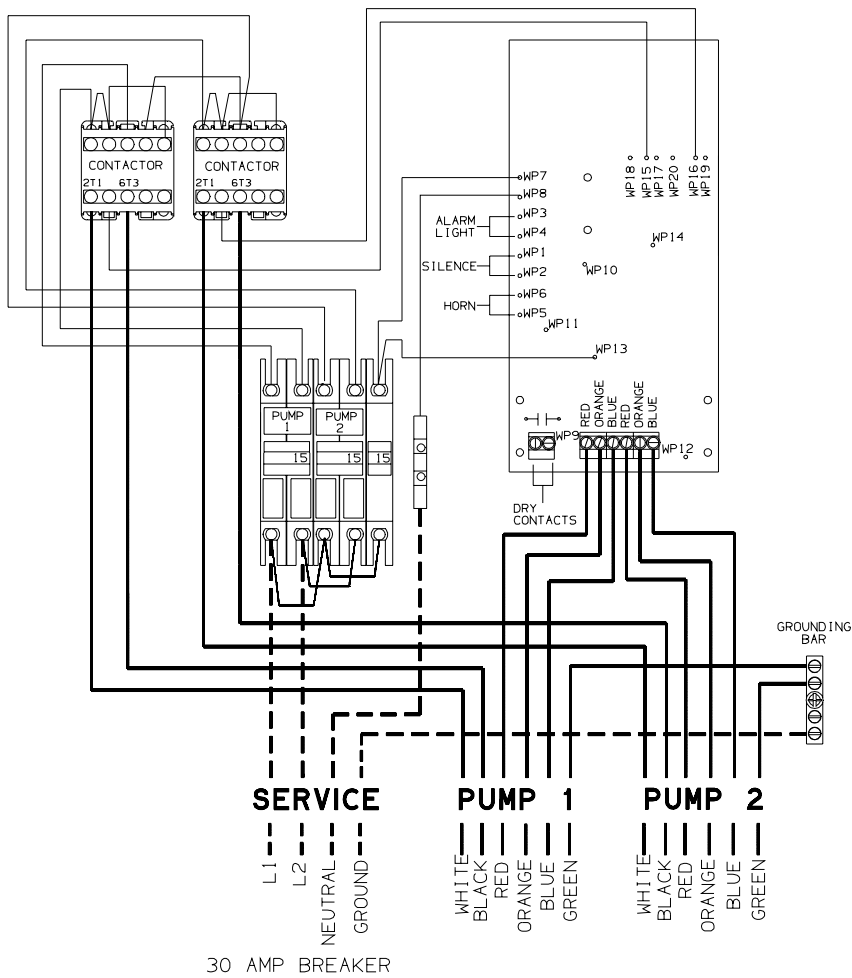


Figure 4 (Duplex 240V)

device is to be installed in a conspicuous location where it can be readily seen by the home owner. An alarm device is required on every installation. There shall be no exceptions.

Wiring of supply panel and Environment One Alarm Panel shall be per figures 3 and 4, Alarm Panel wiring diagrams and local codes.

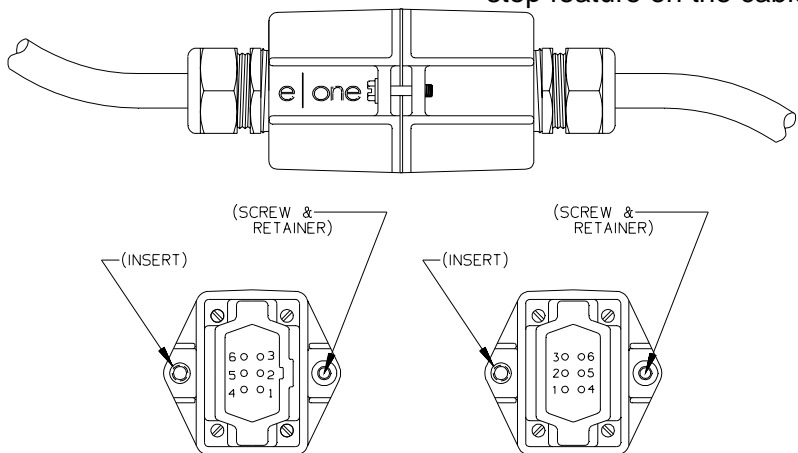
9. Electrical Connection (Pump to Panel)

The cable provided for connection between the station and alarm panel is a six-conductor tray cable that meets NEC requirements for direct burial as long as a minimum of 24 inches

of cover is maintained. Those portions of cable that have less than 24 inches of cover must be contained within suitable conduit. This includes the vertical section that drops to a 24-inch depth at the station and the length exiting out of the ground at the control panel. Note: Wiring must be installed in compliance with local codes (which may vary from above). *NOTE: Wiring must be installed per national and local codes. Conduit must enter panel from bottom and be sealed per NEC section 300.5 & 300.7.*

10. Procedure for installing E/One supply cable with EQD: (HDPE)

1. Open the lid of the station, locate the cable and the feed-thru connector on the wall of the tank. Loosen the nut on the connector and pull the supply cable out through the connector until it hits the crimped on stop feature on the cable,



PIN No.	CONDUCTOR
1	RED
2	BLK
3	WHT
4	GRN
5	ORG
6	BLU

Figure 5

approximately 24" from the EQD.

****IMPORTANT:** All but 24" of the cable must be pulled out of the station, and the portion of the cable between the EQD and the molded in cable breather should be secured in the hook provided to ensure that the pump functions properly. **Do not leave the excess cable in the station.**

2. Retighten the nut. This connection must be tight or ground water will enter the station.
3. Feed the wire through the length of conduit (contractor provided) which will protect it until it is below the 24" burial depth.
4. Position the conduit vertically below the cable connector along side of the station reaching down into the burial depth.
5. Run the cable underground, in a trench or tunnel, to the location of the E-ONE panel. Leave a 6-12 inch loop of cable at each end to allow for shifting and settling. Connections made at the panel are shown in the panel wiring diagram (Fig. 3 and 4).

11. Procedure for installing E-ONE supply cable with EQD: (Fiberglass)

A 32' supply cable and cord grip are provided with the station for electrical connection between the station and the alarm panel. All electrical wiring must be in accordance with local codes. The supply cable is rated under the National Electric Code (NEC) for direct burial as long as a

minimum of 24" of ground cover is maintained. Those portions of the cable with less than 24" of cover must be housed in a suitable protective conduit. The supply cable terminates in a convenient, electrical quick-disconnect (EQD) plug to support future servicing of the grinder pump. The supply cable cord grip provides a leak tight seal around the power cable as it enters the tank and will prevent movement of the supply cable

during burial and subsequent ground settlement. The cord grip should be installed in a position on the tank that will provide convenient, direct routing of the supply cable to the alarm panel. **(Exception: On 48" tall tanks the cord grip should penetrate the tank 18" below the top of the tank; the portion of the cable with less than 24" of soil cover shall be installed in suitable protective conduit.)** Locate and mark the location of

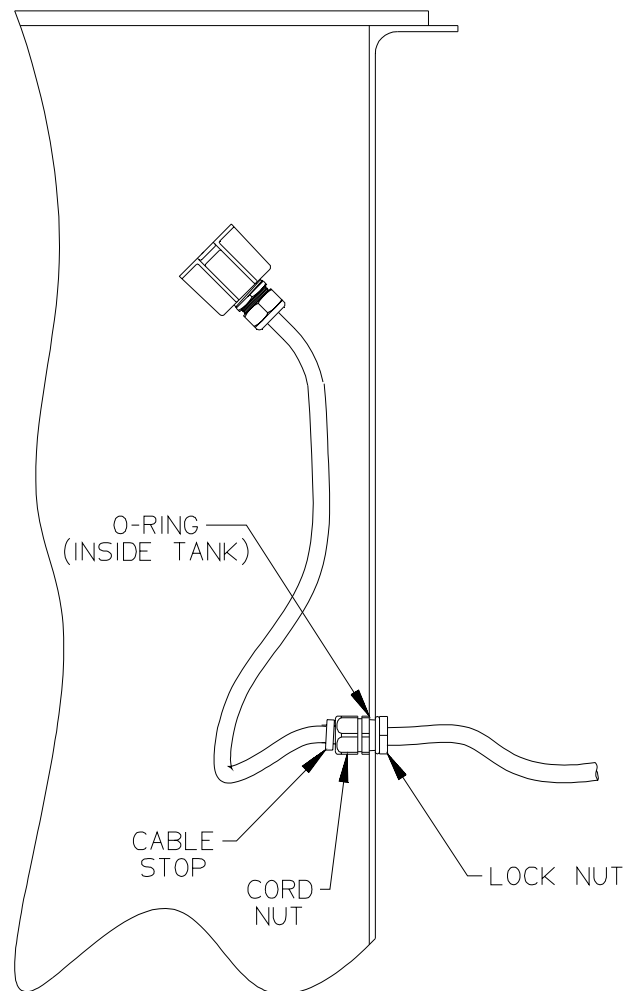


Figure 6

the cord grip on the fiberglass tank wall. **Using a 1-1/16" hole saw, drill through the tank wall at this location. Install the cord grip and O-ring seal as shown.** Tighten the cord grip locknut until snug.

Loosen the cord nut and slide the supply cable free end through the cord grip as shown in Fig. 6. Continue to slide the entire cable length through the cord grip until the metal cable stop rests against the cord grip face. Tighten the cord nut until snug. Failure to tighten the cord nut will result in groundwater entering the station. Use care when installing and burying the supply cable. If the cable is cut or otherwise damaged it may result in a pump

malfunction. Run the supply cable underground, ensuring 24", minimum, of soil coverage, to the control panel location. Leave a 6"-12" loop of supply cable near the station and the control panel to accommodate settlement of the soil. A protective conduit must be utilized where 24" of soil cover cannot be maintained.

12. Grinder Pump Stand Assembly

Detach the three stand retaining rings from the pump stand. Temporarily rest the grinder pump on its side. Using a block of wood or similar object, prop up the lower pump end to allow installation of the pump stand. Align the three legs of the pump stand with the three

holes in the pump lower end. Push the stand legs into the pump lower end until the bend in each stand leg bottoms against the pump-housing surface. Turn the pump upright on the installed stand. Install one stand retaining ring on each of the three leg ends protruding through the pump lower end. The retaining rings are a pressure fit and are easily tapped in place using a 5/16" socket or nut driver and mallet. The retaining rings should only be driven onto each leg approximately 1/4". Do not attempt to bottom the rings against the angled pump surface as this may distort the ring and lessen its holding power.

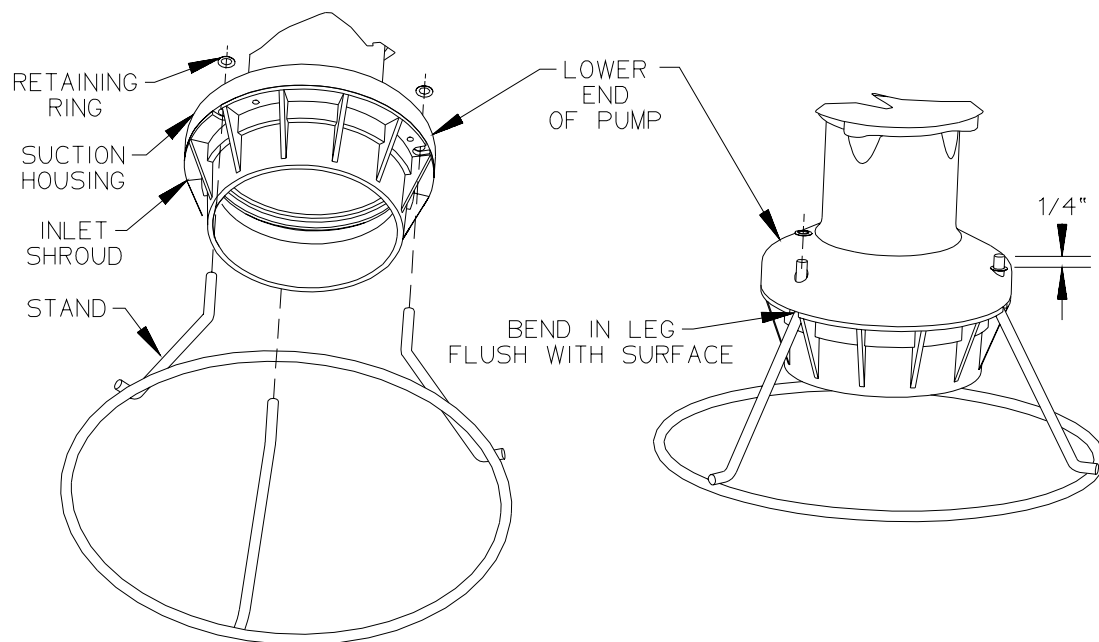


Figure 7

13. Install the Pump

Lower the pump into the tank. Position the pump so the pump's discharge is on the opposite side of the pump relative to the discharge in the tank. Position the pump in the center of the tank. Rotate to coil the discharge hose and slide the adapter on the discharge hose into the receiver in the tank wall. Push the white slider down to open the discharge valve.

Hang power/ breather cable and lifting rope to prevent them from laying in sewage.

Keep between 18 inches and 24 inches of power supply cable in tank. Remove the lower hose

clamp and plug from the Equalizer tube installed in the breather port. Push equalizer tube over barbed fitting on the Equalizer and reinstall hose clamp over the barbed fitting.

14. DEBRIS REMOVAL: Prior to start-up test procedure, the core must be removed and the incoming sewer line flushed to force all miscellaneous debris into the tank. Next, all liquid and debris must be removed. Once tank is clean, reinstall the pump and proceed with the test.

15. Test Procedure

When the system is complete and ready for use, perform the

following test to verify proper installation and operation.

1. Ensure the discharge shut-off valve is fully open. The white slider must be in the down position. This valve must not be closed when the pump is operating. In some installations, a valve(s) at the street main must be open.
2. Turn on the alarm power circuit breaker.
3. Fill the tank with water until the alarm turns on. Shut off the water. Turn on the pump power circuit breaker. The pump should turn on immediately. The alarm will turn off within one minute; the pump will turn off within three minutes.

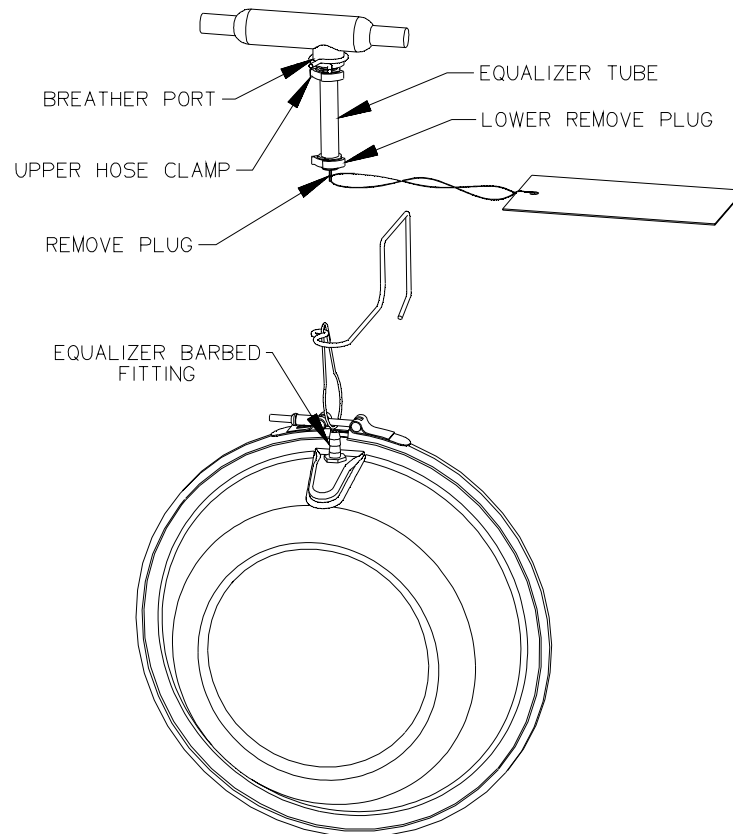
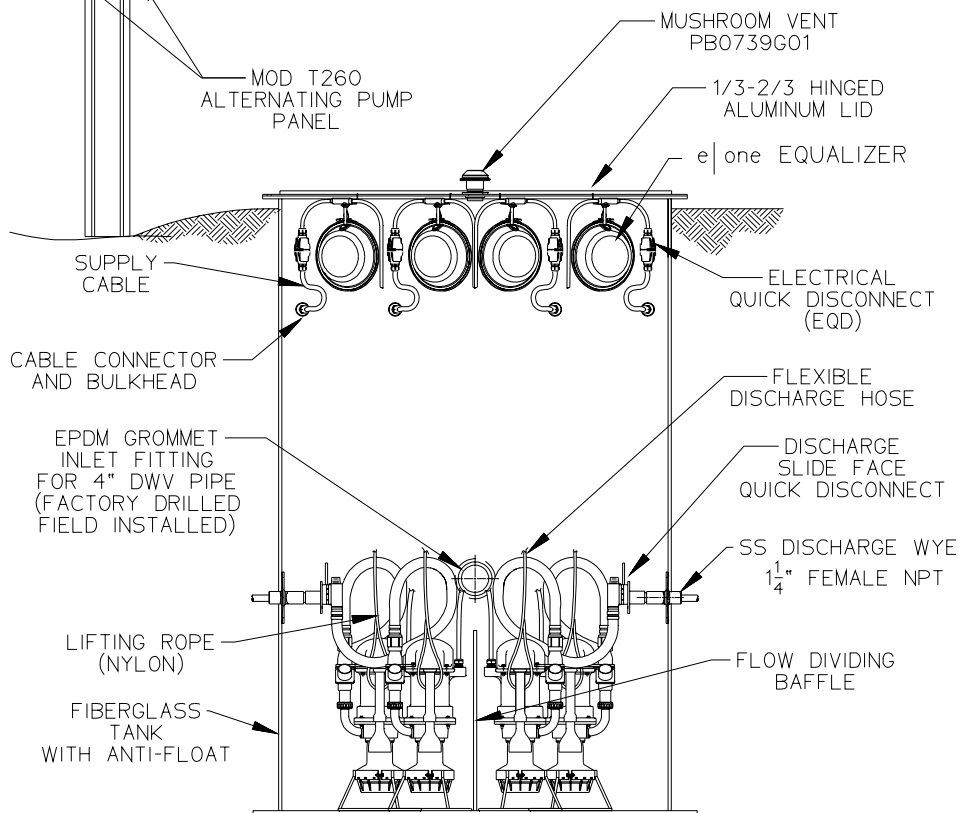
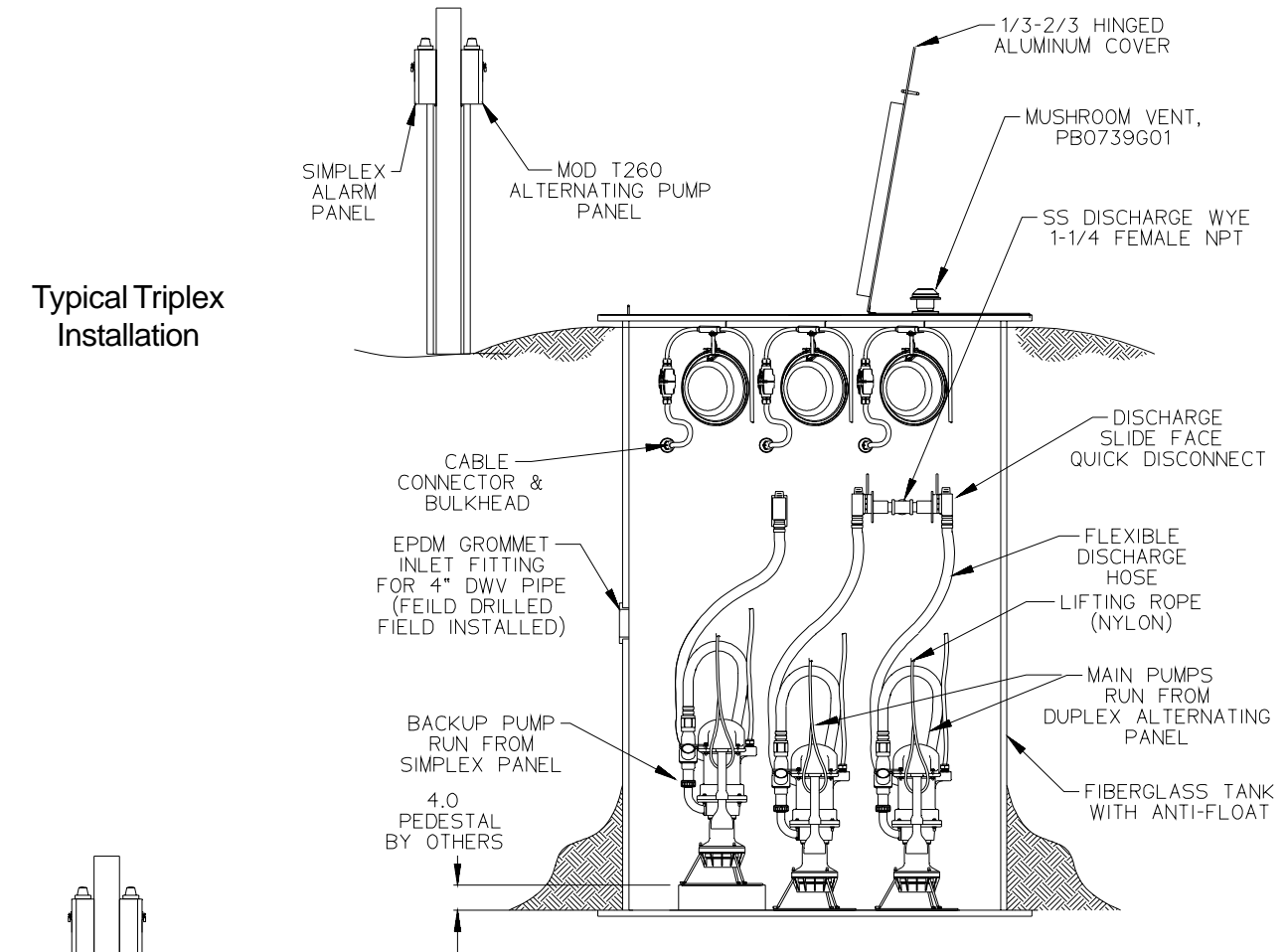


Figure 8

Typical Triplex Installation



Typical Quadriplex Installation

E/One Series 1000 Grinder Pump Station Ballast Calculations

Any buried vessel that is submerged, or partially submerged, in water will be acted on by an upward buoyant force that attempts to return the vessel to a non-submerged state. The magnitude of this buoyant force is equal to the volume of the vessel that is submerged multiplied by the density of water. On most in-ground installations a ballast, or concrete anchor, of proper volume and weight is required to resist the buoyant force.

The amount of ballast needed is equal to the weight it would take to counterbalance the buoyant forces that are exerted on the station. The total ballast is a combination of the concrete poured to create a ring around the bottom of the station and the soil above that ring which act as a weight. The ballast force, the force holding the station down, must be greater than the buoyant force, the force pushing the station up, in order to have an acceptable installation.

Calculate the **Buoyant Force**:

STATION VOLUME X THE WEIGHT OF WATER PER CUBIC FOOT (62.4 LBS/CU FT) =
BUOYANT FORCES

BUOYANT FORCES – STATION WEIGHT =
NET BUOYANT FORCE

Example: 1010-92,
28.53 cu ft X 62.4 lbs/cu ft = 1780.3 lbs
1780.3 lbs – 270 lbs = 1510.3lbs

Calculate the **Ballast Force**:

VOLUME OF CONCRETE X WEIGHT OF CONCRETE WATER (87.6 LBS/CU FT) =
BALLAST FROM CONCRETE

VOLUME OF CONTRIBUTING SOIL X WEIGHT OF SATURATED SOIL (70 LBS/CU FT) =
BALLAST FROM SOIL

BALLAST FROM CONCRETE + BALLAST FROM SOIL = NET BALLAST FORCE

Example: 1010-92,
concrete: 2.7 cu ft X 87.6 lbs/cu ft = 236.5 lbs
soil: 20.4 cu ft X 70 lbs.cu ft = 1430.0 lbs
236.5 lbs + 1430.0 lbs = 1665.5 lbs

Net Ballast Force @ 1665.5lbs > Net Buoyant Force @ 1510.3 lbs

Acceptable

Example, 1010-92:
Station Volume = 28.5 cu ft
Station Weight = 270 lbs
Contributing Soil Volume = 20.4 cu ft
Recommended Concrete Volume = 2.7 cu ft (O.D. = 36")

Figure 9

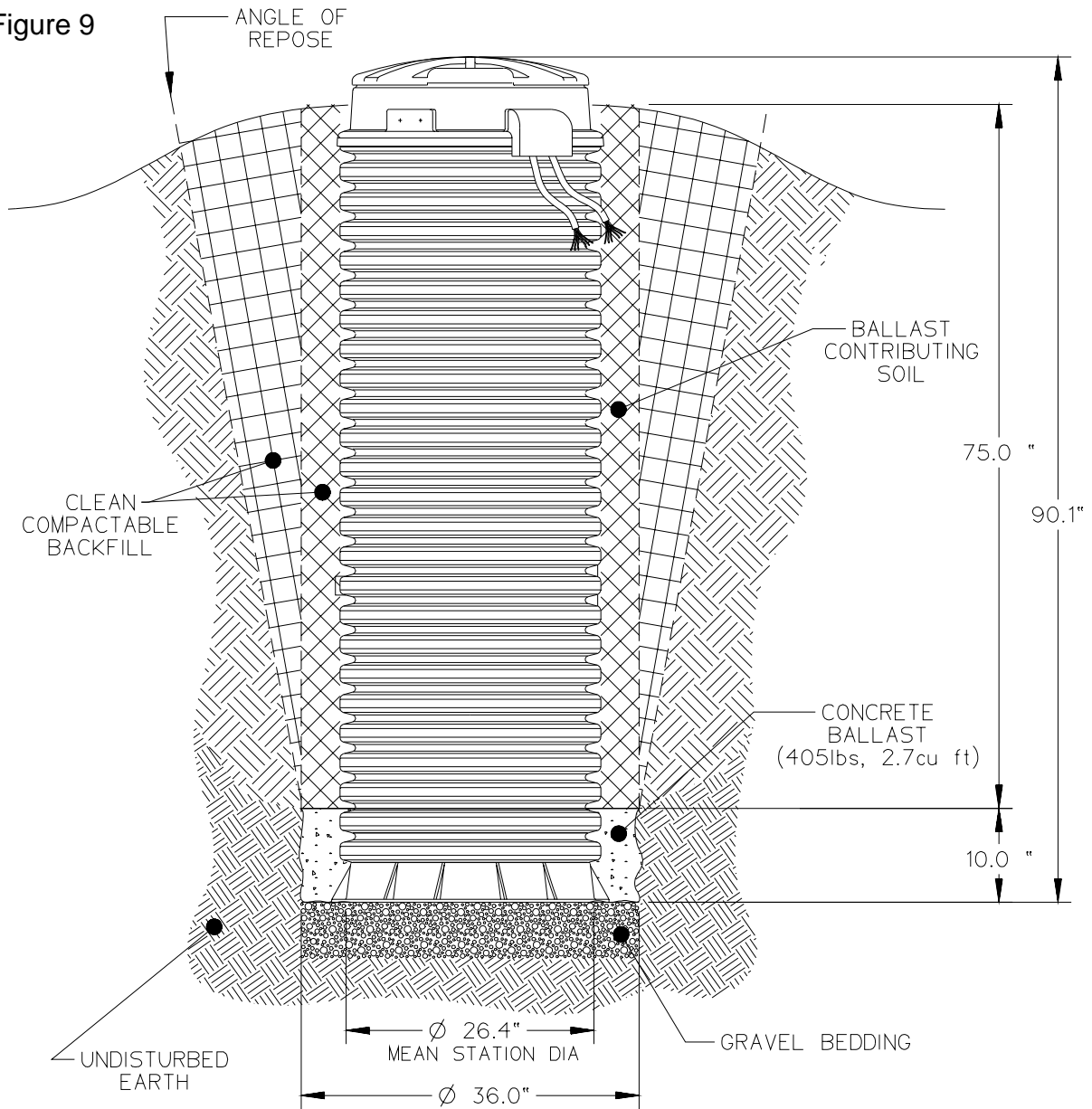


Chart 1

MODEL	MATERIAL	STATION HEIGHT (inches)	STATION WEIGHT (pounds)	STATION VOLUME (cubic feet)	NET BUOYANT FORCE (pounds)	NET BALLAST FORCE (pounds)	CONCRTE T VOLUME (cubic feet)	CONCRETE WEIGHT (pounds)
1010-61	HDPE	60.8	238	19.27	964.45	1108.72	2.7	405
1010-74	HDPE	73.4	254	23.26	1197.42	1348.82	2.7	405
1010-92	HDPE	90.1	270	28.53	1510.27	1667.15	2.7	405
1010-129	HDPE	130.3	280	41.27	2295.25	2433.82	2.7	405
1010-160	HDPE	158.6	307	50.24	2827.98	2974.22	2.7	405

Figure 10

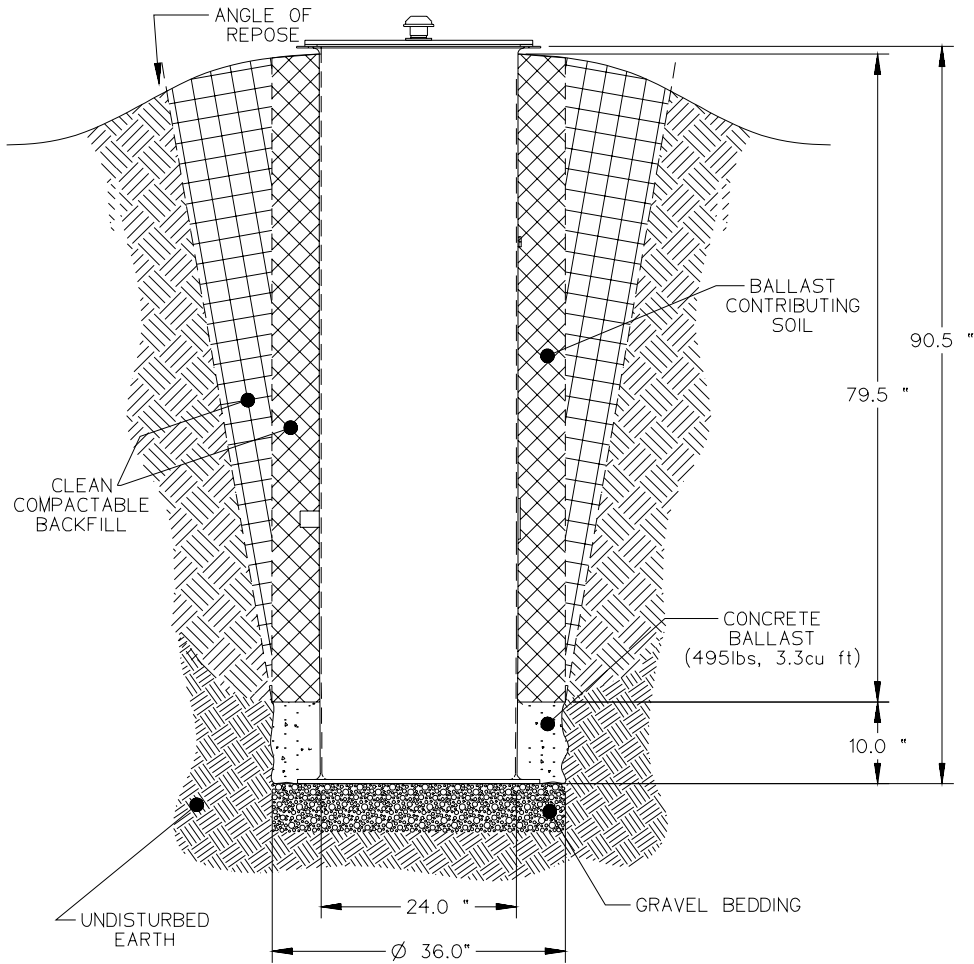


Chart 2

MODEL	MATERIAL	DIAMETER (inches)	STATION HEIGHT (inches)	STATION WEIGHT (pounds)	STATION VOLUME (cubic feet)	NET BUOYANT FORCE (pounds)	NET BALLAST FORCE (pounds)	CONCRETE DIAMETER (inches)	CONCRETE VOLUME (cubic feet)	CONCRETE WEIGHT (pounds)
1000-60x24	Fiberglass	24	60	172	15.71	808	1421	36	3.3	490.9
1000-72x24	Fiberglass	24	72	178	18.85	998	1695	36	3.3	490.9
1000-90x24	Fiberglass	24	90	210	23.56	1260	2108	36	3.3	490.9
1000-120x24	Fiberglass	24	120	232	31.42	1728	2795	36	3.3	490.9
1000-144x24	Fiberglass	24	144	250	37.70	2102	3345	36	3.3	490.9
1000-60x30	Fiberglass	30	60	195	24.54	1336	1705	42	3.9	589.0
1000-72x30	Fiberglass	30	72	234	29.45	1604	2035	42	3.9	589.0
1000-90x30	Fiberglass	30	90	255	36.81	2042	2529	42	3.9	589.0
1000-120x30	Fiberglass	30	120	339	49.09	2724	3354	42	3.9	589.0
1000-144x30	Fiberglass	30	144	378	58.90	3298	4014	42	3.9	589.0
1000-60x36	Fiberglass	36	60	240	35.34	1965	2180	49	5.0	753.3
1000-72x36	Fiberglass	36	72	257	42.41	2389	2602	49	5.0	753.3
1000-90x36	Fiberglass	36	90	282	53.01	3026	3235	49	5.0	753.3
1000-120x36	Fiberglass	36	120	378	70.68	4033	4289	49	5.0	753.3
1000-144x36	Fiberglass	36	144	489	84.82	4804	5133	49	5.0	753.3
1000-60x42	Fiberglass	42	60	296	48.10	2706	2930	57	6.7	1012.4
1000-72x42	Fiberglass	42	72	314	57.73	3288	3497	57	6.7	1012.4
1000-90x42	Fiberglass	42	90	373	72.16	4130	4347	57	6.7	1012.4
1000-120x42	Fiberglass	42	120	432	96.21	5571	5765	57	6.7	1012.4
1000-144x42	Fiberglass	42	144	546	115.45	6658	6898	57	6.7	1012.4
1000-60x48	Fiberglass	48	60	325	62.83	3596	3790	65	8.7	1309.6
1000-72x48	Fiberglass	48	72	344	75.40	4361	4523	65	8.7	1309.6
1000-90x48	Fiberglass	48	90	424	94.25	5457	5624	65	8.7	1309.6
1000-120x48	Fiberglass	48	120	556	125.66	7285	7457	65	8.7	1309.6
1000-144x48	Fiberglass	48	144	622	150.79	8787	8924	65	8.7	1309.6



A Precision Castparts Company

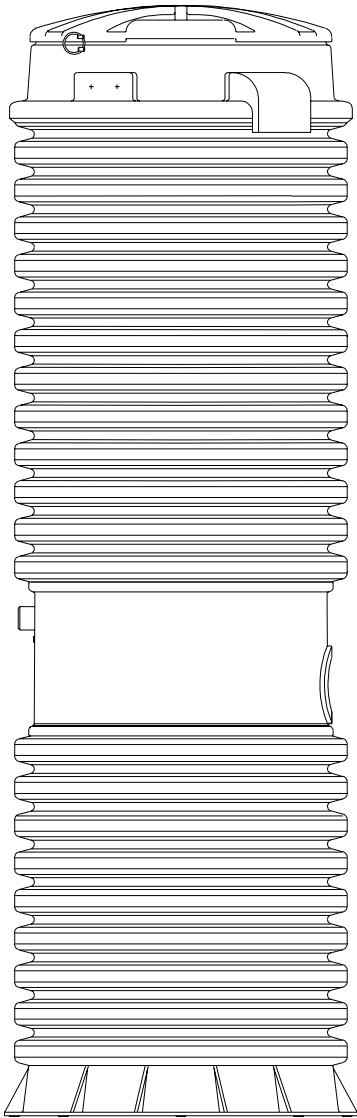
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PA1239P01 Rev. E

User Instructions for the Environment One Grinder Pump



Congratulations on your Environment One grinder pump investment. With proper care and by following a few guidelines, your grinder pump will give you years of dependable service.

Care and Use of your Grinder Pump

The Environment One grinder pump is capable of accepting and pumping a wide range of materials. Regulatory agencies advise that the following items should not be introduced into any sewer, either directly or through a kitchen waste disposal unit:

Glass	Diapers, socks, rags or cloth
Metal	Plastic objects (toys, utensils, etc.)
Seafood shells	Sanitary napkins or tampons
Goldfish stone	Kitty litter

In addition, you must **never** introduce into any sewer:

Explosives	Strong chemicals
Flammable material	Gasoline
Lubricating oil and/or grease	

Periods of Disuse

If your home or building is left unoccupied for longer than a couple of weeks, perform the following procedure:

Purge the System. Run clean water into the unit until the pump activates. Immediately turn off the water and allow the grinder pump to run until it shuts off automatically.

Duplex Units. Special attention must be taken to ensure that both pumps turn on when clean water is added to the tank.

Caution: Do not disconnect power to the unit

Power Failure

Your grinder pump cannot dispose of wastewater without electrical power. If electrical power service is interrupted, keep water usage to a minimum.

Pump Failure Alarm

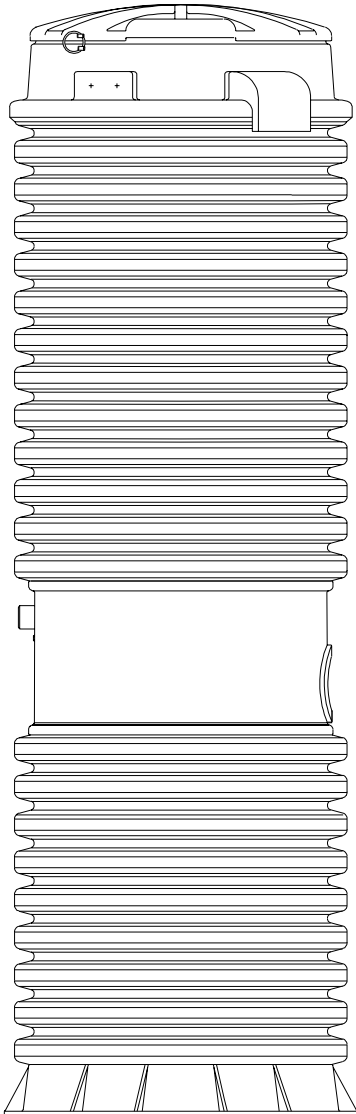
Your Environment One grinder pump has been manufactured to produce an alarm signal (120 volt) in the event of a high water level in the basin. The installer must see that the alarm signal provided is connected to an audible and/or visual alarm in such a manner as to provide adequate warning to the user that service is required. During the interim prior to the arrival of an authorized service technician, water usage must be limited to the reserve capacity of the tank.

For service, please call your local distributor:



General Information

In order to provide you with suitable wastewater disposal, your home is served by a low pressure sewer system. The key element in this system is an Environment One grinder pump. The tank collects all solid materials and effluent from the house. The solid materials are then ground to a small size suitable for pumping as a slurry with the effluent water. The grinder pump generates sufficient pressure to pump this slurry from your home to the wastewater treatment receiving line and/or disposal plant.



Limited Warranty

1000 Series, 2000 Series, AMGP

Environment One Corporation offers a limited warranty that guarantees its product to be free from defects in material and factory workmanship for a period of two years from the date of installation, or 27 months from the date of shipment, whichever occurs first, provided the product is properly installed, serviced and operated under normal conditions and according to manufacturer's instructions. Repair or parts replacement required as a result of such defect will be made free of charge during this period upon return of the defective parts or equipment to the manufacturer or its nearest authorized service center.

Model Number: _____

Serial Number: _____

Installation Date: _____



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