TB 095-16
Specifications and Technical Details
Roth Hanging Pump Vault

Product: STAR-24 HPV
Date: April 4, 2016

This bulletin provides product specifications, configuration and installation details for the Roth STAR-24 HPV Hanging Pump Vault.

The Roth STAR-24 HPV is a tank insert for the Roth RMT tank products, intended to provide an installation platform for a pump, accessories and controls in the outlet end of the tank. The HPV may be configured for specific system design requirements.

Specifications:

Material	High molecular weight HDPE
Forming process	Blow molded
Attachment to tank	Threaded connection
Wall thickness	0.18-0.22 in/4.6-5.6 mm
Weight	40 lbs./18.5 kg
Inlet/outlet eyebrows	(12)
Pipe connections	4 in pipe dia. Max
Connection sealing	Grommet (Roth) Bulkhead fitting (others)
Liquid capacity (conical section)	45 gal/170.34 Liters
Dimensions	Per page 3 Fig 1&2
Applicable tank sizes	RMT-1060, 1250, 1500
Dose volume	Page 4 Table 1, Fig 3
Typical system configuration	Page 5 Fig 4&5
Vault inlet configurations	
Screened vault	Page 6 Fig 6
Volume dosing	Page 7 Fig 7
In-tank sectional views	Pages 8-10 Fig 8-10
Installation instructions.	Pages 11-12

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Specifications continued

Caution:
1) When using a tank insert of this type, most AHJ's and regulatory personnel with will require the designer to subtract the displacement of the insert from the effective volume of the tank for septic tank sizing purposes. The effective volume with the vault displacement considered is included on each of the in-tank views. Pgs.8,9&10.

2) The Roth RMT, as with all thermoplastic tanks, includes a compartment divider that is NOT a hydraulic barrier. This means that when you pump out of the outlet compartment, you draw the liquid level down in the entire tank. While the use of a screened vault improves the quality of the effluent and promotes longer pump service life, system designs that include time dosing and larger volume dosing requirements, the entire tank volume must be considered when calculating dose volume/volume over time.

Please contact the Roth Technical Department using the contact information below with any questions regarding this bulletin.

Roth STAR-24 HPV Dimensions

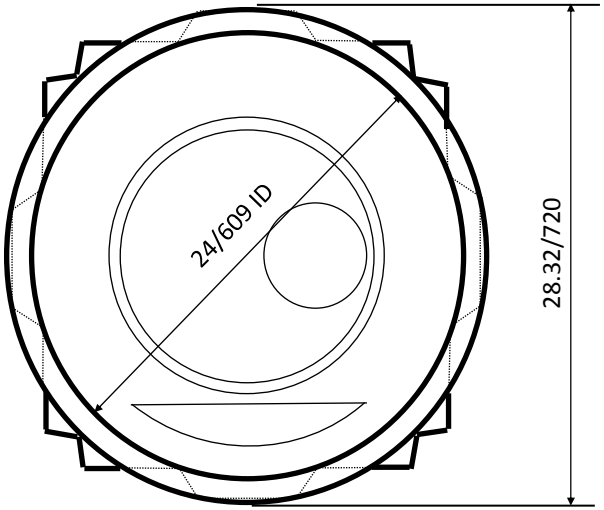

Fig 1

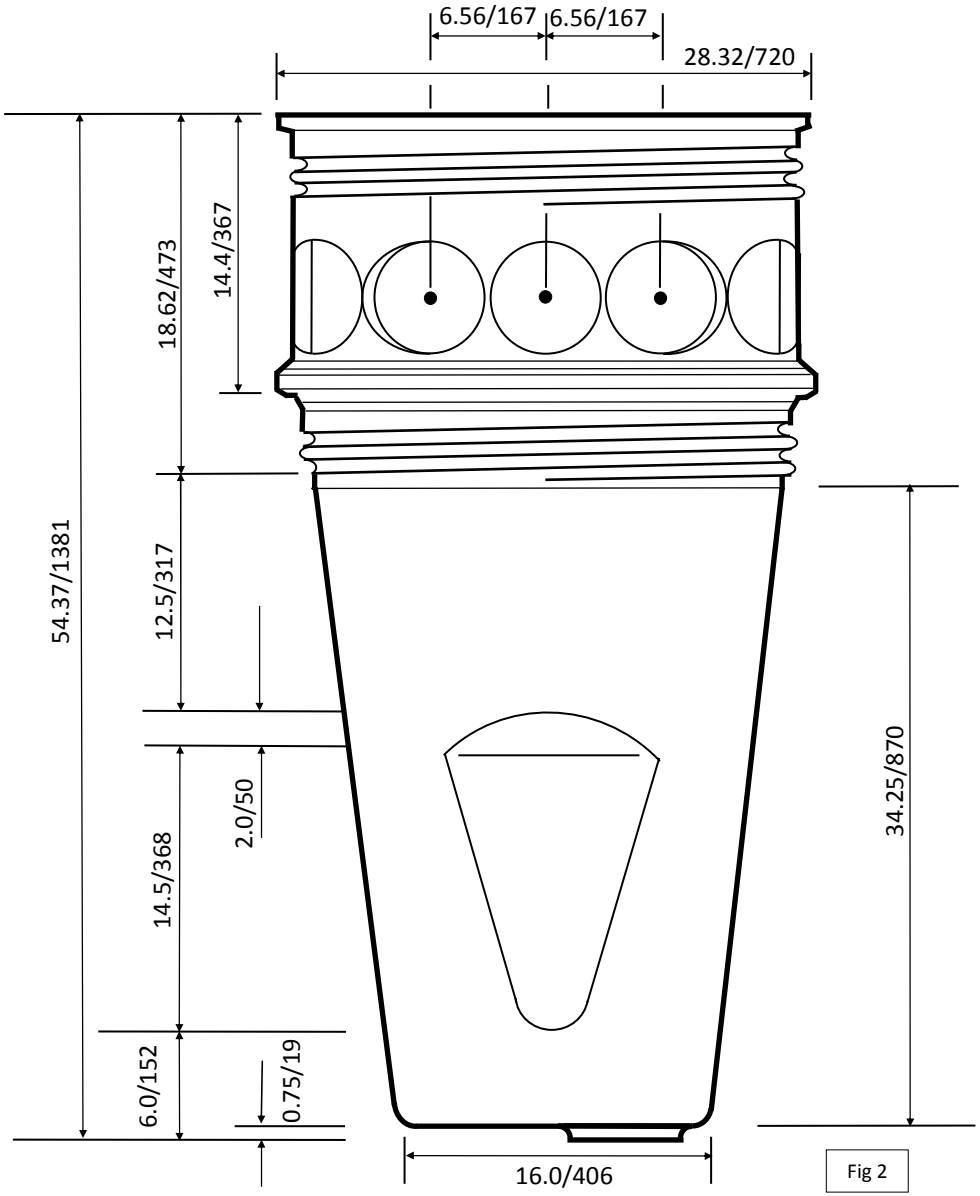

Fig 2

Dimensions- Inches/Millimeters

DWG SCALE:

PLOT SCALE:

Roth STAR-24 HPV
Hanging Pump Vault

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Roth STAR-24 HPV

Conical Section Volume Table

Depth In.	Gallons	Liters
35	45.1	170.7
34	43.2	163.5
33	41.3	156.3
32	39.5	149.5
31	37.6	142.3
30	35.8	135.5
29	34.1	129.1
28	32.5	123.0
27	30.8	116.6
26	29.2	110.5
25	27.6	104.5
24	26.1	98.8
23	24.5	92.7
22	23.1	87.4
21	21.6	81.8
20	20.2	76.5
19	19.1	72.3
18	17.8	67.4
17	16.6	62.8
16	15.5	58.7
15	14.3	54.1
14	13.2	50.0
13	12.1	45.8
12	11.0	41.6
11	9.9	37.5
10	8.9	33.7
9	7.9	29.9
8	7.0	26.3
7	6.0	22.7
6	5.1	19.3
5	4.1	15.5
4	3.3	12.5
3	2.4	9.1
2	1.6	6.1
1	0.8	2.8

Table 1

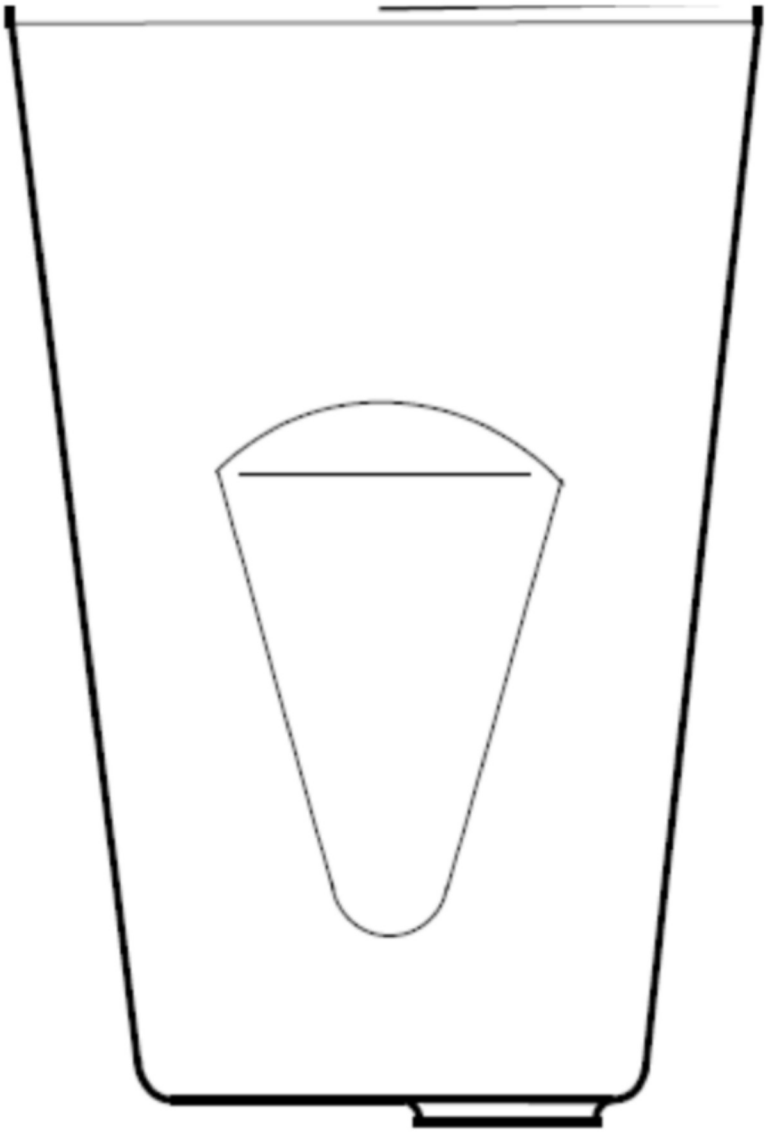

Fig 3

DWG SCALE:

PLOT SCALE:

Roth STAR-24 HPV
Hanging Pump Vault

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Roth STAR-24 HPV Typical Installation Configuration

This sheet includes a section and top view of the Roth STAR 24-HPV with a “typical” effluent pump system installed. Typical system components include the pump, check valve, float controls with associated power and control wiring, splice box and fittings, interconnecting piping, watertight pipe and conduit seals.

Specific onsite system designs requirements determine the pump/lift station configuration, pump and pipe sizing, controls etc.

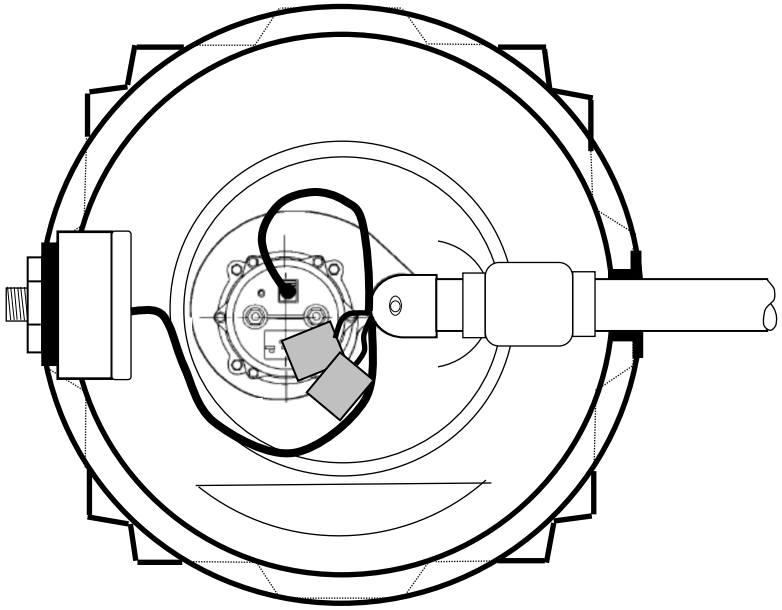

Fig 4

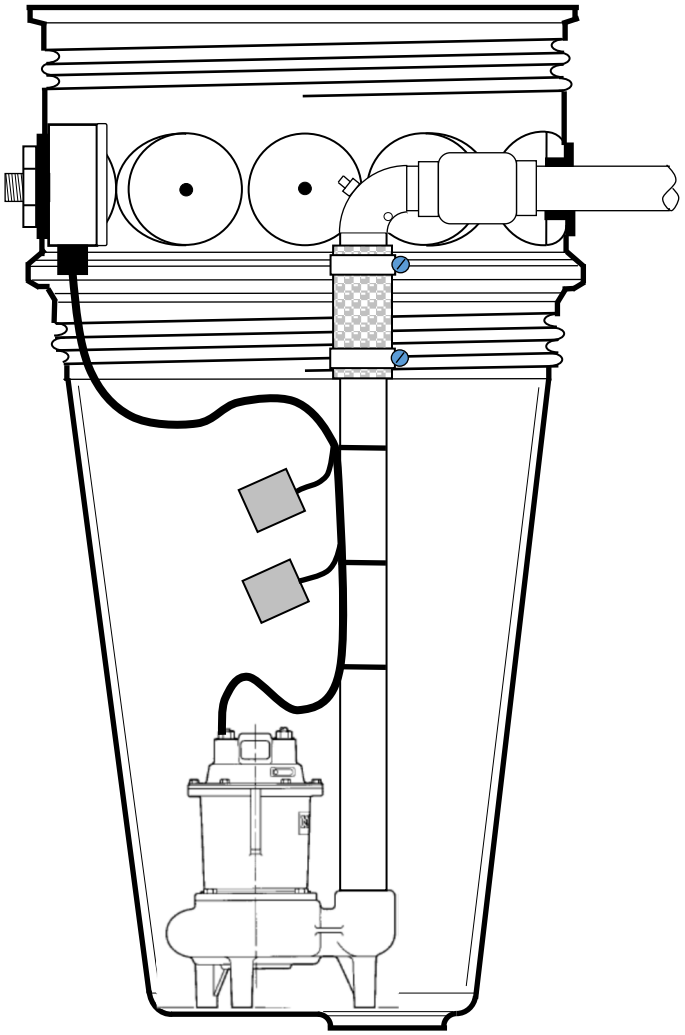

Fig 5

DWG SCALE:

PLOT SCALE:

Roth STAR-24 HPV
Hanging Pump Vault

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Roth STAR-24 HPV Vault Inlet Options

Screened Vault Configuration

Suggested Openings:
Qty (4) 4 inch inlet ports equally spaced around the bottom of the tapered vault section, a maximum of 8 inches above the bottom of the vault to the bottom of the ports. Mark the hole centerline at 10 inches from the vault bottom, drill centered on the mark with a 4 inch hole saw

Screening:
304 Stainless Steel Wire Cloth 5x5 mesh, .041 or .047 wire diameter. Wire cloth is cut into 5 inch squares that are centered over the 4 inch port and secured with (4) stainless steel sheet metal screws each: #10-3/4" washer head type.

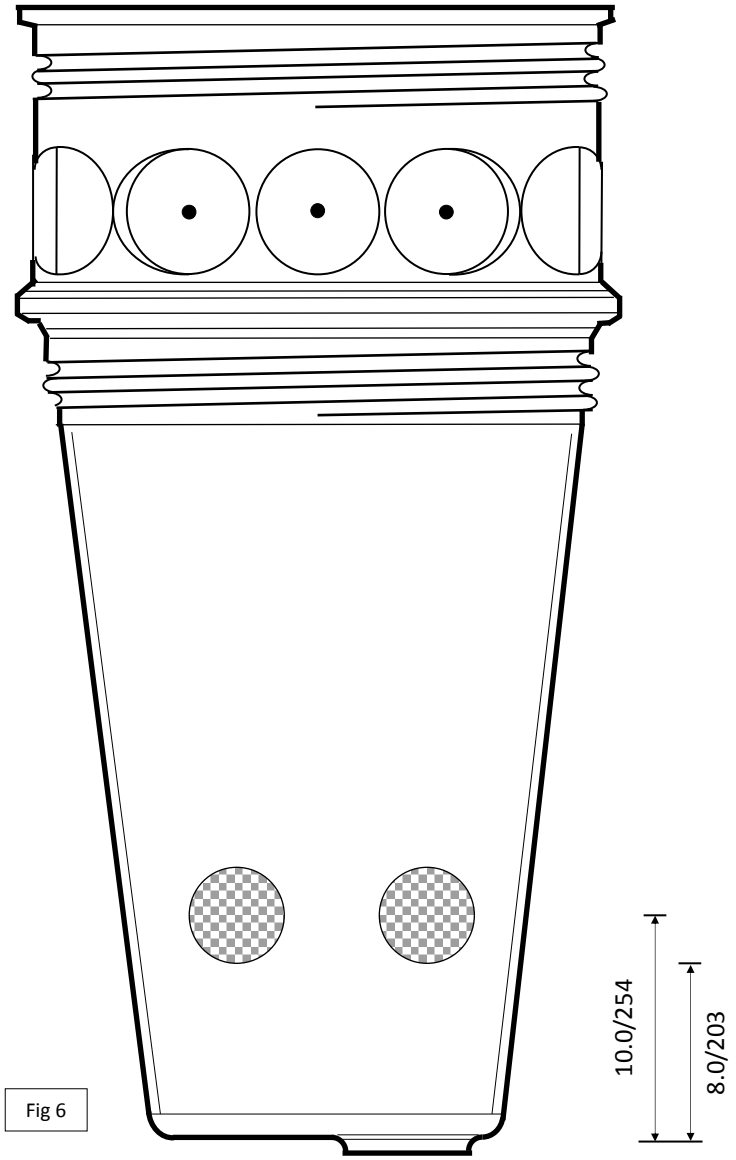

Fig 6

Dimensions- Inches/Millimeters

DWG SCALE:

PLOT SCALE:

Roth STAR-24 HPV Hanging Pump Vault

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Roth STAR-24 HPV Vault Inlet Options

Volume Dosing Vault Configuration

Suggested Openings:
Qty (1) 5 inch opening located 8 inches above the bottom of the vault to the invert of the elbow (mark opening centerline 10.5 inches above the vault bottom). Drill a 5 inch hole on centered on the mark using a 5 inch hole saw.

Seal:
Install a Roth 4 inch water tight Pipe Seal PN PG4-2 (Sch. 40) or PG4 (Sch. 35) from inside the vault.

Upturned baffle:
Use a 4 inch 90 deg street elbow and pipe nipple sized in overall length to insure the top of the baffle will extend no greater than 29 inches from the vault bottom. This provides a 3 inch invert drop between the tank inlet invert (43 inches) and the vault inlet invert above the tank bottom of 40 inches. Install the street elbow in the Pipe Seal and attach the baffle to the wall of the vault with commercial zip ties or straps.

Dose volume:
Maximum dose volume will be determined by the vertical displacement in the vault between the top of the baffle and the top of the pump. See volume table for the conical section of the vault to calculate dose volumes.

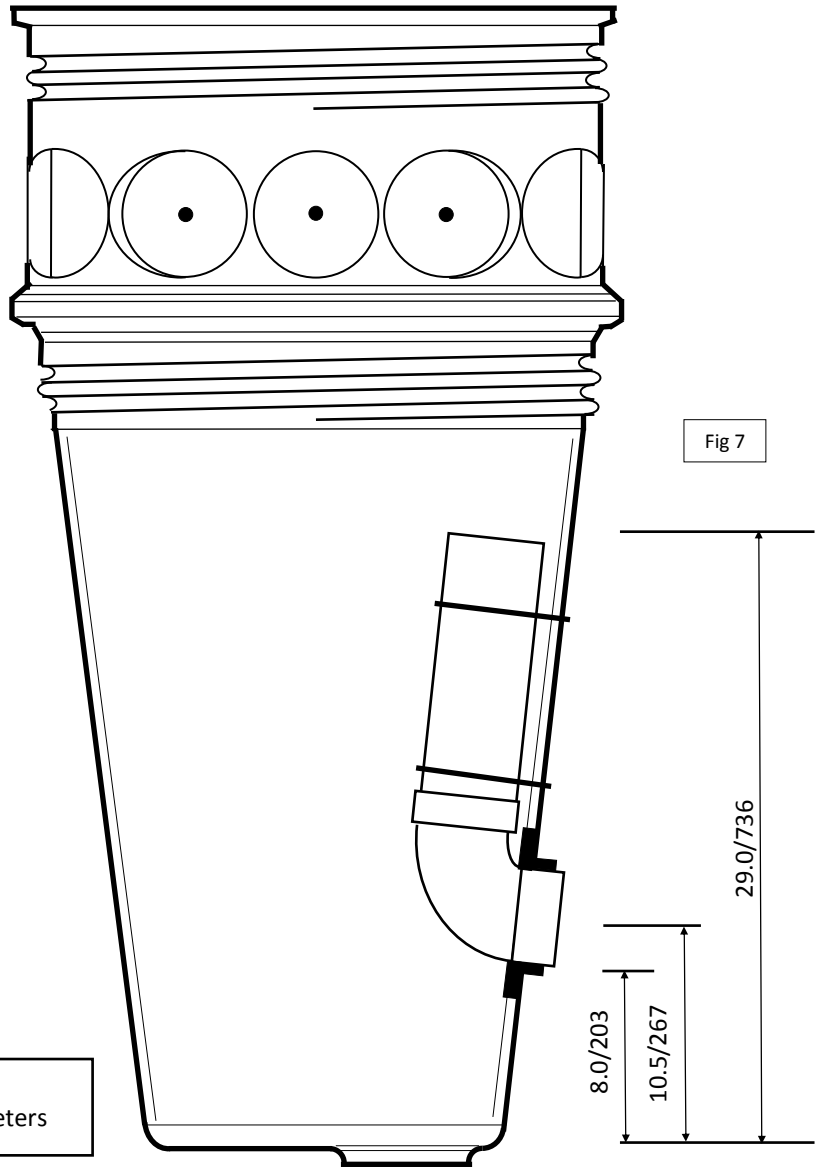

Fig 7

Dimensions-
Inches/Millimeters

DWG SCALE:

PLOT SCALE:

Roth STAR-24 HPV
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Roth MULTITANK

RMT-1060-2C-P-HPV

Effective septic tank capacity @ 40 inch liquid level– 1026 Gal

Roth STAR-24 HPV is applicable to either single or dual compartment tanks. **Stiffening posts are required for HPV installation.**

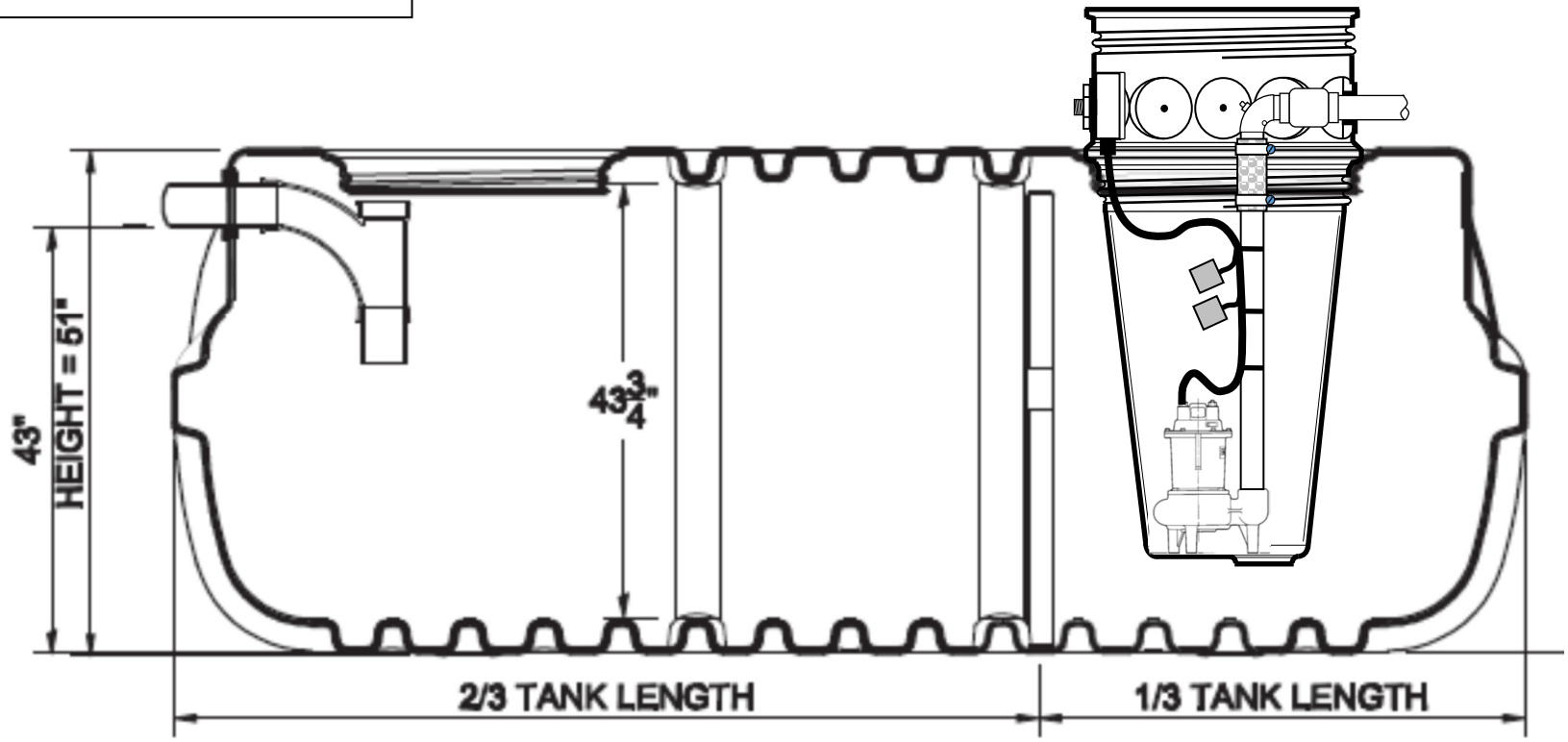

Fig 8

DWG SCALE:

PLOT SCALE:

Roth STAR-24 HPV
Hanging Pump Vault

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RMT-1250-2C-P-HPV

Effective septic tank capacity @ 40 inch liquid level– 1216 Gal

Roth STAR-24 HPV is applicable to either single or dual compartment tanks. **Stiffening posts are required for HPV installation.**

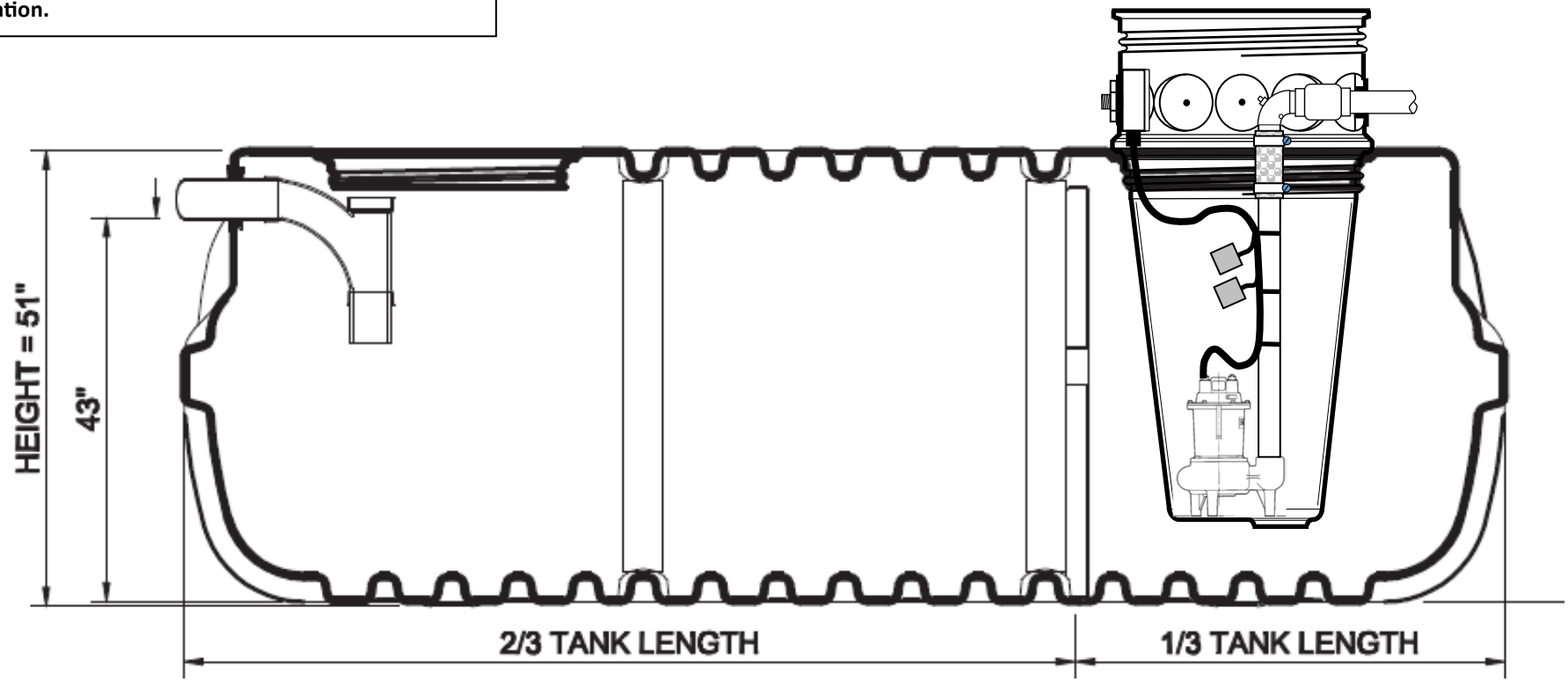

Fig 9

DWG SCALE:

PLOT SCALE:

Roth STAR-24 HPV
Hanging Pump Vault

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RMT-1500-2C-P-HPV

Effective septic tank capacity @ 40 inch liquid level– 1466 Gal

Roth STAR-24 HPV is applicable to either single or dual compartment tanks. **Stiffening posts are required for HPV installation.**

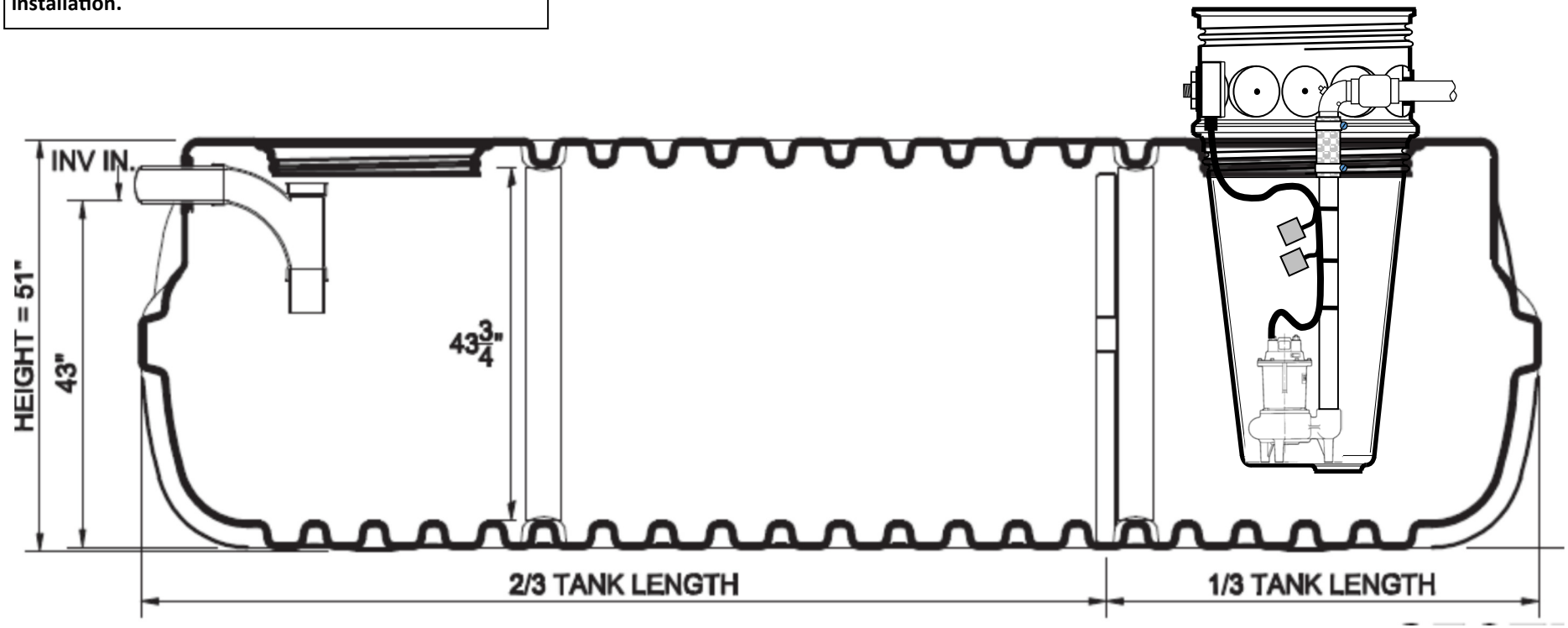

Fig 10

DWG SCALE:

PLOT SCALE:

Roth STAR-24 HPV Hanging Pump Vault

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Installation Instructions-Roth STAR-24 HPV

The installation procedure for the STAR-24 HPV is identical to the Roth STAR-24R6/R12 Threaded Riser System.

1) Clean dirt and debris manway opening to insure gasket adhesion.

2) Remove gasket backing and apply to the innermost flat ring on the tank surface

Fig 11

3) Trim gasket to length

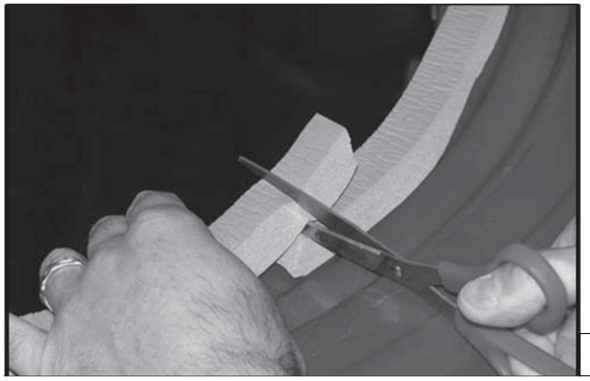

Fig 12

4) Thread Hanging Pump Vault into tank

Fig 13

DWG SCALE:

PLOT SCALE:

Roth STAR-24 HPV Hanging Pump Vault

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Installation Instructions-Roth STAR-24 HPV

5) Seal HPV to Tank joint with Butyl Mastic Rope

Fig 14

6) Additional risers may be added to the HPV
to meet depth of bury requirements.
Add gaskets per steps 2&3.

Fig 15

7) Seal HPV to Riser joint with Butyl Mastic Tape

Fig 16

DWG SCALE:

PLOT SCALE:

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Hanging Pump Vault

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