



August 26, 2011

Mr. Thomas Mansfield, Zoning Administrator
Mr. Spencer Harris, Septic Consultant
Town of Charlotte
P.O. Box 119
Charlotte, VT 05445

RE: Proposed Subdivision - Beitz Property +/- 44.75 Acre Parcel
181 Windswept Lane, Charlotte, Vermont

Dear Mr. Mansfield and Mr. Harris:

Accompanying this letter is a signed Wastewater Permit Application with a permit fee of \$500.00, a signed Act 145 certification statement, two full scale copies of the Plan Sheets 1, 2, and 3, a reduced (11" x 17") copy of Plan Sheet 1, 2, and 3, a system design letter and the attachments, and 1 CD of the complete package.

If you have any questions regarding the content of this letter or if we can provide additional information regarding this permit application, please contact me at (800) 477-4384.

Respectfully,
Lincoln Applied Geology, Inc.

Elias Erwin
Licensed Class B Designer #503

EE/kg
Enclosures

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August 26, 2011

Town of Charlotte
Mr. Thomas Mansfield, Septic Officer
Mr. Spencer Harris, Septic Consultant
PO Box 119
Charlotte, VT 05445

RE: Proposed Subdivision - Beitz Property, +/- 44.75 Acre Parcel
181 Windswept Lane, Charlotte, VT

Dear Tom and Spencer:

Linda M. Beitz currently owns a developed \pm 44.75 acre property located at 181 Windswept Lane in Charlotte, VT. The location of the property and its overall property dimensions are shown on Plan Sheet 1. Our client would like to subdivide the property into two separate lots. One proposed lot, Lot #2A-1, will be +/- 5.03 acres in size and will contain the existing three bedroom single family residence (SFR). This existing SFR is served by an on-site drilled bedrock water supply well and an off-site mound type wastewater disposal system located on an adjacent property to the north. Existing subdivision permits related to this parcel are filed under Case No. EC-4-1114. The second proposed lot, Lot #2A-2, will contain the remaining +/-39.72 acres along with a four bedroom SFR served by an on-site drilled bedrock water supply well and a fully complying performance based mound-type wastewater disposal system. The locations of the proposed water supply well, wastewater disposal system and building envelope for Lot # 2A-2 are shown on Plan Sheet 1. A description of each of these systems is presented below and described in greater detail.

On August 18, 2011, I performed a site and soil evaluation on Lot #2A-2. The purpose of the site visit was to evaluate existing site conditions and confirm the soil type and texture previously observed and recorded by David W. Fuqua, LCBD #288. On December 8, 2008, Mr. Fuqua along with Mr. Spencer Harris, the Town Septic Consultant, identified an area suitable for a performance based mound-type wastewater disposal system. Using a hand-auger, I installed six test holes along a gentle, west facing slope located on the western portion of the proposed lot. It is obvious why this area was targeted previously for evaluation as it is slightly elevated and provides a gradual uniform slope (3%). Upon completion of my soil evaluation, I not only confirmed Mr. Fuqua's findings but I also defined the lateral extent of suitable soil necessary to support a fully complying performance based wastewater disposal system. In conjunction with my soil evaluation, I also performed two percolation tests. The soil profile descriptions and the percolation test results are presented in

Attachment A. Review of the soil profile descriptions indicates the presence of well drained, loose, sandy loam over friable clay loam with a moderate blocky structure. Evidence of seasonal high ground water in the form of mottling was encountered in the clay loam horizon at 18" below ground surface (bgs). It is important to note that the presence of ground water and/or ledge was not encountered during my evaluation. Two percolation tests, PT-1 and PT-2 were performed in the vicinity of Test Pit 2 (TP-2) and TP-5 at an approximate depth of 18" bgs. The results of the PT-1 and PT-2 equals 27.2 minutes per inch (min./in.) and 30.0 min./in., respectively. Based on a percolation rate of 30.0 minutes per inch, an application rate of 1.0 gpd/ft² and a basal application rate of 0.74 gpd/ft² were used as the basis of design.

The proposed wastewater disposal system serving the four bedroom SFR on Lot #2A-2 will require wastewater to flow by gravity from the house to a proposed 1,000 gallon concrete septic tank which will include water tight access risers and an effluent filter. From the septic tank, effluent will then flow by gravity to the proposed 1,000 gallon precast pump station. A submersible effluent pump capable of discharging wastewater at 17.6 gallons per minute (gpm) against 16.32' of total dynamic head (TDH) is required in order to provide equal distribution through the proposed 5' x 100' mound type disposal system. The proposed mound system provides 500 ft² of application area which satisfies the application area requirement. The basal application rate of 0.74 gpd/ft² requires 662 ft² and our proposed design satisfies this requirement with a basal area of 1,943 ft². The proposed disposal system layout and disposal system design details are included on Plan Sheets 1 and 2, respectively. Furthermore, the proposed pressure distribution and mound dimension details, an acceptable submersible effluent pump model, and the VTDEC Simplified Method for Prescriptive Desktop Mounding Analysis calculations are presented in Attachment B.

The proposed drilled bedrock water supply well, shown on Plan Sheet 1, will be used to supply the potable needs of the proposed four bedroom SFR. The proposed water system will consist of a submersible pump set in the drilled well, a 1" diameter polyethylene plastic pipe (minimum 160 psi) from the pump to the pitless adapter in the well casing and from the pitless adapter to the hydropneumatic pressure tank in the SFR. In the SFR, the water system will consist of a 1" brass check valve, hose bib, a hydropneumatic pressure tank with a pressure switch (30 psi cut-in and 50 psi cut-out), pressure gauge, pressure relief valve, brass ball valve, and copper distribution piping. The electrical wiring will extend from the pump to the pressure switch and the electric service panel in the building. The drilled well and water supply system details are provided on Plan Sheet 3.

As Plan Sheet 1 indicates, the proposed well site is located within the 1.0 acre building envelope. The proposed well site maintains all applicable isolation distances and the protective well shield does not encroach upon the proposed wastewater disposal system. It is important to note that no existing wastewater disposal systems are located within the delineated well isolation shield. Also, the protective well shield remains on-site and does not extend onto neighboring properties.



Lincoln Applied Geology, Inc.
Environmental Consultants

Regarding Act 145 notification requirements, no property is affected by "overshadowing" related to both the proposed well isolation shield and mound disposal area isolation zone. Therefore this project is exempt from Act 145 notification as neighboring properties are unaffected by the proposed development. In this regard, please find Attachment C, with the signed Act 145 certification statement.

Finally, I hope you find that this application package is complete with a signed permit application and Act 145 certification statement, a \$500.00 permit fee (per Town of Charlotte), 2 copies of Plan Sheets 1, 2 and 3, an 11' X 17" copy of each Plan Sheet, one copy of this letter and all Attachments, and a CD containing an electronic copy of the entire application package. We look forward to your favorable review and issuance of the requested permit. If you have any questions, please feel free to contact me directly at (800) 477-4384.

Respectfully,
Lincoln Applied Geology, Inc.



A handwritten signature in black ink, appearing to read "E. J. Erwin".

Elias J. Erwin, LCBD #503
Project Manager

EE/SR/SK:kg

Enclosures

cc: Josh and Mary Golek

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Lincoln Applied Geology, Inc.
Environmental Consultants

Wastewater Management Division - Permit Application Wastewater System & Potable Water Supply



For Office Use Only:

Application#	PIN#	Date Complete Application Received
<input type="text"/>	<input type="text"/>	<input type="text"/>

Authority:

10 V.S.A. Chapter 64, the Environmental Protection Rules, Chapter 1, Wastewater System & Potable Water Supply Rules, and Chapter 21, Water Supply Rules, Appendix A. Part 11 - Small Scale Water Systems.

General Information:

The organization and/or content of this form may not be altered, however, the form is designed to expand to allow additional information to be entered. Changes in the organization and/or content of the form may result in an invalid application or permit.

In most cases a licensed designer will be required for your project and to help complete this application form. There are also line-by-line instructions available to assist with completing this form.

NOTE: We strongly suggest referring to the application instructions while completing this application form.

Part I Applicant (Landowner) & Project Contact Information

Section A - Applicant Details (if Landowner is an Individual or Individuals)

1 Last Name		2 First Name (and Middle Initial if appropriate)	
<input type="text" value="Beitz"/>		<input type="text" value="Linda M."/>	
3 Mailing Address Line 1		4 Mailing Address Line 2	
<input type="text" value="181 Windswept Lane"/>		<input type="text"/>	
5 Town/City	6 State/Province	7 Country	8 Zip/Postal Code
<input type="text" value="Charlotte"/>	<input type="text" value="VT"/>	<input type="text" value="United States"/>	<input type="text" value="05445"/>
9 Email Address			10 Telephone
<input type="text" value="N/A"/>			<input type="text" value="N/A"/>

[Remove This Applicant](#)

[Add Another Applicant](#)

Section B - Applicant Details (if Landowner is other than an Individual or Individuals, e.g. Corporations, Homeowner's Associations, etc.)

1 Registered Legal Entity or Organization Name			2 Telephone
<input type="text"/>			<input type="text"/>
3 Mailing Address Line 1		4 Mailing Address Line 2	
<input type="text"/>		<input type="text"/>	
5 Town/City	6 State/Province	7 Country	8 Zip/Postal Code
<input type="text"/>	<input type="text"/>	<input type="text" value="United States"/>	<input type="text"/>

Certifying Official

The Certifying Official must be a person who has signatory authority for the legal entity or organization that is the Applicant. A copy of the document authorizing this person to act as a signatory authority must be attached to this application.

9 Certifying Official Last Name		10 Certifying Official First Name (and MI if appropriate)	
<input type="text"/>		<input type="text"/>	
11 Certifying Official Title			
<input type="text"/>			
12 Certifying Official Email Address			13 Telephone
<input type="text"/>			<input type="text"/>

[Remove This Applicant](#)

[Add Another Applicant](#)

Section C - Primary Contact Information (if other than Applicant)			
1 Last Name		2 First Name (and Middle Initial if appropriate)	
<input type="text"/>		<input type="text"/>	
3 Mailing Address Line 1		4 Mailing Address Line 2	
<input type="text"/>		<input type="text"/>	
5 Town/City	6 State/Province	7 Country	8 Zip/Postal Code
<input type="text"/>	<input type="text"/>	United States	<input type="text"/>
9 Email Address			10 Telephone
<input type="text"/>			<input type="text"/>

Section D - Building/Business Owner Information			
1 Last Name		2 First Name (and Middle Initial if appropriate)	
<input type="text"/>		<input type="text"/>	
3 Mailing Address Line 1		4 Mailing Address Line 2	
<input type="text"/>		<input type="text"/>	
5 Town/City	6 State/Province	7 Country	8 Zip/Postal Code
<input type="text"/>	<input type="text"/>	United States	<input type="text"/>
9 Email Address			10 Telephone
<input type="text"/>			<input type="text"/>

Part II Certifying Designer(s) Information			
1 Designer Last Name		2 Designer First Name (and Middle Initial if appropriate)	
Erwin		Elias J.	
3 Designer License#	4 Company Name		
00503	Lincoln Applied Geology, Inc.		
5 Mailing Address Line 1		6 Mailing Address Line 2	
163 Revell Drive		<input type="text"/>	
7 Town/City	8 State/Province	9 Country	10 Zip/Postal Code
Lincoln	Vermont	United States	05443
11 Email Address			12 Telephone
srevell@lagvt.com			(802) 453-4384
13 Designer Role(s) (check all that apply)			
<input checked="" type="checkbox"/> Water Supply Designer			
<input checked="" type="checkbox"/> Wastewater Disposal System Designer			
Remove This Designer			
Add Another Designer			

Part III Property Location Information		
Section A - Property Parcel ID#(s) and Location(s)		
1 Please provide the property location information including Town or City Parcel ID#, Town/City, and Street or Road location in the table below:		
(a) Town/City Parcel ID#	(b) Town or City	(c) Street or Road Location
<input checked="" type="checkbox"/> 04-02-12-1A	Charlotte	181 Windswept Lane
Add Another Property		

Section B - Center of Property GPS Coordinates	
1 Enter the approximate center of property coordinates using GPS set for NAD83 or as derived from a map (map must be based on NAD83).	
(a) Latitude (in decimal degrees to five decimal places, ex. 44.38181°)	(b) Longitude (in decimal degrees to five decimal places, ex. -72.31392 °)
N <input style="width: 100px;" type="text" value="44.32227"/> °	W (-) <input style="width: 100px;" type="text" value="73.27551"/> °

Part IV Project Information

Section A - General Project Information & Questions

1 Project Name (if applicable) <input style="width: 95%;" type="text" value="Beitz Property"/>	2 Total Acreage of Property <input style="width: 95%;" type="text" value="44.75"/>
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3 Business Name (if applicable)

4 Detailed Project Description

Proposed two lot subdivision of a developed +/- 44.75 acre parcel located on 181 Windswept Lane in Charlotte, VT. Lot #2A-1 (+/- 5.03 acres) will be retained by Ms. Beitz which includes a 3 bedroom single family residence (SFR) served by an existing on-site drilled bedrock water supply well and on-site septic (EC-4-1114). Lot #2A-2 (+/-39.72 acres) will be developed with a 4 bedroom SFR utilizing a proposed drilled bedrock water supply well and a fully complying performance based mound-type wastewater disposal system.

5 Were all buildings or structures, campgrounds, and their associated potable water supplies and wastewater systems substantially completed before January 1, 2007 and all improved and unimproved lots in existence before January 1, 2007? Yes No

6 Does this application include subdividing the property? Yes No

7 Has anyone from the Wastewater Management Division's Regional Office been to the property?..... Yes No

If Yes, enter the staff person's name and the date of the visit.

(a) Name of Staff Person <input style="width: 95%;" type="text" value="Spencer Harris"/>	(b) Date of Visit <input style="width: 95%;" type="text" value="12-08-2008"/>
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8 Will any construction occur within 50 feet of a wetland boundary, mapped or designated? Yes No

If Yes, contact the Wetlands Program of the Water Quality Division at (802) 241-3770.

9 Will more than one acre be disturbed during the entire course of construction, including all lots and phases? Yes No

If Yes, contact the Stormwater Program of the Water Quality Division at (802) 241-4320.

10 Will there be any stream crossings by roads, utilities, or other construction? Yes No

If Yes, contact the River Corridor Mgmt. Program of the Water Quality Division at:

Central & Northwest Vermont	(802) 879-5631
Southern Vermont	(802) 786-5906
Northeastern Vermont	(802) 751-0129

11 Is the project located in a special flood hazard area as designated on the flood insurance maps prepared for a municipality by the Federal Emergency Management Agency? Yes No

If Yes, show the special flood hazard area limits on the site plan.

12 Act 250: Has the Applicant (Landowner) subdivided any other lots of any size within a five mile radius of this subdivision, or within the environmental district within the last five years ? Yes No

If Yes, enter the town(s) and the associated number of lots in the table below:

	(a) Town	(b) Number of Lots
X	<input style="width: 95%;" type="text"/>	<input style="width: 95%;" type="text"/>

13 Is there any prior Act 250 jurisdiction on the tract of land?..... Yes No

If Yes, enter the Act 250 permit number:

(a) Act 250 Permit Number

Section B - Project Deed Reference

1 Please provide the Town, Book, and Page reference for the current landowner's deed(s) to this property in the table below:

	(a) Town	(b) Book	(c) Page(s)
X	Charlotte	85	56-59

Add Another Deed Reference

Section C - Project Plan Reference

1 Please provide the following information for all water supply and wastewater disposal system plans being submitted.

	(a) Sheet#	(b) Title	(c) Plan Date	(d) Plan Revision Date
X	1	Proposed Site Development Plan	08-26-2011	
X	2	Proposed Wastewater System Details	4826/11	
X	3	Proposed Water System Details	08-26-2011	

Add Another Plan Reference

Section D - Existing Project Lot/BuildingDetails

Please provide the existing project details. This section is used to describe what is existing for the project. For example, if you are subdividing an undeveloped 21-acre parcel, you would list the existing parcel. If you are revising the boundary lines of two commercial lots in an industrial park, and constructing an addition to an existing building you would list the existing lot numbers, existing acres, existing buildings, existing uses, construction date(s), prior permits, and answer the compliance questions.

1 Lot#	2 Lot Size (acres)	3 Existing Use of the Lot
2A	44.75	Residential

4 Provide the following information for each building on the lot:

	(a) Building ID	(b) Existing Use	(c) Date Construction of Building Substantially Complete	(d) Prior Permits	(e) In compliance with existing permits?
X	1	Residential	01-01-1970	EC-4-1114	<input checked="" type="radio"/> Yes <input type="radio"/> No

Add Another Building

Remove This Lot

Add Another Lot

Section E - Proposed Project Lot/BuildingDetails

This section is used to describe what you are proposing to do in this project. For example, if you were going to create 4 lots for construction of single family residences, you would list each lot, proposed acreage, proposed buildings, and proposed use.

1 Lot#	2 Lot Size (acres)	3 Proposed Use of the Lot
2A-1	5.03	Existing 3 BR SFR

4 Is the lot being created as part of a subdivision? Yes No

5 Are you requesting that the Blood, Marriage, or Civil Union special fee be applied to this lot? Yes No

6 If the lot is exempt, please indicate the specific exemption from the Wastewater System and Potable Water Supply Rules?

7 Provide the following information for each building on the lot:

	(a) Building ID	(b) If building is exempt, indicate exemption	(c) Construction or increased flow?	(d) Proposed Use
X	1		<input type="checkbox"/>	Existing 3 BR SFR

Add Another Building

Remove This Lot

1 Lot#	2 Lot Size (acres)	3 Proposed Use of the Lot
2A-2	39.72	Proposed Four Bedroom SFR

4 Is the lot being created as part of a subdivision? Yes No

5 Are you requesting that the Blood, Marriage, or Civil Union special fee be applied to this lot? Yes No

6 If the lot is exempt, please indicate the specific exemption from the Wastewater System and Potable Water Supply Rules?

7 Provide the following information for each building on the lot:

	(a) Building ID	(b) If building is exempt, indicate exemption	(c) Construction or increased flow?	(d) Proposed Use
X	1		<input checked="" type="checkbox"/>	Four Bedroom SFR

Add Another Building

Remove This Lot

Add Another Lot

Part V	Water Supply Information
Section A - Water Supply Screening Questions	
1 Are you proposing a new water supply for this project?	<input checked="" type="radio"/> Yes <input type="radio"/> No
2 Are you proposing changes to an existing water supply for this project?	<input type="radio"/> Yes <input checked="" type="radio"/> No
3 Is there a connection to an existing water supply for the project?	<input checked="" type="radio"/> Yes <input type="radio"/> No
<i>If you answered No to all three of the above questions, skip to Part VI. Otherwise, proceed with Part V.</i>	
Section B - General Water Supply Questions	
1 Does this project involve a failed water supply?	<input type="radio"/> Yes <input checked="" type="radio"/> No
2 Will any of the proposed water sources serve 25 or more people or have 15 or more service connections?	<input type="radio"/> Yes <input checked="" type="radio"/> No
<i>If Yes, the applicant must contact the Water Supply Division at (802) 241-3400 for source, construction and operating</i>	
3 Are any of the existing or proposed water sources located within a special flood hazard area?	<input type="radio"/> Yes <input checked="" type="radio"/> No
4 Are any of the existing or proposed water sources located within a floodway?	<input type="radio"/> Yes <input checked="" type="radio"/> No
5 Are any of the proposed water sources located within 1 mile of a hazardous waste site as designated by the Waste Management Division and identified on the Agency mapping website?	<input type="radio"/> Yes <input checked="" type="radio"/> No
<i>If Yes, please submit additional information on the site. The Waste Management Division can be reached at (802) 241-3888.</i>	
6 Does this project require an approval letter from the Water Supply Division for the construction of a public water system, municipal water line extension over 500 feet, or hydrants or sprinkler systems?	<input type="radio"/> Yes <input checked="" type="radio"/> No
<i>If Yes, please submit a copy of the approval letter from the Water Supply Division.</i>	
7 Does the proposed or existing water supply(ies) use a water treatment device to obtain compliance with the quality requirements in the Water Supply Rule?	<input type="radio"/> Yes <input checked="" type="radio"/> No
<i>If Yes, please submit additional information regarding the constituent(s) that exceeds the standards and plans, details, and specifications of the treatment device.</i>	

8 Is any portion of the proposed water supply located in or near a Water Source Protection Area as designated by the Water Supply Division? Yes No

If in areas of known interference issues, please contact the Water Supply Division at (802) 241-3400.

Section C - Individual Water Supply Details

Please provide the following information for each of the existing and proposed water supply(ies) serving a building or structure, or campground on the property.

1 Water Supply Name/Identifier Lot 2A - 1, Existing Well	2 Water Supply Owner (if not Applicant)
3 Water Source Type Non-Public Drilled Bedrock Well	4 Type of Change to Supply No Change

5 Lots/Buildings Served by this Water Supply System

	(a) Lot#	(b) Building ID	(c) Type of Change to the Building's Supply	Design Flows (Gallons Per Day)			(g) Rule or Meter Based Flows
				(d) Existing	(e) Increase	(f) Total	
X	2A-1	1	No Change	420	0	420	Rule-based
Add Another Lot/Building Served by this Supply				6	7	8	
				420	0	420	

9 Is this water supply located off-lot? Yes No

10 Is this water supply shared? Yes No

If the water supply is located off-lot or shared, submit a copy of the agreement to provide an easement prior to construction.

11 Is a variance being requested for this water supply? Yes No

If Yes, please submit additional details related to the variance request.

Remove This Water Supply

1 Water Supply Name/Identifier Lot 2A - 2, Proposed Well	2 Water Supply Owner (if not Applicant)
3 Water Source Type Non-Public Drilled Bedrock Well	4 Type of Change to Supply New System

5 Lots/Buildings Served by this Water Supply System

	(a) Lot#	(b) Building ID	(c) Type of Change to the Building's Supply	Design Flows (Gallons Per Day)			(g) Rule or Meter Based Flows
				(d) Existing	(e) Increase	(f) Total	
X	2A-2	1	Connection to New System	0	490	490	Rule-based
Add Another Lot/Building Served by this Supply				6	7	8	
				0	490	490	

9 Is this water supply located off-lot? Yes No

10 Is this water supply shared? Yes No

If the water supply is located off-lot or shared, submit a copy of the agreement to provide an easement prior to construction.

11 Is a variance being requested for this water supply? Yes No

If Yes, please submit additional details related to the variance request.

Remove This Water Supply

Add Another Water Supply

Section D - Water Supply Design Flows Summary Table			
1 If the project includes more than one water supply, please list each water supply system and provide the total water supply design flows for the project. IMPORTANT: Please don't include systems that were identified in this Part on Section C, Line 4 as a "Replacement Area Designation" in this summary table.			
(a) Water Supply Name/Identifier	Design Flows (Gallons Per Day)		
	(b) Existing	(c) Increase	(d) Total
X Lot 2A-1, Existing Well	420	420	840
X Lot 2A-2, Proposed Well	0	490	490
Add Another Water Supply	2	3	4
	420	910	1,330

Part VI Wastewater Disposal System Information

Section A - Wastewater Disposal System Screening Questions

- 1 Are you proposing a new wastewater disposal system or replacement area for this project? Yes No
 - 2 Are you proposing changes to an existing wastewater disposal system for this project? Yes No
 - 3 Is there a connection to an existing wastewater disposal system for the project? Yes No
- If you answered No to all three of the above questions, skip to Part VII. Otherwise, proceed with Part VI.*

Section B - General Wastewater Disposal System Questions

- 1 Does this project involve a failed wastewater disposal system? Yes No
- 2 Do any of the systems require a curtain or dewatering drain as part of the design? Yes No
- 3 Is a hydrogeologic study required for this project? Yes No
- 4 If the project has a soil-based wastewater disposal system with design flows that exceed 1,000 GPD, is this project located in a Class A Watershed?..... Yes No NA
 If Yes, indicate the Class A Watershed in which the system(s) is located:
 (a) Class A Watershed Name
- 5 Are there any existing or proposed floor drains as part of this project?..... Yes No
 If Yes, indicate where the floor drains will discharge:
 (a) Floor Drain Discharge Point
- 6 If the project utilizes an Innovative/Alternative System or Product, has the applicant received a copy of the Wastewater Management Division's approval letter? Yes No NA
- 7 Is any portion of the proposed wastewater disposal system located in or near a Water Source Protection Area as designated by the Water Supply Division? Yes No
If Yes, contact the Water Supply Division at (802) 241-3400.

Section C - Individual Wastewater Disposal System Details

Please provide the following information for each of the existing and proposed wastewater disposal systems serving a building or structure, or campground on the property.

1 Wastewater Disposal System Name/Identifier Lot 2A-1, Existing Disposal System	2 Wastewater Disposal System Owner (if not Applicant) <input style="width: 400px; height: 20px;" type="text"/>
3 Wastewater Disposal System Type Mound	4 Type of Change to System No Change
5 Lots/Buildings Served by this Wastewater Disposal System	

	(a) Lot#	(b) Building ID	(c) Type of Change to the Building's System	Design Flows (Gallons Per Day)				(h) Rule or Meter Based Flows
				(d) Existing	(e) Increase	(f) Infiltration	(g) Total	
X	2A-1	1	No Change	420	0		420	Rule-based
Add Another Lot/Building Served by this System				6	7	8	9	
				420	0		420	

10 Is this wastewater disposal system located off-lot? Yes No

11 Is this wastewater disposal system shared? Yes No
 If the wastewater disposal system is located off-lot or shared, submit a copy of the agreement to provide an easement prior to initiation of construction.

12 Is a variance being requested for this wastewater disposal system? Yes No
 If Yes, please submit additional details related to the variance request.

13 If this wastewater disposal system type is a connection to an Indirect Discharge System, please provide the Indirect Discharge System ID number.
 Indirect Discharge System ID Number

14 If this wastewater disposal system type is a connection to a municipal system, please select the town.
 Town

15 If this wastewater disposal system is a soil-based system, please select the design approach used.
 Design Approach Used

16 For soil-based systems, please check all that apply.
 Storage and Dose Filtrate

17 If this is an Innovative/Alternative soil-based system, please select the system use type.
 Innovative/Alternative System Use Type

18 If this is an Innovative/Alternative soil-based system, please select the Innovative/Alternative system or product.
 Innovative/Alternative System or Product

Remove This Wastewater System

1 Wastewater Disposal System Name/Identifier <input type="text" value="Lot 2A-2, Proposed Disposal System"/>	2 Wastewater Disposal System Owner (if not Applicant) <input type="text"/>
3 Wastewater Disposal System Type <input type="text" value="Mound"/>	4 Type of Change to System <input type="text" value="New System"/>

5 Lots/Buildings Served by this Wastewater Disposal System

	(a) Lot#	(b) Building ID	(c) Type of Change to the Building's System	Design Flows (Gallons Per Day)				(h) Rule or Meter Based Flows
				(d) Existing	(e) Increase	(f) Infiltration	(g) Total	
X	2A-2	1	Connection to New System	0	490	0	490	Rule-based
Add Another Lot/Building Served by this System				6	7	8	9	
				0	490	0	490	

10 Is this wastewater disposal system located off-lot? Yes No

11 Is this wastewater disposal system shared? Yes No

If the wastewater disposal system is located off-lot or shared, submit a copy of the agreement to provide an easement prior to initiation of construction.

12 Is a variance being requested for this wastewater disposal system? Yes No

If Yes, please submit additional details related to the variance request.

13 If this wastewater disposal system type is a connection to an Indirect Discharge System, please provide the Indirect Discharge System ID number.

Indirect Discharge System ID Number

14 If this wastewater disposal system type is a connection to a municipal system, please select the town.

Town

15 If this wastewater disposal system is a soil-based system, please select the design approach used.

Design Approach Used

16 For soil-based systems, please check all that apply.

Storage and Dose Filtrate

17 If this is an Innovative/Alternative soil-based system, please select the system use type.

Innovative/Alternative System Use Type

18 If this is an Innovative/Alternative soil-based system, please select the Innovative/Alternative system or product.

Innovative/Alternative System or Product

Remove This Wastewater System

Add Another Wastewater System

Section D - Wastewater Disposal Systems Design Flows Summary Table

1 If the project includes more than one wastewater disposal system, please list each system on this page and provide the total wastewater disposal design flows for the project. **IMPORTANT:** Please don't include systems that were identified in this Part on Section C, Line 4 as a "Replacement Area Designation" in this summary table.

		Design Flows (Gallons Per Day)			
(a) Wastewater Disposal System Name/Identifier	(b) Existing	(c) Increase	(d) Infiltration	(e) Total	
X Lot 2A-1, Existing WW System	420	0	0	420	
X Lot-2A-2, Proposed WW System	0	490	0	490	
Add Another Wastewater System	2	3	4	5	
	420	490	0	910	

Part VII Application Fees

1 Fee Amount

2 Fee Calculation Details

--

Part VIII Designer Certification & Copyright License

Section A - Certifying Designer 1 Certification & Copyright License

"I hereby certify that in the exercise of my reasonable professional judgment, the design-related information submitted with this application is true and correct, and that the design included in this application for a permit complies with the Vermont Wastewater System and Potable Water Supply Rules and the Vermont Water Supply Rules.

As the individual who prepared this application, including all documents that are marked as copyrighted, I hereby grant a non-exclusive, limited license to the State to allow the documents to be made available for public review and copying in order to properly implement and operate the permitting programs for Wastewater Systems and Potable Water Supplies, and for no other purposes. As a condition to this license, the State agrees that it will not make any changes to such documents, nor will the State delete any copyright notices on such documents."

1 Check the design(s) you are certifying. This should be the same as the Designer Role(s) you selected in Part II, Section A, Line 13.

- Water Supply Designer
- Wastewater Disposal System Designer

1 Designer 1 Name Elias J. Erwin	2 Designer 1 Signature _____	3 Signature Date 8/26/11
-------------------------------------	---------------------------------	-----------------------------

Section B - Certifying Designer 2 Certification & Copyright License

"I hereby certify that in the exercise of my reasonable professional judgment, the design-related information submitted with this application is true and correct, and that the design included in this application for a permit complies with the Vermont Wastewater System and Potable Water Supply Rules and the Vermont Water Supply Rules.

As the individual who prepared this application, including all documents that are marked as copyrighted, I hereby grant a non-exclusive, limited license to the State to allow the documents to be made available for public review and copying in order to properly implement and operate the permitting programs for Wastewater Systems and Potable Water Supplies, and for no other purposes. As a condition to this license, the State agrees that it will not make any changes to such documents, nor will the State delete any copyright notices on such documents."

1 Check the design(s) you are certifying. This should be the same as the Designer Role(s) you selected in Part II, Section B, Line 13.

- Water Supply Designer
- Wastewater Disposal System Designer

1 Designer 2 Name _____	2 Designer 2 Signature _____	3 Signature Date _____
----------------------------	---------------------------------	---------------------------

Part IX Applicant(s) Signature & Acknowledgements

In order to insure compliance with the requirements of the regulations administered by the Department of Environmental Conservation, Wastewater Management Division, it may be necessary to visit the property. As this would involve a Department employee entering private property, we request your approval to do so.

1 If we do visit your property, do you have any special instructions?

Set up appointment with designer

"As landowner of the property for which I am requesting a permit from the Department of Environmental Conservation, I understand that by signing this application I am granting permission for the Department employees to enter the property, during normal working hours, to insure compliance of the property with the applicable rules of the Department.

I also understand that I am not allowed to commence any site work or construction on this project without written approval from the Department of Environmental Conservation.

If my project utilizes an Innovative/Alternative System or Product, I have received a copy of the Wastewater Management Division's approval letter and agree to abide by the conditions of the approval.

I also certify that to the best of my knowledge and belief the information submitted above is true, accurate and complete."

X	2 Print Applicant Name Linda M. Beitz	3 Applicant Signature	4 Signature Date
----------	--	-----------------------	------------------

Add Applicant Signature Block

Attachment A

Soil Profile Descriptions

Percolation Test Results

Beitz Property
Windswept Lane, Charlotte, VT
August 18, 2011
By Elias J. Erwin, LCBD # 503

The following soil evaluation was performed using a hand-auger to confirm the soil type and texture previously observed and recorded on December 8, 2008 by David W. Fuqua, LCBD # 288 and inspected by Spencer Harris, Charlotte Septic Consultant. My findings concur with the soil data presented by Mr. Fuqua of Ridge Consulting Engineers. The results of my evaluation are as follows:

Test Pit 1 (TP-1)

- 0 – 8” Dark brown sandy loam, loose, granular, many fine to medium roots, well drained.
- 8” – 16” Brown sandy loam, loose, granular, well drained, many fine roots.
- 16” – 40” Olive gray clay loam, friable to firm, moderate blocky structure, mottles present below 16”.

Test Pit 2 (TP-2)

- 0 – 10” Dark brown sandy loam, loose, granular, many fine to medium roots, well drained.
- 10” – 18” Brown sandy loam, loose, granular, well drained, many fine roots.
- 18” – 40” Olive gray clay loam, friable to firm, moderate blocky structure, mottles present below 18”.

Test Pit 3 (TP-3)

- 0 – 10” Dark brown sandy loam, loose, granular, many fine to medium roots, well drained.
- 10” – 18” Brown sandy loam, loose, granular, well drained, many fine roots.
- 18” – 40” Olive gray clay loam, friable to firm, moderate blocky structure, mottles present below 18”.

Test Pit 4 (TP-4)

- 0 – 8” Dark brown sandy loam, loose, granular, many fine to medium roots, well drained.

- 8" – 18" Brown sandy loam, loose, granular, well drained, many fine roots.
- 18" – 38" Olive gray clay loam, friable to firm, moderate blocky structure, mottles present below 18".

Test Pit 5 (TP-5)

- 0 – 8" Dark brown sandy loam, loose, granular, many fine to medium roots, well drained.
- 8" – 16" Brown sandy loam, loose, granular, well drained, many fine roots.
- 16" – 38" Olive gray clay loam, friable to firm, moderate blocky structure, mottles present below 16".

Test Pit 6 (TP-6)

- 0 – 8" Dark brown sandy loam, loose, granular, many fine to medium roots, well drained.
- 8" – 16" Brown sandy loam, loose, granular, well drained, many fine roots.
- 16" – 36" Olive gray clay loam, friable to firm, moderate blocky structure, mottles present below 16".

**Beitz Property
Windswept Lane
Charlotte, Vermont
Percolation Test Results**

All tests were performed on August 18, 2011 at a depth of 12"

PT-1	Drop Time (min)	Total Drop Time (min)	Total Drop (inches)	Drop Rate (min/inch)
	9.2	9.2	1	9.2
	12.6	21.8	2	10.9
	14.7	36.5	3	12.2
	18.6	55.1	4	13.8
	20.3	75.4	5	15.1
	23.7	99.1	6	16.5
	24.6	123.7	7	17.7
	---	1440.0	---	30.0

PT-2	Drop Time (min)	Total Drop Time (min)	Total Drop (inches)	Drop Rate (min/inch)
	8.1	8.1	1	8.1
	12.3	20.4	2	10.2
	14.6	34.9	3	11.6
	17.5	52.4	4	13.1
	20.1	72.6	5	14.5
	21.1	93.7	6	15.6
	21.9	115.6	7	16.5
	---	1440.0	---	27.2

*NOTE:
Drop time includes fill time for each of the seven runs.

Table 1

Beitz Property
Windswept Lane
Charlotte, Vermont
Percolation Test Results
All tests were performed on August 18, 2011 at a depth of 18"

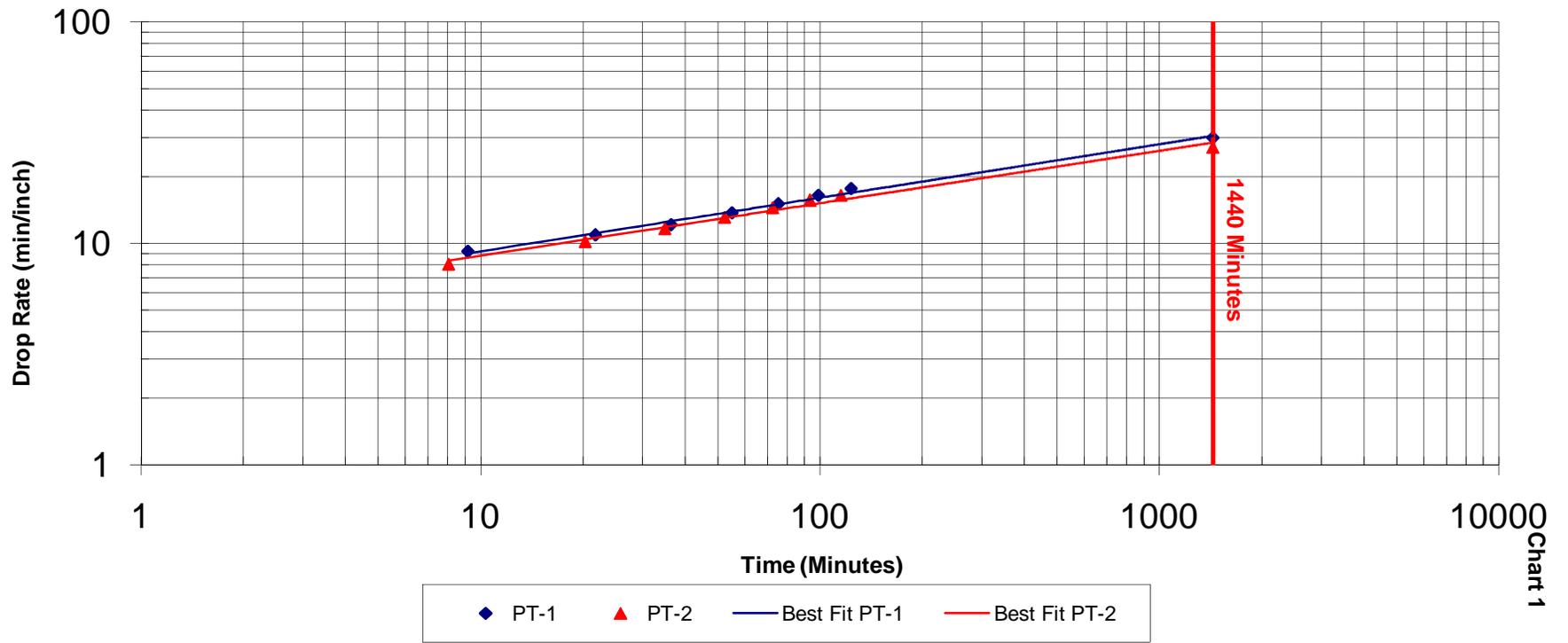


Chart 1

Attachment B

Pressure Distribution and Mound Dimension Details

Submersible Effluent Pump Specifications

VDEC Simplified Mounding Analysis

PRESSURE DISTRIBUTION & MOUND DIMENSION DETAILS

CLIENT'S NAME: Beitz Property - Lot# 2A-2 Proposed Disposal System

DATE: 9/1/2011 PERFORMED BY: E. Erwin LAG Project #: 11077

Design Flow Rate	490	GPD
Width of Distribution Stone Bed/Trench	5	FEET
Length of Distribution Stone Bed/Trench	100	FEET
Thickness of Sand Beneath Distribution Stone Bed/Trench	1.94	FEET
Thickness of Stone Beneath Laterals	6	INCHES
Soil Cover Thickness at Edge of Level Area	12	INCHES
Front Slope of Finished Mound	33	PERCENT
Side and Rear Slope of Finished Mound	33	PERCENT
Percolation Rate	30	MPI
Natural Ground Slope	3	PERCENT
Thickness of Sand on Upper Side of Level Area	2.66	FEET
Thickness of Sand on Lower Side of Level Area	2.87	FEET
Width of Level Area	7	FEET
Length of Level Area	102	FEET
Area of Distribution Stone Bed/Trench	500	SQUARE FT
Volume of Stone Required	12	CUBIC YARDS
Proposed Basal Area	1757	SQUARE FEET
Volume of Mound Sand Required	256.8	CUBIC YARDS
Number of Laterals	2	
Length of Each Lateral	47.5	FEET
Number of Orifices in the Manifold	0	
Number of Orifices in Each Lateral	10	
Distance Between Manifold and First Orifice	2.5	FEET
Distance Between Orifices (on center)	5	FEET
Distribution Area per Orifice	25.00	SQ. FT.
Design Pressure Head	5	FEET
Diameter of Orifices (enter as fraction)	0.188	INCHES
Elevation From Pump Intake to Laterals (0 if siphon)	10	FEET
Diameter of Force Main	2	INCHES
Length of Force Main	180	FEET
Length of Manifold to Lateral	0	FEET
Diameter of Manifold Pipe	2	INCH
Diameter of Lateral Pipe	2	INCH
Friction Loss in Force Main	1.26	FEET
Friction Loss in Manifold	0.00	FEET
Friction Loss in Section 1	0.00	FEET
Friction Loss in Entire Lateral	0.03	FEET
Discharge Rate at First Orifice	0.93	GPM
Discharge Rate at Last Orifice	0.92	GPM
Percent Difference in Flow Rate First to Last Orifice	0.25	PERCENT
Total Dynamic Head Loss	16.320	FEET
Total Distribution System Flow	17.60	GPM
Volume of Distribution System	15.50	GALLONS
Pump Capacity	17.60 GPM vs	16.320 FEET OF HEAD
Volume per Dose	122.5	GALLONS
On/Off Float Swing (1,000 gal. Tank)	4.1	INCHES

PRESSURE DISTRIBUTION & MOUND DIMENSION DETAILS

CLIENT'S NAME: Beitz Property - Lot# 2A-2 Proposed Disposal System
 DATE: 9/1/2011 PERFORMED BY: E. Erwin LAG Project #: 11077

DIMENSIONS OF MOUND SYSTEM

Dimensions of Mound Sand

7.4 feet from level area to uphill sand toe	10.4 ft corner of level area to upper toe corner
7 ft wide level area	8.1 ft to side toe from upper edge of level area
5 ft wide stone bed/trench	
100 ft long stone bed/trench	8.7 ft to side toe from lower edge of level area
102 ft long level area	
9.6 feet from level area to downhill sand toe	13.5 ft corner of level area to lower toe corner

Dimensions of Final Cover

10.2 feet from level area to uphill toe	14.4 ft corner of level area to upper fill toe
	11.1 ft to side toe from upper edge of level area
7 ft wide level area	
102 ft long level area	11.7 ft to side toe from lower edge of level area
	18.2 ft corner of level area to lower fill toe
12.9 feet from level area to downhill toe	

PLOW AREA LAYOUT MEASUREMENTS

Center of Bed/Trench to Downslope Toe	66.0 feet
End of Level Area @ Midpoint to Downslope Toe	20.9 feet
Center of Bed/Trench to Upslope Toe	62.7 feet
End of Level Area @ Midpoint to Upslope Toe	17.0 feet

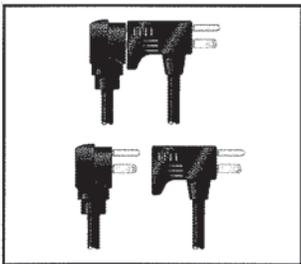
HYDROMATIC®

SHEF30

Submersible Effluent Pump

- Effluent Septic Tank

Automatic operation features easily adjustable, wide-angle float switch with a piggyback plug-in arrangement that allows for simple conversion to manual operation. Special inlet design allows pump to handle 3/4" solids. Cast iron body and an oil-filled motor provide superior cooling characteristics for longer pump life. Motor windings contain automatic thermal overload protection. Energy efficient .3 HP motor pumps up to 35 GPM at 10' total dynamic head. Discharge is 1-1/2" N.P.T.



May be operated manually or automatically with a piggyback switch.

 **HYDROMATIC®**
Pentair Pump Group



SHEF30 - Submersible Effluent Pump

Details

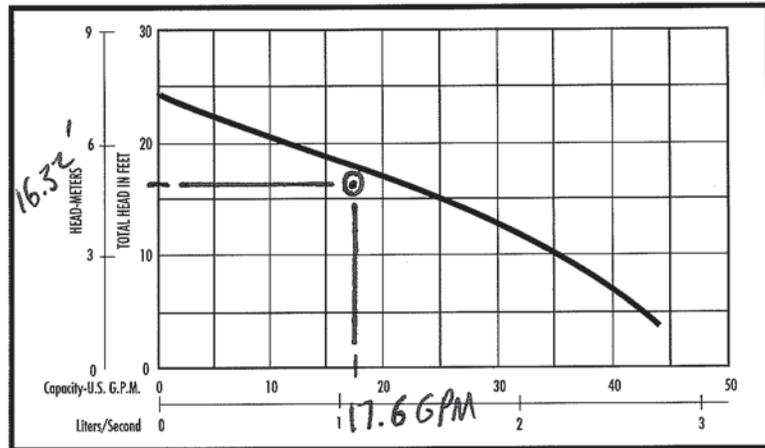
Pump Characteristics

Pump/Motor Unit	Submersible
Automatic Model	SHEF30A1
Horsepower	.30
Full Load Amps	8.0
Motor Type	Shaded Pole (4 pole)
R.P.M.	1550
Phase Ø	1
Voltage	115
Hertz	60
Temperature	120°F Ambient
NEMA Design	A
Insulation	Class A
Discharge Size	1-1/2" NPT (38mm)
Solids Handling	3/4" (19mm)
Unit Weight	30 lbs.
Power Cord	18/3, SJTW, 20' std.

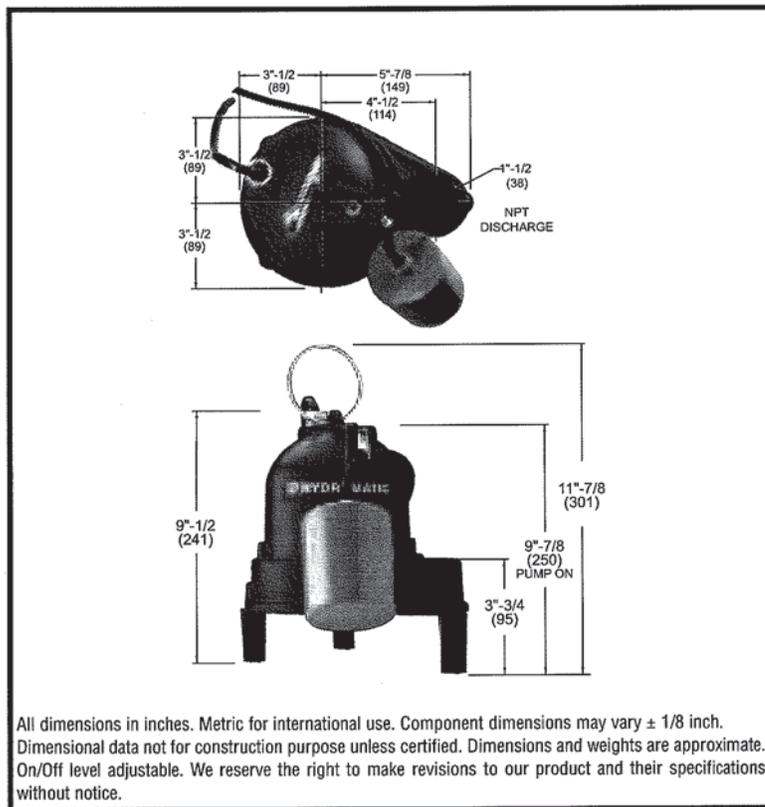
Materials of Construction

Handle	Stainless Steel
Lubricating Oil	Dielectric Oil
Motor Housing	Cast Iron
Pump Volute	Cast Iron
Shaft	Steel
Mechanical Shaft Seal	Seal Faces: Carbon/Ceramic Seal Body: Anodized Steel Spring: Stainless Steel Bellows: Buna-N
Impeller	Engineered Thermoplastic
Upper Bearing	Cast Iron Sleeve
Lower Bearing	Single Row Ball Bearing
Legs	Engineered Thermoplastic
Fastener	Stainless Steel

Performance Data



Dimensional Data



All dimensions in inches. Metric for international use. Component dimensions may vary $\pm 1/8$ inch. Dimensional data not for construction purpose unless certified. Dimensions and weights are approximate. On/Off level adjustable. We reserve the right to make revisions to our product and their specifications without notice.

HP HYDROMATIC®
Pentair Pump Group

USA

1840 Baney Road Ashland, Ohio 44805
Tel: 419-289-3042 Fax: 419-281-4087

www.hydomatic.com

—Your Authorized Local Distributor—

CANADA

269 Trillium Drive Kitchener, Ontario, Canada N2G 4W5
Tel: 519-896-2163 Fax: 519-896-6337

**Beitz Property - Lot #2A-2 Proposed Wastewater Disposal System
Windswept Lane, Charlotte, VT 05445**

VDEC Simplified Method for Prescriptive Mounding Analysis	
Proposed Wastewater Flow (gpd)	490
Slope (%)	3%
Soil Texture	Sand Loam
Linear Loading Rate Factor (f)	11.2
Depth to Seasonal High Water Table (in)	18
Depth to Seasonal High Water Table (ft)	1.50
Maximum Soil Thickness Available for Ground Water Mounding (ft) (SHWT-0.5')	1.0
Linear Loading Rate (LLR)	11.20
Calculated Minimum Length of Seepage Bed (ft)	43.8
Calculated Maximum Width of Seepage Bed (ft)	11.20
Is Calculated Length to Width Ratio = or > 3:1?	Yes
Required Sand Thickness Beneath Seepage Bed (ft)	1.94
LAG Proposed System Parameters	
Length of Seepage Bed (ft)	100
Width of Seepage Bed (ft)	5
Total Seepage Area (ft)	500
Linear Loading Rate (LLR)	4.90
Calculated Induced Ground Water Mound Thickness (ft)	0.44
Calculated Linear Loading Rate Factor (f)	2.14
Calculated Depth to Seasonal High Ground Water and Induced Mound (ft)	1.06
Minimum Sand Thickness Required Beneath Seepage Bed (ft)	1.94
Confirm Design Parameters Comply with VDEC Simplified Procedure	
Proposed LLR \leq VDEC Simplified LLR	Yes
Proposed Seepage Bed Length \geq VDEC Simplified Minimum Bed Length	Yes
Proposed Seepage Bed Width \leq VDEC Simplified Maximum Bed Width	Yes
Calculated Length to Width Ratio \geq 3:1	Yes
Depth to Proposed Induced Ground Water Mound \geq 0.5'	Yes
Thickness of "Dry" Soil from Induced Ground Water Mound and Seepage Bed \geq 3'	Yes

Attachment C

Act 145 Certification Statement

First Revision Issued 6-18-2010

Certification Statement for use in compliance with Act 145 of the 2010 Legislative Session

One of the two following certification statements shall be included with any application for a Wastewater System and Potable Water Supply Permit that is filed on or after June 2, 2010

Note: When the property subject to the permit application is owned by more than one person, only one of the landowners must sign the certification statement even though all landowners must sign the permit application itself.

When there are affected property owners, the applicant shall use this statement:

I hereby certify that the attached list of names and addresses includes all those whose property may be affected by the proposed water and wastewater systems, and their associated isolation distances and zones, and that all those listed have been sent a copy of the application and any associated plans.

Signature _____

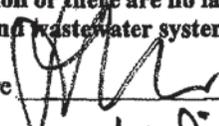
Name (Printed) _____

Date of this certification _____

Note: It will be helpful for future property transfer work if the physical address of the property or property tax ID number is included with the certification.

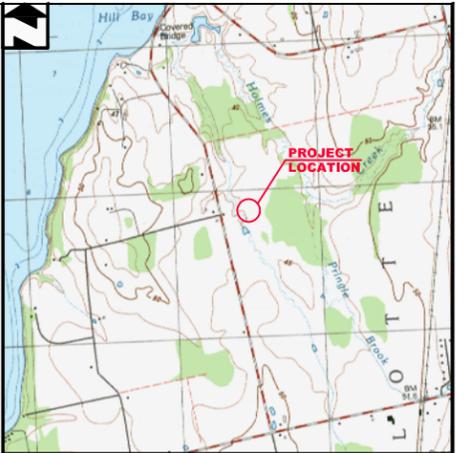
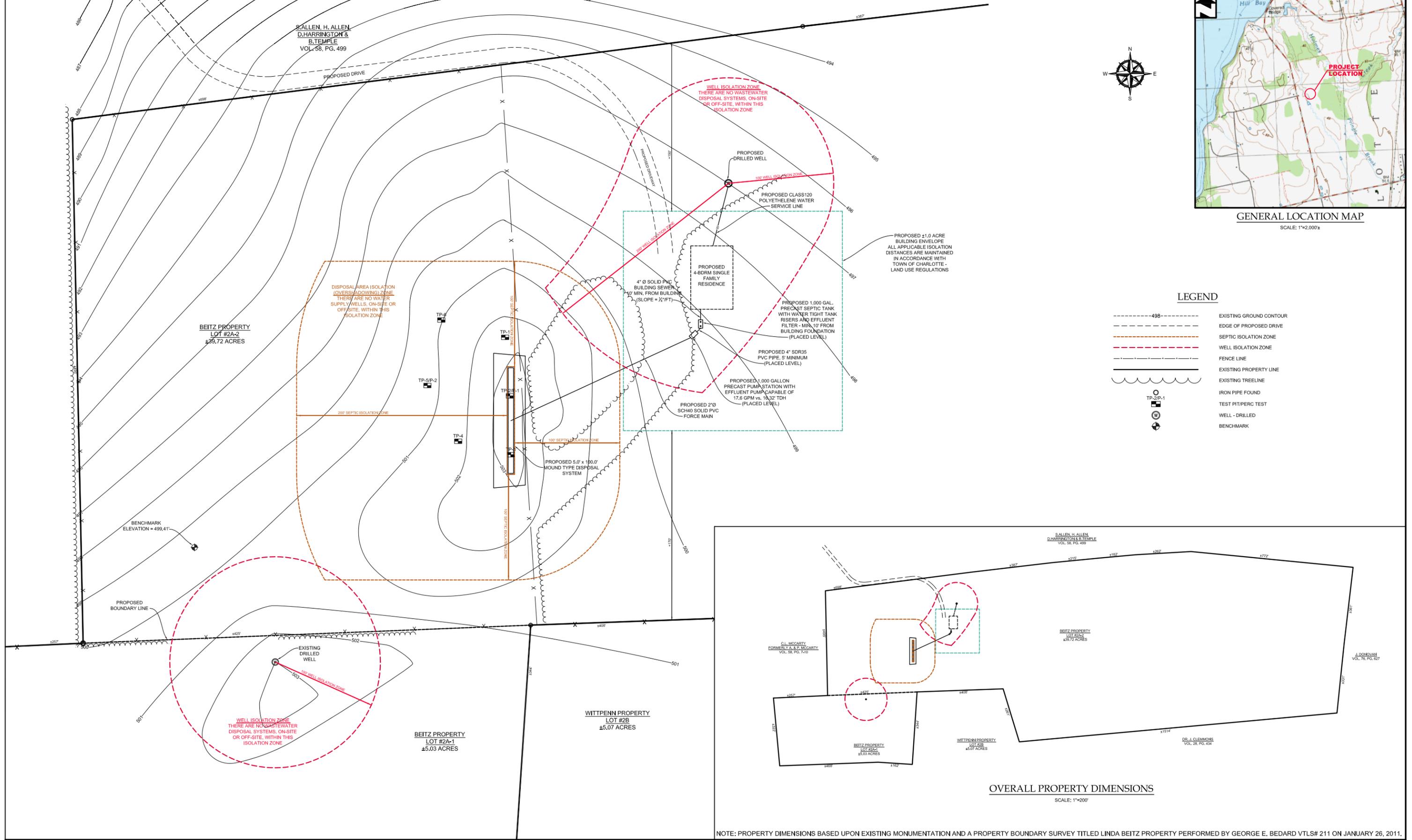
When there are no affected landowners, the applicant shall use this statement:

* I hereby certify that notification is not required either because there is an exemption or there are no landowners who may be affected by the proposed water and wastewater systems.

Signature  _____

Name (Printed) Linda M. Beitz

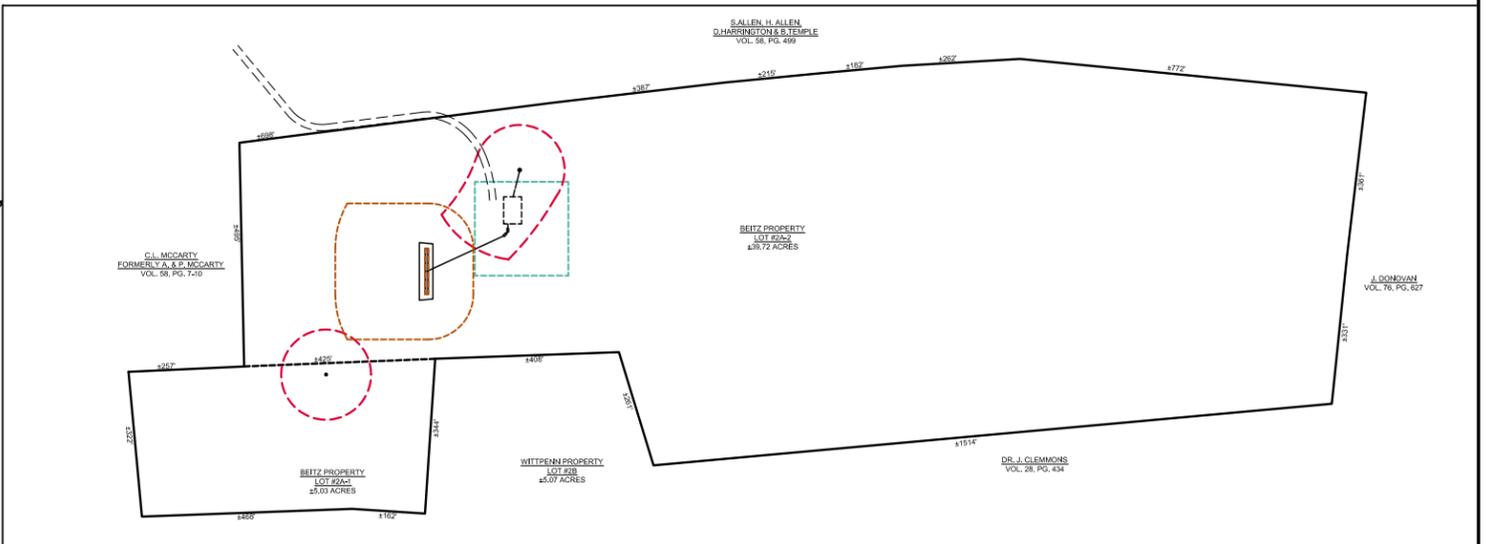
Date of this certification 8.30.2011



GENERAL LOCATION MAP
SCALE: 1"=2,000'

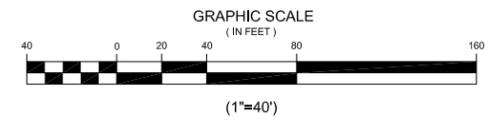
LEGEND

	EXISTING GROUND CONTOUR
	EDGE OF PROPOSED DRIVE
	SEPTIC ISOLATION ZONE
	WELL ISOLATION ZONE
	FENCE LINE
	EXISTING PROPERTY LINE
	EXISTING TREELINE
	IRON PIPE FOUND
	TEST PIT/PERC TEST
	WELL - DRILLED
	BENCHMARK



OVERALL PROPERTY DIMENSIONS
SCALE: 1"=200'

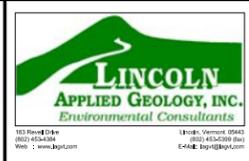
NOTE: PROPERTY DIMENSIONS BASED UPON EXISTING MONUMENTATION AND A PROPERTY BOUNDARY SURVEY TITLED LINDA BEITZ PROPERTY PERFORMED BY GEORGE E. BEDARD VTLS# 211 ON JANUARY 26, 2011.



THE CONTRACTOR SHALL NOTIFY "DIGSAFE" AT 1-888-DIG-SAFE PRIOR TO ANY EXCAVATION.

"I hereby certify that in the exercise of my reasonable professional judgment the design-related information submitted with this application is true and correct, and that the design included in this application for a permit complies with the Vermont Wastewater System and Potable Water Supply Rules and the Vermont Water Supply Rules."

Elias J. Erwin Date
Licensed Class B Designer #503



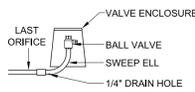
Beitz Property
181 Windswept Lane
Charlotte, Vermont

Site Plan with Proposed Wastewater System

LAG PROJECT #	11077
DATE:	Aug. 26, 2011
SURVEYORS:	TAMUJH
DRAWN BY:	TAM
PLATE:	1

CONSTRUCTION SPECIFICATIONS - MOUND

- MOUND CONSTRUCTION PROCEDURES ARE JUST AS IMPORTANT AS THE MOUND DESIGN. GOOD DESIGN WITH POOR CONSTRUCTION WILL RESULT IN THE MOUND OPERATING POORLY AND MAY RESULT IN FAILURE. PROPER EQUIPMENT IS ESSENTIAL. SMALL TRACK TYPE EXCAVATORS WORK BEST. WHEEL TYPE TRACTORS ARE TOO DIFFICULT TO MANEUVER IN THE FILL. THE FOLLOWING IS A STEP-BY-STEP PROCEDURE FOR MOUND CONSTRUCTION, WHICH HAS BEEN TRIED AND PROVEN. OTHER TECHNIQUES COULD BE USED AS LONG AS THE BASIC PRINCIPLES OF MOUND DESIGN, OPERATION, AND CONSTRUCTION ARE NOT VIOLATED.
- SUBMIT A REPRESENTATIVE SAMPLE (ENOUGH TO FILL A 5 GALLON BUCKET) OF MOUND SAND FROM THE INTENDED SOURCE FOR TESTING ACCORDING TO ASTM D 422 (KNIGHT CONSULTING ENGINEERS, PHELPS ENGINEERING, OTTER CREEK ENGINEERING, AND VERMONT TESTING CAN ALL PERFORM THIS TEST). SUBMIT A COPY OF THE RESULTS TO THE DESIGNER PRIOR TO INITIATING CONSTRUCTION.
- STAKE OUT THE MOUND ON THIS SITE SO THAT THE TRENCHES OR BED RUN PERPENDICULAR TO THE DIRECTION OF THE SLOPE. REFERENCE STAKES ARE RECOMMENDED IN CASE CORNER STAKES ARE DISTURBED. LINCOLN APPLIED GEOLOGY, INC., MUST STAKEOUT OR VERIFY THIS TASK.
- STAKE OUT CORNERS OF THE BED AND DETERMINE THE BOTTOM ELEVATION OF THE BED.
- DETERMINE WHERE THE FORCE MAIN FROM THE PUMP CHAMBER CONNECTS TO THE DISTRIBUTION SYSTEM IN THE MOUND.
- TRENCH AND LAY THE FORCE MAIN FROM THE PUMP CHAMBER TO THE MOUND. LAY THE PIPE 6" BELOW THE GROUND SURFACE FOR FROST PROTECTION. WHERE THERE IS LESS THAN 6" OF COVER, INSULATE WITH 2" OF RIGID POLYSTYRENE INSULATION 4" WIDE 12' EITHER SIDE OF PIPE, PLACED IN TWO 1" LAYERS WITH STAGGERED JOINTS). CUT AND CAP THE PIPE 1" BENEATH THE GROUND SURFACE. BACKFILL AND COMPACT SOIL AROUND PIPE TO PREVENT BACK SEEPAGE OF EFFLUENT ALONG PIPE. THIS STEP MUST BE DONE BEFORE FLOWING TO AVOID COMPACTING AND DISTURBANCE OF SURFACE.
- INSTALL THE CURTAIN DRAIN (IF SHOWN ON PLANS).
- CHECK THE MOISTURE CONTENT OF THE SOIL AT 7 - 8" DEEP. IF IT IS TOO WET, SMearing AND COMPACTION WILL RESULT, THUS REDUCING THE INFILTRATION CAPACITY OF THE SOIL. SOIL MOISTURE CAN BE DETERMINED BY ROLLING A SOIL SAMPLE BETWEEN THE HANDS. IF IT ROLLS INTO A RIBBON, THE SITE IS TOO WET TO PREPARE. IF IT CRUMBLES, SOIL PREPARATION CAN PROCEED.
- CUT TREES TO GROUND LEVEL. REMOVE EXCESS VEGETATION BY MOWING. DO NOT REMOVE STUMPS. PREPARE THE SITE BY USING A MOLDBOARD PLOW TO CREATE 8 - 10" DEEP FURROWS PERPENDICULAR TO THE SLOPE. FURROWS MUST BE THROWN UP HILL. CHISEL PLOWING MAY BE USED IF A MOLDBOARD PLOW IS NOT AVAILABLE. ROTOTILLING MUST NOT BE DONE ON HEAVY SOILS BUT CAN BE USED ON NON-STRUCTURAL SOIL SUCH AS SANDS. ALTERNATIVELY, PLOWING CAN BE DONE BY USING AN EXCAVATOR BUCKET TO PULL THE SOIL INTO FURROWS PARALLEL WITH THE GROUND CONTOURS (THE RESULTING SURFACE MUST LOOK AS THOUGH IT HAD BEEN PLOWED WITH A MOLDBOARD PLOW AS OUTLINED ABOVE). IMMEDIATE CONSTRUCTION AFTER PLOWING IS NECESSARY. AVOID RUTTING OF PLOWED AREA WITH VEHICULAR TRAFFIC. DESIGNER INSPECTION REQUIRED AT THIS POINT.
- EXTEND THE EFFLUENT PIPE TO SEVERAL FEET ABOVE THE GROUND SURFACE.
- PLACE THE APPROVED FILL MATERIAL AROUND THE EDGE OF THE PLOWED AREA. KEEP WHEELS OF TRUCK OFF PLOWED AREAS. MINIMIZE TRAFFIC ON THE DOWNSLOPE SIDE OF THE MOUND. WORK FROM THE END AND UPSLOPE SIDE.
- MOVE THE FILL MATERIAL INTO PLACE USING A SMALL TRACK TYPE TRACTOR WITH A BLADE. ALWAYS KEEP A MINIMUM OF 6 INCHES OF SAND BENEATH TRACKS TO PREVENT COMPACTION OF THE NATURAL SOIL.
- PLACE THE FILL MATERIAL TO THE REQUIRED DEPTH, WHICH IS THE TOP OF THE TRENCHES OR BED. SHAPE SIDES TO THE DESIRED SLOPE. INSPECTION REQUIRED AT THIS POINT.
- WITH THE BLADE OF THE TRACTOR FORM THE BED OR TRENCHES. HAND LEVEL THE BOTTOM OF THE BED. MAKE SURE BOTTOM IS AT THE SAME ELEVATION AND LEVEL.
- PLACE THE COARSE AGGREGATE IN THE TRENCHES OR BED. IT SHOULD BE 1/4 TO 1/2" WASHED, DURABLE AGGREGATE (I.E. NOT LIMESTONE OR MARBLE). LEVEL AGGREGATE TO THE DESIGN DEPTH.
- PLACE THE DISTRIBUTION SYSTEM ON THE AGGREGATE. CONNECT THE MANIFOLD TO THE FORCE MAIN FROM THE PUMP CHAMBER OR SIPHON CHAMBER. SLOPE MANIFOLD SLIGHTLY TOWARD DISTRIBUTION LATERALS. LAY LATERALS LEVEL, REMOVING RISERS AND DIRS. PLACE ORIFICES UPWARDS. INSPECTION REQUIRED AT THIS POINT (TO OBSERVE DISCHARGE RATE AND PRESSURE TESTING).
- PLACE SHIELDS ON ORIFICES AND PROPERLY CEMENT ALL COMPONENTS. PLACE 2" OF AGGREGATE OVER THE DISTRIBUTION PIPE.
- PLACE A SYNTHETIC NON-WOVEN FILTER FABRIC (MIRAFI 140N OR EQUIVALENT) OVER THE ENTIRE STONE BED. OVERLAP JOINTS BY 12" MINIMUM. PLACE AN 8' X 8' MAT OF RIGID POLYSTYRENE INSULATION, 2" THICK, CENTERED OVER FORCE MAIN RISER. PLACE INSULATION IN TWO LAYERS (1" EACH) AND STAGGER THE JOINT PATTERN.
- PLACE SOIL ON TOP OF THE BED OR TRENCH TO A DEPTH OF 1" IN CENTER AND 6" AT OUTER EDGE OF BED OR TRENCHES. THIS MAY BE A SUBSOIL OR TOPSOIL.
- PLACE 6" OF GOOD QUALITY TOPSOIL OVER THE ENTIRE MOUND SURFACE. THIS WILL RAISE THE ELEVATION AT THE CENTER OF THE MOUND TO A MINIMUM OF 1.5' AND THE OUTSIDE EDGES OF BED OR TRENCHES 1'. INSPECTION REQUIRED AT THIS POINT.
- LANDSCAPE THE MOUND BY PLANTING GRASS, USING THE BEST VEGETATION ADAPTABLE TO THE AREA. A MIXTURE OF 90% BIRDSFOOT TREEFOIL AND 10% TIMOTHY MAY BE DESIRABLE IF THE MOUND IS NOT MANICURED. IF MANICURING IS DESIRED, A COMBINATION OF 60% BLUEGRASS, 30% CREEPING RED FESCUE AND 10% ANNUAL RYE GRASS MAY BE THE DESIRED VEGETATIVE COVER. SHRUBS CAN BE PLANTED AROUND THE BASE AND UP THE SIDESLOPES. THEY SHOULD BE SOMEWHAT MOISTURE TOLERANT SINCE THE TOE OF THE MOUND MAY BE SOMEWHAT MOIST DURING VARIOUS TIMES OF THE YEAR. KEEP ALL TREES AND SHRUBS AWAY FROM THE TOP OF THE MOUND, AS ROOT SYSTEMS CAN DESTROY THE DISTRIBUTION NETWORK.
- MOUND MAINTENANCE INVOLVES PUMPING THE SEPTIC TANK AND PUMP CHAMBER EVERY 1 TO 3 YEARS TO AVOID CARRYOVER OF SOLIDS INTO THE MOUND. A GOOD WATER CONSERVATION PLAN WITHIN THE HOUSE ASSURES THAT THE MOUND WILL NOT BE OVERLOADED. AVOID EXCESS TRAFFIC ON THE MOUND AREA. WINTER TRAFFIC ON MOUND SHOULD BE AVOIDED TO MINIMIZE FROST PENETRATION. INSPECT PUMP CHAMBER AND SEPTIC TANK EACH YEAR TO DETERMINE THE LEVEL OF SLUDGE ACCUMULATION. MOW TWICE A YEAR.
- UTILITIES INFORMATION SHOWN ON THIS PLAN WAS OBTAINED FROM AVAILABLE SOURCES AND MAY OR MAY NOT BE EITHER ACCURATE OR COMPLETE. THE CONTRACTORS SHALL VERIFY EXACT LOCATION OF EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY UTILITY, PUBLIC OR PRIVATE, SHOWN OR NOT SHOWN ON THIS PLAN.
- ALL FILL AROUND THE STRUCTURES SHALL BE PLACED IN 12" LIFTS AND THOROUGHLY COMPACTED TO 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT.
- THIS DESIGN MUST BE INSPECTED BY LINCOLN APPLIED GEOLOGY, INC., LINCOLN, VERMONT, TO ENSURE COMPLIANCE WITH THESE PLANS. LINCOLN APPLIED GEOLOGY, INC., WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS THAT ARISE FROM FAILURE TO FOLLOW SPECIFICATIONS, AND THE DESIGN INTENT THAT THE PLANS CONVEY, AND FROM FAILURE TO HAVE BEEN NOTIFIED BY THE CONTRACTOR FOR INSPECTIONS.

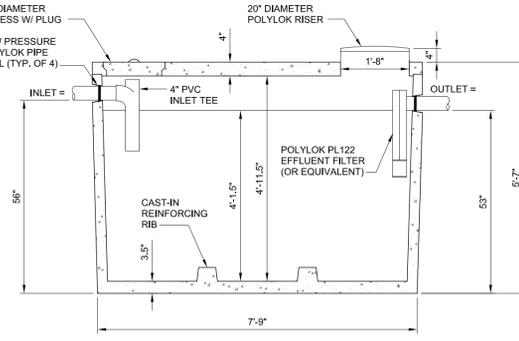
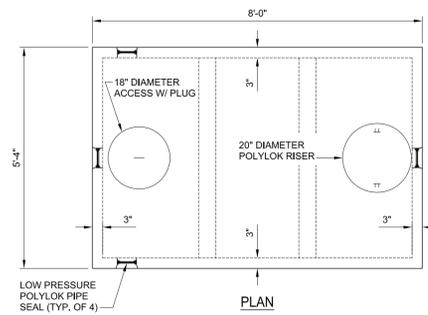


FLUSHING VALVE DETAIL
NOT TO SCALE

SEPTIC TANK

OPERATION & MAINTENANCE RECOMMENDATIONS

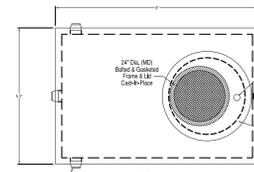
- THE SEPTIC TANK'S PURPOSE IS TO SETTLE OUT SOLIDS, CONTAIN THE SCUM AND PASS TREATED EFFLUENT. BACTERIA WITHIN THE SEPTIC TANK HELPS DECOMPOSE THE SOLIDS. SHOULD ANY SOLIDS PASS THROUGH THE SEPTIC TANK INTO THE SYSTEM, PREMATURE CLOGGING OF THE PIPING, STONE OR NATIVE SOIL BENEATH THE SYSTEM IS LIKELY TO OCCUR. ONLY HUMAN WASTES SHOULD ENTER THE SEWAGE SYSTEM. WATER USE SHOULD BE CONSERVATIVE AND CLEANING AGENTS CANNOT ENTER THE SYSTEM, AS THEY KILL BACTERIA.
- THE STATE FLOW FIGURES OF 140 GAL/DAY/BEDROOM ARE BASED ON SHORT TERM PEAK USE PERIODS (I.E., DAILY EVENTS). ACTUAL FLOWS SHOULD AVERAGE 75-100 GALLONS PER DAY, PER BEDROOMS.
- ONCE PER YEAR, THE DEPTH OF SCUM AND SLUDGE IN THE SEPTIC TANK SHOULD BE MEASURED AND THE TANK SHALL BE PUMPED IF:
 - THE SLUDGE LEVEL IS WITHIN 12 INCHES OF THE BOTTOM OF THE OUTLET.
 - THE SCUM LAYER IS WITHIN 3 INCHES OF THE TOP OF THE OUTLET.
 - IF A OR B IS ANTICIPATED TO OCCUR PRIOR TO THE NEXT INSPECTION.
 - IN ANY CASE, THE TANK SHALL BE PUMPED AT A MAXIMUM 5 YEAR INTERVAL.
- ONCE A YEAR, THE DISTRIBUTION BOX AND/OR PUMP STATION SHOULD BE INSPECTED AND ANY SETTLED SOLIDS REMOVED.
- THE EFFLUENT FILTER SHOULD BE INSPECTED AND CLEANED ANNUALLY.
- ABOVE ITEMS 1-5 ARE INTENDED TO PROLONG THE LIFE OF THE SYSTEM, NOT GUARANTEE IT.



1,000 GALLON PRECAST CONCRETE SEPTIC TANK

1,000 GALLON SEPTIC TANK NOTES:

- INLET, OUTLET, SEAM, AND CASTING HOLES TO BE SEALED WITH HYDRAULIC CEMENT AND/OR BUTYLENE GASKET.
- TANK TO BE SET LEVEL
- DIMENSIONS MAY VARY AMONG DIFFERENT MANUFACTURERS.



SECTION

1000 GALLON PRECAST CONCRETE PUMP STATION

DESIGN NOTES:

- 4000 PSI CONCRETE, 28 DAY STRENGTH.
- LOW PRESSURE SEALS DESIGNED TO ACCEPT 4" C.I. OR PVC PIPE.
- REQUIRES EFFLUENT PUMP CAPABLE OF PUMPING A MINIMUM OF 17.6 GPM VERSUS 16.32' TDH, AND A SUPER SINGLE PUMP SWITCH WITH A 3" SWING SETTING (+/- 70 GALLONS) SET 6" ABOVE THE BASE OF THE PUMP WITH HIGH LEVEL ALARM SET 6" ABOVE THE PUMP ON SETTING.
- IT SHOULD BE NOTED THAT ANY DEVIATION IN THE LOCATION OR ELEVATION OF THE SEPTIC TANK, PUMP STATION, OR THE DISPOSAL SYSTEM FROM THE DESIGNED LOCATION MAY REQUIRE A DIFFERENT SIZE PUMP.

SEWAGE DESIGN INFORMATION

- THE SEWAGE DISPOSAL SYSTEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPLICABLE TOWN REGULATIONS AND THE VERMONT ENVIRONMENTAL PROTECTION RULES.
- THE FOLLOWING MINIMUM ISOLATION DISTANCES SHALL BE MAINTAINED FROM THE DISPOSAL AREA TO:

PROPERTY LINE	25 FEET
BUILDING (WITH FOOTING DRAIN) UPSLOPE OR SIDESLOPE	35 FEET
BUILDING (WITH FOOTING DRAIN) DOWNSLOPE	75 FEET
DRIVEWAYS & PARKING LOTS	10 FEET
TREES	10 FEET

3. BASIS OF DESIGN:	4
NO. OF BEDROOMS	480
DESIGN FLOW	< 60 MIN/INCH
PERCOLATION RATE	1.0 GALS/SDAY (6" STONE)

- SEPTIC TANK
 - A 1,000 GALLON PRECAST CONCRETE SEPTIC TANK, CAMP PRECAST OR APPROVED EQUAL SHALL BE USED, WITH THREE ACESSE COVERS; 4,000 PSI CONCRETE; WATERPROOF JOINTS AND SET ON THOROUGHLY COMPACTED SUBBASE. THE OUTLET Baffle SHALL HAVE AN EFFLUENT FILTER & A TWO (2) FOOT DIAMETER RISER TO GRADE WITH STEEL COVER.
 - THE USE OF GARBAGE DISPOSALS IS NOT RECOMMENDED.

- MISC.:
 - IF A WATER TREATMENT SYSTEM IS GOING TO BE USED, THE BACKWASH WATER MAY NOT BE DISCHARGED INTO THE DISPOSAL SYSTEM.

STATE OF VERMONT MOUND SAND SPECIFICATIONS

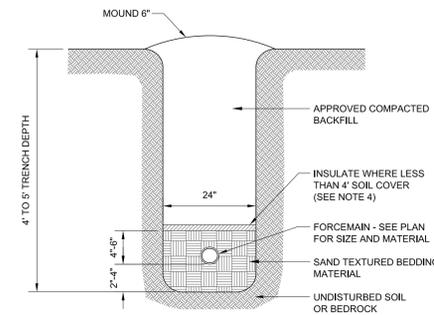
Fill Material: The fill material from the natural soil plowed surface to the top of the trench or bed shall be sand texture with one of the following sieve analyses:

Sieve Number	Opening (mm)	Percent Passing, by Weight
3/8	9.500	85 - 100
40	0.420	25 - 75
60	0.250	0 - 30
100	0.149	0 - 10
200	0.074	0 - 5

Sieve Number	Opening (mm)	Percent Passing, by Weight
4	4.750	95 - 100
8	2.380	80 - 100
16	1.190	50 - 85
30	0.590	25 - 60
50	0.297	10 - 30
100	0.149	2 - 10

Sieve Number	Opening (mm)	Percent Passing, by Weight
3/8	9.500	85 - 100
40	0.420	30 - 50
200	0.074	0 - 10

The material must meet specifications 1, 2, or 3. Interpolation of analyses is not permitted. Fill material 2 is ASTM Specification C-33 and is intended for manufactured material.

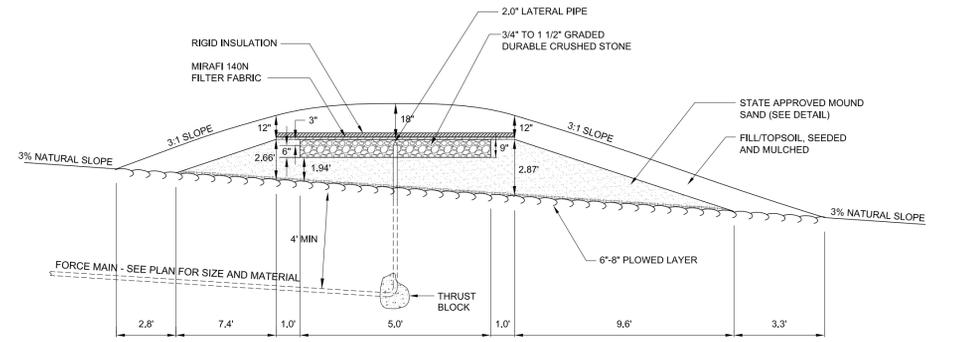


FORCEMAIN TRENCH NOTES:

- BACKFILL AND BEDDING SHALL BE PROPERLY COMPACTED.
- BEDDING MATERIAL SHALL NORMALLY CONSIST OF WELL-GRADED SANDS AND GRAVELS WITH A MAXIMUM SIZE OF 3/4".
- BACKFILL SHALL NOT CONTAIN:
 - ANY STONES MORE THAN 12" (1 1/2" MAXIMUM DIAMETER WITHIN 2' OF THE OUTSIDE OF THE PIPE) IN THE LARGEST DIMENSION.
 - BE GREATER THAN 50 POUNDS.
 - CONTAIN ANY FROZEN, WET OR ORGANIC MATERIAL.
- USE RIGID INSULATION AT THE RATE OF 1" FOR EVERY FOOT LESS THAN 4'.
- FORCEMAIN MUST BE TESTED FOR LEAKAGE.
- AT ANY CROSSING UNDER A ROAD OR DRIVE, FORCEMAIN IS TO BE ENCASED IN A 4" PVC SLEEVE, SAID SLEEVE IS TO EXTEND 8' IN EITHER DIRECTION FROM EDGE OF TRAVELED WAY.
- THE SIDES OF THE TRENCHES 4' OR MORE IN DEPTH ENTERED BY PERSONNEL SHALL BE SHEETED OR SLOPED TO THE ANGLE OF REPOSE AS DEFINED BY O.S.H.A. STANDARDS.

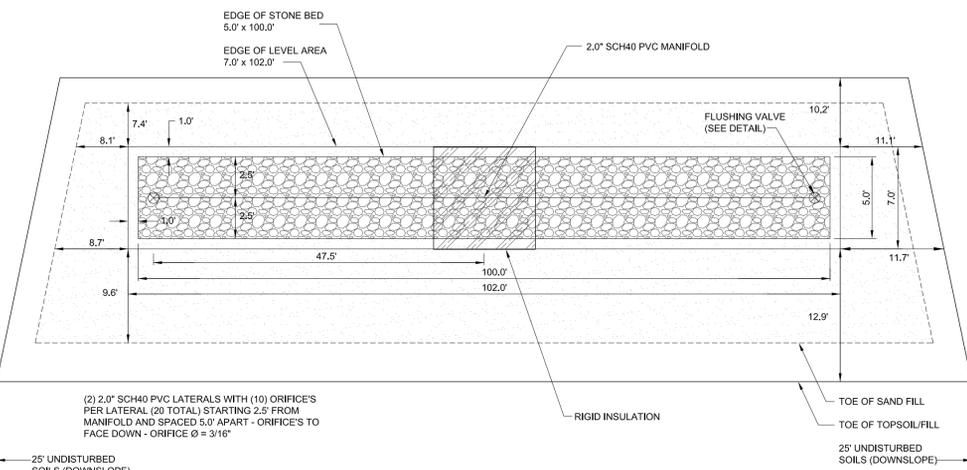
FORCEMAIN TRENCH DETAIL

NOT TO SCALE



MOUND TYPE DISPOSAL SYSTEM - SECTION VIEW

NOT TO SCALE



MOUND TYPE DISPOSAL SYSTEM - PLAN VIEW

NOT TO SCALE

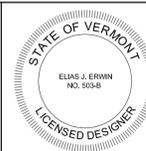
NOT TO SCALE

THE CONTRACTOR SHALL NOTIFY "DIGSAFE" AT 1-888-DIG-SAFE PRIOR TO ANY EXCAVATION.

"I hereby certify that in the exercise of my reasonable professional judgment the design-related information submitted with this application is true and correct, and that the design included in this application for a permit complies with the Vermont Wastewater System and Potable Water Supply Rules and the Vermont Water Supply Rules."

Elias J. Erwin
Licensed Class B Designer #503

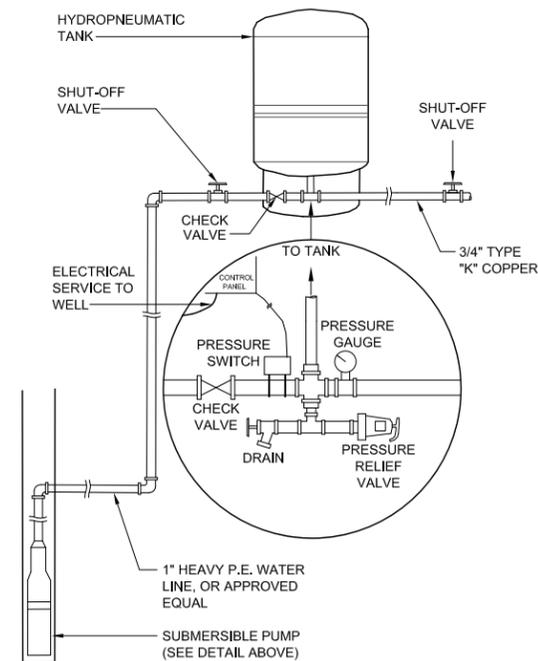
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Charlotte, Vermont

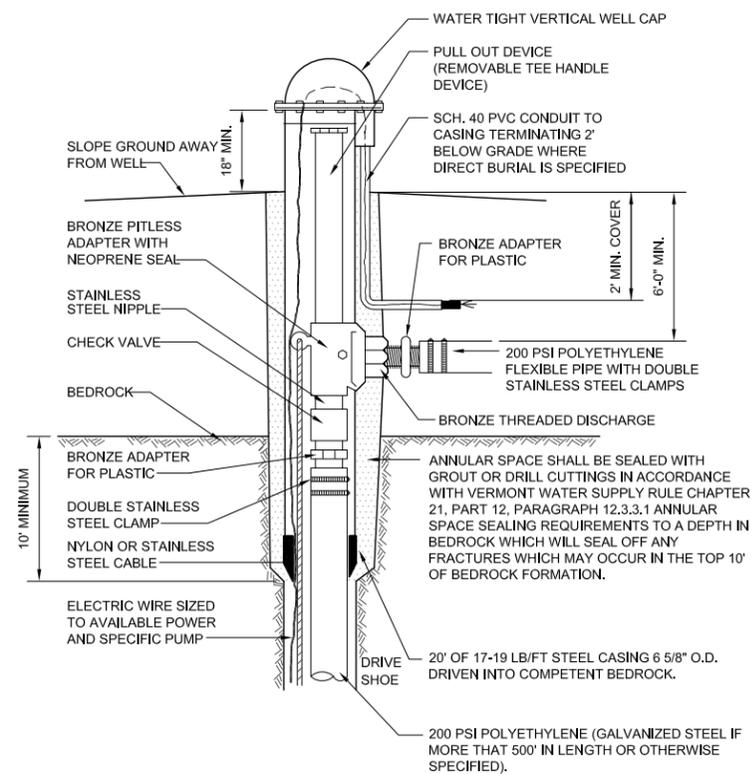
Wastewater System Design Details

LAG PROJECT # 11077
DATE: Aug. 26, 2011
SURVEYORS: TAM/JH
DRAWN BY: TAM
FIGURE #: 2



TYPICAL INDIVIDUAL WATER SYSTEM

NOT TO SCALE

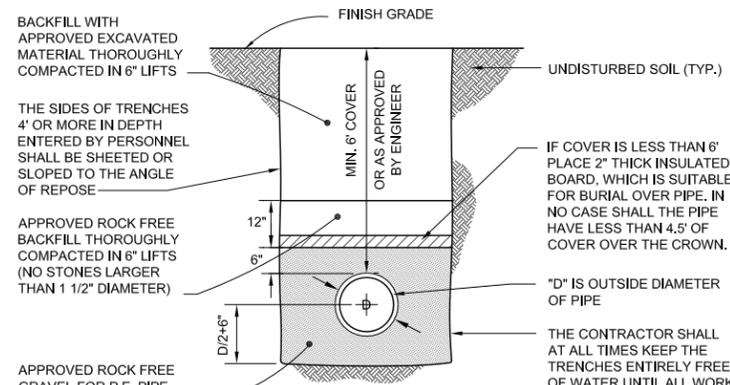


TYPICAL RESIDENTIAL DRILLED WELL

NOT TO SCALE

INDIVIDUAL DRILLED WELL NOTE:

1. THE SUBMERSIBLE PUMP MODEL AND DEPTH OF SETTING TO BE SPECIFIED BY THE ENGINEER AFTER THE WELL IS DRILLED AND YIELD TESTED (PIPE AND ADAPTOR SIZE TO SUIT ALSO).



TYPICAL WATER TRENCH

NOT TO SCALE

INDIVIDUAL DRILLED WELL DESIGN DATA

1. THE DRILLED WELL(S) CONSTRUCTION, LOCATION, DISINFECTION, AND TESTING SHALL BE IN ACCORDANCE WITH THE STATE OF VERMONT - WATER SUPPLY RULES.
2. THE BASIS OF DESIGN FOR EACH DRILLED WELL IS:
 - A. AVERAGE DAY DEMAND: 140 GPD X 4 BEDROOMS = 490 GPD.
 - B. MAXIMUM DAILY DEMAND: (140 GPD X 4 BEDROOMS)/720 MIN/DAY = 0.68 GPM (4 BEDROOM)
 - C. OPERATING PRESSURE RANGE: 40-60 PSI AT PRESSURE SWITCH
 - D. INSTANTANEOUS PEAK DEMAND = 5 GPM.

POTENTIAL SOURCE OF CONTAMINATION AND OTHER SITING LIMITATIONS	SEPARATION DISTANCE
Roadway, Parking Lot (outer edge of shoulder)	25 Feet
Driveway (Fewer than 3 residences)	15 Feet
Sewage System Disposal Fields	(See a.)
Subsurface Wastewater Piping and Related Tanks	50 Feet
Property Line	10 Feet (See b.)
Limit of Herbicide Application on utility R.O.W.	100 Feet (See c.)
Surface Water	10 Feet (See d.)
Buildings	10 Feet
Concentrated Livestock Holding Areas and Manure Storage Systems	200 Feet
Hazardous or Solid Waste Disposal Site	(See f.)
Non-sewage Wastewater Disposal Fields	(See f.)

DRILLED WELL ISOLATION DISTANCES

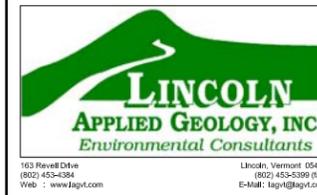
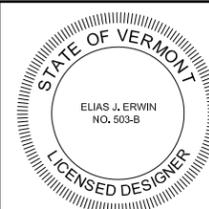
- a. See Table a11-2.
- b. Increased to 50' when adjacent to agricultural cropland.
- c. Applies to rights-of-way (ROW) where herbicides have been applied in the past 12 months or may be applied in the future. This distance may be increased to 200' depending on the active ingredient in the herbicide according to Vermont Regulations for Control of Pesticides.
- d. For Public water sources, see appendix A, Part 3, Subpart 3.4.
- e. Water sources shall not be located in a flood way.
- f. If a water source is potentially downgradient of a source of contamination, then the Secretary shall apply criteria in Appendix A Subpart 11.4.2.2.

NOT TO SCALE

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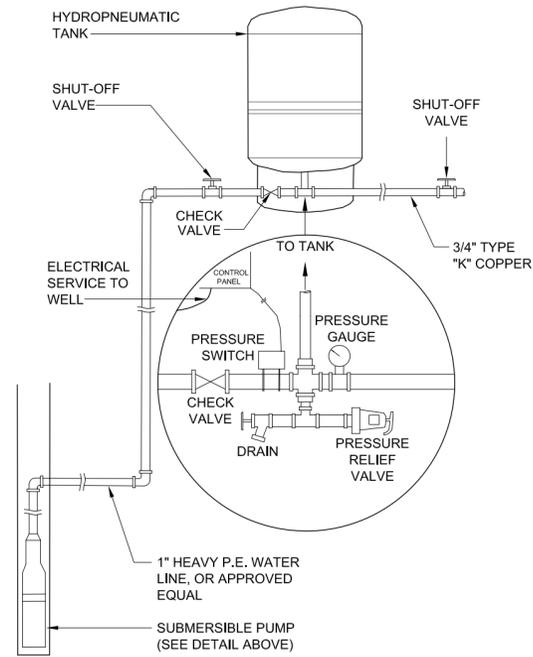
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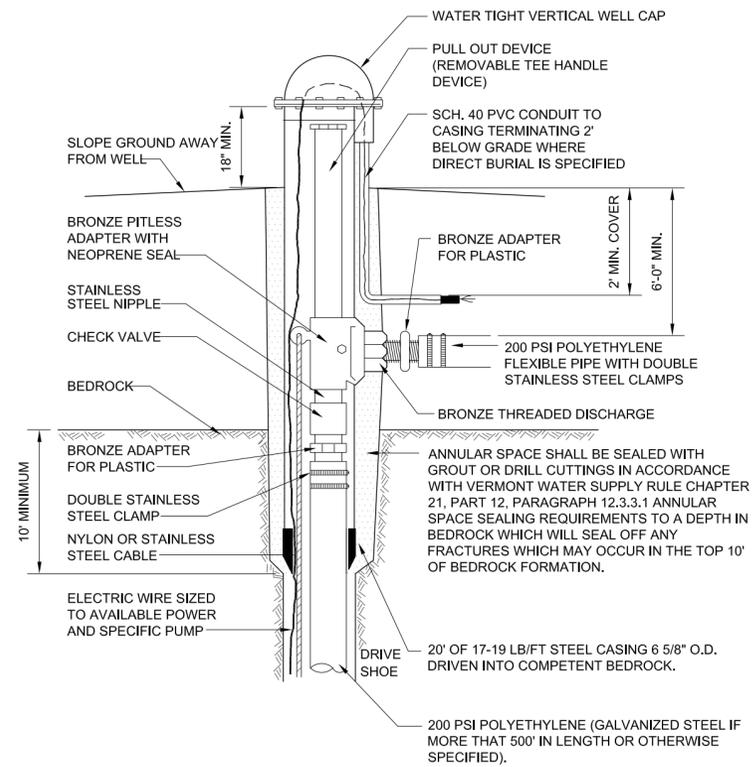
Water System Design Details

LAG PROJECT #
11077
DATE:
Aug. 26, 2011
SURVEYORS:
TAM/JH
DRAWN BY:
TAM
FIGURE #:



TYPICAL INDIVIDUAL WATER SYSTEM

NOT TO SCALE

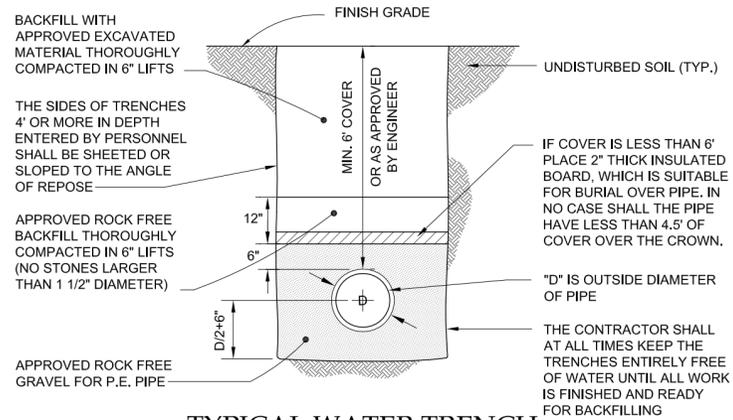


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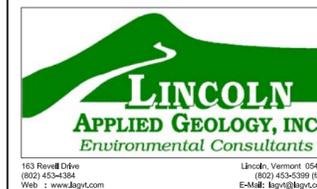
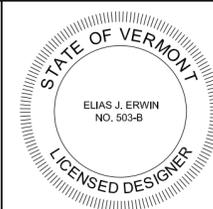
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3