FILE SEPTITECH PROJECT FILE

SEPTITECH, INC.

SOLVING WASTEWATER PROBLEMS WITH TECHNOLGY

FACSIMILE TRANSMITTAL SHEET

TO: Russ Martin, P.E., Prog. Mgr.	FROM: Scott Samuelson
COMPANY: Div. Health Engineering	DATE: 3/31/03
FAX NUMBER: 207-287-3165	TOTAL NO. OF PAGES INCLUDING COVER: 2
PHONE NUMBER: 207-287-5689	SENDER'S REFERENCE NUMBER:
RE:	YOUR REFERENCE NUMBER:

☐ URGENT ☐ FOR REVIEW ☐ PLEASE COMMENT ☐ PLEASE REPLY ☐ PLEASE RECYCLE

NOTES/COMMENTS:

Hello Russ:

I appreciate you reviewing this.

As Jim Jacobsen briefed you before his vacation, this slide represents a slight modification to Jim's MASE drip hose presentation slide #7. The key difference is that it shows how to use elevations with the drip hose disposal system, whereby elevations relate to the disposal area boundary and not individual hose runs.

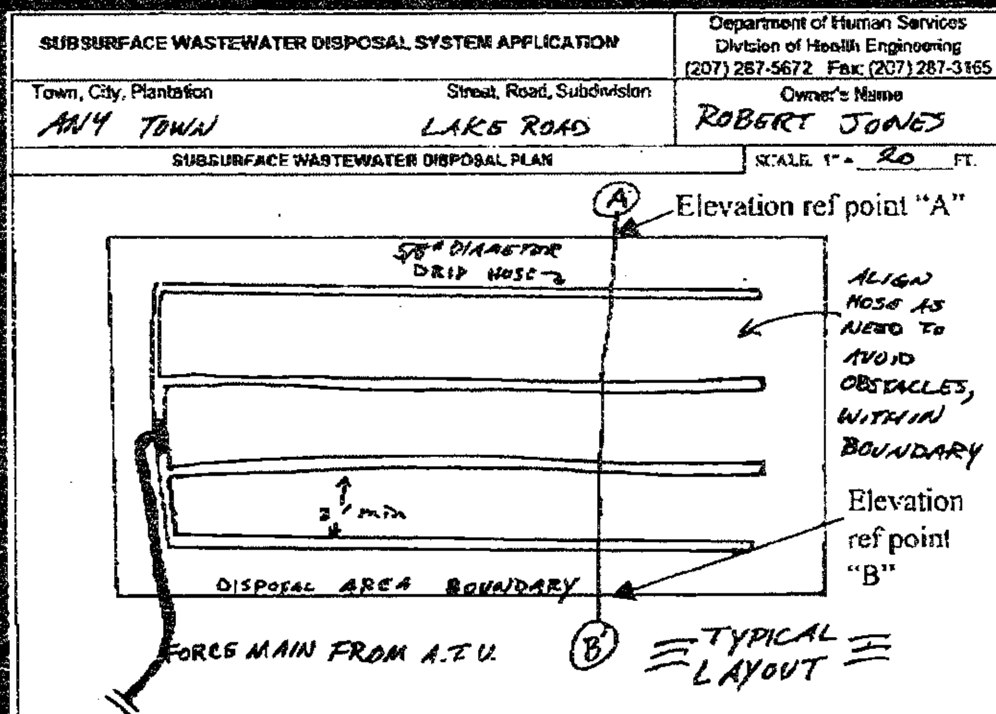
Would it be possible for you to review and OK this change as I am planning to mail Jim's presentation to licensed Maine site evaluators.

Thanks very much. Please call with questions. 657-5252.

Scott

220 LEWISTON ROAD, GRAY, MAINE 04039
TELEPHONE: 207-657-5252
FAX: 207-657-5246
E MAIL: INFO@SEPTITECHCOM

- Page 3 should show typical hose layout
- It is understood that hoses may be irregularly placed to accommodate obstacles
- Elevations relate to high and low points of disposal area boundary only, not individual hose runs. (Maximum 10-ft. differential between high and low points).



FILL REQUIREMENTS
Fill (Upslope) 0"
Fill (Downslope) 0"
(Min 12" depth to limiting factor is met)

Jacobsen, James

From: Jacobsen, James
Sent: Monday, April 07, 2003 9:02 AM
To: Scott Samuleson (E-mail)
Subject: powerpoint is OK

Hi Scott,

I'm sorry that this took so much longer than it should have. The minor change to the PowerPoint show, indicating that elevations are measured to the boundary area, is fine.

Best regards,

Jim

SEPTITECH, INC.

SOLVING WASTEWATER PROBLEMS WITH TECHNOLGY

FACSIMILE TRANSMITTAL SHEET

TO: Jim Jacobsen ~~Russ Martin, P.E., Prog. Mgr.~~	FROM: Scott Samuelson
COMPANY: Div. Health Engineering	DATE: ~~3/31/03~~ 4-4-03
FAX NUMBER: 207-287-3165	TOTAL NO. OF PAGES INCLUDING COVER: 2
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NOTES/COMMENTS:

Hello ~~Russ~~ Jim

Thanks Jim. This is what I faxed RUSS. Thanks. Scott

I appreciate you reviewing this.

As Jim Jacobsen briefed you before his vacation, this slide represents a slight modification to Jim's MASE drip hose presentation slide #7. The key difference is that it shows how to use elevations with the drip hose disposal system, whereby elevations relate to the disposal area boundary and not individual hose runs.

Would it be possible for you to review and OK this change as I am planning to mail Jim's presentation to licensed Maine site evaluators.

Thanks very much. Please call with questions. 657-5252.

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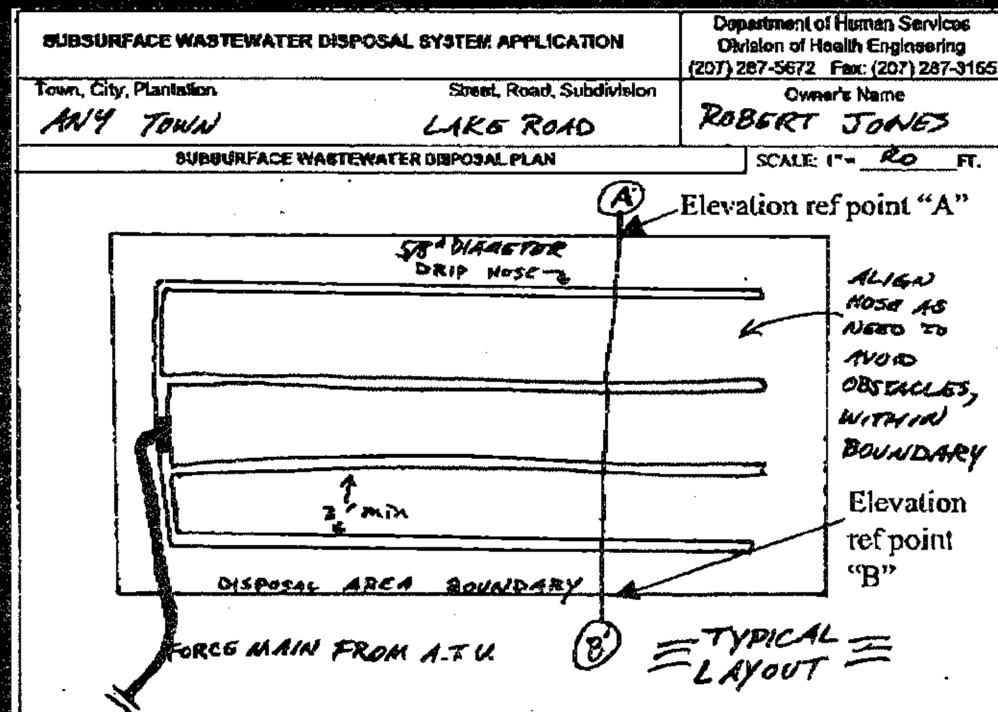

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Fill (Upslope) 0"
Fill (Downslope) 0"
(Min 12" depth to limiting factor is met)

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

June 28, 2002

SeptiTech
Attn: Scott Samuelson
220 Lewiston Road
Gray, Maine 04039

Subject: Approval, Revised Product Registration, SeptiTech Porous Drip Hose System

Dear Mr. Samuelson:

Thank you for your letter dated June 14, 2002 regarding your company's product, specifically, the SeptiTech drip hose irrigation system. This information was submitted pursuant to Section 1802 of the Maine State Plumbing Code, Subsurface Wastewater Disposal Rules (Rules), for code registration modification, for use in Maine. This information also was submitted pursuant to a meeting held June 13, 200 at the Division's office.

Product Description

The drip hose system was approved for seasonal use in Maine in January of 2001, and includes a disposal area which consists of one foot (12 inches) of porous hose per gallon of disinfected effluent per day (gpd). The hose is installed in shallow trenches and backfilled with native organic material (duff) and/or bark chips; or laid on scarified ground at grade and covered with bark chips, as site conditions warrant.

Proposal

SeptiTech proposes to size the porous hose system at 1.33 square feet per foot of hose. This figure was derived from discussion at the meeting and from a chart prepared by SeptiTech which compared the porous hoses to conventional onsite sewage disposal system disposal areas.

SeptiTech proposes that the porous hose system be approved for use on a year round basis, by use of one foot of cover material and insulation board over the hose.

SeptiTech proposes that the porous hose system be approved for installation with a six inch separation to bedrock and/or limiting factor for replacement systems.

Determination: Size Rating

The SeptiTech porous hose system size rating is approved at the equivalent of 1.33 square feet of disposal area per linear foot of hose.

Determination: Year Round Use

SeptiTech porous drip hose installations are approved for year round use with the following conditions:

1. The porous hose shall be covered with at least one foot (12 inches) of suitable cover material, extending for a width of 2.5 feet on center.

2. The porous hose shall be protected with at least 1.5 feet (18 inches) on center of plastic insulation board with a minimum R value of 4, adjacent to and above the hose.

Determination: Separation from Limiting Factor

The SeptiTech porous hose system shall be separated by a minimum of 12 inches from bedrock and the limiting factor, which ever is found at the higher elevation. The Division finds no compelling justification for reducing the separation distance to less than 12 inches, particularly the normal 24 inch separation from bedrock.

Other

1. All HHE-200 Forms for the SeptiTech porous hose system shall include a clearly defined area within which the disposal area shall be installed. In colloquial terms, this shall be the "building window" for the disposal area.

2. All HHE-200 Forms for the SeptiTech porous hose system shall include an elevation reference point pursuant to Section 401.6.9 of the Maine State Plumbing Code, Subsurface Wastewater Disposal Rules.

If you have any 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

xc: Product File
Russell Martin, Program Director

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

DATE: 6/28/02 TIME: _____ AM/PM

TO: Scott Samuelson, Septic Tech

FROM: Jim Jacobsen, WW & PC

PAGES INCLUDING THIS COVER SHEET: 3

MESSAGE:

Revised drip hose approval attached.
Original follows via snail mail.

Jacobsen, James

From: Scott Samuelson [scottsamuelson@septitech.com]
Sent: Friday, June 14, 2002 5:24 PM
To: Jacobsen, James
Subject: RE: SeptiTech drip hose bedrock separation


Jim Jacobsen Drip Hose Approva...


Drip Hose Area Profile (Maine ...


Drip Hose (Maine Code Appendix...


Jim Jacobsen request for modif...

Jim. Thank you for your e-mail and especially thank you for your prompt attention to this issue. I discussed your request with Jim Gray and we have been sorting through records and e-mails for a few hours. In the end, as Jim written in the attached letter, you are correct. We have been making assumptions based on previous meetings this year with you and Russ. Therefore, Jim has made a formal request to you in the attached letter and I am attaching supporting documentation (which your already have I believe) for reference. Please let me know if you have questions. Meanwhile, I will await your written revised approval before contacting any site evaluators. Thank you again. Scott

-----Original Message-----
From: Jacobsen, James [mailto:James.Jacobsen@state.me.us]
Sent: Friday, June 14, 2002 8:55 AM
To: 'scottsamuelson@septitech.com'
Cc: Martin, Russell; Toppan, Clough
Subject: SeptiTech drip hose bedrock separation

Scott,

One of the topics discussed at the meeting yesterday with Russ Martin, Jim Gray, you, and I was a six inch separation from bedrock for seasonal installations of the SeptiTech soaker hose irrigation system. It is my understanding that you and Jim have received written approval from the Division for this 75% bedrock separation reduction from the normal requirements of the Subsurface Wastewater Disposal Rules.

I have searched through all of our paper and electronic files related to SeptiTech, including our MacMahan Island files. I did not locate such an approval.

As you know, the general approval for SeptiTech granted a 12 inch bedrock separation from the disposal area, for all disposal area types. The January 10, 2001 approval for general use of the soaker hose installations did not amend or alter that allowance.

I'd be most grateful if you would send us a copy of the approval for installation of the soaker hose systems with a six inch separation from bedrock. In the meantime, I will draft the rest of the revised approval, in accordance with our discussion yesterday.

Jim

June 14, 02

Jim Jacobsen
Wastewater and Plumbing Program
Division of Health engineering
10 State House Station
Augusta Maine 04333

Dear Mr. Jacobsen:

Re: Drip hose bed rock separation.

Thank you for meeting with us yesterday, it was good to see you again.

I have reviewed our files in light of your memo this morning and find that you are correct. My confusion was caused because after Scott and I met with you on Jan. 20th to discuss the proposed changes to the drip hose approval I did not follow up on our request. By letter of Jan. 21, 02, after our meeting with you, we requested a change to 4" to refusal, for seasonal drip hose (copy enclosed). Subsequent to this request Russ Martin contacted us with some questions and Scott and I met with Russ on Feb. 15, 02 and I thought we agreed to amend the request to reflect 4" of mineral soil plus an additional 2" of organic material.

After our meeting with Russ we worked closely with Dave Rocque to develop the attached design in accordance with our discussions with both you and Russ. I believe we sent this up as an aid for clarification, but perhaps we did not. At this point I dropped the ball. My records don't show we ever received a formal response to the request, probably because it was never officially resubmitted with the appropriate requests for changes.

Therefore, by this letter I would like to request an amendment to our seasonal drip hose approval specifications to a minimum of 4" of mineral soil and a minimum separation distance of 6" to refusal (on replacement systems only) as depicted on the enclosed sketch. This request is made for the following reasons.

Shallow drip hose irrigation is based on the principle that extremely well treated and disinfected water, when seasonally applied just under the surface of the ground will be

substantially absorbed by existing vegetation (both trees, shrubs and ground vegetation) if this vegetation is left undisturbed. Furthermore, an undisturbed duff layer is the most microbially active soil zone, virtually alive with microorganisms thus allowing further treatment rapidly. The proximity of the remaining water to the surface of the ground also allows it to be evaporated from the surface by sun and wind. Thus this technique does not rely on absorption into existing substrate.

It is extremely important for this system to work that the existing vegetation and the existing duff layer be disturbed as little as possible. If extra fill is brought in, it will cover or destroy the vegetation that would otherwise draw up and transevaporate the water, as well as destroy the biological colony in the duff layer that affects final polishing treatment and compromise the effectiveness of the drip irrigation system.

Thank you for your consideration of this matter.

James R. Gray
Pres./C.E.O.
SeptiTech Inc.

January 21, 2002

Jim Jacobsen
Wastewater & Plumbing Program
Division of Health Engineering
10 State House Station
Augusta, ME 04333

Dear Mr. Jacobsen:

Thanks for meeting with us last week. We appreciate your time and openness.

As we discussed, we would like to propose two modifications to our existing approval letter dated January 10, 2001 for the SeptiTech Combination UV Drip Hose System. Both modifications are based on comprehensive system field inspections after two complete seasons of operation.

> The residential system includes two treatment tanks. The first treatment tank is a 1,000 gallon septic tank which discharges effluent to the second treatment tank. The second treatment tank is a SeptiTech treatment unit which consists of an aerobic/anaerobic biological treatment plant. A proprietary ultraviolet disinfection unit treats the effluent prior to disposal. The system includes a disposal area which consists of ~~one foot~~ nine inches of porous hose per gallon of effluent per day (gpd). The hose is installed in shallow trenches with a minimum separation distance of 4-inches to limiting factor and backfilled with native organic material (duff) and/or bark chips; or laid on scarified ground at grade and covered with bark chips, as site conditions warrant.

Rationale for proposed modification #1: ~~one foot~~ nine inches:

Due to lot size restrictions, most of our drip hose systems were installed with less hose than the recommended 1-foot per gallon per day. Close inspections of these systems performed regularly through two seasons of operation, clearly indicate that systems with only 6-inches of hose per gallon per day perform on par with systems installed with 1 ft./gal./day. Our inspectors never found visible water on the surface of the ground and with all systems (6" hose per gpd up to 12" hose per gpd) only moist soil was found when duff was scraped away to expose the drip hose.

Therefore, our conclusion is that due to rapid dispersion in the duff layer accompanied by evaporation and transevaporation, only 6-inches of drip hose per gallon per day is necessary for effective water dispersion. However, to be conservative, we are proposing 9" of hose per gallon per day.

Since so many replacement systems that opt to use drip hose are on small lots, a reduction in soaker hose length would assist designers trying to shoehorn replacement systems onto tight sites.

Rationale for proposed modification #2: with a minimum separation distance of 4-inches maintained between the seasonal high groundwater table or other limiting factor:

This change, applicable to replacement systems, is more for clarification because during the experimental phase all the systems were installed in this manner, with near surface application. It reflects actual conditions on sites where drip hose is typically specified. A typical site for this system generally has minimal native soil and very small distance to limiting factor. For instance, throughout MacMahan Island, and most coastal properties the average distance to limiting factor is 6-inches or less.

Since the overriding design principle is to use near surface application in order to take advantage of natural evaporation and plant uptake by both large trees and smaller shrubs (one medium pine tree can transmit 150 gallons of water into the air per day) instead of trying to force adsorption into a small subsurface area, and to take advantage of the nutrient uptake by plants and organisms found in this biologically active horizon, this change proposal makes practical sense.

If you have any questions, we would be happy to meet to discuss these proposed changes with you at your earliest convenience.

Thank you for your review and consideration.

Sincerely,

Jim Gray

Maine Subsurface Wastewater Disposal Rules

Proposed Addition to Appendix B

B-108.0 Drip Irrigation Disposal Systems

The following parameters refer to sizing requirements and disposal area profile for SeptiTech, Inc.'s Drip Irrigation Disposal System.

B-108.1 SeptiTech Drip Irrigation Hose: Sizing/Configuration Requirements:

Hose Length Requirement	9" per gallon per day
Hose Configuration	Individual runs; 200'max. Note: Maintain less than 10-ft. elevation differential per hose run. [1]
Separation Between Hoses	3-ft. center-to-center minimum. Note: Maintain max of 10 feet elevation differential between hose runs. [1]

B-108.2 SeptiTech Drip Irrigation Hose: Disposal Area Profile

	Seasonal Sites[2]	**Year-Round Sites** [2]
Separation from Limiting Factor [3]	Minimum 6" to limiting factor	Minimum 12-inches to limiting factor
Mulch/Duff Bed Width	12" from edge to edge for single row	30" from edge to edge for single row
Mulch/Duff Height Above Hose	2-inches [4]	10-inches [4]
Mulch/Duff Below Hose	2-inches [4]	2-inch minimum [4]
Total Mulch/Duff Bed thickness	4.5 –inches (includes hose)	12.5 -inches
Insulation width and R-Value	None	18" width. Minimum R-value of 4.

[1] Install hose runs along contours as practicable, maintaining a maximum of 10' total elevation differential per hose run, as well as 10 feet elevation difference between hoses.

[2] First time systems must meet first time system soil and set back criteria.

[3] For replacement systems, separation distance may be achieved by mineral soil or organic matter.

[4] If limited organic material is present, supplement with bark mulch, wood chips or sawdust.

SeptiTech Seasonal Shallow Drip Hose Disposal Area Profile

Date: 1/14/02

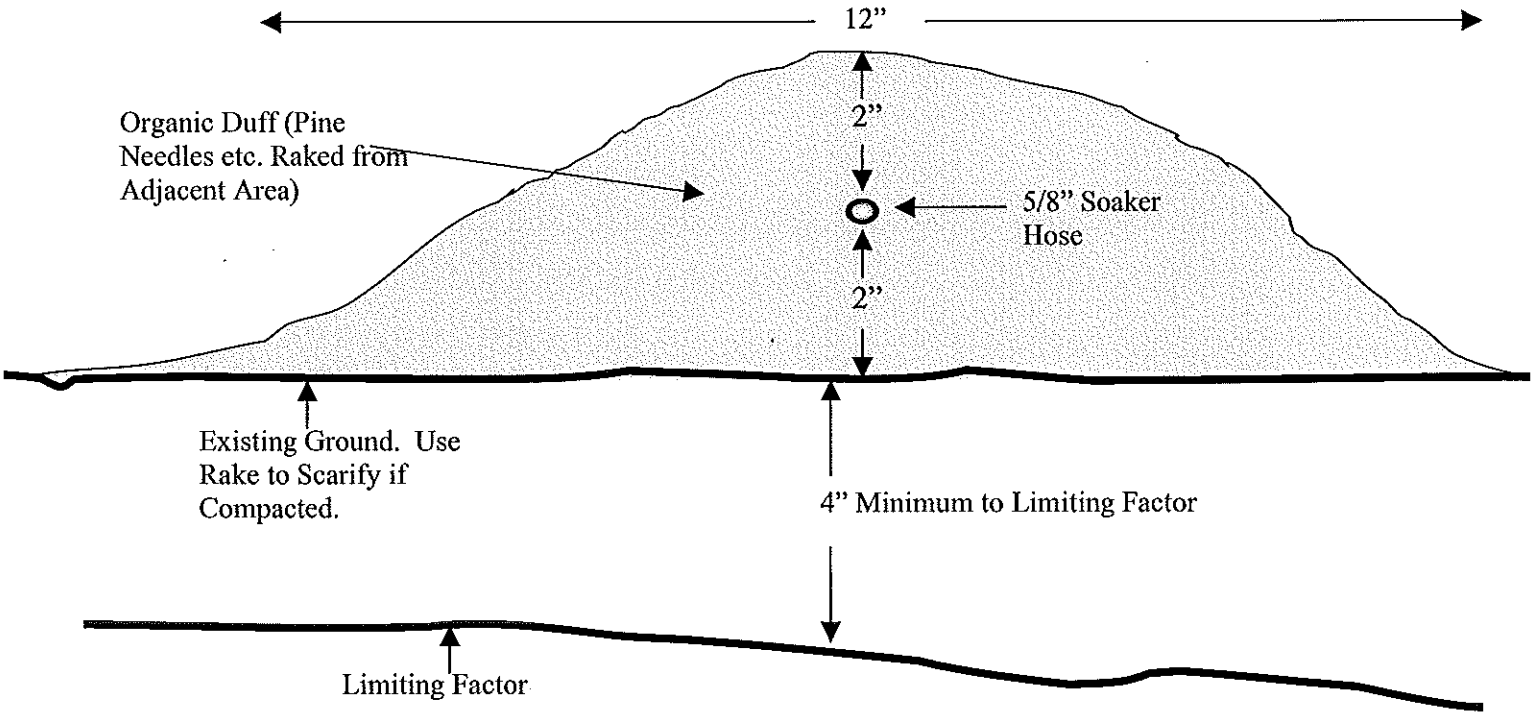
Pretreatment Requirement: BOD and TSS <10 mg/l, E. coli < 15 colonies per 100 m.l.

Ultraviolet Disinfection Requirement: 200,000 μwsec/cm^2

Minimum Separation Distance Between Drip Hose Rows: 3' center to center

Minimum Sizing Requirement: 0.75-ft. (9-inches) of driphose per gallon per day (gpd)

Driphose Requirement: 5/8" professional grade soaker hose (i.e. Fiskars Professional Grade) or equivalent. Note: SeptiTech supplies this hose with each system



Notes:

1. If limited organic material is present, supplement with bark mulch, wood chips or sawdust
2. Change to ¾" PE hose over large obstacles and under roads and walkways
3. Set hose in individual runs of up to 200-ft. using 50-ft. and 75-ft. lengths.
4. Follow contour as practical but go uphill or downhill as necessary. Maintain less than 10-ft. total head per hose run.

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

ANGUS S. KING, JR.
GOVERNOR

KEVIN W. CONCANNON
COMMISSIONER

June 4, 2002

SeptiTech
Attn: Scott Samuelson
220 Lewiston Road
Gray, Maine 04039

Subject: Approval in Part, Denial in Part, Product Registration, SeptiTech Combination UV Drip Hose System

Dear Mr. Samuelson:

Thank you for your letter dated May 10, 2002 regarding your company's product, specifically, the SeptiTech drip hose irrigation system. This information was submitted pursuant to Section 1802 of the Maine State Plumbing Code, Subsurface Wastewater Disposal Rules (Rules), for code registration modification, for use in Maine.

The Division has completed a preliminary review and finds that additional information is required before a positive determination can be made on your proposal.

Product Description

The drip hose system was approved for seasonal use in Maine in January of 2001, and includes a disposal area which consists of one foot (12 inches) of porous hose per gallon of disinfected effluent per day (gpd). The hose is installed in shallow trenches and backfilled with native organic material (duff) and/or bark chips; or laid on scarified ground at grade and covered with bark chips, as site conditions warrant.

Proposal

SeptiTech now proposes to reduce the size of the porous hose system to 0.75 foot (9 inches) of hose per gallon per day. You submitted a chart comparing the porous hose system with the proprietary trench system approved by this office in April of 1999. You claim that this comparison accommodates the loading rates based upon soil types per Table 600.1 of the Rules; and that nine inches of hose is assumed to be the functional equivalent of three square feet of disposal area per linear foot of hose.

No data were submitted in support of reducing the approved sizing of one foot per gallon per day for the porous hose system or for the size equivalency assumption. This office is not persuaded that the submitted chart demonstrates that the hydraulic loading rates are accommodated by your proposal.

SeptiTech also proposes that the porous hose system be approved for use on a year round basis, by use of one foot of cover material and insulation board over the hose.

Determination: Size Reduction

On the basis of the information submitted, the Division has determined that the proposal lacks sufficient information and data to justify reduction of the size rating from one foot (12 inches) of hose per gpd to 0.75 feet per gpd regardless of the hydraulic load rating of the soil.

This office is certainly willing to consider revised sizing criteria for the SeptiTech drip hose irrigation system, but not on a "flat rate" regardless of soil loading rates, as was previously approved. Please submit copies of any studies, assessments, and engineering data which would support revised sizing criteria based upon a rating of a certain number of square feet equivalent per linear foot of hose. (This would be similar to the manner in which plastic chambers and other proprietary devices are sized.)

SeptiTech may re-apply for a size rating reduction for the SeptiTech drip hose irrigation system without prejudice by submitting the specified information.

Determination: Year Round Use

SeptiTech porous drip hose installations are approved for year round use with the following conditions:

1. The porous hose shall be covered with at least one foot (12 inches) of suitable cover material, extending for a width of 2.5 feet on center.

2. The porous hose shall be protected with at least 1.5 feet (18 inches) on center of plastic insulation board with a minimum R value of 4, adjacent to and above the hose.

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
Russell Martin, Program Director

SeptiTech™

Solving Wastewater Problems with Technology

May 10, 2002

Mr. Russell Martin, P.E., Program Manager
Wastewater & Plumbing Program
10 State House Station
Augusta, ME 04333
Fax: 207-287-4172

Dear Russ:

Thanks for your help earlier this week. As we discussed, we are in need of a written approval of changes to our drip hose disposal system so that we can provide verification to site evaluators before the new code is published. I appreciate your understanding.

Attached is the information that we discussed relative to the SeptiTech drip irrigation system. It is our understanding that this information will be reflected in Appendix B of the code.

Regarding your question about soil types and drip hose disposal rates, I've provided a chart (next page) showing the relationship between loading rates of soaker hose and our standard, conventional leachfield. As you can see, changes in soil types are accommodated by our formula. For instance, a three-bedroom house on medium soil will require 117 sq.ft. of absorption area with a conventional subsurface SeptiTech system and will be provided 405 sq.ft. of absorption area with our drip hose system, a 346% increase in absorption area. The absorption area for a 3-bedroom house on tight soils is still 180% greater with the drip hose system than with the standard SeptiTech subsurface system. So, in fact, the proposed changes do account for various soil types.

Russ, thank you for your help with this matter. A couple of site evaluators are very anxious for something in writing as they have homeowners who are hounding them for a completed design.

I've also enclosed a draft approval letter for your review.

Please call with any questions and thanks again for your help.

Sincerely,

Scott Samuelson

E-Mail: info@SeptiTech.com
Internet: www.SeptiTech.com

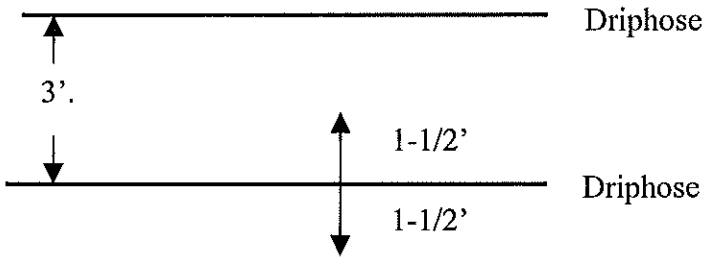
220 Lewiston Road
Gray, Maine 04039
Tel: 207-657-5252
Fax: 207-657-5246

Newmarket, NH 03857
Tel: 603-659-0371
Fax: 603-659-0412

Duxbury, MA 02332
Tel: 781-834-5418
Fax: 781-837-2041

Gallons Per Day	System Size	Soil Multiplier	Stone Leachfield Absorption Area (sq. ft.)	SeptiTech Trench Absorption Area* (sq. ft.)	SeptiTech Drip Hose Absorption Area** (sq. ft.)	Percentage Increase in Absorption Area with SeptiTech Driphose vs. Subsurface Disposal
180	Medium	2.6	468	117	405	346%
270	Med-Large	3.3	891	222.75	607.5	273%
360	Large	4.1	1476	369	810	220%
450	Extra-Large	5	2250	562.5	1012.5	180%

* Maximum reduction allowed by State Plumbing Code
** Assumes 9-inches hose per gallon per day and 3-feet between hoses, or 3-sq. ft. per linear foot.



SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
Division of Health Engineering, Station 10
(207) 287-5672 FAX (207) 287-4172

PROPERTY LOCATION

City, Town, or Plantation	
Street or Road	SAMPLE
Subdivision, Lot #	

>> Caution: Permit Required – Attach In Space Below <<

The Subsurface Wastewater Disposal System ***shall not*** be installed until a Permit is attached HERE by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.

OWNER/APPLICANT INFORMATION

Name (last, first, MI)	Owner / Applicant
Mailing Address of ☐ Owner ☐ Applicant	
Daytime Tel. #	

Municipal Tax Map # _____ Lot # _____

Owner or Applicant Statement

I state that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a Permit.

Signature of Owner or Applicant _____ Date _____

Caution: Inspections Required

I have inspected the installation authorized above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application.

Local Plumbing Inspector Signature _____ (1st) Date Approved _____ (2nd) Date Approved _____

PERMIT INFORMATION

TYPE OF APPLICATION

1. ☐ First Time System
2. ☒ Replacement System
   Type Replaced: _____
   Year Installed: _____
3. ☐ Expanded System
   a. ☐ One-time exempted
   b. ☐ Non-exempted
4. ☐ Experimental System
5. ☐ Seasonal Conversion

THIS APPLICATION REQUIRES

1. ☐ No Rule Variance
2. ☐ First Time System Variance SPECIFY
   a. ☐ Local Plumbing Inspector Approval
   b. ☐ State & Local Plumbing Inspector Approval
3. Replacement System Variance
   a. ☐ Local Plumbing Inspector Approval
   b. ☐ State & Local Plumbing Inspector Approval
4. ☐ Minimum Lot Size Variance
5. ☐ Seasonal Conversion Approval

DISPOSAL SYSTEM COMPONENT(S)

1. ☒ Complete Non-engineered System
2. ☐ Primitive System (graywater & alt toilet)
3. ☐ Alternative Toilet, specify: _____
4. ☐ Non-Engineered Treatment Tank (only)
5. ☐ Holding Tank, _____ gallons
6. ☐ Non-engineered Disposal Field (only)
7. ☐ Separated Laundry System
8. ☐ Complete Engineered System (2000 gpd or more)
9. ☐ Engineered Treatment Tank (only)
10. ☐ Engineered Disposal Field (only)
11. ☒ Pre-treatment, specify: SeptiTech
12. ☐ Miscellaneous components

NOTE: specify if seasonal

SIZE OF PROPERTY

SPECIFY ☐ sq. ft. ☐ acres

SHORELAND ZONING

☐ Yes ☐ No

DISPOSAL SYSTEM TO SERVE

1. ☐ Single Family Dwelling Unit, No. of Bedrooms: _____
2. ☐ Multiple Family Dwelling, No. of Units: _____
3. ☐ Other: _____ SPECIFY

TYPE OF WATER SUPPLY

1. ☐ Drilled Well 2. ☐ Dug Well 3. ☐ Private
4. ☐ Public 5. ☐ Other: SPECIFY

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

TREATMENT TANK

1. ☐ Concrete
   a. ☐ Regular
   b. ☐ Low Profile SPECIFY
2. ☐ Plastic
3. ☐ Other: _____

CAPACITY _____ gallons

DISPOSAL FIELD TYPE & SIZE

1. ☐ Stone Bed 2. ☐ Stone Trench
3. ☐ Proprietary Device
   a. ☐ Cluster array c. ☒ Linear
   b. ☐ Regular load d. ☐ H-20 load
4. ☒ Other: SeptiTech Drip Hose

SIZE SPECIFY ☐ sq. ft. ☐ lin. ft.

GARBAGE DISPOSAL UNIT

1. ☒ No 3. ☐ Maybe
2. ☐ Yes >> Specify one below:
   a. ☒ Multi-compartment Tank
   b. ☐ Tanks in Series
   c. ☐ Increase in Tank Capacity
   d. ☒ Filter on Tank Outlet

DESIGN FLOW

SPECIFY gallons per day

BASED ON:

1. ☐ Table 501.1 (dwelling unit(s)
2. ☐ Table 501.2 (other facilities)

SHOW CALCULATIONS – for other facilities –

SPECIFY

3. ☐ Section 503.0 (meter readings)

ATTACH WATER-METER DATA

SOIL DATA & DESIGN CLASS

PROFILE CONDITION DESIGN

/ / SPECIFY

at Observation Hole # _____

Depth _____" Elevation _____"

OF MOST LIMITING SOIL FACTOR

DISPOSAL FIELD SIZING

1 Foot per GPD

1. ☐ Small – 2.0 sq. ft./gpd
2. ☐ Medium – 2.6 sq. ft./gpd
3. ☐ Medium-Large – 3.3 sq. ft./gpd
4. ☐ Large – 4.1 sq. ft./gpd
5. ☐ Extra Large – 5.0 sq. ft./gpd

PUMPING

Provided with Unit

1. ☐ Not Required
2. ☐ May Be Required
3. ☐ Required >> Specify only for engineered or experimental systems:

DOSE: gallons

SITE EVALUATOR STATEMENT

I certify that on _____ (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed system is in compliance with the State of Maine Subsurface Wastewater Disposal Rules (10-144A CMR 241).

OVER →

Site Evaluator Signature _____ SE # _____ Date _____

Site Evaluator Name Printed _____ Telephone # _____

SeptiTech Year Round Shallow Drip Hose Disposal Area Profile

Date: 1/14/02

Pretreatment Requirement: BOD and TSS <10 mg/l

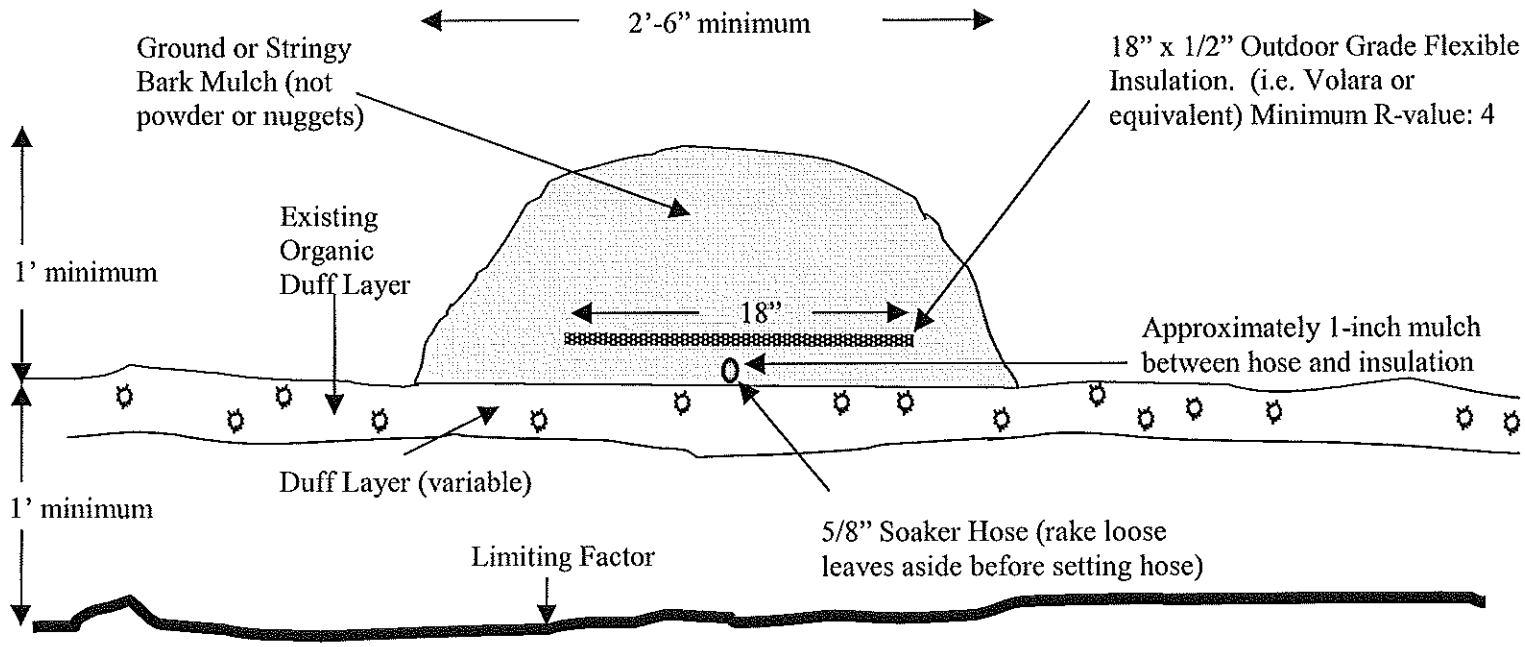
Minimum Separation Distance Between Drip Hose Rows: 3' center to center

Minimum Sizing Requirement: 0.75-feet of driphose (9-inches) per gallon per day (gpd)

Driphose Requirement: 5/8" professional grade soaker hose (i.e. Fiskars Professional Grade) or equivalent. Note: SeptiTech supplies this hose with each system

Option 1. If Duff Layer is Available.

Not to scale.



SeptiTech Seasonal Shallow Drip Hose Disposal Area Profile

Date: 1/14/02

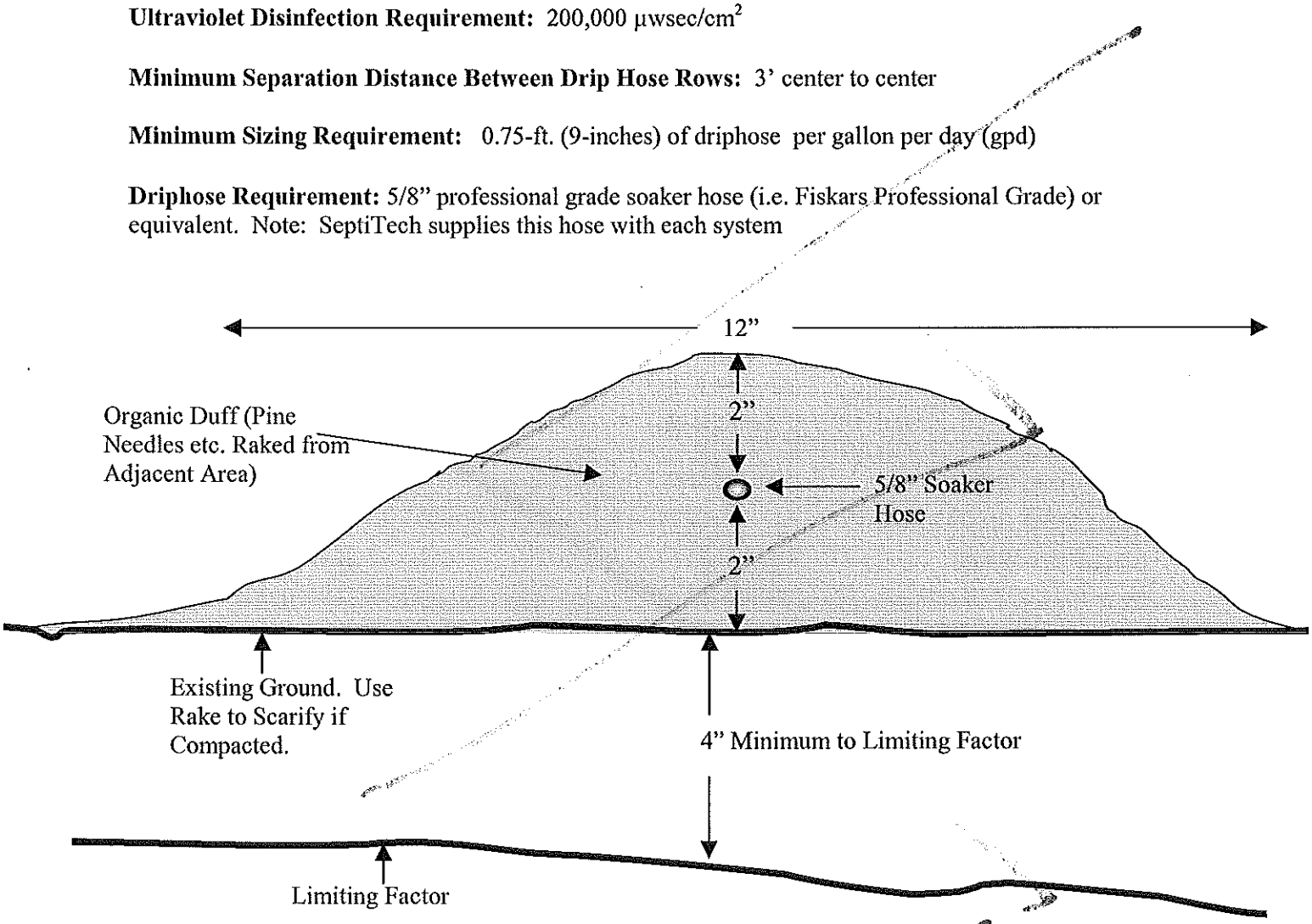
Pretreatment Requirement: BOD and TSS <10 mg/l, E. coli < 15 colonies per 100 m.l.

Ultraviolet Disinfection Requirement: 200,000 μwsec/cm^2

Minimum Separation Distance Between Drip Hose Rows: 3' center to center

Minimum Sizing Requirement: 0.75-ft. (9-inches) of driphose per gallon per day (gpd)

Driphose Requirement: 5/8" professional grade soaker hose (i.e. Fiskars Professional Grade) or equivalent. Note: SeptiTech supplies this hose with each system



Notes:

1. If limited organic material is present, supplement with bark mulch, wood chips or sawdust
2. Change to ¾" PE hose over large obstacles and under roads and walkways
3. Set hose in individual runs of up to 200-ft. using 50-ft. and 75-ft. lengths.
4. Follow contour as practical but go uphill or downhill as necessary. Maintain less than 10-ft. total head per hose run.

Maine Subsurface Wastewater Disposal Rules

Proposed Addition to Appendix B

B-108.0 Drip Irrigation Disposal Systems

The following parameters refer to sizing requirements and disposal area profile for SeptiTech, Inc.'s Drip Irrigation Disposal System.

B-108.1 SeptiTech Drip Irrigation Hose: Sizing/Configuration Requirements

Hose Length Requirement	9" per gallon per day
Hose Configuration	Individual runs; 200'max. Note: Maintain less than 10-ft. elevation differential per hose run. [1]
Separation Between Hoses	3-ft. center-to-center minimum. Note: Maintain max of 10 feet elevation differential between hose runs. [1]

B-108.2 SeptiTech Drip Irrigation Hose: Disposal Area Profile

	Seasonal Sites[2]	**Year-Round Sites** [2]
Separation from Limiting Factor [3]	Minimum 6" to limiting factor	Minimum 12-inches to limiting factor
Mulch/Duff Bed Width	12" from edge to edge for single row	30" from edge to edge for single row
Mulch/Duff Height Above Hose	2-inches [4]	10-inches [4]
Mulch/Duff Below Hose	2-inches [4]	2-inch minimum [4]
Total Mulch/Duff Bed thickness	4.5 –inches (includes hose)	12.5 -inches
Insulation width and R-Value	None	18" width. Minimum R-value of 4.

[1] Install hose runs along contours as practicable, maintaining a maximum of 10' total elevation differential per hose run, as well as 10 feet elevation difference between hoses.

[2] First time systems must meet first time system soil and set back criteria.

[3] For replacement systems, separation distance may be achieved by mineral soil or organic matter.

[4] If limited organic material is present, supplement with bark mulch, wood chips or sawdust.

SeptiTech Seasonal Shallow Drip Hose Disposal Area Profile

Date: 1/14/02

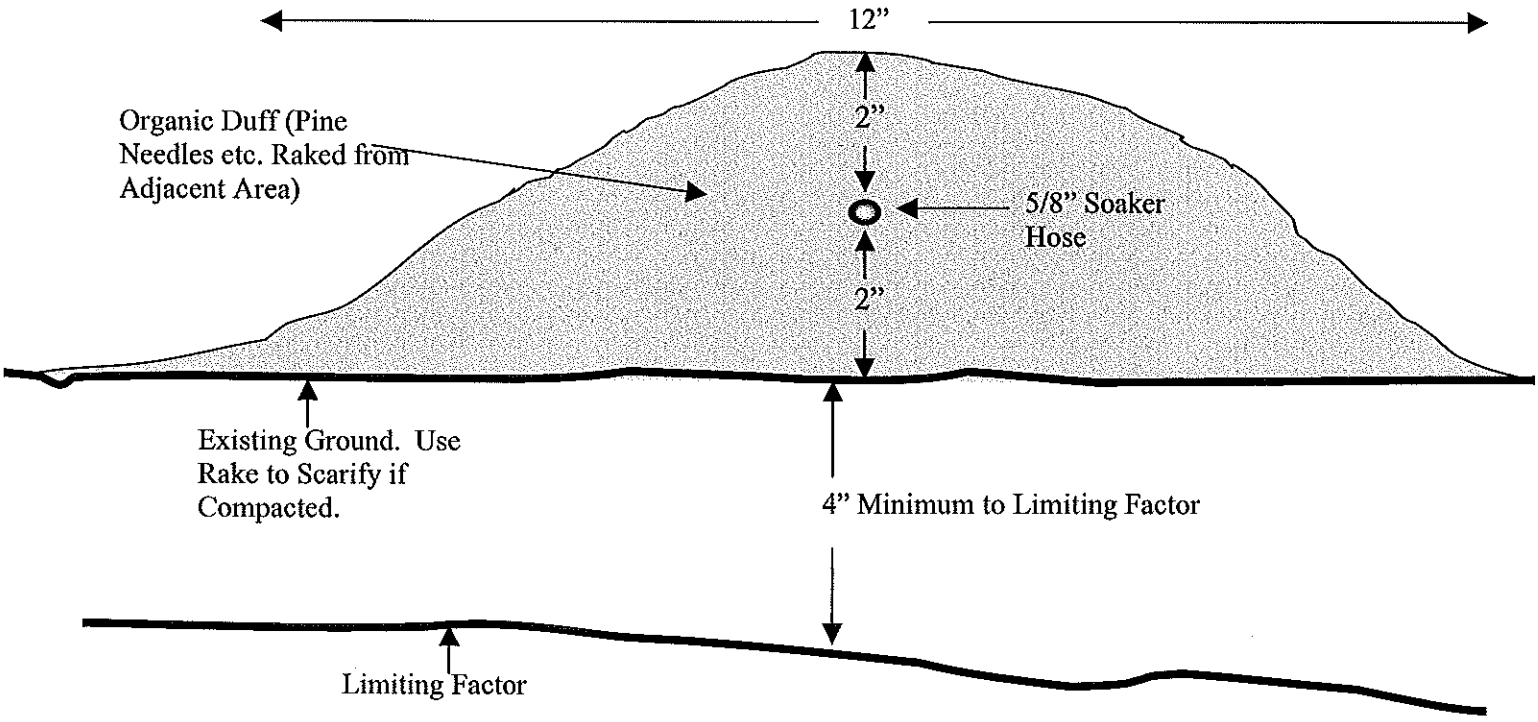
Pretreatment Requirement: BOD and TSS <10 mg/l, E. coli < 15 colonies per 100 m.l.

Ultraviolet Disinfection Requirement: 200,000 μwsec/cm^2

Minimum Separation Distance Between Drip Hose Rows: 3' center to center

Minimum Sizing Requirement: 0.75-ft. (9-inches) of driphose per gallon per day (gpd)

Driphose Requirement: 5/8" professional grade soaker hose (i.e. Fiskars Professional Grade) or equivalent. Note: SeptiTech supplies this hose with each system



Notes:

1. If limited organic material is present, supplement with bark mulch, wood chips or sawdust
2. Change to ¾" PE hose over large obstacles and under roads and walkways
3. Set hose in individual runs of up to 200-ft. using 50-ft. and 75-ft. lengths.
4. Follow contour as practical but go uphill or downhill as necessary. Maintain less than 10-ft. total head per hose run.

SeptiTech Year Round Shallow Drip Hose Disposal Area Profile

Date: 1/14/02

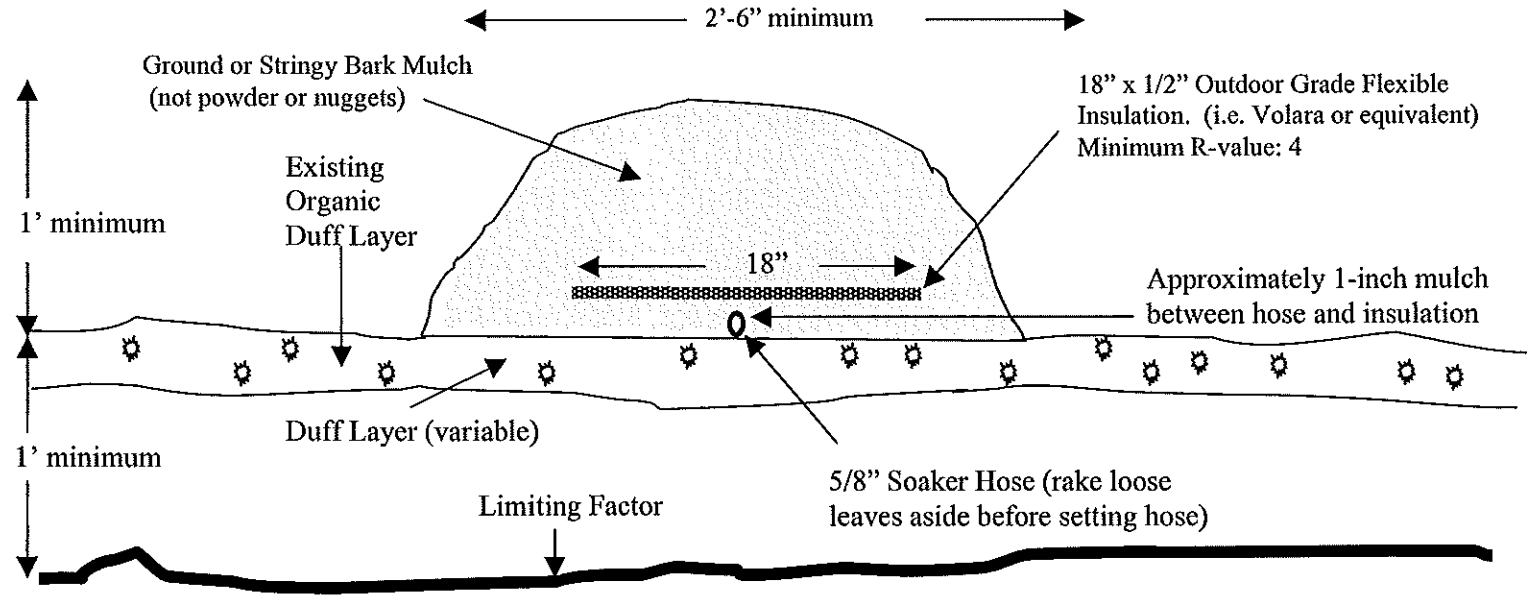
Pretreatment Requirement: BOD and TSS <10 mg/l

Minimum Separation Distance Between Drip Hose Rows: 3' center to center

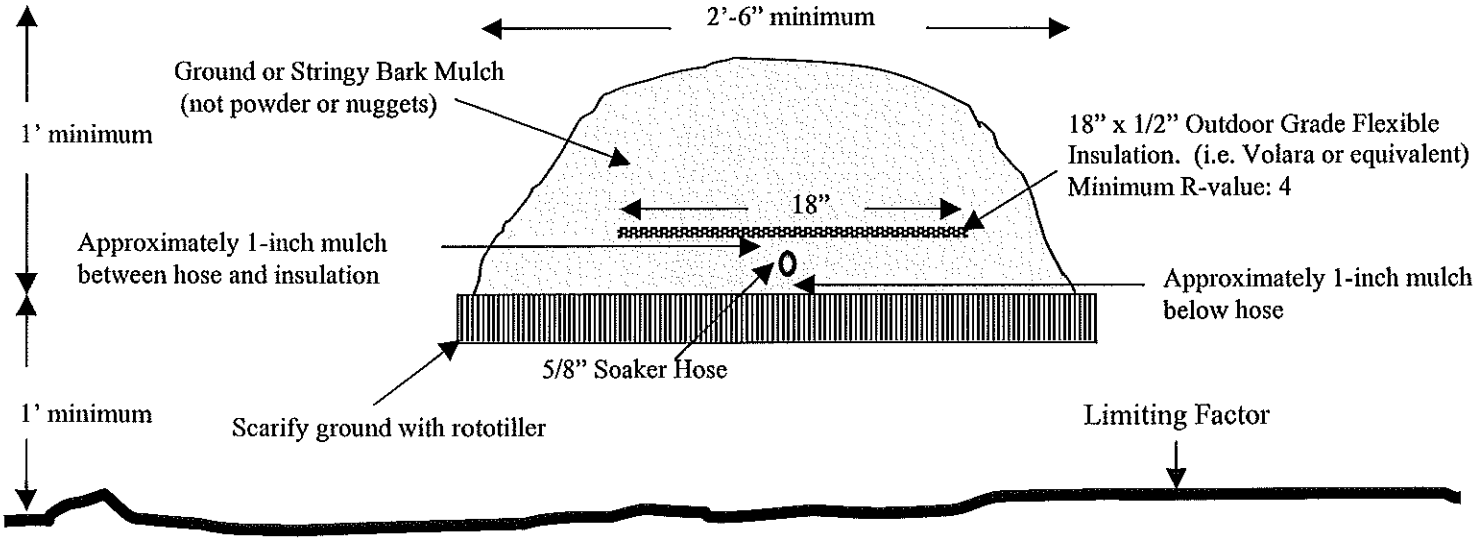
Minimum Sizing Requirement: 0.75-feet of driphose (9-inches) per gallon per day (gpd)

Driphose Requirement: 5/8" professional grade soaker hose (i.e. Fiskars Professional Grade) or equivalent.
Note: SeptiTech supplies this hose with each system

Option 1. If Duff Layer is Available.
(Not to scale)



Option 2. If Duff Layer is Not Available.
(Not to scale)

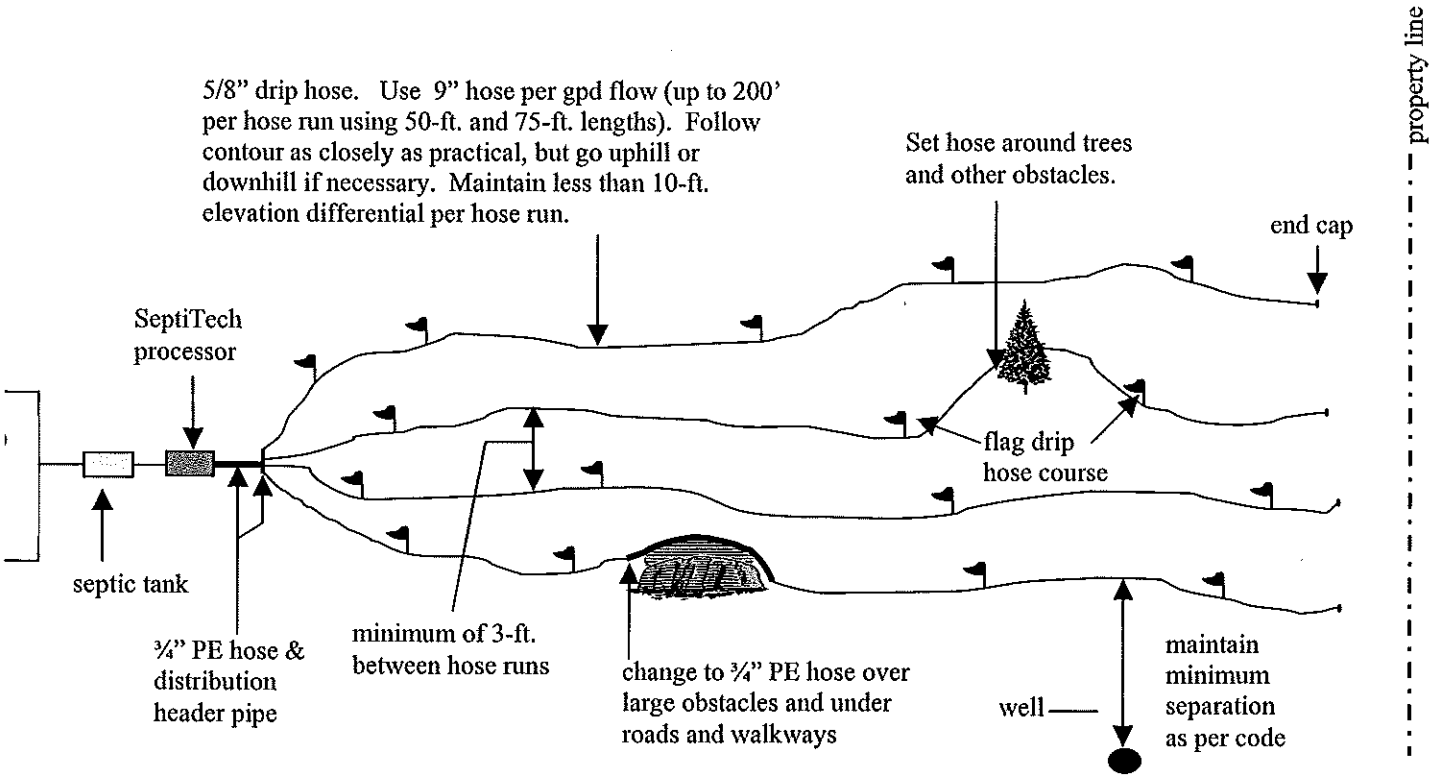


Sample HHE-200.

SUBSURFACE WASTEWATER DISPOSAL APPLICATION

Town, City, Plantation	Street, Road, Subdivision	Owner's Name

SUBSURFACE WASTEWATER DISPOSAL PLAN **(NOT TO SCALE)**



DISPOSAL AREA CROSS SECTION

See attached detail.

Please log in "product review for revised size rating" Jim

May 10, 2002

Mr. Russell Martin, P.E., Program Manager
Wastewater & Plumbing Program
10 State House Station
Augusta, ME 04333
Fax: 207-287-4172

Dear Russ:

Thanks for your help earlier this week. As we discussed, we are in need of a written approval of changes to our drip hose disposal system so that we can provide verification to site evaluators before the new code is published. I appreciate your understanding.

Attached is the information that we discussed relative to the SeptiTech drip irrigation system. It is our understanding that this information will be reflected in Appendix B of the code.

Regarding your question about soil types and drip hose disposal rates, I've provided a chart (next page) showing the relationship between loading rates of soaker hose and our standard, conventional leachfield. As you can see, changes in soil types are accommodated by our formula. For instance, a three-bedroom house on medium soil will require 117 sq.ft. of absorption area with a conventional subsurface SeptiTech system and will be provided 405 sq.ft. of absorption area with our drip hose system, a 346% increase in absorption area. The absorption area for a 3-bedroom house on tight soils is still 180% greater with the drip hose system than with the standard SeptiTech subsurface system. So, in fact, the proposed changes do account for various soil types.

Russ, thank you for your help with this matter. A couple of site evaluators are very anxious for something in writing as they have homeowners who are hounding them for a completed design.

I've also enclosed a draft approval letter for your review.

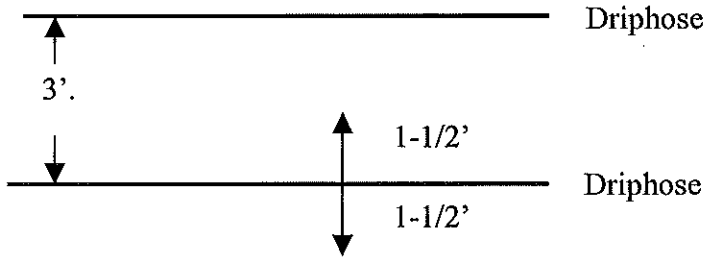
Please call with any questions and thanks again for your help.

Sincerely,

Scott Samuelson

Gallons Per Day	System Size	Soil Multiplier	Stone Leachfield Absorption Area (sq. ft.)	SeptiTech Trench Absorption Area* (sq. ft.)	SeptiTech Drip Hose Absorption Area** (sq. ft.)	Percentage Increase in Absorption Area with SeptiTech Driphose vs. Subsurface Disposal
180	Medium	2.6	468	117	405	346%
270	Med-Large	3.3	891	222.75	607.5	273%
360	Large	4.1	1476	369	810	220%
450	Extra-Large	5	2250	562.5	1012.5	180%

* Maximum reduction allowed by State Plumbing Code
** Assumes 9-inches hose per gallon per day and 3-feet between hoses, or 3-sq. ft. per linear foot.



Maine Center for Disease Control and Prevention
An Office of the Department of Health and Human Services
Paul R. LePage, Governor Mary C. Mayhew, Commissioner

Department of Health and Human Services
Maine Center for Disease Control and Prevention
286 Water Street
11 State House Station
Augusta, Maine 04333-0011
Tel.: (207) 287-8016; Fax: (207) 287-9058
TTY Users: Dial 711 (Maine Relay)

Tel. (207) 287-5672 Subsurface Wastewater Unit Fax (207) 287-4172

September 27, 2012

SeptiTech, LLC
Attn.: Scott Samuelson
69 Holland Street
Lewiston, ME 04240

Subject: Approval for General Use, SeptiTech System

Dear Mr. Gray:

This letter confirms the meeting between James Gray, John Bastey, and I on June 30, 1999. At that meeting Mr. Gray presented the results of monitoring for various SeptiTech systems installed pursuant to the Division's December 24, 1997 experimental system approval under provisions of Section 1801 of the 1997 Subsurface Wastewater Disposal Rules (Rules).

These data demonstrate that the SeptiTech treatment units routinely achieve BOD5 and TSS reductions to single digit levels, both in the high 90's percent range of reduction. The units also achieve E. coli reductions in excess of 99 percent.

Therefore, the Division approves SeptiTech systems for general use under the Rules, and hereby removes SeptiTech systems from experimental status with the following conditions for individual system installations:

1. A minimum separation distance of 12 inches shall be maintained between the seasonal high groundwater table or other limiting factor, and the lowest elevation of the system's disposal area;

2. A minimum separation distance of 12 inches shall be maintained between bedrock and the lowest elevation of the system's disposal area;

3. Stone trenches are allowed a 75 percent reduction in size, based upon the standard sizing requirements of the Rules;

4. Proprietary devices such as but not limited to plastic chambers and gravel-less trenches are allowed a 50 percent reduction in size, based upon the standard sizing requirements of the Rules, absent prohibitions by manufacturers;

5. Eljen In-drains may be used with SeptiTech systems, but with no reduction in size; and

6. Maintenance agreement contracts shall be standard with all system installations. Terms and duration of the contracts shall be in accordance with SeptiTech's company policies.

Because installation and 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 this system. Further, the Division strongly recommends that property owners enter into long term maintenance contracts with SeptiTech, in accordance with SeptiTech's company policies.

This letter supersedes the letter dated July 6, 1999.

Feel free to copy and distribute this letter as necessary. If you have any questions, please contact me.

Sincerely,

James A. Jacobsen

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

/jaj

xc: File

Jacobsen, James

From: Jacobsen, James
Sent: Thursday, September 27, 2012 9:11 AM
To: 'Scott Samuelson'
Subject: RE: SeptiTech question
Attachments: revised general approval 09-2012.doc

Hi Scott,

I have modified the original General Approval letter of 07/06/99 by adding the phrase "such as but not limited to" to condition #4. I think that should work for your needs.

We removed specific product approvals from the Rules in the last revision. The thing is, if Product X was revised, or a new product was registered, the Rules technically became outdated. To update them, we would have to go through rulemaking, a time consuming and costly process. So, we moved them to the Guidance Supplement, which can be updated as needed since it is not a rule. Also, I have posted a list of all our product approvals since 1974 on our website.

The adjustment factors for effluent quality are now in Table 4B of the Subsurface Wastewater Disposal Rules.

Jim

James A. Jacobsen
Project Manager, Webmaster
Division of Environmental Health
Drinking Water Program
Subsurface Wastewater Unit
286 Water Street, Augusta, ME 04333
Phone: 207-287-5695 Fax: 207-287-3165
http://www.mainepublichealth.gov/septic-systems
http://www.mainepublichealth.gov/cemeteries

From: Scott Samuelson [mailto:ssamuelson@septitech.com]
Sent: Wednesday, September 26, 2012 1:04 PM
To: Jacobsen, James
Subject: SeptiTech question

Hi Jim-

Hope this finds you well!

Jim, somehow, updated SeptiTech propriatary information never seems to make it into the

appropriate place for inclusion in the Plumbing Code. I'm not sure whether this is now an online service now, or whether there is a deadline for the printed version, but any insight would be appreciated.

What prompts my question is a call from site evaluator, Ken Shay in Gouldsboro area who said he couldn't find any information about SeptiTech and could we send him our approval. After receiving a copy he called to say that while our approval (dated, July 6, 1999) mentions that it can be used in conjunction with plastic chambers, it doesn't mention concrete chambers. Despite my suggestion that there is implied approval, he asked that he see something in writing from the State!

So.... would it be possible for you to jot a short sentence or two email to me that approves SeptiTech treatment technology for use with all State approved chambers whether they be concrete or plastic? Also Jim, do you have an updated reference to the Table in the code that allows reduction of field size based on quality of effluent?

Thanks Jim. Sorry to dump this on you. I really appreciate your help.

Scott

Scott Samuelson
SeptiTech, LLC
207-333-6940 x203

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 15, 2002

SeptiTech
Attn: James R. Gray. President
220 Lewiston Road
Gray, Maine 04039

Subject: Approval, Revised Product Registration, SeptiTech Porous Drip Hose System

Dear Mr. Gray:

Thank you for your letter dated August 7, 2002 regarding your company's product, specifically, the SeptiTech drip hose irrigation system. This information was submitted pursuant to Section 1802 of the Maine State Plumbing Code, Subsurface Wastewater Disposal Rules (Rules), for code registration modification, for use in Maine. This information also was submitted pursuant to a meeting held June 13, 2002 at the Division's office.

Product Description

The drip hose system was approved for seasonal use in Maine in January of 2001, and includes a disposal area which is 1.33 square feet per foot of hose. The hose is installed in shallow trenches and backfilled with native organic material (duff) and/or bark chips; or laid on scarified ground at grade and covered with bark chips, as site conditions warrant.

Proposal

SeptiTech proposes to size the porous hose system at 4.4 square feet per foot of hose. This figure was derived from discussion at the June 13, 2002 meeting and from a chart prepared by SeptiTech which compared the porous hoses to conventional onsite sewage disposal system disposal areas.

Determination: Size Rating

The SeptiTech porous hose system size rating is approved at the equivalent of 4.4 square feet of disposal area per linear foot of hose, based upon the information you provided in your letter of August 7, 2002. All other provisions of the Division's approval letter of June 28, 2002 remain in effect.

If you have any 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
xc: Product File

SeptiTech™
Solving Wastewater Problems with Technology

August 7, 2002

Jim Jacobsen
Wastewater & Plumbing Program
Division of Health Engineering
10 State House Station
Augusta, ME 04333

Dear Mr. Jacobsen:

Thanks for meeting with me last week. I appreciate your time and openness.

As we discussed, I would like to request a modification to our drip hose approval dated June 28, 2002 for the SeptiTech porous Drip Hose System. Specifically I would like to change the effective square feet per linear foot of hose from 1.33 to 4.4sq. ft. per foot. This change request is based on comprehensive system field inspections after two complete seasons of operation.

Rationale for proposed modification

During our two years of experimental testing we sized the length of the drip hoses based on our approval of seventy five percent field reduction because of the high clarity of the effluent. Thus the gallonage calculated for the cottages was seventy five percent less than if the gallonage was calculated directly from the code using the soil profile and multiplier. Close inspections of these systems performed regularly through two seasons of operation, clearly indicate that systems with 6-inches of hose per gallon per day (based on the seventy five percent reduction) perform well. The inspectors never found visible water on the surface; only moist soil was found when duff was scraped away to expose the drip hose.

In our meeting of June 13, 2002 at the division's office we agreed that a more conservative approach of nine inches per gallon rather than six inches should be permitted.

I understand that we will now be sizing the drip hose to correspond directly with the code, thus sizing it in the same manner as other devices. The enclosed chart shows a comparison between the nine inches with the seventy five percent reduction and a straight calculation using the proposed 4.4 gallons per foot per day. Except for the very fastest soil the length of hose is increased using this multiplier.

The proposal makes good logical sense because we have 3 sq. ft. of absorptive area per lineal foot of hose, whereas the standard drip hose in the new code has only 1sq. ft. of absorptive area per lineal foot. The drip system is not designed to require absorption into the ground but relies primarily on evaporation and transevaporation. However at 4.4 sq. ft per gallon significant absorptive capacity is present.

Using 4.4 sq. ft. per gal. is consistent with results of field observation of forty systems for up to two seasons.

As always, if you have any questions, I would be happy to meet to discuss this proposed change with you at your earliest convenience.

Thank you for your review and consideration.

Sincerely,

James R. Gray
President
SeptiTech, Inc.

E-Mail: info@SeptiTech.com
Internet: www.SeptiTech.com
220 Lewiston Road
Gray, Maine 04039
Tel: 207-657-6252
Fax: 207-657-5246
Newmarket, NH 03857
Tel: 603-659-0371
Fax: 603-659-0412
Duxbury, MA 02332
Tel: 781-834-5418
Fax: 781-837-2011

gpd	soil multiplier	Total Gal	effective sq. ft. per linear foot hose	linear feet hose	Effective feet of hose (std. hose lg)	Total Ln feet @ 9-inches per gpd
180	2	360	4.4	82	100	135
270	2	540	4.4	123	150	203
360	2	720	4.4	164	200	270
450	2	900	4.4	205	250	338
540	2	1080	4.4	245	300	405

gpd	soil multiplier	Total Gal	effective sq. ft. per linear foot hose	linear feet hose	Effective feet of hose	Total Ln feet @ 9-inches per gpd
180	2.6	468	4.4	106.4	150.0	135
270	2.6	702	4.4	159.5	175.0	203
360	2.6	936	4.4	212.7	250.0	270
450	2.6	1170	4.4	265.9	300.0	338
540	2.6	1404	4.4	319.1	350.0	405

gpd	soil multiplier	Total Gal	effective sq. ft. per linear foot hose	linear feet hose	Effective feet of hose	Total Ln feet @ 9-inches per gpd
180	3.3	594	4.4	135	150	135
270	3.3	891	4.4	203	200	203
360	3.3	1188	4.4	270	275	270
450	3.3	1485	4.4	338	350	338
540	3.3	1782	4.4	405	400	405

gpd	soil multiplier	Total Gal	effective sq. ft. per linear foot hose	linear feet hose	Effective feet of hose	Total Ln feet @ 9-inches per gpd
180	4.1	738	4.4	168	175	135
270	4.1	1107	4.4	252	250	203
360	4.1	1476	4.4	335	350	270
450	4.1	1845	4.4	419	400	338
540	4.1	2214	4.4	503	500	405

gpd	soil multiplier	Total Gal	effective sq. ft. per linear foot hose	linear feet hose	Effective feet of hose	Total Ln feet @ 9-inches per gpd
180	5	900	4.4	205	200	135
270	5	1350	4.4	307	300	203
360	5	1800	4.4	409	400	270
450	5	2250	4.4	511	500	338
540	5	2700	4.4	614	600	405

Jacobsen, James

From: Jacobsen, James
Sent: Tuesday, July 09, 2002 11:35 AM
To: 'Scott Samuelson'
Subject: RE: SeptiTech letter to review

Scott,

I only have a few comments:

" **Situation 4. Your client must decrease runoff numbers to decrease phosphorus levels.** SeptiTech driphose leachfields absorb water and do not change runoff numbers or phosphorus levels. Therefore, lot densities can increase and lots can look more natural."

I assume this has soemthing to do with DEP, not DHE.

~~~~~~

" **Minimum Sizing Requirement:** 1-linear foot driphose = 1.33 sq. ft. disposal area. Number of linear feet of drip hose calculated as follows: Gal./Day *times* Soil Multiplier *divided* by 4 (75% SeptiTech reduction allowance) *divided* by 1.33 sq. ft. *equals* Number of Linear Feet of Driphose. Note: Standard driphose comes in 75 and 100-ft. lengths. SeptiTech recommends rounding up to nearest hose

This is not correct, as the 75% reduction is for ***trench*** installations. This should read as follows in each document:

" **Minimum Sizing Requirement:** 1-linear foot driphose = 1.33 sq. ft. disposal area. Number of linear feet of drip hose calculated as follows: Gal./Day *times* Soil Multiplier *divided* by 1.33 sq. ft. *equals* Number of Linear Feet of Driphose. Note: Standard driphose comes in 75 and 100-ft. lengths. SeptiTech recommends rounding up to nearest hose length."

~~~~~~

References to the Rules and Rules numeration, e.g, "B-108.0" are erroneous. This document is not part of the proposed Rules which will become effective in October. There is a separate generic drip irrigation chapter, and an entry for this product in the approved products section of Appendix B. All references to Rules numbering and so forth must be removed.

Maine Subsurface Wastewater Disposal Rules, Appendix B
B-108.0 Drip Irrigation Disposal Systems

B-108.1 SeptiTech Drip Irrigation Hose: Sizing/Configuration Requirements:.....

B-108.2 SeptiTech Drip Irrigation Hose: Disposal Area Profile.....

Contact me if you have any questions,

Jim

-----Original Message-----
From: Scott Samuelson [mailto:scottsamuelson@septitech.com]
Sent: Tuesday, July 09, 2002 10:14 AM

To: Jim Jacobsen
Subject: SeptiTech letter to review

Hi Jim. Thank you very much for taking a look at this info before it is sent to site evaluators. Much appreciated! Scott

Maine Subsurface Wastewater Disposal Rules, Appendix B
B-108.0 Drip Irrigation Disposal Systems

The following parameters refer to sizing requirements and disposal area profile for SeptiTech, Inc.'s Drip Irrigation Disposal System.

B-108.1 SeptiTech Drip Irrigation Hose: Sizing/Configuration Requirements:

Hose Length Requirement	1-linear foot driphose = 1.33 sq. ft. disposal area. Number of linear feet of drip hose calculated as follows: Gal./Day *times* Soil Multiplier *divided* by 4 (75% SeptiTech reduction allowance) *divided* by 1.33 sq. ft. *equals* Number of Linear Feet of Driphose. Note: Standard driphose comes in 75 and 100-ft. lengths. SeptiTech recommends rounding up to nearest hose length.
Hose Configuration	Individual runs; 200'max. Note: Maintain less than 10-ft. elevation differential per hose run. [1]
Separation Between Hoses	3-ft. center-to-center minimum, more as practicable. Note: Maintain max of 10 feet elevation differential between hose runs. [1]

B-108.2 SeptiTech Drip Irrigation Hose: Disposal Area Profile

	Seasonal Sites[2]	**Year-Round Sites** [2]
Separation from Limiting Factor [3]	Minimum 12-inches to limiting factor	Minimum 12-inches to limiting factor
Mulch/Duff Bed Width	12" from edge to edge for single row	30" from edge to edge for single row
Mulch/Duff Height Above Hose	2-inches [4]	10-inches minimum [4]
Mulch/Duff Below Hose	2-inches [4]	1-inch minimum [4]
Total Mulch/Duff Bed thickness	4.5 –inches (includes hose)	12 -inches
Insulation width and R-Value	None	18" width. Minimum R-value of 4.

[1] Install hose runs along contours as practicable, maintaining a maximum of 10' total elevation differential per hose run, as well as 10 feet elevation difference between hoses.

[2] First time systems must meet first time system soil and set back criteria.

[3] For replacement systems, separation distance may be achieved by mineral soil or organic matter.

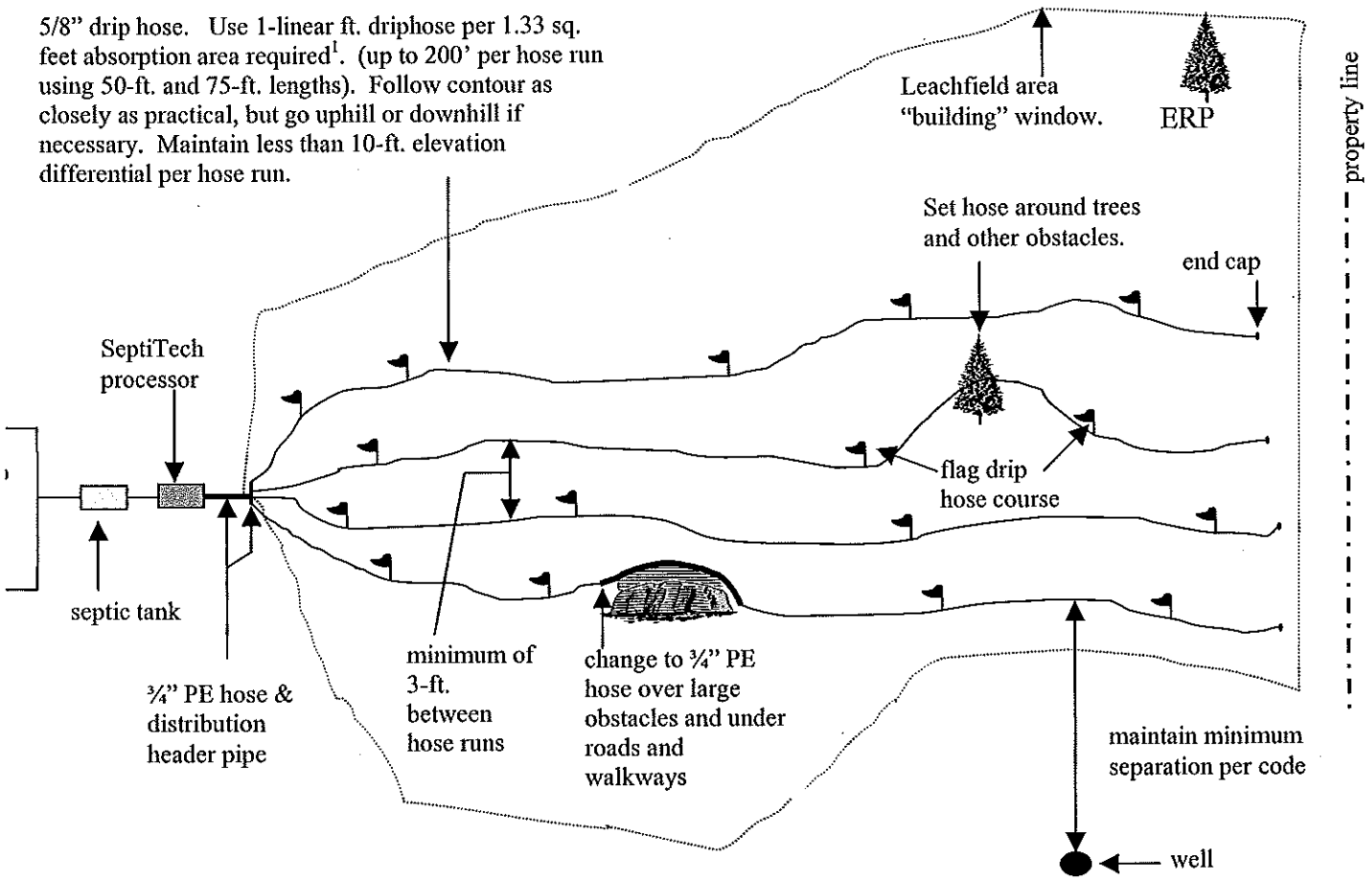
[4] If limited organic material is present, supplement with bark mulch, wood chips or sawdust.

Sample HHE-200.

SUBSURFACE WASTEWATER DISPOSAL APPLICATION

Town, City, Plantation	Street, Road, Subdivision	Owner's Name

SUBSURFACE WASTEWATER DISPOSAL PLAN **(NOT TO SCALE)**



[1]1-linear foot driphose = 1.33 sq. ft. disposal area.
Number of linear feet of drip hose calculated as follows: Gal./Day *times* Soil Multiplier *divided* by 4 (75% SeptiTech reduction allowance) *divided* by 1.33 sq. ft. *equals* Number of Linear Feet of Driphose. Note: Standard driphose comes in 75 and 100-ft. lengths. SeptiTech recommends rounding up to nearest hose length.

Example for a 3-bedroom house (90-gal. per bedroom) on 3.3 multiplier soils: 270gpd *times* 3.3 (multiplier) *divided* by 4 (75% SeptiTech reduction allowance) *divided* by 1.33 (sq. ft. absorption allowance)*equals* 167 linear feet of hose. Round up to nearest multiple of 75 or 100 = 200 linear feet of driphose.

DISPOSAL AREA CROSS SECTION

See Attached Detail

SeptiTech Year-Round Shallow Drip Hose Disposal Area Profile

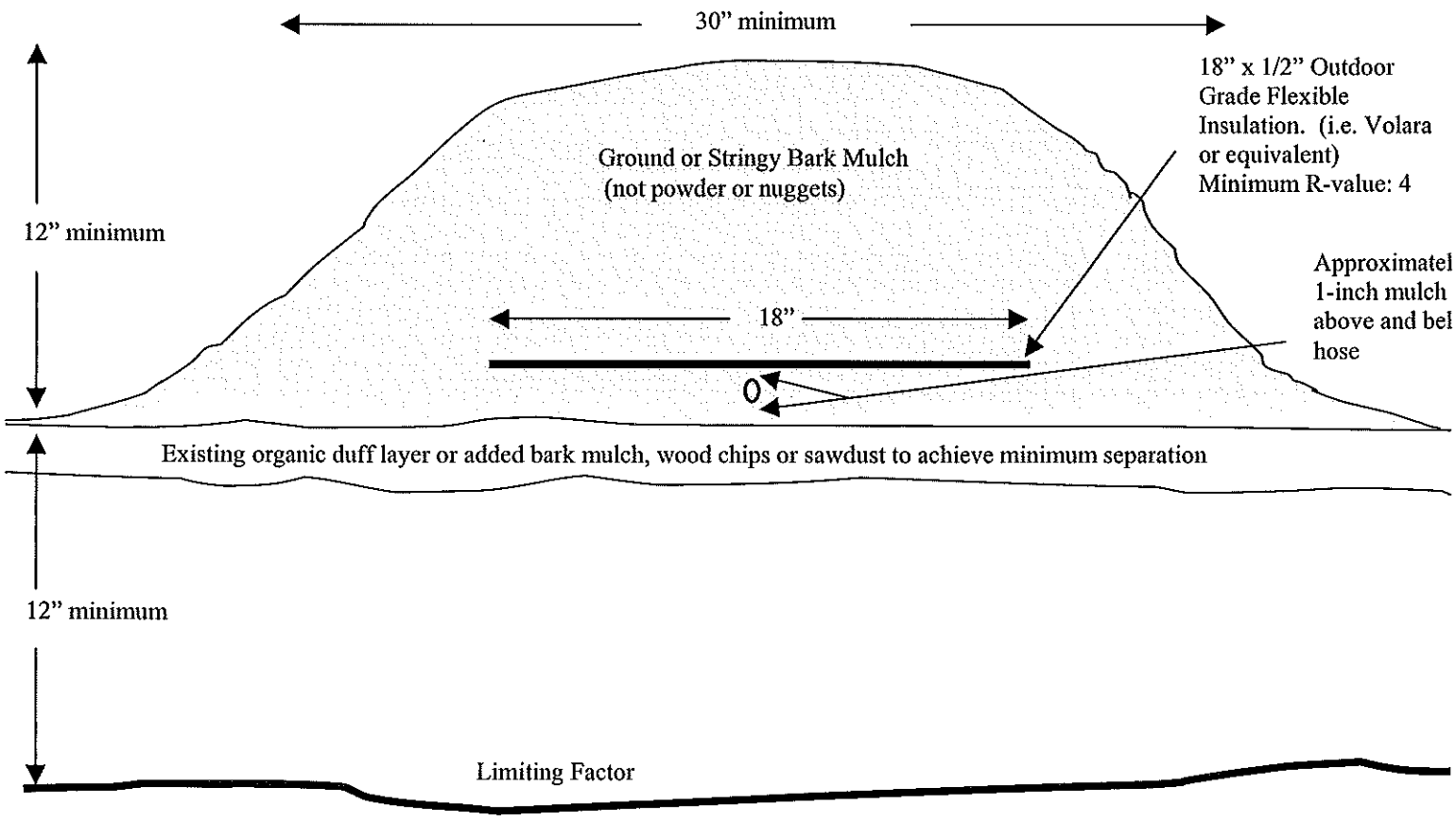
Pretreatment Requirement: BOD and TSS <10 mg/l

Minimum Separation Distance Between Drip Hose Rows: 3' center to center, (more as practicable)

Minimum Sizing Requirement: 1-linear foot driphose = 1.33 sq. ft. disposal area. Number of linear feet of drip hose calculated as follows: Gal./Day *times* Soil Multiplier *divided* by 4 (75% SeptiTech reduction allowance) *divided* by 1.33 sq. ft. *equals* Number of Linear Feet of Driphose. Note: Standard driphose comes in 75 and 100-ft. lengths. Individual hose run should be no greater than 200-linear feet.

Driphose Requirement: 5/8" professional grade soaker hose (i.e. Fiskars Professional Grade) or equivalent. Note: SeptiTech supplies this hose with each system

Scale: 1" = 6"



SeptiTech Seasonal Shallow Drip Hose Disposal Area Profile

Date: 7/2/02

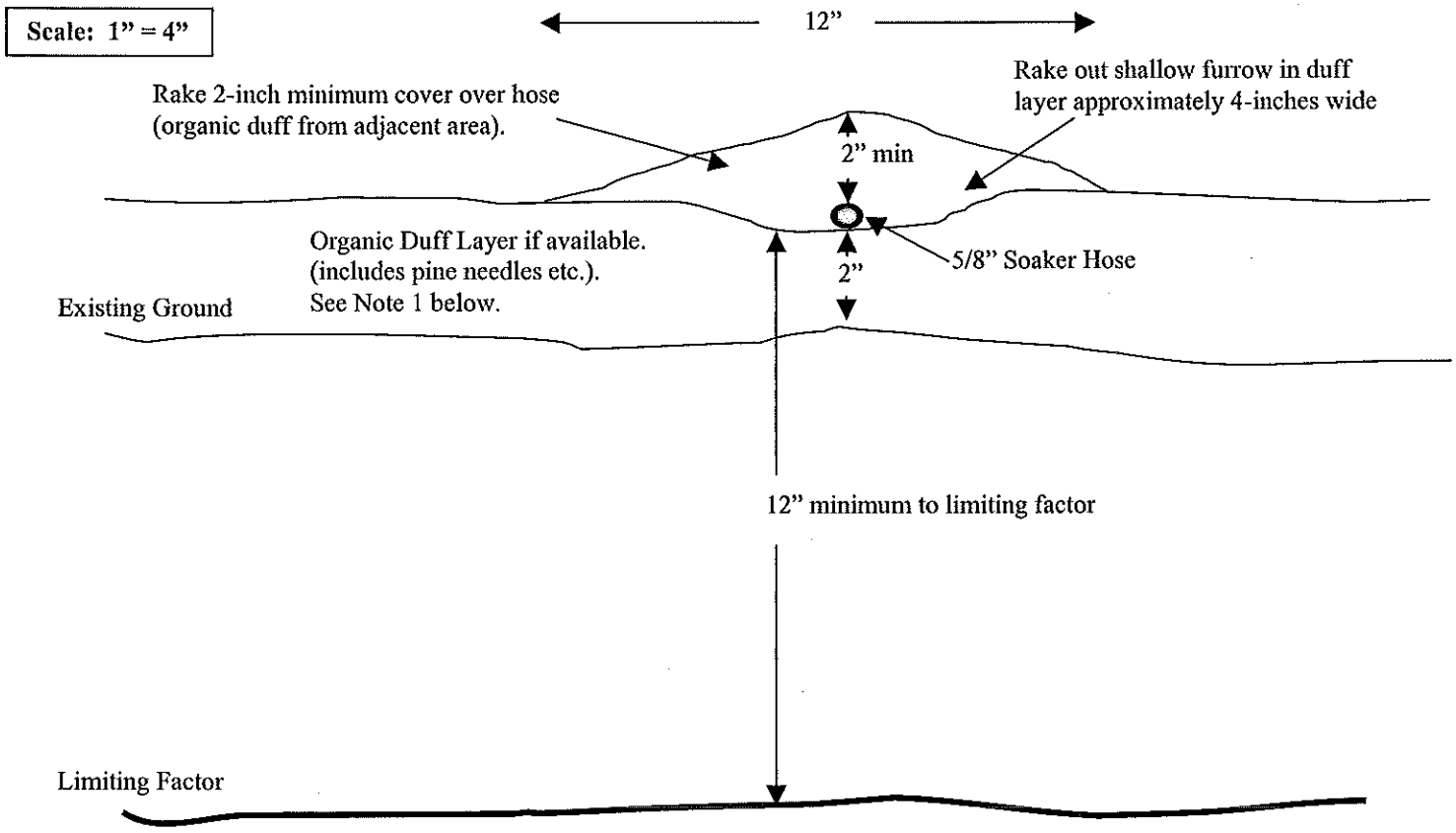
Pretreatment Requirement: BOD and TSS <10 mg/l, E. coli < 15 colonies per 100 m.l.

Ultraviolet Disinfection Requirement: 200,000 μwsec/cm^2

Minimum Separation Distance Between Drip Hose Rows: 3' center to center

Minimum Sizing Requirement: 1-linear foot driphose = 1.33 sq. ft. disposal area.
Number of linear feet of drip hose calculated as follows: Gal./Day *times* Soil Multiplier *divided* by 4 (75% SeptiTech reduction allowance) *divided* by 1.33 sq. ft. *equals* Number of Linear Feet of Driphose.
Note: Standard driphose comes in 75 and 100-ft. lengths. SeptiTech recommends rounding up to nearest hose length.

Driphose Requirement: 5/8" professional grade soaker hose (i.e. Fiskars Professional Grade) or equivalent. Note: SeptiTech supplies this hose with each system.



Notes:

1. If limited organic material is present, supplement with bark mulch, wood chips or sawdust
2. Change to ¾" PE hose over large obstacles and under roads and walkways
3. Set hose in individual runs of up to 200-ft. using 50-ft. and 75-ft. lengths.
4. Follow contour as practical but go uphill or downhill as necessary. Maintain less than 10-ft. total head per hose run.

Dear Friend of SeptiTech:

Many of you have asked for clarification on how to design for SeptiTech drip hose systems, especially now that this system can be used for year-round sites. Thank you for your patience in waiting for updated specifications. We hope the enclosed letter from the State and accompanying design documentation will be of assistance to you.

We recognize that standard subsurface leachfields are appropriate for most situations. As you know, SeptiTech is allowed a 75% reduction in field size and 12-inches to limiting factor for subsurface leachfields in a trench configuration. A SeptiTech subsurface sizing chart and trench profile is enclosed as reference.

Driphose systems have unique advantages for special situations that you may encounter. Approximately 50 of these systems have been installed in Maine to date, which have proven to be reliable, cost effective and in many cases an effective solution to a tough situation. Here's where the SeptiTech driphose system may be of help to you.

Situation 1. Your client wants no trees cut! Driphose systems are installed very near the ground surface, do not need to be level and can wind in and out of trees and other obstacles. No trees need be removed for installation.

Situation 2. Machinery access to your client's site is very difficult and cost of fill is excessive. Many islands fit these criteria. Residential HDPE tanks are relatively lightweight and can be moved by hand without equipment. SeptiTech drip irrigation leachfields can be installed with simple hand tools and do not require fill.

Situation 3. Tough site. High ledge and bedrock will result in large, unsightly leachfield mounding and significant expense for setting septic tank. Driphose systems preserve the aesthetic integrity of a site and do not result in unsightly mounds associated with conventional leachfields on difficult sites. Many of our seasonal systems include tanks set above ground in situations where ledge and bedrock are prevalent.

Situation 4. Your client must decrease runoff numbers to decrease phosphorus levels. SeptiTech driphose leachfields absorb water and do not change runoff numbers or phosphorus levels. Therefore, lot densities can increase and lots can look more natural.

Situation 5. You have a client anxious to install the most environmentally friendly system possible. In addition to preserving the aesthetic integrity of a site, effluent from SeptiTech driphose systems essentially recycle water for irrigating trees, shrubs and flowerbeds. In addition, effluent dispersal in the upper soil horizon assures maximum treatment for phosphorus and nitrogen because the effluent is discharged to the most biologically active zone thus significantly reducing the possibility for groundwater contamination.

I sincerely hope this material helps clarify how these systems are to be designed. As always we are available to accompany you on a site visit or to answer any questions. Happy summer.

Sincerely,

Scott Samuelson

Author: James Jacobsen at dhe
Date: 3/2/01 8:41 AM
Normal

TO: info@SeptiTech.com at InternetCC: David Rocque at Ag&FoodCC: Jay HardcastleTO: albertfrick@worldnet.att.net at InternetTO: gbuck@septitech.com at InternetCC: Clough ToppanSubject: Re: U.V. Drip Hose System---------- Message Contents

In September of 1999, the Division began issuing experimental system approvals for installation of shallow/surface grade drip hose SeptiTech installations on MacMahan Island. These approvals were predicated on several conversations which occurred in the preceding months. Basically, the installations included a treatment tank, a SeptiTech unit, an ultraviolet disinfection device, and one foot of soaker hose per gallon per day of design flow. The hoses were installed at or slightly below grade, maintaining the separation from limiting factors required for any other system. Instead of soil backfill, native duff or imported bark mulch was used to cover the soaker hoses. The concept was promoted as a whole system by SeptiTech, much like their original proprietary trench design.

The underlying impetus for this concept was that MacMahan Island had many substandard systems and overboard discharge systems which needed to be replaced. Since the island has electric power supplies, a mechanical treatment system was deemed feasible. However, importing soil and other construction materials to the island would have been very expensive, and landing the materials would have been somewhat problematic. Further, the dwellings are seasonal in use, and potable water is largely limited to rain cisterns and very low output wells. Thus, wastewater generation is very limited. The system performed as expected during their first season of operation.

Therefore, the Division approved use of the shallow drip hose systems for seasonal use in areas of limited wastewater generation. The systems are subject to pertinent criteria of the Subsurface Wastewater Disposal Rules, such as setbacks, separation from limiting factors, and in the case of first time installations, a passing site evaluation.

This office did not approve installations of the shallow drip hose systems for year round use due to obvious freezing potential. This office did not contemplate such installations for areas where a conventional disposal area is feasible, although this was not expressly forbidden in the January 2001 general approval letter (attached).

Let me be clear. No special considerations were granted for use of shallow drip hose systems in terms of making an otherwise unsuitable site suitable for first time development. In other words, a site with soils that do not pass is no more suited for this system than any other.

Replacement systems are allowed the usual considerations. Please feel free to contact me with any questions.

James A. Jacobsen, Environmental Specialist IV
Wastewater and Plumbing Control Program
Division of Health Engineering

Reply Separator

Subject: U.V. Drip Hose System
Author: albertfrick@worldnet.att.net at Internet
Date: 2/23/01 1:02 PM

Dear Scott Samuelson:

I received your letter of February 20, 2001 which indicates that SeptiTech got "approval for a unique leachfield design". The packet of information includes a copy of a letter of January 10, 2001 from Jim Jacobsen to Jim Gray which is PRODUCT REGISTRATION of the DRIP HOSE. The approval letter does specify that the A.W.T. with ultraviolet disinfection is required

Is the approval for the use of the PRODUCT as the Registration letter indicates, or can it be construed that the State has also approved the generic drip hose system design?. Has the Department waived the normal SITE EVALUATION requirements of elevation reference point establishment, corner ties to disposal area location, and a fixed permitted window area, reduction to separation distance to limiting factor of 0 to 4 inches as represented in sample?. Are we allowed to use D and E condition soils as shown on the proposed design cross-section indicates? Is this for new or replacement systems or both?

SeptiTech Year Round Shallow Drip Hose Disposal Area Profile

Date: 1/14/02

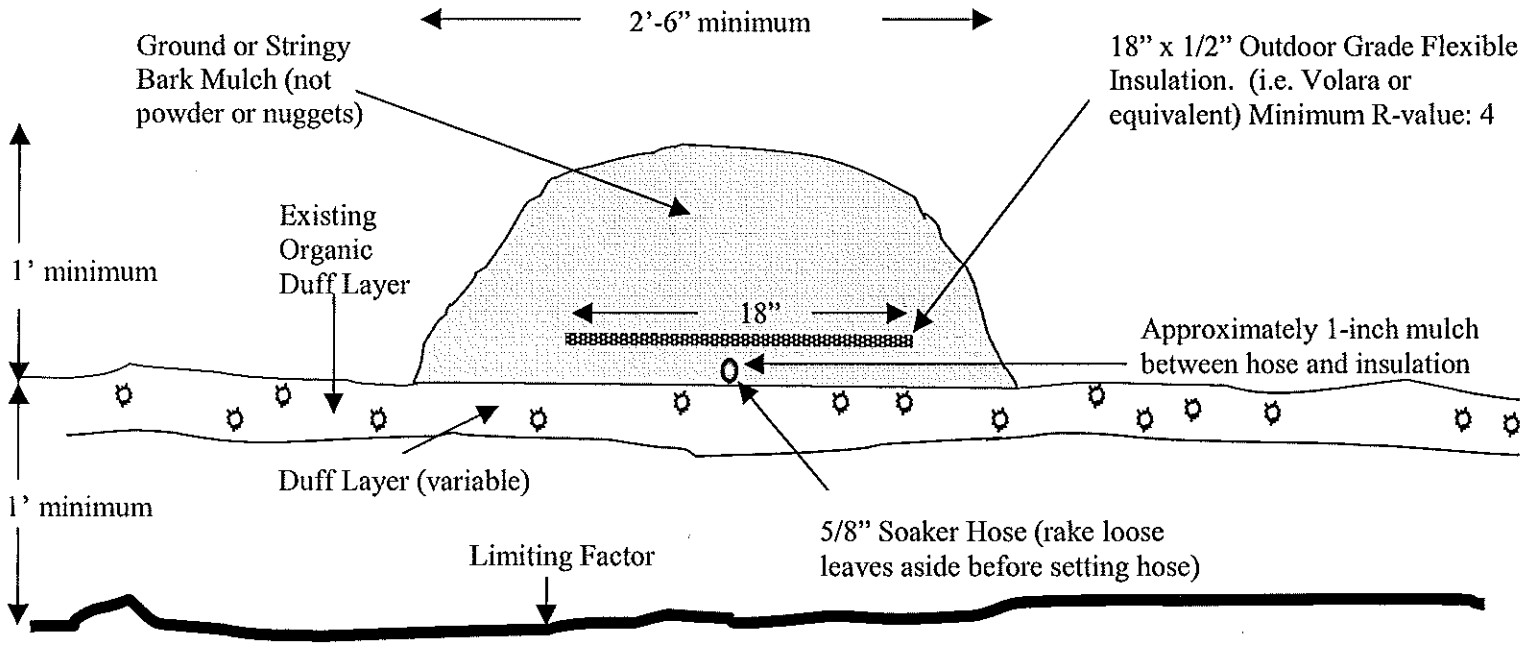
Pretreatment Requirement: BOD and TSS <10 mg/l

Minimum Separation Distance Between Drip Hose Rows: 3' center to center

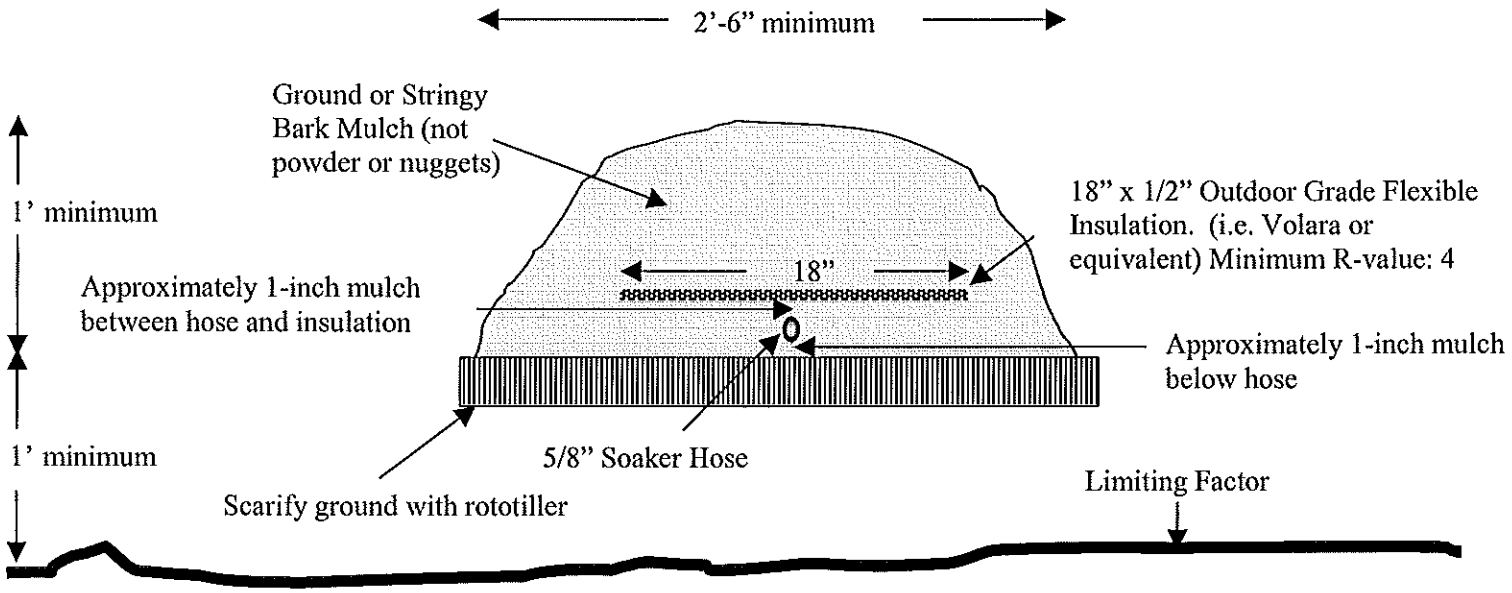
Minimum Sizing Requirement: 0.75-feet of driphose (9-inches) per gallon per day (gpd)

Driphose Requirement: 5/8" professional grade soaker hose (i.e. Fiskars Professional Grade) or equivalent. Note: SeptiTech supplies this hose with each system

Option 1. If Duff Layer is Available.



Option 2. If Duff Layer is <u>Not</u> Available.



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

January 10, 2001

SeptiTech
Attn: James Gray
220 Lewiston Road
Gray, Maine 04039

Subject: Product Registration, SeptiTech Combination UV Drip Hose System

Dear Mr. Gray:

Thank you for your letter dated January 1, 2001 regarding your company's product, the SeptiTech Combination UV Drip Hose System. Under provisions of Section 1902 of the Maine State Plumbing Code, Subsurface Wastewater Disposal Rules (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.

The residential system includes two treatment tanks. The first treatment tank is a 1,000 gallon septic tank which discharges effluent to the second treatment tank. The second treatment tank is a SeptiTech treatment unit which consists of an aerobic/anaerobic biological treatment plant. A proprietary ultraviolet disinfection unit treats the effluent prior to disposal. The system includes a disposal area which consists of one foot of porous hose per gallon of effluent per day (gpd). The hose is installed in shallow trenches and backfilled with native organic material (duff) and/or bark chips; or laid on scarified ground at grade and covered with bark chips, as site conditions warrant.

This system was approved for experimental use as a seasonal system in 1999. Thirty-four residential systems were installed on MacMahan Island (Georgetown) in 1999 and monitored last year for effluent quality and evidence of hydraulic overloading. One 2,500 gpd commercial system was installed on Malden Island.

According to the information you provided from the monitoring of these systems, the SeptiTech Combination UV Drip Hose System routinely provides effluent with an average E. coli level of less than 15 colonies per 100 ml. Individual tests frequently had zero colonies per 100 ml. Further, you indicated that there were no instances of effluent surfacing from the shallow drip disposal areas. On that basis, the Division has determined that the SeptiTech Combination UV Drip Hose System is acceptable for seasonal use in the State of Maine, provided that it is installed, operated, and maintained in conformance with the manufacturer's directions.

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 SeptiTech Combination UV Drip Hose System. 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: SeptiTech Product File

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
Division of Health Engineering, Station 10
(207) 287-5672 FAX (207) 287-4172

PROPERTY LOCATION

City, Town, or Plantation	
Street or Road	SAMPLE
Subdivision, Lot #	

OWNER/APPLICANT INFORMATION

Name (last, first, MI) — ☐ Owner ☐ Applicant

Mailing Address of ☐ Owner ☐ Applicant	
Daytime Tel. #	

>> Caution: Permit Required -- Attach In Space Below <<

The Subsurface Wastewater Disposal System ***shall not*** be installed until a Permit is attached HERE by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.

Municipal Tax Map # _____ Lot # _____

Owner or Applicant Statement

I state that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a Permit.

_____ _____
Signature of Owner or Applicant — Date

Caution: Inspections Required

I have inspected the installation authorized above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application.

_____ (1st) Date Approved

_____ _____
Local Plumbing Inspector Signature — (2nd) Date Approved

PERMIT INFORMATION

TYPE OF APPLICATION

1. ☐ First Time System
2. ☒ Replacement System
   Type Replaced: _____
   Year Installed: _____
3. ☐ Expanded System
   a. ☐ One-time exempted
   b. ☐ Non-exempted
4. ☐ Experimental System
5. ☐ Seasonal Conversion

THIS APPLICATION REQUIRES

1. ☐ No Rule Variance
2. ☐ First Time System Variance SPECIFY
   a. ☐ Local Plumbing Inspector Approval
   b. ☐ State & Local Plumbing Inspector Approval
3. Replacement System Variance
   a. ☐ Local Plumbing Inspector Approval
   b. ☐ State & Local Plumbing Inspector Approval
4. ☐ Minimum Lot Size Variance
5. ☐ Seasonal Conversion Approval

DISPOSAL SYSTEM COMPONENT(S)

1. ☒ Complete Non-engineered System
2. ☐ Primitive System (graywater & alt toilet)
3. ☐ Alternative Toilet, specify: _____
4. ☐ Non-Engineered Treatment Tank (only)
5. ☐ Holding Tank, _____ gallons
6. ☐ Non-engineered Disposal Field (only)
7. ☐ Separated Laundry System
8. ☐ Complete Engineered System (2000 gpd or more)
9. ☐ Engineered Treatment Tank (only)
10. ☐ Engineered Disposal Field (only)
11. ☒ Pre-treatment, specify: SeptiTech UV
12. ☐ Miscellaneous components

SIZE OF PROPERTY

SPECIFY ☐ sq. ft. ☐ acres

SHORELAND ZONING

☐ Yes ☐ No

DISPOSAL SYSTEM TO SERVE

1. ☐ Single Family Dwelling Unit, No. of Bedrooms: _____
2. ☐ Multiple Family Dwelling, No. of Units: _____
3. ☐ Other: _____ SPECIFY
   SPECIFY

TYPE OF WATER SUPPLY

1. ☐ Drilled Well 2. ☐ Dug Well 3. ☐ Private
4. ☐ Public 5. ☐ Other: SPECIFY

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

TREATMENT TANK

1. ☐ Concrete
   a. ☐ Regular
   b. ☐ Low Profile SPECIFY
2. ☐ Plastic
3. ☐ Other: _____
   CAPACITY _____ gallons

DISPOSAL FIELD TYPE & SIZE

1. ☐ Stone Bed 2. ☐ Stone Trench
3. ☐ Proprietary Device
   a. ☐ Cluster array c. ☒ Linear
   b. ☐ Regular load d. ☐ H-20 load
4. ☒ Other: SeptiTech Drip Hose

SIZE SPECIFY ☐ sq. ft. ☐ lin. ft.

GARBAGE DISPOSAL UNIT

1. ☒ No 3. ☐ Maybe
2. ☐ Yes >> Specify one below:
   a. ☒ Multi-compartment Tank
   b. ☐ Tanks in Series
   c. ☐ Increase in Tank Capacity
   d. ☒ Filter on Tank Outlet

DESIGN FLOW

SPECIFY gallons per day
BASED ON:
1. ☐ Table 501.1 (dwelling unit(s)
2. ☐ Table 501.2 (other facilities)
   SHOW CALCULATIONS
   -- for other facilities --

SPECIFY

3. ☐ Section 503.0 (meter readings)
   ATTACH WATER-METER DATA

SOIL DATA & DESIGN CLASS

PROFILE CONDITION DESIGN
_____ / _____ / SPECIFY
at Observation Hole # _____
Depth _____" Elevation _____"
OF MOST LIMITING SOIL FACTOR

DISPOSAL FIELD SIZING

1 Foot per GPD

1. ☐ Small -- 2.0 sq. ft./gpd
2. ☐ Medium -- 2.6 sq. ft./gpd
3. ☐ Medium-Large -- 3.3 sq. ft./gpd
4. ☐ Large -- 4.1 sq. ft./gpd
5. ☐ Extra Large -- 5.0 sq. ft./gpd

PUMPING

Provided with Unit

1. ☐ Not Required
2. ☐ May Be Required
3. ☐ Required >> Specify only for engineered or experimental systems:
   DOSE: gallons

SITE EVALUATOR STATEMENT

I Certify that on _____ (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed system is in compliance with the State of Maine Subsurface Wastewater Disposal Rules (10-144A CMR 241).

OVER →

_____ _____ _____
Site Evaluator Signature — SE # — Date

_____ _____
Site Evaluator Name Printed — Telephone #

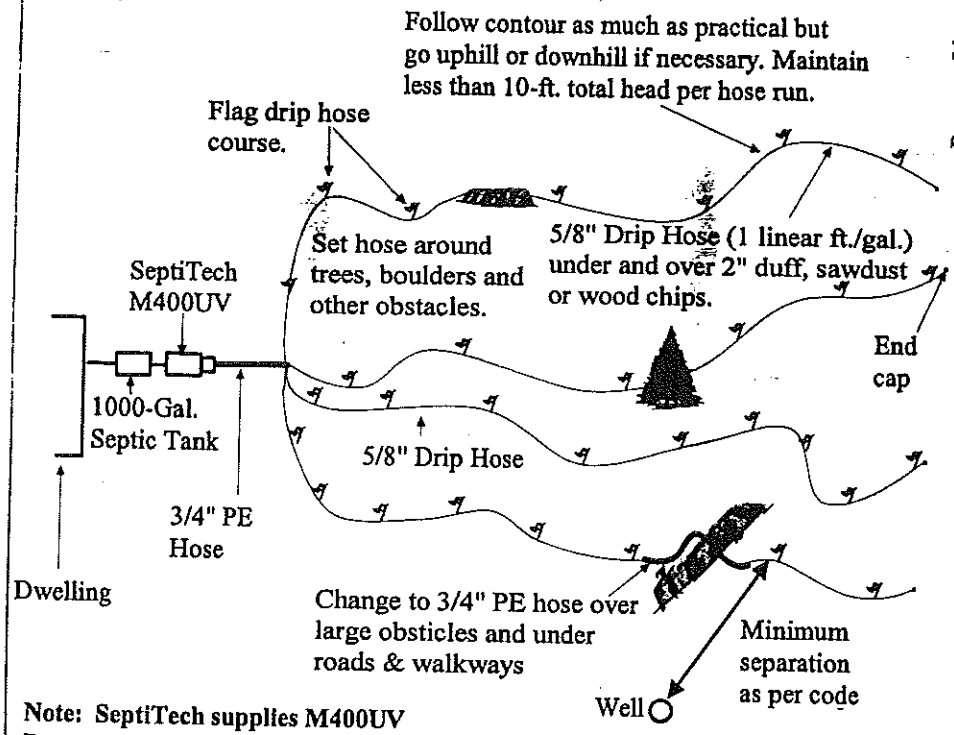
SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Human Services
Division of Health Engineering
(207) 287-5672 FAX (207) 287-4172

Town,City,Plantation | Street,Road,Subdivision | Owner's Name

SUBSURFACE WASTEWATER DISPOSAL PLAN

SCALE 1" = ____ FT.



Note: SeptiTech supplies M400UV Processor and Drip Hose.

1. Set hose along flagged route. Hose can run up and down slope but follow slope contour as closely as practical. Maintain less than 10-feet total head per hose run.

2. Use 1 linear foot per gallon per day.

3. Set hose in individual runs of 200-ft. maximum lengths using 50-ft. and 75-ft. lengths. Maintain minimum of 6-ft. separation between hose runs. When more than one hose is used, make the lines equal in length.

4. Rake away existing loose leaves to form a path approximately 12 to 18-inches wide. Lay hose and stake about every 6-ft. Rake leaves and duff over hose to a depth of 2 to 3-inches. If insufficient material is available, supplement with bark, wood chips or sawdust.

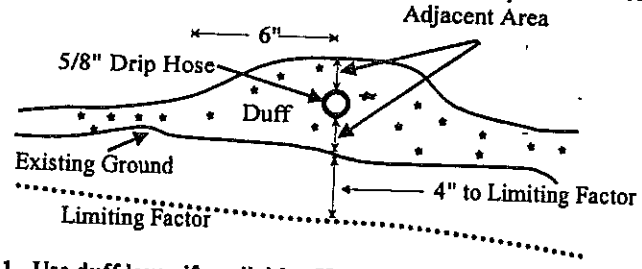
FILL REQUIREMENTS		CONSTRUCTION ELEVATIONS		ELEVATION REFERENCE POINT	
Depth of Fill (Upslope)	____	Finished Grade Elevation		____	Location & Description
Depth of Fill (Downslope)	____	Top of Distribution Pipe or Proprietary Device		____	
		Bottom of Disposal Area		____	Reference Elevation

DISPOSAL AREA CROSS SECTION

SCALE:
VERTICAL: 1" =
HORIZONTAL: 1" =

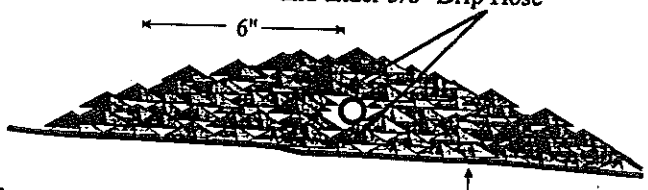
A. Duff and Organic Material are Available

2-Inches Duff Over and 2-Inches Under Drip Hose Raked from Adjacent Area



B. Duff and Organic Material Not Available.

2-inches Bark Mulch, Wood Chips, Saw Dust or Organic Duff Over and under 5/8" Drip Hose



1. **Use duff layer if available. Use rake to scarify existing ground if compacted.**

2. **If limited organic matter is present, substitute bark mulch, wood chips or saw dust.**

3. **Separate hose runs by minimum of 6-feet.**

Site Evaluator Signature | SE # | Date

SeptiTech®
Zero Pollution Waste Water Systems

May 15, 2001

Jim Jacobsen, Program Manager
Wastewater & Plumbing Program
Division of Health Engineering
10 State House Station
Augusta, ME 04333
Fax: 207-287-3165

Dear Jim:

I thought it would make sense to send you a copy of the sample driphose HHE-200 that we have sent to Professional Site Evaluators. (I thought I had already sent one to you.) The information shown here was developed with David Rocque just before he went into the hospital. It was my understanding that you and David were communicating during this process. I apologize if I misunderstood.

As you can see, distance from drip hose to limiting factor is definitely less than 12-inches. The thinking is that this system would most typically be used on replacement systems where there is very minimal fill and distance to limiting factor. For instance, on MacMahan Island, the average distance to limiting factor throughout the Island is 6-inches.

The design principle with this system is to use near surface application in order to take advantage of natural evaporation and plant uptake by both large trees and smaller shrubs (one medium pine tree can transmit 150 gallons of water into the air per day) instead of trying to force adsorption into a small subsurface area.

After you have seen this information, it may be just as easy to have this meeting via telephone with Jim Gray and me. Why don't you take a look at the enclosed and let me know what you think.

Thanks very much.

Sincerely,

Scott Samuelson
scottsamuelson@septitech.com

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Division of Health Engineering, Station 10
(207) 287-5672 FAX (207) 287-4172

PROPERTY LOCATION

City, Town, or Plantation	
Street or Road	
Subdivision, Lot #	SAMPLE

>> Caution: Permit Required – Attach in Space Below <<

The Subsurface Wastewater Disposal System shall not be installed until a Permit is attached HERE by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.

OWNER/APPLICANT INFORMATION

Name (last, first, MI) Owner ☐ Applicant ☐

Mailing Address of ☐ Owner ☐ Applicant

Daytime Tel. #

Municipal Tax Map # _____ Lot # _____

Owner or Applicant Statement

I state that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a Permit.

Signature of Owner or Applicant _____ Date _____

Caution: Inspections Required

I have inspected the installation authorized above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application.

Local Plumbing Inspector Signature _____ (1st) Date Approved _____ (2nd) Date Approved _____

PERMIT INFORMATION

TYPE OF APPLICATION

1. ☐ First Time System
2. ☒ Replacement System
   Type Replaced: _____
   Year Installed: _____
3. ☐ Expanded System
   a. ☐ One-time exempted
   b. ☐ Non-exempted
4. ☐ Experimental System
5. ☐ Seasonal Conversion

THIS APPLICATION REQUIRES

1. ☐ No Rule Variance SPECIFY
2. ☐ First Time System Variance
   a. ☐ Local Plumbing Inspector Approval
   b. ☐ State & Local Plumbing Inspector Approval
3. Replacement System Variance
   a. ☐ Local Plumbing Inspector Approval
   b. ☐ State & Local Plumbing Inspector Approval
4. ☐ Minimum Lot Size Variance
5. ☐ Seasonal Conversion Approval

DISPOSAL SYSTEM COMPONENT(S)

1. ☒ Complete Non-engineered System
2. ☐ Primitive System (greywater & alt toilet)
3. ☐ Alternative Toilet, specify: _____
4. ☐ Non-Engineered Treatment Tank (only)
5. ☐ Holding Tank, _____ gallons
6. ☐ Non-engineered Disposal Field (only)
7. ☐ Separated Laundry System
8. ☐ Complete Engineered System (2000 gpd or more)
9. ☐ Engineered Treatment Tank (only)
10. ☐ Engineered Disposal Field (only)
11. ☒ Pre-treatment, specify: SeptiTech UV
12. ☐ Miscellaneous components

SIZE OF PROPERTY

SPECIFY ☐ sq. ft. ☐ acres

SHORELAND ZONING

☐ Yes ☐ No

DISPOSAL SYSTEM TO SERVE

1. ☐ Single Family Dwelling Unit, No. of Bedrooms: _____
2. ☐ Multiple Family Dwelling, No. of Units: _____
3. ☐ Other: _____ SPECIFY SPECIFY

TYPE OF WATER SUPPLY

1. ☐ Drilled Well 2. ☐ Dug Well 3. ☐ Private
4. ☐ Public 5. ☐ Other: SPECIFY

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

TREATMENT TANK

1. ☐ Concrete
   a. ☐ Regular
   b. ☐ Low Profile SPECIFY
2. ☐ Plastic
3. ☐ Other: _____
   CAPACITY _____ gallons

DISPOSAL FIELD TYPE & SIZE

1. ☐ Stone Bed 2. ☐ Stone Trench
3. ☐ Proprietary Device
   a. ☐ Cluster array e. ☒ Linear
   b. ☐ Regular load d. ☐ H-20 load
4. ☒ Other: SeptiTech Drip Hose
   SIZE SPECIFY ☐ sq. ft. ☐ ln. ft.

GARBAGE DISPOSAL UNIT

1. ☒ No 3. ☐ Maybe
2. ☐ Yes >> Specify one below:
   a. ☒ Multi-compartment Tank
   b. ☐ Tanks in Series
   c. ☐ Increase in Tank Capacity
   d. ☒ Filter on Tank Outlet

DESIGN FLOW

SPECIFY gallons per day
BASED ON:
1. ☐ Table 501.1 (dwelling unit(s)
2. ☐ Table 501.3 (other facilities)
   SHOW CALCULATIONS
   -- for other facilities --

SPECIFY

3. ☐ Section 503.0 (meter readings)
   ATTACH WATER-METER DATA

SOIL DATA & DESIGN CLASS

PROFILE CONDITION DESIGN
_____ / _____ / SPECIFY
at Observation Hole # _____
Depth _____ " Elevation _____ "
OF MOST LIMITING SOIL FACTOR

DISPOSAL FIELD SIZING

1 Foot per GPD

1. ☐ Small – 2.0 sq. ft./gpd
2. ☐ Medium – 2.6 sq. ft./gpd
3. ☐ Medium-Large – 3.3 sq. ft./gpd
4. ☐ Large – 4.1 sq. ft./gpd
5. ☐ Extra Large – 6.0 sq. ft./gpd

PUMPING

Provided with Unit

1. ☐ Not Required
2. ☐ May Be Required
3. ☐ Required >> Specify only for engineered or experimental systems:
   DOSE: _____ gallons

SITE EVALUATION STATEMENT

I Certify that on _____ (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed system is in compliance with the State of Maine Subsurface Wastewater Disposal Rules (10-144A CMR 241).

OVER →

Site Evaluator Signature _____ SE # _____ Date _____

Site Evaluator Name Printed _____ Telephone # _____

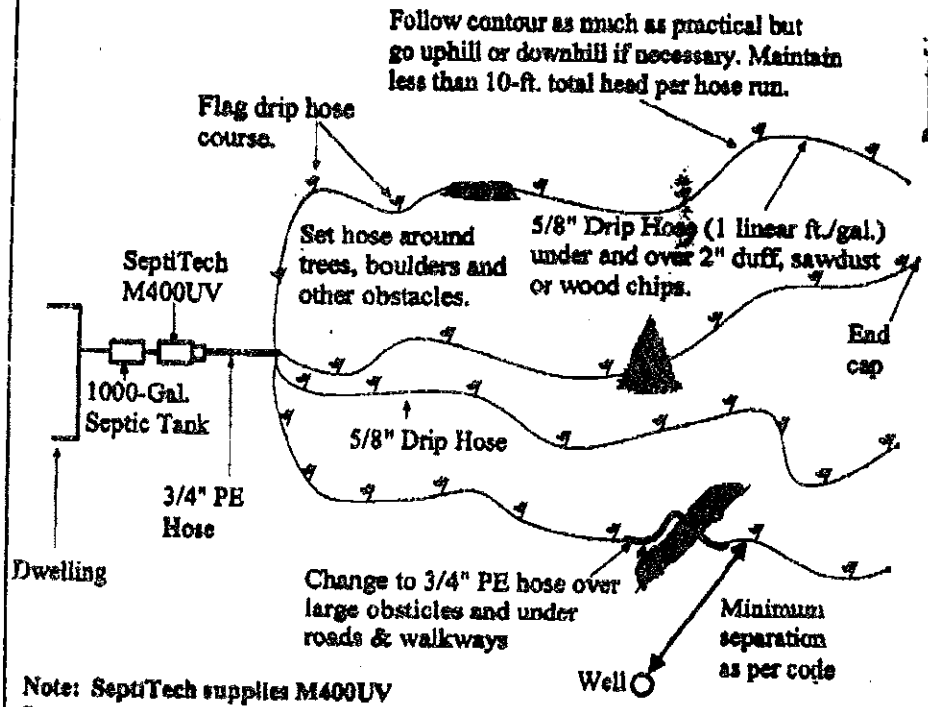
SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Human Services
Division of Health Engineering
(207) 287-5671 Fax (207) 287-4172

Town,City,Plantation | Street,Road,Subdivision | Owner's Name

SUBSURFACE WASTEWATER DISPOSAL PLAN

SCALE 1" = ____ FT.



Note: SeptiTech supplies M400UV Processor and Drip Hose.

1. Set hose along flagged route. Hose can run up and down slope but follow slope contour as closely as practical. Maintain less than 10-feet total head per hose run.

2. Use 1 linear foot per gallon per day.

3. Set hose in individual runs of 200-ft. maximum lengths using 50-ft. and 75-ft. lengths. Maintain minimum of 6-ft. separation between hose runs. When more than one hose is used, make the lines equal in length.

4. Rake away existing loose leaves to form a path approximately 12 to 18-inches wide. Lay hose and stake about every 6-ft. Rake leaves and duff over hose to a depth of 2 to 3-inches. If insufficient material is available, supplement with bark, wood chips or sawdust.

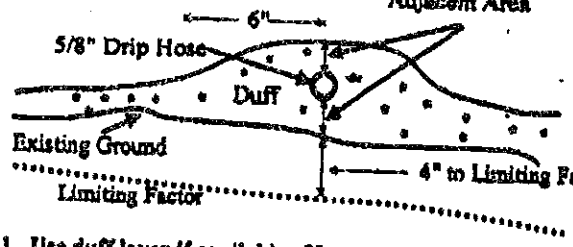
FILL REQUIREMENTS		CONSTRUCTION ELEVATIONS		ELEVATION REFERENCE POINT	
Depth of Fill (Upslope)	_____	Finished Grade Elevation	_____	Location & Description	_____
Depth of Fill (Downslope)	_____	Top of Distribution Pipe or Proprietary Device	_____		
		Bottom of Disposal Area	_____	Reference Elevation	_____

DISPOSAL AREA CROSS SECTION

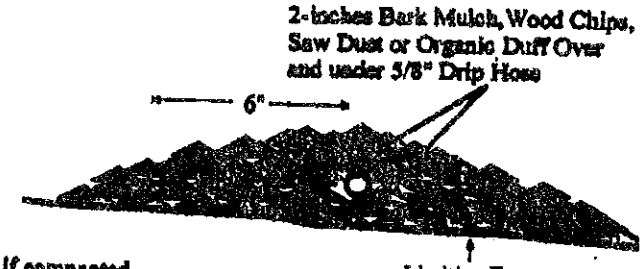
SCALE:
VERTICAL: 1" =
HORIZONTAL: 1" =

A. Duff and Organic Material are Available

2-Inches Duff Over and 2-Inches Under Drip Hose Raked from Adjacent Area



B. Duff and Organic Material Not Available.



1. Use duff layer if available. Use rake to scarify existing ground if compacted.

2. If limited organic matter is present, substitute bark mulch, wood chips or saw dust.

3. Separate hose runs by minimum of 6-feet.

Site Evaluator Signature | SE # | Date

SeptiTech®
Zero Pollution Waste Water Systems

May 9, 2001

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

Re: Complaint from Earl Rafuse

Dear Mr. Jacobsen:

This letter is in response to your letter of May 1st, 2001. We have talked with Mr. Rafuse on two separate occasions, first at the site evaluators meeting in February, and again last week by phone. We have addressed his concerns the best we know how, and I believe he is aware of the testing and safeguards that are in place. I will address his concerns in order.

1. An innovative and powerful new tool to design systems for seasonal properties on very difficult sites. ----- The drip hose application is most appropriate for replacement systems for seasonal properties where a conventional system is either impossible or would be so intrusive as to destroy a fragile ecosystem such as can be found on coastal properties or islands along the coast of Maine. In these shallow to bedrock situations, the treated effluent is dispersed over a wide area directly into the duff layer of a forest or undeveloped/undisturbed environment. This near surface layer is the most active soil zone for microbial processes, as well as the most active root zone where the water is rapidly absorbed by plant and tree roots and where natural evaporation can take place.

   During the testing phase of the drip hose process, thirty-four residential systems and one commercial system were installed on the coast. SeptiTech personnel, the local code officer and most importantly Mr. David Rocque the Maine State Soil Scientist monitored these systems. No ponding, surface water or nuisance conditions of any kind were observed.

2. Recommended microwatt-seconds per centimeter sq exposure for non-contact waters is 15,000 UW-sec/cm^2. To be safe the manufacturer recommends an exposure rate of 90,000UW-sec/cm^2. We have sized the unit at 360,000 UW-sec/cm^2, a safety factor of four times. Tests taken during the 2000 season typically showed fecal coloform counts of zero, with only a few tests indicating upwards of a hundred. In all cases the results were less than E.P.A. Treatment Standard 1, which is less than 200 fecal coliform per 100 ml. SeptiTech provides a two-year service and warranty agreement with every unit, and we

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are required to inform the Department of Health Engineering if the customer does not purchase the continued service contract. During the yearly service or any site visit we change the UV bulb and clean the quartz sleeve to insure good exposure.

3. Answered above in 2

4. Soil evaluators are to use discretion in placing these hoses. They are designed, as stated above, to be placed out of view and in a forest or undisturbed location, certainly not in a lawn or other heavily trafficked area.

Please call or write with any further questions.

Sincerely;

James R. Gray

Cc: Earl Rafuse

SeptiTech®
Zero Pollution Waste Water Systems

March 29, 2001

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

Dear Jim;

There seems to be a fair bit of confusion in the soil sci. community about reductions for proprietary devices when ganged together. We are regularly explaining to evaluators that hydraulic loading issues do not allow multiple sizing reductions. The problem seems to be centered not in how they read the rules but how they apply them. Most soil sci. are absolutely convinced that they can calculate the sq. footage from table 600.1 multiple by the appropriate percent reduction when using a treatment system, and then install a proprietary leach field device such as a chambers or wrapped pipe. Since most of these devices are allowed increased sq. footage allowance over and above the actual sq. footage (a 4x8 chamber has 32sq. ft. and is allowed 64 sq. ft. amounting to a 50% reduction in actual absorptive surface) this ganging together causes an undersize leach field to be designed.
As an example: 360 g/d x 3.3 = 1188sq. ft based on the standard sizing requirements of the rules.

a) when 4x8 concrete chambers are used 1188 is divided by 64 sq. ft per chamber. This amts. to 18.56 chambers. Rounded up to 19 chambers this amts. to 608 actual sq ft. of absorptive area.
b) When a treatment device is used that has a 75% reduction in size based of the rules this field would also require 297 sq. ft.
c) When you take the 75% treatment reduction first you start with 297 sq. ft, and divide by 64 sq. ft you end up with 4.6 or 5 chambers which is only 160 sq. ft of absorptive area. This amts to a total reduction of 87%

Some have taken this to the ultimate extreme and put ellgin end drains after a system, which resulted in a leach field for a three-bed room home of only fifty(50) sq. ft. a net reduction of ninety four per cent. (we didn't install it this way)

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Dave Rouque recognized this problem when he tried to put a change into the code to clarify it however I don't think a code change is nec. Only a clarification of the existing policy.

Would you please put this to rest once and for all and give me a letter of clarification? I have included some preliminary thoughts on wording below for your preview.

> When multiple proprietary disposal devices, like those in Appendix B, are ganged together the actual sq. footage of the absorptive area shall not be less than the minimum sq. footage allowed for any single device, based upon the standard sizing requirements of the rules from table 600.1
>
> The purpose of this clarification is to make it clear that multiple reductions are not allowed because hydraulic capacity of the soil could be exceeded.

Thanks for your consideration

James R. Gray

Earle M. Rafuse, R.S.
Environmental Health Consultant
FOOD - WATER – SEWAGE
181 Randolph Drive
P.O. Box 280
Bangor, Maine 04402-0280
(207) 942-3659
erafuse@aol.com

24 February 2001

James A. Jacobsen
Mgr. WW & PC Program
Maine Dept. of Human Services
Div. of Hlth. Eng.
10 State House Station
Augusta, Maine 04333-0010

Re: SeptiTech's UV Drip Hose System; State Approval of

Encl: Copy of 38 §§ 465-A

Dear Mr. Jacobsen:

I have just received mailed materials from SeptiTech® regarding their product ***"The SeptiTech Combination UV Drip Hose System".*** After reading it a number of times I am, reluctantly, forced to appeal the State's decision to approve this product in its currently approved format. If after you read my reasons for appeal and you think they are frivolous, or otherwise not worthy, please contact me and explain the reasons.

My concerns are:

1. Their cover letter states..."an innovative and powerful new tool to design systems for **seasonal** properties on very difficult sites."

2. Further information supplied with their letter includes a statement that the system's treated effluent typically contains zero fecals and is always much cleaner than the standard for water the State classifies as 'swimmable.' (State 'Standard for classification of Lakes and Ponds' Title 38, Chapter 3 and Chapter 1, Article 4A.)"

3. The information further ***"recommends"*** that the 40-watt UV bulb be replaced once per year.

4. The HHE-200 supplied with the manufacture's material indicates that the 5/8" Drip Hose can be as close as six-inches (6") to the Limiting Factor. It implies that the minimum separation distances required by current codes are superseded by "Manufactures Recommendations".

5. Your approval letter also refers to ***seasonal approval*** in the State of Maine, provided that it is installed, operated, and maintained in conformance with the manufacture's directions.

6. Accordingly your approval letter notes that "the SeptiTech Combination UV Drip Hose System routinely provides effluent with an average E. coli level of less than 15 colonies per 100 ml."

(bold emphasis added by me)

First - I'd like to take the word ***"Seasonal".*** As a CEO with duties in the State's Shoreland Zone I've had the opportunity to debate this word. By definition, the State of Maine's definition, it's occupying a dwelling seven (7) months or more per year. I have an opinion from the MMA's Legal Services that advised the Town of Glenburn to use caution on a possible violation of the seasonal use of a dwelling. It seems that this has not been challenged in Maine Courts and a "good" lawyer could point out that the septic system is designed on a daily use (GPD) and that there are about 210 days in a seven month period. His client [the lawyer's] did not spend 210 days in one year at the residence. Therefore it was not used "seasonally.

You may have to visit the word seasonal and tweak it to mean something like "for the purpose of this approval ***Seasonal*** shall mean from the 1st of May through the 15th of September".

Second – Fecal Coliforms are indicator organisms. Normally the definition includes "warm blooded animals, including man." As used in the provided literature it means ***bacteria from the intestinal tract of man***. These are intestinal bacteria carry over. Granted not many but enough to raise a red flag. There is no information provided that pathogenic bacteria such as *Salmonella typhi* (Typhoid Fever) and *Vibrio cholerae* (Cholera) [last Sunday's paper had an article on 111 South Africans dead in an outbreak of cholera] are killed or reduced to a non-infectious state. To compare a fecal coliform count from a septic tank to a fecal count of lake water is irresponsible. At the very least the State should require testing by a third party firm, such as NSF and their Standard 64.

Third – and a follow-up to my 2nd; Mercury vapor lamps (UV Lamp) biocidal range is 240 to 280 nm (most often a wave length of 253.7 nm). There didn't appear to be a testing scheme to measure exposure time (microwatt-seconds per centimeter squared), or testing of the effluent for calcium or magnesium compounds that can form oxides on the surface of the lamp sleeve and reduce disinfection qualities. There also is no annual testing of the lamps effectiveness; only a recommendation that the bulb be changed.

Fourth – There were no restriction, or guidance, regarding where this type of system could, or could not, be placed. For example in a recreational area where children may come in contact with the "Duff and Organic Material (2-inches Bark Mulch, Wood Chips, Saw Dust or Organic Duff Over and under 5/8" Drip Hose)".

I have other concerns, but I think you have enough here to address.

Yours in health,

Earle M. Rafuse, R.S.
Health Officer & LSE# 00175

Copy to:

Director, Division of Health Engineering
Commissioner of Health & Human Services
President, M.A.S.E.
Scott Samuelson, SeptiTech®