

Paul R. LePage, Governor

Mary C. Mayhew, Commissioner

Tel. (207) 287-5672

Subsurface Wastewater Unit

Department of Health and Human Services
Maine Center for Disease Control and Prevention
286 Water Street
11 State House Station
Augusta, Maine 04333-0011
Tel. (207) 287-8016
Fax (207) 287-9058; TTY (800) 606-0215
Fax (207) 287-4172

March 15, 2012

Promiseland Manufacturing, LLC
Attn.: Frank Owens
59 Palmette Street
Wlakea, FL 32193

Subject: Product Registration, Poly Gravel Prefabricated Alternative Septic Drainfield System

Dear Mr. Owens:

The Division of Environmental Health has completed a review of a registration application for your company's Poly Gravel Prefabricated Alternative Septic Drainfield System (Poly Gravel). This information was submitted pursuant to Section 6.HH of the Subsurface Wastewater Disposal Rules for registration for use in Maine.

The Poly Gravel consists of polystyrene cubes encased in a plastic mesh cylinder. There are two variants: with and without a four inch diameter plastic perforated pipe in the center.

According to the information you provided, the Poly Gravel is installed in three foot wide trenches. Each trench would contain a central Poly Gravel cylinder with the integral central perforated pipe, with equally long cylinders without the integral pipe along both side of the central cylinder. The Poly Gravel system is rated at five square feet per linear foot, based upon effective side wall and bottom area.

According to the information you provided, the Poly Gravel has been certified by the National Sanitation Foundation (NSF), although no supporting documentation was submitted.

On the basis of the information and sample product submitted, the Division has determined that the Poly Gravel is acceptable for use in the State of Maine, provided that it is installed, operated, and maintained in conformance with the manufacturer's directions.

Soil suitability, backfill standards, and design flows for systems utilizing Poly Gravel must conform to relevant provisions of the Subsurface Wastewater Disposal Rules.

Because installation and owner maintenance has a significant effect on the working order of onsite sewage disposal systems, including their components, the Division makes no representation or guarantee as to the efficiency and/or operation of Poly Gravel. Further, registration of this product for use in the State of Maine does not represent Division preference or recommendation for this product over similar or competing products. If you have any questions please feel free to contact me at (207) 287-5695.

Sincerely,

James A. Jacobsen
Project Manager, Webmaster
Division of Environmental Health
Drinking Water Program
Subsurface Wastewater Unit
e-mail: james.jacobsen@state.me.us

/jaj

xc: Product File
Jim Bonanno, PE via e-mail

Jacobsen, James

From: Mail Delivery System [MAILER-DAEMON]
Sent: Thursday, March 15, 2012 2:28 PM
To: Jacobsen, James
Subject: Undelivered Mail Returned to Sender

Attachments: Delivery report; Undelivered Message Headers



Delivery report.txt
(751 B)



Undelivered
message Headers.txt

This is the mail system at host Zixvpm03.som.w2k.state.me.us.

I'm sorry to have to inform you that your message could not be delivered to one or more recipients. It's attached below.

For further assistance, please send mail to postmaster.

If you do so, please include this problem report. You can delete your own text from the attached returned message.

The mail system

<bonannonjj@gmail.com>: host gmail-smtp-in.l.google.com[173.194.68.26] said:
550-5.1.1 The email account that you tried to reach does not exist. Please
try 550-5.1.1 double-checking the recipient's email address for typos or
550-5.1.1 unnecessary spaces. Learn more at 550 5.1.1
<http://support.google.com/mail/bin/answer.py?answer=6596 hl5si1862772qab.92>
(in reply to RCPT TO command)



REC'D 03/08/12

Maine Department of Health and Human Services
Bureau of Health
Division of Health Engineering
Wastewater and Plumbing Control Program

APPLICATION FOR REGISTRATION OF
EXPERIMENTAL SYSTEM/INNOVATIVE TECHNOLOGY
OR ONSITE SEWAGE DISPOSAL SYSTEM PRODUCT

Please complete the following Sections. Please print or type.

Applicant

Company Name: Promiseland Manufacturing, LLC
Contact Person: Frank Owens
Address: 59 Palmetto Street
Town/City: Wilaka State/Province: FL Zip Code: 32193
Country: USA
Telephone: 386-467-3808 e-mail:

Product

Product Name: Poly Gravel Prefab. Alternative Septic Drainfield System
Model: Poly Gravel

Product Classification (choose one)

Primary or Secondary Treatment Unit

- [] Septic Tank [] Extended Aerobic Treatment Unit [] Recirculating Aerobic Unit
[] Aerobic Fixed Film Unit [] Other (specify)

Effluent Filter

- [] Septic Tank Outlet Filter [] Post-Tank Filter [] Other (specify)

Disposal Device

- [x] Gravel-less Disposal Pipe [x] Gravel-less Disposal Bed [x] Chamber, Plastic
[] Chamber, Other [] Other (specify)

Miscellaneous

- [] Pipe [] Effluent Flow Distribution Device [] Other (specify)

Claim

Describe the product's features (attach additional sheets if necessary).

See attachments for description and design of product

Describe the product's performance (attach additional sheets if necessary).

See attachments for description and design

Infiltrator has been approved for prefabricated drainfields in 36 states and 24 foreign countries. All procedures have been accomplished in the last 20 years

Has the product received National Sanitation Foundation or Canadian Standards Authority approval?

No Yes (If "yes", enclose a copy of the certification.)

IMPORTANT NOTE!

Don't forget to enclose relevant product literature, engineering specifications, studies, and third party certifications with this application.

I, FRANK OWENS, am the applicant agent for the applicant of the subject product.
(print name)

I state that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department to deny registration for use of the product in Maine.

Frank Owens

Signature of Applicant
 Signature of Agent for Applicant

3-8-2012

Date

**PROMISELAND MANUFACTURING LLC
POLY GRAVEL PREFABRICATED DRAINFIELD SYSTEMS**

**FRANK OWENS
59 Palmetto Street
Welaka, Florida 32193**

March 8, 2012

Phone: 386-467-3808, Cell: 386-546-0064
E-mail: frankowens1022@hotmail.com
cecilelangston@att.net

Subsurface Waste Unit
Attn: James Jacobsen
286 Water St., 3rd Floor
Augusta, ME 04333

Dear Sir:

Promiseland Manufacturing, LLC is requesting authorization to manufacture and distribute already approved polystyrene aggregate products being used in on-site alternative prefabricated septic drainfield systems.

Our Poly Gravel Systems meet all of the requirements of already approved polystyrene aggregate products. Our product will be manufactured and distributed in your state.

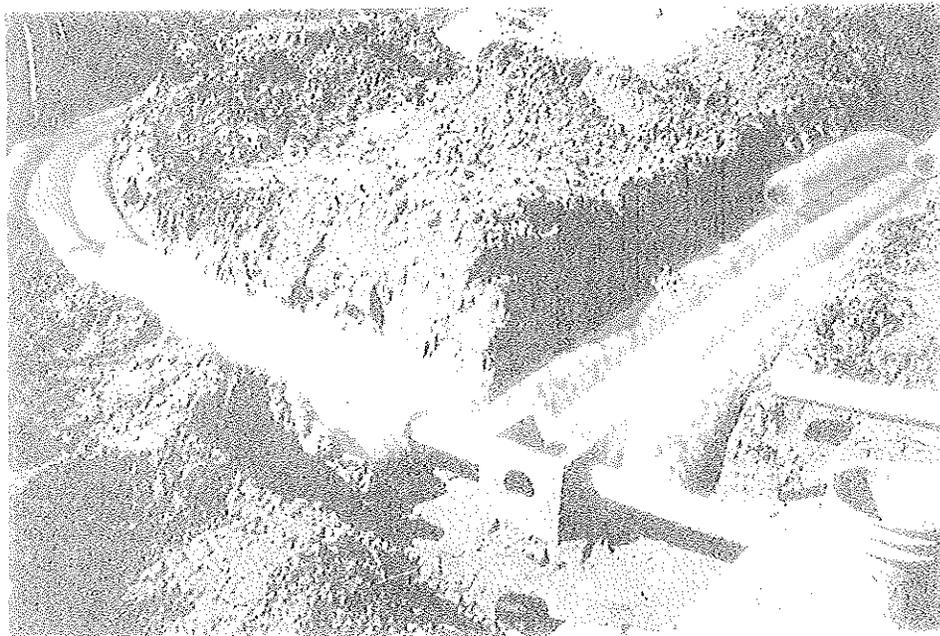
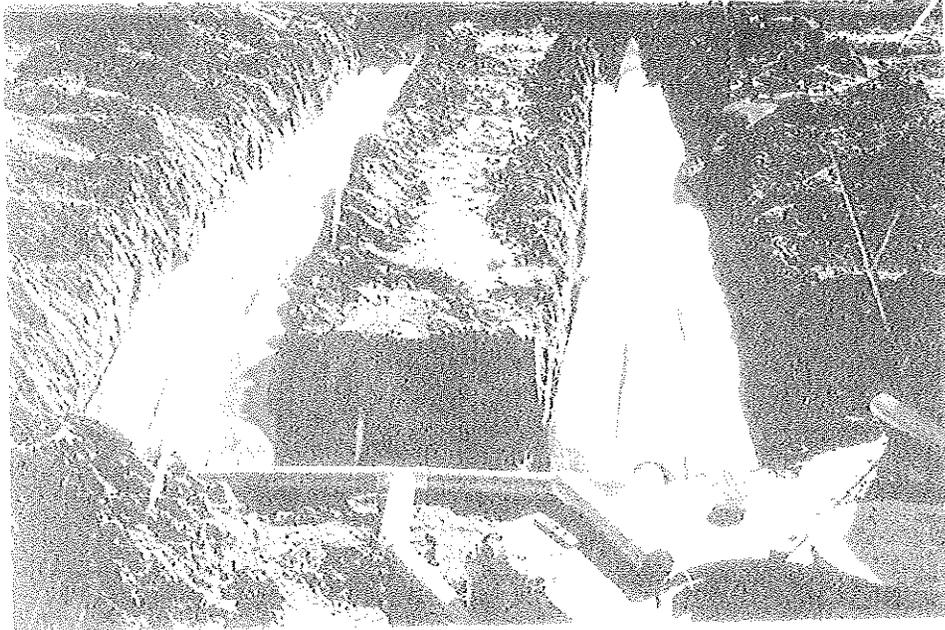
We are requesting this application to be given to the Department of Human Resources Review Committee, or proper Authorities, for review for Variance and Waiver from already existing polystyrene aggregate products being used in your state.

Mr. Jim Bonanno, P.E. is our Third Independent Party. His address is:
200 Ironwood Drive, Unit 224
Ponte Vedra Beach, Florida, 32082
phone: 904-315-5569
e-mail: bonanno.jj@gmail.com

After review of our application, if there are any questions and if you need a copy of the original seal, it doesn't copy very well, please let me know.

Respectfully submitted,
Frank Owens
Promiseland Manufacturing, LLC
Enclosures: pages- 10

**PROMISELAND MANUFACTURING LLC
POLY GRAVEL PREFABRICATED DRAINFIELD SYSTEMS**



Mr. Frank Owens
c/o Poly Gravel Systems
59 Palmetto Street
Welaka, FL 32193

RE: Poly Gravel Systems Approval

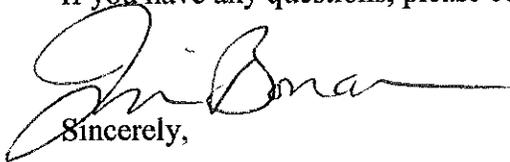
Dear Frank;

Please find enclosed the technical documents prepared for Promiseland Manufacturing, LLC to be used in support for the submittal to the State in support of a variance for polystyrene to be utilized as a source of aggregate for an onsite sewage treatment and disposal treatment system for the treatment of domestic wastewater in lieu of stone aggregate or other suitable material.

I have reviewed the schematics and specifications prepared by Promiseland Manufacturing, LLC and they appear to meet the minimum standards as required by the State.

Please refer to the signed and sealed drawings sheet 2 of 4 and 3 of 4.

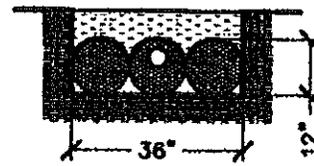
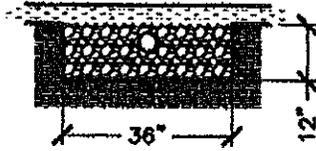
If you have any questions, please contact me at (904) 315-5569.

A handwritten signature in cursive script, appearing to read "Jim Bonanno", with a long horizontal flourish extending to the right.

Sincerely,

Jim Bonanno, P.E.

A handwritten signature in cursive script, appearing to read "Jim Bonanno", with the date "2-28-12" written below it.



PROMISELAND MANUFACTURING, LLC
POLY GRAVEL WASTE WATER SYSTEMS

Onsite Sewage Program and Instructions

- WW(PG S) Poly Gravel Waste Water Systems uses polystyrene as aggregate 1"x 3/4" sq. cubes, encased by poly netting.
- The main distribution line is an approved corrugated septic tank drain field pipe 4" in diameter, which is encased with poly gravel polystyrene 1"x 3/4"sq. cubes, and poly netting with the pipe placement being 6" from the bottom and 2" from the top.
- Poly Gravel consists of three 12" diameter bundles, 10" in length and is equal to 30 sq. ft. of standard gravel waste water systems.
- Distribution lines are connected on the job site utilizing PTI or HANDCOR in 10" individual sections with male/female ends manufactured into the approved corrugated septic drain pipe.
- Lay 4" schedule 40 PVC header pipe on compacted native soil in accordance with state law.
- The PGWWS is to be installed using three bundles laid horizontally in a 36" wide trench by 10" vertical which is standard for the state of Alabama and may vary in other states.
- The distribution line is placed in the center (pipe up) with one aggregate bundle on either side.
- The PGWWS is a pre-manufactured drainfield installation, flow shall be achieved by grading the bottom of the trench 0' to 1/4" per 10" according to your State Environmental Code.
- Cover shall also be according to States code as well as header lines and distribution boxes.
- We recommend covering with a geotextile filler fabric barrier, 6" of backfill is standard for the state of Alabama, allowing this system to allow waste water to seep into the ground and part to be evaporated by the sun. This is a standard shallow system for the state of Alabama, and may vary in other states.
- The PGWWS is used for septic tank nitrification lines on both new construction and repairs.
- Proposed procedures for routine maintenance, operational surveillance and environmental monitoring to ensure that the system continues to function properly should be considered the same as a conventional mineral aggregate and pipe system.
- Similarly, the septic tank should be pumped at least every two years and maintained with the current state regulations

Poly Gravel Systems

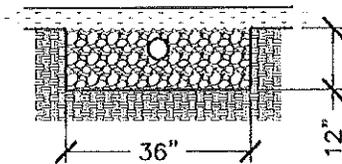
INTENT,

THE PURPOSE OF THIS PAPER IS TO ILLUSTRATE THAT "GRAVEL MASKING" AND THE USE OF THE TERM "OPEN BOTTOM AREA" IS NOT AN ACCURATE BASIS FOR DETERMINING EFFLUENT FLOW (Q) FOR AN ON-SITE GRAVITY FED DRAIN FIELD. RATHER, THE AUTHORS WILL ILLUSTRATE THAT MEASURING HYDRAULIC CONDUCTIVITY (K) IS THE MECHANISM FOR DETERMINING EFFLUENT FLOW (Q). BECAUSE THE HYDRAULIC CONDUCTIVITY OF A BIOMAT IS LOW, THE BIOMAT IS THE CONTROLLING FACTOR OF THE EFFLUENT FLOW. IN THE MODEL DEVELOPED, SEVERAL ZONES OF RESISTANCE ARE DEMONSTRATED TO EXIST AT THE GRAVEL SOIL INTERFACE, IT IS THE CUMULATIVE RESISTANCE TO FLOW IN EACH OF THESE ZONES THAT DETERMINES THE OVERALL FLOW RATE.

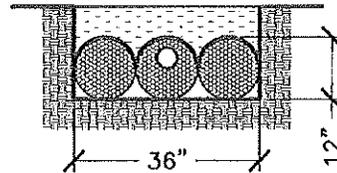
THE GRAVEL STANDARD.

ONSITE GRAVITY FIELDS DEPEND ON THE ABILITY OF THE DRAIN FIELD TO DELIVER EFFLUENT TO THE SOIL FOR ABSORPTION. THE TRADITIONAL DRAIN FIELD SYSTEM IS THE GRAVEL TRENCH, GRAVEL PROVIDES MANY FUNCTIONS, BUT PRIMARILY SERVES TO PROVIDE STRUCTURAL SUPPORT AND STORAGE VOLUME WHILE SERVING AS A VEHICLE FOR DELIVERY OF EFFLUENT TO THE SOIL. GRAVEL TRENCHES PROVIDE SOIL INTERFACE AREA FOR THE APPLICATION OF WASTEWATER AND SURFACE AREA TO SUPPORT THE BIOLOGICAL GROWTH. THE GRAVEL TRENCH VARIES IN DIMENSIONS, BUT IS TYPICALLY TWO OR THREE FEET WIDE AND ONE FOOT DEEP. EFFLUENT IS FED TO THE SYSTEM WITH A 4 INCH PERFORATED PLASTIC PIPE.

DEPICTION OF A
TYPICAL GRAVEL TRENCH



Promiseland Manufacturing, LLC
POLY GRAVEL SYSTEM



THE SOIL INTERFACE AREA IS TYPICALLY DETERMINED BY MEASURING THE SUM OF THE AREA FOR THE SIDEWALL AND TRENCH BOTTOM. THE SOIL INTERFACE AREA FOR A 3 FOOT BY 1 FOOT TRENCH IS OUTLINED BELOW:

$$\begin{aligned} \text{BOTTOM AREA} &= 36 \text{ IN} * \frac{1 \text{ FT}}{12 \text{ IN}} = 3.0 \frac{\text{FT}^2}{\text{FT}} \\ \text{SIDEWALL AREA} &= 2 \text{ SIDES} * 12 \frac{\text{IN}}{\text{SIDE}} * \frac{1 \text{ FT}}{12 \text{ IN}} = 2.0 \frac{\text{FT}^2}{\text{FT}} \\ \text{TOTAL SOIL INTERFACE} &= 3.0 \frac{\text{FT}^2}{\text{FT}} * 2.0 \frac{\text{FT}^2}{\text{FT}} = 5.0 \frac{\text{FT}^2}{\text{FT}} \end{aligned}$$

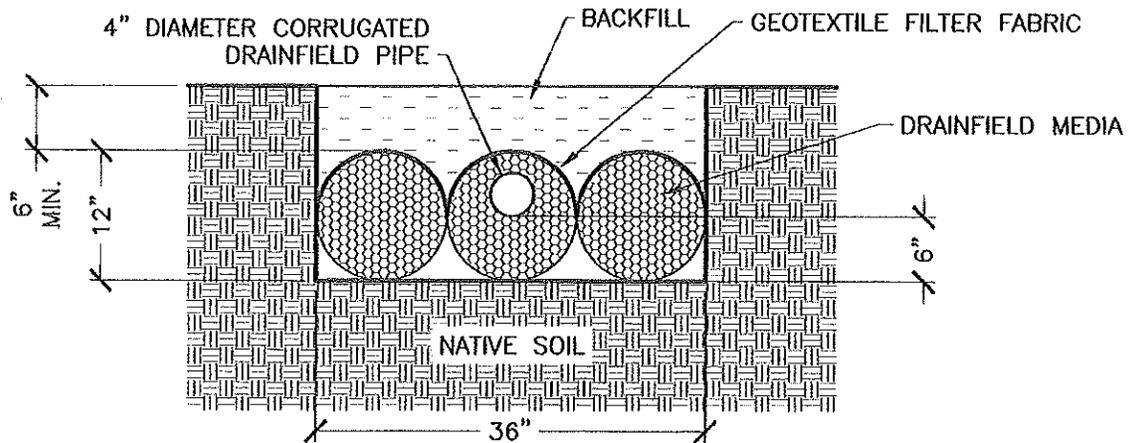
IN DETERMINING THE FLOW OF EFFLUENT INTO THE SOIL, ONE MUST CONSIDER FLOW TO THE SIDEWALL (Qs) AND FLOW TO THE TRENCH BOTTOM (Qb).

$$Q_{\text{system}} = Q_s + Q_b$$

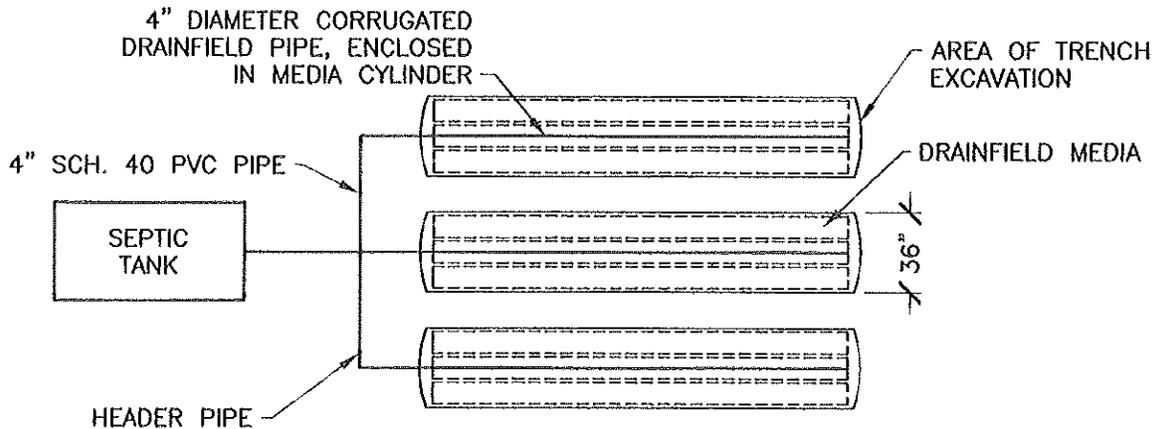
EXTENSIVE LITERATURE EXISTS TO SHOW THE IMPORTANCE OF SIDEWALL (Qs) TO THE PERFORMANCE OF THE GRAVITY FED DRAIN FIELD. FOR PURPOSES OF FOCUS, THIS REVIEW IS LIMITED TO THE DISCUSSION OF THE MECHANISM OF EFFLUENT FLOW AT THE TRENCH BOTTOM (Qb).

Poly Gravel Systems

SHEET 2 OF 4



TYPICAL TRENCH CROSS-SECTION, SUBSURFACE SYSTEM



TYPICAL TRENCH LAYOUT, HEADER PIPE

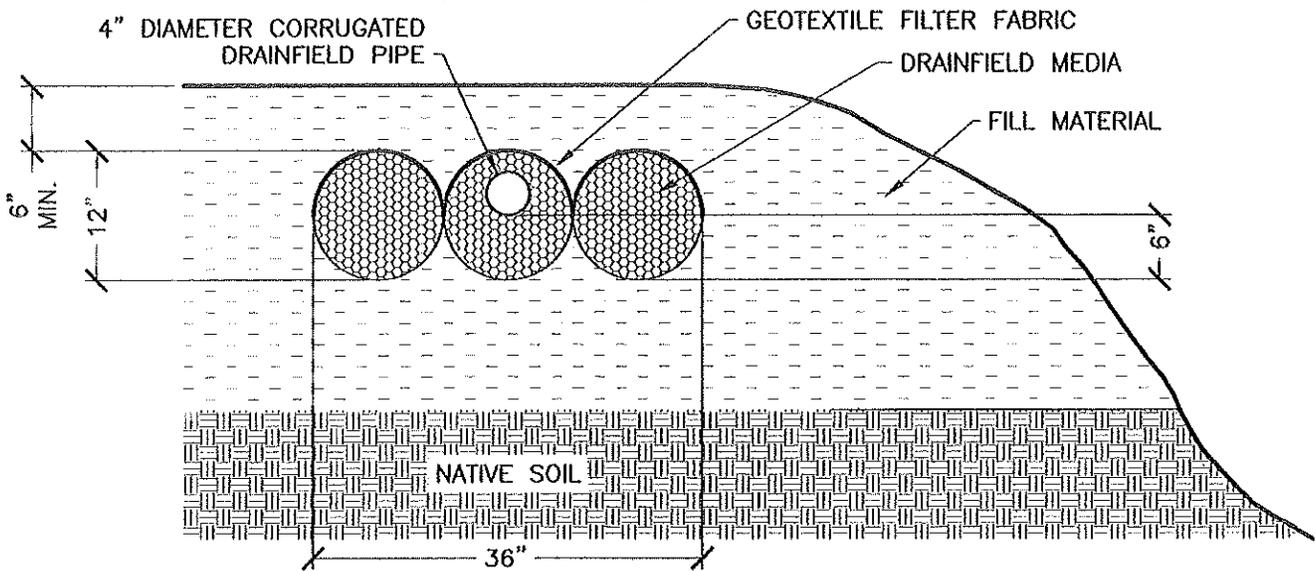
1. POLY GRAVEL SYSTEMS (PGS) DRAINFIELD MEDIA CONSISTS OF 12" DIAMETER NYLON MESH CYLINDERS FILLED WITH POLYSTYRENE CHIPS OF 1" TO 1-1/2" x 3/4" SIZE.

2. SCHEMATICS INCLUDED HERE ARE EXAMPLES OF RECOMMENDED INSTALLATIONS ONLY. ALL PGS SYSTEMS MUST BE INSTALLED TO CHAPTER 100-6, _____ WITH SUBSTITUTION OF PGS MEDIA IN PLACE OF STONE AGGREGATE. DRAINFIELD SIZING TO BE BASED ON BOTTOM AREA OF TRENCH OR BED FILLED WITH PGS MEDIA.

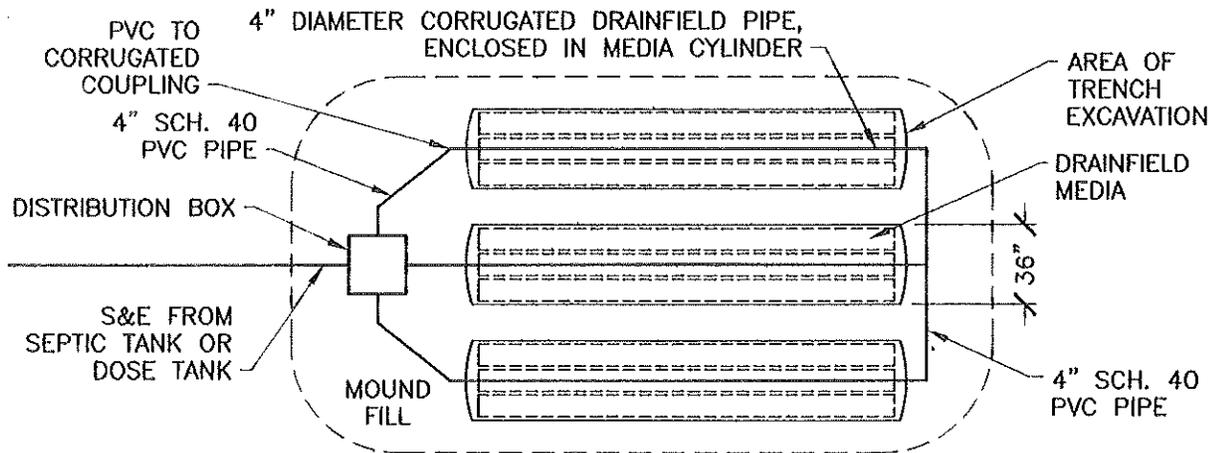
3. THESE DRAWINGS AND NOTES ARE FOR CONCEPTUAL INSTALLATION SCHEMATICS ONLY, NOT FOR DETAILED DESIGN PURPOSES. PRODUCT DESIGN PERFORMANCE, DURABILITY OR STRENGTH HAVE NOT BEEN EVALUATED AS PART OF THESE INSTALLATION RECCOMENDATIONS. PGS (MANUFACTURER) ASSUMES RESPONSIBILITY FOR PRODUCT PERFORMANCE AND QUALITY.

Joseph Bonaw
02-28-12

Poly Gravel Systems



TYPICAL TRENCH CROSS-SECTION, MOUND SYSTEM



TYPICAL TRENCH LAYOUT, MOUND SYSTEM

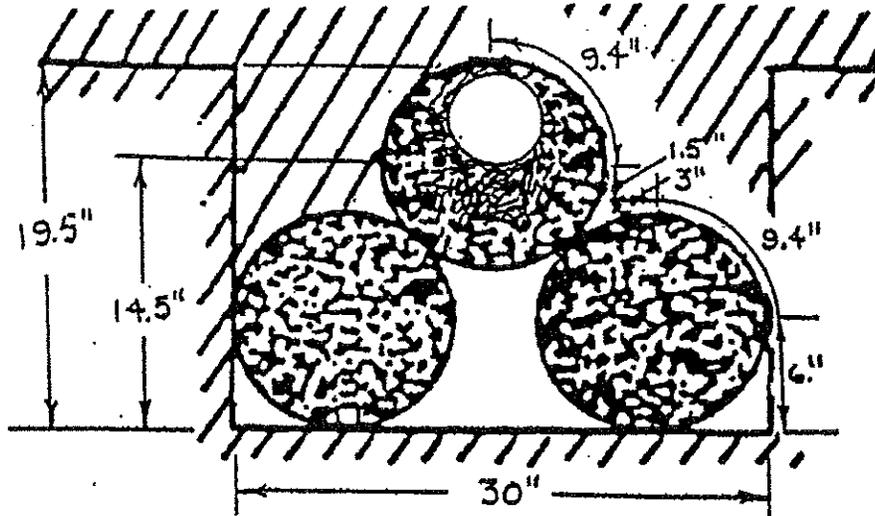
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2. SCHEMATICS INCLUDED HERE ARE EXAMPLES OF RECOMMENDED INSTALLATIONS ONLY. ALL PGS SYSTEMS MUST BE INSTALLED TO CHAPTER 100-6. _____ WITH SUBSTITUTION OF PGS MEDIA IN PLACE OF STONE AGGREGATE. DRAINFIELD SIZING TO BE BASED ON BOTTOM AREA OF TRENCH OR BED FILLED WITH PGS MEDIA.

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Joseph J. Bonanni
02-28-12

**PROMISELAND MANUFACTURING LLC
POLY GRAVEL PREFABRICATED DRAINFIELD SYSTEMS**



Full Ponding

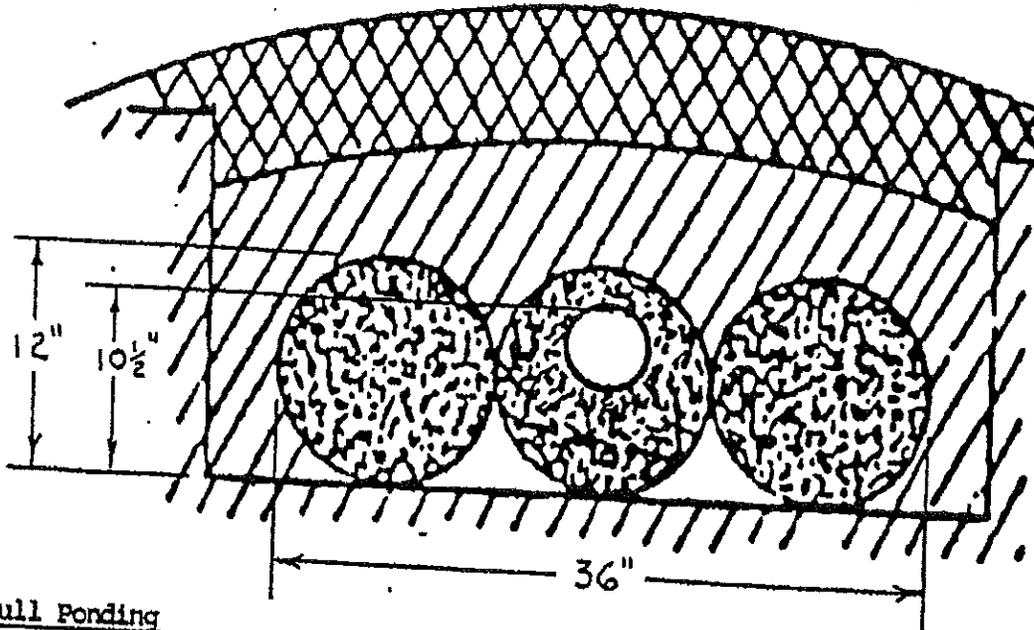
	$E = K M A$	(Section 5.5.2 - Equation 2)
(Bottom)	$M = 0.85, A = 30/12$	(Section 5.2)
	$M A = 0.85 \times (30/12) = 2.13$	
(Sidewalls)	$M = 1.0, A = [(6+9.4+3+1.5+9.4)/12] \times 2 \text{ sides}$	(Section 5.2)
	$M A = 1.0 \times [(6+9.4+3+1.5+9.4)/12] \times 2 = 4.88$	
(Total)	$K = 0.86$	(Section 5.5.1)
	$E = K M A = 0.86 \times (2.13 + 4.88) = 7.0$	
(Head)	$E_h = E (H/H_o)^{1/2}$	(Section 5.5.4 - Equation 3)
	$E_h = 7.0 \times (19.5/12)^{1/2} = \underline{8.9 \text{ ft}^2/\text{ft}}$	

Consideration for surge storage and head

Smallest system sized at $16\frac{1}{2}$ feet per bedroom with an average ponding depth of $14\frac{1}{2}$ inches. (Section 5.5.5)

	$E_s = K_s M A$	(Section 5.5.5.2 - Equation 4)
(Bottom)	$M = 0.85, A = 30/12$	(Section 5.2)
	$M A = 0.85 \times (30/12) = 2.13$	
(Sidewalls)	$M = 1.0, A = [(6+9.4+3+2.5)/12] \times 2 \text{ sides}$	(Section 5.2)
	$M A = 1.0 \times [(6+9.4+3+2.5)/12] \times 2 = 3.48$	
	$K_s = 0.92$	(Section 5.5.5.3)
(Total)	$E_s = K_s M A = 0.92 \times (2.13 + 3.48) = 5.16$	
(Head)	$E_t = E_s (H/H_o)^{1/2}$	(Section 5.5.5.4 - Equation 5)
	$E_t = 5.16 \times (14.5/10.5)^{1/2} = \underline{6.06 \text{ ft}^2/\text{ft}}$	
(Factor)	$F = 1/E_t$	(Section 5.5.7.1 - Equation 6)
	$F = 1 / 6.06 = \underline{0.16}$	

**PROMISELAND MANUFACTURING LLC
POLY GRAVEL PREFABRICATED DRAINFIELD SYSTEMS**



Full Ponding

(Bottom)	$E = K M A$ $M = 0.85, A = 36/12$	(Section 5.5.2 - Equation 2)
(Sidewalls)	$M A = 0.85 \times (36/12) = 2.55$ $M = 1.0, A = (12/12) \times 2 \text{ sides}$	(Section 5.2)
(Total)	$M A = 1.0 \times (12/12) \times 2 = 2.0$ $K = 0.86$ $E = K M A = 0.86 \times (2.55 + 2.0) = 3.9$	(Section 5.2) (Section 5.5.1)
(Head)	$E_h = E (H/H_o)^{1/2}$ $E_h = 3.9 \times (12/12)^{1/2} = 3.9 \text{ ft}^2/\text{ft}$	(Section 5.5.4 - Equation 3)

Consideration for surge storage and head

Smallest system sized at 26 feet per bedroom with an average ponding depth of 10 1/2 inches. (Section 5.5.5)

(Bottom)	$E_s = K_s M A$ $M = 0.85, A = 36/12$	(Section 5.5.5.2 - Equation 4)
(Sidewalls)	$M A = 0.85 \times (36/12) = 2.55$ $M = 1.0, A = (10.5/12) \times 2 \text{ sides}$ $M A = 1.0 \times (10.5/12) \times 2 = 1.75$	(Section 5.2)
(Total)	$K_s = 0.92$ $E_s = K_s M A = 0.92 \times (2.55 + 1.75) = 3.96$	(Section 5.5.5.3)
(Head)	$E_t = E_s (H/H_o)^{1/2}$	(Section 5.5.5.4 - Equation 5)
(Factor)	$E_t = 3.9 \times (10.5/10.5)^{1/2} = 3.96 \text{ ft}^2/\text{ft}$ $F = 1/E_t$ $F = 1/3.8 = 0.25$	(Section 5.5.7.1 - Equation 6)