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

May 3, 2001

Albert Frick Associates, Inc.
Attn.: Albert Frick
95A County Road
Gorham, ME 04038

Re: Presby Multi-level Systems

Dear Mr. Frick:

Thank you for your memo of April 30, 2001 in which you expressed concerns regarding certain information provided by Presby Environmental Inc. (PEI) for their multi-level systems. Specifically, you objected to the Division authorizing and/or requiring PEI to certify Site Evaluators and installers for designing and installing PEI's multi-level systems. You included a copy of a mailing by PEI which did indeed refer to "certification".

As you will see from the enclosed copy of the Division's approval letter for the multi-level system, this office ***clearly did not authorize or require certification*** for designing and installing the multi-level system. The Division required that PEI provide ***training***, pursuant to its Design and Installation Manual. Other conditions required PEI to advise us of the training, to ensure that the first condition was being met.

I tend to think that the casual reader would easily assume that the "certification" mentioned in PEI's promotional material could be taken to refer to some sort of State of Maine sanctioned certification, which is certainly not the case. However, as you are no doubt aware, this office has virtually no legislative authority regarding ***marketing*** of onsite sewage disposal system related products; only their use.

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

Sincerely,

James A. Jacobsen

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

/jaj

Enc.: Letter dated 3/22/00

xc: File
W. Clough Toppan, Director, DHE w/enc.
Jay Hardcastle, State Site Evaluator w/enc.
David Rocque, State Soil Scientist, w/enc.
David Presby, PEI w/enc.

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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

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

xc: File

Albert Frick Associates, Inc.
Soil Scientists & Site Evaluators
95A County Road Gorham, Maine 04038
(207) 839-5563 FAX (207) 839-5564

Albert Frick SS, SE
James Logan SS, SE
Matthew Logan SE
Brady Frick, SE

Memo

To: Clough Toppan

From: Albert Frick

CC: Jay Hardcastle

Dave Rocque

Date: 4/30/01

Re: Multi-Level Certification

I received the attached notification in the mail.

The information states that "you must be certified to design or install a Multi-Level Leaching System". Is this true? Where does it state this in the Subsurface Wastewater Disposal Rules or Site Evaluator Rules?

Certification implies issuing a license of certificate and implies the guarantee of meeting a standard. Does the State certify designers of multi-level systems; or is Presby Environmental, Inc. certifying multi-level designers for the State? If you are certified by Presby Environmental to design multi-level systems do you have to be licensed by the State as well? (i.e. Can a non-licensed Site Evaluator design multi-level systems?) Are multi-level systems approved by the State of Maine? Where in the Code are the specifications for the design and proprietary leaching area equivalency; or is the Presby Environmental, Inc. Manual an extension of the Code? Does the State require review of multilevel systems or require Presby to do the technical review?

I have discussed these issues personally with David Presby and remain confused.

I have declined invitations to attend because I do not believe it is ethically correct for a PROPRIETARY firm to be representing a certification program if it is actually a *marketing ploy*.

I have absolutely no problem with a PROPRIETARY firm holding marketing seminars or presenting seminars to improve quality control for advancement of their products. I believe this to be a good thing, however I believe it should be represented as such. Also, I professionally prefer to be informed of Code specifications of special system requirements from the Division of Health Engineering and have declined participation until I learn more about what the "certification" is all about and who is setting the "standards" for multi-layer systems (i.e. State Standards or Presby standards?)(i.e. State certification or Presby certification?).

PRESBY ENVIRONMENTAL, INC.

INNOVATIVE SEPTIC TECHNOLOGIES

Multi-Level Certification & Training Classes

Get Certified!! You must be certified to design or install a Multi-Level Leaching System.... these systems are about **1/6th the size of a stone bed!**

Who Should Attend? Contractors, installers, designers/site evaluators, LPI's, CEO's, realtors or anyone interested in septic systems will find these classes informative and beneficial.

Learn About:

⇒ Multi-Level Enviro-Septic Leaching Systems and how to reduce leach area size to approximately **1/6th the size** of a stone bed.

⇒ Standard Single Level Enviro-Septic Leaching Systems and discover how it is one of the **smallest and least expensive** leaching systems available. Nearly **1/3rd the size** of a stone bed.

⇒ The Presby Maze - A simple device installed inside a standard septic tank which provides for a substantial **commercial leach area reduction.**

⇒ Other topics - Venting, effluent quality, commercial systems, sloping systems and more.....

Reservations Required: Call 1-800-473-5298 to reserve your seat. The class schedule below has the dates, times and locations of the upcoming classes. Registration begins at 12:00pm with classes beginning at 12:30pm.

Attendees Receive: A complete training book at registration and after completing the class will receive a Multi-Level Certificate in the mail.

Maine participants will have their name submitted to the state to receive credits toward re-certification either for LPI/CEO's or for the Maine DHS and DEP Voluntary Certification for Septic System Installers & Contractors.

Multi-Level Class Schedule

Class Date	(Day)	Time	Location
May 2nd	(Wed)	12:00pm - 4:00pm	Town Office, Carrabassett Vly, ME
May 8th	(Tue)	12:00pm - 4:00pm	American Legion, Greenville, ME
May 9th	(Wed)	12:00pm - 4:00pm	Back Street Grill, Sanford, ME

Call 1-800-473-5298 for directions and to reserve your seat.

Presby Environmental, Inc
PO Box 617
Sugar Hill, NH 03585

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Mr. James Logan
Albert Frick Assoc. Inc.
95A County Road
Gorham, ME 04038

STATE OF MAINE
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March 22, 2000

Presby Environmental, Inc.
Attn.: David W. Presby, President
P. O. Box 617
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Subject: Presby Environmental, Inc. Design and Installation Manual, and Multi-Level Leaching System

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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

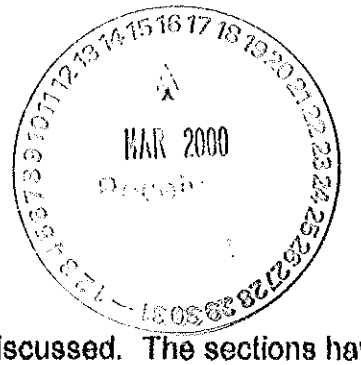
James A. Jacobsen, Manager
Wastewater and Plumbing Control Program
Division of Health Engineering
e-mail: james.jacobsen@state.me.us

xc: File

PRESBY ENVIRONMENTAL, INC.
INNOVATIVE SEPTIC TECHNOLOGIES

March 16, 2000

James A Jacobsen
Wastewater and Plumbing Control Program
Division of Health Engineering
10 State House Station
Augusta, ME 044333-0010



Subject: Modifications to 2000 Manual

Dear Mr. Jacobsen

Here are the proposed changes to the manual we discussed. The sections have been modified to address the additional 6" of separation when systems are installed below original grade. I have also included three pages of drawings from the handbook, which reference the separation. The figures have been modified to refer to each of the appropriate sections below.

2.13 - Minimum Distances: Minimum separation distances and setbacks (including the vertical separation distance to the seasonal ground water table or restrictive horizon) as required by the Maine Subsurface Waste Water Disposal Rules are measured from the outer surface of the 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". (fig. 10, 11, 14, 15)

11.11 – Minimum Distances: Minimum separation distances and setbacks (including the vertical separation distance to the seasonal ground water table or restrictive horizon) as required by the Maine Subsurface Waste Water Disposal Rules are measured from the outer surface of the Enviro-Septic pipe, which is nearest the feature in question. 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". (fig. 16)

If you have any questions please call me at your convenience.

Sincerely,

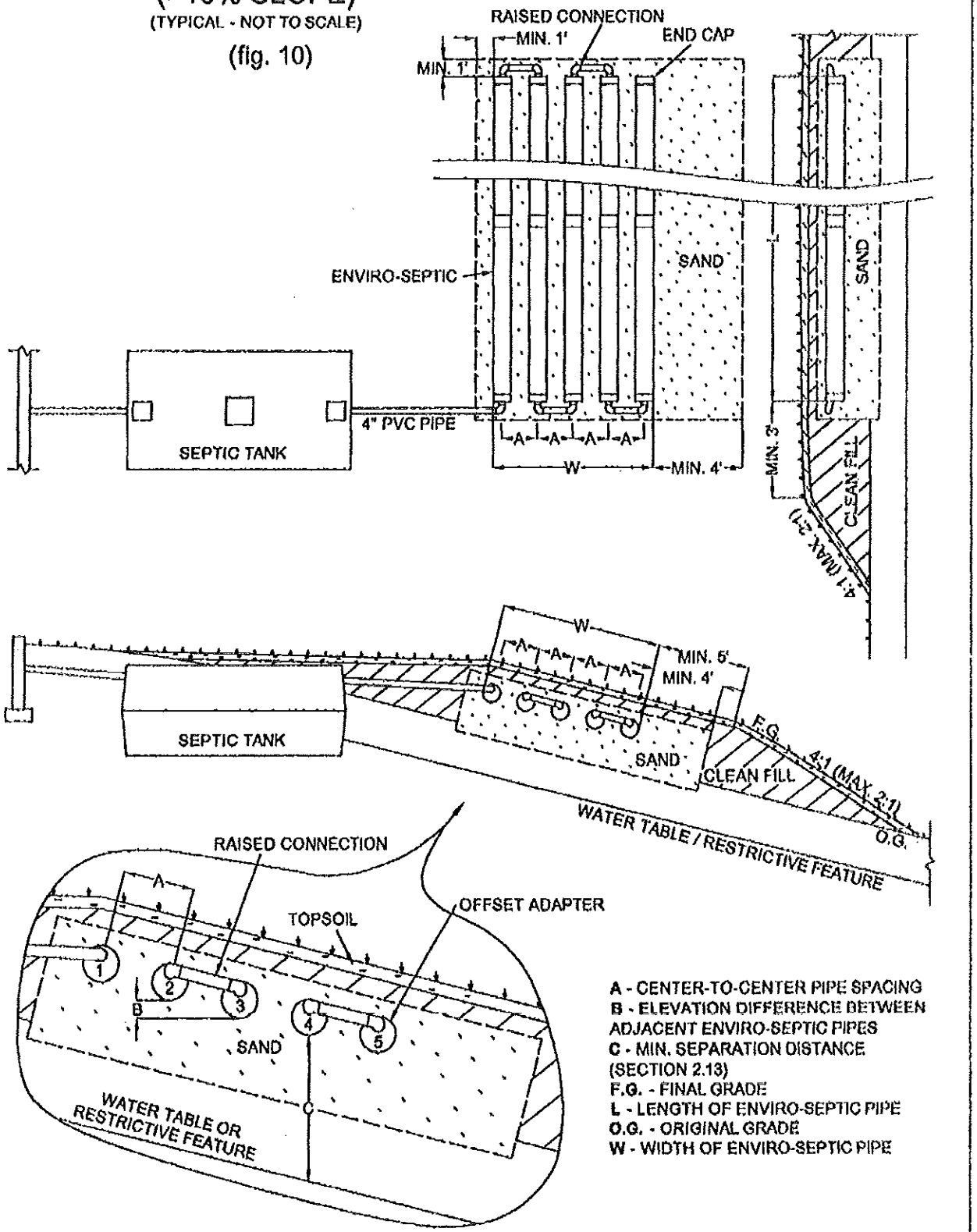
David W. Presby
President

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

RAISED, SLOPING BASIC SYSTEM
(>10% SLOPE)

(TYPICAL - NOT TO SCALE)

(fig. 10)

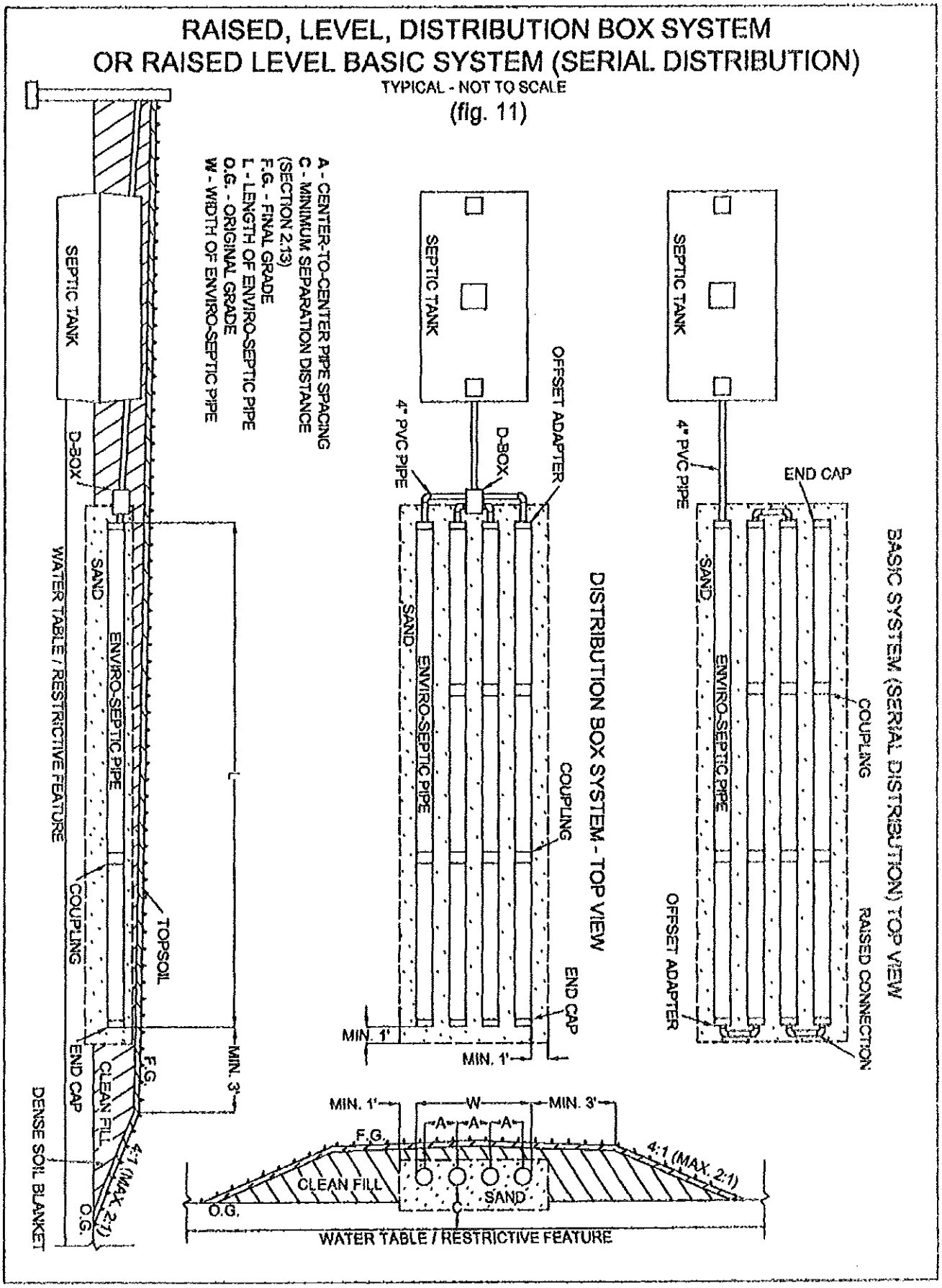


A - CENTER-TO-CENTER PIPE SPACING
B - ELEVATION DIFFERENCE BETWEEN ADJACENT ENVIRO-SEPTIC PIPES
C - MIN. SEPARATION DISTANCE (SECTION 2.13)
F.G. - FINAL GRADE
L - LENGTH OF ENVIRO-SEPTIC PIPE
O.G. - ORIGINAL GRADE
W - WIDTH OF ENVIRO-SEPTIC PIPE

RAISED, LEVEL, DISTRIBUTION BOX SYSTEM OR RAISED LEVEL BASIC SYSTEM (SERIAL DISTRIBUTION)

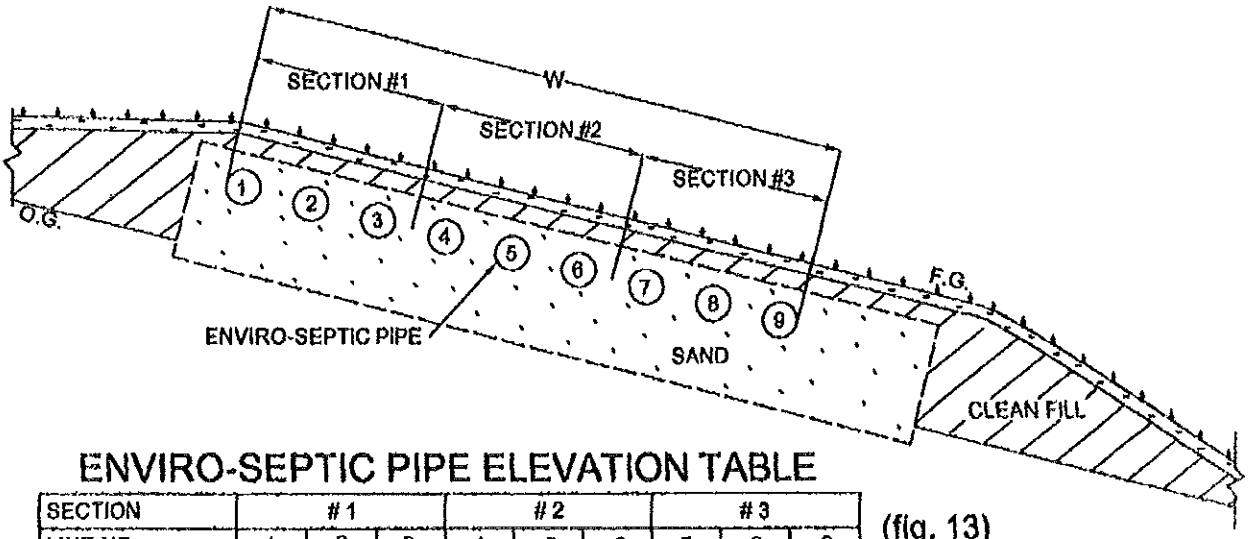
TYPICAL - NOT TO SCALE

(fig. 11)



RAISED, SLOPING COMBINATION SYSTEM

(TYPICAL - NOT TO SCALE) (fig. 12)



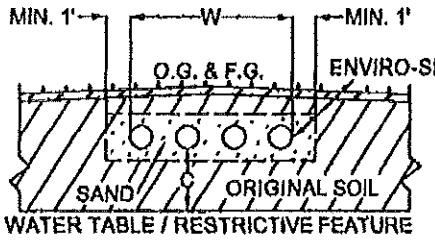
ENVIRO-SEPTIC PIPE ELEVATION TABLE

(fig. 13)

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'

IN-GROUND, LEVEL SYSTEM

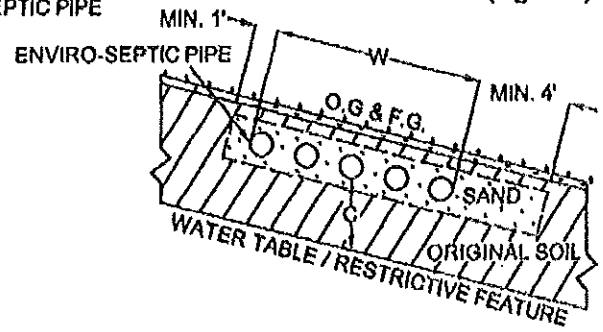
(TYPICAL - NOT TO SCALE) (fig. 14)



IN-GROUND, SLOPING SYSTEM (>10% SLOPE)

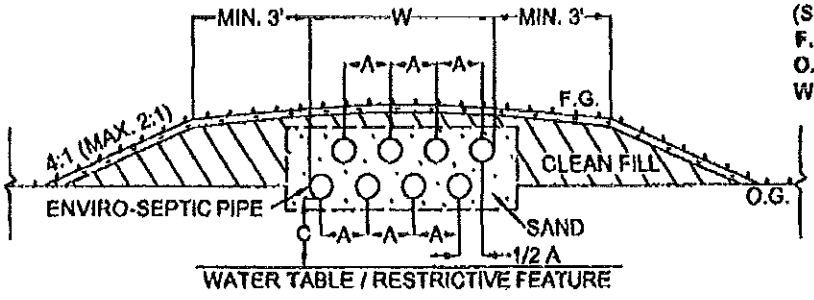
(TYPICAL - NOT TO SCALE)

(fig. 15)



RAISED, LEVEL MULTI-LEVEL SYSTEM

(TYPICAL - NOT TO SCALE) (fig. 16)



A - CENTER-TO-CENTER PIPE SPACING
C - MIN. SEPARATION DISTANCE (SECTION 2.13 & 11.11)
F.G. - FINAL GRADE
O.G. - ORIGINAL GRADE
W - WIDTH OF ENVIRO-SEPTIC PIPE

PRESBY ENVIRONMENTAL, INC.

INNOVATIVE SEPTIC TECHNOLOGIES

March 6, 2000

James A. Jacobsen
Wastewater and Plumbing Control Program
Division of Health Engineering
10 State House Station
Augusta, Maine 044333-0010

Subject: Multi-Level Leaching System Approval

Dear Mr. Jacobsen,

As you know our Multi-Level leaching system consists of two levels of Enviro-Septic pipe installed above one another. Each level is offset by ½ the center-to-center pipe spacing and separated by a layer of sand. Multi-Level systems were recently approved for use in the state of New Hampshire where we have been installing them through waiver for five years. During this time they have proven to be very effective and have helped solve problems on difficult sites.

The most frequently asked question reguarding the Multi-Level system is "Doesn't the liquid from the upper pipes run into the lower pipes?" The answer is no. The sand, which surrounds the pipe and separates each level, acts like a sponge. Liquid is absorbed into the sand and is transferred to the surrounding soil. Only if the sand surrounding the pipes became totally saturated would the effluent leached from an upper pipe enter a lower pipe. We use two methods to prevent this from occurring. First, only selected soil profiles are permitted to have Multi-Level systems installed on them. In general these are the more porous and permeable soils. Secondly, regardless of the soil profile Multi-Level systems are sized so they utilize less then 10% of the theoretical permeability of the underlying soil area. This ensures that the hydraulic capacity of the underlying soil is respected and an adequate safety factor exists at all times. The draft design manual you have shows the soil profiles and pipe spacing we propose for Multi-Level systems.

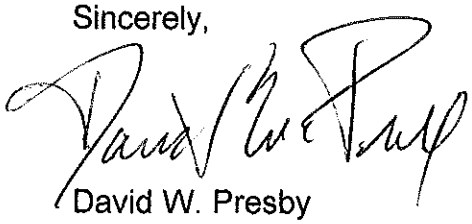
Since Multi-Level systems are quite unique we would provide training to site evaluators and installers to ensure the systems are constructed properly.

I have included the hydrology calculations we discussed so you may review them.

I respectfully request that Multi-Level systems be approved for use in state of Maine according to the Design and Installation Manual. It would be beneficial if we could receive approval in time to incorporate Multi-Level systems into our proposed manual, which you are currently reviewing.

Please contact me if you have any questions.

Sincerely,

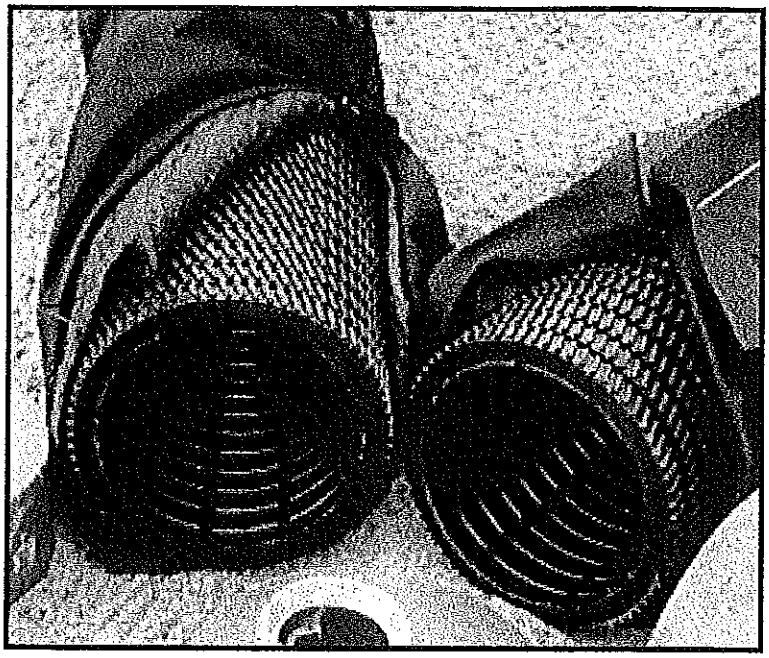


David W. Presby
President

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

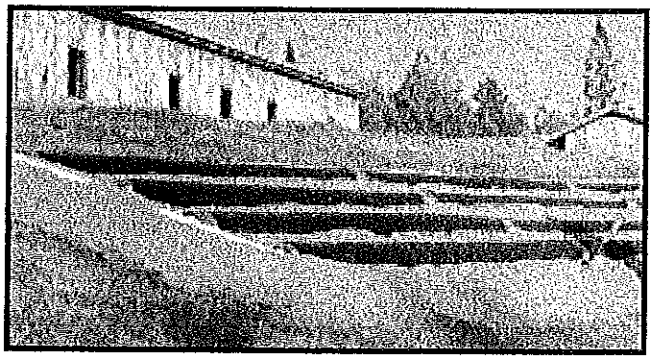
Enviro-Septic® & Simple-Septic™ Leaching Systems

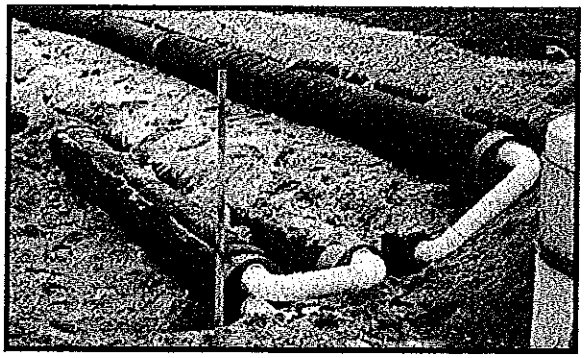
Design & Installation Manual for Maine



DRAFT

Sloping, Level & Multi-Level™ Leaching Systems for Residential & Commercial Applications





PRESBY ENVIRONMENTAL, INC.

INNOVATIVE SEPTIC TECHNOLOGIES

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

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

www.PresbyEnvironmental.com

2000 Edition

Introduction

Enviro-Septic® Leaching System is a patented product consisting of three components:

1) A patent pending, corrugated, perforated, high-density plastic pipe with a unique series of ridges on the peak of each corrugation.
2) A thick mat of randomly orientated, plastic (polypropylene) fibers surrounds the pipe.
3) A special non-woven geo-textile plastic (polypropylene) fabric surrounds the mat of fibers and is stitched in place.

Each unit of Enviro-Septic pipe is 10 feet long, has an outside diameter of 12 inches and is clearly marked with the product's name. (fig. 1)

Effluent (liquid exiting the septic tank) contains suspended solids that can cause any type of leaching system to fail prematurely. Solids can overload bacteria or seal the underlying soil. Enviro-Septic is designed to treat these materials and offer increased system performance utilizing simple, yet effective natural methods.

Warm effluent enters the corrugated pipe and is cooled to ground temperature which allows solids to separate from the liquid. Solids are contained inside the pipe preventing them from sealing the soil or fabric. Effluent exits the pipe through the perforations into the mat of random fibers that screen and separate more solids. Finally, effluent passes into the outer geo-textile fabric. Capillary action causes the fabric to act like a wick, drawing the liquid completely around the pipe's circumference into the surrounding sand. The fabric and fibers provide a large bacterial surface to breakdown solids. The combination of an ample supply of air and fluctuating liquid levels in the pipe increase the bacteria efficiency. Storing solids in the pipe and providing multiple bacterial surfaces prior to effluent contact with the soil extends the system's life and protects the environment.

This manual demonstrates many of the unique installation configurations. Enviro-Septic is easily installed for raised or in-ground systems on level or sloping terrain. Enviro-Septic systems are substantially smaller than conventional systems and can slope or curve to match existing terrain.

Enviro-Septic meets all standards for public use in subsurface disposal of wastewater according to The Maine Department of Human Services, Division of Health Engineering. This manual is to be used in conjunction with Maine Subsurface Waste Water Disposal Rules and other state or local regulations regarding septic systems. The information in this manual is subject to change without notice. Your suggestions and comments are welcome. Please contact us at:

Presby Environmental, Inc.
Route 117 • PO Box 617
Sugar Hill, NH 03585
Phone: 1-800-473-5298 • Fax: (603) 823-8114
Website: www.PresbyEnvironmental.com

Table of Contents

Tables & Illustrations:

Appendix:

Advantages of the Enviro-Septic Leaching System

- Provides an inexpensive long-lasting leaching system
- Requires a smaller area
- Easily installed in sloping systems to reduce "septic mounds"
- Well suited for difficult sites
- Requires less fill
- Quick and easy to install
- Does not require expensive washed stone
- Protected receiving surface
- Proven effective in the most demanding commercial and residential sites
- Less expensive product
- Available through a network of competitive dealers

Section 1 - Terms and Definitions

1.1 - Basic System: A system consisting of only one section of Enviro-Septic pipe. (fig. 5,8,10,11)

1.2 - Combination System: A system incorporating two or more sections of Enviro-Septic pipe with each receiving effluent from a distribution box outlet(s). (fig. 7, 12)

1.3 - Coupling: A fitting that joins two units of Enviro-Septic pipe. (fig. 1)

1.4 - Differential Venting: A method of venting an Enviro-Septic system utilizing high and low vents. Requires a minimum of 10' difference in elevation between vent openings. (fig. 22)

1.5 - Distribution Box Manifold: A method of joining any number of distribution box outlets to a single outlet pipe. (fig. 18)

1.6 - Distribution Box System: A system incorporating a distribution box to divide septic tank effluent between two or more lines of Enviro-Septic pipe. (fig. 6, 9, 11)

1.7 - End Cap: A solid cap used to seal the end of an Enviro-Septic pipe. (fig. 1)

1.8 - Enviro-Septic Pipe: A single unit of Enviro-Septic 10' in length with an outside diameter of 12" and a storage capacity of approximately 58 gallons. (fig. 1)

1.9 - Equalizer™: A plastic insert installed in the outlet lines of a distribution box to provide more equal effluent distribution to each outlet.

1.10 - GPD: Gallons per day of water or wastewater flow (design flow).

1.11 - Level System: A system in which lines of Enviro-Septic are installed at the same elevation. (fig. 11,14)

1.12 - Line: A number of Enviro-Septic pipes connected by couplings with an offset adapter on the inlet end and an offset adapter or cap on the outlet end.

1.13 - Multi-Level System: A patent pending system consisting of at least two vertical layers of Enviro-Septic pipe separated by sand. (fig. 16)

1.14 - Offset Adapter: An end cap fitted with an offset 4" hole designed to accept 4" pipe. Install offset adapter

with offset hole at the 12 o'clock position. (fig. 1)

1.15 - Presby Maze™: A patented plastic unit inserted inside a septic tank that traps suspended solids and pre-treats septic tank effluent.

1.16 - Raised Connection: The method used to connect lines of Enviro-Septic pipe to maintain the correct liquid level inside each line. (fig. 17)

1.17 - Section: Lines of Enviro-Septic pipe connected in serial distribution, which receive effluent from a septic tank or distribution box outlet(s). (fig. 5, 7,12)

1.18 - Serial Distribution: A number of Enviro-Septic lines connected with 4" pipe to form a continuous segment. (fig. 5, 7, 8, 10, 11)

1.19 - Simple-Septic™ Pipe: A patent pending product identical to Enviro-Septic except it lacks the thick mat of randomly orientated plastic (polypropylene) fibers between the corrugated plastic pipe and the geo-textile fabric. (fig. 1)

1.20 - Sloping System: A system in which lines of Enviro-Septic pipe are installed at different elevations. (fig. 10, 12, 15)

Section 2 - Basic Design Information

2.1 - Design and Installation: Design and installation of Enviro-Septic systems must comply with this manual in addition to state and local regulations.

2.2 - Technical Support: Should you have any questions about our products or this manual, please contact us at 1-800-473-5298.

2.3 - Required Feet of Enviro-Septic Pipe: To determine the minimum linear feet of Enviro-Septic pipe required for commercial and non-commercial applications, refer to the Linear Footage Chart. (fig. 2)

Note: All references to GPD in this manual refer to design flow. Chapters 5 and 6 of the Maine Subsurface Waste Water Disposal Rules and other appropriate references, peaking factors, or sewage characteristics must be considered to obtain an appropriate design flow prior to sizing a system using this manual.

2.4 - Pipe Spacing: To determine proper spacing between lines of Enviro-Septic pipe, refer to the Pipe Spacing Chart. (fig. 3)

2.5 - Quick Reference Guide: Use the Quick Reference Guide to easily compare different design layouts. (Appendix 1)

2.6 - Slope Design: For information regarding slope design, refer to the Slope Design Chart. (fig. 4)

2.7 - Sand and Fill Requirements: All configurations of Enviro-Septic require a minimum of 6" of medium to coarse sand with an effective particle size of 0.25 to 2.0 mm, with no greater than 5% passing a #200 sieve and no particles larger than ¾" around the circumference of the Enviro-Septic pipe. All other fill material required to raise Enviro-Septic pipe above the seasonal ground water table, impervious substratum, restrictive

horizon or to provide the required sand area for a given system configuration shall meet the Requirements of the Maine Subsurface Waste Water Disposal Rules Section 804.2 (fig. 20)

2.8 - System Configuration and Arrangement: Enviro-Septic systems may be designed in a variety of unusual shapes such as curved, trapezoidal, L-shaped, or Multi-Level systems to provide optimum design flexibility to address the challenges of each site. In general, fewer long lines are preferable to a greater number of short lines. Longer lines provide more efficient settling of solids that may have escaped the septic tank. In addition, longer more narrow systems reduce the potential for ground water mounding. Ideally, the minimum length of Enviro-Septic lines should be 30' and the maximum length 100'. In some instances site conditions may require shorter or longer lengths. It is easier for the installer if systems are designed in 10' increments since Enviro-Septic pipe is 10' in length. However, the material is easily cut to any length necessary with a sharp knife.

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

2.10 - Fill Extension of Raised Systems: Finished grade over raised, level or sloping systems which slope 10% or less must extend a minimum of 3' beyond the outside of the Enviro-Septic pipe before sloping 4:1 (maximum 2:1 with variance). Finished grade over raised sloping systems which slope greater than 10% must extend a minimum of 3' beyond the outside of the Enviro-Septic pipe on three sides and 5.0' beyond the Enviro-Septic pipe on the down slope side before sloping 4:1 (maximum 2:1 with variance). A dense soil blanket is required around the fill perimeter of raised systems. (fig. 10, 11)

Note: The required sand area around Enviro-Septic pipe is considered part of the fill extension.

2.11 - Systems Greater Than 900 GPD: All systems greater than 900 GPD must be designed as combination systems or distribution box systems. In some cases it may be desirable to utilize a distribution box manifold to connect two or more distribution box outlets together to feed one line or section. (fig. 6, 7,18)

2.12 - Connecting Enviro-Septic Lines: Enviro-Septic lines of level or sloping systems must be connected using the Raised Connection. This arrangement raises the liquid level inside the pipes thus increasing storage capacity and enhancing capillary action. (fig. 17)

2.13 - Minimum Distances: Minimum separation distances and setbacks (including the vertical separation distance to the seasonal ground water table or restrictive horizon) as required by the Maine Subsurface Waste Water Disposal Rules are measured from the outer surface of the Enviro-Septic pipe. (fig. 10, 11, 14, 15)

2.14 - Trenches: Enviro-Septic pipe may be installed in trench systems on level or sloping terrain. Enviro-Septic pipes must be spaced 4' center-to-center in trench configuration and surrounded with a minimum of 6" of

sand. Raised trenches require the same fill extensions as raised systems. (fig. 8, 9) (section 2.10)

2.15 - Distribution Boxes: All distribution boxes that divide effluent flow in pump or gravity systems require Equalizers or equivalent in their outlets. To prevent movement, be sure distribution boxes are placed on a stable soil base or concrete pad.

2.16 - 2 Inch Minimum: Minimum difference in elevation of 2" is required between the outlet of the distribution box or septic tank and offset adapter inlet. (fig. 19)

2.17 - Drainage: Enviro-Septic pipe is very effective in drainage applications. A typical installation provides for 6" of sand to surround Enviro-Septic in a trench. Enviro-Septic provides an inexpensive and easy method of installing curtain drains. (fig. 20)

2.18 - Vehicle Traffic: Enviro-Septic can be easily designed to support vehicular traffic. Typically, this type of installation requires a minimum of 18" of cover over the Enviro-Septic pipe.

2.19 - Product Availability: To benefit the customer, Enviro-Septic is distributed through a network of competitive dealers. Please include our name, address and phone number on plans so installers can easily contact us for technical support or dealer information.

2.20 - Plan Information: Number each line of Enviro-Septic pipe. Provide the top and bottom elevations of each line and the required center-to-center pipe spacing between lines. For sloping systems it is helpful to display elevations in a table. (fig. 13)

2.21 - Commercial Systems: Commercial systems present the designer with many unique challenges including: extremely strong wastewater, flash loading, GPD greater than provided for by state regulations, changing industry regulations, excessive water usage, chemicals and careless employees. It is important to consider these factors when designing a commercial system.

2.22 - Presby Maze: The Presby Maze is a device that drastically reduces the suspended solid output of a standard septic tank and increases leach area life. Commercial systems will benefit by incorporating the Presby Maze into the system. Maine allows up to a 35% reduction of commercial leach area size with use of the Presby Maze. The Presby Maze is also useful for residential systems with high water usage or difficult site conditions. For the Presby Maze to function properly it must be designed and installed according to The Presby Maze Design and Installation Manual for Maine.

2.23 - Simple-Septic Design and Installation: Simple-Septic is designed and installed using exactly the same guidelines and methods used for Enviro-Septic in this manual. (section 10)

2.24- Multi-Level System: Multi-Level systems are well suited to difficult sites. (fig. 16) (section 11)

2.25 - Manual Use: Do not use information from this manual to design or install products that are not referenced in this manual.

Section 3 - Sloping Systems

3.1 - Slope: 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. The maximum slope of an Enviro-Septic system is 20% (without a variance). The slope of the existing terrain can be greater than 20%.

3.2 - Required Sand Area: The sand area is to extend a minimum of 1.0' around the perimeter of the Enviro-Septic pipe of systems with a slope of 10% or less. Systems sloping greater than 10% require the sand area to extend a minimum of 1.0' on three sides and 4.0' beyond the Enviro-Septic pipe on the down slope side. (fig. 10, 15)

Section 4 - Level Systems

4.1 - Terrain: Level systems may be installed on level or sloping terrain.

4.2 - Required Sand Area: The sand area is to extend a minimum of 1.0' around the perimeter of the Enviro-Septic pipe. (fig. 11, 14)

Section 5 - Large Systems (> 900 GPD)

5.1 - Design Criteria: Any system larger than 900 GPD must be designed as a combination system or distribution box system. (fig. 6, 7, 12)

5.2 - Loading: Each section of a combination system or line of a distribution box system is limited to 500 GPD. Each section or line must have equal amounts of Enviro-Septic pipe and receive equal GPD. (fig. 11,14)

Section 6 - Gravity Systems

6.1 - Configuration: Gravity systems typically supply effluent to Enviro-Septic pipe without the use of a pump. (fig. 10, 11)

6.2 - Venting: Systems with more than 18" of cover, installed under parking areas, roads or surface features that restrict air passage through soil must be vented. (fig. 21) (section 8)

6.3 - Velocity Reduction: If piping from the septic tank to Enviro-Septic is excessively steep, install a velocity reducer at the system inlet. A distribution box may be an adequate velocity reducer.

6.4 - GPM Per Equalizer: Equalizers used in gravity systems are limited to a maximum of 10 gallons per minute (GPM) per Equalizer.

Section 7 - Pump Systems

7.1 - Configuration: Pump systems typically supply effluent to Enviro-Septic pipe using a pressured line and a distribution box when site conditions do not permit a gravity system.

7.2 - Venting: All pump systems must be vented at the end of each line or section. To maximize system performance differential venting is recommended, especially for commercial or high use systems. (fig. 22) (section 8)

7.3 - Velocity Reduction: Never pump effluent directly into Enviro-Septic pipes. Install a velocity reducer prior to the Enviro-Septic 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. All pressured lines must have a baffle such as a 90-degree bend or tee fitting at the outlet end.

7.4 - GPM Per Equalizer: Equalizers used in pump systems are limited to a maximum of 20 gallons per minute (GPM) per Equalizer.

7.5 - Feet Per Gallon: Each gallon of effluent pumped per cycle requires a minimum of 1.0' of Enviro-Septic pipe.

7.6 - Effluent Velocity: It is important to control the rate at which effluent enters Enviro-Septic pipe. Excessive effluent velocity can disrupt solids that settle in the Enviro-Septic pipes.

7.7 - Basic System GPM Limit: A maximum of 40 GPM is permitted for basic systems.

7.8 - Section or Line GPM Limit: Each line of a distribution box system or section of a combination system is limited to a maximum of 25 GPM.

Section 8 - Venting

8.1 - Vent Options: Enviro-Septic systems can be vented in three locations:

A) Through an unused distribution box outlet.

B) A tee may be installed in the PVC pipe between the distribution box and Enviro-Septic pipe.

C) Through the 4" hole in an offset adapter installed at the end of a section or line in place of a cap.

8.2 - Vent Location: Locate vent openings to ensure air is drawn completely through each line or section of Enviro-Septic pipe. If utilizing differential venting, connect the high vent to the distribution box and the low vent to the opposite end of the system. This arrangement draws warm air from the system through the distribution box to help prevent freezing during the winter.

8.3 - Vent Manifold: 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. (fig. 21)

8.4 - Vent Piping Slope: Vent piping should slope downward toward the system to prevent moisture from collecting in the piping.

Section 9 - Installation, Maintenance and Replacement

9.1 - Installation: Installers should become familiar with this manual prior to installing an Enviro-Septic system. Enviro-Septic systems must be installed according to this manual, state and local regulations.

9.2 - Site Preparation: Remove topsoil, roots and organic matter under the required sand area of a proposed system, including the slope extensions of raised systems. Important: Do not smear or compact soil structure with

machinery or wheeled vehicles. Do not prepare the area while it is raining or allow water to enter the area; this will adversely affect soil characteristics. Rake or scarify any smeared or compacted soil areas. It is not necessary for the ground to be smooth when the site is prepared. It is important to remove the required soil while maintaining the existing characteristics of the underlying soil as much as possible. Less equipment contact with the soil is desirable.

9.3 - Sand and Fill: Refer to section 2.7 for sand and fill specifications.

9.4 - Fill Placement: After the area under the system is prepared, place the sand or fill as required. Maintain a minimum of 12" between the equipment tracks and the original soil to protect the soil from compaction.

9.5 - Level Pipes: Enviro-Septic pipes are always laid level.

9.6 - Offset Adapters: Offset adapters are always installed with the offset hole at the 12 o'clock position.

9.7 - Raised Connection: The raised connection is designed to increase the liquid level inside the Enviro-Septic pipe to a minimum of 1" and a maximum of 2". To prevent air locking do not install the raised connection too high or insert the PVC pipe more than 4" into the offset adapter (fig. 17)

9.8 - Surface Water: Do not allow water to run into or over the system during construction. Final grading should shed water away from the system.

9.9 - Contamination: Do not permit an Enviro-Septic system to remain uncovered for long periods of time. Do not contaminate the fabric with mud, grease, oil etc. Do not drag Enviro-Septic pipe through wet or muddy areas.

9.10 - Maintenance: Septic tanks should be cleaned periodically according to section 909.1 of the Maine Subsurface Waste Water Disposal Rules or more frequently. Special maintenance considerations should be given to tank cleaning of commercial or high use systems.

9.11 - Additions and Replacements: In some cases it may be possible to enlarge an Enviro-Septic system by adding more lines or increasing the length of existing lines. If an Enviro-Septic system requires replacement, simply remove the existing Enviro-Septic pipe and contaminated sand and replace with new pipe and sand. Be sure the sand and fill meets the requirements of this manual.

9.12 - Product Storage: Enviro-Septic's outer fabric is ultra-violet light stabilized, however, the protection breaks down after long periods of time in direct sunlight. To prevent damage to the fabric, cover Enviro-Septic pipe with a tarp during long periods of storage. 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 10 - Simple-Septic Information

10.1 - Simple-Septic Compared to Enviro-Septic: Simple-Septic is a

leaching system identical to Enviro-Septic except that it lacks the thick mat of randomly orientated plastic (polypropylene) fibers between the corrugated plastic pipe and the geo-textile fabric. (fig. 1)

10.2 - Purpose: Simple-Septic was developed to more closely compare 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. In general, Simple-Septic is suitable for light residential or light commercial uses which do not have high strength wastewater or high flows.

10.3 - Design and Installation: Simple-Septic systems are designed and installed exactly the same as Enviro-Septic systems in accordance with this manual. The same couplings, offset adapters, and end caps are interchangeable between both products.

Section 11 - Multi-Level Leaching System Information

Mulit-Level Systems are not currently approved in the State of Maine. Information provided is for reference purposes only.

11.1 - Advantage: Multi-Level systems are well suited to 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 in commercial systems on small lots or for systems, which generate abnormally strong wastewater. The Multi-Level system is patent pending. (fig. 16)

11.2 - Additional Information Required: Note: The information provided in this manual regarding Multi-Level systems is a summary and is not intended to represent all information required to design or install a Multi-Level system. Designers and installers must contact Presby Environmental, Inc. or its representative (hereafter referred to as P.E.I.) for additional information prior to designing or installing a Multi-Level system.

11.3 - Technical Support and Training: P.E.I. will provide technical support and training to ensure proper design and installation of Multi-Level systems.

11.4 - Design Review and Approval: Multi-Level systems add a new dimension to septic design that requires some unusual techniques and considerations. Until further notice, P.E.I. must approve all Multi-Level system designs before submission to local or state agencies. We recommend designers consult P.E.I. throughout the entire design process. Once designers are familiar with Multi-Level systems, P.E.I. may certify a designer to design Multi-Level systems without P.E.I.'s approval.

11.5 - Installation Inspection: P.E.I. must inspect Multi-Level systems during construction and/or prior to state inspection and covering. Once installers are familiar with Multi-Level systems, P.E.I. may certify an installer to install Multi-Level systems without P.E.I. inspections.

11.6 - Required Feet of Enviro-Septic Pipe: To determine the minimum required linear feet of Enviro-Septic pipe for Multi-Level systems, refer to the Lineal Footage Chart and add 10% to the amount obtained. (fig. 2)

11.7 - Pipe Spacing: To determine the proper spacing between lines of Enviro-Septic pipe, refer to the Multi-Level Pipe Spacing Chart. (section 11.12)

11.8 - System Slope: Sloping Multi-Level systems are permitted according to the Multi-Level Pipe Spacing Chart. (section 11.12)

11.9 – System Configuration: Each level of a Multi-Level system has the same center-to-center 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. (fig. 16)

11.10 – Number of Levels: Multi-Level systems are currently approved for a maximum of two levels. Systems with more than two levels may be possible with variances. (fig. 16)

11.11 – Minimum Distances: Minimum separation distances and setbacks (including the vertical separation distance to the seasonal ground water table or restrictive horizon) as required by the Maine Subsurface Waste Water Disposal Rules are measured from the outer surface of the Enviro-Septic pipe, which is nearest the feature in question. (fig. 16)

11.12 – Multi-Level Spacing Chart

GREATER THAN 20% REQUIRES VARIANCE

SYSTEM SLOPE

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'

MIN. CENTER-TO-CENTER PIPE SPACING OF EACH LEVEL

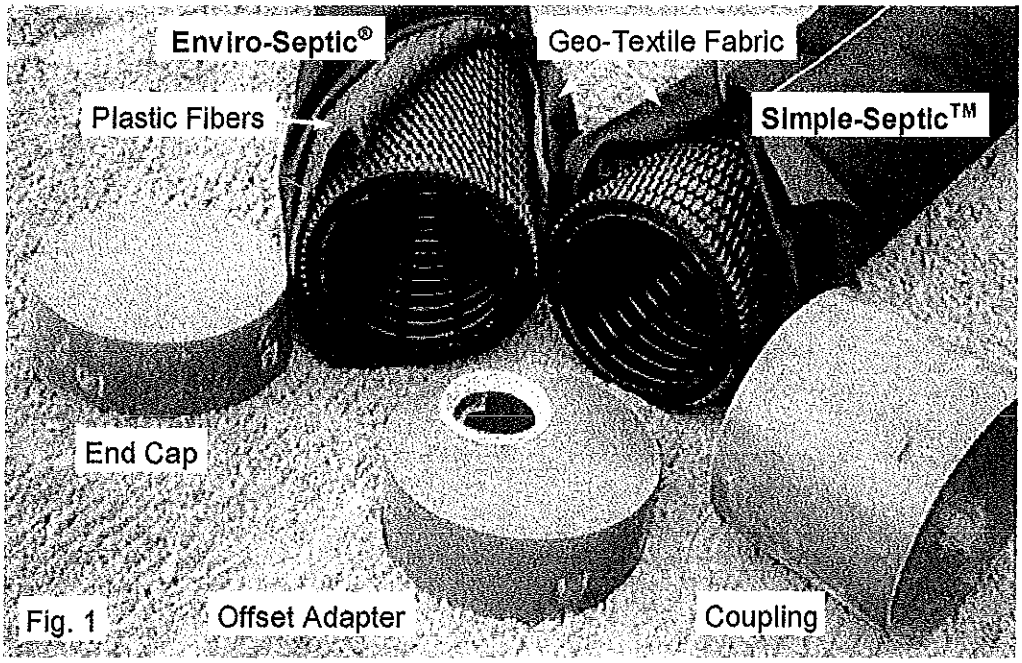


Fig. 1

LINEAR FOOTAGE CHART (Fig.2)

NUMBER OF BEDROOMS-GPD

SOIL PROFILE	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	176	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

(1 ft. of Enviro-Septic pipe is equal to 5 sq. ft. of stone infiltration area.)

(Fig. 3)

ENVIRO-SEPTIC PIPE SPACING CHART

GREATER THAN 20% REQUIRES VARIANCE

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'

MIN. CENTER-TO-CENTER PIPE SPACING

SLOPE DESIGN CHART (Fig. 4)

SYSTEM SLOPE

ELEVATION DIFFERENCE BETWEEN LINES OF ENVIRO-SEPTIC PIPE (ft.)

	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	21%	22%	23%	24%
5.00'	0.050	0.100	0.150	0.200	0.250	0.300	0.350	0.400	0.450	0.500	0.550	0.600	0.650	0.700	0.750	0.800	0.850	0.900	0.950	1.000	1.050	1.100	1.150	1.200
4.75'	0.048	0.095	0.143	0.190	0.238	0.285	0.333	0.380	0.428	0.475	0.523	0.570	0.618	0.665	0.713	0.760	0.808	0.855	0.903	0.950	0.998	1.045	1.093	1.140
4.50'	0.045	0.090	0.135	0.180	0.225	0.270	0.315	0.360	0.405	0.450	0.495	0.540	0.585	0.630	0.675	0.720	0.765	0.810	0.855	0.900	0.945	0.990	1.035	1.080
4.25'	0.043	0.085	0.128	0.170	0.213	0.255	0.298	0.340	0.383	0.425	0.468	0.510	0.553	0.595	0.638	0.680	0.723	0.765	0.808	0.850	0.893	0.935	0.978	1.020
4.00'	0.040	0.080	0.120	0.160	0.200	0.240	0.280	0.320	0.360	0.400	0.440	0.480	0.520	0.560	0.600	0.640	0.680	0.720	0.760	0.800	0.840	0.880	0.920	0.960
3.75'	0.038	0.075	0.113	0.150	0.188	0.225	0.263	0.300	0.338	0.375	0.413	0.450	0.488	0.525	0.563	0.600	0.638	0.675	0.713	0.750	0.788	0.825	0.863	0.900
3.50'	0.035	0.070	0.105	0.140	0.175	0.210	0.245	0.280	0.315	0.350	0.385	0.420	0.455	0.490	0.525	0.560	0.595	0.630	0.665	0.700	0.735	0.770	0.805	0.840
3.25'	0.033	0.065	0.098	0.130	0.163	0.195	0.228	0.260	0.293	0.325	0.358	0.390	0.423	0.455	0.488	0.520	0.553	0.585	0.618	0.650	0.683	0.715	0.748	0.780
3.00'	0.030	0.060	0.090	0.120	0.150	0.180	0.210	0.240	0.270	0.300	0.330	0.360	0.390	0.420	0.450	0.480	0.510	0.540	0.570	0.600	0.630	0.660	0.690	0.720
2.75'	0.028	0.055	0.083	0.110	0.138	0.165	0.193	0.220	0.248	0.275	0.303	0.330	0.358	0.385	0.413	0.440	0.468	0.495	0.523	0.550	0.578	0.605	0.633	0.660
2.50'	0.025	0.050	0.075	0.100	0.125	0.150	0.175	0.200	0.225	0.250	0.275	0.300	0.325	0.350	0.375	0.400	0.425	0.450	0.475	0.500	0.525	0.550	0.575	0.600
2.25'	0.023	0.045	0.068	0.090	0.113	0.135	0.158	0.180	0.203	0.225	0.248	0.270	0.293	0.315	0.338	0.360	0.383	0.405	0.428	0.450	0.473	0.495	0.518	0.540
2.00'	0.020	0.040	0.060	0.080	0.100	0.120	0.140	0.160	0.180	0.200	0.220	0.240	0.260	0.280	0.300	0.320	0.340	0.360	0.380	0.400	0.420	0.440	0.460	0.480
1.75'	0.018	0.035	0.053	0.070	0.088	0.105	0.123	0.140	0.158	0.175	0.193	0.210	0.228	0.245	0.263	0.280	0.298	0.315	0.333	0.350				
1.50'	0.015	0.030	0.045	0.060	0.075	0.090	0.105	0.120	0.135	0.150														

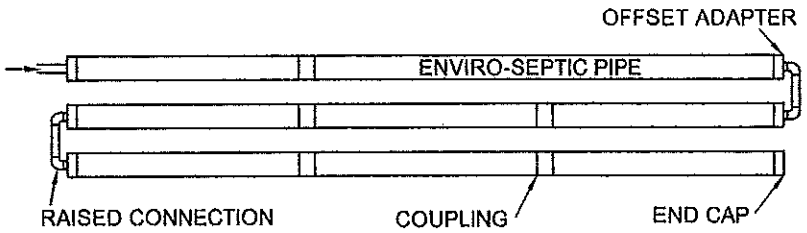
ELEVATION CHANGE PER RUNNING FOOT (ft.)

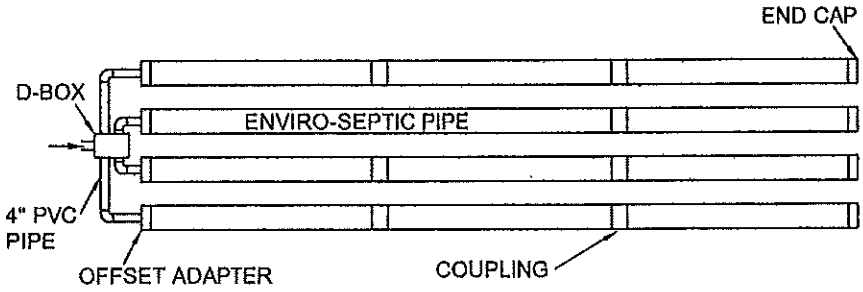
0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24

SYSTEM CONFIGURATIONS

(TYPICAL - NOT TO SCALE)

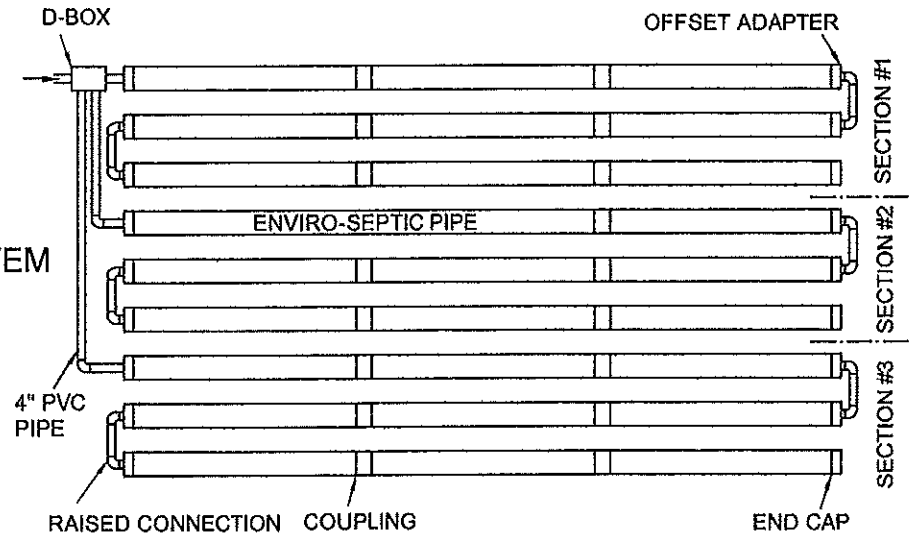
BASIC SYSTEM
(SERIAL DISTRIBUTION)
(fig. 5)

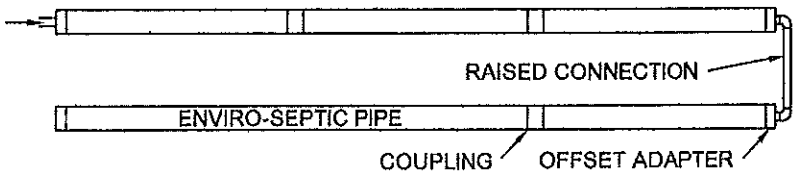




DISTRIBUTION BOX
SYSTEM
(fig. 6)

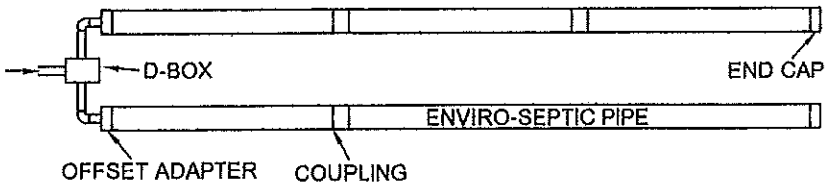
COMBINATION SYSTEM
(fig. 7)





BASIC TRENCH SYSTEM
(SERIAL DISTRIBUTION)
(fig. 8)

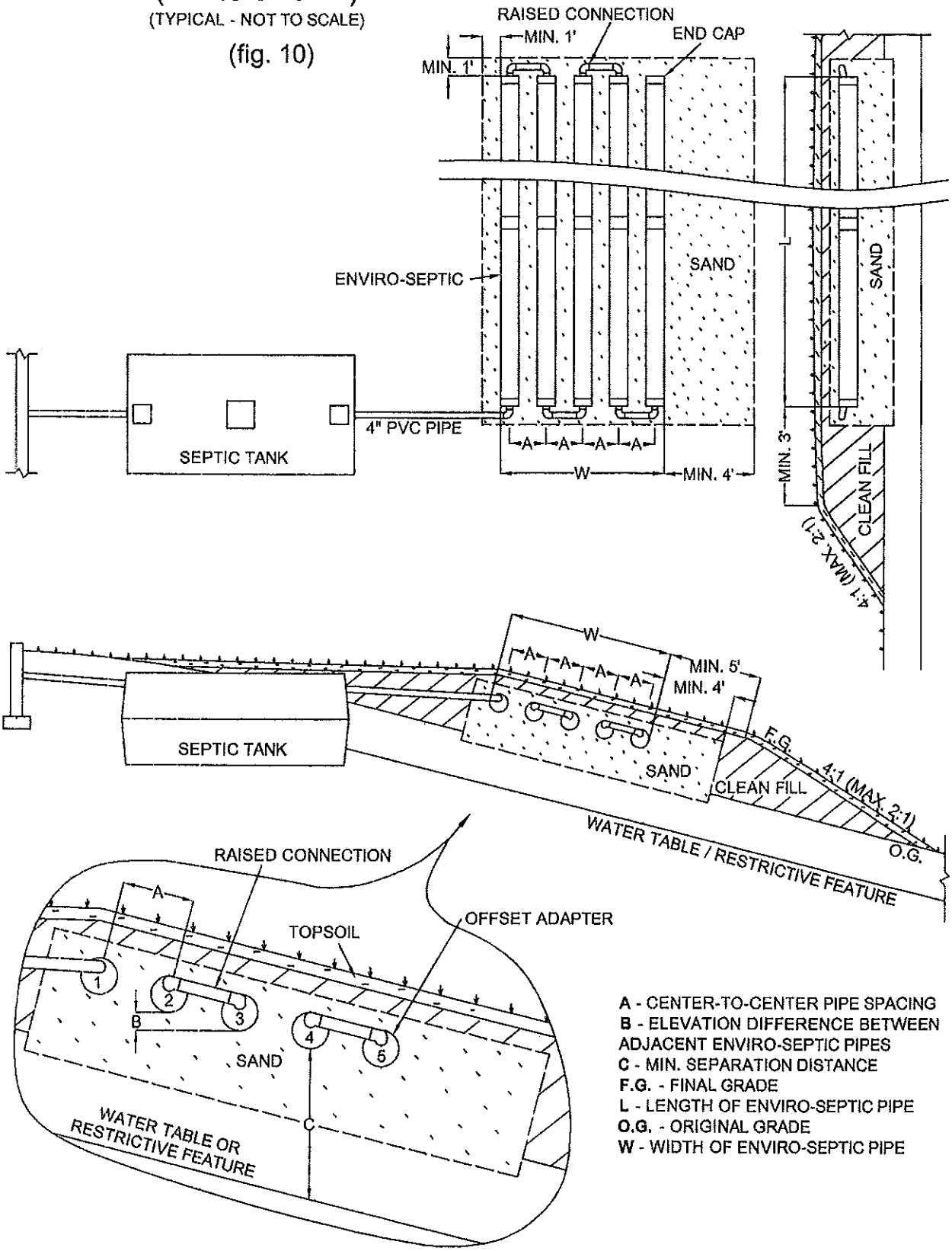
DISTRIBUTION BOX
TRENCH SYSTEM
(fig. 9)



RAISED, SLOPING BASIC SYSTEM
(>10% SLOPE)

(TYPICAL - NOT TO SCALE)

(fig. 10)

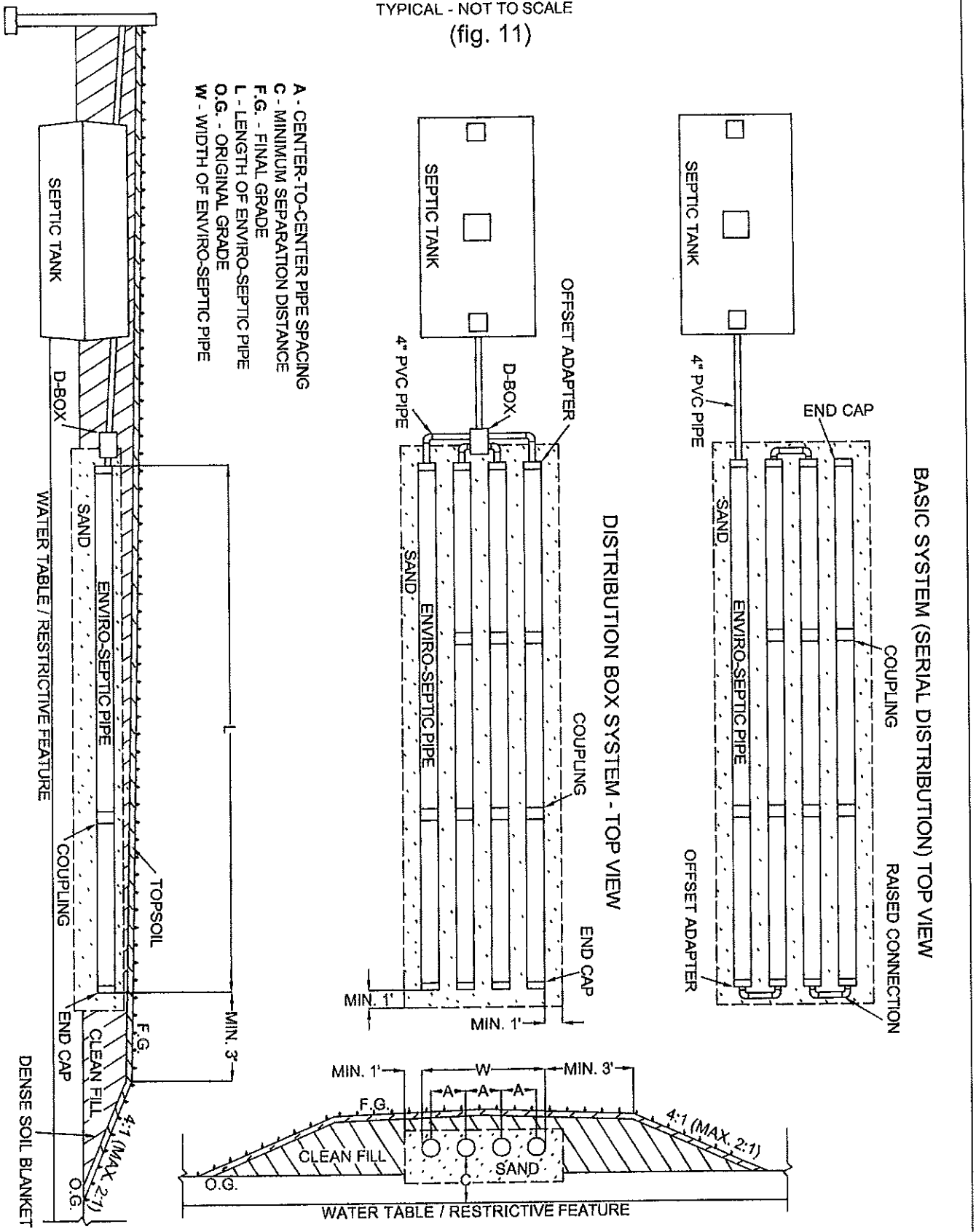


A - CENTER-TO-CENTER PIPE SPACING
B - ELEVATION DIFFERENCE BETWEEN ADJACENT ENVIRO-SEPTIC PIPES
C - MIN. SEPARATION DISTANCE
F.G. - FINAL GRADE
L - LENGTH OF ENVIRO-SEPTIC PIPE
O.G. - ORIGINAL GRADE
W - WIDTH OF ENVIRO-SEPTIC PIPE

RAISED, LEVEL, DISTRIBUTION BOX SYSTEM OR RAISED LEVEL BASIC SYSTEM (SERIAL DISTRIBUTION)

TYPICAL - NOT TO SCALE

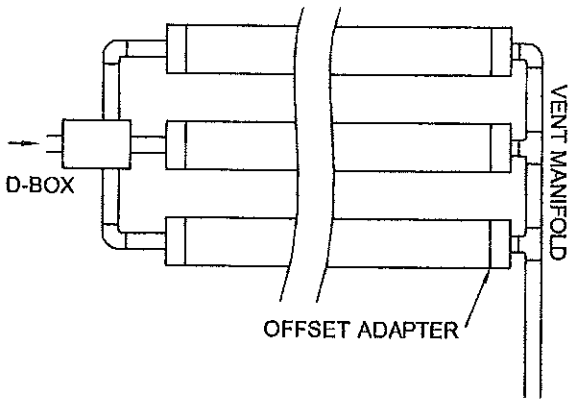
(fig. 11)



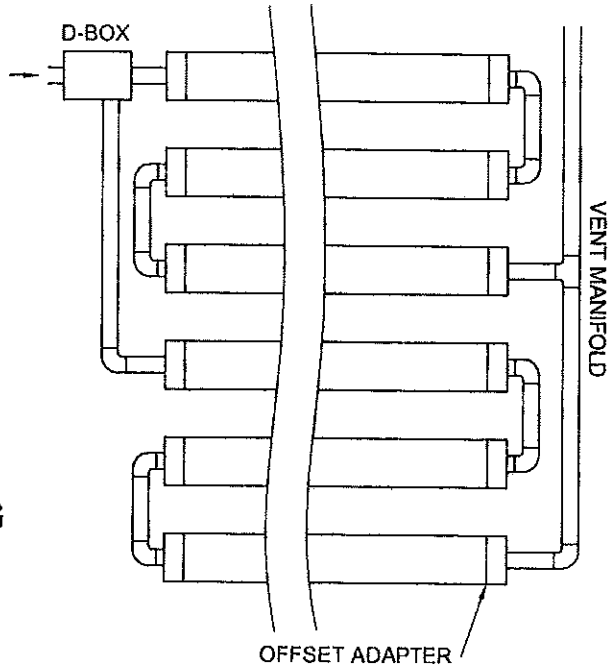
VENT MANIFOLDS (TYPICAL - NOT TO SCALE)

(fig. 21)

DISTRIBUTION BOX SYSTEM



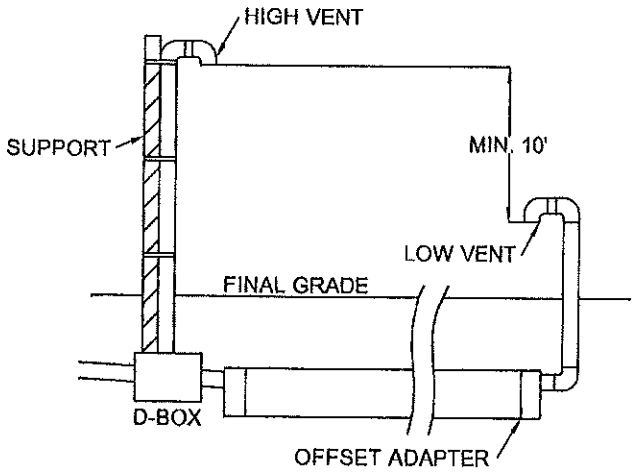
COMBINATION SYSTEM



DIFFERENTIAL VENTING

(TYPICAL - NOT TO SCALE)

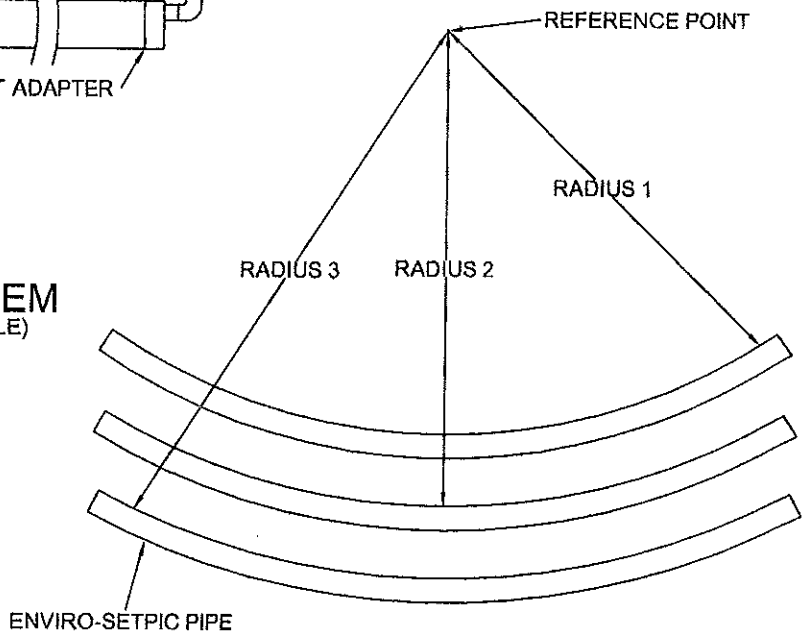
(fig. 22)



CURVED SYSTEM

(TYPICAL - NOT TO SCALE)

(fig. 22)



Quick Reference Guide
Enviro-Septic® & Simple-Septic™

State of Maine Design Criteria as of February 2000

Enviro-Septic's unique design flexibility provides an infinite number of system configurations that vary in length, width, slope and shape. This guide will help designers compare layouts for any site quickly and easily. We recommend designers become familiar with the Enviro-Septic & Simple-Septic Design & Installation Manual for Maine before using the Quick Reference Guide.

Table A: LINEAR FOOTAGE
NUMBER OF BEDROOMS-GPD

SOIL PROFILE	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

(1 ft. of Enviro-Septic pipe is equal to 5 sq. ft. of stone infiltration area.)

OK

Table B: ENVIRO-SEPTIC PIPE SPACING CHART

SYSTEM SLOPE (GREATER THAN 20% REQUIRES VARIANCE)	5&6	4	2	3&7	1&8	9
	SOIL PROFILE					
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'

MIN. CENTER-TO-CENTER PIPE SPACING

Step 1: Refer to table (A) to determine linear feet of Enviro-Septic required. Note: Consult the Enviro-Septic & Simple Septic Design & Installation Manual for commercial applications.

Step 2: Determine the slope (if any) of the proposed system: (% slope = rise/run x 100). Note: The slope of the system and original grade are not required to be equal.

Step 3: Plug soil profile and slope of proposed system into table (B) to determine the minimum 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 of level to 10% and a soil profile of 5 which yields pipe spacing of **1.5'** center to center.

Step 4: Determine if system length or width is most critical to your design and go to the other side of this document. For the example remember 140' and 1.5' pipe spacing.

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2000 Edition

Step 5A: (critical length) Go to desired length at upper left side of table (C) 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 the number of lines and 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 5B: (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 the 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 the Slope Design Chart in the Enviro-Septic & Simple-Septic Design and Installation Manual.

Table C: LENGTH AND WIDTH

LINEAR FEET OF ENVIRO-SEPTIC

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	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	9.76	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

ENVIRO-SEPTIC PIPE SPACING CENTER TO CENTER (ft.)

WIDTH OF ENVIRO-SEPTIC PIPE (OUTERMOST SURFACE)(ft.)

- Note: This document is only a guide. Refer to the Enviro-Septic & Simple-Septic Design & Installation Manual for the State of Maine.
- Required sand area: Systems sloping 10% or less require sand area to extend minimum or 1.0' beyond pipes around perimeter of system. Systems sloping greater than 10% require sand area to extend minimum 1.0' beyond pipes on three sides and 4.0' on down slope side.
- Minimum separation distances are measured from the pipes not the sand area. OK if truly sand
- Minimum recommended length of pipes is 30'.

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SLOPE DESIGN CHART

FOR USE WITH *ENVIRO-SEPTIC®* OR *SIMPLE-SEPTIC™* LEACHING SYSTEMS

DROP IN INCHES BETWEEN LINES OF ENVIRO-SEPTIC® OR SIMPLE-SEPTIC™ FOR CENTER TO CENTER PIPE SPACING

PERCENTAGE OF SLOPE

PIPE SPACING CENTER TO CENTER (feet)	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%
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	8 3/8	9
4.75'	9/16	1 1/8	1 11/16	2 1/4	2 7/8	3 7/16	4	4 9/16	5 1/8	5 11/16	6 1/4	6 13/16	7 7/16	8	8 9/16
4.50'	9/16	1 1/16	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	7 9/16	8 1/8
4.25'	1/2	1	1 1/2	2 1/16	2 9/16	3 1/16	3 9/16	4 1/16	4 9/16	5 1/8	5 5/8	6 1/8	6 5/8	7 1/8	7 5/8
4.00'	1/2	15/16	1 7/16	1 15/16	2 3/8	2 7/8	3 3/8	3 13/16	4 5/16	4 13/16	5 1/4	5 3/4	6 1/4	6 3/4	7 3/16
3.75'	7/16	7/8	1 3/8	1 13/16	2 1/4	2 11/16	3 1/8	3 5/8	4 1/16	4 1/2	4 15/16	5 3/8	5 7/8	6 5/16	6 3/4
3.50'	7/16	13/16	1 1/4	1 11/16	2 1/8	2 1/2	2 15/16	3 3/8	3 3/4	4 3/16	4 5/8	5 1/16	5 7/16	5 7/8	6 5/16
3.25'	3/8	3/4	1 3/16	1 9/16	1 15/16	2 5/16	2 3/4	3 1/8	3 1/2	3 7/8	4 5/16	4 11/16	5 1/16	5 7/16	5 3/4
3.00'	3/8	3/4	1 1/16	1 7/16	1 13/16	2 3/16	2 1/2	2 7/8	3 1/4	3 5/8	3 15/16	4 5/16	4 11/16	5 1/16	5 3/8
2.75'	5/16	11/16	1	1 5/16	1 5/8	2	2 5/16	2 5/8	3	3 5/16	3 5/8	3 15/16	4 5/16	4 5/8	4 15/16
2.50'	5/16	5/8	7/8	1 3/16	1 1/2	1 13/16	2 1/8	2 3/8	2 11/16	3	3 5/16	3 5/8	3 7/8	4 3/16	4 1/2
2.25'	1/4	9/16	13/16	1 1/16	1 3/8	1 5/8	1 7/8	2 3/16	2 7/16	2 11/16	3	3 1/4	3 1/2	3 3/4	4 1/16
2.00'	1/4	1/2	3/4	15/16	1 3/16	1 7/16	1 11/16	1 15/16	2 3/16	2 3/8	2 5/8	2 7/8	3 1/8	3 3/8	3 5/8
1.75'	3/16	7/16	5/8	13/16	1 1/16	1 1/4	1 1/2	1 11/16	1 7/8	2 1/8					
1.50'	3/16	3/8	9/16	3/4	7/8										

PERCENTAGE OF SLOPE

PIPE SPACING CENTER TO CENTER (feet)	16%	17%	18%	19%	20%	21%	22%	23%	24%	25%
5.00'	9 5/8	10 3/16	10 13/16	11 3/8	12	12 5/8	13 3/16	13 13/16	14 3/8	15
4.75'	9 1/8	9 11/16	10 1/4	10 13/16	11 3/8	12	12 9/16	13 1/8	13 11/16	14 1/4
4.50'	8 5/8	9 3/16	9 3/4	10 1/4	10 13/16	11 5/16	11 7/8	12 7/16	12 15/16	13 1/2
4.25'	8 3/16	8 11/16	9 3/16	9 11/16	10 3/16	10 11/16	11 1/4	11 3/4	12 1/4	12 3/4
4.00'	7 11/16	8 3/16	8 5/8	9 1/8	9 5/8	10 1/16	10 9/16	11 1/16	11 1/2	12
3.75'	7 3/16	7 5/8	8 1/8	8 9/16	9	9 7/16	9 7/8	10 3/8	10 13/16	11 1/4
3.50'	6 3/4	7 1/8	7 9/16	8	8 3/8	8 13/16	9 1/4	9 11/16	10 1/16	10 1/2
3.25'	6 1/4	6 5/8	7	7 7/16	7 13/16	8 3/16	8 9/16	9	9 3/8	9 3/4
3.00'	5 3/4	6 1/8	6 1/2	6 13/16	7 3/16	7 9/16	7 15/16	8 1/4	8 5/8	9
2.75'	5 1/4	5 5/8	5 15/16	6 1/4	6 5/8	6 15/16	7 1/4	7 9/16	7 15/16	8 1/4
2.50'	4 13/16	5 1/8	5 3/8	5 11/16	6	6 5/16	6 5/8	6 7/8	7 3/16	7 1/2
2.25'	4 5/16	4 9/16	4 7/8	5 1/8	5 3/8					

NOTE: SLOPES GREATER THAN 20% REQUIRE A VARIANCE IN THE STATE OF MAINE