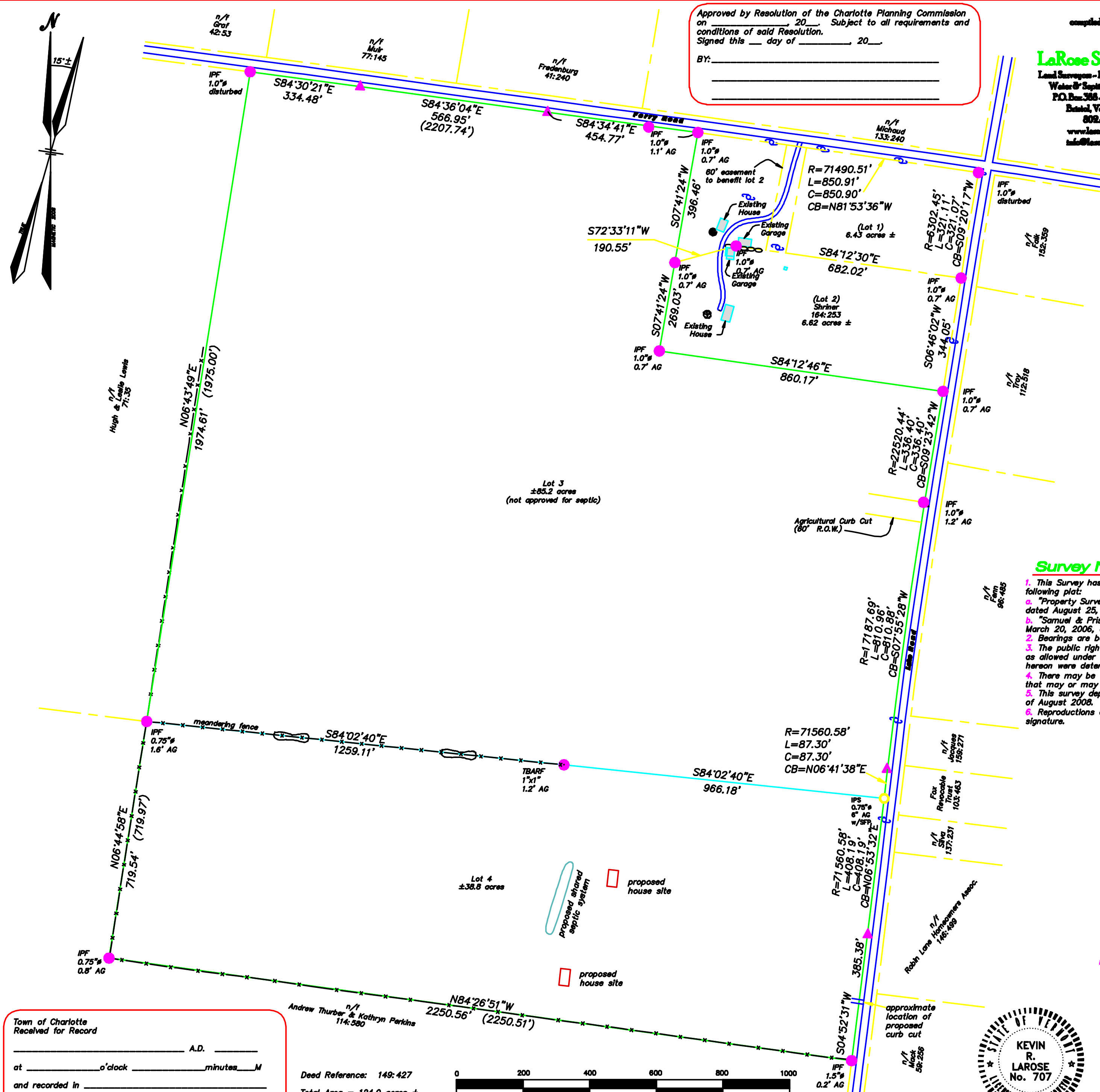


Approved by Resolution of the Charlotte Planning Commission on ______________, 20___. Subject to all requirements and conditions of said Resolution.
Signed this ___ day of __________, 20___.

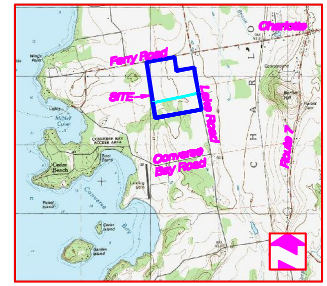
BY: ______________________________________

____

____

compiled & prepared by

LaRose Surveys, P.C.
Land Surveyors - Boundary Consultants
Water & Septic System Designers
P.O. Box 388 - 25C Main Street
Bristol, Vermont 05443
802.453.3818
www.larosesurveys.com
info@larosesurveys.com



Location Plan n.t.s.

Legend

(green line)	Project Boundary Line
(yellow dashed line)	Adjoiner Boundary Line
(cyan line)	Proposed Boundary Line
IPF	Iron Pipe Found
TBARF	T-Bar Found
IPS	Iron Pipe Set
ø	Diameter (outside)
±	More or Less
AG	Above Ground
(symbol)	Utility Pole
SFP	Steel Fence Post
—x—x—x—x—	Wire Fence
(symbol)	Hedgerow

Survey Notes:

1. This Survey has been compiled from field surveys and record evidence including the following plat:
a. "Property Survey, William O. Spear & Irene F. Spear", prepared by Gordon G. Harlow, L.S., dated August 25, 1955, not filed with the Town of Charlotte Land Records.
b. "Samuel & Priscilla Spear, Charlotte, Vermont", prepared by Kevin R. LaRose, L.S., dated March 20, 2006, and recorded in the Town of Charlotte Land Records.
2. Bearings are based on a single observation of magnetic north taken on July 16, 2008.
3. The public right-of-way of Lake Road and Ferry Roads are assumed to be 3 rods (49.5') as allowed under Vermont Statute Title 19, Chapters 1 & 7. The right-of-way limits shown hereon were determined by existing monumentation and the traveled portion of the road.
4. There may be additional easements, restrictions, and/or reservations not shown hereon that may or may not be found in the Town of Charlotte Land Records.
5. This survey depicts the boundary lines of Spear and abutting owners based on records as of August 2008.
6. Reproductions of this sketch are not valid unless signed with a blue inked surveyor's signature.

I hereby certify that the information shown hereon is correct to the best of my knowledge and belief and is based on a collaboration of pertinent deeds, plats, parol, and other recorded evidence. This plat was prepared in accordance with and complies with Vermont Statute Title 27, Section 1403, (a) through (a).

____
Kevin R. LaRose, L.S. Dated

Town of Charlotte
Received for Record
______________________________ A.D. ________
at ______________o'clock ______________minutes____M
and recorded in ______________________________
attest: ______________________________
Town Clerk

Deed Reference: 149:427
Total Area = 124.0 acres ±

0 200 400 600 800 1000
GRAPHIC SCALE 1 inch = 200 feet

STATE OF VERMONT
KEVIN R. LAROSE No. 707
LICENSED LAND SURVEYOR

plat showing a subdivision of lands of
SAMUEL & PRISCILLA SPEAR

Lake Road & Ferry Road
Charlotte, Chittenden County, Vermont

August 18, 2008

PROJECT #08042

Construction Specifications

1. 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.

2. 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 (Dirlap Consulting Engineers, Phelps Engineering, Otter Creek Engineering, and Vermont Testing will perform this test). *Submit a sample of the material to the Engineer prior to delivery to the site.*

3. 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. LaRose Surveys, P.C., must obtain/set or verify this bed.

4. Stake out corners of the bed and determine the bottom elevation of the bed.

5. Determine where the force main from the pump chamber connects to the distribution system in the mound.

6. Trench and lay the force main from the pump chamber to the mound. Lay the pipe 3' below the ground surface for frost protection. Where there is less than 3' of cover, insulate with 2" of rigid polystyrene insulation 4' wide (2' either side of pipe), placed in two 1" layers with staggered joints). Cut and cap the pipe 1' beyond the ground surface. Install and complete all electrical connections after testing is necessary. Avoid cutting or placed area with vehicular traffic. Outdoor insulation installed at the outlet.

7. Install the curtain drain (if shown on plans).

8. 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.

9. Cut trees to ground level. Remove excess vegetation by mowing. Do not remove stumps. Prepare the site by using a moldboard plow to create 6" – 10" deep furrows perpendicular to the slope. Furrows must be thrown up hill. Other planting may be used if a moldboard plow is not available. Rototilling must not be done as heavy soils but can be used on non-structural fill such as sands. Harrowing or planting 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). Immediately continue after planting is necessary. Avoid rutting or placed area with vehicular traffic. Outdoor insulation installed at the outlet.

10. Extend the effluent pipe to several feet above the ground surface.

11. Place the approved fill material around the edge of the placed area. Keep shade of truck off prepared areas. Minimize traffic on the mound surface. Work from the end and upslope side.

12. 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.

13. Place the fill material to the required depth, which is the top of the trenches or bed. Shape sides to the desired slope. Immediately continue after planting is necessary.

14. 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.

15. Place the coarse aggregate in the trenches or bed. It should be 3/4" to 1½", washed durable aggregate (i.e. not limestone or marble). Level aggregate to the design depth.

16. Place the distribution system on the aggregate. Connect the manifold to the force main from the pump chamber or siphon chamber. Place manifold slightly toward distribution laterals. Lay laterals level, running them in one direction. Place orifices upward. Inspection required at this point (to observe discharge rate and pressure testing).

17. Place shields on orifices and properly cement all components. Place 2" of aggregate over the distribution pipe.

18. Place a geotextile 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.

19. 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.

20. 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'. Insoutien mounded at this point.

21. Landscape the mound by planting grass, using the best vegetation adaptable to the area. A mixture of 90% shredded Kentucky and 10% Creeping may be available if the mound is not mentioned. If maintaining by mowing, a combination of 30% orchard grass and 70% annual rye grass may be the desired vegetative cover. Shrubs can be planted around the base and on the sideslopes of the mound. Avoid essential medicine between above the toe of the mound may be consumed make 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.

22. Mound maintenance involves pumping the septic tank and pump chamber every 1 to 3 years to avoid carryover of solids into the mound. Avoid excess traffic on the mound area. Winter traffic on snow is also to be avoided to prevent frost penetration. Inspect pump chamber and septic tank each year to determine the level of sludge accumulation. Clear holes or vents.

23. 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, should it not shown on this plan.

24. All fill around the structure shall be placed in 12" lifts and thoroughly compacted to 95% of maximum density at optimum moisture content.

25. This design must be inspected by LaRose Surveys, P.C., Bristol, Vermont, to ensure compliance with these plans. LaRose Surveys, P.C., relieves 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.

Operation & Maintenance Recommendations

1. The septic tank's purpose is to settle out solids, contain the scum and keep treated effluent. Bacteria within the septic tank digest the solids. Should any solids pass through the septic tank into the system, premature clogging of the pipes, stone or soil and backup into 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.

2. Once per year, the depth of scum and sludge in the septic tank should be measured and the tank shall be pumped if:

   a. The sludge level is within 12 inches of the bottom of the outlet.

   b. The scum layer is within 3 inches of the top of the outlet.

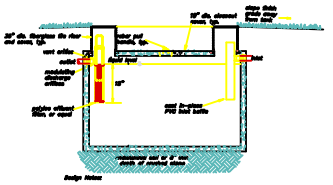
   c. If A or B is anticipated to occur prior to the next inspection.

   d. In any case, the tank shall be pumped at a maximum 4-year interval.

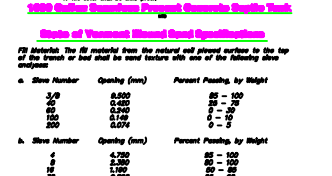
3. Once a year, the septic tanks, pump chambers, distribution box and effluent filter should be inspected by a qualified professionals. The person that performs the inspection is cautioned to consult with a health professional prior to performing the above items. Any material solids should be removed from the distribution box and the effluent filter should be cleaned.

4. Above items 1–3 are intended to prolong the life of the system, not guarantee it.

5. The Designer is not responsible for use of the system is usage that are not consistent with the design of the system such as but not limited to chemicals, septic system additives, garbage disposals, backwash from softeners or other water treatment devices, poor maintenance, or abnormal weather.



1000 Gallon Concrete Precast Concrete Septic Tank



State of Vermont Mound Sand Specifications

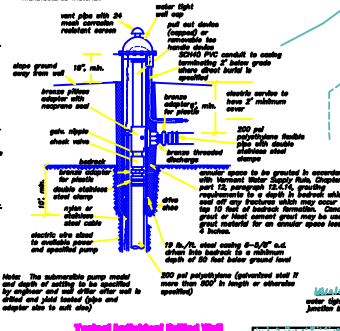
Fill Material. The fill material from the natural soil placed surface to the top of the trench or bed shall be sand texture with one of the following sieve analyses:

a. Sieve Number	Opening (mm)	Percent Passing, by Weight
3/8	9.500	80 – 100
40	0.420	50 – 70
60	0.340	0 – 30
100	0.149	0 – 10
200	0.074	0 – 5

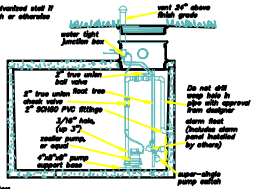
b. Sieve Number	Opening (mm)	Percent Passing, by Weight
4	4.750	95 – 100
8	2.360	80 – 100
16	1.180	50 – 85
30	0.600	25 – 60
50	0.297	10 – 30
100	0.149	2 – 10

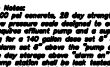
c. Sieve Number	Opening (mm)	Percent Passing, by Weight
3/8	9.500	80 – 100
40	0.420	30 – 50
200	0.074	0 – 10

The material must meet specifications a, b, or c. Interpolation of analyses is not permitted. Fill material is to ASTM Specification C-33 and is intended for manufactured material.



Typical Individual Drilled Well





Plumbing Valve Detail

Design Notes:
1. 3000 psi concrete, 28 day strength.
2. Low pressure waste designed to accept 4" O.D. or PVC pipe.
3. Requires effluent pump and a super single pump outlet with a swing setting for a 140 gallon draw set 6" above the base of the pump with a high level alarm set 4" above the "pump on" setting. There shall be a minimum of one day storage above "alarm on" level.
4. Pump chamber shall be leak tested for 24 hours prior to backfilling.
5. 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.

4000 Gallon Concrete Precast Concrete Pump Station

Sewage Design Information

1. The proposed sewage disposal system shall be constructed in accordance with all applicable Town Regulations and the State of Vermont Environmental Protection Rules.

2. Basis of design:

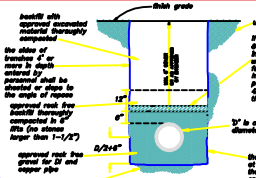
   Number of bedrooms = 6
   Number of occupants = 10
   Number of gallons per day = 700
   Application Rate = 1.0 gpsm/sf
   Required Disposal Area = 700 gpd/1.0 gpd/sf = 700 sf
   Disposal Area Provided = 3.5' x 200' bed = 822 sf

3. The use of garbage disposals is not recommended.

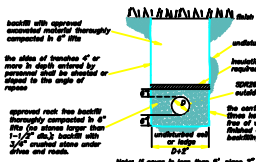
4. If a water treatment system (water softener) is going to be used, the backwash water may not be discharged into the disposal system.

Designed by
LaRose Surveys, P.C.
Land Surveyors & Engineers
Vermont & New York
802 Route 116 – Bristol, Vermont 05443
Phone: (802) 453-3868

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



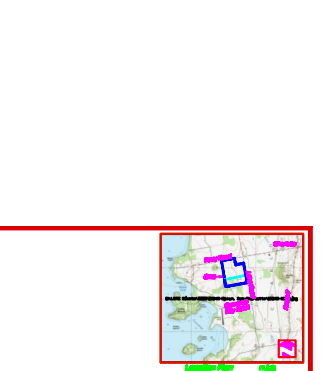
Typical Water Trench



Forcemain Trench Notes:

1. Backfill and bedding shall be properly compacted.
2. Bedding material shall normally consist of well-graded sands and gravels with a maximum size of 3/4".
3. Backfill shall not contain:
   a. Any stones more than 12" (1–1/2" max. diameter within 2' of the outside of the pipe) in the largest dimension.
   b. Be greater than 30' percent.
   c. Cinders, trees, and or organic material.
4. Use rigid foam insulation at the rate of 1" for every foot less than 4' of cover over forcemain.
5. Forcemain shall be tested for leakage.
6. At any crossing under a road or drive, forcemain shall be encased in a 6" PVC sleeve. Solid sleeve is to extend 5' in other direction from edge of traveled way.
7. The sides of the trenches 4' or more in depth entered by personnel shall be sloped or stepped to the angle of repose as defined by O.S.H.A. standards.

Forcemain Trench

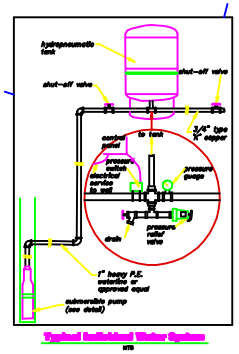


Drilled Well Isolation Distances

Horizontal Distance (feet)

Item	Disposal field	Septic tank	Sewer
Drilled well	4*	50	50
Lake and pond impoundment – standing water	50	25	10
River, streams	50	25	10
Drainage swales, roadway ditches	25	10	10
Main or municipal water lines	50	50	5*
Service water lines	25	25	5*
Roadways, driveways, parking lots	10	5	5
Top of embankment, or slope greater than 30%	25	10	10
Property line	25	10	10
Trees	10	10	10
Other disposal field or replacement area	10	10	5
Foundation, footing drains, curtain drains	35	10	10
Suction water line	100	50	50

* a) see presumptive isolation zone on plan
* b) see Vermont Water Supply Rule



Typical Individual Water System

IMPORTANT NOTE:
This is not a boundary survey. No certification, expressed or otherwise, are made to the boundary lines shown hereon. The boundary lines shown hereon were based solely on information provided by the owner. LaRose Surveys, P.C. makes any and all responsibility from problems and/or issues relating to the boundary lines shown hereon including but not limited to setback lines and encroachments.

Design Notes:
1. 3000 psi concrete, 28 day strength.
2. Low pressure waste designed to accept 4" O.D. or PVC pipe.
3. Requires effluent pump and a super single pump outlet with a swing setting for a 140 gallon draw set 6" above the base of the pump with a high level alarm set 4" above the "pump on" setting. There shall be a minimum of one day storage above "alarm on" level.
4. Pump chamber shall be leak tested for 24 hours prior to backfilling.
5. 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.

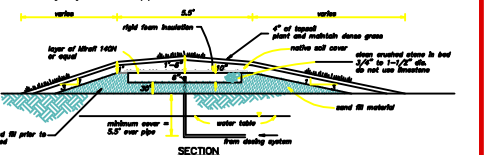
4000 Gallon Concrete Precast Concrete Pump Station

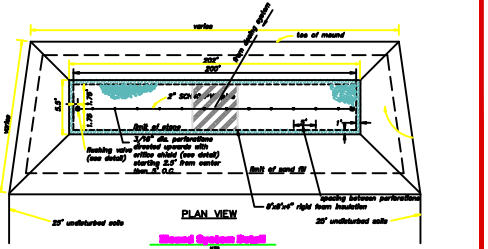
Orifice Shield Detail

4000 Gallon Concrete Precast Concrete Pump Station

Note: Cut and remove all stone ground vegetation with a hand mower. The existing ground shall not be graded or excavated. The contractor shall prior the surface to a depth of 7'–9", parallel to the land contour with the plow throwing the soil uphill.

Construction equipment shall not be driven across the original ground or the placed surface. A minimum of 6" of sand shall be placed over the placed surface for a lightweight construction equipment base.





Mound System Detail

a site plan showing a portion of lands of the

"SAMUEL W. SPEAR & PRISCILLA L. SPEAR REVOCABLE TRUST

Lake Road
Charlotte, Chittenden County, Vermont

September 1, 2009

PROJECT #08100