



STATE OF MAINE  
DEPARTMENT OF HUMAN SERVICES  
DIVISION OF HEALTH ENGINEERING  
11 STATE HOUSE STATION  
AUGUSTA, MAINE  
04333-0011

JOHN ELIAS BALDACCI  
GOVERNOR

April 8, 2003

Presby Environmental, Inc.  
Attn.: David W. Presby, President  
P. O. Box 617  
Sugar Hill, New Hampshire 03585

Subject: Product Registration Modification, Presby Simple Septic and Enviro-Septic

Dear Mr. Presby:

It is my understanding from our conversations that you wish to modify the Division's acceptance of the Simple Septic and Enviro-Septic products.

**Product Description**

The modification consists of curved "spurs" on the interior of the pipes, which are formed as the tube's relief slots are cut in.

**Claim**

According to the information you provided, the "spurs" aid in retaining grease and solids in the pipe before they can accumulate outside the pipe.

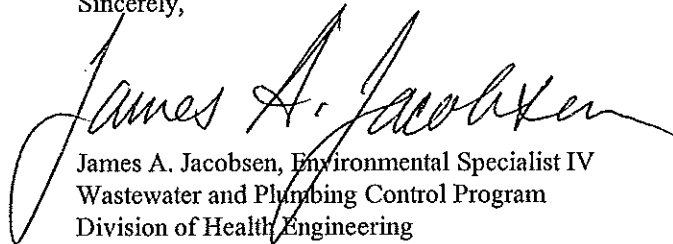
**Determination**

On the basis of the foregoing and a sample of the product provided to the Division, the Division has determined that the this modification is acceptable for use in the State of Maine..

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 [product]. Further, registration of this product for use in the State of Maine does not represent Division preference or recommendation for this product over similar products.

If you have any questions please feel free to contact me at (207) 287-5695.

Sincerely,



James A. Jacobsen, Environmental Specialist IV  
Wastewater and Plumbing Control Program  
Division of Health Engineering  
e-mail: james.jacobsen@state.me.us

/jaj

xc: Product File



PRINTED ON RECYCLED PAPER

# Enviro-Septic™ Quick Reference Guide

(State of Maine design criteria as of March 1999)

Enviro-Septic's unmatched design flexibility provides an infinite number of design configurations of varying length, width, slope and shape. This design flexibility gives Enviro-Septic an advantage over any other leaching system available. With so many options however, it can be difficult to compare each and choose the best one for the project at hand. This guide will help designers compare layouts for any site quickly and easily.

**Step 1:** Refer to table (A) to determine min. linear ft. of Enviro-Septic required for a given soil profile and number of bedrooms. For more information regarding non-residential applications consult the Enviro-Septic Design and Installation Handbook.

**Step 2:** Determine the slope of the original grade where the system will be located (rise/run x 100). Note: The slope of the system and original grade may be different. Enviro-Septic works equally well for sloping or level systems.

**Table A: LINEAR FOOTAGE**

	Number of bedrooms-gal. per day (gpd)						Other
	2-180	3-270	4-360	5-450	6-540	Each Add'l	Per 100 gpd
1	148	221	295	369	443	74	82
2	119	178	238	297	356	59	66
3	119	178	238	297	356	59	66
4	94	140	187	234	281	47	52
5	94	140	187	234	281	47	52
6	72	108	144	180	216	36	40
7	119	178	238	297	356	59	66
8	148	221	295	369	443	74	82
9	180	270	360	450	540	90	100

Min. linear feet of Enviro-Septic required

**Table B: ENVIRO-SEPTIC PIPE SPACING CHART**

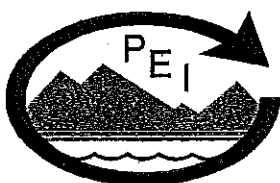
		Soil Profile					
		6,5	4	2,3,7	1,8	9	
Greater than 20% require variance	System Slope	0-5%	1.5'	2.0'	2.5'	2.5'	3.25'
		5-10%	1.75'	2.25'	2.5'	2.75'	3.5'
		10-15%	2.0'	2.5'	2.5'	3.0'	3.75'
		15-20%	2.25'	2.75'	3.0'	3.5'	4.25'
		20-25%	2.5'	3.0'	3.25'	3.75'	4.75'

Min. center to center pipe spacing

**Step 3:** Plug soil profile and slope of Enviro-Septic system into Table (B) to determine the min. required pipe spacing.

**Example:** (See dark shaded area of table) 1: A three bedroom design with a soil profile of 5 requires 140' of Enviro-Septic pipe. 2: Assume system slope level to max. 5% with a soil of profile 5 which yields pipe spacing of 1.5' center to center.

**Step 4:** Decide which leach area dimension length or width is most critical to your design and go to the other side of this page. For the example remember 140' and 1.5' pipe spacing.



**PRESBY ENVIRONMENTAL, INC.**  
 INNOVATIVE SEPTIC TECHNOLOGIES

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web site: [www.PresbyEnvironmental.com](http://www.PresbyEnvironmental.com) • email: [Presby@connriver.net](mailto:Presby@connriver.net)

Enviro-Septic™ Canadian Pat. no. 2,185,087 mfg. under US pat. no. 5,606,786 other pat. pending.  
 Enviro-Septic™ trademark of Presby Environmental, Inc. © 1999 all rights reserved

**Step 5: (critical length)** Go to desired length at upper left side of chart below. Follow that row across to a number equal to or greater than the required linear feet of Enviro-Septic. Go down that column to number of lines and the width of Enviro-Septic which corresponds with the required center to center pipe spacing. **Example:** Assume 35' was the desired line length, 140' of Enviro-Septic with a pipe spacing of 1.5' center to center provides for 4 lines and a total width of 5.5'.

**Step 5: (critical width)** Go to required pipe spacing at lower left side of chart below. Follow that row across to the desired width. Go up that column to number of lines, then required linear feet of Enviro-Septic and across to length of lines. **Example:** 1.5' was the required pipe spacing, assume 5.5' was the desired width, there would be 4 lines of Enviro-Septic, totaling the required 140', each line would be 35' long.

**Step 6: (Sloping systems only)** To determine the elevation of each Enviro-Septic line refer to Enviro-Septic Design and Installation Handbook pg. 11, fig. #2, SLOPE DESIGN CHART.

**TABLE C: LENGTH AND WIDTH**  
Linear ft. of Enviro-Septic pipe

Length of Enviro-Septic lines (ft.)	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300
	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375
30	60	90	120	150	180	210	240	270	300	330	360	390	420	450	
35	70	105	140	175	210	245	280	315	350	385	420	455	490	525	
40	80	120	160	200	240	280	320	360	400	440	480	520	560	600	
45	90	135	180	225	270	315	360	405	450	495	540	585	630	675	
50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	
55	110	165	220	275	330	385	440	495	550	605	660	715	770	825	
60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	
65	130	195	260	325	390	455	520	585	650	715	780	845	910	975	
70	140	210	280	350	420	490	560	630	700	770	840	910	980	1050	
75	150	225	300	375	450	525	600	675	750	825	900	975	1050	1125	
80	160	240	320	400	480	560	640	720	800	880	960	1040	1120	1200	
85	170	255	340	425	510	595	680	765	850	935	1020	1105	1190	1275	
90	180	270	360	450	540	630	720	810	900	990	1080	1170	1260	1350	
95	190	285	380	475	570	665	760	855	950	1045	1140	1235	1330	1425	
100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	
No. of lines	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1.50	2.50	3.50	4.50	5.50	7.00	8.50	10.00	11.50	13.00	14.50	16.00	17.50	19.00	20.50	22.00
1.75	2.75	4.50	6.25	8.00	9.75	11.50	13.25	15.00	16.75	18.50	20.25	22.00	23.75	25.50	
2.00	3.00	5.00	7.00	9.00	11.00	13.00	15.00	17.00	19.00	21.00	23.00	25.00	27.00	29.00	
2.25	3.25	5.50	7.75	10.00	12.25	14.50	16.75	19.00	21.25	23.50	25.75	28.00	30.25	32.50	
2.50	3.50	6.00	8.50	11.00	13.50	16.00	18.50	21.00	23.50	26.00	28.50	31.00	33.50	36.00	
2.75	3.75	6.50	9.25	12.00	14.75	17.50	20.25	23.00	25.75	28.50	31.25	34.00	36.75	39.50	
3.00	4.00	7.00	10.00	13.00	16.00	19.00	22.00	25.00	28.00	31.00	34.00	37.00	40.00	43.00	
3.25	4.25	7.50	10.75	14.00	17.25	20.50	23.75	27.00	30.25	33.50	36.75	40.00	43.25	46.50	
3.50	4.50	8.00	11.50	15.00	18.50	22.00	25.50	29.00	32.50	36.00	39.50	43.00	46.50	50.00	
3.75	4.75	8.50	12.25	16.00	19.75	23.50	27.25	31.00	34.75	38.50	42.25	46.00	49.75	53.50	
4.00	5.00	9.00	13.00	17.00	21.00	25.00	29.00	33.00	37.00	41.00	45.00	49.00	53.00	57.00	
4.25	5.25	9.50	13.75	18.00	22.25	26.50	30.75	35.00	39.25	43.50	47.75	52.00	56.25	60.50	
4.50	5.50	10.00	14.50	19.00	23.50	28.00	32.50	37.00	41.50	46.00	50.50	55.00	59.50	64.00	
4.75	5.75	10.50	15.25	20.00	24.75	29.50	34.25	39.00	43.75	48.50	53.25	58.00	62.75	67.50	
5.00	6.00	11.00	16.00	21.00	26.00	31.00	36.00	41.00	46.00	51.00	56.00	61.00	66.00	71.00	

Width of Enviro-Septic pipe area (outermost surface)(ft.)

- Systems which are level or slope max. of 5% require sand area to extend min. 1.0' around perimeter of Enviro-Septic pipe on all four sides.
- Systems sloping greater than 5% require sand area to extend min. 1.0' around perimeter of Enviro-Septic pipe on three sides and 4.0' on down slope side.
- Min. distances are measured from the surface of Enviro-Septic pipe **Not** the sand area.
- Min. recommended line length of Enviro-Septic pipe is 30'.
- This document is a guide and should be used with The Enviro-Septic Design and Installation Handbook.



STATE OF MAINE  
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10 STATE HOUSE STATION  
AUGUSTA, MAINE  
04333-0010

ANGUS S. KING, JR.  
GOVERNOR

KEVIN W. CONCANNON  
COMMISSIONER

August 30, 1999

Presby Environmental, Inc.  
Attn.: David W. Presby, President  
P. O. Box 617  
Sugar Hill, New Hampshire 03585

Subject: Presby Simple Septic and Revised Enviro-Septic

Dear Mr. Presby:

Thank you for your letter of August 15, 1999 responding to my earlier letter to you.

The Division accepts your revised schedule for submission of the handbook, of January 1, 2000, based upon the reasons stated in your letter.

Regarding the statements in your company's newsletter about Maine's approval, and device interchangeability, they are potentially misleading even though unintentionally. While I can not speak to New Hampshire's regulations, nor do I care to, the Maine Subsurface Wastewater Disposal Rules are quite clear-systems must be installed as designed. If you are aware of systems installed which do not conform to this requirement, we would be willing to investigate. Also, please note that it is not uncommon for a designer to specify "plastic chamber" or "gravel-less trench" to provide contractors flexibility in obtaining proprietary devices. The Division looks forward to the distributor notice promised in your letter.

In response to your question, I assure that all manufacturers and distributors are held to these standards and your company has not been singled out. Simply put, the standards apply to every one. I am not aware, however, of similar situations developing with other manufacturers and distributors of proprietary devices.

If you have any questions please feel free to contact me at (207) 287-5695.

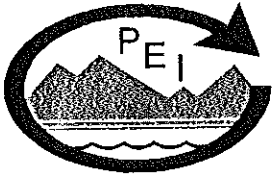
Sincerely,

James A. Jacobsen, Manager  
Wastewater and Plumbing Control Program  
Division of Health Engineering  
e-mail: [james.jacobsen@state.me.us](mailto:james.jacobsen@state.me.us)

xc: File  
W. Clough Toppan, Director, DHE  
Jay Selberg, Office of the Attorney General  
Mark Cenci, Pres., M.A.S.E.



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**PRESBY ENVIRONMENTAL, INC.**  
**INNOVATIVE SEPTIC TECHNOLOGIES**

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August 15, 1999

James Jacobsen, Manager  
Wastewater and Plumbing Control Program  
Division of Health Engineering



Subject: August 2, 1999 letter

Dear Mr. Jacobsen

In your August 2<sup>nd</sup> letter you expressed several concerns regarding our product. Originally you gave us a deadline of June 30, 1999 for the construction of a handbook for Simple-Septic. At the end of June I spoke with you about extending the deadline. You agreed to allow more time and no new deadline date was ever set. Your August 2<sup>nd</sup> letter (which arrived on the 4<sup>th</sup> or 5<sup>th</sup>) stated that I must submit a handbook to your office by August 16<sup>th</sup>, which is not possible. Per our conversation last week I have a time table for the submission of a handbook. We will have a complete handbook for your review by January 31<sup>st</sup> of 2000. This will give you a few weeks to review it and us a few weeks to make any necessary modifications before it is mailed in the spring, prior to the next construction season. New Hampshire has allowed a similar schedule for a handbook. Simple-Septic is designed and installed using the same methods as the Enviro-Septic therefore site evaluators and contractors already have a handbook to guide them.

Hundreds of hours are required to produce a good handbook. Unfortunately, timing pushed the development of Simple-Septic into the late spring instead of winter, when there would have been time to work on a handbook. To insure that the information is clear and understandable to homeowners, site evaluators, and installers much of the work is done by myself and two others. We have not had the time during our busiest season to complete the handbook properly. If we rush the job and end up with a poor handbook it will not benefit anyone. Each week we receive comments regarding different aspects of designing and installing our products. This information will be incorporated into our new handbook. I don't see the need to rush the production of a handbook at this point in the construction season. Even if we had a handbook already approved, by the time it was printed and mailed the construction season would be nearly over. I don't think contractors are going to take time out to read a manual at this point in the season anyway.

Our Presby Environmental News spring issue seems to have caused some confusion. Please consider that the news letter is a summary of important and interesting aspects of our products. The statement "New Product Approved for NH and ME" in relation to Simple-Septic was intended to show that the product could be used in New Hampshire and Maine. The fact the word "provisional" was not included was not intentional.

The statement in the mailer "Simple-Septic may be used in place of other approved chambered fabric covered pipes" came straight from our New Hampshire approval dated April 22, 1999. It was intended to indicate that the product was to be designed and installed using the same methods as other fabric covered pipes. The statement did not say "directly" or with out any change to the "200 form." In New Hampshire installers know that if they want to use a different product they must first consult the relevant designer who in turn must design an "as built" plan prior to system inspection. I assumed that contractors in Maine realized if they wanted to use a different product the site evaluator would have to be contacted and the "200 form" changed. Anyone who calls our "800" number is informed of these conditions.

Other products have similar situations such as Infiltrators and Bio-Diffusers which, according to contractors I have spoken with in Maine, are routinely interchanged. Recently, a system in Maine designed by Ken Cotton with Enviro-Septic was installed by a contractor who used Geo-Flow without the site evaluators knowledge. We supply product to a limited number of dealers, who in turn supply contractors. Those dealers are usually precast concrete companies, site evaluators, or contractors who should be knowledgeable about state rules. We do not sell directly to contractors like some of our competitors, who I have heard, urge contractors to switch products. I don't like this practice but there is nothing I can do about it. I don't think our products are substituted for others as often as other products are substituted for ours. Since installers in New Hampshire are licensed and systems are inspected prior to covering it is easier to ensure the product specified is actually what is installed. There is no way for me, the State, or any other manufacture to ensure that similar products are not substituted for each other in Maine. Even though I don't think it necessary, since you have requested, I will send a letter to all my Maine dealers telling them that whatever product is specified on the "200 form" is what must be installed unless the site evaluator is notified and the form changed. I certainly hope that other manufactures are requested to do the same.

You have received a portion of Simple-Septic which you have represented to me to have been of lighter weight, more flexible plastic with outlet ports (holes) that were sloppy and burred. I assure you that the corrugate plastic pipe we use is high quality and has consistent, clean cut holes. Our previous perforation machine produced holes that were not as good as I would like to have seen. As a result we have designed and built a new, automated perforation machine, (put into service last week), which produces clean, consistent holes.

It is important to note that while the previous holes were not perfect in appearance they were quite "functional". The hole quality has been the same for over 5 years now and we have never had a problem. I recently compared the number of holes in a 10' length of Simple-Septic to the number of holes in a 10' length of Geo-Flow, since that is the only other product similar to ours. Our pipe has approximately 744 holes and Geo-Flow's approximately 544 holes. Our pipe has approximately 36% more holes to start with, if a percentage of them are not perfect, the product will still function properly. With our new perforation machine on line the quality of the holes should not be a concern in the future.

The new corrugated pipe has been very consistent and high quality. The only time pipe quality varies is when the extruder is first turned on or off. At that time the machine produces a number of feet of pipe that may not be as consistent. The manufacturer discards any defective lengths and recycles the plastic. As our product is manufactured it is inspected by two people. Any pipe that is even questionable in quality is not used. Since we return pipe for full credit there is no reason for us to purposely use questionable pipe. If you have a sample of pipe which is easy to squash

it must be one of a handful that may have slipped by, no system is perfect. We stand behind our products so if anyone has a questionable piece of pipe we will gladly exchange it.

The development of our corrugated pipe took several years because we had to engineer the process which allows the uniquely shaped pipe to release from the molds. The corrugated pipe with ridges we use was designed and patented by me specifically for septic systems. The corrugations are shaped to provide more interior storage space for solids (over 80% more than standard corrugated pipe). The exterior ridges are designed to promote free flow of effluent under the fabrics and drastically reduce fabric shadow area. The sidewalls of each corrugation are nearly straight (vertical) providing high strength from a relatively thin wall thickness. Our pipe has a more corrugations per foot than other corrugated pipes. More corrugations provide more sidewalls and therefore more strength. Standard corrugated pipe with angled corrugations gains a good percentage of it's strength from soil which fills in the valleys of the corrugations. Since septic pipes are covered in fabric no soil can fill the valleys which reduces their strength. The straight sidewalls of our corrugated pipe are not effected as much by the lack of soil in the valleys. In addition our pipe has ridges on the outside of the pipe which are perpendicular to the corrugations and provide additional strength not available to standard corrugated pipe. Straight sidewalls allow the pipes to flex considerably end to end. Sometimes this gives the impression of weakness, which is definitely not the case. One of the reasons our pipe is flexible is due to the amount of plastisizer in the plastic. This material allows the pipe to be more flexible, and less brittle without affecting it's strength. Flexibility has two major benefits. First, flexibility allows the pipe to curve around obstacles and be installed in curved systems. Second, since our products are installed year round we designed our pipe to be less brittle when the temperature drops. I have had experience with all types of plastic pipe which become extremely brittle in the winter and can break.

As you know the strength of any buried pipe depends on what type of material it is surrounded by. Drainage culverts need to be extremely strong since they are usually installed in wet areas and back filled with poor material which offers little support. Septic systems are installed in dry areas using material which provide the pipe optimum support from the sides. My construction company has been installing septic systems all summer using this pipe without any problems. On one of my recent projects, a single axle tractor trailer truck drove over one of our systems covered only a few days before. The system was a 20% sloping system and the truck actually dug deep ruts in the soft soil trying to get up the hill (he tried twice and never did). The home owner asked me to investigate. The pipes only had 14" of cover and when unearthed there was no damage at all. Some weeks this summer we have delivered over 20,000 feet of pipe in Maine and New Hampshire. Literally thousands of systems have been installed with no problems or complaints about pipe strength. I am positive the corrugated pipe we use is a strong high quality product.

I have been designing, installing, and pumping septic systems for over 30 years. More than 10 years ago I turned my energy toward promoting, developing, and selling better septic systems. I was the first to construct a design and installation handbook for a leaching product in Maine and New Hampshire. I have unearthed and examined literally hundreds of systems of all different varieties- failed and functioning. In addition, I am a member of the board for the Granite State Designers and Installers Association. I have given lectures at colleges and for many different professional organizations, including M.A.S.E. (Maine Association of Site Evaluators). I hold several patents involving septic system products and have more pending. All this effort has a single goal, to develop the best septic system possible for a reasonable amount of

money. This goal benefits everyone. The consumer gets a reasonably priced system with excellent life expectancy. State agencies get less problems and complaints about systems. I get a good product reputation and increased sales.

The tone of your August 2<sup>nd</sup> letter disturbs me. It talks of an "apparent trend that must cease". A few misunderstood sentences in an advertising flyer or vague handbook deadline should not result in a letter like that. I have been dedicated to producing a quality product and supporting everyone involved in it's use. Site evaluators, designers, contractors, home owners, state officials, plumbing inspectors, code officers - if they had a question or a problem I have been there to keep the process running smoothly. In the interest of preserving the excellent working relationships I have developed with you and your department, in the future, please do not hesitate to call me if you have any problems or concerns.

Since seeing is believing, I invite you or anyone else from your department to visit our facility. I welcome the chance to show you the entire manufacturing process. We usually have between 30,000 and 100,000 feet of pipe on hand, should you wish to examine any. I could arrange transportation by plane so you would not need more than half a day to make the trip and return.

Sincerely,



David W. Presby  
President

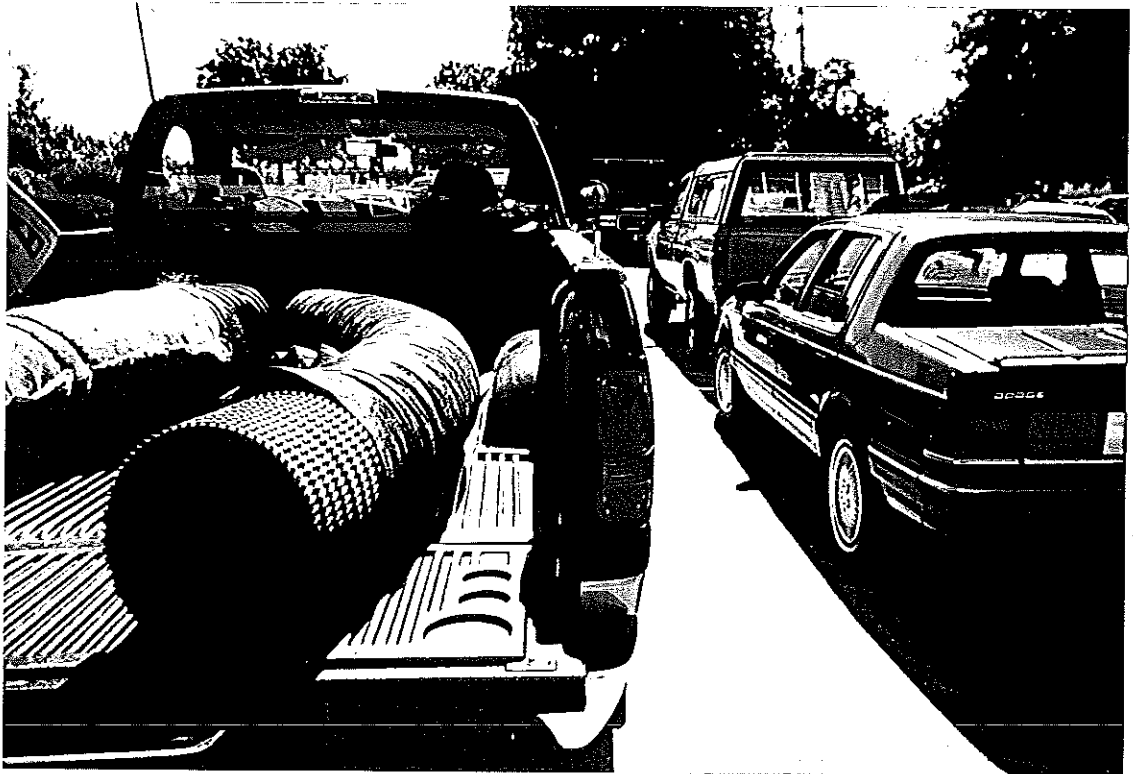
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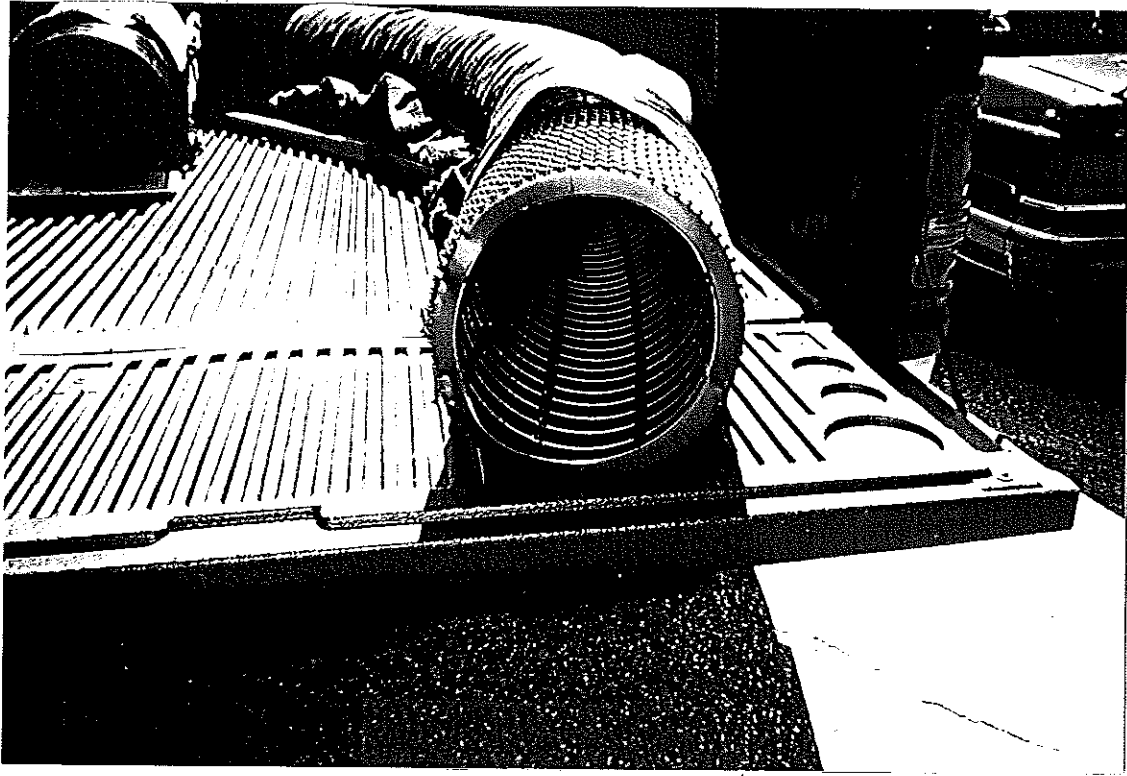
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Office of the Attorney General, Consumer Protection Division  
Mark Cenci, Pres., M.A.S.E.

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web site: [www.Presby Environmental.com](http://www.Presby Environmental.com) • email: [Presby@conriver.net](mailto:Presby@conriver.net)





*photos by James Jacobson, 8/2/99*



---

Author: James Jacobsen at dhe

Date: 8/16/99 1:48 PM

Normal

TO: Jay Selberg at mailhubCC: Clough ToppanSubject: Presby Simple Septic-----  
----- Message Contents

Jay,

Just an update for you. On 8/5/99 David Presby called me about my 8/2/99 letter to him concening his potentially misleading statements/advertising. He assured me that he would comply with the conditions and address the concerns I stated in the letter. This has yet to occur. If I haven't gotten anything from him by c.o.b. this Friday, next Monday I'm going to call the company and give them 24 hours to comply (ie, c.o.b. Tuesday), or I'll withdraw the approval first thing Wednesday morning.

Jim

ANDREW KETTERER  
ATTORNEY GENERAL



Telephone: (207) 626-8800  
TDD: (207) 626-8865

STATE OF MAINE  
DEPARTMENT OF THE ATTORNEY GENERAL  
6 STATE HOUSE STATION  
AUGUSTA, MAINE 04333-0006

REGIONAL OFFICES:

84 HARLOW ST., 2ND FLOOR  
BANGOR, MAINE 04401  
TEL: (207) 941-3070  
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59 PREBLE STREET  
PORTLAND, MAINE 04101-3014  
TEL: (207) 822-0260  
FAX: (207) 822-0259  
TDD: (877) 428-8800

August 4, 1999



James Jacobsen  
Wastewater and Plumbing Control Program  
Div. of Health Engineering, 10 State House Station  
Augusta, ME 04333-0010

Re: Presby Simple Septic and Revised Enviro-Septic

We have recently received your correspondence.

We will keep this information on file. Thank you for bringing this matter to our attention.

Sincerely,

A handwritten signature in cursive that reads 'Jay Selberg'.

Jay Selberg  
Assistant Complaint Examiner  
Consumer Mediation Service  
6 State House Station  
Augusta, ME 04333-0006  
207-626-8850



STATE OF MAINE  
DEPARTMENT OF HUMAN SERVICES  
DIVISION OF HEALTH ENGINEERING  
10 STATE HOUSE STATION  
AUGUSTA, MAINE  
04333-0010

ANGUS S. KING, JR.  
GOVERNOR

KEVIN W. CONCANNON  
COMMISSIONER

August 2, 1999

Presby Environmental, Inc.  
Attn.: David W. Presby, President  
P. O. Box 617  
Sugar Hill, New Hampshire 03585

Subject: Presby Simple Septic and Revised Enviro-Septic

Dear Mr. Presby:

This letter is sent in regards to problems concerning the Division's registration of the "Simple Septic" gravel-less trench product for your company.

First, it has been over a month since we discussed the lack of a handbook for your company's products, particularly the Simple Septic product. Pursuant to Condition #3 of the registration, Presby Environmental, Inc. was required to submit a revised handbook to this office by June 30, 1999. I agreed to allow some additional time for this submission, at your request. However, you still have not submitted a handbook as of this writing.

Second, this office has received a copy of "Presby Environmental News", spring 1999 issue. In that newsletter, page 1, column 2, paragraph 3 is the statement that "Simple Septic may be used in place of other approved chambered fabric covered pipes." This is not an accurate statement! Please refer to Condition #1 of the Division's April 26, 1999 registration letter: "Neither the Presby Simple Septic nor the revised Enviro-Septic may be routinely substituted for any other device as specified on any HHE-200 Form (application to install a subsurface wastewater disposal system). Any changes to any HHE-200 Form requires that the document be revised by the relevant Site Evaluator, regardless of product or system type." This condition is clear and unambiguous.

Third, since you submitted no supporting information for the efficacy of the Simple Septic, it was granted provisional registration, pursuant to Condition #5 of the registration letter: "Simple Septic devices are granted provisional registration approval, since no documentation was submitted to support the claimed improved efficiency." However, the newsletter from your company clearly states "New Product Approved for NH & ME" with regard to the Simple Septic product. This is inaccurate and misrepresents the Division's provisional registration of the Simple Septic product.

Fourth, this office has been provided with a portion of the Simple Septic pipe which is alleged to be currently sold. It is made of a much lighter weight, more flexible plastic than the sample you provided to us, each of the outlet ports in the pipe are sloppy and burred, and it was easy to squash (egg-out) the end of an uncut length of pipe nearly closed by hand. However, the sample you provided for the registration is a much more rigid plastic, each of the outlet ports is clean, and it can barely be flexed without undue exertion.



RECYCLED PAPER

If you wish to maintain a valid registration for the Simple Septic product, you shall take the following steps:

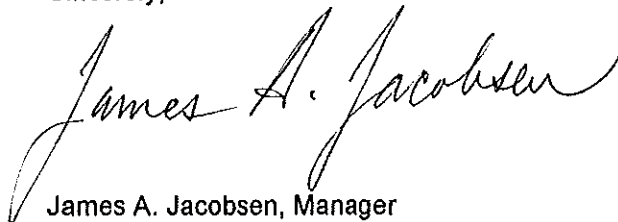
1. **Immediately** issue a written notice to all known distributors of the Simple Septic product which clarifies that this product has received **provisional registration**, and which retracts the statement that the Simple Septic product may be used in place of other proprietary devices. A copy of this notice accompanied by a signed statement that copies have been sent to the distributors shall be sent to this office;
2. Submit a handbook to this office for review, postmarked no later than August 16, 1999;
3. Submit evidence to this office that the pipe currently used in the construction of the Simple Septic product meets relevant provisions of National Sanitation Foundation Standard 14 for Plastic Piping Components, or functional equivalent; or empirical data which demonstrate that the pipe in current use is as strong as the sample you gave this office; and
4. Submit written assurance to this office that the pipes used in your company's products will be deburred when the outlet portals are cut in the pipes; or empirical data which demonstrate that the burrs do not adversely affect the operation of the products.

Failure to comply with these requirements will result in the Division's retraction of product registration for the Simple Septic product.

In June of 1998 you made similar exaggerated claims in your television advertisement for the Presby Maze. (Reference: letter dated June 22, 1998.) There is an apparent trend here which must cease. You need to realize that this office takes a dim view of inaccurate representations of the Division's actions, including the product registration process, whether by error or design.

If you have any questions please feel free to contact me at (207) 287-5695.

Sincerely,



James A. Jacobsen, Manager  
Wastewater and Plumbing Control Program  
Division of Health Engineering  
e-mail: [james.jacobsen@state.me.us](mailto:james.jacobsen@state.me.us)

xc: File  
W. Clough Toppan, Director, DHE  
Office of the Attorney General, Consumer Protection Division  
Mark Cenci, Pres., M.A.S.E.



STATE OF MAINE  
DEPARTMENT OF HUMAN SERVICES  
DIVISION OF HEALTH ENGINEERING  
10 STATE HOUSE STATION  
AUGUSTA, MAINE  
04333-0010

ANGUS S. KING, JR.  
GOVERNOR

KEVIN W. CONCANNON  
COMMISSIONER

April 26, 1999

Presby Environmental, Inc.  
Attn.: David W. Presby, President  
P. O. Box 617  
Sugar Hill, New Hampshire 03585

Subject: Product Registration, Presby Simple Septic and Revised Enviro-Septic

Dear Mr. Presby:

Thank you for your letter dated August April 15, 1999 regarding your company's product, supporting documentation dated April 21, 1999, and the samples. You have requested registration for a revision to the Presby Enviro-Septic gravel-less trench and a new product, the Presby Simple Septic gravel-less trench.

The revision to the Enviro-Septic consists of a new molding process which produces a corrugated pipe with ridges, which you state increase the amount of available infiltrative surface on the nonwoven fabric enveloping the pipe. In all other aspects, the Enviro-Septic device remains unchanged.

The Simple Septic device is identical to the Enviro-Septic except that the Simple Septic lacks the nonwoven plastic mesh spacing material between the corrugated pipe and the nonwoven fabric enveloping the pipe.

You have requested that the Simple Septic be allocated the same sizing considerations as the Enviro-Septic in accordance with your company's 1995 handbook for Maine pending a revision to the handbook, that the Simple Septic be allowed to be used in place of other gravel-less trench products except for Enviro-Septic devices, and that Enviro-Septic devices be allowed to be installed in place of Simple Septic devices.

Under provisions of Section 1802 of the Maine State Plumbing Code, Subsurface Wastewater Disposal Rules any manufacturer or distributor submitting a new product for code registration needs to demonstrate that:

1. The product is designed to protect public health, prevent the creation of any nuisance, and prevent environmental pollution to the same extent as comparable products presently authorized by Department for use in this code, and
2. The product is based on sound engineering principles and can be expected to provide the same level of protection to public health and the environment as offered by the authorized products presently authorized by the Department for use in this code.

Such demonstration may be achieved by submitting a letter to the Division of Health Engineering from: a) a certifying organization, such as the International Association of Plumbing and Mechanical Officials (IAPMO), Building Officials and Code Administrators (BOCA), or other suitable organization stating their approval of the product, or b) the American Society for Testing and Materials (ASTM) indicating the requested product (used as indicated in the request) meets the ASTM standard as specifically listed in the appropriate section of any nationally recognized plumbing code, such as BOCA, IAPMO (same as International Plumbing Code), or equal.



PRINTED ON RECYCLED PAPER

You submitted no such supporting information. According to the limited information you provided, Presby Simple Septic and the revised Enviro-Septic have received approval from the State of New Hampshire.

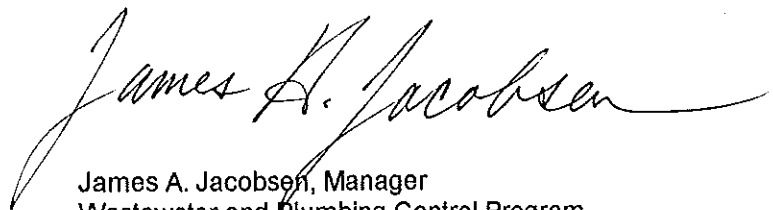
Therefore, the Division has determined that Presby Simple Septic and the revised Enviro-Septic are acceptable for use in the State of Maine, provided that they are installed, operated, and maintained in conformance with the manufacturer's directions, with the following conditions:

1. Neither the Presby Simple Septic nor the revised Enviro-Septic may be routinely substituted for any other device as specified on any HHE-200 Form (application to install a subsurface wastewater disposal system). Any changes to any HHE-200 Form requires that the document be revised by the relevant Site Evaluator, regardless of product or system type;
2. Enviro-Septic devices may be installed in place of Simple Septic devices, provided the relevant HHE-200 Form is updated;
3. Simple Septic devices may utilize the same sizing considerations as the Enviro-Septic in accordance with Presby Environmental, Inc. 's 1995 handbook for Maine. Presby Environmental, Inc. shall submit a revised handbook to this office by June 30, 1999;
4. The revised Enviro-Septic is approved as submitted; and
5. Simple Septic devices are granted *provisional* registration approval, since no documentation was submitted to support the claimed improved efficiency. If after a period of one calendar year from the date of this letter, if the Simple Septic devices appear not to have proven problematic in actual use, the provisional status will be lifted.

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 the Presby Simple Septic and the revised Enviro-Septic.*** Further, registration of this product for use in the State of Maine does not represent Division preference or recommendation for this product over similar products.

If you have any questions please feel free to contact me at (207) 287-5695.

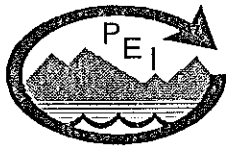
Sincerely,



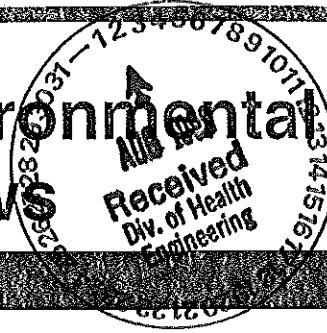
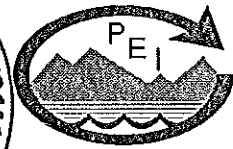
James A. Jacobsen, Manager  
Wastewater and Plumbing Control Program  
Division of Health Engineering  
e-mail: james.jacobsen@state.me.us

xc: File





# Presby Environmental News



Volume 2, Issue 1

Spring 1999



## New Product Approved For NH & ME!

### *Simple-Septic™ Leaching System*

Presby Environmental has been at the drawing board again! We have developed a new product, Simple-Septic™ Leaching System that is less expensive and yet more functional than any other single-layered, fabric covered septic pipe on the market.

Simple-Septic™ is made from a redesigned corrugated plastic pipe and wrapped with a non-woven polypropylene geo-textile fabric which is stitched in place.

#### ***New Ridge Pattern!***

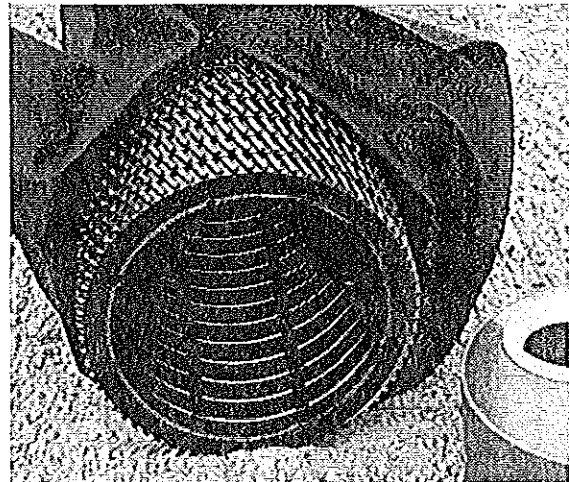
The exterior of the pipe has a very distinct pattern of ridges on the high points of each corrugation.



#### **Inside This Issue**

- New Product - Simple-Septic™!
- Enviro-Septic® Just Gets Better!
- Enviro-Septic® Quick Reference Guide!
- Multi-Level Leaching System!
- McDonald's Utilizes Multi-Level System!
- Camden Hill's Installs Enviro-Septic®!

This new ridge patterned pipe will be utilized in the manufacturing of Simple-Septic™ as well as the production of Enviro-Septic® Leaching System.



#### ***How Does It Work?***

The ridges reduce the shadow effect where the high points contact the inner surface of the fabric and allows for better flow of effluent under the fabric. A deeper corrugation permits more efficient sludge retention inside the pipe.

Simple-Septic™ will follow the same guidelines as the Design and Installation Handbook for Enviro-Septic® Leaching System. Simple-Septic™ may be used in place of other approved chambered fabric covered pipes. Enviro-Septic® differs with the additional fabric layer, allowing for extra bacterial growth to handle high-strength waste water.

Homeowners will be delighted to learn a Simple-Septic™ System has a sizable reduction in cost from comparable products.

Presby Environmental is in full production on the patent pending, Simple-Septic™ Leaching Pipe.

Dealers for Presby Environmental will be receiving loads of the new pipe within the next few weeks. Call your local dealer for detailed pricing.

### ***Handbooks Available***

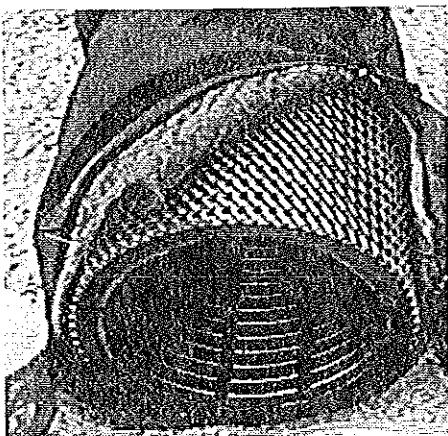
If you haven't received a copy of the Enviro-Septic® or Presby Maze™ Design & Installation Handbooks for Maine or New Hampshire you may call Presby Environmental at 800-473-5298 or send your request via email: [Presby@ConnRiver.net](mailto:Presby@ConnRiver.net)

## **Enviro-Septic® Just Gets Better!**

### ***Improvements to Pipe Development!***

Enviro-Septic® will reap the benefits of the advent of Simple-Septic™. The development of Simple-Septic™ Leaching Pipe has further improved the efficiency of Enviro-Septic®.

The combination of the distinct pattern of ridges on the corrugations coupled with the multiple layers of fabric has enhanced Enviro-Septic®.



The ridges will reduce the shadow effect and the fabric layers will continue to provide a substantial amount of area for bacterial growth. The deeper corrugations will also provide for more efficient sludge retention inside the pipe.

The installation of Enviro-Septic® will basically remain the same. The pipe will continue to be 12" in diameter and the current snap on fittings will fit the new pipe design and will be interchangeable between Enviro-Septic® and Simple-Septic™ Leaching Systems.

## **New Reference Guide Is Beneficial!!!**

Suggestions from designers has prompted the development of a Quick Reference Guide to be used with either Enviro-Septic® or Simple-Septic™.

Enviro-Septic® and Simple-Septic's unmatched design flexibility provides an infinite number of design configurations of varying length, width, slope and shape. This design flexibility gives these products an advantage over any other leaching system available. However, with so many options it can be difficult to compare each variation and choose the best one for the particular project. The Quick Reference Guide helps designers compare layouts for any site quickly and easily.

If you haven't received your copy of the new Quick Reference Guide you may contact Presby Environmental for your free copy at 1-800-473-5298. Please feel free to contact us with any suggestions you may have.

**Visit the Web Site!**  
[www.PresbyEnvironmental.com](http://www.PresbyEnvironmental.com)

**Enviro-Septic® and Simple-Septic™ Leaching Systems have similarities and differences which we feel are significant.**

***Similarities***

- Each utilizes the same corrugated, perforated plastic pipe with ridges on the high points of each corrugation. The pipe has an outside diameter of 12 inches, and the same offset adaptors, end caps, and couplings fit either product.
- Each product is wrapped with a non-woven geo-textile fabric stitched at the seam to prevent soil infiltration.
- Both products are designed and installed in the same manner using the same guidelines.

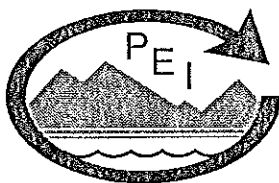
***Differences***

- Enviro-Septic® utilizes a layer of coarse fibered fabric between the outer surface of the pipe and the geo-textile fabric which Simple-Septic™ does not.
- The coarse fibered fabric layer serves several purposes:
  - ◆ Separates tiny solids from effluent exiting the pipe and helps to prevent them from reaching the surface of the geo-textile fabric.
  - ◆ Provides a large surface for bacterial growth to break down solids.
  - ◆ Allows air and liquid to surround solids on the fibers as the liquid level in the pipe fluctuates. This increases the rate at which solids are broken

**Why Was Simple-Septic™ Developed?**

Simple-Septic™ was developed to provide our customers with a more efficient, less expensive alternative to over priced systems which utilize a single layer of fabric.

We recommend the use of Enviro-Septic® in commercial applications and for systems which will receive heavy loading, strong waste water or for longer system life.



**PRESBY ENVIRONMENTAL, INC.**  
*INNOVATIVE SEPTIC TECHNOLOGIES*

Tel: 1-800-473-5298 • Fax: (603) 823-8114

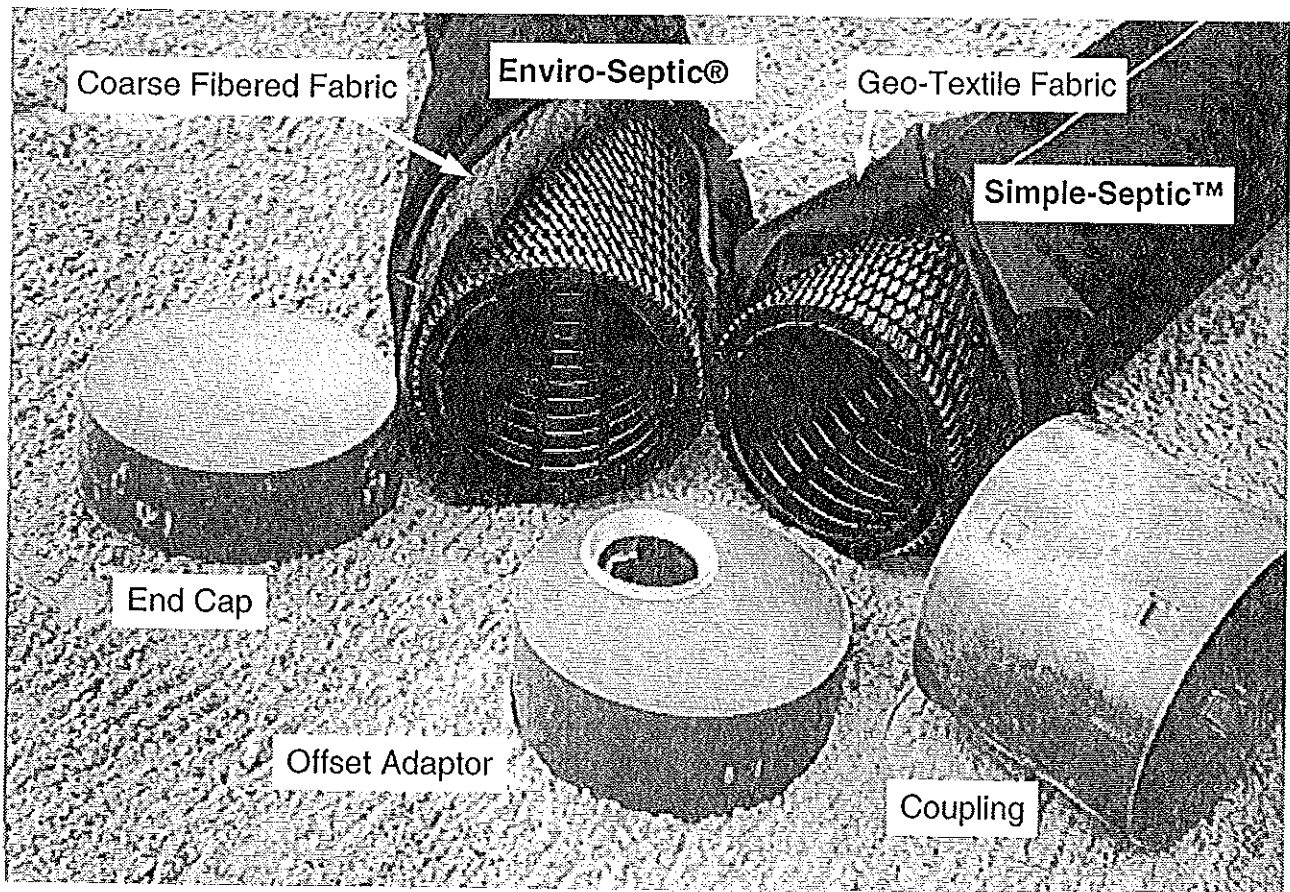
PO Box 617 • Route 117 • Sugar Hill, NH 03585

web site: [www.PresbyEnvironmental.com](http://www.PresbyEnvironmental.com) • email: [Presby@connriver.net](mailto:Presby@connriver.net)

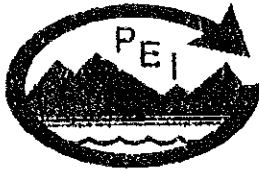
# Enviro-Septic® vs. Simple-Septic™

Presby Environmental, Inc. continues to improve existing products and develop new ones to provide its customers with less expensive, more efficient on-site septic systems.

We designed a revolutionary type of corrugated plastic pipe now used to manufacture the Enviro-Septic® Leaching System and a new product, Simple-Septic™ Leaching System. The most notable feature of the new pipe is the distinct ridges on the outer surface of the high point of each corrugation. The ridges drastically reduce the pipe surface area which contacts the surrounding fabric.



We want to be sure that designers and installers understand the differences between Simple-Septic™ and Enviro-Septic® Leaching Systems. A description of each product is given on the other side of this document.



**PRESBY ENVIRONMENTAL, INC.**  
**INNOVATIVE SEPTIC TECHNOLOGIES**

June 23, 1999



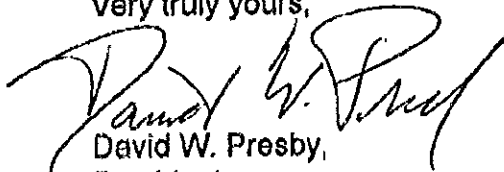
James A. Jacobsen, Manager  
Wastewater and Plumbing Control Program  
Division of Health Engineering  
10 State House Station  
Augusta, ME 04333-0010

RE: Simple-Septic™ Handbook for the State of Maine

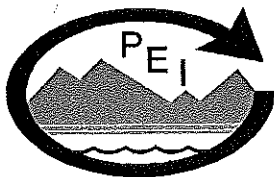
Dear Mr. Jacobsen:

Per our discussion this morning on the telephone regarding the approval for Simple-Septic™ dated April 26, 1999, I thank you for allowing us an extension on the deadline for the publication and distribution for the Simple-Septic™ Handbook. Upon completion of the Handbook, we will send copies to you for approval before distribution.

Very truly yours,

  
David W. Presby,  
President

Tel: 1-800-473-5298 • Fax: (603) 823-8114  
PO Box 617 • Route 117 • Sugar Hill, NH 03585  
web site: [www.Presby Environmental.com](http://www.Presby Environmental.com) • email: [Presby@conriver.net](mailto:Presby@conriver.net)



**PRESBY ENVIRONMENTAL, INC.**  
**INNOVATIVE SEPTIC TECHNOLOGIES**

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April 15, 1999



W. Clough Toppan, P.E., Director  
Maine Dept. of Human Services  
Division of Health Engineering

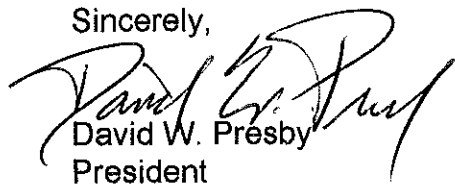
Subject: Modification to Enviro-Septic™ Leaching System's corrugated pipe

Dear Mr. Toppan:

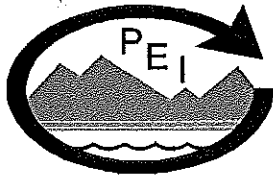
I request that your department approve for use in Maine a modified corrugated plastic pipe which could be used to manufacture Enviro-Septic™ Leaching System. The modified pipe, which you have a sample of, has a distinct pattern of ridges on the high points of each corrugation, in addition to a different corrugation design. Use of the modified pipe to manufacture Enviro-Septic™ Leaching System would only enhance the performance of our product.

If I can provide you with any additional information please do not hesitate to contact me.

Sincerely,

  
David W. Presby  
President

Tel: 1-800-473-5298 • Fax: (603) 823-8114  
PO Box 617 • Route 117 • Sugar Hill, NH 03585  
web site: [www.PresbyEnvironmental.com](http://www.PresbyEnvironmental.com) • email: [Presby@connriver.net](mailto:Presby@connriver.net)



**PRESBY ENVIRONMENTAL, INC.**  
**INNOVATIVE SEPTIC TECHNOLOGIES**

---

April, 15, 1999

W. Clough Toppan, P.E., Director  
Maine Dept. of Human Services  
Division of Health Engineering

Subject: Simple Septic™ Leaching System

Dear Mr. Toppan:

I request that your department approve for use in Maine a leaching system called Simple Septic™. Simple Septic™ is made from a 10" diameter corrugated plastic pipe. The exterior of the pipe has a very distinct pattern of ridges on the high point of each corrugation. The pipe is wrapped with a non-woven polypropylene geo-textile fabric, stitched at the seam.

Simple Septic™ will be an improvement over other fabric covered tube systems utilizing a single layer of fabric. The ridges reduce the shadow effect where the high points of the corrugations contact the inner surface of the fabric. In addition, the fabric is not heat bonded to a mesh or the exterior of the pipe therefore, providing more usable surface area for effluent infiltration. Deeper corrugations provide for more efficient sludge retention inside the pipe.

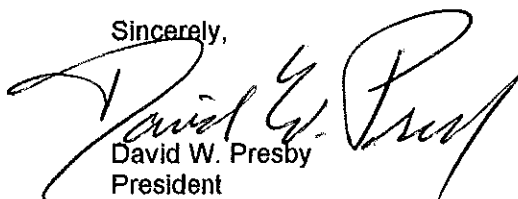
I would like Simple Septic™ to be approved for use in the same manner as Enviro-Septic™ Leaching System. More specifically Simple Septic™ Leaching System:

- 1) will require the same linear footage as Enviro-Septic™ Leaching System.
- 2) is to be installed using the guidelines set forth in the Enviro-Septic™ Leaching System Design and Installation Handbook for ME published 10/27/95 and revised in 1996 and 1997 until a New Handbook is written and approved.
- 3) may be used in place of other approved chambered fabric covered pipes allowed in the State of Maine with the exception of Enviro-Septic™ Leaching System.
- 4) may not be used in place of Enviro-Septic™ Leaching System, however Enviro-Septic™ Leaching System may be installed in place of the Simple Septic™ Leaching System.

A handbook designed for Simple Septic™ Leaching System will be developed in the near future at which time I will submit it to your department for approval.

If I can provide you with any additional information please do not hesitate to contact me.

Sincerely,



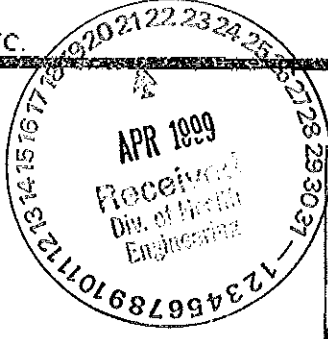
David W. Presby  
President

**Tel: 1-800-473-5298 • Fax: (603) 823-8114**  
**PO Box 617 • Route 117 • Sugar Hill, NH 03585**  
**web site: [www.PresbyEnvironmental.com](http://www.PresbyEnvironmental.com) • email: [Presby@connriver.net](mailto:Presby@connriver.net)**

PRESBY ENVIRONMENTAL, INC.

PO Box 617, Route 117, Sugar Hill NH 03585

**FAX**



Date: 4/21/99

Number of pages including cover sheet: 4

To: Jim Jacobsen

Phone: \_\_\_\_\_

Fax phone: 207-887-4172

CC: \_\_\_\_\_

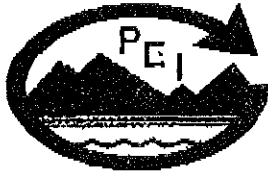
From: DAVID W. PRESBY

Phone: (603) 823-5298

Fax phone: (603) 823-8114

REMARKS:  Urgent  For your review  Reply ASAP  Please comment





**PRESBY ENVIRONMENTAL, INC.**  
**INNOVATIVE SEPTIC TECHNOLOGIES**

April 24, 1999

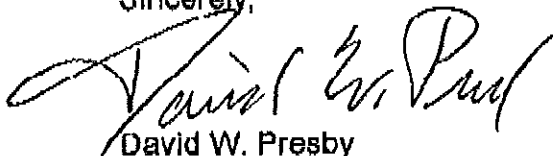
James A. Jacobsen  
Program Manager  
Maine Dept. of Human Services  
Division of Health Engineering  
10 State House Station  
Augusta, Maine 04333-0010

Dear Jim,

I thought you might be interested to see the New Hampshire approvals for Simple Septic and Enviro-Septic utilizing the redesigned corrugated pipe. I just received them today on the fax. If I can provide you with any other information please do not hesitate to call me.

Thank you for your help in this matter.

Sincerely,

  
David W. Presby  
President

Tel: 1-800-473-5298 • Fax: (603) 823-8114  
PO Box 617 • Route 117 • Sugar Hill, NH 03585  
web site: [www.PresbyEnvironmental.com](http://www.PresbyEnvironmental.com) • email: [Presby@connriver.net](mailto:Presby@connriver.net)



State of New Hampshire  
DEPARTMENT OF ENVIRONMENTAL SERVICES

6 Hazen Drive, P.O. Box 95, Concord, NH 03302-0095  
(603) 271-3501 FAX (603) 271-6689



April 22, 1999

Mr. David W. Presby, President  
Presby Environmental, Inc.  
PO Box 617  
Sugar Hill, NH 03585

**Subject: Simple-Septic Leaching System**

Dear Mr. Presby:

This office has approved the use of the Simple-Septic Leaching System for use in the State of New Hampshire.

This approval is based upon the use of the Simple-Septic Leaching System as explained and described in the Enviro-Septic Leaching System "Design and Installation Handbook" dated October 27, 1995

Specifically, we will allow the installation of the Simple-Septic Leaching System as follows:

1. The Simple-Septic Leaching System shall be designed and installed as described in the Enviro-Septic Leaching System Design and Installation Handbook dated October 27, 1995 until a new handbook is produced and approved by this department.
2. Each Enviro-Septic Design and Installation Handbook distributed in the future shall include an insert describing the differences between the Simple-Septic and Enviro-Septic Leaching Systems.
3. Simple-Septic Leaching System may be used in place of, or the same as, other approved chambered fabric covered pipes allowed in the State of New Hampshire.

Sincerely,

William E. Evans, P.E.  
Administrator  
Subsurface Systems Bureau



State of New Hampshire  
DEPARTMENT OF ENVIRONMENTAL SERVICES

6 Hazen Drive, P.O. Box 95, Concord, NH 03302-0095  
(603) 271-3501 FAX (603) 271-6683



April 22, 1999

Mr. David W. Presby, President  
Presby Environmental, Inc.  
PO Box 617  
Sugar Hill, NH 03585

**Subject: Redesigned Corrugated Plastic Pipe Used to Manufacture Enviro-Septic Leaching System**

Dear Mr. Presby:

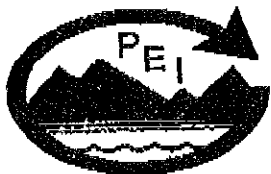
This office has approved the use of a redesigned corrugated plastic pipe to manufacture the Enviro-Septic Leaching System for use in the State of New Hampshire. The redesigned pipe has distinct ridges on the high points of the corrugations.

Specifically, we will allow the use Enviro-Septic Leaching System utilizing the redesigned corrugated plastic pipe as follows:

1. Enviro-Septic Leaching System incorporating the redesigned corrugated pipe shall be designed and installed as described in the Enviro-Septic Leaching System Design and Installation Handbook dated October 27, 1995.
2. Enviro-Septic Leaching System incorporating the redesigned corrugated pipe may be used in place of, or the same as, other approved chambered fabric covered pipes allowed in the State of New Hampshire.

Sincerely,

William E. Evans, P.B.  
Administrator  
Subsurface Systems Bureau



**PRESBY ENVIRONMENTAL, INC.**  
**INNOVATIVE SEPTIC TECHNOLOGIES**

April 15, 1999

W. Clough Toppan, P.E., Director  
Maine Dept. of Human Services  
Division of Health Engineering

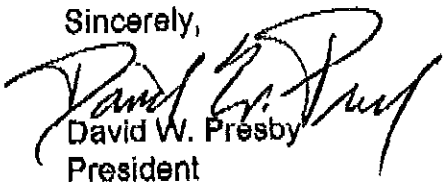
Subject: Modification to Enviro-Septic™ Leaching System's corrugated pipe

Dear Mr. Toppan:

I request that your department approve for use in Maine a modified corrugated plastic pipe which could be used to manufacture Enviro-Septic™ Leaching System. The modified pipe, which you have a sample of, has a distinct pattern of ridges on the high points of each corrugation, in addition to a different corrugation design. Use of the modified pipe to manufacture Enviro-Septic™ Leaching System would only enhance the performance of our product.

If I can provide you with any additional information please do not hesitate to contact me.

Sincerely,



David W. Presby  
President

Tel: 1-800-473-5298 • Fax: (603) 823-8114  
PO Box 617 • Route 117 • Sugar Hill, NH 03585  
web site: [www.PresbyEnvironmental.com](http://www.PresbyEnvironmental.com) • email: [Presby@connriver.net](mailto:Presby@connriver.net)



# PRESBY ENVIRONMENTAL, INC.

## INNOVATIVE SEPTIC TECHNOLOGIES

April, 15, 1999

W. Clough Toppan, P.E., Director  
Maine Dept. of Human Services  
Division of Health Engineering

Subject: Simple Septic™ Leaching System

Dear Mr. Toppan:

I request that your department approve for use in Maine a leaching system called Simple Septic™. Simple Septic™ is made from a 10" diameter corrugated plastic pipe. The exterior of the pipe has a very distinct pattern of ridges on the high point of each corrugation. The pipe is wrapped with a non-woven polypropylene geo-textile fabric, stitched at the seam.

Simple Septic™ will be an improvement over other fabric covered tube systems utilizing a single layer of fabric. The ridges reduce the shadow effect where the high points of the corrugations contact the inner surface of the fabric. In addition, the fabric is not heat bonded to a mesh or the exterior of the pipe therefore, providing more usable surface area for effluent infiltration. Deeper corrugations provide for more efficient sludge retention inside the pipe.

I would like Simple Septic™ to be approved for use in the same manner as Enviro-Septic™ Leaching System. More specifically Simple Septic™ Leaching System:

- 1) will require the same linear footage as Enviro-Septic™ Leaching System.
- 2) is to be installed using the guidelines set forth in the Enviro-Septic™ Leaching System Design and Installation Handbook for ME published 10/27/95 and revised in 1996 and 1997 until a New Handbook is written and approved.
- 3) may be used in place of other approved chambered fabric covered pipes allowed in the State of Maine with the exception of Enviro-Septic™ Leaching System.
- 4) may not be used in place of Enviro-Septic™ Leaching System, however Enviro-Septic™ Leaching System may be installed in place of the Simple Septic™ Leaching System.

A handbook designed for Simple Septic™ Leaching System will be developed in the near future at which time I will submit it to your department for approval.

If I can provide you with any additional information please do not hesitate to contact me.

Sincerely,

David W. Presby  
President

Tel: 1-800-473-5298 • Fax: (603) 823-8114  
PO Box 617 • Route 117 • Sugar Hill, NH 03586  
web site: [www.PresbyEnvironmental.com](http://www.PresbyEnvironmental.com) • email: [Presby@connriver.net](mailto:Presby@connriver.net)

PRESBY ENVIRONMENTAL INC.

PO Box 617, Route 117. Sugar Hill, NH 03585

# FAX

Date: 4/15/99  
Number of pages including cover sheet: 3

To:

W. Clough Tupper

Phone

Fax phone: 207-287-4172

CC

From:

DAVID W PRESBY

Phone: (603) 823-5798

Fax phone: (603) 823-8114

REMARKS:

Urgent

For your review

Reply ASAP

Please comment



Angus S. King Jr.  
Governor

Kevin W. Concannon  
Commissioner

STATE OF MAINE  
DEPARTMENT OF HUMAN SERVICES  
HEALTH ENGINEERING  
10 STATE HOUSE STATION  
AUGUSTA, MAINE 04333-0010

DATE: 4/26/99 TIME: 9:20 AM AM/PM

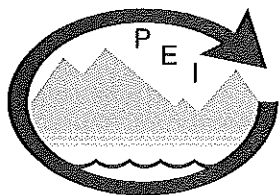
TO: David Presby, Pres., Presby Environmental Inc.

FROM: Jim Jacobson, Maine D.H.S., D.H.E.

# PAGES INCLUDING THIS COVER SHEET: 3

MESSAGE:

NOTICE: This fax message is intended for the exclusive use of the individual or entity identified above. It may contain information which is privileged and/or confidential under both state and federal law. If you are not the intended recipient or an agent of the recipient, you are notified that any further dissemination, copy or disclosure of this communication is strictly prohibited. If you have received this transmittal in error, please immediately notify \_\_\_\_\_ at (telephone) \_\_\_\_\_ and return the original transmission to us by mail at 10 State House Station, Augusta, ME 04333-0010, without making a copy. Your cooperation in protecting confidential information is greatly appreciated.



**PRESBY ENVIRONMENTAL, INC.**  
INNOVATIVE SEPTIC TECHNOLOGIES

May, 2000

**New !!! Multi-Level System - “The smallest footprint of any system”**

Dear Site Evaluator/Installer/LPI,

We have enclosed a new Enviro-Septic® and Simple-Septic™ Design and Installation Manual for your review. There have been quite a few important changes regarding single level systems such as reduced center-to-center spacing between pipes. In addition, sand specifications have been modified to simplify system installation. Now our systems are even smaller, less expensive, and easier to install than before.

This spring Multi-Level Leaching Systems were approved for use in Maine and New Hampshire. Multi-Level Systems consist of one leaching system installed over another, separated by a layer of sand. This arrangement provides an **extremely small** and highly efficient system for difficult sites. In some cases Multi-Level Systems are about **one-sixth the size** of a pipe and stone system.

As part of our approval and to ensure the systems function properly Presby Environmental, Inc. must certify site evaluators and installers who wish to utilize Multi-Level Systems. We will work individually to certify those who have an immediate need. Later this summer we will be offering free Multi-Level Certification Workshops. No certification from Presby Environmental, Inc. is required for the design or installation of single level systems.

Please take a minute to fill out the enclosed questionnaire. We keep a database of professionals who use our products to refer clients in their areas. In addition the questionnaire will allow us to schedule the Multi-Level System workshops so they are convenient for you.

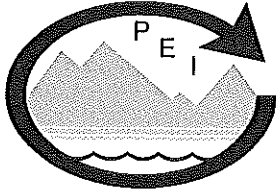
Please contact us if you have any questions.

David W. Presby  
President

**Tel: 1-800-473-5298 • Fax: (603) 823-8114**  
Route 117 • PO Box 617 • Sugar Hill, NH 03585  
**web site: [www.PresbyEnvironmental.com](http://www.PresbyEnvironmental.com)**







**PRESBY ENVIRONMENTAL, INC.**  
INNOVATIVE SEPTIC TECHNOLOGIES

We receive numerous inquiries from businesses, homeowners, and real estate brokers each day. Inquires requiring design or installation services are referred to professionals from our database. Please fill out the following and mail or fax it back to us so that we may refer potential clients in your area to you.

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

1) Are you currently a:  Designer/SE  Installer  PE  LPI  
(Please check all that apply)

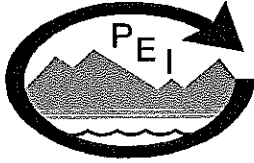
2) Do you currently use:  Enviro-Septic  Simple-Septic  Presby Maze  
(Please check all that apply)

3) Would you use our products if requested by a customer? YES NO

4) Are you interested in attending a *free* Multi-Level certification workshop?

5) Suggestions: \_\_\_\_\_

Tel: 1-800-473-5298 • Fax: (603) 823-8114  
Route 117 • PO Box 617 • Sugar Hill, NH 03585  
web site: [www.PresbyEnvironmental.com](http://www.PresbyEnvironmental.com)



**PRESBY ENVIRONMENTAL, INC.**  
**INNOVATIVE SEPTIC TECHNOLOGIES**

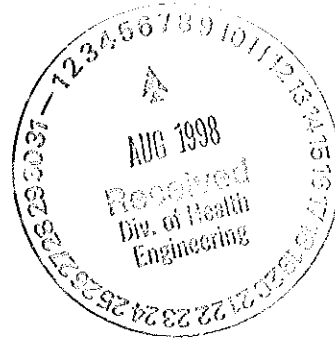
Tel: 1-800-473-5298 • Fax: (603) 823-8114

PO Box 617 • Route 117 • Sugar Hill, NH 03585

web site: [www.PresbyEnvironmental.com](http://www.PresbyEnvironmental.com) • email: [Presby@connriver.net](mailto:Presby@connriver.net)

August 4, 1998

Mr. Jay Hardcastle  
State Site Evaluator  
Maine Dept. of Human Services  
State House Station #11  
Augusta, Maine 04333



Mr. Hardcastle,

Per our conversation I have enclosed photos for your review. Photo (1) is a graveless leaching product, manufactured by Advanced Drainage Systems (ADS), called SB2. I took this photo of a failed SB2 system which was mistakenly installed in place of Geo-Flow. The system failed in less than six months. This photo clearly shows the "striping" or "shadowing" which occurs where the fabric is pressed against the peaks of the pipe. My calculation show that SB2 has a shadow area equal to about 50% of the total fabric surface area.

Photos (2) and (3) are photos of Geo-Flow showing how the fabrics become coated with scum and can be sealed off. Also notice the "stripe" or "shadow" areas where the plastic mesh of Geo-Flow contacts the peaks of the pipe. In addition if the fabric was peeled away from the mesh there would be clear lines of "shadow" area where the Geo-Flow fabric and mesh are heat bonded together. My calculations show Geo-Flow has a shadow area equal to about 37% of the total fabric area.

In comparison the New Geo-Flow (for lack of a better term) has a shadow area equal to about 55% of the total fabric surface area. To derive this number consider that the "New" mesh has larger openings, about 1-1/4", however it has no depth or vertical dimension. The mesh is so thin that it does not prevent the fabric from contacting the peaks of the pipe and producing shadow area. To make matters worse the mesh is quite wide, about 1/4" and is heat bonded or glued to the fabric. The wide mesh creates substantial shadowing, even in the valley areas, where the fabric remains suspended above the pipe. In my professional opinion Geo-Flow has taken a giant step backwards by changing the mesh.

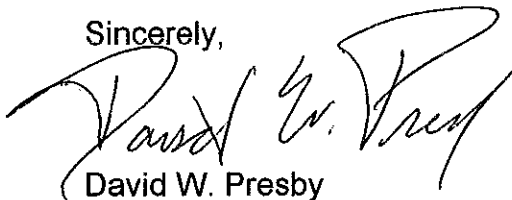
My concern is not that Geo-Flow has a new or modified product approved for use, in fact it is exactly the contrary. I want to make it absolutely clear that Enviro-Septic and Geo-Flow (both old and new) are completely different products. Daily I deal with people who think or assume that Enviro-Septic and Geo-Flow are the same. This is a misconception that is difficult to correct on such a large scale. I think that Geo-Flow's introduction of another, potentially less effective, variation of their product will only make the situation worse and could give all products that look similar a bad reputation.

True, they are all corrugated, perforated pipe, wrapped in fabric but that is where the similarities end. Enviro-Septic uses a thick mat of coarse fabric fibers where Geo-Flow places it's plastic mesh. The coarse fibers separate solids from the effluent before they reach the outer fabric. In essence, the coarse fibers protect the outer fabric and provide a large surface area for bacterial growth to break down solids trapped in the fibers. In addition, the layer of coarse fibers is not heat bonded to the outer fabric allowing liquid and air to pass through and around the fibers. The combination of coarse, random plastic fibers and the outer geo-textile, provide the largest bacterial surface and the least amount of shadow area of any fabric covered pipe leaching system I have seen.

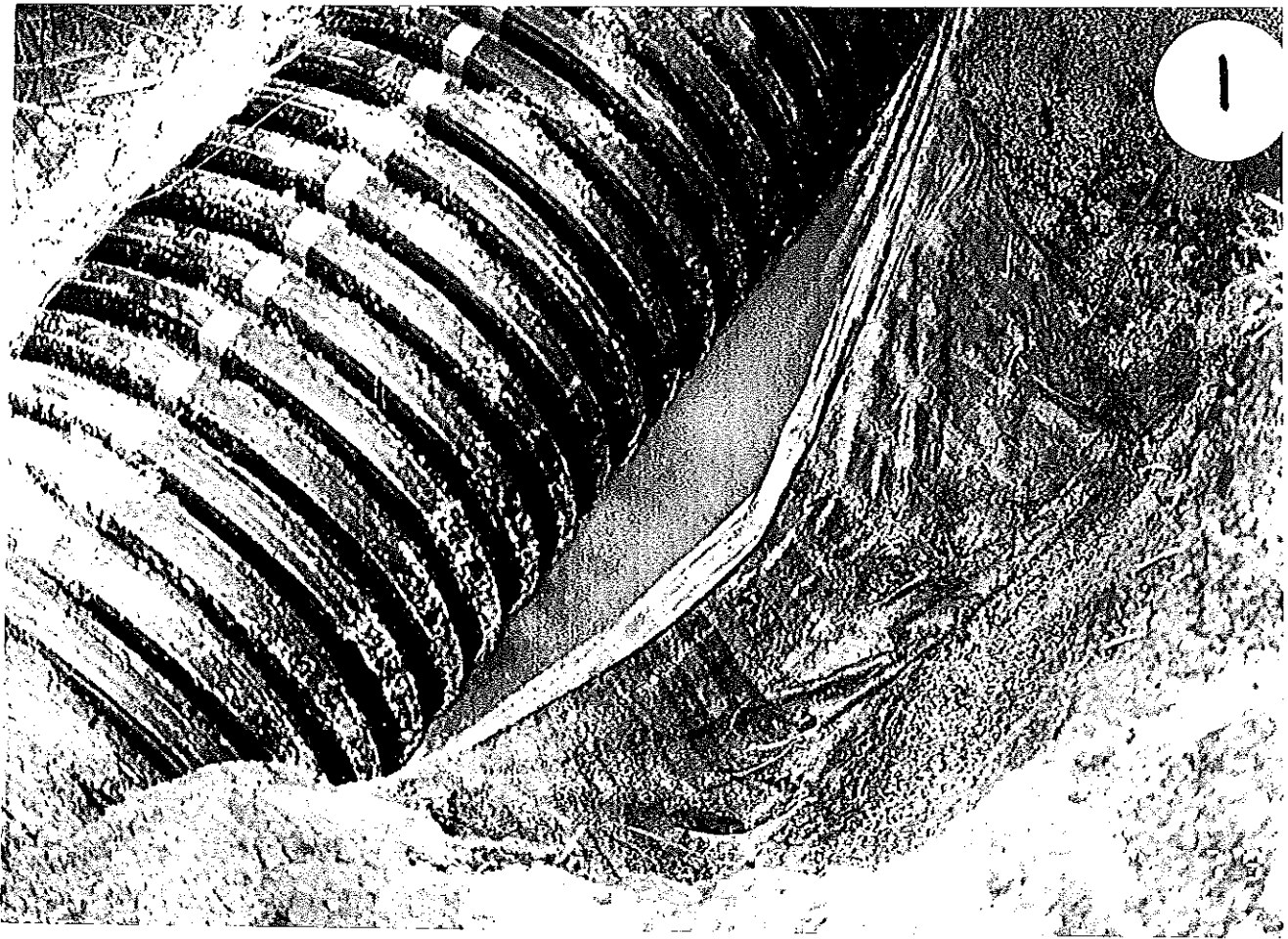
It is my understanding, per our conversation, that Geo-Flow has had a substantial number of failures recently and this is what has prompted changing the mesh. Not knowing the specifics of the situation I want to be certain, that if any changes are made to Geo-Flow's approval in Maine, such as a reduction in leaching area allowed per linear foot, that these changes in no way effect the existing approval for Enviro-Septic Leaching system.

If you have any question please contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "David W. Presby". The signature is fluid and cursive, with a large, stylized initial "D".

David W. Presby  
President, Presby Environmental, Inc.







STATE OF MAINE  
DEPARTMENT OF HUMAN SERVICES  
DIVISION OF HEALTH ENGINEERING  
10 STATE HOUSE STATION  
AUGUSTA, MAINE  
04333-0010

ANGUS S. KING, JR.  
GOVERNOR

KEVIN W. CONCANNON  
COMMISSIONER

August 30, 1999

Presby Environmental, Inc.  
Attn.: David W. Presby, President  
P. O. Box 617  
Sugar Hill, New Hampshire 03585

Subject: Presby Simple Septic and Revised Enviro-Septic

Dear Mr. Presby:

Enclosed is a copy of a letter sent to this office by Earle Rafuse, Local Plumbing Inspector. This letter pointed out a possible mistake in the Enviro-Septic handbook (presumably the current one, not the revised one due next month). The issue is that the separation distance to the limiting factor is shown as measured to the bottom of the pipe, rather than the underlying bedding material. It is important to note that the copy sent to us has a reference to bedding sand specifications, but not the specifications themselves.

The separation distance is measured to the lowest point of the infiltrative area, in the case of coarse sand or gravel under any infiltrative device, the infiltrative interface is the bottom of the sand or gravel layer. If loamy sand or a similarly textured material is used, that is compatible with the native soils and/or backfill material, the separation distance is measured to the bottom of the device. If it hasn't already been done, I suggest that a caveat to this effect be included somewhere in the forthcoming handbook.

If we don't speak before then, I wish you and yours a happy holiday season. If you have any questions please feel free to contact me at (207) 287-5695.

Sincerely,

James A. Jacobsen, Manager  
Wastewater and Plumbing Control Program  
Division of Health Engineering  
e-mail: [james.jacobsen@state.me.us](mailto:james.jacobsen@state.me.us)

Enc: Letter dated 11/19/99 w/enc.

xc: File  
Earle Rafuse, LPI



PRINTED ON RECYCLED PAPER



TOWN OF GLENBURN  
CODE ENFORCEMENT/LOCAL PLUMBING INSPECTOR  
144 Lakeview Road  
Glenburn, Maine 04401

TEL: 207-942-2905/947-6623 FAX: 207-990-2953



19 November 1999

Department of Human Services  
Division of Health Engineering  
attn: James A. Jacobsen, Program Manager,  
Wastewater & Plumbing Control Program  
State House Station 10  
Augusta, Maine 04333-0010

re: a) Me. Subsurface Waste Water Disposal Rules, 144A CMR 241  
b) Enviro-Septic® Design & Installation Handbook

encl: 1) Enviro-Septic® Design & Installation Handbook, page 16

Dear Mr. Jacobsen:

I am bring to your attention a manufactures design that I feel is not a "good construction standard". I have enclosed page 16 of the Enviro-Septic® Design & Installation Handbook and have high-lighted my area of concern.

The design and installation handbook indicates that the Enviro-Septic system has an authorized separation distance of 12" from the bottom of the pipe to seasonal high water and that there are 6" of sand below the pipe. This leaves only a 6" separation between the bottom of the "system" and the seasonal high water. With capillary tension and perched water tables being what they are I don't feel a 6" separation is sufficient. All of our other "systems" require the separation distance to be measured from the bottom of the concrete, plastic, stone, or sand, as the case may be. This may have been an oversight at the time of review.

Yours in health,

A handwritten signature in cursive script, appearing to read "Earle M. Rafuse".

Earle M. Rafuse, R.S.  
L.S.E. 00175

**FILE COPY**



4  
DASH VON  
[illegible]

Y909 317

Copies to:

w/o enclosure

Presby Environmental, Inc.

Post Office Box 617

Route 117

Sugar Hill, New Hampshire

03585

w/enclosure

Albert Frick

Chairperson, MASE Tec.Rev.Comm.

95A County Road

Gorham, Maine 04038

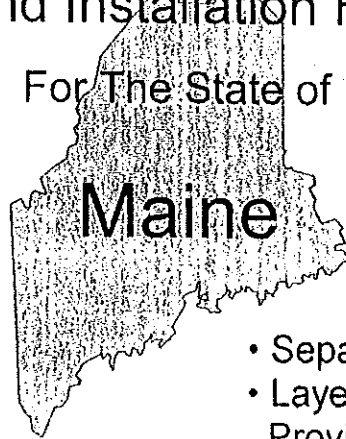


# Enviro-Septic®

## Leaching System

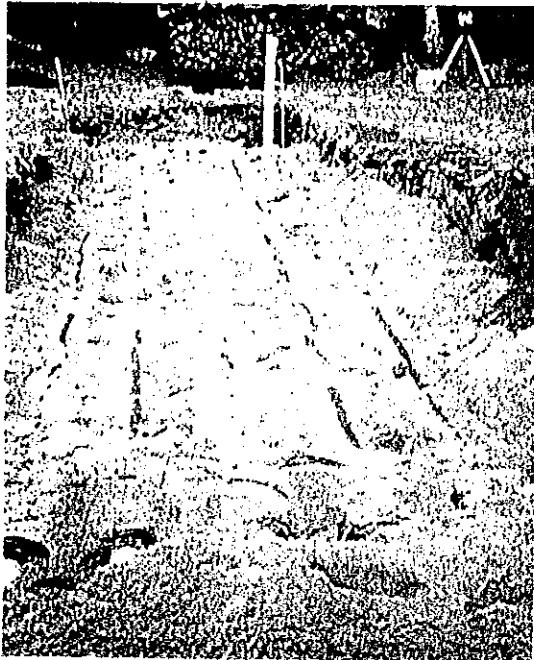
### Design and Installation Handbook

For The State of

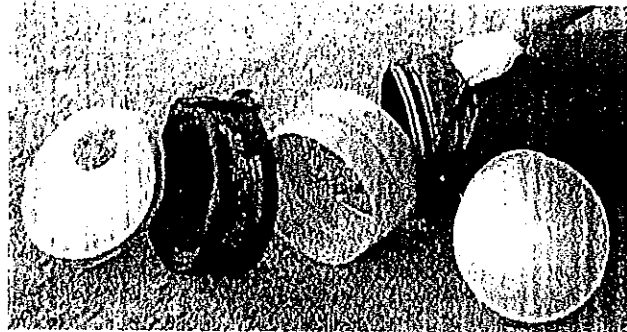


- Inexpensive
- Matches Sloping Terrain
- Small Footprint
- Easy To Install
- Adaptable To Difficult Sites

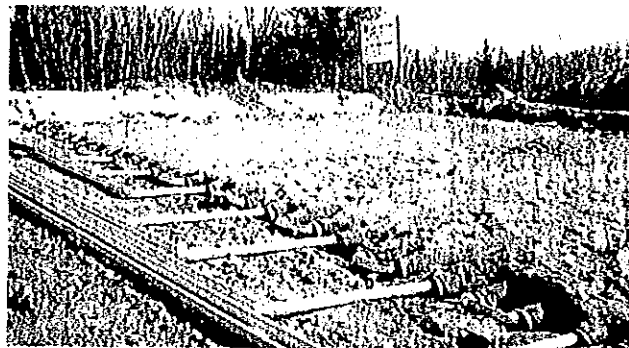
- Separates Solids From Effluent
- Layers of Fibers and Fabric Provide Large Bacterial Surface
- Bacteria Stimulated by Wetting and Drying of Fibers



Level, In-ground, Residential System

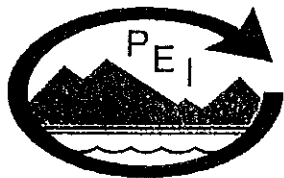


Enviro-Septic System Components



Sloping, Raised, Commercial System

To Learn More  
About Septic Systems  
Visit Our Web Site



### PRESBY ENVIRONMENTAL, INC.

INNOVATIVE SEPTIC TECHNOLOGIES

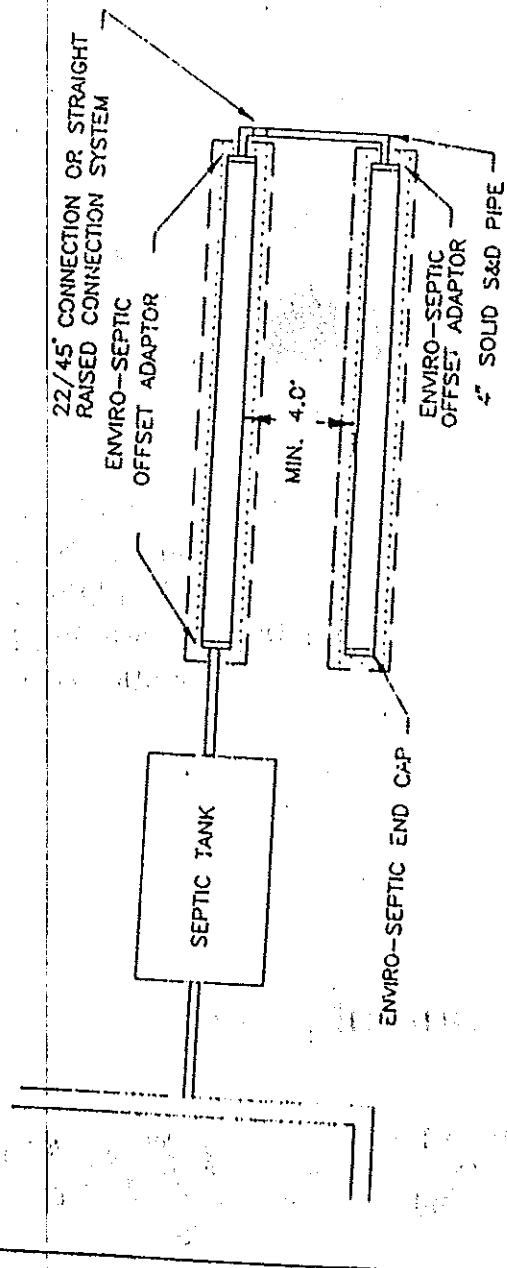
Tel: 1-800-473-5298 • Fax: (603) 823-8114

PO Box 617 • Route 117 • Sugar Hill, NH 03585

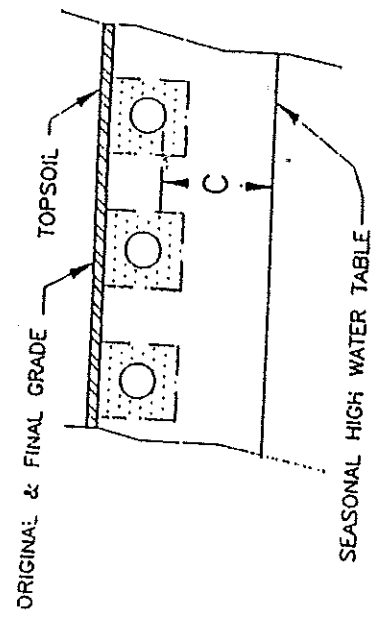
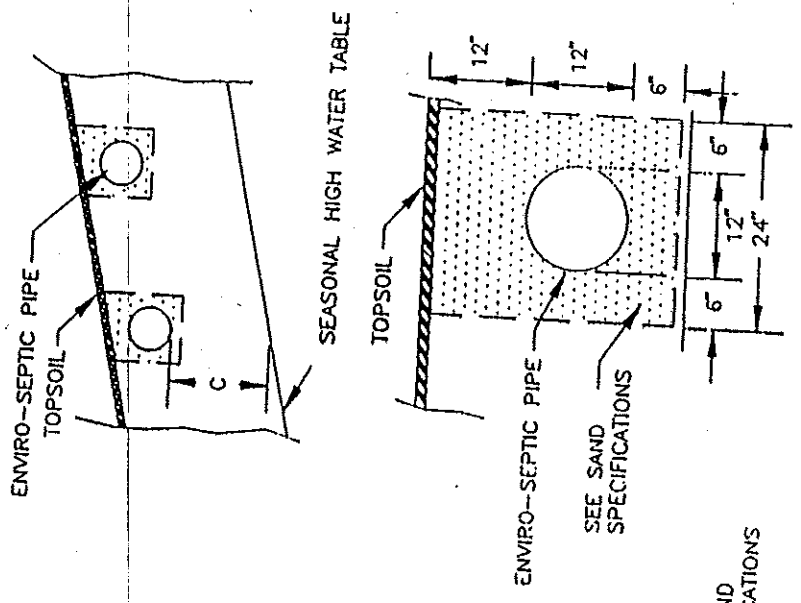
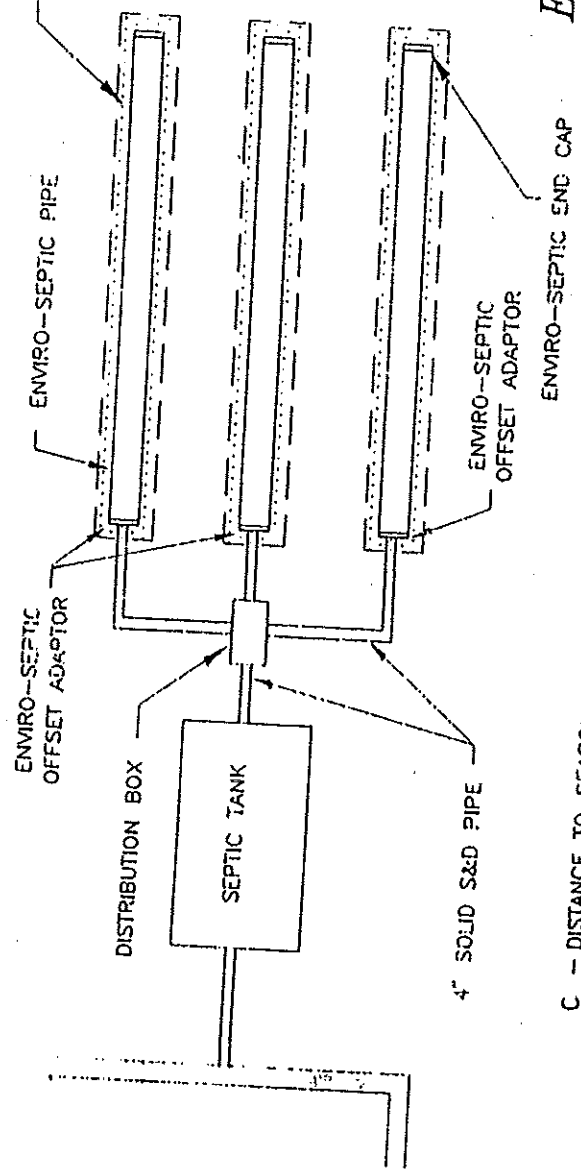
web site: [www.PresbyEnvironmental.com](http://www.PresbyEnvironmental.com) • email: [Presby@connriver.net](mailto:Presby@connriver.net)

Enviro-Septic US pat. no. 5,954,451 - US pat. no. 5,606,786 - Canadian pat. no. 2,185,087 other pat. Pending.  
Enviro-Septic® registered trademark of Presby Environmental, Inc. ©1999

# TYPICAL ENVIRO-SEPTIC TRENCH DESIGN FOR LEVEL & SLOPING TERRAIN



## LINES OF ENVIRO-SEPTIC PIPE LAID LEVEL



**ENVIRO-SEPTIC™ LEACHING SYSTEM**  
 DRN. BY: *David W. Presby*

DATE: 4/2/96 NOT TO SCALE

FIG. 8

C - DISTANCE TO SEASONAL HIGH WATER TABLE AS REQUIRED BY THE STATE OF MAINE



**Enviro-Septic<sup>®</sup> & Simple-Septic<sup>®</sup> Leaching  
Systems Design and Installation Manual  
Maine State Attachment**





STATE OF MAINE  
DEPARTMENT OF HUMAN SERVICES  
DIVISION OF HEALTH ENGINEERING  
10 STATE HOUSE STATION  
AUGUSTA, MAINE  
04333-0010

ANGUS S. KING, JR.  
GOVERNOR

KEVIN W. CONCANNON  
COMMISSIONER

March 22, 2000

Presby Environmental, Inc.  
Attn.: David W. Presby, President  
P. O. Box 617  
Sugar Hill, New Hampshire 03585

Subject: Presby Environmental, Inc. Design and Installation Manual, and Multi-Level Leaching System

Dear Mr. Presby:

Thank you for your letter dated March 6, 2000 regarding Presby Environmental, Inc.'s (PEI) products, supporting data, and the 2000 Design and Installation Manual for Maine (Manual); and supplemental information received by facsimile transmission on March 16, 2000. You also requested approval for the Multi-Level Leaching System, as described in the Manual and correspondence in the file.

It is our understanding from information you have provided that the Multi-Level Leaching System has several installations in use in New Hampshire, and that under provisions of Section 11 of the Manual, PEI requires installers of Multi-Level Leaching Systems to be trained by PEI, PEI reviews designs for the Multi-Level Leaching System, and that PEI inspects such installations until the installers are certified as knowledgeable in the process by PEI.

The Division approves the 2000 Design and Installation Manual for Maine from PEI, as modified by the letter dated March 16, 2000.

The Division approves the use of the Multi-Level Leaching System, as described in the Manual, the letter dated March 6, 2000, and supporting documents with the following conditions:

1. Pursuant to Section 11.3 of the Manual, PEI must provide training for design and installation of the Multi-Level Leaching System. Written confirmation of successful completion of this training will meet the continuing education requirement for the Division's Voluntary Installer Certification Program.
2. Pursuant to Section 11.4 of the Manual, PEI must review all designs for Multi-Level Leaching Systems until PEI certifies in writing, with copies to this office, that individual Site Evaluators are knowledgeable in designing these systems, and
3. Pursuant to Section 11.5 of the Manual, PEI must review all installations for Multi-Level Leaching Systems until PEI certifies in writing, with copies to this office, that individual installers are knowledgeable in installation of these systems.

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 the Presby Simple Septic, Enviro-Septic, or Multi-Level Leaching System. Further, registration of these products for use in the State of Maine does not represent Division preference or recommendation for these products over other products.

If you have any questions please feel free to contact me at (207) 287-5695.

Sincerely,

James A. Jacobsen, Manager  
Wastewater and Plumbing Control Program  
Division of Health Engineering  
e-mail: [james.jacobsen@state.me.us](mailto:james.jacobsen@state.me.us)

# Enviro-Septic® & Simple-Septic® Leaching Systems Design and Installation Manual Maine State Attachment

**Purpose** The purpose of this attachment is to provide information specific to the State of Maine for use in the design and installation of septic leaching systems using the Presby Environmental, Inc., group of products.

**Certification required** The State of Maine requires all designers and installers of Multi-Level™ systems to be certified. Certification is obtained by attending the “Enviro-Septic® Designer and Installer Certification Course” presented by Presby Environmental, Inc.

**Presby Environmental, Inc., standards** All leaching systems using Presby Environmental, Inc., products must be designed and installed in compliance with the procedures and specifications described in *The Enviro-Septic® & Simple-Septic® Leaching Systems Design and Installation Manual*.

This attachment is to be used in conjunction with the Maine Subsurface Waste Water Disposal Rules and other State or local regulations regarding septic systems.

**State standards take precedent** While the Presby Environmental, Inc., standards form the basis for designing and installing Enviro-Septic® products, the information in this State attachment takes precedence in the event of conflicts.

**In this attachment** This attachment contains State specific information on the following subjects.

Subject	Page
Design flow	2
High flow	2
Loading limits	2
Low flow	2
Raised systems fill requirements	2
Sand fill and clean fill requirements	2
Trench systems spacing	2
Maine Single Level Quick Reference Guide	3
Maine Multi-Level™ Quick Reference Guide	6
Slope Design Chart	9

**Technical support** Presby Environmental, Inc., provides technical support to all individuals using our products. For questions about our products or the information contained in this manual, please contact us at 1-800-473-5298.



## State Specific Information

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<b>Design flow</b>	Design flow is defined in Chapters 5 of the Maine Subsurface Waste Water Disposal Rules.
<b>High flow</b>	High flow is a volume greater than design flow of 900 GPD.
<b>Loading limits</b>	Each line of a distribution box system and each section of a combination system has a maximum limit design flow of 500 GPD.
<b>Low flow</b>	Low flow is a volume design flow of 900 GPD or less.
<b>Raised systems fill extensions</b>	<p>Raised, level, or sloping systems which slope 10% or less require 3' extensions on each side (including system sand and sand fill) before tapering.</p> <p>Sloping systems which slope greater than 10% must require 3' extensions on three sides and 5' on the down slope side before tapering.</p> <p>Tapering is to be 4:1 (maximum 2:1 with variance).</p> <p>A dense soil blanket is required around the fill perimeter of raised systems.</p>
<b>Sand fill and clean fill requirements</b>	<p><u>Sand fill</u> With the exception of the 6" of System sand surrounding the Enviro-Septic<sup>®</sup> pipe, sand fill is defined in the Maine Subsurface Waste Water Disposal Rules, Section 804.2</p> <p><u>Clean fill (Backfill)</u> Clean fill is defined as clean, permeable fill material.</p>
<b>Trench system spacing</b>	Trench systems require a minimum of 4' center-to-center spacing.

---

# Maine

## Single Level Quick Reference Guide

---

**Purpose** The unique Enviro-Septic<sup>®</sup> design provides an infinite number of system configurations that vary in length, width, slope, and shape. The purpose of this guide is to help designers compare layouts for any site quickly and easily.

We recommend designers become familiar with the “Enviro-Septic<sup>®</sup> Design & Installation Manual” before using this Quick Reference Guide.

---

**Reductions require variance** Reductions in the linear footages used in this quick reference guide require a variance.

---

**Distances adhere to State rules** The minimum separation distances and setbacks used in this guide (including the vertical separation distance to the seasonal ground water table or restrictive horizon) adhere to The Maine Subsurface Waste Water Disposal Rules and are measured from the nearest outer edge of Enviro-Septic<sup>®</sup> pipe.

Note: If Enviro-Septic pipe<sup>®</sup> is installed below original grade, (in-ground) the minimum separation distance to the seasonal ground water table or restrictive horizon shall be increased by 6”.

---

**Procedure** Complete these tasks to size a single level Enviro-Septic<sup>®</sup> leaching system.

**Task 1: Determine the linear feet of Enviro-Septic<sup>®</sup> pipe required.**

Use the soil profile and the number of bedrooms or the commercial GPD in Table A below to determine the linear feet of Enviro-Septic<sup>®</sup> pipe required.

**Table A: Linear Footage**

Soil Profile	Number of Bedrooms						Commercial Per 100 GPD
	2	3	4	5	6	Add'l Room	
1	148	221	295	369	443	74	82
2	119	178	238	297	356	59	66
3	119	178	238	297	356	59	66
4	94	140	187	234	281	47	52
5	94	140	187	234	281	47	52
6	72	108	144	180	216	36	40
7	119	178	238	297	356	59	66
8	148	221	295	369	443	74	82
9	180	270	360	450	540	90	100

Example: A three-bedroom home with a soil profile of 5 requires 140 feet of pipe.

Note: Each bedroom has a design flow of 90 GPD.

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*Continued*

## Single Level Quick Reference Guide, Continued

### Task 2: Determine the percentage of slope on the proposed system.

Note: The maximum slope for a single level system is 25%. Maine requires a variance for system slopes over 20%. The site slope may be greater if fill is used to keep the system slope within the maximum.

Do you know the percentage of slope on the proposed system?

If yes, go to Task 3.

If no, follow this procedure to determine the percentage of system slope.

Step	Action
1	Identify the highest elevation of the proposed location.
2	Identify the lowest elevation of the proposed location.
3	Subtract the lowest elevation from the highest elevation = elevation change.
4	Measure the horizontal distance between the two elevations = horizontal length.
5	Divide the elevation change by the horizontal length = percentage of site slope.
6	Choose a percentage of slope to be used for the system. <u>Note:</u> The system slope does not need to be the same as the site slope.
7	Go to Task 3.

### Task 3: Determine the minimum center-to-center pipe spacing.

Use the soil profile and the percentage of system slope in Table B below to determine the required minimum center-to-center pipe spacing.

**Table B: Pipe Spacing**

Percentage of System Slope	Soil Profile					
	5&6	4	2	3&7	1&8	9
0-10%	1.5'	1.5'	1.75'	2.0'	2.5'	3.0'
11-15%	1.5'	1.75'	2.0'	2.25'	2.75'	3.25'
16-20%	1.75'	2.0'	2.25'	2.5'	3.0'	3.5'
21-25%	2.0'	2.25'	2.5'	2.75'	3.25'	3.75'

Example: A slope of ten percent or less with a soil profile of 5 requires pipe spacing of 1.5'.

*Continued*

# Single Level Quick Reference Guide, Continued

## Task 4: Determine system length and width.

IF...	THEN use Table C below to...
system length is most critical	<ul style="list-style-type: none"> <li>find the system length in the left column</li> <li>follow that row across to a number equal to or greater than the required linear feet of Enviro-Septic®</li> <li>follow that column down through the number of lines row and across left to the required center-to-center spacing.</li> </ul>
system width is most critical	<ul style="list-style-type: none"> <li>find the pipe spacing in the bottom left hand column and follow that row across to the desired width</li> <li>follow that column up through the number of lines and up to the required linear feet of Enviro-Septic®</li> <li>follow that row left to determine the system length.</li> </ul>

**Table C: Length and Width**

System Length/Ft	Linear Feet of Enviro-Septic®													
	20	40	60	80	100	120	140	160	180	200	220	240	260	280
25	50	75	100	125	150	175	200	225	250	275	300	325	350	375
30	60	90	120	150	180	210	240	270	300	330	360	390	420	450
35	70	105	140	175	210	245	280	315	350	385	420	455	490	525
40	80	120	160	200	240	280	320	360	400	440	480	520	560	600
45	90	135	180	225	270	315	360	405	450	495	540	585	630	675
50	100	150	200	250	300	350	400	450	500	550	600	650	700	750
55	110	165	220	275	330	385	440	495	550	605	660	715	770	825
60	120	180	240	300	360	420	480	540	600	660	720	780	840	900
65	130	190	260	325	390	455	520	585	650	715	780	845	910	975
70	140	210	280	350	420	490	560	630	700	770	840	910	980	1050
75	150	225	300	375	450	525	600	675	750	825	900	975	1050	1125
80	160	240	320	400	480	560	640	720	800	880	960	1040	1120	1200
85	170	255	340	425	510	595	680	765	850	935	1020	1105	1190	1275
90	180	270	360	450	540	630	720	810	900	990	1080	1170	1260	1350
95	190	285	380	475	570	665	760	855	950	1045	1140	1235	1330	1425
100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
# of Lines	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Spacing														
1.50	2.50	4.00	5.50	7.00	8.50	10.00	11.50	13.00	14.50	16.00	17.50	19.00	20.50	22.00
1.75	2.75	4.50	6.25	8.00	9.75	11.50	13.25	15.00	16.75	18.50	20.25	22.00	23.75	25.50
2.00	3.00	5.00	7.00	9.00	11.00	13.00	15.00	17.00	19.00	21.00	23.00	25.00	27.00	29.00
2.25	3.25	5.50	7.75	10.00	12.25	14.50	16.75	19.00	21.25	23.50	25.75	28.00	30.25	32.50
2.50	3.50	6.00	8.50	11.00	13.50	16.00	18.50	21.00	23.50	26.00	28.50	31.00	33.50	36.00
2.75	3.75	6.50	9.25	12.00	14.75	17.50	20.25	23.00	25.75	28.50	31.25	34.00	36.76	39.50
3.00	4.00	7.00	10.00	13.00	16.00	19.00	22.00	25.00	28.00	31.00	34.00	37.00	40.00	43.00
3.25	4.25	7.50	10.75	14.00	17.25	20.50	23.75	27.00	30.25	33.50	36.75	40.00	43.25	46.50
3.50	4.50	8.00	11.50	15.00	18.50	22.00	25.50	29.00	32.50	36.00	39.50	43.00	46.50	50.00
3.75	4.75	8.50	12.25	16.00	19.75	23.50	27.25	31.00	34.75	38.50	42.25	46.00	49.75	53.50
4.00	5.00	9.00	13.00	17.00	21.00	25.00	29.00	33.00	37.00	41.00	45.00	49.00	53.00	57.00
4.25	5.25	9.50	13.75	18.00	22.25	26.50	30.75	35.00	39.25	43.50	47.75	52.00	56.25	60.50
4.50	5.50	10.00	14.50	19.00	23.50	28.00	32.50	37.00	41.50	46.00	50.50	55.00	59.50	64.00
4.75	5.75	10.50	15.25	20.00	24.75	29.50	34.25	39.00	43.75	48.50	53.25	58.00	62.75	67.50
5.00	6.00	11.00	16.00	21.00	26.00	31.00	36.00	41.00	46.00	51.00	56.00	61.00	66.00	71.00
	System Width/Ft (Outermost surface of pipe)													

# Maine Multi-Level™ Quick Reference Guide

**Purpose** The purpose of this guide is to help designers determine system layouts for any site quickly and easily. We recommend designers become familiar with the “Enviro-Septic® Design & Installation Manual” before using this Quick Reference Guide.

**Restriction** Simple-Septic® pipe may **not** be used in Multi-Level™ systems.

**Distances adhere to State rules** The minimum separation distances and setbacks used in this guide (including the vertical separation distance to the seasonal ground water table or restrictive horizon) adhere to The Maine Subsurface Waste Water Disposal Rules and are measured from the nearest outer edge of Enviro-Septic® pipe.

Note: If Enviro-Septic® pipe is installed below original grade, (in-ground) the minimum separation distance to the seasonal ground water table or restrictive horizon shall be increased by 6”.

**Variances required** Multi-Level™ systems are currently approved for two levels. Systems over two levels require variances.

Exceptions to any Maine Subsurface Waste Water Disposal Rules used in this quick reference guide require variances.

**Procedure** Complete these tasks.

**Task 1: Determine the linear feet of Enviro-Septic® pipe required.**

Use the soil profile and the number of bedrooms or the commercial GPD in Table A below to determine the linear feet of Enviro-Septic® pipe required.

**Table A: Linear Footage**

Soil Profile	Non-Commercial and Residential Number of Bedrooms					Add'l Room	Commercial Per 100 GPD
	2	3	4	5	6		
2	131	196	262	327	392	65	73
4	103	154	206	257	309	52	57
5	103	154	206	257	309	52	57
6	79	119	158	198	<b>238</b>	40	44

Example: A six-bedroom home with a soil profile of 6 requires 238 feet of pipe.

Note: Each bedroom has a design flow of 90 GPD.

*Continued*

# Multi-Level™ Quick Reference Guide, Continued

**Procedure** Continue these tasks.  
(continued)

**Task 2: Determine the percentage of slope on the proposed system.**

Note: The maximum slope for a Multi Level™ system is 25%. Maine requires a variance for system slopes over 20%. The site slope may be greater if fill is used to keep the system slope within the maximum.

Do you know the percentage of slope on the proposed system?

If yes, go to Task 3.

If no, follow this procedure to determine the percentage of system slope.

Step	Action
1	Identify the highest elevation of the proposed location.
2	Identify the lowest elevation of the proposed location.
3	Subtract the lowest elevation from the highest elevation = elevation change.
4	Measure the horizontal distance between the two elevations = horizontal length.
5	Divide the elevation change by the horizontal length = percentage of site slope.
6	Choose a percentage of slope to be used for the system.  <u>Note:</u> The system slope does not need to be the same as the site slope.
7	Go to Task 3.

**Task 3: Determine the minimum center-to-center pipe spacing.**

Use the soil profile and the percentage of system slope in Table B below to determine the required minimum center-to-center pipe spacing.

**Table B: Pipe Spacing**

Percentage of System Slope	Soil Profile		
	6	4&5	2
0-10%	1.5'	1.75'	2.0'
11-15%	1.75'	2.0'	2.25'
16-20%	2.0'	2.25'	2.5'
21-25%	2.25'	2.5'	2.75'

Example: A slope of ten percent or less with a soil profile of 6 requires pipe spacing of 1.5'.

*Continued*

# Multi-Level™ Quick Reference Guide, Continued

## Task 4: Determine system length and width.

IF...	THEN use Table C below to...
system length is most critical	<ul style="list-style-type: none"> <li>find the system length in the left column</li> <li>follow that row across to a number equal to or greater than the required linear feet of Enviro-Septic®</li> <li>follow that column down through the number of lines row and across left to the required center-to-center spacing.</li> </ul>
system width is most critical	<ul style="list-style-type: none"> <li>find the pipe spacing in the bottom left hand column and follow that row across to the desired width</li> <li>follow that column up through the number of lines and up to the required linear feet of Enviro-Septic®</li> <li>follow that row left to determine the system length.</li> </ul>

**Table C: Multi-Level™ Length and Width**

	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300
	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375
	30	60	90	120	150	180	210	240	270	300	330	360	390	420	450
	35	70	105	140	175	210	245	280	315	350	385	420	455	490	525
	40	80	120	160	200	240	280	320	360	400	440	480	520	560	600
	45	90	135	180	225	270	315	360	405	450	495	540	585	630	675
	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750
	55	110	165	220	275	330	385	440	495	550	605	660	715	770	825
	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900
	65	130	195	260	325	390	455	520	585	650	715	780	845	910	975
	70	140	210	280	350	420	490	560	630	700	770	840	910	980	1050
	75	150	225	300	375	450	525	600	675	750	825	900	975	1050	1125
	80	160	240	320	400	480	560	640	720	800	880	960	1040	1120	1200
	85	170	255	340	425	510	595	680	765	850	935	1020	1105	1190	1275
	90	180	270	360	450	540	630	720	810	900	990	1080	1170	1260	1350
	95	190	285	380	475	570	665	760	855	950	1045	1140	1235	1330	1425
	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
	Lines	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Length of lines in feet	1.5	1.75	2.50	3.25	4.00	4.75	5.50	6.25	7.00	7.75	8.50	9.25	10.00	10.75	11.50
	1.75	1.88	2.75	3.63	4.50	5.38	6.25	7.13	8.00	8.88	9.75	10.63	11.50	12.38	13.25
	2	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00
	2.25	2.13	3.25	4.38	5.60	6.63	7.75	8.88	10.00	11.13	12.25	13.38	14.50	15.63	16.75
	2.5	2.25	3.50	4.75	6.00	7.25	8.50	9.75	11.00	12.25	13.50	14.75	16.00	17.25	18.50
	2.75	2.38	3.75	5.13	6.50	7.88	9.25	10.63	12.00	13.38	14.75	16.13	17.50	18.88	20.25
	3	2.50	4.00	5.50	7.00	8.50	10.00	11.50	13.00	14.50	16.00	17.50	19.00	20.50	22.00
	3.25	2.63	4.25	5.88	7.50	9.13	10.75	12.38	14.00	15.63	17.25	18.88	20.50	22.13	23.75
	3.5	2.75	4.50	6.25	8.00	9.75	11.50	13.25	15.00	16.75	18.50	20.25	22.00	23.75	25.50
	3.75	2.88	4.75	6.63	8.50	10.38	12.25	14.13	16.00	17.88	19.75	21.63	23.50	25.38	27.25
Center to-center pipe spacing in feet	4	3.00	5.00	7.00	9.00	11.00	13.00	15.00	17.00	19.00	21.00	23.00	25.00	27.00	29.00
	4.25	3.13	5.25	7.38	9.60	11.63	13.75	15.88	18.00	20.13	22.25	24.38	26.50	28.63	30.75
	4.5	3.25	5.50	7.75	10.00	12.25	14.50	16.75	19.00	21.25	23.50	25.75	28.00	30.25	32.50
	4.75	3.38	5.75	8.13	10.50	12.88	15.25	17.63	20.00	22.38	24.75	27.13	29.50	31.88	34.25
	5	3.50	6.00	8.50	11.00	13.50	16.00	18.50	21.00	23.50	26.00	28.50	31.00	33.50	36.00

System Width/Ft (Outermost surface of pipe)

Table continues on next page.

Table C: Multi-Level™ Length and Width

Length of lines in feet	320	340	360	380	400	420	440	460	480	500	520	260	12.25	13.00	600	620	640	660	680	700	720
20	320	340	360	380	400	420	440	460	480	500	520	260	12.25	13.00	600	620	640	660	680	700	720
25	400	425	450	475	500	525	550	575	600	625	650	325	14.13	15.00	750	775	800	825	850	875	900
30	480	510	540	570	600	630	660	690	720	750	780	390	16.00	17.00	900	930	960	990	1020	1050	1080
35	560	595	630	665	700	735	770	805	840	875	910	455	17.88	19.00	1050	1085	1120	1155	1190	1225	1260
40	640	680	720	760	800	840	880	920	960	1000	1040	520	19.75	21.00	1200	1240	1280	1320	1360	1400	1440
45	720	765	810	855	900	945	990	1035	1080	1125	1170	585	21.63	23.00	1350	1395	1440	1485	1530	1575	1620
50	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	650	23.50	25.00	1500	1550	1600	1650	1700	1750	1800
55	880	935	990	1045	1100	1155	1210	1265	1320	1375	1430	715	25.38	27.00	1650	1705	1760	1815	1870	1925	1980
60	960	1020	1080	1140	1200	1260	1320	1380	1440	1500	1560	780	27.25	29.00	1800	1860	1920	1980	2040	2100	2160
65	1040	1105	1170	1235	1300	1365	1430	1495	1560	1625	1690	845	29.13	31.00	1950	2015	2080	2145	2210	2275	2340
70	1120	1190	1260	1330	1400	1470	1540	1610	1680	1750	1820	910	31.00	33.00	2100	2170	2240	2310	2380	2450	2520
75	1200	1275	1350	1425	1500	1575	1650	1725	1800	1875	1950	975	32.88	35.00	2250	2325	2400	2475	2550	2625	2700
80	1280	1360	1440	1520	1600	1680	1760	1840	1920	2000	2080	1040	34.75	37.00	2400	2480	2560	2640	2720	2800	2880
85	1360	1445	1530	1615	1700	1785	1870	1955	2040	2125	2210	1105	36.63	39.00	2550	2635	2720	2805	2890	2975	3060
90	1440	1530	1620	1710	1800	1890	1980	2070	2160	2250	2340	1170	38.50	41.00	2700	2790	2880	2970	3060	3150	3240
95	1520	1615	1710	1805	1900	1995	2090	2185	2280	2375	2470	1235	40.38	43.00	2850	2945	3040	3135	3230	3325	3420
100	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	1300	42.25	45.00	3000	3100	3200	3300	3400	3500	3600
Lines	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
1.5	12.25	13.00	13.75	14.50	15.25	16.00	16.75	17.50	18.25	19.00	19.75	20.50	21.25	22.00	22.75	23.50	24.25	25.00	25.75	26.50	27.25
1.75	14.13	15.00	15.88	16.75	17.63	18.50	19.38	20.25	21.13	22.00	22.88	23.75	24.63	25.50	26.38	27.25	28.13	29.00	29.88	30.75	31.63
2	16.00	17.00	18.00	19.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00	27.00	28.00	29.00	30.00	31.00	32.00	33.00	34.00	35.00	36.00
2.25	17.88	19.00	20.13	21.25	22.38	23.50	24.63	25.75	26.88	28.00	29.13	30.25	31.38	32.50	33.63	34.75	35.88	37.00	38.13	39.25	40.38
2.5	19.75	21.00	22.25	23.50	24.75	26.00	27.25	28.50	29.75	31.00	32.25	33.50	34.75	36.00	37.25	38.50	39.75	41.00	42.25	43.50	44.75
2.75	21.63	23.00	24.38	25.75	27.13	28.50	29.88	31.25	32.63	34.00	35.38	36.75	38.13	39.50	40.88	42.25	43.63	45.00	46.38	47.75	49.13
3	23.50	25.00	26.50	28.00	29.50	31.00	32.50	34.00	35.50	37.00	38.50	40.00	41.50	43.00	44.50	46.00	47.50	49.00	50.50	52.00	53.50
3.25	25.38	27.00	28.63	30.25	31.88	33.50	35.13	36.75	38.38	40.00	41.63	43.25	44.88	46.50	48.13	49.75	51.38	53.00	54.63	56.25	57.88
3.5	27.25	29.00	30.75	32.50	34.25	36.00	37.75	39.50	41.25	43.00	44.75	46.50	48.25	50.00	51.75	53.50	55.25	57.00	58.75	60.50	62.25
3.75	29.13	31.00	32.88	34.75	36.63	38.50	40.38	42.25	44.13	46.00	47.88	49.75	51.63	53.50	55.38	57.25	59.13	61.00	62.88	64.75	66.63
4	31.00	33.00	35.00	37.00	39.00	41.00	43.00	45.00	47.00	49.00	51.00	53.00	55.00	57.00	59.00	61.00	63.00	65.00	67.00	69.00	71.00
4.25	32.88	35.00	37.13	39.25	41.38	43.50	45.63	47.75	49.88	52.00	54.13	56.25	58.38	60.50	62.63	64.75	66.88	69.00	71.13	73.25	75.38
4.5	34.75	37.00	39.25	41.50	43.75	46.00	48.25	50.50	52.75	55.00	57.25	59.50	61.75	64.00	66.25	68.50	70.75	73.00	75.25	77.50	79.75
4.75	36.63	39.00	41.38	43.75	46.13	48.50	50.88	53.25	55.63	58.00	60.38	62.75	65.13	67.50	69.88	72.25	74.63	77.00	79.38	81.75	84.13
5	38.50	41.00	43.50	46.00	48.50	51.00	53.50	56.00	58.50	61.00	63.50	66.00	68.50	71.00	73.50	76.00	78.50	81.00	83.50	86.00	88.50

System Width/Ft (Outermost surface of pipe)

Table continues on next page.



**Table C: Multi-Level™ Length and Width**

	740	760	780	800	820	840	860	880	900	920	940	960	980	1000
20	925	950	975	1000	1025	1050	1075	1100	1125	1150	1175	1200	1225	1250
25	1110	1140	1170	1200	1230	1260	1290	1320	1350	1380	1410	1440	1470	1500
30	1295	1330	1365	1400	1435	1470	1505	1540	1575	1610	1645	1680	1715	1750
35	1480	1520	1560	1600	1640	1680	1720	1760	1800	1840	1880	1920	1960	2000
40	1665	1710	1755	1800	1845	1890	1935	1980	2025	2070	2115	2160	2205	2250
45	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500
50	2035	2090	2145	2200	2255	2310	2365	2420	2475	2530	2585	2640	2695	2750
55	2220	2280	2340	2400	2460	2520	2580	2640	2700	2760	2820	2880	2940	3000
60	2405	2470	2535	2600	2665	2730	2795	2860	2925	2990	3055	3120	3185	3250
65	2590	2660	2730	2800	2870	2940	3010	3080	3150	3220	3290	3360	3430	3500
70	2775	2850	2925	3000	3075	3150	3225	3300	3375	3450	3525	3600	3675	3750
75	2960	3040	3120	3200	3280	3360	3440	3520	3600	3680	3760	3840	3920	4000
80	3145	3230	3315	3400	3485	3570	3655	3740	3825	3910	3995	4080	4165	4250
85	3330	3420	3510	3600	3690	3780	3870	3960	4050	4140	4230	4320	4410	4500
90	3515	3610	3705	3800	3895	3990	4085	4180	4275	4370	4465	4560	4655	4750
95	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
100	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Lines	28.00	28.75	29.50	30.25	31.00	31.75	32.50	33.25	34.00	34.75	35.50	36.25	37.00	37.75
1.5	32.50	33.38	34.25	35.13	36.00	36.88	37.75	38.63	39.50	40.38	41.25	42.13	43.00	43.88
1.75	37.00	38.00	39.00	40.00	41.00	42.00	43.00	44.00	45.00	46.00	47.00	48.00	49.00	50.00
2	41.50	42.63	43.75	44.88	46.00	47.13	48.25	49.38	50.50	51.63	52.75	53.88	55.00	56.13
2.25	46.00	47.25	48.50	49.75	51.00	52.25	53.50	54.75	56.00	57.25	58.50	59.75	61.00	62.25
2.5	50.50	51.88	53.25	54.63	56.00	57.38	58.75	60.13	61.50	62.88	64.25	65.63	67.00	68.38
2.75	55.00	56.50	58.00	59.50	61.00	62.50	64.00	65.50	67.00	68.50	70.00	71.50	73.00	74.50
3	59.50	61.13	62.75	64.38	66.00	67.63	69.25	70.88	72.50	74.13	75.75	77.38	79.00	80.63
3.25	64.00	65.75	67.50	69.25	71.00	72.75	74.50	76.25	78.00	79.75	81.50	83.25	85.00	86.75
3.5	68.50	70.38	72.25	74.13	76.00	77.88	79.75	81.63	83.50	85.38	87.25	89.13	91.00	92.88
3.75	73.00	75.00	77.00	79.00	81.00	83.00	85.00	87.00	89.00	91.00	93.00	95.00	97.00	99.00
4	77.50	79.63	81.75	83.88	86.00	88.13	90.25	92.38	94.50	96.63	98.75	100.88	103.00	105.13
4.25	82.00	84.25	86.50	88.75	91.00	93.25	95.50	97.75	100.00	102.25	104.50	106.75	109.00	111.25
4.5	86.50	88.88	91.25	93.63	96.00	98.38	100.75	103.13	105.50	107.88	110.25	112.63	115.00	117.38
4.75	91.00	93.50	96.00	98.50	101.00	103.50	106.00	108.50	111.00	113.50	116.00	118.50	121.00	123.50
5														

Length of lines in feet

Center to center-pipe-spacing in feet

System Width/Ft (Outermost surface of pipe)

# SLOPE DESIGN CHART

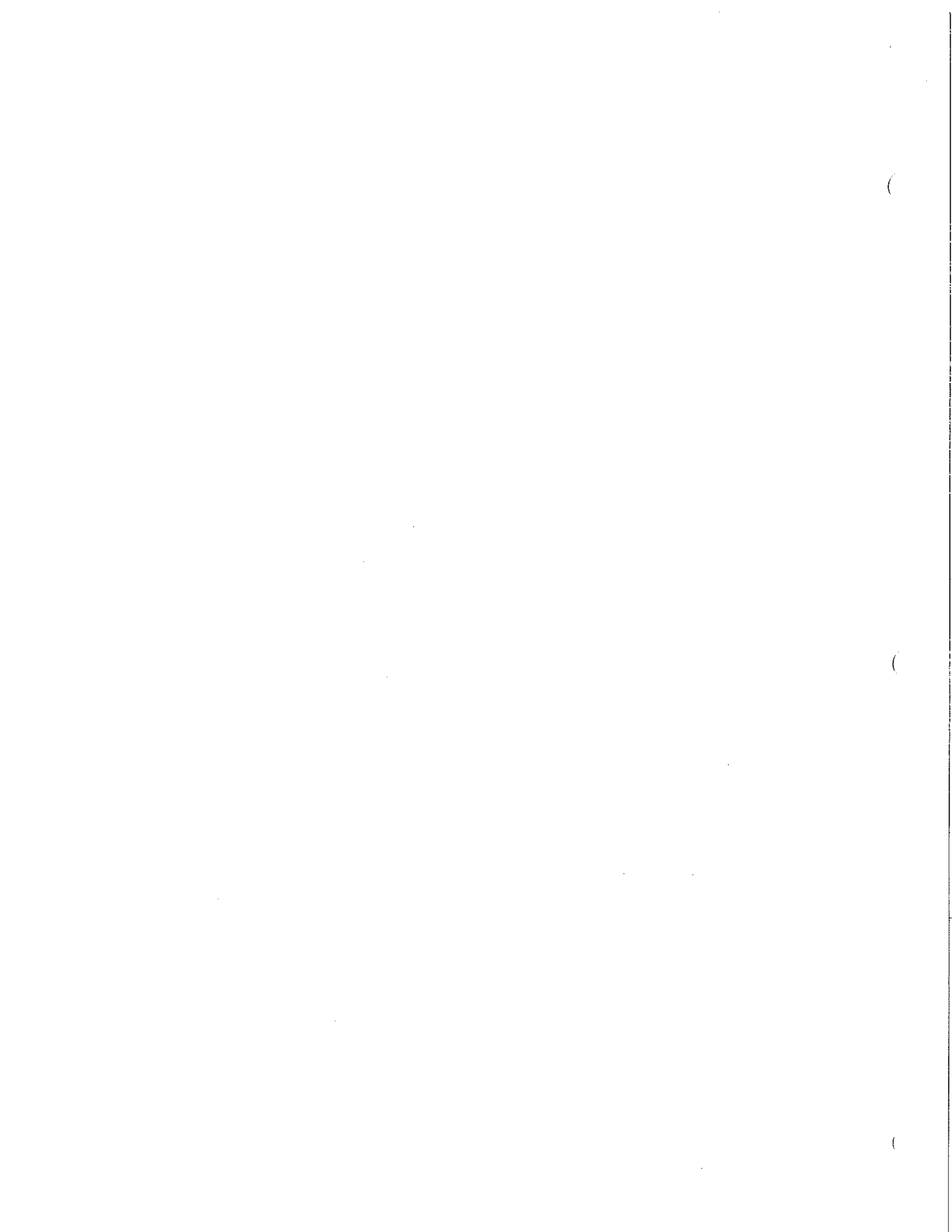
## SYSTEM SLOPE

PIPE SPACING CENTER-TO-CENTER	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%
5.00'	5/8	1 3/16	1 13/16	2 3/8	3	3 5/8	4 3/16	4 13/16	5 3/8	6	6 5/8	7 3/16	7 13/16
4.75'	9/16	1 1/8	1 1/2	2 1/4	2 7/8	3 1/16	3 5/8	4 1/8	4 7/8	5 1/16	5 1/2	6 1/4	6 3/4
4.50'	1 1/16	1 1/4	1 5/8	2 3/16	2 11/16	3 1/4	3 3/4	4 5/16	4 7/8	5 3/8	5 15/16	6 1/2	7
4.25'	1 1/8	1 3/8	1 7/8	2 1/8	2 9/16	3 1/16	3 3/8	4 1/8	4 3/4	5 1/8	5 5/8	6 1/8	6 5/8
4.00'	1 1/4	1 1/2	1 7/16	2 1/16	2 3/8	3 1/8	3 3/8	4 1/16	4 5/16	5 1/8	5 1/4	6 1/4	6 1/4
3.75'	1 1/2	1 3/4	1 7/8	2 1/8	2 1/2	3 1/8	3 3/8	4 1/8	4 3/4	5 1/8	5 1/2	6 1/4	6 1/4
3.50'	1 3/4	1 7/8	1 11/16	2 1/4	2 5/8	3 1/4	3 3/4	4 1/4	4 3/4	5 1/4	5 3/4	6 1/2	6 1/2
3.25'	1 7/8	1 11/16	1 11/16	2 1/4	2 5/8	3 1/4	3 3/4	4 1/4	4 3/4	5 1/4	5 3/4	6 1/2	6 1/2
3.00'	1 1/2	1 3/4	1 7/8	2 1/4	2 5/8	3 1/4	3 3/4	4 1/4	4 3/4	5 1/4	5 3/4	6 1/2	6 1/2
2.75'	1 1/4	1 3/4	1 7/8	2 1/4	2 5/8	3 1/4	3 3/4	4 1/4	4 3/4	5 1/4	5 3/4	6 1/2	6 1/2
2.50'	1 1/4	1 3/4	1 7/8	2 1/4	2 5/8	3 1/4	3 3/4	4 1/4	4 3/4	5 1/4	5 3/4	6 1/2	6 1/2
2.25'	1 1/4	1 3/4	1 7/8	2 1/4	2 5/8	3 1/4	3 3/4	4 1/4	4 3/4	5 1/4	5 3/4	6 1/2	6 1/2
2.00'	1 1/4	1 3/4	1 7/8	2 1/4	2 5/8	3 1/4	3 3/4	4 1/4	4 3/4	5 1/4	5 3/4	6 1/2	6 1/2
1.75'	1 1/4	1 3/4	1 7/8	2 1/4	2 5/8	3 1/4	3 3/4	4 1/4	4 3/4	5 1/4	5 3/4	6 1/2	6 1/2
1.50'	1 1/4	1 3/4	1 7/8	2 1/4	2 5/8	3 1/4	3 3/4	4 1/4	4 3/4	5 1/4	5 3/4	6 1/2	6 1/2

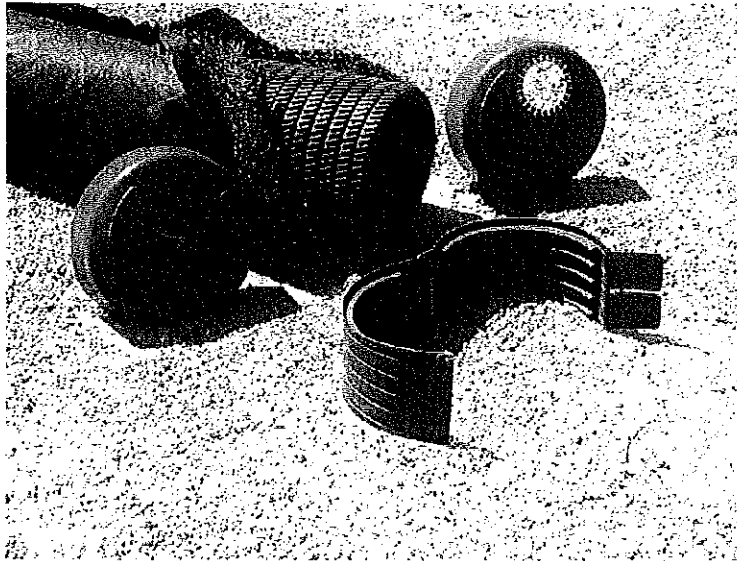
DIFFERENCE IN ELEVATION BETWEEN LINES OF ENVIRO-SEPTIC® PIPE IN FEET (Fractions and Decimals)

PIPE SPACING CENTER-TO-CENTER	14%	15%	16%	17%	18%	19%	20%	21%	22%	23%	24%	25%	26%
5.00'	8 3/8	9	9 5/8	10 3/16	10 13/16	11 3/8	12	12 5/8	13 3/16	14 1/8	14 3/8	15	15 1/4
4.75'	8 1/2	9 1/8	9 5/8	10 3/16	10 13/16	11 3/8	12	12 5/8	13 3/16	14 1/8	14 3/8	15	15 1/4
4.50'	8 1/4	9 1/4	9 5/8	10 3/16	10 13/16	11 3/8	12	12 5/8	13 3/16	14 1/8	14 3/8	15	15 1/4
4.25'	8 1/8	9 1/8	9 5/8	10 3/16	10 13/16	11 3/8	12	12 5/8	13 3/16	14 1/8	14 3/8	15	15 1/4
4.00'	8 1/4	9 1/4	9 5/8	10 3/16	10 13/16	11 3/8	12	12 5/8	13 3/16	14 1/8	14 3/8	15	15 1/4
3.75'	8 1/8	9 1/8	9 5/8	10 3/16	10 13/16	11 3/8	12	12 5/8	13 3/16	14 1/8	14 3/8	15	15 1/4
3.50'	8 1/4	9 1/4	9 5/8	10 3/16	10 13/16	11 3/8	12	12 5/8	13 3/16	14 1/8	14 3/8	15	15 1/4
3.25'	8 1/8	9 1/8	9 5/8	10 3/16	10 13/16	11 3/8	12	12 5/8	13 3/16	14 1/8	14 3/8	15	15 1/4
3.00'	8 1/4	9 1/4	9 5/8	10 3/16	10 13/16	11 3/8	12	12 5/8	13 3/16	14 1/8	14 3/8	15	15 1/4
2.75'	8 1/8	9 1/8	9 5/8	10 3/16	10 13/16	11 3/8	12	12 5/8	13 3/16	14 1/8	14 3/8	15	15 1/4
2.50'	8 1/4	9 1/4	9 5/8	10 3/16	10 13/16	11 3/8	12	12 5/8	13 3/16	14 1/8	14 3/8	15	15 1/4
2.25'	8 1/8	9 1/8	9 5/8	10 3/16	10 13/16	11 3/8	12	12 5/8	13 3/16	14 1/8	14 3/8	15	15 1/4
2.00'	8 1/4	9 1/4	9 5/8	10 3/16	10 13/16	11 3/8	12	12 5/8	13 3/16	14 1/8	14 3/8	15	15 1/4
1.75'	8 1/8	9 1/8	9 5/8	10 3/16	10 13/16	11 3/8	12	12 5/8	13 3/16	14 1/8	14 3/8	15	15 1/4
1.50'	8 1/4	9 1/4	9 5/8	10 3/16	10 13/16	11 3/8	12	12 5/8	13 3/16	14 1/8	14 3/8	15	15 1/4

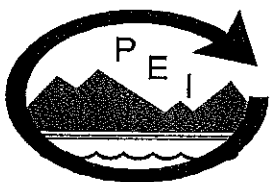
DIFFERENCE IN ELEVATION BETWEEN LINES OF ENVIRO-SEPTIC® PIPE IN FEET (Fractions and Decimals)



# Enviro-Septic<sup>®</sup> & Simple-Septic<sup>®</sup> Leaching Systems



## Sloping, Level & Multi-Level<sup>™</sup> Leaching Systems for Residential and Commercial Applications



### **PRESBY ENVIRONMENTAL, INC.** *INNOVATIVE SEPTIC TECHNOLOGIES*

Route 117 • PO Box 617 • Sugar Hill, NH 03585  
Tel: 1-800-473-5298 • Fax: (603) 823-8114  
[www.PresbyEnvironmental.com](http://www.PresbyEnvironmental.com)

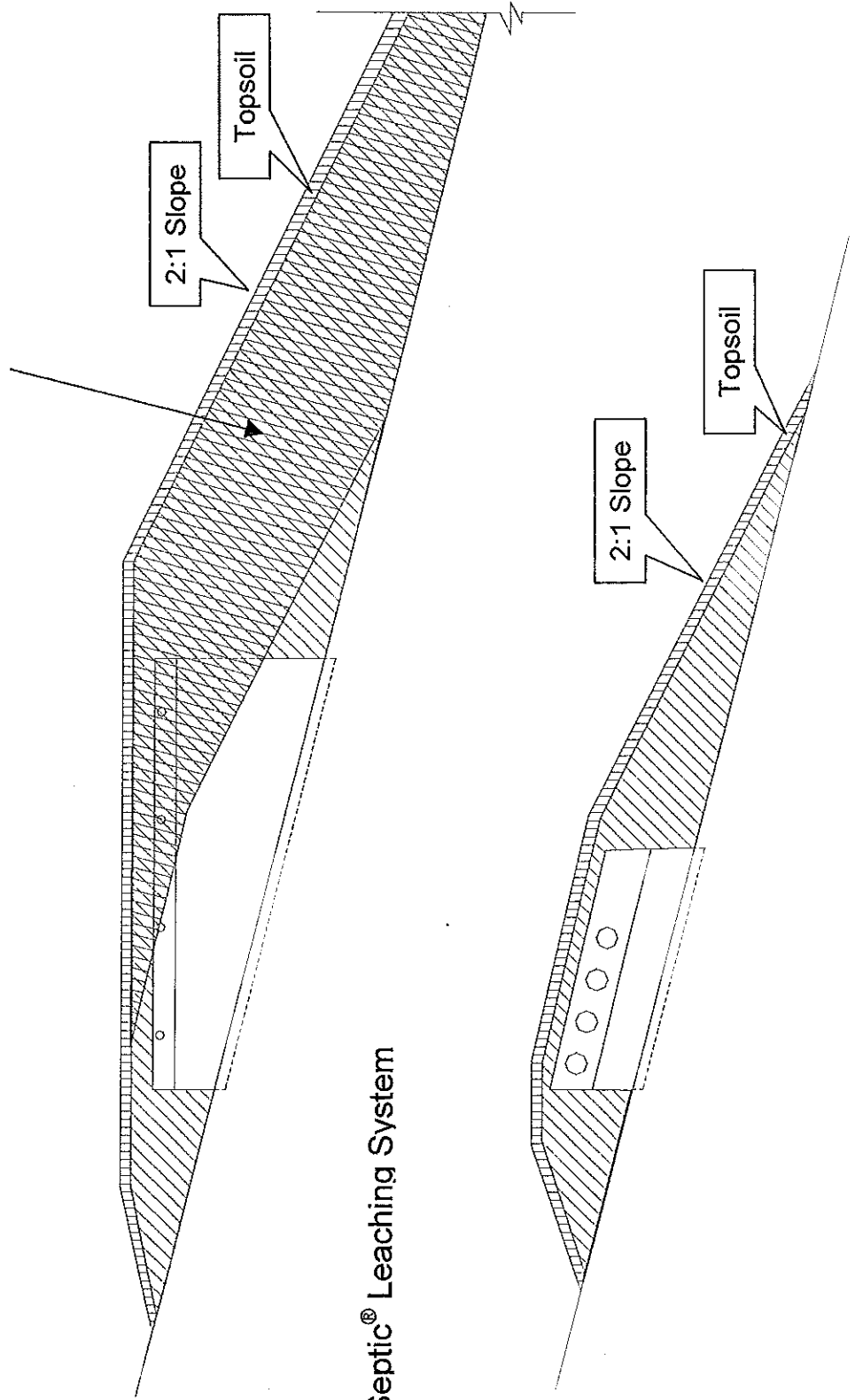
2003 Edition

# Enviro-Septic® Fill Extension Comparison

Cross Section – Not to scale

Typical Stone Leaching System

Enviro-Septic® Leaching System



# Enviro-Septic® & Simple-Septic® Leaching Systems Design and Installation Manual

## Preview

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**Purpose** The purpose of this manual is to provide guidance in the design and installation of septic leaching systems using the Presby Environmental, Inc., group of products.

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**Presby Environmental, Inc., standards** All systems using Presby Environmental, Inc., products must be designed and installed in compliance with the procedures and specifications described in this manual.

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**State and Provincial standards** Enviro-Septic® when used as directed meets all the standards for public use in the subsurface disposal of wastewater in many States and some Canadian Provinces. Attachments to this manual include information specific to different States and Provinces and should be used in conjunction with the information in this manual.

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**In this manual** This manual contains the following subjects.

Section	Page
A – Introduction	2
B – Definitions of Terms	4
C – Design Criteria	7
D – Installation, Handling, and Storage Guidelines	8
E – Sand and Fill Requirements	11
F – Single Level System Configurations	12
G – Multi-Level™ System Configurations	25
H – Non-Conventional System Configurations	30
I – Pump System Requirements	32
J – Venting Requirements	33
K – Bottom Drain Requirements	35
L – Simple-Septic® Leaching Systems	36
M – System Rejuvenation and Expansion	37

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**Use of attachment required** This manual requires the use of an attachment specific to your State or Province in order to properly design and install Enviro-Septic® systems. Should conflicts occur, the information in State and Provincial attachments takes precedence over that found in this manual.

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**Technical support** Presby Environmental, Inc., provides technical support to all individuals using our products. For questions about our products or the information contained in this manual, please contact us at 1-800-473-5298.

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## Section A Introduction

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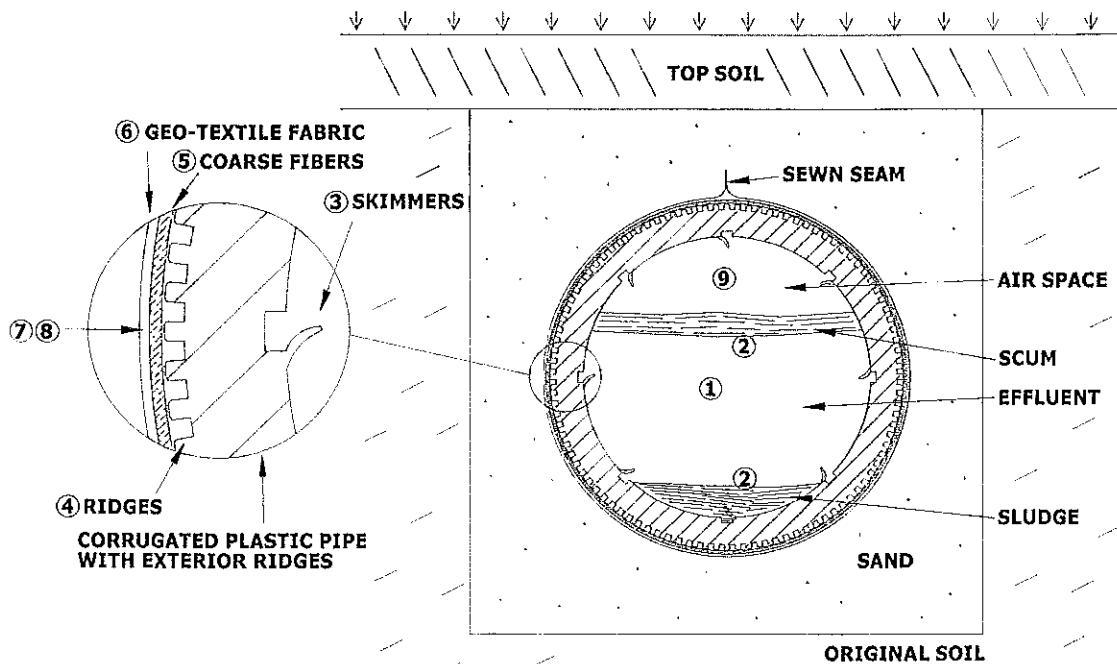
<b>Background</b>	Liquid that exits from a septic tank (effluent) contains suspended solids that can cause other types of leaching systems to fail prematurely. Solids can overload bacteria, cut off aeration required for bacterial activity, and/or seal the underlying soil.
<b>Our unique system components</b>	<p>The Enviro-Septic® Leaching System is a product consisting of three components.</p> <ol style="list-style-type: none"><li>1. A corrugated, perforated, high-density plastic pipe with a unique series of ridges on the peak of each corrugation and plastic “skimmers” extending into the pipe’s interior.</li><li>2. A thick mat of randomly oriented plastic fibers surrounding the pipe.</li><li>3. A special non-woven geo-textile plastic fabric around the mat of fibers.</li></ol>
<b>What our system does</b>	By utilizing simple, yet effective, natural processes the Enviro-Septic® Leaching System treats septic tank effluent in a manner that prevents solids from entering surrounding soils, increases system aeration, and provides a greater bacterial area (mat) than traditional systems.
<b>Why our system excels</b>	The Enviro-Septic® Leaching System retains solids in its pipe and provides multiple bacterial surfaces to treat effluent prior to its contact with the soil. The continual cycling of effluent (the rising and falling of liquid inside the pipe) enhances bacterial growth. No other leaching system design offers this functionality. Our systems excel because they are more efficient, last longer, and have a minimal environmental impact.
<b>System advantages</b>	<p>Here’s a brief list of the advantages of The Enviro-Septic® Leaching System.</p> <ul style="list-style-type: none"><li>• Costs less than traditional installation products and materials</li><li>• Requires a smaller area</li><li>• Eliminates “septic mounds” through sloping system installations</li><li>• Adapts to difficult sites</li><li>• Requires less fill</li><li>• Installs more easily and quickly than traditional systems</li><li>• Eliminates the need for expensive washed stone</li><li>• Adapts easily to both commercial and residential sites</li><li>• Uses a protected receiving surface</li><li>• Increases system performance and longevity</li><li>• Tests environmentally safer than conventional systems</li><li>• Recharges groundwater more safely than conventional systems</li></ul>

*Continued*

## Introduction, Continued

What it looks like

Here's a cross sectional diagram of Enviro-Septic® pipe.



How it works

These are the basic stages that take effect in the Enviro-Septic® Leaching System.

Stage	What Happens
1	Warm effluent enters the pipe and is cooled to ground temperature.
2	Suspended solids separate from the cooled liquid effluent.
3	Skimmers further capture grease and suspended solids from the effluent as it exits through perforations in the pipe.
4	Pipe ridges allow the effluent to flow uninterrupted around the circumference of the pipe and aid in cooling.
5	A mat of random, coarse fibers separates more suspended solids from the effluent.
6	Effluent passes into the geo-textile fabric and grows a protected bacterial surface.
7	Sand wicks the liquid from the geo-textile fabric and enables air to transfer to the bacterial surface.
8	Fabric and fibers provide a large bacterial surface to break down solids.
9	An ample air supply and fluctuating liquid levels increase bacterial efficiency.



## Section B Definitions of Terms

---

**Introduction** As you read through the information in this manual, you will encounter common terms, terms that are common to our industry, and terms that are unique to Enviro-Septic® systems. While alternative definitions may exist, this section defines these terms as they are used in this manual.

---

**List of terms** Here's a list of the terms defined in this section.

- Basic system
- Bottom drain
- Center to center spacing
- Combination system
- Coupling
- Design flow
- D-box
- Differential venting
- Distribution box
- Distribution box manifold
- Double offset adapter
- Drain sump
- Drop connection
- End cap
- Enviro-Septic® pipe
- Equalizer™
- GPD
- High and low vents
- High flow
- Level system
- Line
- Low flow
- Multi-Level™ system
- Offset adapter
- Presby Maze®
- Raised connection
- Section
- Serial distribution
- Simple-Septic® pipe
- Sloping system

---

**Basic system** A basic system is a system consisting of one section of Enviro-Septic® pipe.

---

**Bottom drain** A bottom drain is a pipe connecting the end of a line to a drain sump.

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*Continued*

## Definitions of Terms, Continued

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<b>Center to center spacing</b>	<u>Center to center spacing</u> is the horizontal distance from the center of one line to the center of the adjacent line.
<b>Combination system</b>	A <u>combination system</u> is a system incorporating two or more sections of Enviro-Septic <sup>®</sup> pipe, each section receiving effluent from a distribution box.
<b>Coupling</b>	A <u>coupling</u> is a fitting that joins two pieces of Enviro-Septic <sup>®</sup> pipe.
<b>D-Box</b>	<u>D-Box</u> is an abbreviation for distribution box.
<b>Design flow</b>	Design flow is the determined GPD flow as dictated by State and/or local code or rule.
<b>Differential venting</b>	<u>Differential venting</u> is a method of venting an Enviro-Septic <sup>®</sup> system utilizing high and low vents.
<b>Distribution box</b>	A <u>distribution box</u> is a device used to divide and/or control effluent flow.
<b>Distribution box manifold</b>	A <u>distribution box manifold</u> is a method of joining any number of distribution box outlets to a single pipe.
<b>Double offset adapter</b>	A <u>double offset adapter</u> is an end cap with two offset holes.
<b>Drain sump</b>	A <u>drain sump</u> is a watertight chamber connected to the end of a bottom drain line.
<b>Drop connection</b>	A <u>drop connection</u> is a PVC pipe arrangement used to connect different levels of Enviro-Septic <sup>®</sup> pipe used in Multi-Level <sup>™</sup> systems.
<b>End cap</b>	An <u>end cap</u> is a solid cap used to seal the end of an Enviro-Septic <sup>®</sup> pipe.
<b>Enviro-Septic<sup>®</sup> pipe</b>	An <u>Enviro-Septic<sup>®</sup> pipe</u> is a single unit of pipe, 10' in length with an outside diameter of 12" and a storage capacity of approximately 58 gallons.
<b>Equalizer<sup>™</sup></b>	An <u>Equalizer<sup>™</sup></u> is a plastic insert installed in the outlet lines of a distribution box to provide more equal effluent distribution to each outlet.
<b>GPD</b>	<u>GPD</u> is an abbreviation for gallons per day.

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*Continued*

## Definitions of Terms, Continued

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<b>High and low vents</b>	<u>High and low vents</u> are pipes used in differential venting.
<b>High flow</b>	<u>High flow</u> is the minimum “design flow” requiring combination or distribution box system designs.
<b>Level system</b>	A <u>level system</u> is a system in which lines of Enviro-Septic® are installed at the same elevation.
<b>Line</b>	A <u>line</u> is a number of Enviro-Septic® pipes connected by couplings with an offset adapter on the inlet end and an offset adapter or end cap on the opposite end.
<b>Low flow</b>	<u>Low flow</u> is any “design flow” lower than “high flow.”
<b>Multi-Level™ system</b>	A <u>Multi-Level™ system</u> is a patented system consisting of at least two levels of Enviro-Septic® pipe separated by sand.
<b>Offset adapter</b>	An <u>offset adapter</u> is an end cap fitted with a 4” offset hole at the 12 o’clock position.
<b>Presby Maze®</b>	A <u>Presby Maze®</u> is a plastic unit that traps suspended solids and pre-treats septic tank effluent inside a septic tank.
<b>Raised connection</b>	A <u>raised connection</u> is a PVC pipe arrangement used to connect lines of Enviro-Septic® pipe to maintain the correct liquid level inside each line.
<b>Section</b>	A <u>section</u> is a group of Enviro-Septic® lines in serial distribution receiving effluent from a distribution box in a combination system.
<b>Serial distribution</b>	A <u>serial distribution</u> is a group of Enviro-Septic® lines* connected with a raised and/or drop connection.  *See “line” in this section.
<b>Simple-Septic® pipe</b>	A <u>Simple-Septic® pipe</u> is a product identical to Enviro-Septic® with the exception of the thick mat of randomly orientated plastic fibers between the corrugated plastic pipe and the geo-textile fabric.
<b>Sloping system</b>	A <u>sloping system</u> is a system in which lines of Enviro-Septic® are installed at different elevations.

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## Section C Design Criteria

---

<b>Introduction</b>	This page discusses general design criteria.
<b>Line orientation</b>	Enviro-Septic <sup>®</sup> lines must be laid level and should run parallel to contours (perpendicular to sloping terrain) if possible.
<b>Longer lines preferable</b>	In general, fewer long lines are preferable to a greater number of short lines. Longer lines provide more efficient settling of solids. In addition, longer more narrow systems reduce the potential for ground water mounding.
<b>Minimum/maximum line lengths</b>	To maintain efficient effluent cycling, the minimum length of an Enviro-Septic <sup>®</sup> line should be 30' and the maximum length 100'. In some instances site conditions may require shorter or longer lengths. <u>Reference:</u> See Section H, "Non-Conventional System Configurations"
<b>Ten foot increments work best</b>	It is easier for the installer if systems are designed in 10' increments since Enviro-Septic <sup>®</sup> pipe is 10' in length. However, the pipe is easily cut to any length necessary with a sharp knife.
<b>Line elevations</b>	For sloping systems it is helpful to provide elevations on the design for each line of the system.
<b>Septic tank and D-Box elevations</b>	The outlet of a septic tank or D-Box must be set at least 2" above the highest inlet of the Enviro-Septic <sup>®</sup> line.
<b>Depth and types of cover</b>	While most installations should avoid a cover depth of more than 18", some conditions will require exceeding this limit. In particular, Enviro-Septic <sup>®</sup> systems with paved cover and/or vehicular traffic require a <u>minimum</u> of 18" of cover along with appropriate venting. <u>Reference:</u> See Section J, "Venting Requirements."
<b>Provide notes for homeowners</b>	Designers should add homeowner notes to their designs regarding system use and maintenance. Notes should include topics such as abusive substances, additives, constant discharge, etc. Suggested tank pumping and inspection schedules would also be beneficial.
<b>See State requirements</b>	Local and State jurisdictions may require additional design specifications. <u>Reference:</u> See the Quick Reference Guides in your State attachment.

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## Section D

# Installation, Handling, and Storage Guidelines

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**Introduction** This page contains guidelines that must be observed while installing, handling, and storing Enviro-Septic® products.

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**Site preparation** Here are some site preparation guidelines.

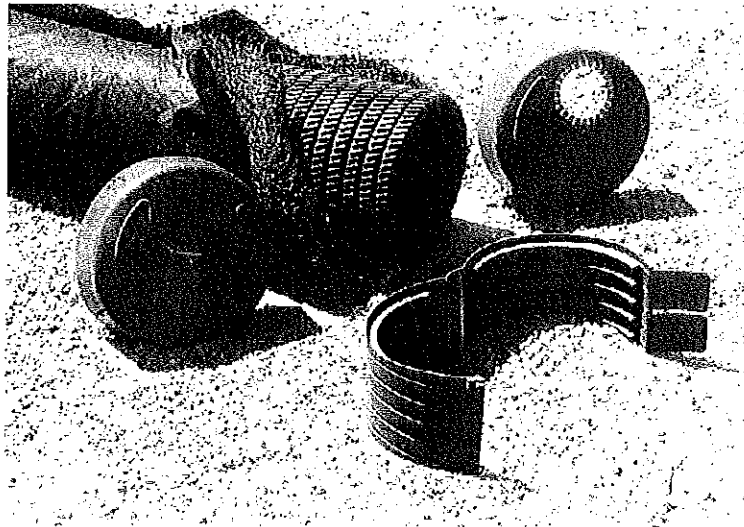
- Remove topsoil, roots, and organic matter under the required sand area of a proposed system, including the slope extensions of raised systems.
- Maintain the existing characteristics of the underlying soil as much as possible.
- Add the sand fill on the same day that the leach area is excavated.
- Do not allow water to run into or over the system during construction.
- Do not work wet or frozen soils.
- Do not smear or compact soils while preparing site.

Note: It is not necessary for the leach area to be smooth when the site is prepared.

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**System components**

Here's a picture of the Enviro-Septic® components.



Contamination Note: Keep mud, grease, oil, etc., from all system components. Avoid dragging pipe through wet or muddy areas.

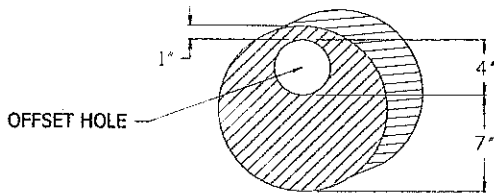
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## Installation, Handling, and Storage Guidelines, Continued

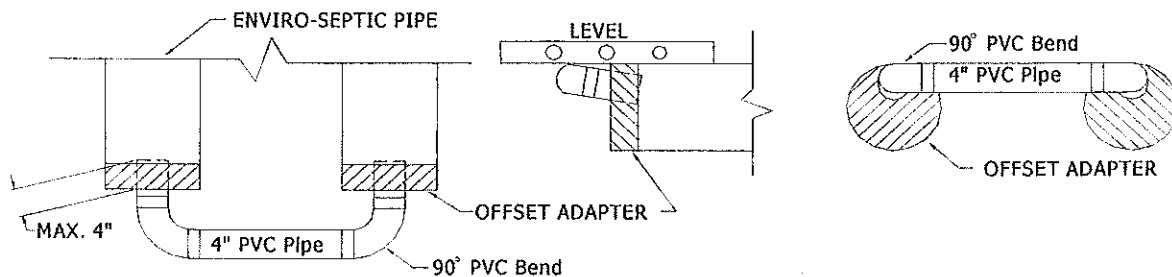
### Use raised connections

Raise connections consist of offset adapters, 4" PVC pipe and pipe elbows. They enable greater liquid storage capacity and increase the bacterial surfaces being developed. Use raised connections to connect lines of Enviro-Septic® pipe. Here is a diagram along with some installation notes.



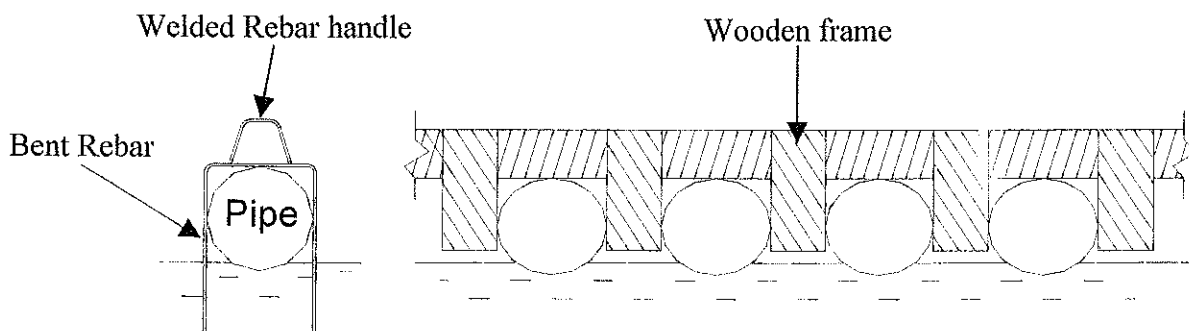
### Installation Notes:

1. Insert PVC pipe no more than 4" into the offset adapter to prevent air locking.
2. Install the raised connection so that the top of the 90° bend is level with the top of the offset adapter.
3. Pack sand under and around the raised connection to prevent movement.



### Line spacers

While sand may be used to keep pipe in place while covering, simple tools may also be constructed for this purpose. Here are two examples. One is made from rebar, the other from wood.



**Caution:** Remove all tools used as line spacers before final covering.

*Continued*

## Installation, Handling, and Storage Guidelines, Continued

---

**Soil compaction** Minimize machine movement to avoid soil compaction and destruction of the soil structure under and around the system. Be especially careful not to compact soil on the down slope side of the system.

---

**Backfilling and final grading** Spread a minimum of 6" of system sand over the pipe. Spread the remaining fill. Final grading should shed water away from the system.

Note: A tracked vehicle may be used to spread the system sand and topsoil as long as it maintains at least 12" of cover over the pipe.

---

**Erosion control** Protect the site from erosion by proper grading, mulching, seeding, and control of runoff.

---

**Storage** The outer fabric of the Enviro-Septic<sup>®</sup> pipe is ultra-violet stabilized. However, the protection breaks down after a period of time in direct sunlight. To prevent damage to the fabric, cover the pipe with an opaque tarp.

Store pipe on high and dry areas to prevent surface water and soil from entering the pipes or contaminating the fabric prior to installation.

---

## Section E

### Sand and Fill Requirements

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**Introduction** This page describes the sand and fill requirements for the Enviro-Septic<sup>®</sup> Leaching System.

---

**System sand** All configurations of Enviro-Septic<sup>®</sup> require a minimum of 6" of system sand surrounding the circumference of the pipe. This sand, typically gravelly coarse sand, must adhere to the following percentage and quality restrictions.

Percentage Restrictions

35% or less of the total sand may be gravel.

40%-90% of the total sand is to be coarse and very coarse sand.

Gravel Quality Restrictions

No gravel is to exceed ¾" in diameter.

No gravel is smaller than 2mm/.0787" in diameter. (It must **not** pass through a #10 sieve.)

Coarse Sand Quality Restrictions

No coarse sand is smaller than 0.5mm/.0196" in diameter. (It must **not** pass through a #35 sieve.)

Fines Quality Restrictions

No more than 2% of the total sand may pass through a #200 sieve.

ASTM Standard: C-33 (concrete sand) meets the above requirements.

---

**Sand fill and clean fill** Sand fill is the material used to surround the system sand.

Note: System sand may also be used as sand fill.

Clean fill is the material used to complete the system.

Reference: See "Sand Fill and Clean Fill Requirements" in your State attachment.

---

**Raised system fill extensions** Raised systems require fill extensions.

Reference: See "Raised systems fill extensions" in your State attachment.

---

**Perimeter sand requirements** Systems sloping 10% or less require the system sand and sand fill area to extend a minimum of 1.0' around the perimeter of the Enviro-Septic<sup>®</sup> pipe.

Systems sloping greater than 10% require the system sand and sand fill area to extend a minimum of 1.0' on three sides and 4.0' beyond the Enviro-Septic<sup>®</sup> pipe on the down-slope side.

---



## Section F

### Single Level System Configurations

#### Preview

**Introduction** Enviro-Septic<sup>®</sup> systems may be designed in a variety of unusual shapes such as curved, trapezoidal, or L-shaped to provide optimum design flexibility to address the challenges of each site.

Reference: See Section H, “Non-Conventional System Configurations.”

**Low flow systems** Low flow systems may use any of the configurations described in this section.

Reference: See “Low Flow” In your State attachment.

**High flow systems** High flow systems must be designed as combination systems or distribution box systems.

Reference: See “High Flow” In your State attachment.

**Sloping systems** The percentage of slope refers to the slope of the Enviro-Septic<sup>®</sup> system, not the existing terrain. The slope of the system and the existing terrain are not required to be equal. A sloping system can be designed with more than one distinct slope and/or center-to-center pipe spacing in the same system. Maximum slope percentages are governed by jurisdiction specifications.

Reference: See the “Single Level Quick Reference Guide” in your State attachment.

**Line Orientation** Enviro-Septic<sup>®</sup> lines must be laid level and should run parallel to contours (perpendicular to sloping terrain) if possible.

**Velocity reduction/Equalizer<sup>™</sup>** If piping from the septic tank to Enviro-Septic<sup>®</sup> is excessively steep, a velocity reducer at the system inlet is necessary. A distribution box with a baffle or an inlet tee may be an adequate velocity reducer.

Note: An Equalizer<sup>™</sup> is limited to a maximum of 10 gallons/minute in gravity systems and 20 gallons/minute in pumped systems.

**In this section** This section contains the following subjects.

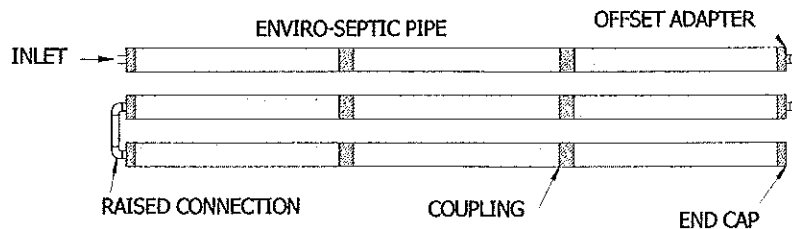
Subject	Page
Basic Serial Systems – Level In-Ground, Level Raised, In-Ground Sloping, and Raised Sloping	11
Distribution Box Systems – Level In-Ground, Level Raised, In-Ground Sloping, and Raised Sloping	16
Combination Systems – Level In-Ground, Level Raised, In-Ground Sloping, and Raised Sloping	20
Trench Systems – Basic Serial and Distribution Box	24

# Basic Serial Systems – Level In-Ground, Level Raised, In-Ground Sloping, and Raised Sloping

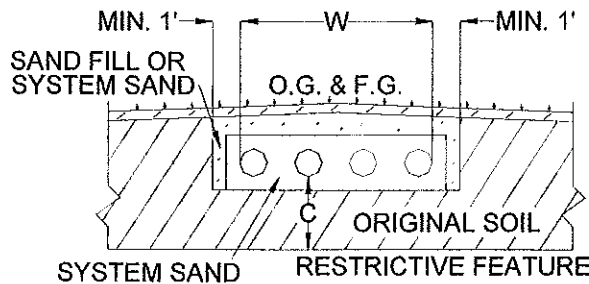
**Introduction** This page shows basic serial distribution systems in level in-ground, level raised, and sloping configurations.

**Definition** A basic serial system is a series of lines of Enviro-Septic® connected by raised connections.

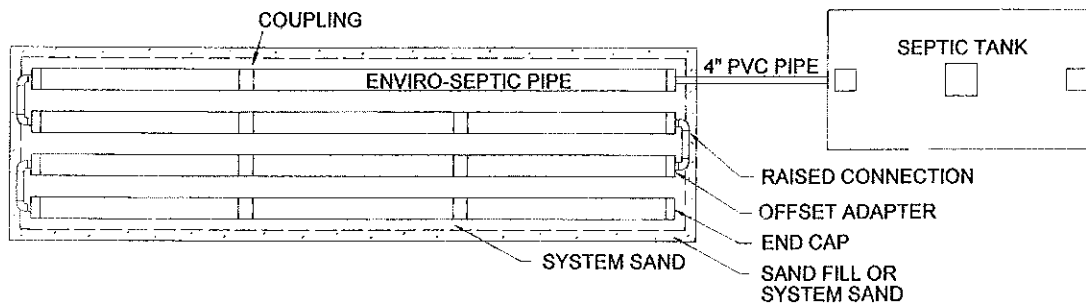
**Serial diagram** Here's a top view of lines of pipe in a serial configuration.



**Level in-ground** Here are end and top views of a level in-ground system.



A-Center to center pipe spacing  
 C-Minimum separation distance  
 F.G.-Final grade  
 O.G.-Original grade  
 W-Width of Enviro-Septic® pipe

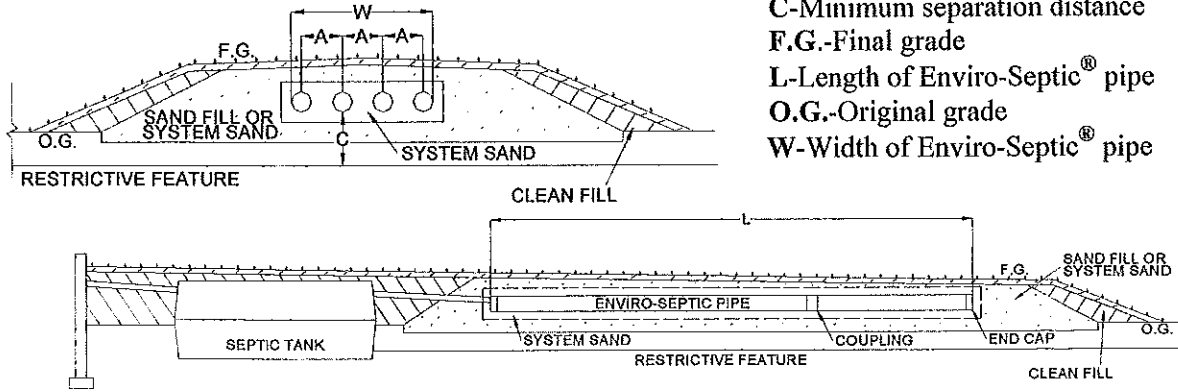


Note: Tank location may vary.

*Continued*

# Basic Serial Systems – Level In-Ground, Level Raised, In-Ground Sloping, and Raised Sloping, Continued

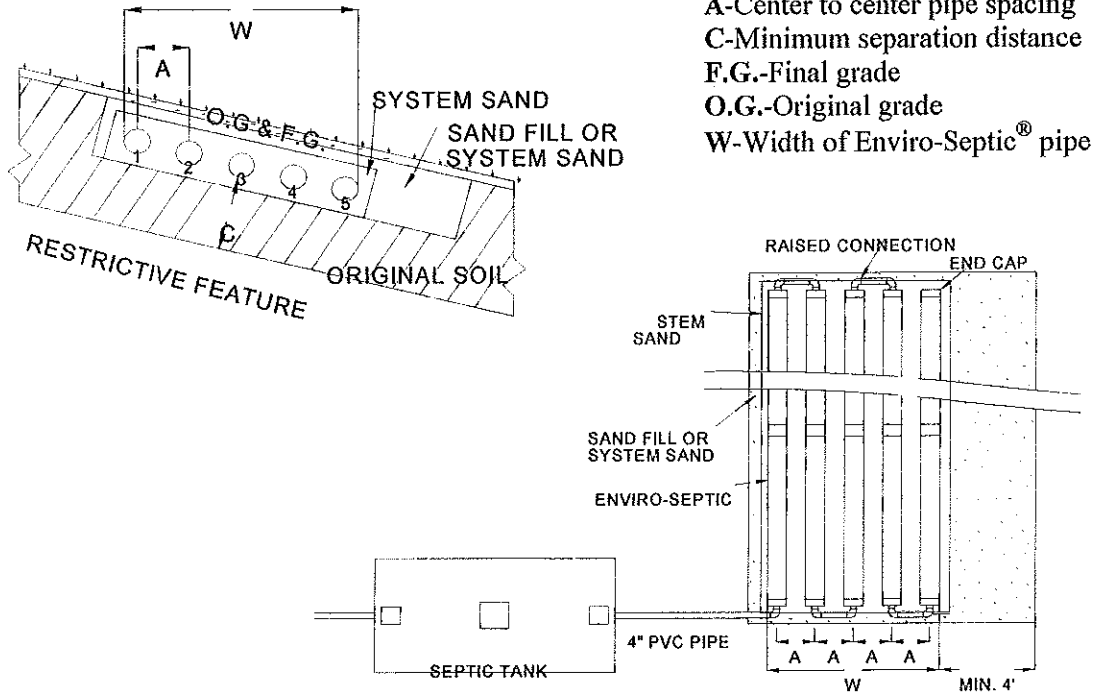
**Level Raised** Here are end and side views of a level raised system.



A-Center to center pipe spacing  
 C-Minimum separation distance  
 F.G.-Final grade  
 L-Length of Enviro-Septic® pipe  
 O.G.-Original grade  
 W-Width of Enviro-Septic® pipe

Note: Tank location may vary.

**In-ground sloping** Here are end and top views of an in-ground sloping system. This system has a slope greater than 10%.



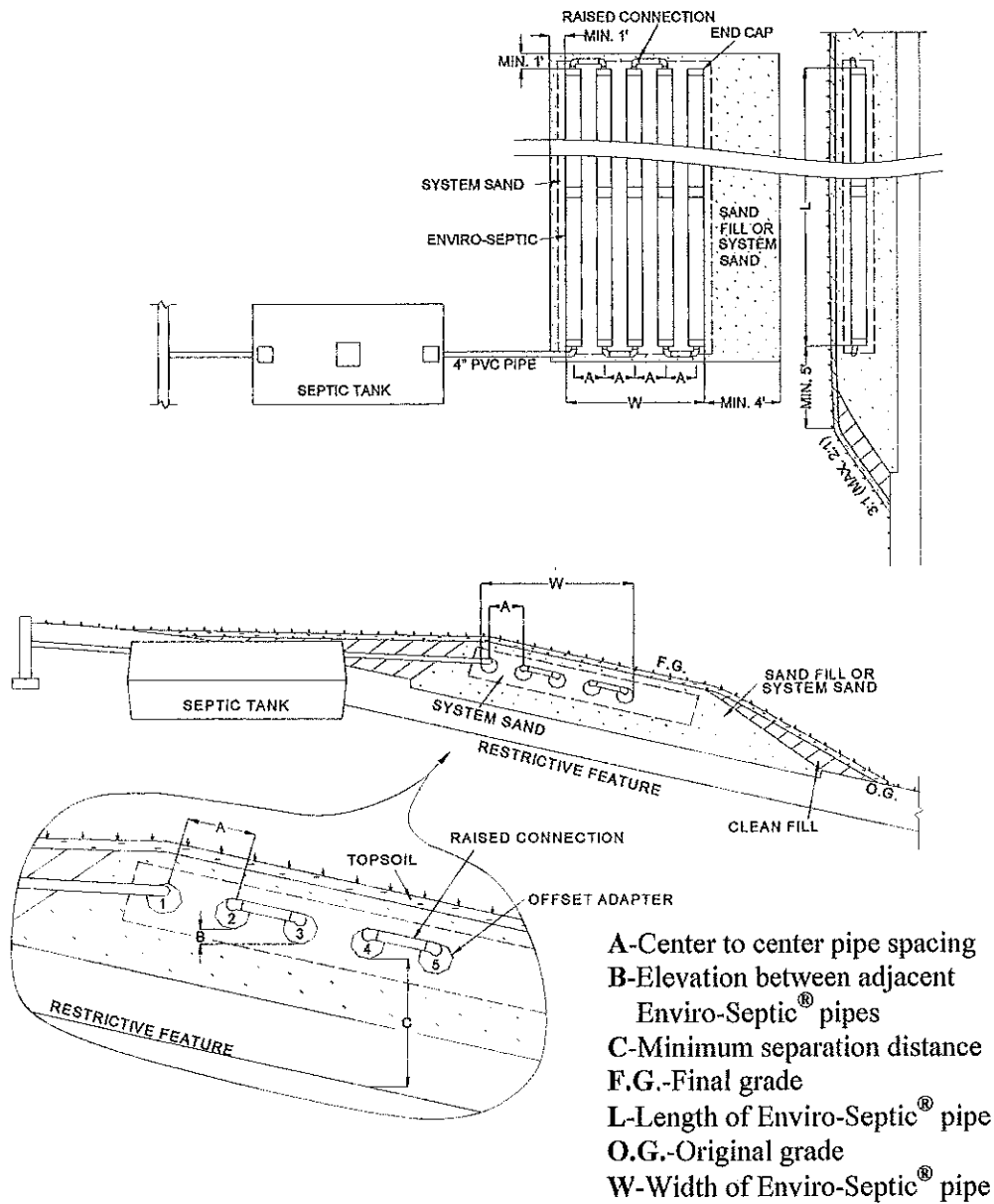
A-Center to center pipe spacing  
 C-Minimum separation distance  
 F.G.-Final grade  
 O.G.-Original grade  
 W-Width of Enviro-Septic® pipe

Note: Tank location may vary.

*Continued*

# Basic Serial Systems – Level In-Ground, Level Raised, In-Ground Sloping, and Raised Sloping, Continued

**Raised sloping** Here are top/side and end views of a raised sloping system. This system has a slope greater than 10%.



Note: Tank location may vary.

# Distribution Box Systems – Level In-Ground, Level Raised, In-Ground Sloping, and Raised Sloping

**Introduction** This page shows distribution box systems in level in-ground, level raised, in-ground sloping, and raised sloping configurations.

**Definition** A distribution box system is a number of system lines of equal length, each supplied evenly with effluent through a distribution box.

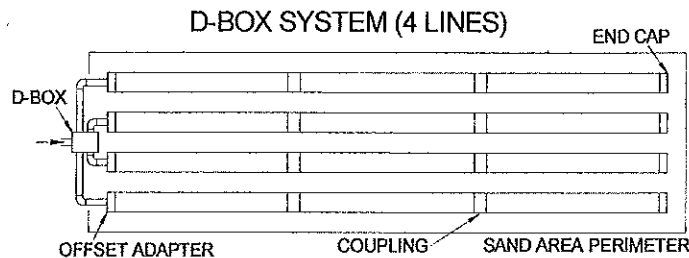
**Equalizer™ required** All distribution boxes that divide effluent flow in pump or gravity systems require an Equalizer™ or its equivalent in their outlets.

Note: To prevent movement, be sure distribution boxes are placed on a stable soil base or concrete pad.

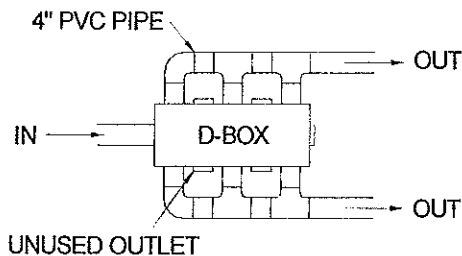
**Loading** Each line of a distribution box system has a maximum GPD limit.

Reference: See “Loading Limits” in your State attachment.

**D-Box diagram** Here’s a top view of lines of pipe in a D-Box configuration.

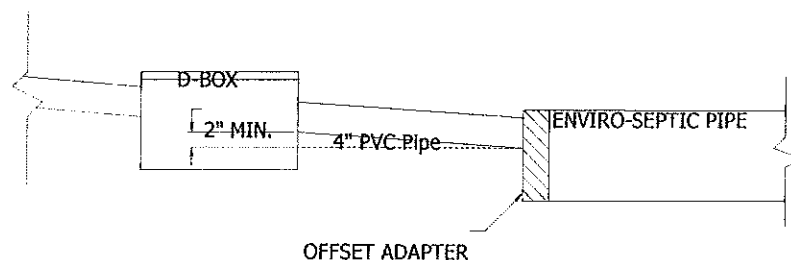


**D-Box manifold** This D-Box top view shows a pipe manifold design.



Note: Utilizing every other outlet will provide room for required piping and allow for easier installation

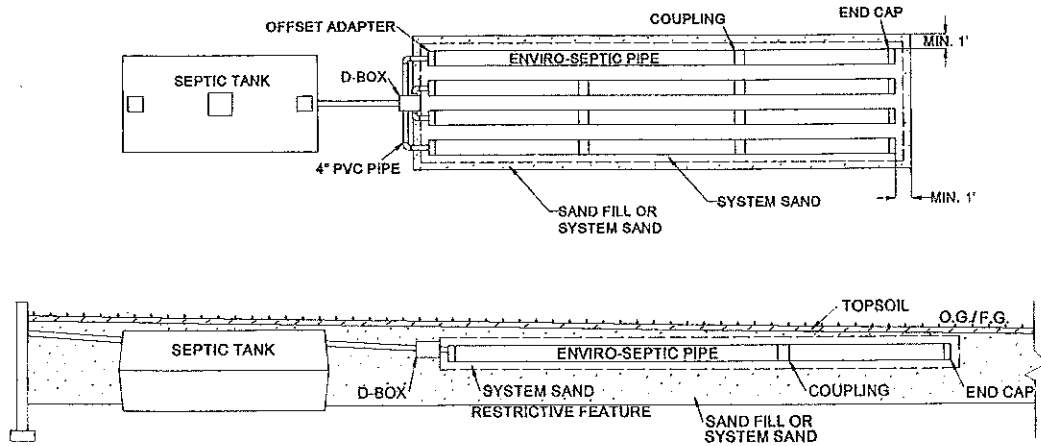
**D-Box pipe drop** This side view shows the minimum drop from a D-Box to a line of pipe.



*Continued*

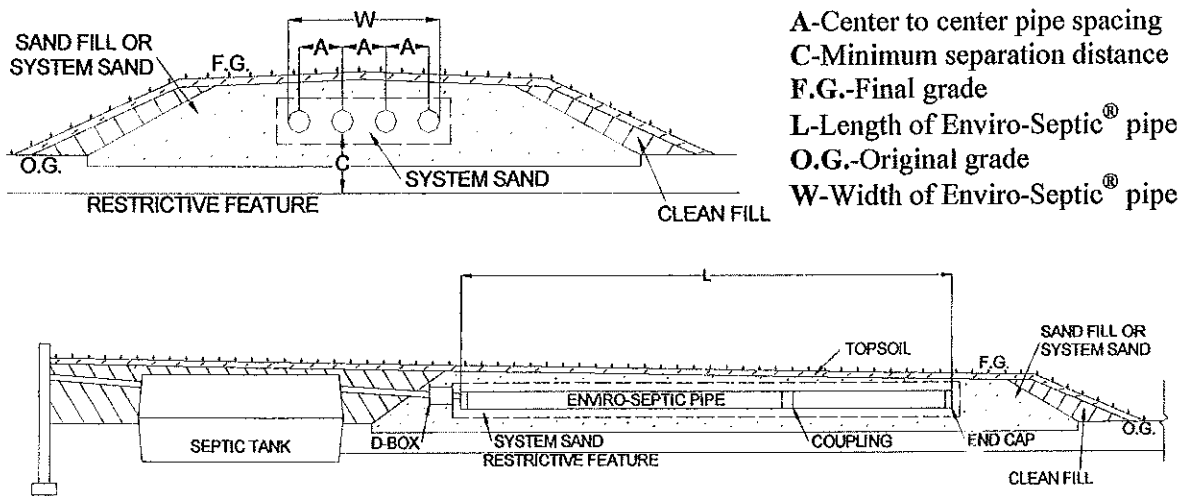
# Distribution Box Systems – Level In-Ground, Level Raised, In-Ground Sloping, and Raised Sloping, Continued

**Level in-ground** Here are top and side views of a level in-ground D-Box system.



Note: Tank location may vary.

**Level raised** Here are end and side views of a level raised D-Box system.



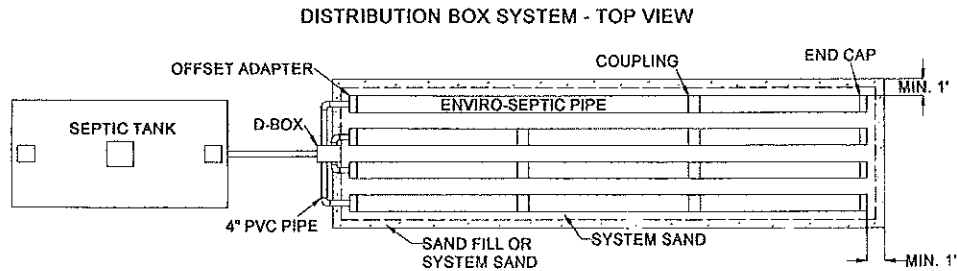
Note: Tank location may vary.

*Continued*

# Distribution Box Systems – Level In-Ground, Level Raised, In-Ground Sloping, and Raised Sloping, Continued

Level raised  
(continued)

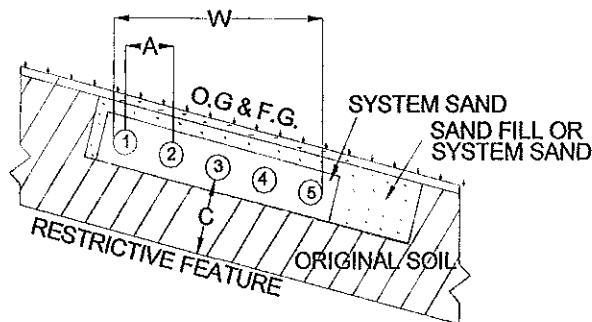
Here is a top view of a level raised D-Box system.



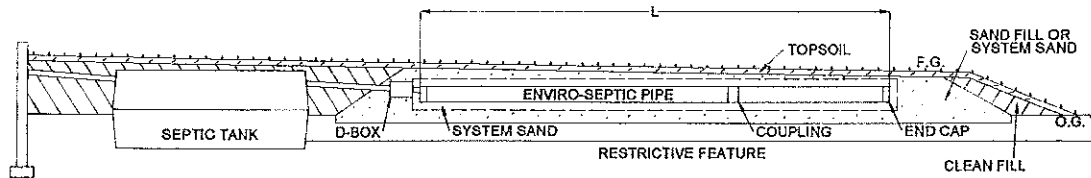
Note: Tank location may vary.

In-ground  
sloping

Here are end and side views of an in-ground sloping D-Box system.



- A-Center to center pipe spacing
- C-Minimum separation distance
- F.G.-Final Grade
- L-Length of Enviro-Septic<sup>®</sup> pipe
- O.G.-Original grade
- W-Width of Enviro-Septic<sup>®</sup> pipe

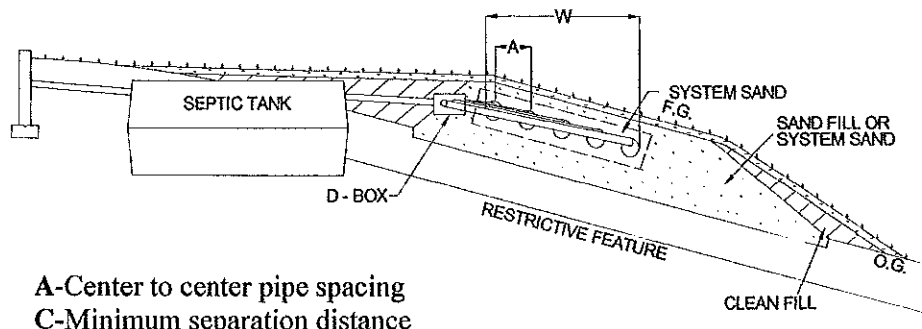


Note: Tank location may vary.

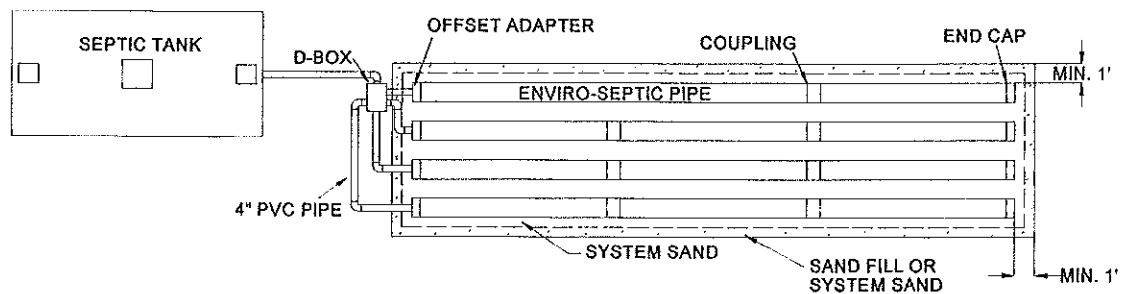
*Continued*

# Distribution Box Systems – Level In-Ground, Level Raised, In-Ground Sloping, and Raised Sloping, Continued

**Raised sloping** Here are end and top views of a raised sloping D-Box system.



A-Center to center pipe spacing  
 C-Minimum separation distance  
 F.G.-Final Grade  
 O.G.-Original grade  
 W-Width of Enviro-Septic® pipe



Note: Tank location may vary.



# Combination Systems – Level In-Ground, Level Raised, In-Ground Sloping, and Raised Sloping

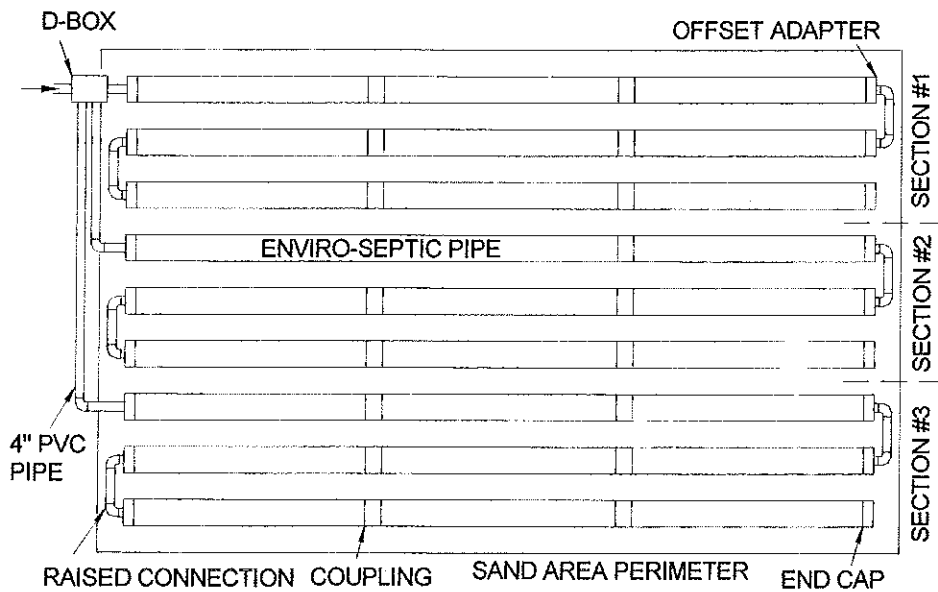
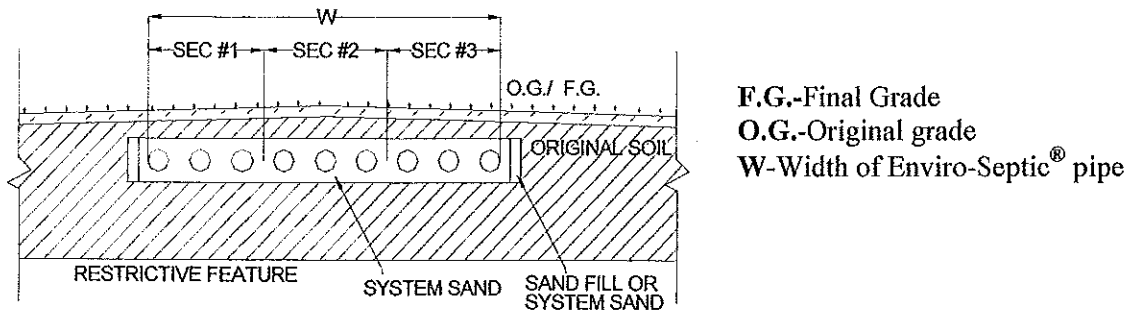
**Introduction** This page shows combination systems in level in-ground, level raised, in-ground sloping, and raised sloping configurations.

**Definition** A combination system is a system of two or more sections (lines of pipe connected in serial distribution) of pipe being supplied effluent evenly through a distribution box.

**Loading** Each section of a distribution box system has a maximum GPD limit.

Reference: See “Loading Limits” in your State attachment.

**Level in-ground** Here are end and top views of a level in-ground combination system.

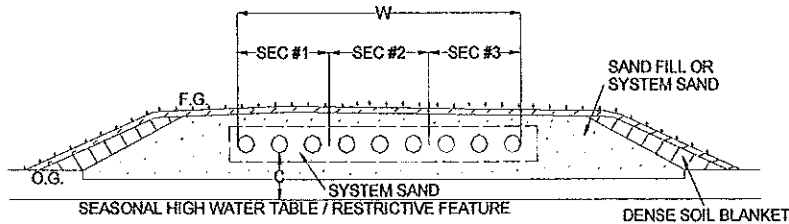


Note: Tank location may vary.

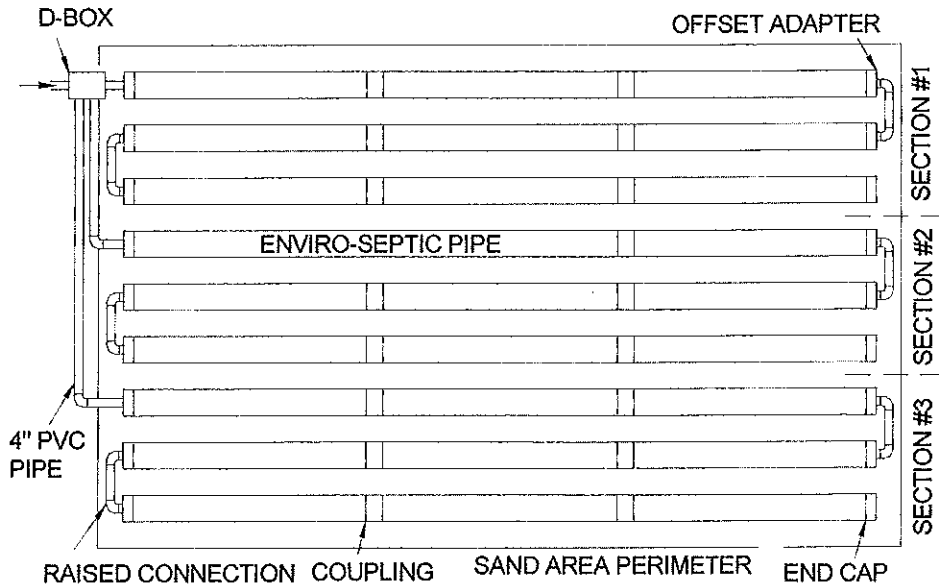
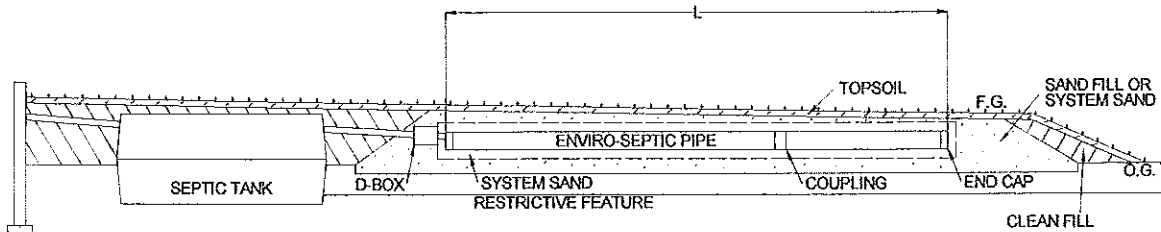
*Continued*

# Combination Systems – Level In-Ground, Level Raised, In-Ground Sloping, and Raised Sloping, Continued

**Level raised** Here are end, side, and top views of a level raised combination system.



A-Center to center pipe spacing  
 C-Minimum separation distance  
 F.G.-Final grade  
 L-Length of Enviro-Septic® pipe  
 O.G.-Original grade  
 W-Width of Enviro-Septic® pipe



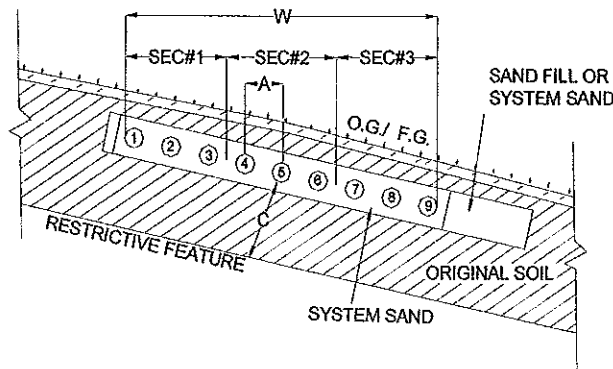
Note: Tank location may vary.

*Continued*

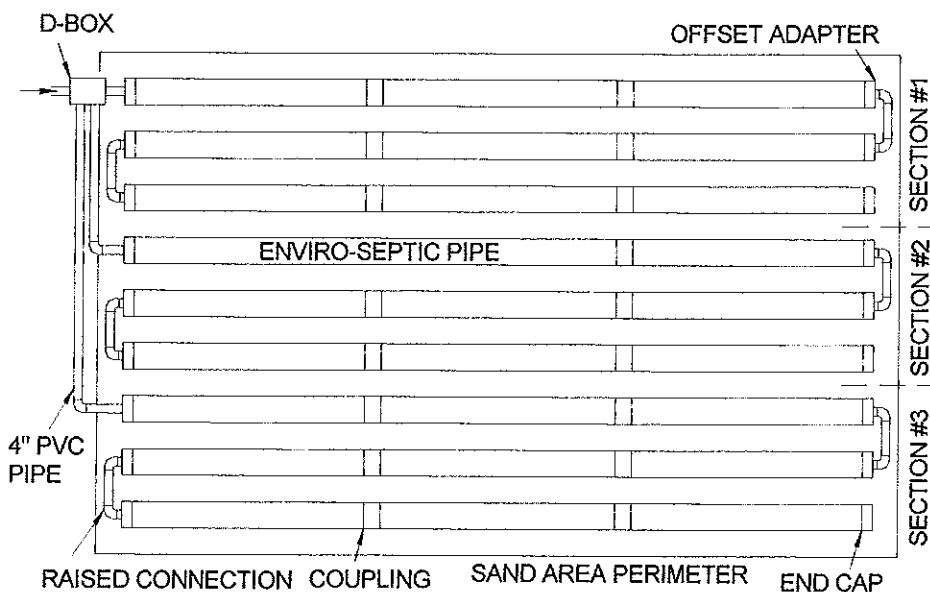
# Combination Systems – Level In-Ground, Level Raised, In-Ground Sloping, and Raised Sloping, Continued

**In-ground sloping**

Here are end and top views of an in-ground sloping combination system.



A-Center to center pipe spacing  
 C-Minimum separation distance  
 F.G.-Final grade  
 O.G.-Original grade  
 W-Width of Enviro-Septic® pipe

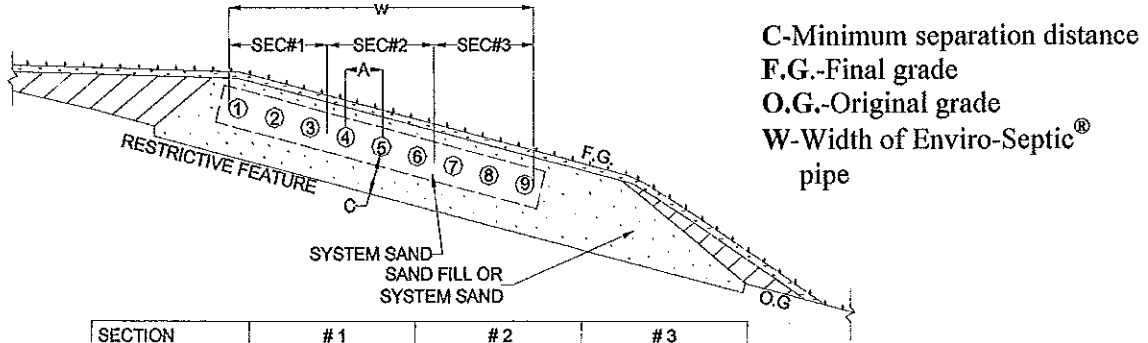


Note: Tank location may vary.

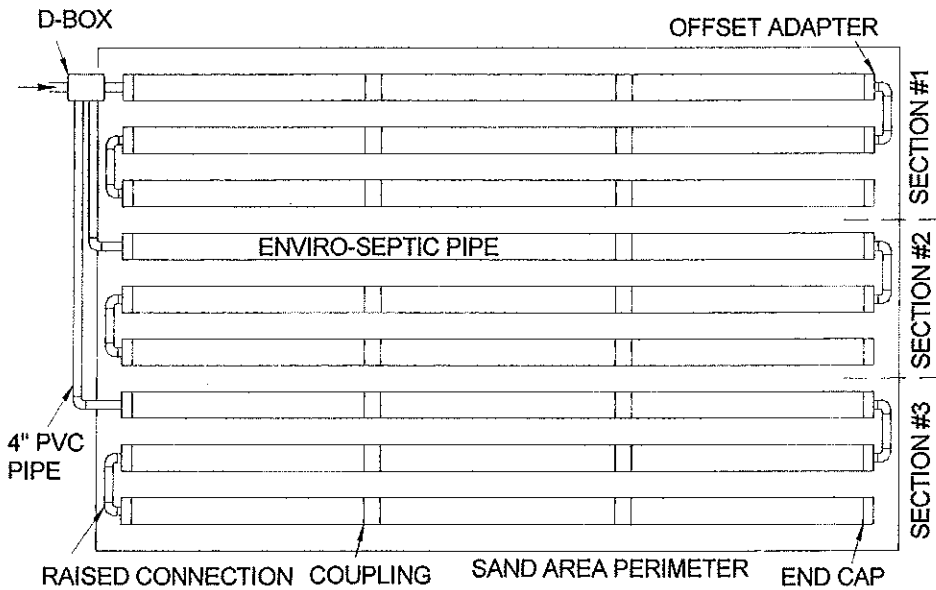
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# Combination Systems – Level In-Ground, Level Raised, In-Ground Sloping, and Raised Sloping, Continued

**Raised sloping** Here are end and top views of a raised sloping combination system.



SECTION	# 1			# 2			# 3		
LINE NO.	1	2	3	4	5	6	7	8	9
TOP OF PIPE	99.00'	98.50'	98.00'	97.50'	97.00'	96.50'	96.00'	95.50'	95.00'
BOTTOM OF PIPE	98.00'	97.50'	97.00'	96.50'	96.00'	95.50'	95.00'	94.50'	94.00'



Note: Tank location may vary.

# Trench Systems – Basic Serial and Distribution Box

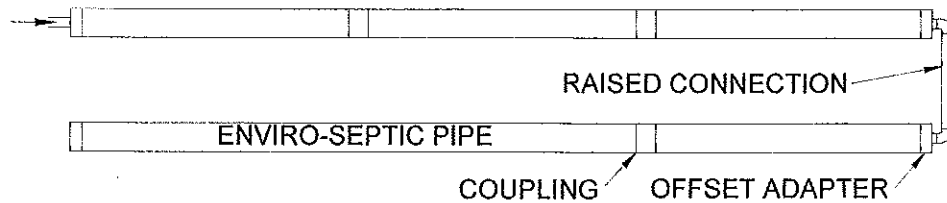
**Introduction** This page shows trench systems in basic serial and distribution box configurations.

**Definition** A trench system is a line or lines of Enviro-Septic® pipe connected in serial or distribution box systems.

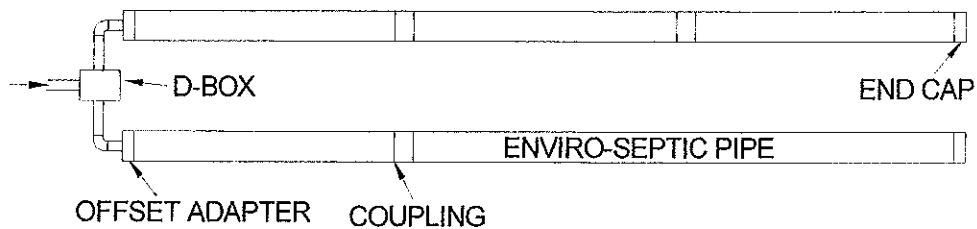
**Level or sloping terrain** Enviro-Septic® pipe may be installed in trench systems on level or sloping terrain. Enviro-Septic® pipes in trench configurations must be surrounded by a minimum of 6" of system sand.

Reference: See "Trench system spacing" and "Sand fill and clean fill requirements" in your State attachment.

**Basic serial** Here's a top view of two lines of pipe in a basic serial trench configuration.



**D-Box** Here's a top view of two lines of pipe in a D-Box trench configuration.



## Section G

# Multi-Level™ System Configurations

### Preview

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#### Introduction

Multi-Level™ systems are well suited to irregular shapes and/or difficult sites. By offering nearly two times the bacterial surface in the same footprint of ground, Multi-Level™ systems provide a cost effective solution for problem sites. Multi-Level™ systems are usually used on small lots or for systems that generate abnormally strong wastewater.

Reference: See Section H, “Non-Conventional System Configurations.”

---

#### Limited information

The diagrams provided in this section regarding Multi-Level™ systems are general in nature and not intended to represent all of the information required to design or install a Multi-Level™ system.

---

#### Design/install certification required

Designers and installers must be certified by Presby Environmental, Inc. (P.E.I.) or its representative to design or install a Multi-Level™ system.

Once certified, P.E.I. is available to aid throughout the entire design and installation process.

Non-certified exception: Non-certified designs and installations may be acceptable if performed under the direct supervision of P.E.I. or its representatives.

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#### Use limitations

Certain soil types or percolation rates may limit using Multi-Level installations.

Reference: See the “Multi-Level™ Quick Reference Guide” in your State attachment.

---

#### Linear footage

Different states require specific considerations.

Reference: See the “Multi-Level™ Quick Reference Guide” in your State attachment.

---

#### Pipe Spacing

Each level of a Multi-Level™ system has the same center-to-center pipe spacing.

The upper level is offset by ½ the center-to-center spacing so the Enviro-Septic® pipe of one level lines up with the center of the sand area between the pipes of the other level.

The bottom of the upper level pipe is separated from the top of the lower level pipe by a minimum of six inches of system sand.

Reference: See the “Multi-Level™ Quick Reference Guide” in your State attachment.

---

*Continued*

## Multi-Level™ System Configurations, Continued

**Line Orientation** Enviro-Septic® lines must be laid level and should run parallel to contours (perpendicular to sloping terrain) if possible.

**Sloping systems** The percentage of slope refers to the slope of the Enviro-Septic® system, not the existing terrain. The slope of the Enviro-Septic® system and the existing terrain are not required to be equal. A sloping system can be designed with more than one distinct slope and/or center-to-center pipe spacing in the same system. Maximum slope percentages are governed by jurisdiction specifications.

Reference: See the “Multi-Level™ Quick Reference Guide” in your State attachment.

**Velocity reduction/  
Equalizer™  
consideration**

If piping from the septic tank to Enviro-Septic® is excessively steep, a velocity reducer at the system inlet is necessary. A distribution box with a baffle or an inlet tee may be an adequate velocity reducer.

Note: An Equalizer™ is limited to a maximum of 10 gallons/minute in gravity systems and 20 gallons/minute in pumped systems.

**Loading**

Each line of a distribution box system has a maximum GPD limit.

Reference: See “Loading Limits” in your State attachment.

**Venting**

All Multi-Level™ systems must be vented in a manner that allows air to pass through each line of Enviro-Septic® pipe.

**In this section**

This section contains the following subjects.

Subject	Page
Drop Connections	27
Basic Multi-Level™ Systems	28
Combination Multi-Level™ Systems	29

# Drop Connections

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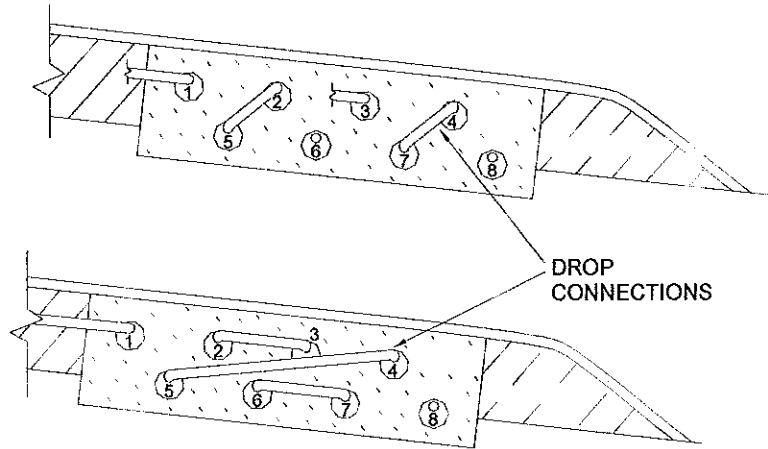
## Introduction

Drop connections are unique to Multi-Level™ installations.

---

## Drop Connection

A drop connection is a piece of 4" PVC pipe connecting two levels of Enviro-Septic® pipe. The diagrams below show drop connections in two different configurations.



**Caution:** Ensure that drop connections in sloping systems have a minimum drop of 2" between the upper and lower levels.

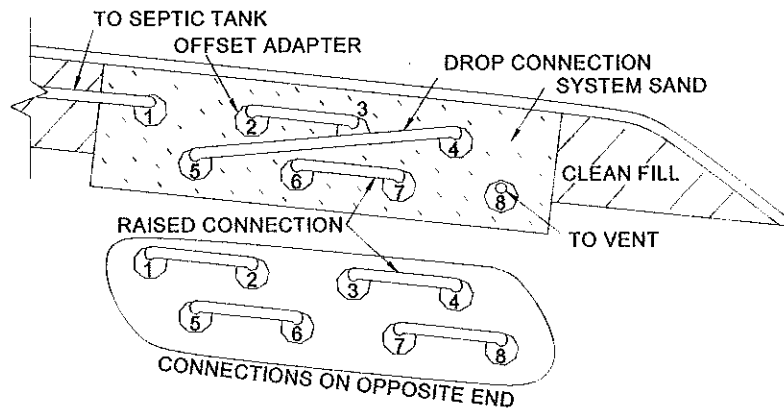
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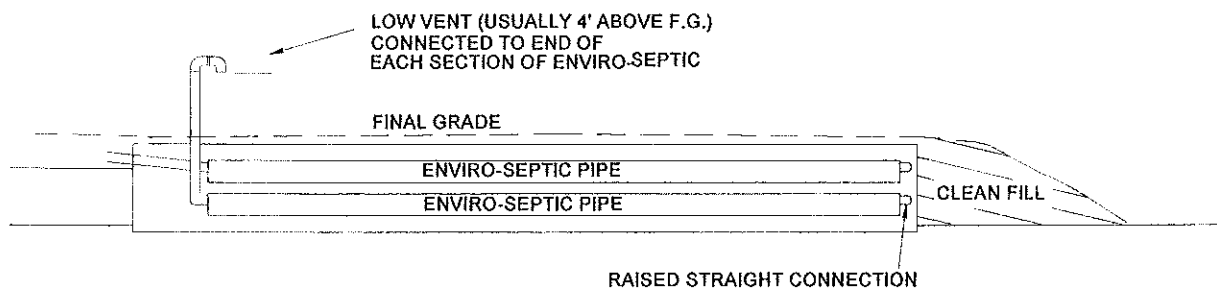
# Basic Multi-Level™ Systems

**Description** Basic Multi-Level™ systems consist of a single section of Enviro-Septic® pipe installed on two levels, one above the other. The two levels are connected using a drop connection.

**End view** Here's an end view of a basic Multi-Level™ system.



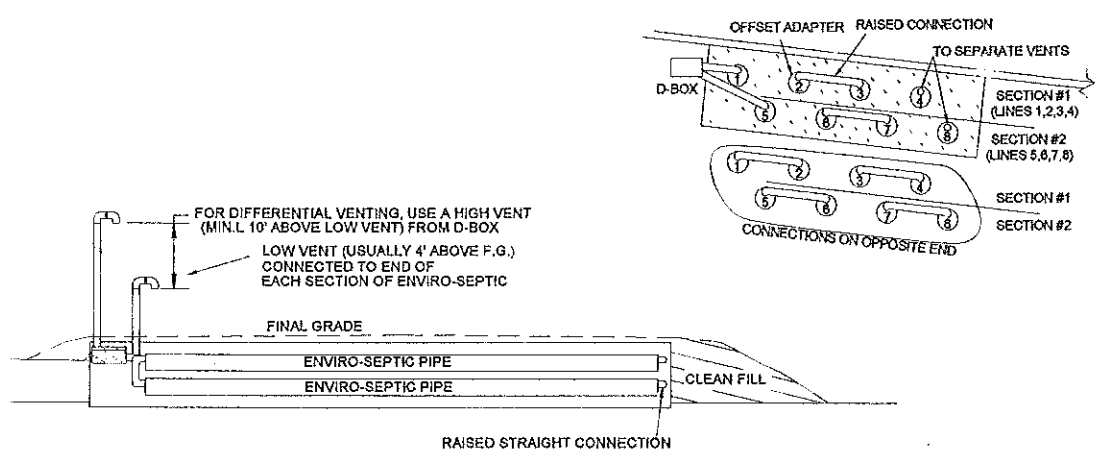
**Side view** Here's a side view of a basic Multi-Level™ system.



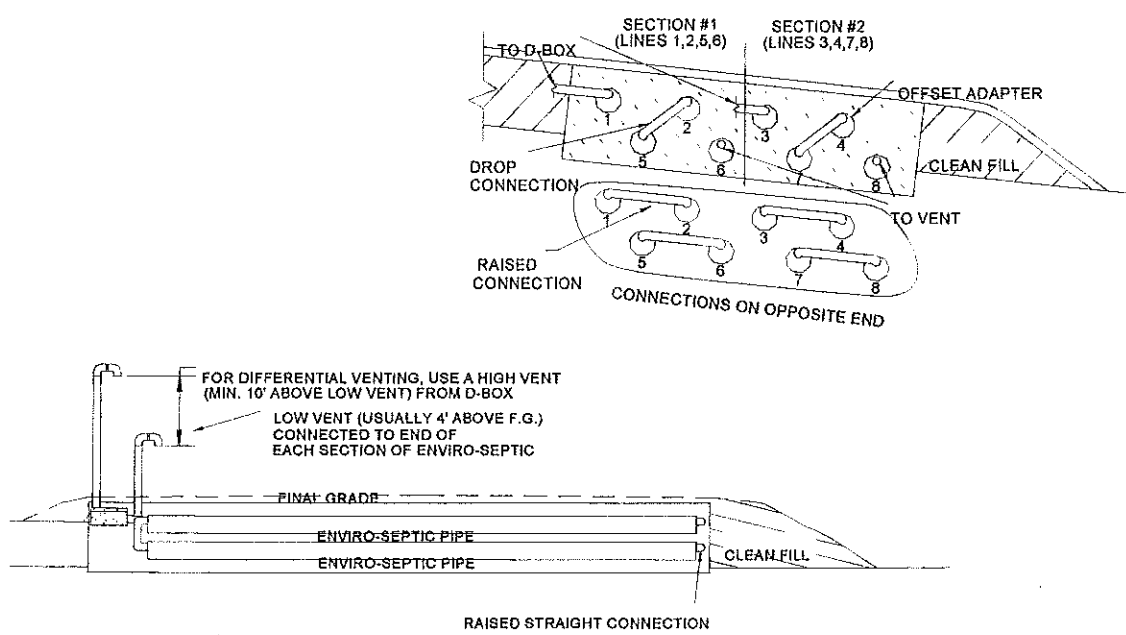
# Combination Multi-Level™ Systems

**Description** Combination Multi-Level™ systems consist of two or more sections of Enviro-Septic® pipe installed on two levels. The sections may be installed one above the other (layered) or on alternating levels. Each section receives effluent through a distribution box and, where installed on alternating levels, are connected using drop connections.

**Layered system** Here are end and side views of a layered (one section over the other) Multi-Level™ system.



**Alternating level system** Here are end and side views of a Multi-Level™ system using alternating levels for each section of Enviro-Septic® pipe.



## Section H Non-Conventional System Configurations

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**Introduction** Non-conventional system configurations may accommodate greater than 100' system lengths and shorter than 30' line lengths. They may also take irregular shapes to accommodate site constraints.

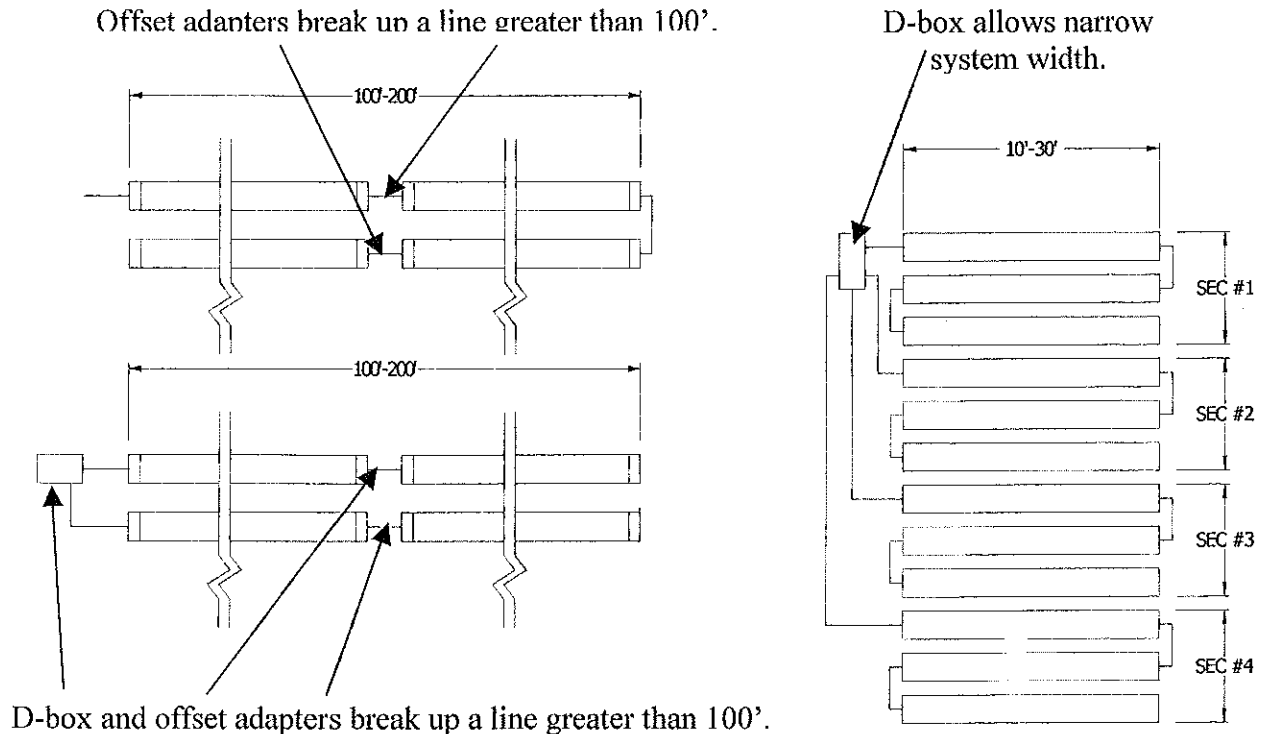
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**Total linear feet requirement** Each section of a system must have the same minimum linear length. A section may exceed the minimum linear length. Lines within a section may vary in length to accommodate site constraints.

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**Line length exceptions** Proper line loading and cycling requires line lengths to be at least 30' long but no longer than 100'. Non-conventional system configurations allow this rule to be set aside while still guaranteeing proper line loading and cycling.

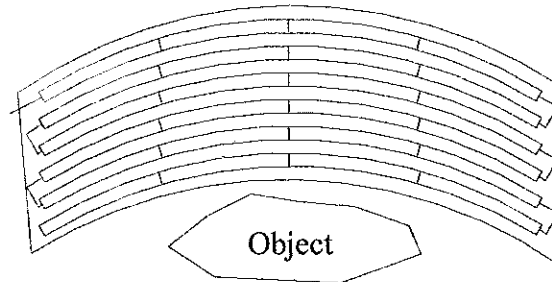
Here are some examples using offset adapters and distribution boxes.



# Non-Conventional Configurations, Continued

## Curves

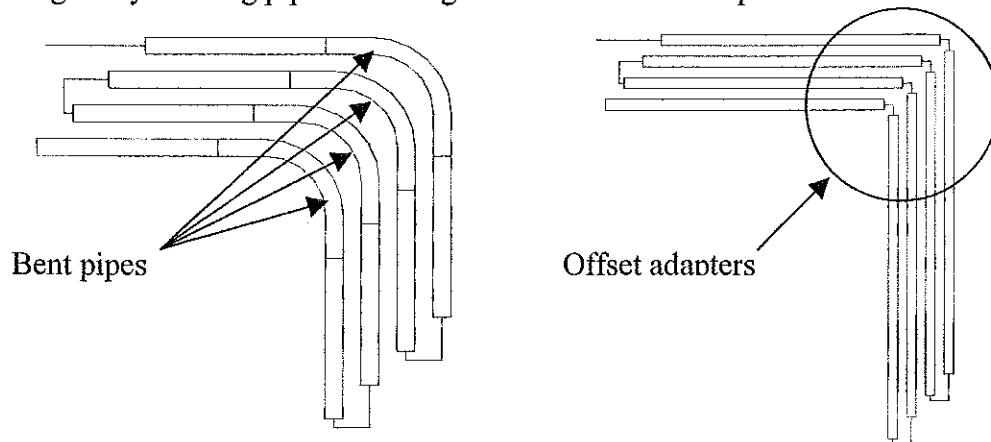
Curved configurations work well around objects, setbacks, and slopes.



Note: Multiple curves can also be used.

## Angles

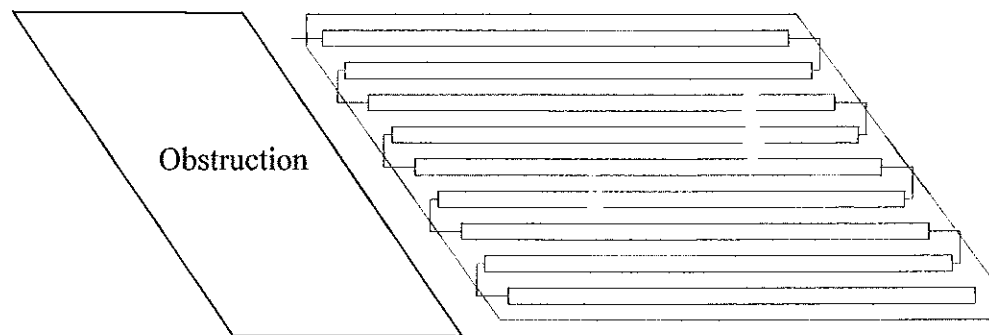
Angled configurations generally have one or more specific bends. Lines are angled by bending pipes or through the use of offset adapters.



Note: A 10' length of pipe may take a 90° bend.

## Trapezoids

This system is trapezoidal to fit a particular slope or terrain feature.



*Continued*

## Section I

### Pump System Requirements

---

<b>Introduction</b>	Pump systems typically supply effluent to Enviro-Septic <sup>®</sup> pipe using a pressured line and a distribution box as a velocity reducer when site conditions do not permit a gravity system.
<b>Differential venting</b>	All pump systems must use differential venting.  <u>Reference:</u> See Section J, "Venting Requirements."
<b>Velocity control</b>	It is important to control the rate at which effluent enters Enviro-Septic <sup>®</sup> pipe. Excessive effluent velocity can disrupt solids that settle in the Enviro-Septic <sup>®</sup> pipes.
<b>Velocity reduction</b>	Never pump effluent directly into Enviro-Septic <sup>®</sup> pipes. Install a velocity reducer prior to the Enviro-Septic <sup>®</sup> pipe. An appropriately sized distribution box or tank is typically installed as a velocity reducer. If the design already incorporates a distribution box to divide effluent flow, an additional distribution box may not be necessary.  Pressurized lines must discharge into a velocity reducer with a baffle, or be fitted with a 90-degree bend or tee fitting.
<b>Pipe length per pumped gallon</b>	Each gallon of effluent pumped per cycle requires a minimum of 1.0' of Enviro-Septic <sup>®</sup> pipe.
<b>Basic System GPM Limit</b>	A maximum of 40 GPM is permitted for basic systems.
<b>GPM per Equalizer<sup>™</sup> limit</b>	An Equalizer <sup>™</sup> used in a pump system is limited to a maximum of 20 gallons per minute.
<b>Section or Line GPM Limit</b>	Each line of a distribution box system or section of a combination system is limited to a maximum of 20 GPM.

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## Section J

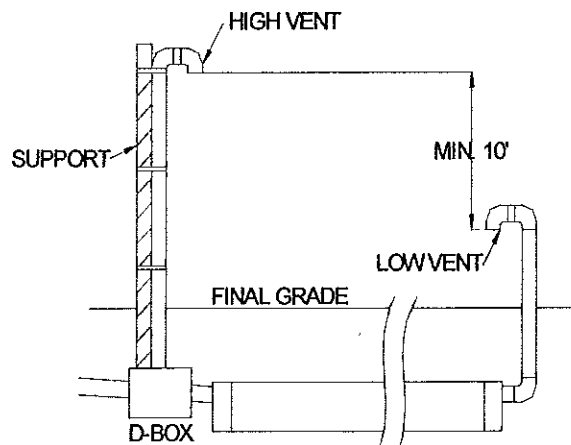
### Venting Requirements

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<b>General rule</b>	Locate vent openings to ensure air is drawn completely through each line or section of Enviro-Septic® pipe.
<b>When to vent</b>	<p>Venting is required if systems are pumped, under more than 18" of cover, or installed under parking areas, roads, or surface features that restrict air passage through the soil.</p> <p>One 4" vent is required for every 1,000 feet of pipe. If necessary, a single 6" vent opening may be installed in place of a maximum of three 4" vent openings.</p> <p>All Multi-Level™ systems require venting.</p>
<b>Vent locations</b>	<p>Enviro-Septic® systems can be vented in three locations.</p> <ol style="list-style-type: none"><li>1. Through an unused distribution box outlet.</li><li>2. Through a tee installed in the PVC pipe near the inlet of the Enviro-Septic® pipe.</li><li>3. Through an offset adapter installed at the end of a section or line.</li></ol>
<b>Differential venting</b>	Differential venting is the use of high and low vents in a system. High vents are connected to the distribution box and low vents are connected to the opposite end of the system. This arrangement enhances the circulation of air throughout the entire system.

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#### DIFFERENTIAL VENTING (TYPICAL - NOT TO SCALE)

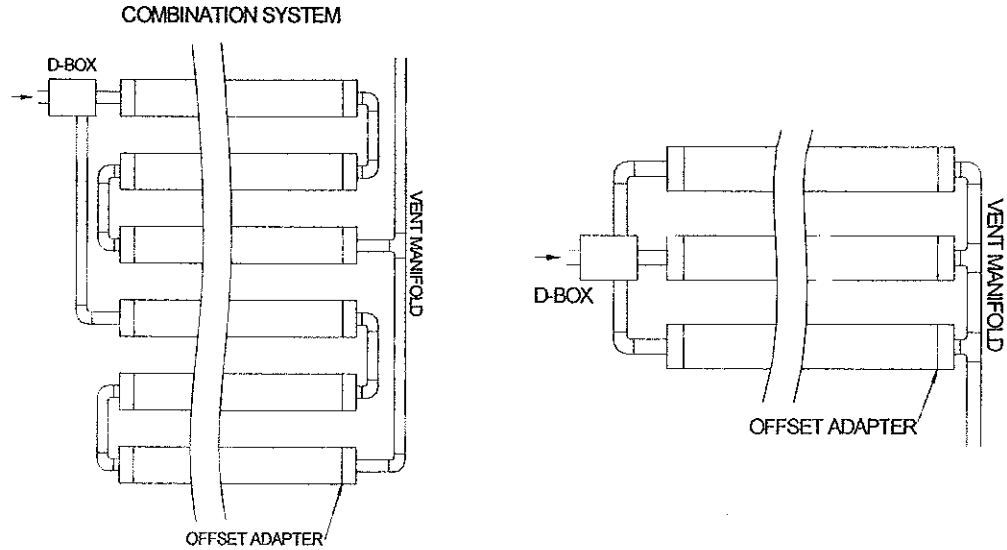


*Continued*

## Venting Requirements, Continued

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**Vent manifolds** A vent manifold can be incorporated to connect the ends of a number of sections or lines of Enviro-Septic® pipe to a single vent opening.



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**Vent piping slope**

Vent piping should slope downward toward the system to prevent moisture from collecting in the piping and blocking air passage.

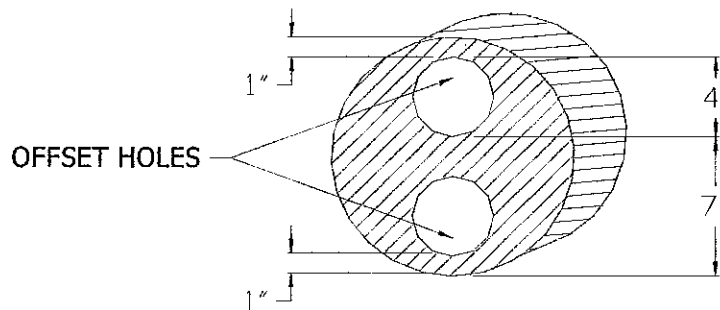
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## Section K Bottom Drain Requirements

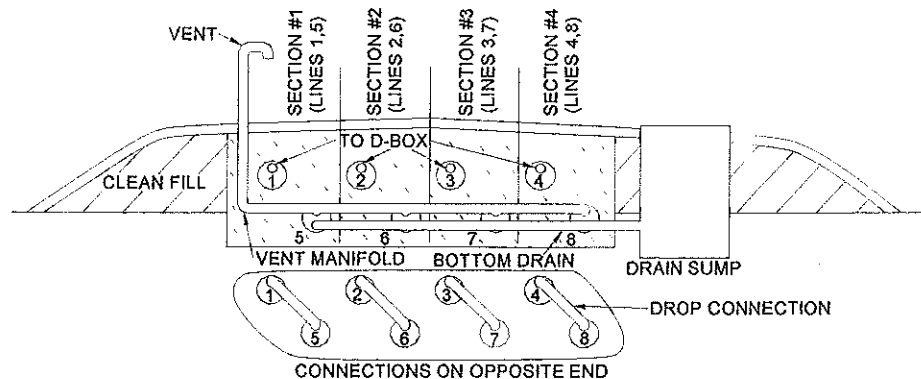
**Purpose** Bottom drains aid in the rejuvenation of overloaded or abused systems.

- Requirements** Bottom drains lead to drain sumps. Here are some drain requirements.
- The top of the drain sump should be a minimum of 12" above the top of the highest Enviro-Septic® pipe.
  - The bottom drain inlet must be a minimum of 18" above the drain sump floor.
  - Level systems may use single drain sumps.
  - Sloping systems may require multiple drain sumps.
  - All bottom drain connections and drain sumps must be sealed.

**Double offset adapter** Most bottom drains use double offset adapters.



**End view** Here's an end view of a combination Multi-Level™ system with a bottom drain and drain sump.





## Section L

# Simple-Septic® Leaching Systems

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<b>Introduction</b>	Throughout this manual we have presented information as it relates to the Enviro-Septic® Leaching Systems. This section presents the differences between the two products.
<b>Simple-Septic® vs. Enviro-Septic®</b>	<p>Simple-Septic® is a leaching system identical to Enviro-Septic® <u>except</u> that it lacks the thick mat of randomly orientated plastic fibers between the corrugated plastic pipe and the geo-textile fabric.</p> <p>Simple-Septic® cannot be used in Multi-Level™ systems.</p>
<b>Purpose</b>	<p>Simple-Septic® was developed to compete with products offering less performance than Enviro-Septic®. Simple-Septic® is superior and less expensive than products that utilize only a single layer of fabric or promote direct effluent-soil contact.</p> <p>In general, Simple-Septic® is suitable for light residential or light commercial uses that do not have high strength wastewater or high flows.</p> <p>Simple-Septic® is also applicable for drainage systems and/or recharging systems.</p>
<b>Use restrictions</b>	<p>Some States restrict the use of this product.</p> <p><u>Reference:</u> See your State attachment for any use restrictions.</p>
<b>Design and installation procedures</b>	Simple-Septic® systems are designed and installed the same way as Enviro-Septic® systems in accordance with <u>this manual</u> . The same couplings, offset adapters, and end caps are interchangeable between both products.

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## Section M

### System Rejuvenation and Expansion

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**Introduction** This section covers procedures for rejuvenating failing systems and explains how to expand existing systems.

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**Definition:  
failing system** System failures, almost without exception, are related to the conversion of bacteria from an aerobic to an anaerobic state. Flooding, improper venting, alteration or improper depth of soil, sudden use changes, introduction of chemicals or medicines, and a variety of other conditions can contribute to this phenomenon.

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**Rejuvenating  
failing systems** Failing systems need to be returned from an anaerobic to an aerobic state. Most systems can be put back on line and not require costly removal and replacement by using the following procedure.

1. Determine the problem causing system failure and repair.
  2. Drain the system by pumping out the sump of a bottom drain or by excavating one end of all the lines and removing the end cap or offset adapter.
  3. Drain the lines.
  4. If foreign matter has entered the system, flush the pipes.
  5. Safeguard the open excavation.
  6. Guarantee a passage of air through the system.
  7. Allow all lines to dry for a minimum of 72 hours.
  8. Re-assemble the system to its original design configuration.
- 

**System  
expansion** Enviro-Septic<sup>®</sup> systems are easily expanded by adding equal lengths of pipe to each line of the original design or by adding additional equal sections.

Note: All system expansions need to meet State and/or local regulations.

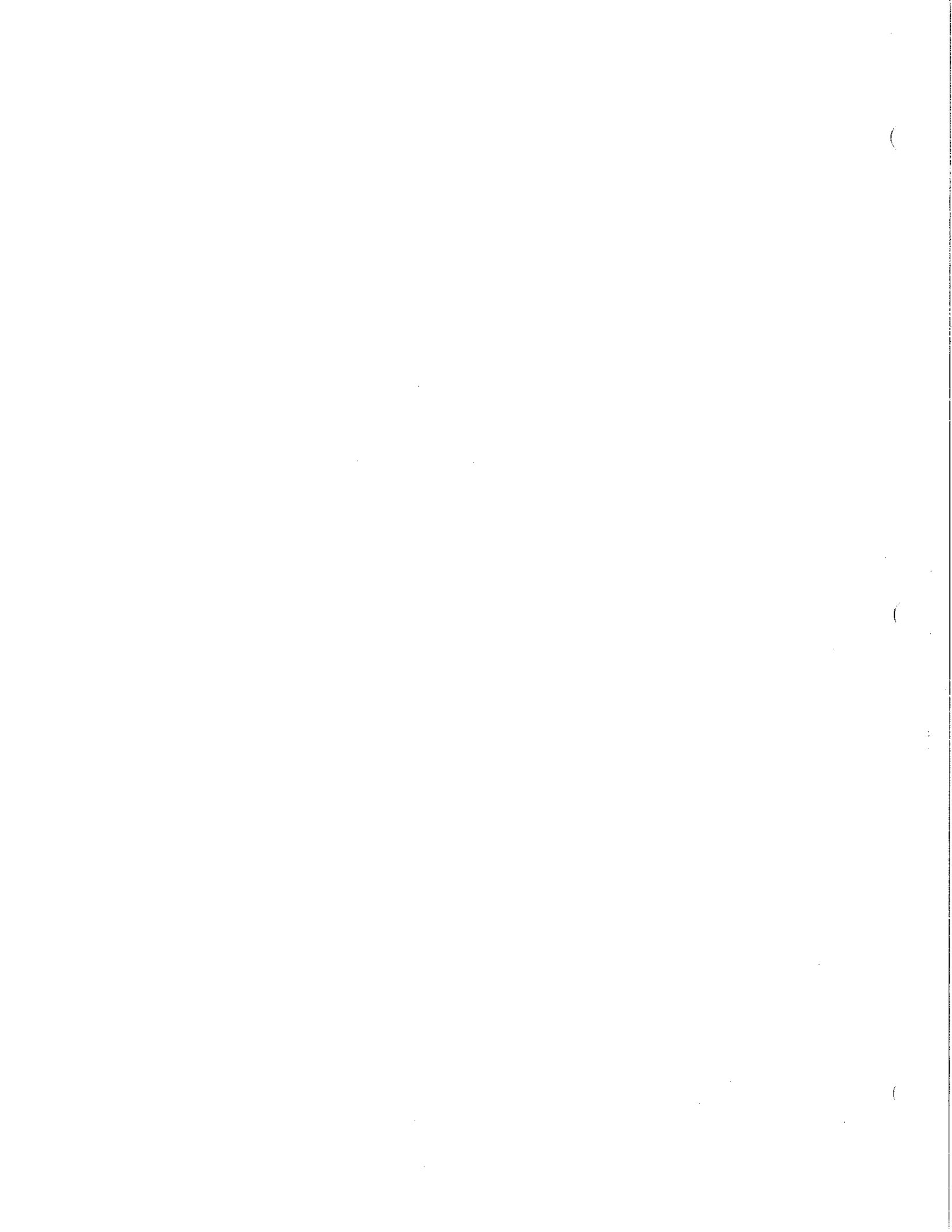
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**Re-usable pipe** Enviro-Septic<sup>®</sup> components are not biodegradable and may be reused. In cases of improper installation it may be possible to excavate, clean, and reinstall all system components.

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**System  
replacement** If system components require replacement, simply remove the existing pipe and contaminated sand and replace with new pipe and sand.

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The information in this manual is subject to change without notice. Your suggestions and comments are welcome. Please contact us at

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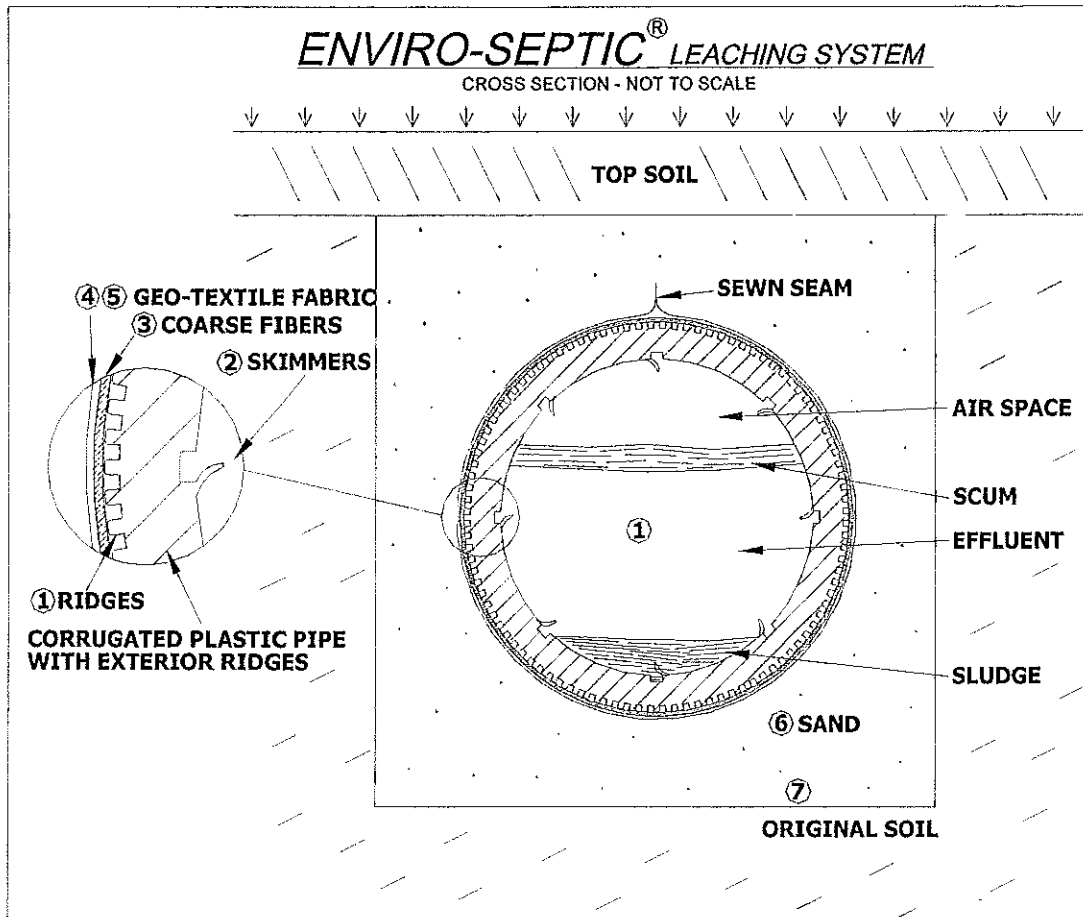
**Enviro-Septic® and Simple-Septic® U.S. Patent Nos. 6,461,078; 6,954,451; 6,290,429 with other patents pending.  
Canadian Patent Nos. 2185087; 2187126 with other patents pending. Presby Maze® U.S. Patent No. 5,429,752.**

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# ENVIRO--SEPTIC<sup>®</sup> LEACHING SYSTEM

**Nine Steps of pretreatment:** Enviro-Septic treats effluent more efficiently to provide longer system life and to protect our environment.



- Stage 1:** Warm effluent enters the pipe and is cooled to ground temperature.
- Stage 2:** Suspended solids separate from the cooled liquid effluent.
- Stage 3:** Skimmers further capture grease and suspended solids from the exiting effluent.
- Stage 4:** Pipe ridges allow the effluent to flow uninterrupted around the circumference of the pipe and aid in cooling.
- Stage 5:** A mat of coarse random fibers separates more suspended solids from the effluent.
- Stage 6:** Effluent passes into the geo-textile fabric and grows a protected bacterial surface.
- Stage 7:** Sand wicks liquid from the geo-textile fabric and enables air to transfer to the bacterial surface.
- Stage 8:** The fabric and fibers provide a large bacterial surface to break down solids.
- Stage 9:** An ample air supply and fluctuating liquid levels increase bacterial efficiency.