

PUB. SEWER STATUS VERIFIED BY \_\_\_\_\_

ISSUE DATE: \_\_\_\_\_

# PERMIT

P \_\_\_\_\_

APPROVAL DATE: \_\_\_\_\_

A REPAIR

Tax ID # \_\_\_\_\_

**ON-SITE SEWAGE DISPOSAL SYSTEM  
HOWARD COUNTY HEALTH DEPARTMENT  
BUREAU OF ENVIRONMENTAL HEALTH**

\_\_\_\_\_ IS PERMITTED TO INSTALL  ALTER

ADDRESS: 1306 WOODBINE ROAD PHONE NUMBER: \_\_\_\_\_

SUBDIVISION: \_\_\_\_\_ LOT NUMBER: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ PROPERTY OWNER: \_\_\_\_\_

SEPTIC TANK CAPACITY (GALLONS): \_\_\_\_\_

PUMP CHAMBER CAPACITY (GALLONS): \_\_\_\_\_

NUMBER OF BEDROOMS: \_\_\_\_\_

SQUARE FEET PER BEDROOM: \_\_\_\_\_

LINEAR FEET OF TRENCH REQUIRED: \_\_\_\_\_

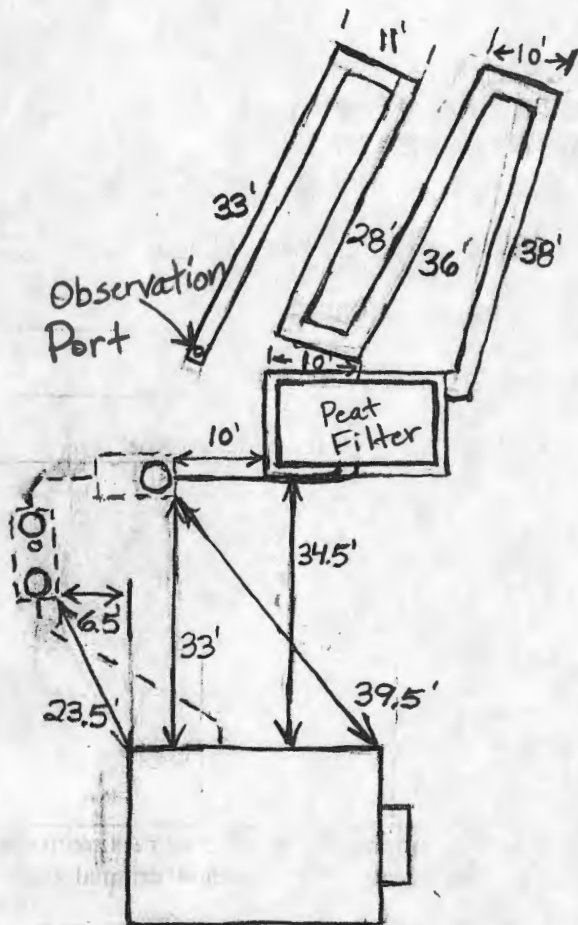
TRENCHES:	Trench to be _____ feet wide. Inlet _____ feet below original grade. Bottom maximum depth _____ feet below original grade. Effective area begins at _____ feet below original grade. _____ feet of stone below distribution pipe.
LOCATION:	
PURPOSE:	Existing septic system has failed. Call for inspection when ground is opened so sanitarian can recommend repair.

PLANS APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

- NOTE: PERMIT VOID AFTER 2 YEARS
- NOTE: CONTRACTOR RESPONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION INSPECTION FOR ALL INSTALLATIONS
- NOTE: WATERTIGHT SEPTIC TANKS REQUIRED
- NOTE: ALL PARTS OF SEPTIC SYSTEM SHALL BE 100 FEET FROM ANY WATER WELL
- NOTE: MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS

**NEITHER THE HOWARD COUNTY COUNCIL OR THE HEALTH DEPARTMENT IS  
RESPONSIBLE FOR THE SUCCESSFUL OPERATION OF ANY SYSTEM  
PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT  
CALL 410-313-2640 FOR INSPECTION OF SEPTIC SYSTEM**

NOT TO SCALE



TRENCH/DRAINFIELD DATA		
WIDTH	INLET	BOTTOM
3'	0'-0.5'	0.5'-1'
NUMBER OF TRENCHES 1		
TOTAL LENGTH 148'		
ABSORPTION AREA 444		
DISTRIBUTION BOX LEVEL <del>                    </del>		
DISTRIBUTION BOX BAFFLE <del>                    </del>		
DISTRIBUTION BOX PORT <del>                    </del>		

SEPTIC TANK DATA	
SEPTIC TANK 1 LEVEL	?
CAPACITY	1500 GAL
SEAM LOC	Top
TANK LID DEPTH	1.5'
BAFFLES	Need Front
BAFFLE FILTER	E/F-080
MANHOLE LOC	Front+Rear
6" PORT LOC	Middle
WATERTIGHT TEST	No
SEPTIC TANK 2 LEVEL	?
CAPACITY	1000 GAL
SEAM LOC	Top
TANK LID DEPTH	1.5'
BAFFLES	No
BAFFLE FILTER	No
MANHOLE LOC	Rear
6" PORT LOC	None
WATERTIGHT TEST	No

PRE-CONSTRUCTION Done By Barry?

INSTALLATION 8/23/06 Tanks installed and covered. Bed dug and gravelled. Most of trench done. (BB) 8/28/06 Peat filter installed on bed. Need to finish plumbing from the tank to the filter and grading around the filter must be checked. Need pump and alarm test and control box with event counter and time meter. (BB)

FINAL INSPECTOR \_\_\_\_\_ DATE OF APPROVAL \_\_\_\_\_

00167

**AGREEMENT AND EASEMENT FOR  
INSTALLATION OF AN ALTERNATIVE/ INNOVATIVE  
ON-SITE SEWAGE DISPOSAL SYSTEM**

THIS AGREEMENT is made this 3rd day of August, 2006, among James E. and Kim O.H. McClaughlin, Sr. hereinafter referred to as "Owner", the Howard County Health Department hereinafter referred to as the "County", and the Department of the Environment, hereinafter referred to as the "Department".

WHEREAS, Owner owns a tract of land located on 1306 Woodbine Road, Woodbine, Maryland, District 04, Account Number 316398, Howard County, Maryland, and the deed to same is recorded among the Land Records of Howard County, Maryland, in 9084/570.

WHEREAS, Owner's land is improved and the traditional means of sewage disposal has been found to be potentially prejudicial to the environment and/or public health.

WHEREAS, Owner has requested the Department's approval to install an innovative/alternative pretreatment device on the sewage system.

NOW, THEREFORE, the parties hereto agree as follows:

20  
20  
600  
W

A. Owner must install and maintain a water meter on the incoming side of the water system or event counter on the sewage pumping system.

B. Owner hereby grants to the County the right to enter upon the Property at any reasonable time for access to the system to make periodic inspections and the Owner agrees to provide any information and data requested and needed by the Department to develop accurate and thorough test results.

C. Owner acknowledges and agrees that the proposed alternative/ innovative pretreatment system is experimental and that his or her participation is voluntary. Owner agrees that there shall be no liability on the part of the County or Department to Owner if this innovative /alternative system fails, and that the County and the Department do not warrant or guarantee that the system will adequately or properly function.

D. Owner acknowledges and agrees that neither the County nor the Department nor any of its employees, either officially or individually, underwrites the operation of any system approved by them.

E. Owner will devote such care and effort to the maintenance of the system so that a system malfunction is not the result of poor maintenance, faulty operation, or neglect.

F. Owner agrees, should the system be determined by the County to pose a threat to the public health, safety or comfort, the County may order any reasonable changes or corrections and Owner agrees to pay for all such changes or corrections. System modifications may include requirements for holding of sewage waste in tanks and regular pumping from the holding tanks. Upon the Department's request, the Owner agrees to enter into a contract acceptable to the Department to allow and pay a private entity to pump on a regularly scheduled basis an approved holding tank system.

G. Owner agrees to contact the Water Management Administration, Groundwater Permits Program, and the Department at least forty-eight (48) hours prior to system installation, so that the Department may lay out the system in the field with the contractor. Owner shall install this system according to the plans and specifications approved by the Department and any changes reasonably required by the Department as a result of the field layout. If installation deviates substantially from the approved plans or changes such that experimental data will be materially compromised, Owner agrees to pay for all reasonably necessary corrections.

H. This agreement shall run with the land and binds the Owner, his heirs, successors, assigns except that the provisions of paragraph A & B shall be binding for a period of 5 years only after installation of the system and occupation of the home. Owner further agrees that he or she shall inform in writing any purchaser or lessee of the property that the system may require maintenance or other attention. The Owner agrees to record this agreement in the land records of Howard County.

I. This agreement shall not be construed to limit any authority of the Department to protect the public health, safety, or comfort or to issue any other orders to take any other action which is now or may hereafter be within its authority.

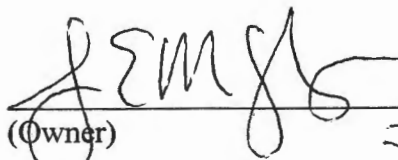
J. This agreement may be voided at the discretion of the County if the system construction is not completed within six (6) months of the effective date of this agreement.

K. This agreement contains the entire agreement and understanding between the County and the Owner and the Department. There are no additional terms other than as contained in this agreement. This agreement may not be modified, except in writing signed by each of the parties or by their authorized representatives.

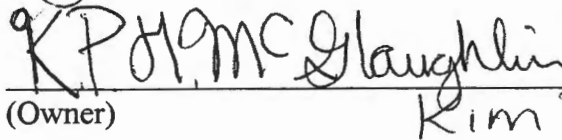
L. The laws of the State of Maryland govern the provisions of all transactions pursuant to this agreement.

IN WITNESS WHEREOF, the parties have signed and sealed this agreement on the date indicated above.

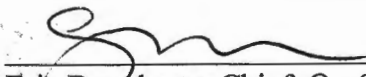
DATE: 8-3-06

  
(Owner) James E. McGlaughlin

DATE: 8-3-06

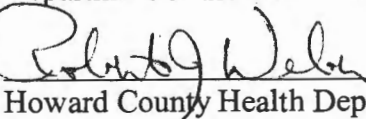
  
(Owner) Kim P. H. McGlaughlin

DATE: 9 Aug 06

  
Eric Dougherty, Chief, On-Site Systems Division  
Water Management Administration  
Department of the Environment

Div 13000 \$ 20.00  
RECORDING FEE 20.00  
TOTAL 40.00  
Rcpt # 45489  
Blk # 973  
Aug 11, 2006 11:23 am

DATE: 8/10/06

  
Howard County Health Department

STATE OF MARYLAND, HOWARD COUNTY, TO WIT:

I HEREBY CERTIFY that the foregoing is a true copy of the original

AGREEMENT & EASEMENT recorded in

Liber 1077 No. \_\_\_\_\_ folio 337 etc., one of the Land  
Records of Howard County, Maryland.

IN TESTIMONY WHEREOF, I hereto set my hand and  
affix the seal of the Circuit Court for Howard

County this 11th day of August 2006

*Margaret D. Raymond*

Clerk of the Circuit Court of Howard  
County, Maryland

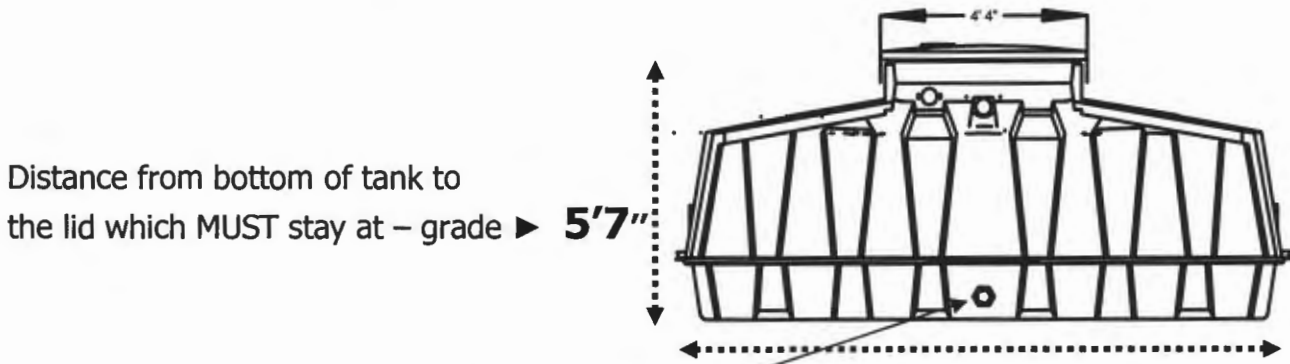


**Premier Tech**  
Environment

# Ecoflo<sup>®</sup> STB-650 Biofilter with Submersible Collecting Bottom

Installation Guide – Pennsylvania

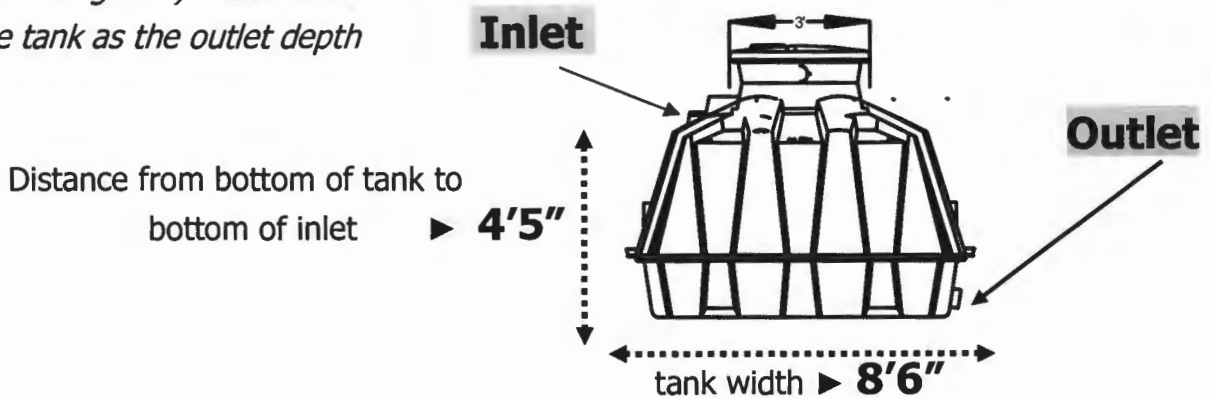
**Attention:** This is only a portion of the installation guide. We use this version AFTER we have spoken directly with the installer. If you have received this information second hand you may not have all the information you need. The Ecoflo unit is nothing more than a large filter that goes after the septic tank. Ecoflo can be used as a filter in all types of septic systems. The dispersal of treated water on after the Ecoflo unit depends on the soil and site characteristics. The installation IS NOT rocket science, please don't make it any more complicated than it needs to be. Please contact us at **877 - 4 - ECOFLO** before starting a design or installation.



Distance from bottom of tank to the lid which **MUST** stay at – grade ▶ **5'7"**

*Inlet and outlet are on opposite sides of the tank (the long side) – use the bottom of the tank as the outlet depth*

Length of tank ▶ **14'**



Distance from bottom of tank to bottom of inlet ▶ **4'5"**

tank width ▶ **8'6"**

## Important Items:

The lid of the Ecoflo unit **MUST** remain above grade. The unit **is not** designed with a riser.

The Ecoflo tank is not a perfect rectangle; it is widest in the middle and has an anti-floatation collar. A 10' x 15' excavation will give you all the over dig you need. Please look closely at the drawing.

The Ecoflo unit is fiberglass – you need 6 inches of screenings, stone dust or sand under the unit. You will need to backfill (to shoulder) with the same. Make sure that the soil cover is not high in clay content – it must be quality top soil. Backfill the unit correctly (we recommend same day)

The Ecoflo unit is nothing more than a large filter that goes after the septic tank. Ecoflo units can be used as a filter in all types of septic systems. What goes on after the Ecoflo unit depends on the soil and site characteristics. This installation IS NOT rocket science, please don't make it any more complicated than it needs to be. Please double check the design to determine components you need. PLEASE NOTE: The **lid of the unit MUST stay at-grade** and the inlet and outlet are 4'5" apart. Please make sure that the site conditions allow for this. Call us with any questions!

**STEP 1:** Contact us to pick up a unit or arrange delivery.

We stock units at locations state wide. If you are not a trained installer, one of us will be on site to train you. Please allow time to schedule this. We are flexible and work with you around weather conditions.



**Step 2:** Excavate a 10' x 15' hole approximately 6' deep. (These measurements have all the over dig you need) Please review the schematics on page one to determine exact inlet and outlet locations and depths. The unit is fiberglass and needs to be placed / bedded with screenings or stone dust. The bedding material needs to be level and should be deep enough to protect the bottom of a fiberglass tank.



**Step 3:** Unit is placed in the excavated hole. The unit has lifting rings and weighs less than 600 lbs.

Once in the hole, the unit needs to be level and resting solidly on the bedding material. Before moving to the next step it is best to double check elevations and make sure the unit is where you want it.

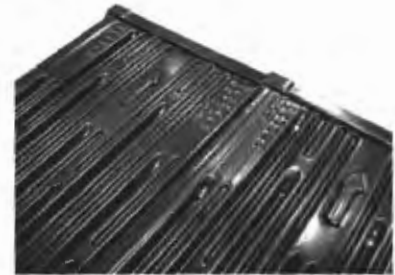
**Step 4:** Approximately 4 ½ tons of clean 2B needs to be added to the unit. This is done through the lid of the unit and around the central support. Give some thought to the site layout and having the stone located where this portion of the install will go smoothly. This portion isn't very difficult with some preplanning, but without it can add unnecessary time and effort.



**Step 5:** Next the 30 bags of peat are added to the unit. The peat goes directly on top of the stone. Each side holds about 15 bags. The peat is compressed and needs to be “broken up”. If you are installing during the winter months, be aware that peat freezes! Plan ahead accordingly.



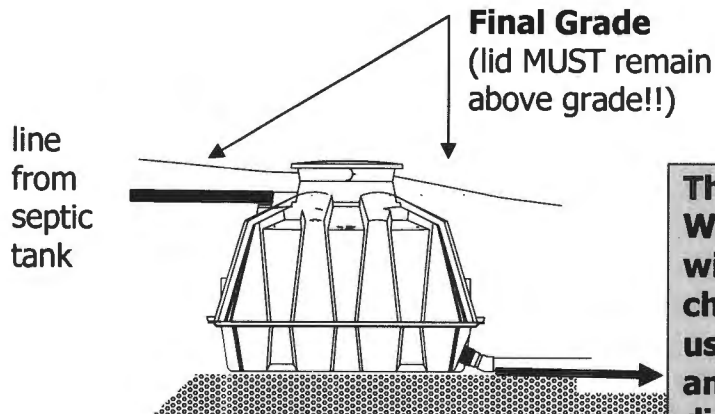
**Step 6:** Install the internal components – the distribution plates slide (arrow faces away from the central support wall) into the brackets located at the back of the unit roof. Install the left plate first and overlap it with the right. Repeat this for the other side. The distribution plates should rest on top of the central support wall and are attached with the zip ties provided.



**Step 7:** After the distribution plates are in place, install the tipping tray supports in the holes at the end of the central support. Place the tipping tray on the pivot points and press down until they lock. Don't worry too much about steps 6 & 7, they take less than 10 minutes to complete and are self explanatory when the pieces are in front of you.



**Step 8:** After attaching inlet and outlet (all fittings are 4" PVC /outlet is on a 22 ½); backfill unit with screenings, stone dust or sand. Top soil cover **MUST** not contain any heavy clay material.



**The Ecoflo unit is just a filter. What follows (disposal portion) will vary with the site and soil characteristics. Ecoflo units are used with simple at-grades, drip and spray irrigation, stream discharge and A/B systems. Please review the complete design you are working from!**

**Things to be checked following installation:**

- Never cover or bury the access lid of the Biofilter shell.
- Never plant trees within 10' of the shell.
- Never enter the shell after installation without prior written authorization.
- Never connect a drain pipe or roof gutter to the Ecoflo Biofilter.
- Never drive vehicles or place objects weighing over 500 lb. within 10' of the lid ;if you plan to do any landscaping, make sure you advise those involved so they don't damage your septic system.
- Do not shovel or blow snow so it accumulates on top of the septic system.
- Homes must be equipped with an air vent that is in proper working order.
- Give the owner the plastic bag containing the Owner's Manual and the Maintenance Agreement.
- **Never add riser to the Ecoflo unit – The lid must stay at-grade!!**

**Disclaimer:** This is only a portion of the installation guide. We use this version AFTER we have spoken directly with the installer. If you have received this information second hand you may not have all the information you need. Please contact us at **877 - 4 - ECOFLO** before starting a design or installation. Again, if you have ANY questions, please do not hesitate to contact us. A quick phone call can save everyone associated with the project time, aggravation and money!



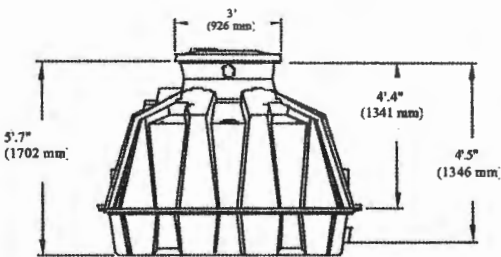
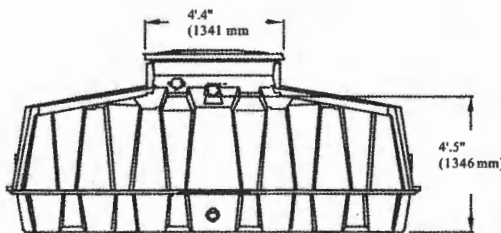
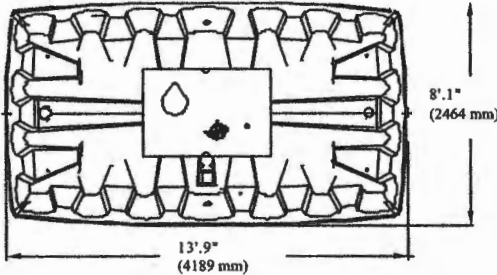
**Premier Tech  
Environment**

# Ecoflo® STB-650 Biofilter with Submersible Collecting Bottom

## Installation Guide

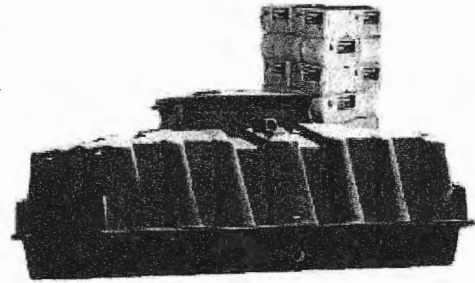
*This guide contains the information needed to plan the installation of an Ecoflo® STB-650 Biofilter. Installation must be performed by an **authorized installer**. To obtain a list of authorized installers, call our customer service at 1 877 295-5763.*

### Technical Data



#### Applications

Residential  
Community  
Commercial  
Municipal



#### Shell

Fiberglass and polyester resin composite

#### Openings

Fit PVC pipes with an inside diameter of 4"  
Watertight and flexible

#### Shell weight

550 lb.

#### Handling

4 lifting rings

#### Filtering medium

PFB-150 Peat Filter (30 bags)

#### Treatment efficiency

Parameter	Septic Tank Effluent*	Ecoflo® STB-650 Biofilter Effluent**
Biochemical Oxygen Demand (BOD <sub>5</sub> )	= 250 mg/L	= 10 mg/L
Total Suspended Solids (TSS)	= 75 mg/L	= 10 mg/L
Fecal Coliforms (CFU/100 ml)	= 2 000 000 CFU/100 ml	= 25 000 CFU/100 ml

\* Typical values according to sampling campaign in Canada and United States since 1995. (80% of septic tank samplings effluent)

\*\* Concentration means according to sampling campaign in Canada and United States since 1995. (arithmetic for solids and geometric for coliforms).

### Installation Procedure

1. Preliminary evaluation of component needs
2. Component location and special instructions
3. Soil characteristics and effluent disposal method
4. Biofilter installation
5. Types of installations

# 1. Preliminary evaluation of component needs

To improve the performance of any septic installation and extend the life of the treatment system, we recommend using a larger septic tank than that prescribed. This allows for the addition of an extra bedroom without the need for tank replacement as well as low-cost overflow protection. The septic tank must comply with state and local standards.

## 1.1 Septic tank

If a septic system needs to be replaced, two choices are available:

1. **Replacing the existing septic tank:** the new tank should be equipped with a **EFT-080** Premier Tech Environment effluent filter or simply use a Premier Tech Environment **PST-280/340/390/490/660** polyethylene septic tank and an access lid allowing easy access to the inside of the tank and to the effluent filter.
2. **Keeping the existing septic tank:** the tank must be inspected to ensure it is in good condition and a Premier Tech Environment effluent filter installed in the second chamber or in a separate filter container outside the tank. A **TAD-240** septic tank adapter may also be installed to facilitate access to the inside of the tank and to the effluent filter.

## Effluent Filters

The effluent filter extend the life of any treatment system by removing solids from the wastewater stream in the septic tank. An effluent filter is especially important in homes equipped with a garbage disposal, sewage pump or any other appliance liable to increase the suspended solids content of wastewater and thereby create premature clogging of the treatment system. An effluent filter will also prevent solids from reaching the effluent pump.

The effluent filter is normally installed in the second chamber of the septic tank, but may also be installed in a Premier Tech Environment **RES-140** Filter Container, in accordance with regulations, between the septic tank and the pumping station (where required). The location of the filter container should respect the prescribed clearances for septic tanks.

## 1.2 Ecoflo® STB-650 Biofilter with Submersible Collecting Bottom

The Ecoflo® STB-650 Biofilter with Submersible Collecting Bottom collects and conveys treated effluent to an appropriate soil absorption system or a watercourse, in accordance with existing regulations. Placement of the Ecoflo® STB-650 Biofilter with Submersible Collecting Bottom is subject to the same clearances as for septic tanks.

The number of Ecoflo® STB-650 Biofilters required depends on the number of bedrooms in the home.

No. of bedrooms	No. of Ecoflo® STB-650 Biofilters
1 to 4	1
5 or 6	2

## 1.3 Pumping Station (if required)

The Pumping Station is installed between the septic tank and the Ecoflo® ST-650 Biofilter in the event that gravity flow is not possible. Like the septic tank, the pumping station must also be watertight to prevent groundwater infiltration. If the pumping station capacity exceed 300 U.S. gal., a timed dosing unit **TPA-300** has to be used to control the pump. Premier tech Environment recommendation for the amount of water released to each Ecoflo® Biofilter is 10 to 15 gal. per dosing.

## 1.4 PSA-240L Pumping Station ( Dosing pump and tank)(where required)

The **PSA-240L** Pumping Station, or other acceptable dosing pump and tank system, is installed downstream from the Ecoflo® STB-650 Biofilter with Submersible Collecting Bottom in situations requiring pressure dosing of the soil absorption area. Other pumping solutions may be used in place of the dosing pump and tank as required by specific system design (i.e. drip or spray irrigation). Like the septic tank, it must be watertight to prevent the entry of groundwater (See **PSA-240L** Installation Guide).

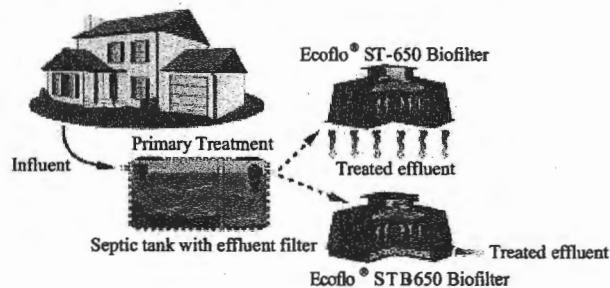
## 1.5 TPA-300E (outdoor) and TPA-300I (indoor) Timed Dosing Unit (where required)

The **TPA-300E** and **TPA-300I** or other acceptable timed dosing units control the release of wastewater to the Ecoflo® Biofilters (See **TPA-300E** and **TPA-300I** Installation Guide). All commercial installation with 3 or more of Ecoflo® Biofilter units should be installed with a time dosing unit with an overall pumping totalizer or with a flow meter.

*Premier Tech Environment has developed a complete line of associated equipment to achieve optimum performance of the Ecoflo® Biofilter and any septic system. For information on these products, see the relevant technical manual in this catalogue.*

## 2. Component location and special instructions

### Components of a residential gravity-flow septic installation



Septic installations must be sited in accordance with the minimum clearances prescribed by regulation.

### 2.1 Installation conditions

#### 2.1.1 Septic tank

Contact the septic tank manufacturer to see if it recommends a maximum installation depth. The septic tank must be watertight, be used for disposal of domestic wastewater only (i.e. no roof water, surface water or discharge from footing drains), and be located in a place that is not subject to flooding or where the tank will not be submerged.

A drain pipe may need to be installed around the septic tank to prevent entry of groundwater. The septic tank must be built and sized in accordance with local regulations.

#### 2.1.2 Ecoflo® STB-650 Biofilter with SCB-650 Submersible Collecting Bottom

The access lid of the Ecoflo® STB-650 Biofilter must be 2" aboveground after landscaping has been completed. It is important that all interested parties (installers, landscapers, owners, snow removal company, etc.) be advised of the following:

- never cover or bury the access lid;
- never overload the soil (e.g. vehicles, blown snow, embankments) within 10' of the lid;
- ensure rapid revegetation to prevent soil erosion.
- ensure the groundwater level never reaches the neck of the shell.

## 3. Soil characteristics and effluent disposal method

**N.B.: This is a key element of all septic installations.**

**The Ecoflo® STB-650 offers the choice of three disposal methods (according to local regulation):**

Here are some proposed by Premier Tech Environment:

Effluent from the Ecoflo® STB-650 Biofilter with Submersible Collecting Bottom may be discharged:

- to a pumping station which pumps the effluent to a soil absorption area, a spray or drip irrigation field
- to a tertiary treatment system
- into a watercourse (requires NPDES approval).

### 3. Soil characteristics and effluent disposal method (cont'd)

#### 3.1 Discharge to the native soil

##### 3.1.1 Hydraulic conductivity

An accurate assessment of the soil's **hydraulic conductivity**, i.e. the greatest amount of water it is possible for the soil to hold, is a crucial step in planning any septic installation. An adequate infiltration capacity will ensure wastewater discharge to the polishing field. The soil infiltration capacity is often expressed as a percolation rate, which can be determined by any qualified individual through an in-situ percolation test or a laboratory soil particle-size analysis.

##### 3.1.2 Soil absorption system

Once the soil characteristics have been established, the **soil absorption system** where Ecoflo® STB-650 Biofilter effluent will be pumped by the PSA -240L Pumping Station can be sized. The soil absorption system must comply with the construction standards of local regulations. The table below indicates the required absorption area suggested by Premier Tech Environment.

The **shape** of the absorption field may vary depending on site conditions and the position of the Ecoflo® Biofilter on the clean crushed stone.

**Minimum recommended absorption area sizing**

Soil Type	Soil Texture (USDA Classification)	Percolation rate (min/inch)	Loading rate (gpd/sq. ft.)
I	Sand, Loamy sand	0 - 15	2.27
II	Sandy loam, Loam	15.1 - 30	1.80
IIIa	Silt loam, Loam	30.1 - 45	1.21
IIIb	Silt, Sandy clay loam	45.1 - 60	0.85
IIIb	Silt clay loam, Clay loam	60.1 - 75	0.60
IV	Sandy clay	75.1 - 90	0.45
IV	Silty clay	90.1 - 105	0.40
IV	Clay	105.1 - 120	0.35

##### 3.1.3 Required soil depth

The required soil depth to limiting zone shall be in accordance with applicable state and local regulations. Premier Tech Environment's recommendation is 12" where no specific regulation is available.

**Note!** Always consider the following when building a polishing leach field:

- In-situ soil's assessment must be performed in accordance with applicable regulations to determine the type of soil taking into account the groundwater level, bedrock and clay.
- The above depths must be calculated using the **seasonal high water table** during the year (e.g. during snowmelt or after extended rainfall).
- The profile of the lot must be such that surface runoff flows away from the septic system.
- The shape of the soil absorption system may vary according to site conditions.
- Various means can be used to promote seepage in low permeability soils. Contact Premier Tech Environment for details.

#### 3.2 Discharge into a watercourse (requires NPDES approval)

##### 3.2.1 Watercourse characteristics

Ecoflo® STB-650 Biofilter effluent may be discharged into a watercourse in accordance with NPDES permitting requirements.

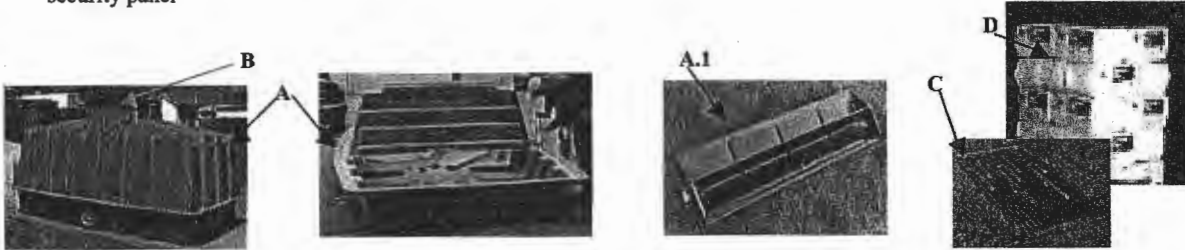
##### 3.2.2 Soil characteristics

Where effluent is discharged into a watercourse, it is not necessary to determine soil characteristics or comply with the prescribed absorption area. However, the profile of the lot must be modified to ensure surface runoff flows away from the septic system and get an NPDES approval permit.

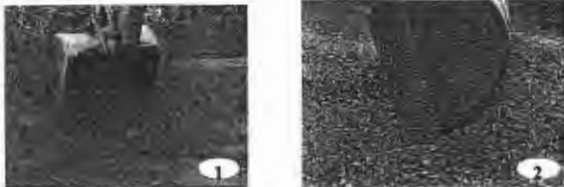
## 4. Ecoflo® STB-650 Biofilter installation

**Make sure you have the following components**

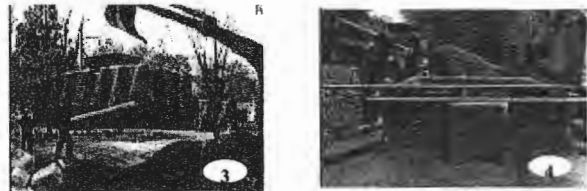
- A - 1 shell with submersible collecting bottom, central support and effluent disposal device
- 1 bag containing the Owner's Manual and Maintenance Agreement
- 4 black plastic ty-raps, 2 ty-raps marked "Ecoflo®," 1 security panel
- A.1 - 1 feeding bucket and 2 bucket supports
- B - 1 access lid
- C - 4 distribution plates
- D - 1 palette (30 bags) of PFB-150 Peat Filter



### 1. Excavate and install shell



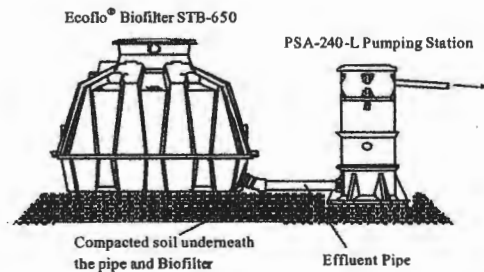
Excavate an area approximately 10' x 15'. Cover with ¾"Ø gravel free of vegetable matter 6" deep.



If this type of gravel is not available, lay a 7 mm or heavier geotextile sheet over the area where the Ecoflo® Biofilter is to be installed. The surface should be graded before installing the geotextile.

Install the Ecoflo® Biofilter in the excavated area. Make sure it is level and in full contact with the surface of the soil absorption system or geotextile sheet.

### 2. Connect the discharge pipe



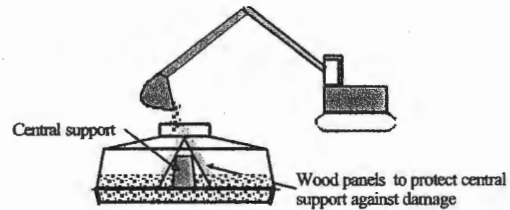
Connect the Biofilter effluent discharge pipe. It can be connected to a pumping station, or lead directly to a soil absorption system, a tertiary treatment system or into a watercourse, depending on the type of installation and site topography.

## 4. Biofilter installation

### 3 Put crushed stone into the shell



Place a 15" layer of 3/4" clean crushed stone in the bottom of the Ecoflo® Biofilter, on both sides of the central support. The stone should be dropped on both sides at the same time. Spread the crushed stone over the entire surface of the shell bottom and under the central support after each dumping. The crushed stone bed should be level where the shell joins the collecting bottom.



We recommend protecting the central support against damage by leaning a wood panel 26" x 96" against each side.

### 4 Backfill shell and connect inflow pipe



When backfilling the Ecoflo® ST-650 Biofilter, start by stabilizing the shell by carefully backfilling each of the four corners. Backfill the two long sides next, followed by the two ends, in successive layers of 30 cm. It is important that the backfill material be placed, not dumped, which is why we recommend you not use a bulldozer for this step.

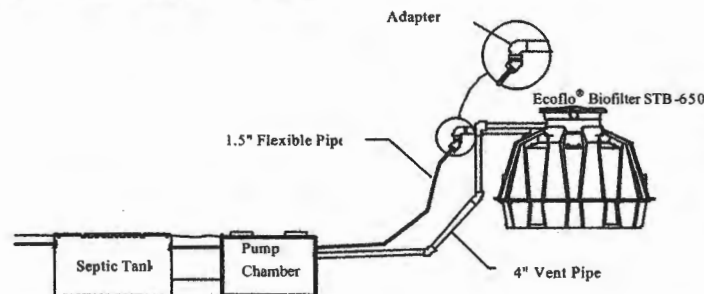
The backfill material should contain no organic matter, impermeable soil, stones, rocks, debris or other objects that could damage the shell.



Connect the inflow pipe to the Ecoflo® Biofilter, ensuring a steady downward slope to the Biofilter intake. Make sure the soil is sufficiently compacted under the pipes.

**Note:** Do not compact backfill material with heavy equipment

### 4 Backfill shell and connect inflow pipe (cont'd)



**Note:** For Ecoflo® STB-650 Biofilter with a lift pump, note the following:

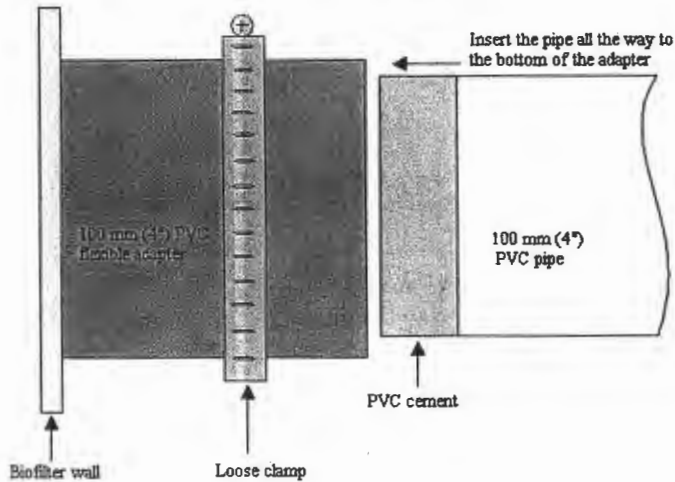
- The pumping station and Ecoflo® Biofilter must be joined by a 4" Ø vent pipe to ensure aeration.
- The inflow pipe (1.5" Ø flexible pipe) is fitted with an adapter enabling connection to the Biofilter intake, which fits pipes with an outside diameter of 108mm Ø (4.25" Ø).
- If the pumping station capacity exceed 300 U.S. gal., a timed dosing unit TPA-300 has to be used to control the pump Premier tech Environment recommendation for the amount of water released to each Ecoflo® Biofilter is 10 to 15 gal per dosing.

## 4. Biofilter installation (cont'd)

This is the installation steps of the inlet pipe in the flexible adapter of the Ecoflo® Biofilter.

### 5 Inlet pipe and flexible adapter coupling

#### Installation step 1



#### Assembly steps

1. Loosen the clamp without removing it from the adapter and slide it towards the adapter end.

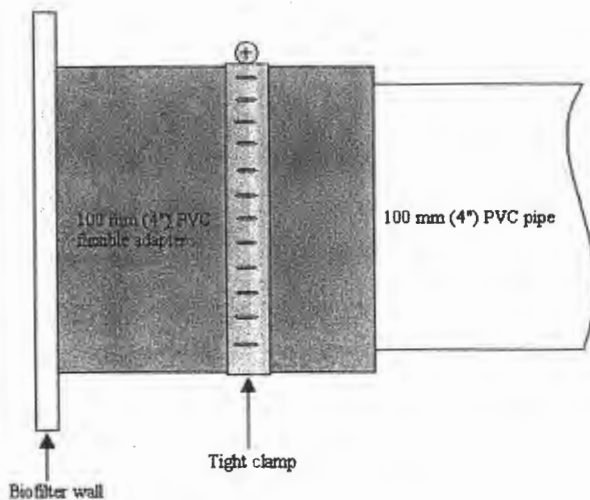
2. Clean the pipe and apply a PVC primer

3. Apply PVC cement inside the adapter and on the pipe end which is to be inserted in the adapter.

4. Insert the pipe (covered with cement) into the adapter until it reaches the bottom.

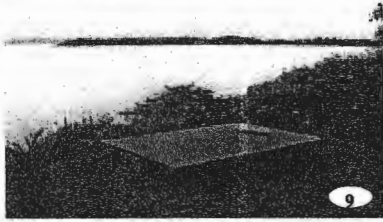
5. Tighten back the clamp on the adapter and the 100 mm (4") pipe.

#### Installation step 2



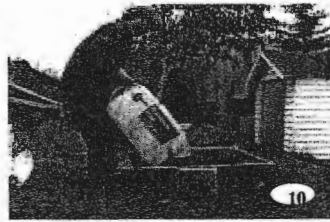
## 4. Biofilter installation (cont'd)

### 5. Add final layer of backfill and install peat filter

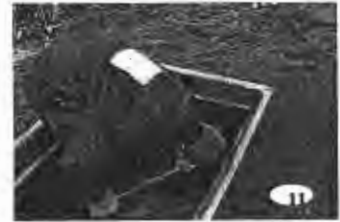


Fill the 2 sides of the shell with equal amounts of the peat filter (15 bags per side).

**Warning!** Do not compact the top 12" of peat (do not compress).

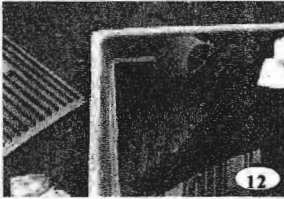


Add a final layer of backfill and cover with topsoil. The access lid must be 2" aboveground once the final landscaping has been completed.



Rake the surface of the peat so it will be level with the distribution plates and will not hinder their installation.

### 6. Install distribution plates



Install the distribution plates by sliding them onto the brackets located at the back of the shell roof. Install one of the left plates first, followed by a right plate, fitting it onto the edge of the left plate. Follow this same procedure for both sides of the shell (two plates on each side).

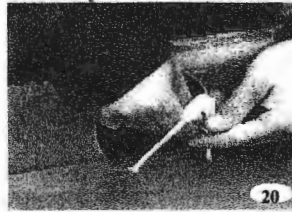
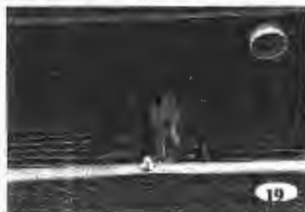
The distribution plates should rest on top of the central support and be attached to it using the four black plastic ty-raps provided for this purpose.

### 8. Install feeding bucket



Once the distribution plates are securely in place, install a feeding bucket support at each end of the central support. Place the bucket on the pivots and press down so they lock together.

### 9. Make sure distribution system operates properly and seal security panel



After checking to make sure the distribution system operates properly, close the Ecoflo® Biofilter by installing the security panel. Seal it shut by attaching the handle of the security panel to the neck of the Ecoflo® Biofilter using the two white plastic ty-raps marked "Ecoflo." Bolt the lid shut.

## 4. Biofilter installation (cont'd)

### Things to be checked following installation:

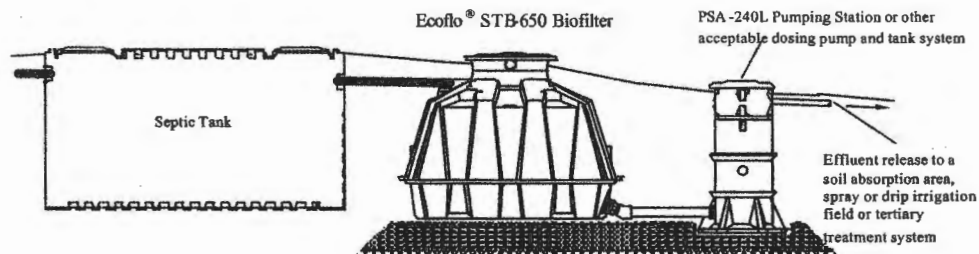
- Never cover or bury the access lid of the Biofilter shell.
- Never plant trees within 10' of the shell.
- Never enter the shell after installation without prior written authorization.
- Never connect a drain pipe or roof gutter to the Ecoflo® Biofilter.
- Never drive vehicles or place objects weighing over 500 lb. within 10' of the lid, and if you plan to do any landscaping, make sure you advise those involved so they don't damage your septic system.
- Do not shovel or blow snow so it accumulates on top of the septic system. The overload could cause damage.
- Homes must be equipped with an air vent that is in proper working order and complies with the applicable standards.
- Give the owner the plastic bag containing the Owner's Manual and the Maintenance Agreement.

Tell the customer to fill out and sign the Maintenance Agreement. He is to keep the white copy, send the yellow copy to the municipality (if required) and the pink copy to the Premier Tech Environment representative shown on the envelope included in the Owner's Manual.

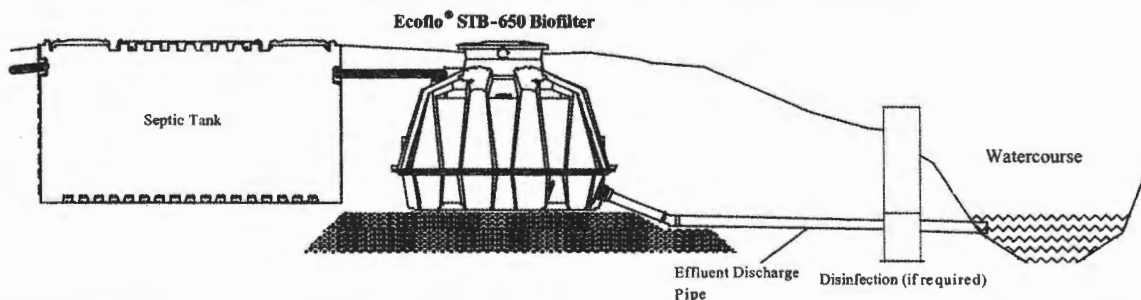
## 5. Types of installation

The type of installation depends on site conditions. Below are some examples.

### Type 1 Gravity flow system with a pumping station



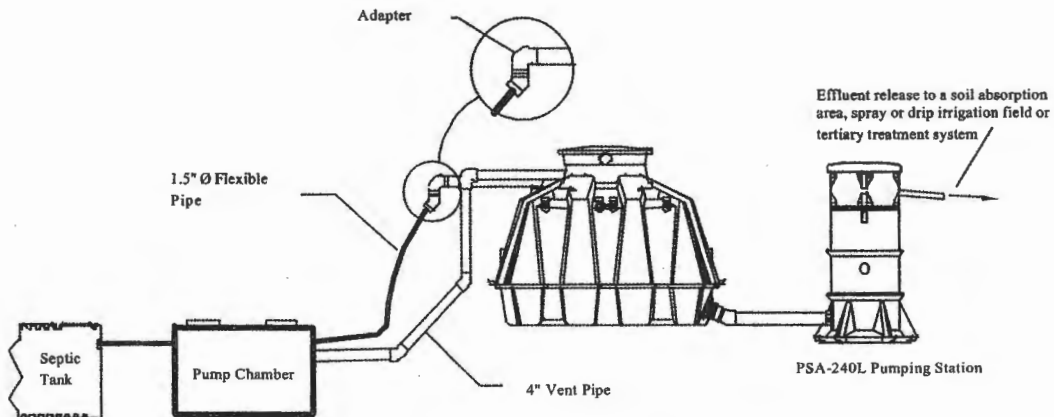
### Type 2 Gravity flow system with effluent discharge into a watercourse



## 5. Types of installation (cont'd)

### Type 3 Aboveground installation with effluent discharge to a soil absorption system or a tertiary treatment system

- The total capacity of the bottom of the Ecoflo® Biofilter STB-650 with the Pumping Station PSA-240L is 300 US gal.
- If the pumping station capacity exceed 300 U.S. gal., a timed dosing unit TPA-300 has to be used to control the pump. Premier tech Environment recommendation for the amount of water released to each Ecoflo® Biofilter is 10 to 15 gal. per dosing.
- The pumping station and Ecoflo® Biofilter should be joined by an vent pipe to ensure aeration.
- The pumping station must be watertight to prevent seepage.
- The pumping station must be accessible at all times.



For further information or to comment on this product, contact:

Premier Tech Environment  
7051, Meadow Lark Dr., Building 200, Suite 208, Birmingham, AL, USA 35242  
☎ 1 877 295-5763 / (205) 408-8783 1 877 436-3896  
✉ ecoflo@premiertech.com www.premiertech.com

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Environment**

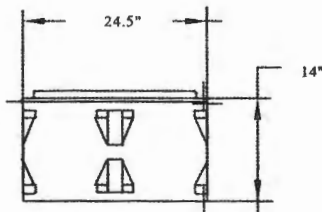
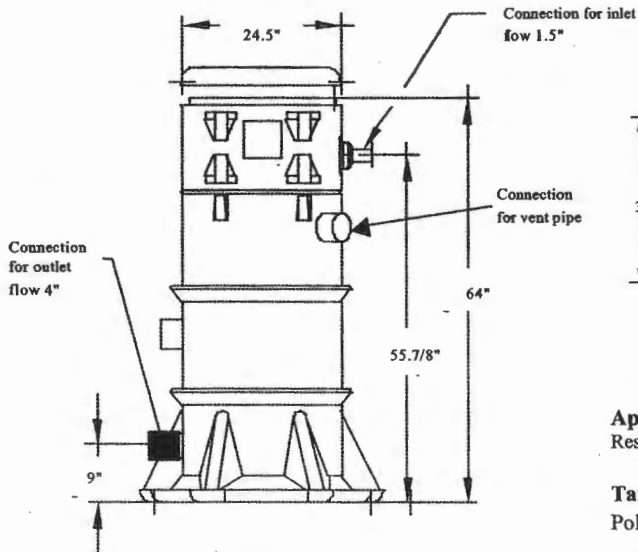
# PSA-240L Pumping Station

## Installation Guide

*This guide contains the information needed to install Premier Tech Environment's PSA-240L Pumping Station. For additional information, call our customer service at 1 877 295-5763*

Certain septic installations may require a pumping station. The PSA-240L Pumping Station is specially designed to receive effluent from the Ecoflo® STB-650 Biofilter with Submersible Collecting Bottom.

### Technical Data



**PSR-140 Riser**

#### Application

Residential

#### Tank materials

Polyethylene (PE)

#### Tank weight

46 kg (101 lb.)

#### Inlets (water intake and ventilating duct)

Fit 100 mm ø (4") DR 35 PVC pipes

#### Outlet

Fits flexible pipes with 38 mm (1.5") inside diameter

#### Shipping and handling

Can be shipped upright or on its side  
If shipped on its side, handle with care

#### Available options

Tank without electro-mechanical components and a PST-060 (6") Riser is also available for the pumping station.

#### Warning!

No more than one PSR-140 Riser may be installed with the PSA-240L Pumping Station.

## Installation Procedure

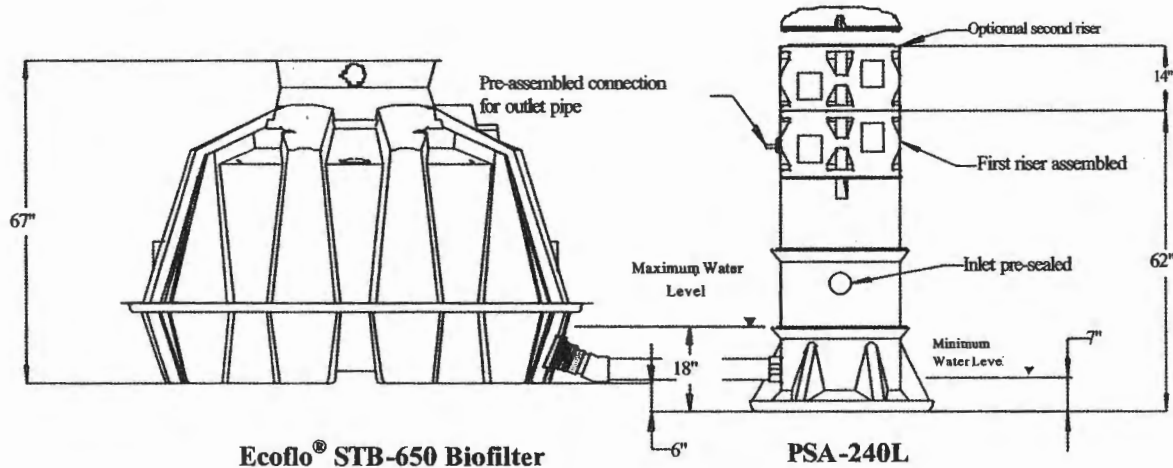
1. Product description and requirements
2. Component location
3. Installation and assembly

# 1. Product description and requirements

The **PSA-240L Pumping Station** comes pre-assembled and ready for connection to the effluent outlet of the Ecoflo® STB-650 Biofilter with Submersible Collecting Bottom. The following components are already assembled inside the tank: on/off float, alarm float, piping system including flexible pipe, ball valve and quick-connect coupling. Also included but not assembled are an alarm panel and a junction box (including heat shrink tubing).

## Operating conditions

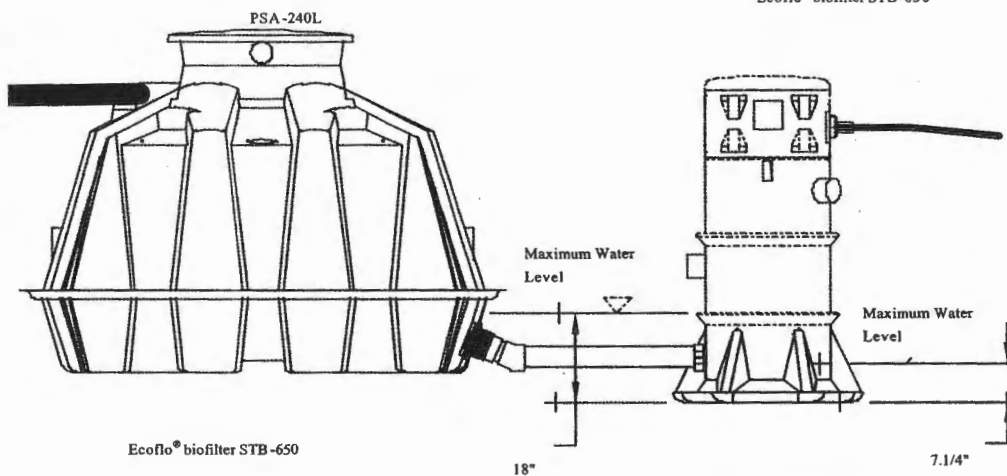
The **PSA-240L** pump tank and Ecoflo® STB-650 Biofilter have a combined useful volume of 300 US gal.



If the PSA-240L Pumping Station on its own does not meet your specific application needs, Premier Tech Environment offers compatible products, such as the TPA-300E or TPA-300I Timed Dosing Unit. Call Premier Tech for details.

# 2. Component location

The **PSA-240L Pumping Station** is installed downstream from the Ecoflo® STB-650 Biofilter with Submersible Collecting Bottom.



### 3. Installation and assembly

#### Step 4

Close the lid to prevent backfill material from falling into the tank. Backfill the tank and piping (insulate if necessary) with suitable material.

#### Note:

- Backfill must be compacted underneath the piping to prevent pipes from breaking, bending, etc. due to topographical forms.

#### Step 5

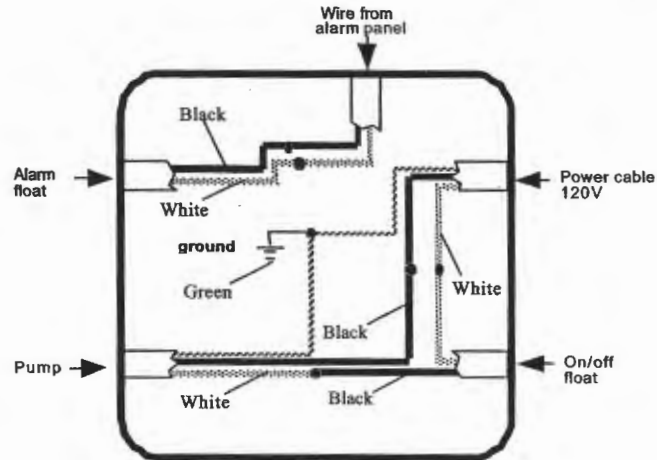
Using the material provided (junction box, heat shrink tubing), make the necessary connections with the heat shrink tubing to ensure that moisture does not infiltrate the electrical system.

The junction box must be installed outside the tank and off the ground so that it is never submerged and allows easy access.

#### Electrical connections

You will need two 2-stranded power cables that can be buried. We recommend protecting the buried cables with small-diameter electrical conduit. The required gauge must be determined by a qualified electrician.

**Note:** Floats are normally taped for shipping. Make sure the tape has been removed before activating the pump. Also make sure nothing is obstructing the floats.



For further information or comments, contact your local distributor or our customer service line at:

Premier Tech Environment  
7051 Meadow Lark Dr., Building 200, Suite 208, Birmingham, AL USA 35242  
☎ 1 877 295-5763 / ☎ 1 877 436-3896  
✉ [ecoflo@premiertech.com](mailto:ecoflo@premiertech.com) [www.premiertech.com](http://www.premiertech.com)

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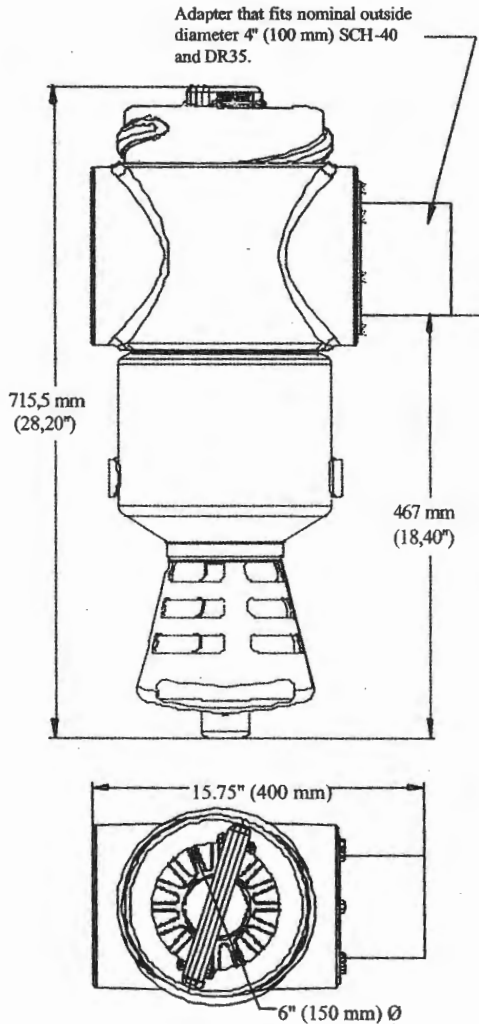
**Premier Tech Environment**

# EFT-080 Effluent Filter

## Installation Guide

This guide contains the information needed to install Premier Tech Environment's EFT-080 Effluent Filter. For additional information, call our customer service at 1 877-295-5763.

### Technical Data



The EFT-080 Effluent Filter is certified NSF



**Materials**

Nylon, polyethylene and PVC

**Outlet**

PVC adapter that fits 4" (100 mm) nominal outside diameter SCH-40 and DR35 pipes

**Inlets**

Located at the base of the effluent filter (lateral inflow)  
Total orifice area: about 42 sq. in. (270 cm<sup>2</sup>)

**Filtration slots**

1/16" (1,6 mm)

**Total filtration area**

185 sq. in. (1200 cm<sup>2</sup>)

27,75"  
(705 mm)

**Total linear filtration**

248' (75,5 m)

**Maximum flow rate**

2640 US gal./d (10 000 L/d)

**Option**

EFT-080H Adjustable Filter Handle

**Applications**

- Residential
- Commercial
- Communal

**CAUTION - CAUTION - CAUTION**  
Always wear protecting gloves to avoid hand injury during any manipulation of the cartridge

### Installation Procedure

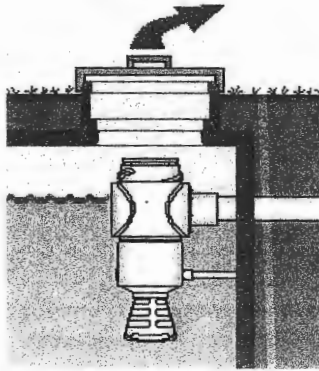
1. Product description and requirements
2. Location and installation
3. EFT-080H Adjustable Filter Handle (optional)
4. Maintenance

## 4. Maintenance

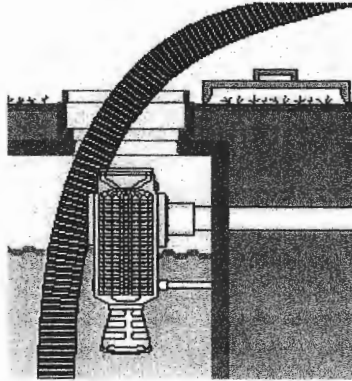
Over time, the EFT-080 Effluent Filter will become full of solids released from the septic tank. This is normal, which is why the filter must be cleaned periodically. We recommend an inspection of the filter once a year. The cleaning of the effluent filter should be done each time the septic tank is pumped. However, the frequency of maintenance will depend on wastewater flows and the type of establishment.

### Main steps in cleaning an EFT-080 Effluent Filter:

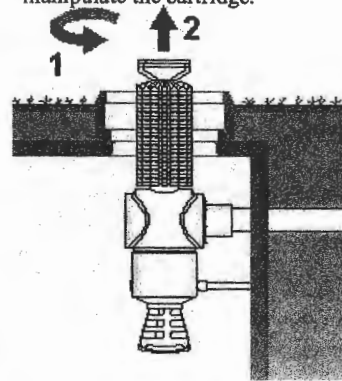
**Step 1** Remove the two access lids to the septic tank or the lid to the filter container.



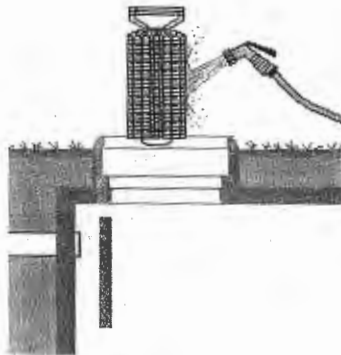
**Step 2** Pump both chambers of the tank (if required) or the filter container.



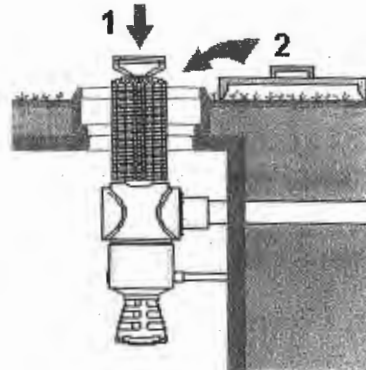
**Step 3** Twist the cap a quarter turn and pull out the filter cartridge. Use gloves to manipulate the cartridge.



**Step 4** Hold the filter cartridge over the first chamber of the septic tank and clean it off.



**Step 5** Reinsert into the filter case, screw the cap back on and put the lids back on the septic tank or filter container.



For further information or comments or for a replacement filter, contact your local distributor or our customer service line at:

Premier Tech Environment  
7051, Meadow Lark Dr., Building 200, Suite 208,  
Birmingham, AL USA 35242

☎ 1 877 295-5763 / ☎ 1 877 436-3896

✉ [ecoflo@premiertech.com](mailto:ecoflo@premiertech.com) / [www.premiertech.com](http://www.premiertech.com)

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1, avenue Premier, Rivière-du-Loup (Québec) G5R 6C1, CANADA

☎ 1 877 295-5763 / (418) 867-8883

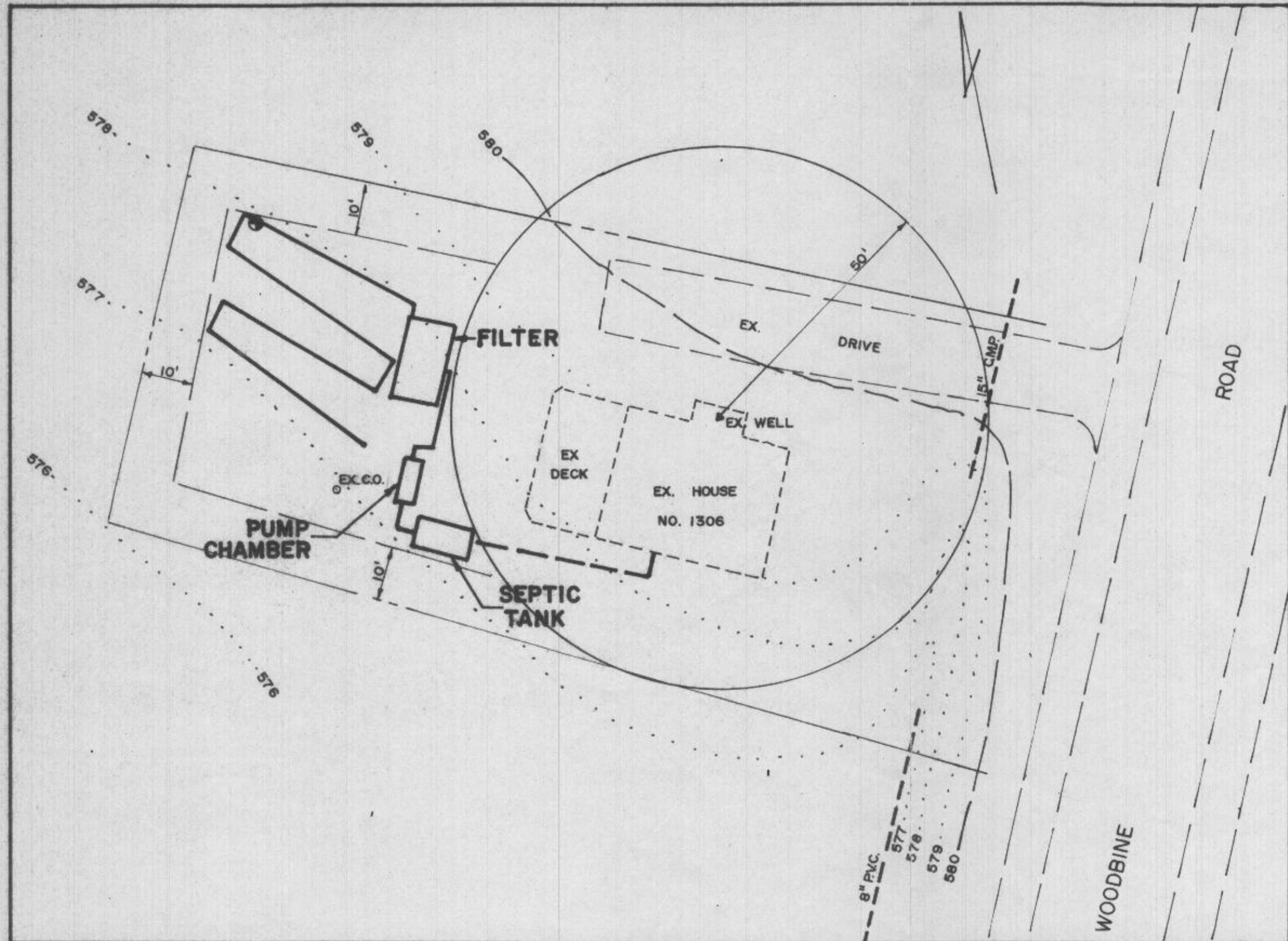
☎ (418) 867-3896 / 1 877 436-3896

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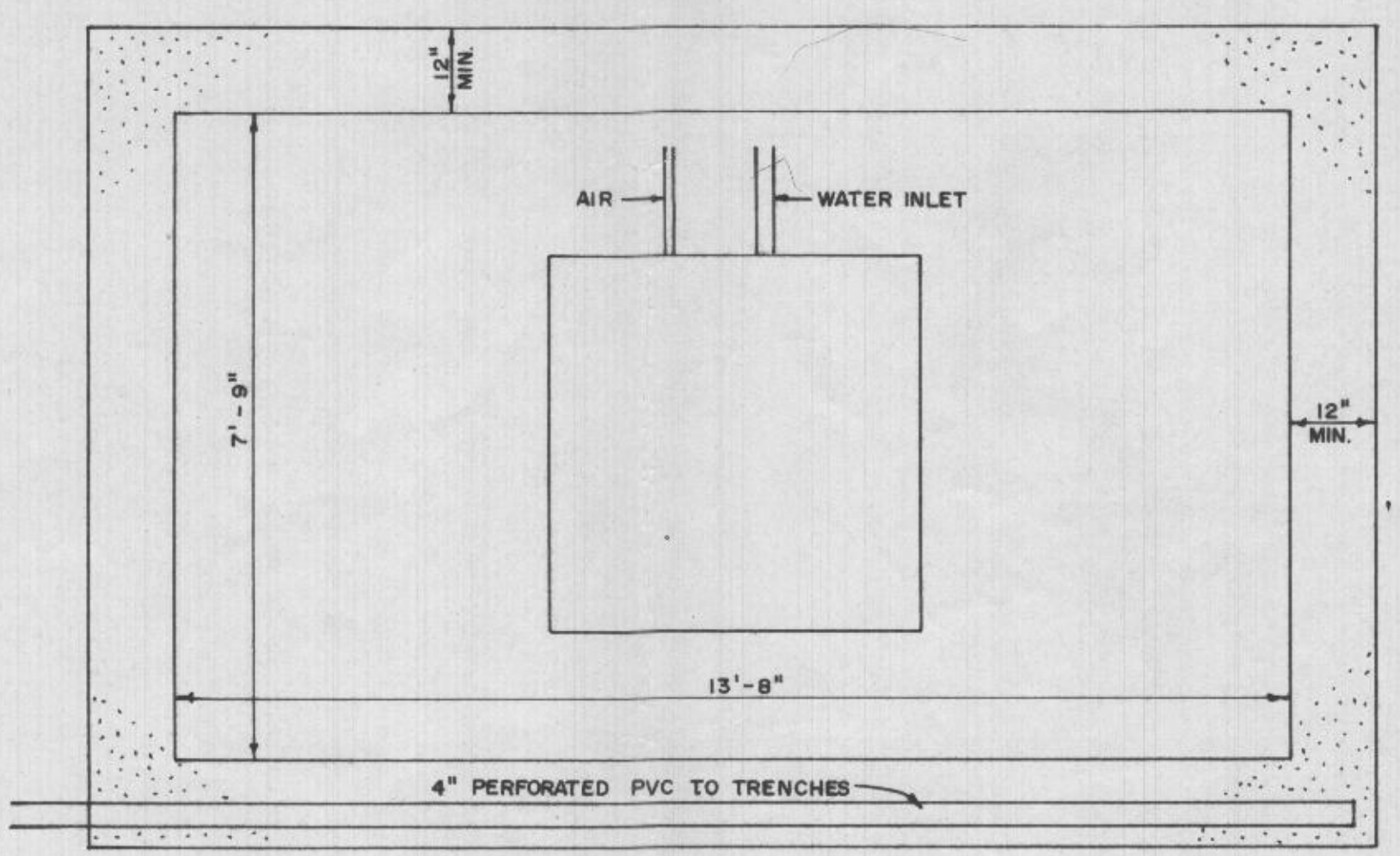
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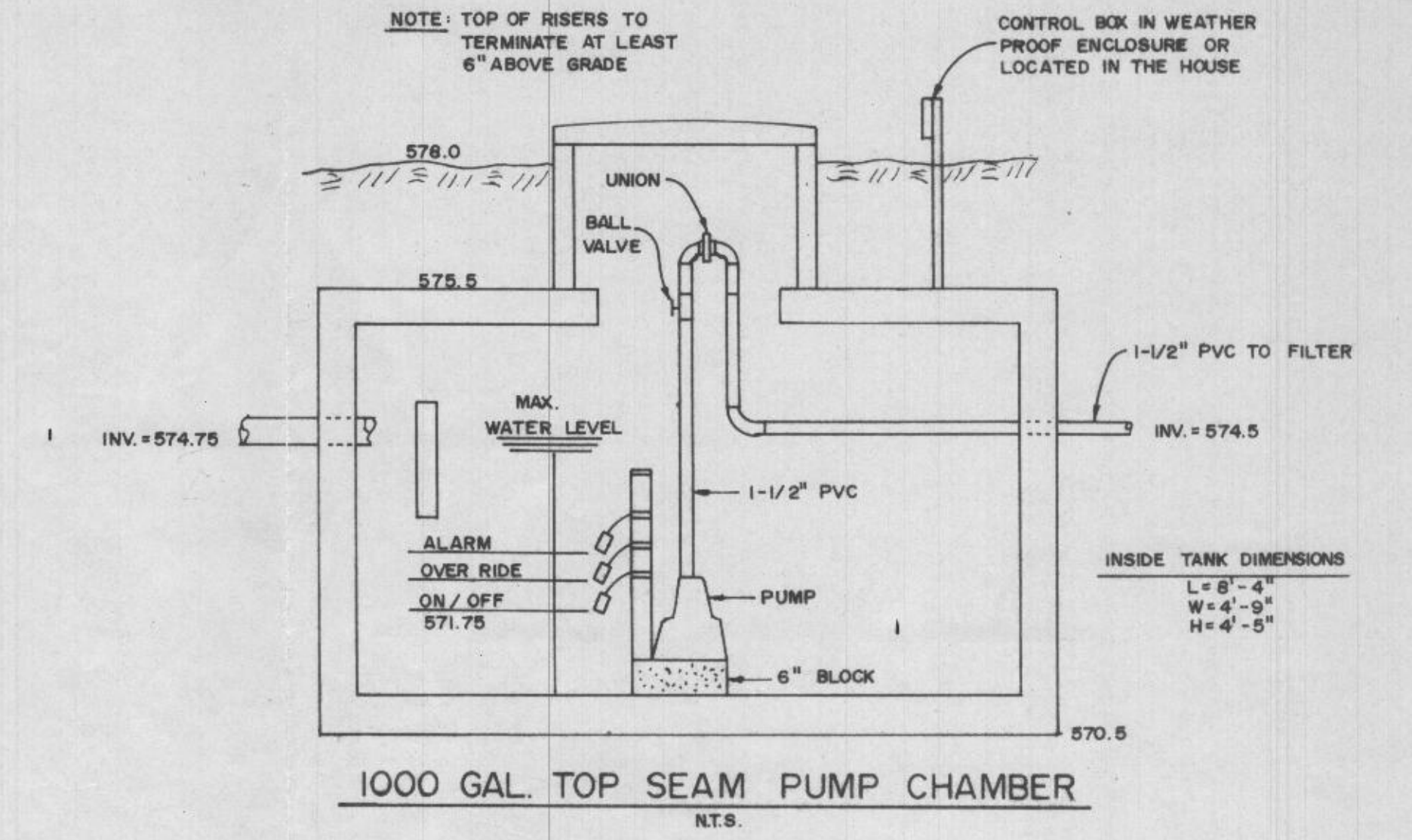
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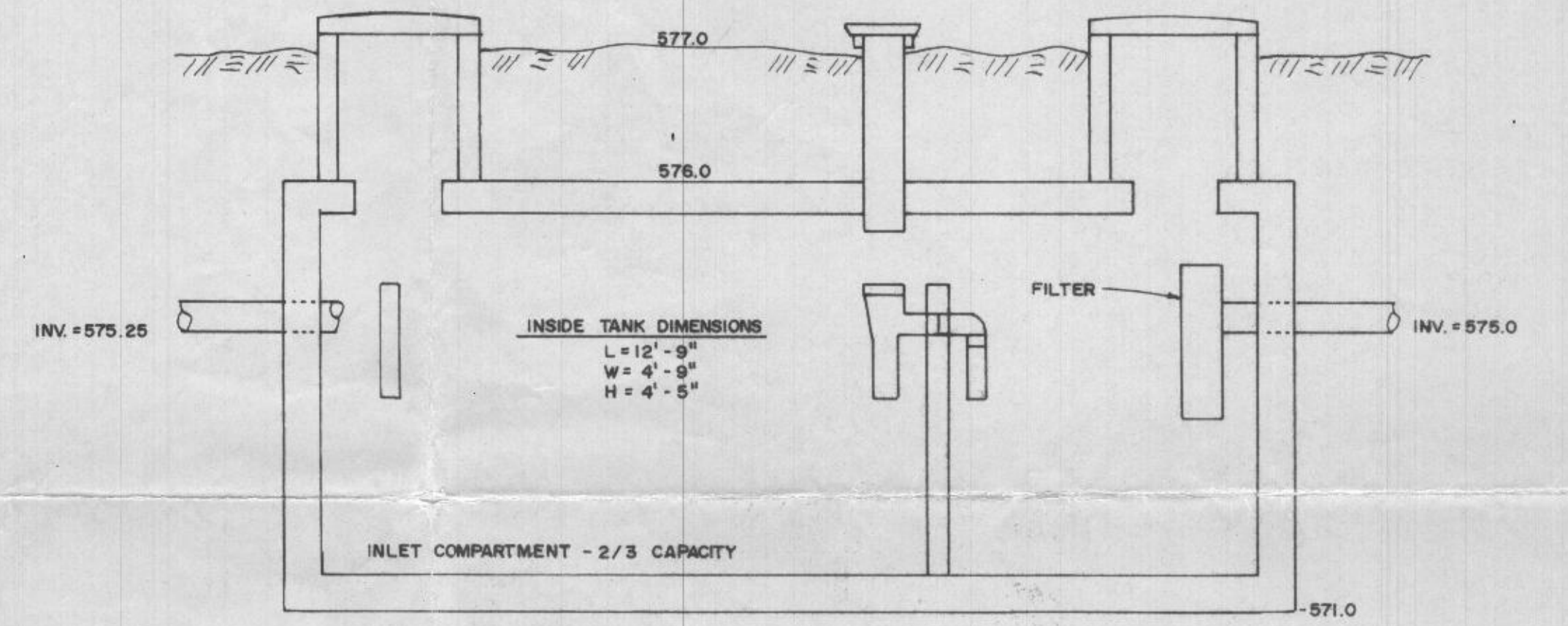
**SITE PLAN**  
SCALE: 1" = 20'



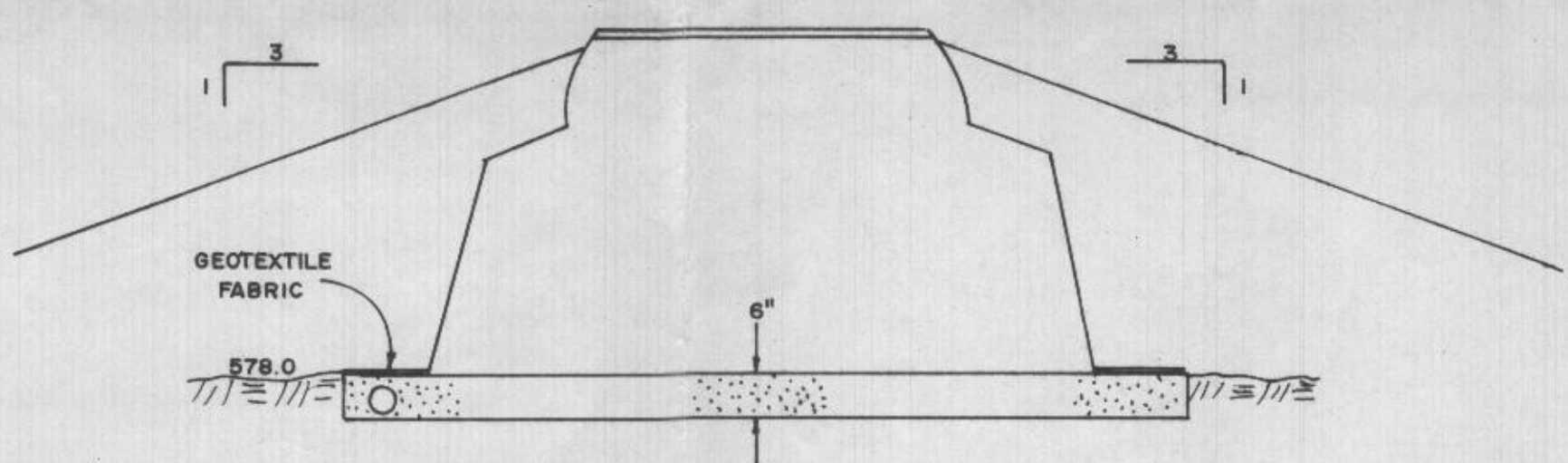
**PLAN VIEW - PEAT FILTER**  
SCALE: 1/2" = 1'



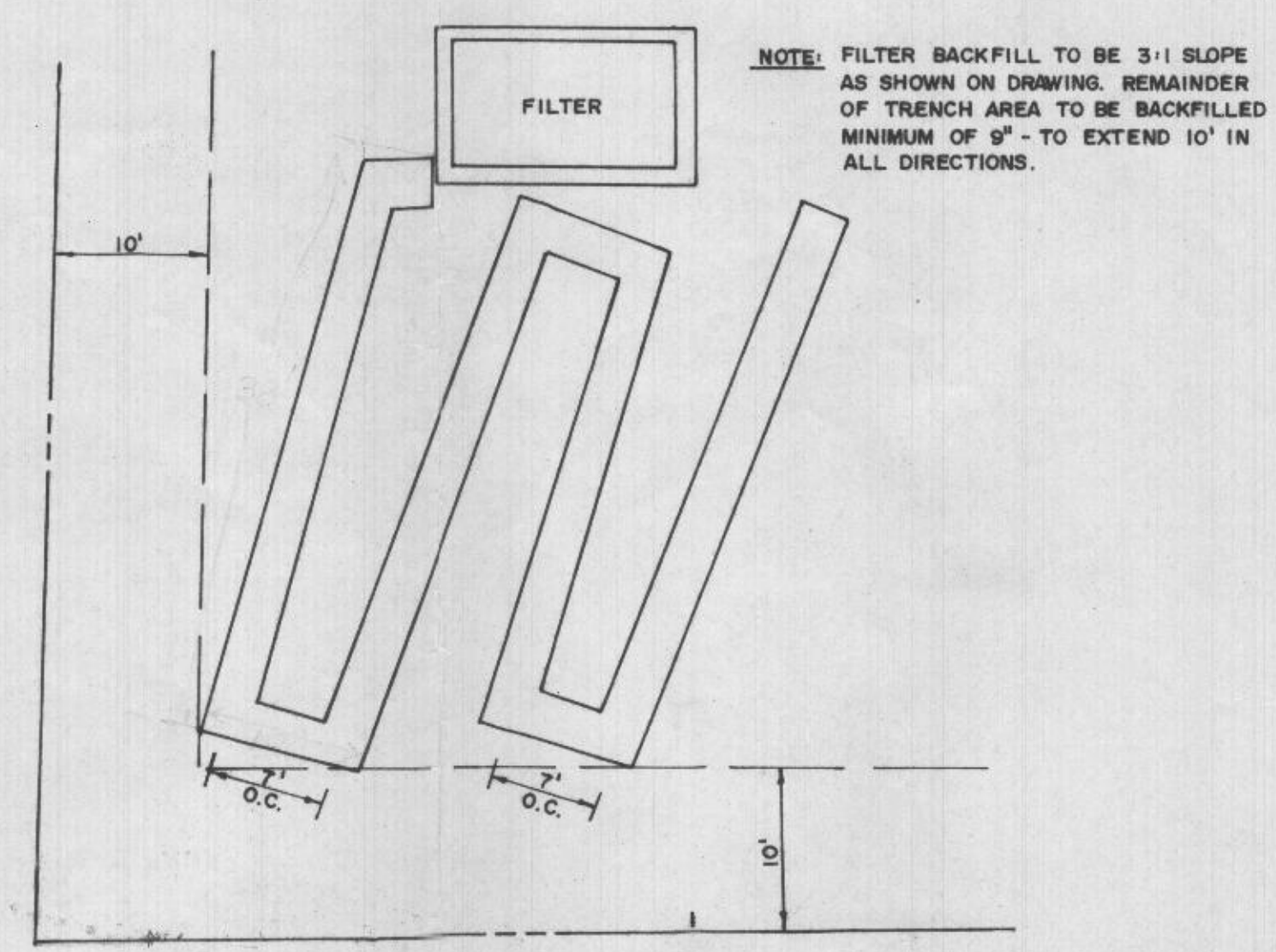
**1000 GAL. TOP SEAM PUMP CHAMBER**  
N.T.S.



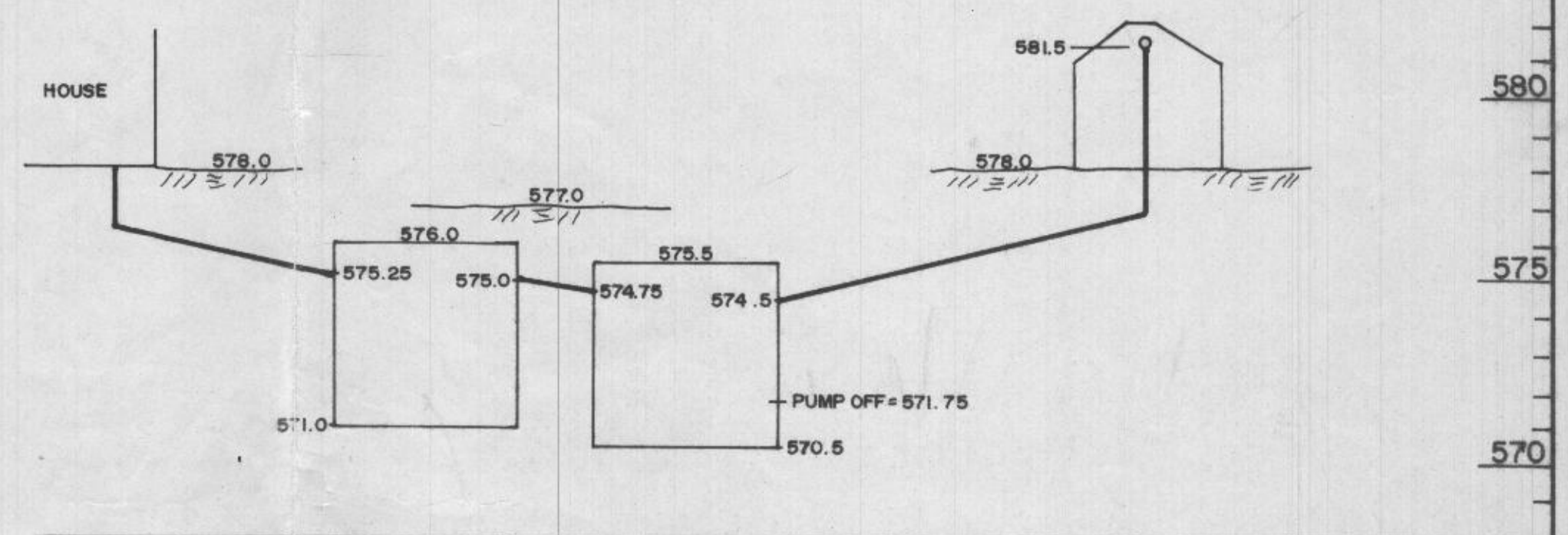
**1500 GAL. TOP SEAM SEPTIC TANK**  
N.T.S.



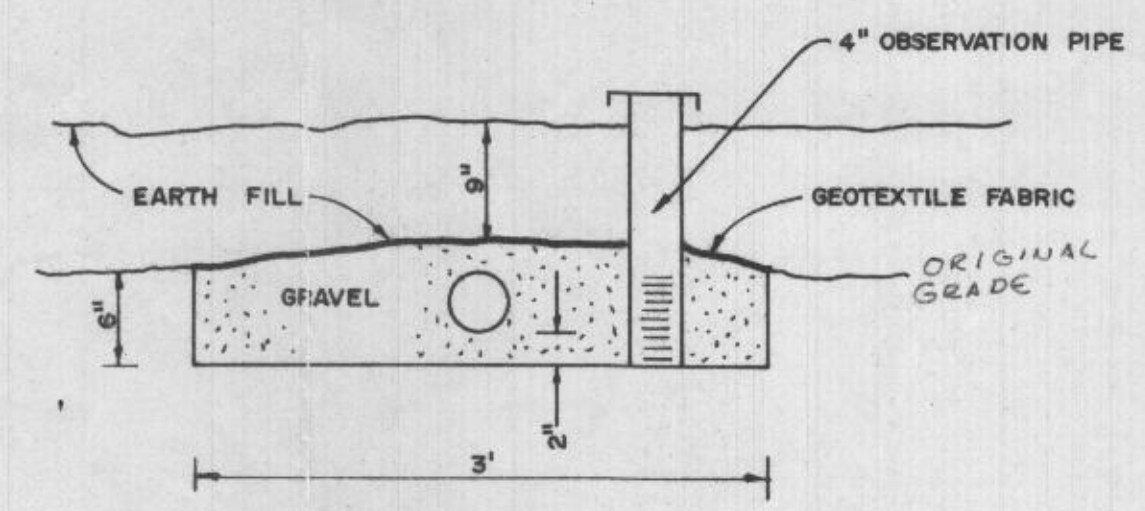
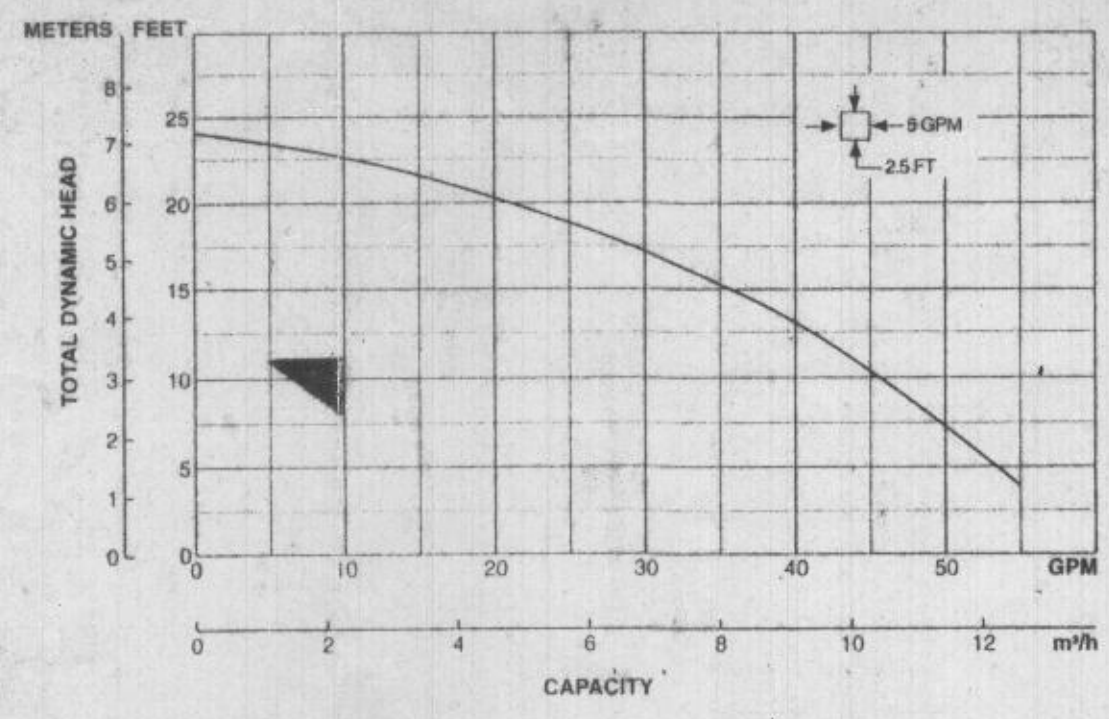
**END SECTION VIEW - PEAT FILTER**  
SCALE: 1/2" = 1'



**FILTER/TRENCH LAYOUT**  
SCALE: 1" = 10'



**HYDRAULIC PROFILE**  
SCALE: 1/4" = 1'  
H.N.T.S.



**TRENCH DETAIL**  
SCALE: 1" = 1'

**DESIGN CRITERIA**

2 Bed Rooms x 150 = 300 GPD  
Loading Rate: 0.5 GPD/Sq. Ft.  
Peat Filter For Advanced Treatment  
1 - 1,500 GAL. Top Seam Septic Tank  
1 - 1,000 GAL. Top Seam Pump Chamber  
Pump Rate: 10 GPM

**SOIL TEST**

2" - 25 min @ 18"

**SPECIFICATIONS**

- Tank measurements and elevations are based on septic tanks and pump chambers as manufactured by Mayer Bros., Elkridge, Md. (410) 796-1434. Any tanks of equal capacity approved by the Health Department are acceptable.
- Peat Filter to be EcoFlo Peat Filter Model St-650 as manufactured by Premier Tech Environmental.
- Filter controls to be a TPA-300 timed dosing unit equipped with a flow event counter and elapsed time meter.
- Filter unit to be installed on the septic tank effluent line to be a Premier Tech Model EFT-080.
- A submersible pump to remove 10 GPM at 11' TDH to be provided. Pump to be a Gould's Model 3871 submersible Effluent Pump, or equal.
- All pressure piping to be Schedule 40 PVC of the size show.
- All controls to be located in the house.
- Stone bed to be 1/2" to 2 1/2" clean gravel. Crushed lime stone is not acceptable.
- A test of the pump system is required prior to covering the system.
- A 4" PVC Air Line, specified by the manufacturer, may require an additional exit opening in the pump chamber. The Air Line and force main to be installed in the same trench. All installation to be in accordance with manufacturers recommendations.

**NOTE**

Approval of final field layout is required by the Division of Residential Sanitation at least 48 hours prior to system installation.

Approved By: \_\_\_\_\_  
Date: \_\_\_\_\_

MARYLAND DEPARTMENT OF THE ENVIRONMENT  
DIVISION OF RESIDENTIAL SANITATION

Reviewed By: *Benny Kelly* Date: 4-6-06

Approved By: *BWG* Date: 4-6-06



*James R. Clise*

<b>S/E ENGINEERING, INC.</b> WESTMINSTER, MARYLAND		
SCALE: AS SHOWN	APPROVED: J.D.C.	DRAWN BY: R.S.K.
DATE: MARCH 2006		DESIGN BY: J.D.C.
1306 WOODBINE ROAD HOWARD COUNTY		
PEAT FILTER - SHALLOW TRENCH SYSTEM		DRAWING NO. 1 OF 1