325 Leavitt Road
Amherst Bu. Island

May 2013
INVOICE

AMHERST PUBLIC HEALTH DEPARTMENT

Bangs Community Center
70 Boltwood Walk
Amherst, MA 01002

DATE: May 24, 2013

TO Mariann Mankowski
325 Leverett Road
Amherst, MA, 01002

RE: Invoice for **Title 5 Inspection Witness**
325 Leverett Road, Amherst
Services provided by **Edmund Smith**

PAYMENT TERMS: I Paid

QUANTITY	DESCRIPTION	UNIT PRICE	LINE TOTAL
1.00	Title 5 Inspection Witness (pass)	$ 200.00	$ 200.00
		SUBTOTAL	$ 200.00
		SALES TAX	
		TOTAL	$ 200.00

Application: 18384
Batch: 6690

CUST NAME
4 BOLTWOOD AVENUE
05/31/13
CITY, ST, ZIP

***TOWN OF A TOWN HAL
AMHERST M REFERENCE
DATE/TIME 13:30

CUST NAME

0
DEPT

DE HEA058 TITLE V WI 200.

RECPT TOTAL

200.00 AMOUNT
MARIANN MA QUA CHECK 1557

Commonwealth of Massachusetts

Title 5 Official Inspection Form

Subsurface Sewage Disposal System Form - Not for Voluntary Assessments

Owner information is required for every page.

325 LEVERETT ROAD
Property Address

MARNIE DACKO
Owner's Name

AMHERST	MA.	01002	MAY 9, 2013
City/Town	State	Zip Code	Date of Inspection

Inspection results must be submitted on this form. Inspection forms may not be altered in any way. Please see completeness checklist at the end of the form.

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

A. General Information

1. Inspector:

PHILIP J. PASIECNIK
Name of Inspector

GREG'S WASTE WATER REMOVAL
Company Name

239 GREENFIELD ROAD
Company Address

SOUTH DEERFIELD	MA.	01373
City/Town	State	Zip Code

413-665-3989	SI1526
Telephone Number	License Number

B. Certification

I certify that I have personally inspected the sewage disposal system at this address and that the information reported below is true, accurate and complete as of the time of the inspection. The inspection was performed based on my training and experience in the proper function and maintenance of on site sewage disposal systems. **I am a DEP approved system inspector pursuant to Section 15.340 of Title 5 (310 CMR 15.000).** The system:

☒ Passes ☐ Conditionally Passes ☐ Fails

☐ Needs Further Evaluation by the Local Approving Authority

Philip J. Pasiecnik — Inspector's Signature

5/10/13 — Date

The system inspector shall submit a copy of this inspection report to the Approving Authority (Board of Health or DEP) within 30 days of completing this inspection. If the system is a shared system or has a design flow of 10,000 gpd or greater, the inspector and the system owner shall submit the report to the appropriate regional office of the DEP. The original should be sent to the system owner and copies sent to the buyer, if applicable, and the approving authority.

******This report only describes conditions at the time of inspection and under the conditions of use at that time. This inspection does not address how the system will perform in the future under the same or different conditions of use.**

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B. Certification (cont.)

Inspection Summary: Check A,B,C,D or E / ***always*** complete all of Section D

A) System Passes:

☒ I have not found any information which indicates that any of the failure criteria described in 310 CMR 15.303 or in 310 CMR 15.304 exist. Any failure criteria not evaluated are indicated below.

Comments:

B) System Conditionally Passes:

☐ One or more system components as described in the "Conditional Pass" section need to be replaced or repaired. The system, upon completion of the replacement or repair, as approved by the Board of Health, will pass.

Check the box for "yes", "no" or "not determined" (Y, N, ND) for the following statements. If "not determined," please explain.

The septic tank is metal and over 20 years old* **or** the septic tank (whether metal or not) is structurally unsound, exhibits substantial infiltration or exfiltration or tank failure is imminent. System will pass inspection if the existing tank is replaced with a complying septic tank as approved by the Board of Health.

* A metal septic tank will pass inspection if it is structurally sound, not leaking and if a Certificate of Compliance indicating that the tank is less than 20 years old is available.

☐ Y ☐ N ☐ ND (Explain below):

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B. Certification (cont.)

☐ Pump Chamber pumps/alarms not operational. System will pass with Board of Health approval if pumps/alarms are repaired.

B) System Conditionally Passes (cont.)**:**

☐ Observation of sewage backup or break out or high static water level in the distribution box due to broken or obstructed pipe(s) or due to a broken, settled or uneven distribution box. System will pass inspection if (with approval of Board of Health):

☐ broken pipe(s) are replaced ☐ Y ☐ N ☐ ND (Explain below):

☐ obstruction is removed ☐ Y ☐ N ☐ ND (Explain below):

☐ distribution box is leveled or replaced ☐ Y ☐ N ☐ ND (Explain below):

☐ The system required pumping more than 4 times a year due to broken or obstructed pipe(s). The system will pass inspection if (with approval of the Board of Health):

☐ broken pipe(s) are replaced ☐ Y ☐ N ☐ ND (Explain below):

☐ obstruction is removed ☐ Y ☐ N ☐ ND (Explain below):

C) Further Evaluation is Required by the Board of Health:

☐ Conditions exist which require further evaluation by the Board of Health in order to determine if the system is failing to protect public health, safety or the environment.

1. System will pass unless Board of Health determines in accordance with 310 CMR 15.303(1)(b) that the system is not functioning in a manner which will protect public health, safety and the environment:

☐ Cesspool or privy is within 50 feet of a surface water

☐ Cesspool or privy is within 50 feet of a bordering vegetated wetland or a salt marsh

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B. Certification (cont.)

2. System will fail unless the Board of Health (and Public Water Supplier, if any) determines that the system is functioning in a manner that protects the public health, safety and environment:

- ☐ The system has a septic tank and soil absorption system (SAS) and the SAS is within 100 feet of a surface water supply or tributary to a surface water supply.
- ☐ The system has a septic tank and SAS and the SAS is within a Zone 1 of a public water supply.
- ☐ The system has a septic tank and SAS and the SAS is within 50 feet of a private water supply well.
- ☐ The system has a septic tank and SAS and the SAS is less than 100 feet but 50 feet or more from a private water supply well**.
  Method used to determine distance: _____

** This system passes if the well water analysis, performed at a DEP certified laboratory, for fecal coliform bacteria indicates absent and the presence of ammonia nitrogen and nitrate nitrogen is equal to or less than 5 ppm, provided that no other failure criteria are triggered. A copy of the analysis must be attached to this form.

3. Other:

_____

_____

_____

_____

D) System Failure Criteria Applicable to All Systems:

You <u>must</u> indicate "Yes" or "No" to each of the following for <u>all</u> inspections:

Yes	No	
☐	☒	Backup of sewage into facility or system component due to overloaded or clogged SAS or cesspool
☐	☒	Discharge or ponding of effluent to the surface of the ground or surface waters due to an overloaded or clogged SAS or cesspool
☐	☒	Static liquid level in the distribution box above outlet invert due to an overloaded or clogged SAS or cesspool
☐	☒	Liquid depth in cesspool is less than 6" below invert or available volume is less than ½ day flow

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B. Certification (cont.)

Yes	No	
☐	☒	Required pumping more than 4 times in the last year ***NOT*** due to clogged or obstructed pipe(s). Number of times pumped: _____.
☐	☒	Any portion of the SAS, cesspool or privy is below high ground water elevation.
☐	☒	Any portion of cesspool or privy is within 100 feet of a surface water supply or tributary to a surface water supply.
☐	☒	Any portion of a cesspool or privy is within a Zone 1 of a public well.
☐	☒	Any portion of a cesspool or privy is within 50 feet of a private water supply well.
☐	☒	Any portion of a cesspool or privy is less than 100 feet but greater than 50 feet from a private water supply well with no acceptable water quality analysis. **[This system passes if the well water analysis, performed at a DEP certified laboratory, for fecal coliform bacteria indicates absent and the presence of ammonia nitrogen and nitrate nitrogen is equal to or less than 5 ppm, provided that no other failure criteria are triggered. A copy of the analysis and chain of custody must be attached to this form.]**
☐	☒	The system is a cesspool serving a facility with a design flow of 2000gpd-10,000gpd.
☐	☒	**The system <u>fails</u>.** I have determined that one or more of the above failure criteria exist as described in 310 CMR 15.303, therefore the system fails. The system owner should contact the Board of Health to determine what will be necessary to correct the failure.

E) Large Systems: To be considered a large system the system must serve a facility with a design flow of 10,000 gpd to 15,000 gpd.

For large systems, you must indicate either "yes" or "no" to each of the following, in addition to the questions in Section D.

Yes	No	
☐	☐	the system is within 400 feet of a surface drinking water supply
☐	☐	the system is within 200 feet of a tributary to a surface drinking water supply
☐	☐	the system is located in a nitrogen sensitive area (Interim Wellhead Protection Area – IWPA) or a mapped Zone II of a public water supply well

If you have answered "yes" to any question in Section E the system is considered a significant threat, or answered "yes" in Section D above the large system has failed. The owner or operator of any large system considered a significant threat under Section E or failed under Section D shall upgrade the system in accordance with 310 CMR 15.304. The system owner should contact the appropriate regional office of the Department.

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C. Checklist

Check if the following have been done. You **must** indicate "yes" or "no" as to each of the following:

Yes	No	
☒	☐	Pumping information was provided by the owner, occupant, or Board of Health
☐	☒	Were any of the system components pumped out in the previous two weeks?
☒	☐	Has the system received normal flows in the previous two week period?
☐	☒	Have large volumes of water been introduced to the system recently or as part of this inspection?
☐	☒	Were as built plans of the system obtained and examined? (If they were not available note as N/A)
☒	☐	Was the facility or dwelling inspected for signs of sewage back up?
☒	☐	Was the site inspected for signs of break out?
☒	☐	Were all system components, excluding the SAS, located on site?
☒	☐	Were the septic tank manholes uncovered, opened, and the interior of the tank inspected for the condition of the baffles or tees, material of construction, dimensions, depth of liquid, depth of sludge and depth of scum?
☒	☐	Was the facility owner (and occupants if different from owner) provided with information on the proper maintenance of subsurface sewage disposal systems?
		The **size and location of the Soil Absorption System (SAS)** on the site has been determined based on:
☒	☐	Existing information. For example, a plan at the Board of Health.
☐	☒	Determined in the field (if any of the failure criteria related to Part C is at issue approximation of distance is unacceptable) [310 CMR 15.302(5)]

D. System Information

Residential Flow Conditions:

Number of bedrooms (design): 4 Number of bedrooms (actual): 4

DESIGN flow based on 310 CMR 15.203 (for example: 110 gpd x # of bedrooms): 440 gpd

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D. System Information

Description:
4 Bedroom Home No Disposal x 110 gpd per bedroom = 440 gpd per 310 CMR 15.203

Number of current residents: 3

Does residence have a garbage grinder? ☐ Yes ☒ No

Is laundry on a separate sewage system? (Include laundry system inspection information in this report.) ☐ Yes ☒ No

Laundry system inspected? ☐ Yes ☒ No

Seasonal use? ☐ Yes ☒ No

Water meter readings, if available (last 2 years usage (gpd)): N/A

Detail:
Private Well Not Metered

Sump pump? ☐ Yes ☒ No

Last date of occupancy: Currently Occupied

Commercial/Industrial Flow Conditions:

Type of Establishment: N/A

Design flow (based on 310 CMR 15.203): Gallons per day (gpd)

Basis of design flow (seats/persons/sq.ft., etc.):

Grease trap present? ☐ Yes ☐ No

Industrial waste holding tank present? ☐ Yes ☐ No

Non-sanitary waste discharged to the Title 5 system? ☐ Yes ☐ No

Water meter readings, if available:

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D. System Information (cont.)

Last date of occupancy/use: _____ Date

Other (describe below):

_____

_____

_____

General Information

Pumping Records:

Source of information: Last pumped by Greg's on 05/21/09.

Was system pumped as part of the inspection? ☒ Yes ☐ No

If yes, volume pumped: 1500 gallons

How was quantity pumped determined? Tank Dimensions

Reason for pumping: Tank Inspection, Solids Removal, Clean Filter

Type of System:

☐ Septic tank, distribution box, soil absorption system

☐ Single cesspool

☐ Overflow cesspool

☐ Privy

☐ Shared system (yes or no) (if yes, attach previous inspection records, if any)

☐ Innovative/Alternative technology. Attach a copy of the current operation and maintenance contract (to be obtained from system owner) and a copy of latest inspection of the I/A system by system operator under contract

☐ Tight tank. Attach a copy of the DEP approval.

☒ Other (describe):

Septic tank, pump chamber, soil absorption system

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D. System Information (cont.)

Approximate age of all components, date installed (if known) and source of information:

8 Years Old / 2005 / Certificate of Compliance

Were sewage odors detected when arriving at the site? ☐ Yes ☒ No

Building Sewer (locate on site plan):

Depth below grade: 3.5 feet

Material of construction:

☐ cast iron ☒ 40 PVC ☒ other (explain): 4" ABS to PVC 40

Distance from private water supply well or suction line: 75+ feet

Comments (on condition of joints, venting, evidence of leakage, etc.):

Building sewer appeared to be in good condition with no leakage visible at this time. Venting pipes were visible on roof of house.

Septic Tank (locate on site plan):

Depth below grade: 3 feet

Material of construction:

☒ concrete ☐ metal ☐ fiberglass ☐ polyethylene ☐ other (explain)

If tank is metal, list age: N/A years

Is age confirmed by a Certificate of Compliance? (attach a copy of certificate) ☐ Yes ☐ No

Dimensions: 10'6"Lx5'6"Wx5'4"D

Sludge depth: 7"

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D. System Information (cont.)

Septic Tank (cont.)

Distance from top of sludge to bottom of outlet tee or baffle: 26"

Scum thickness: 5"

Distance from top of scum to top of outlet tee or baffle: 6"

Distance from bottom of scum to bottom of outlet tee or baffle: 10"

How were dimensions determined? Measured

Comments (on pumping recommendations, inlet and outlet tee or baffle condition, structural integrity, liquid levels as related to outlet invert, evidence of leakage, etc.):

Pump septic tank at least every two to three years. Clean outlet filter annually or as needed. Outlet filters on single compartment tanks tend to clog more often than pumping intervals. PVC Inlet and outlet tees were in place and appeared to be in good condition. Tank appeared to be in good condition. Liquid level was at the outlet invert. No leakage was visible at this time.

Grease Trap (locate on site plan):

Depth below grade: N/A feet

Material of construction:

☐ concrete ☐ metal ☐ fiberglass ☐ polyethylene ☐ other (explain):

Dimensions:

Scum thickness

Distance from top of scum to top of outlet tee or baffle

Distance from bottom of scum to bottom of outlet tee or baffle

Date of last pumping: Date

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D. System Information (cont.)

Comments (on pumping recommendations, inlet and outlet tee or baffle condition, structural integrity, liquid levels as related to outlet invert, evidence of leakage, etc.):

Tight or Holding Tank (tank must be pumped at time of inspection) (locate on site plan):

Depth below grade: N/A

Material of construction:

☐ concrete ☐ metal ☐ fiberglass ☐ polyethylene ☐ other (explain):

Dimensions:

Capacity: gallons

Design Flow: gallons per day

Alarm present: ☐ Yes ☐ No

Alarm level: Alarm in working order: ☐ Yes ☐ No

Date of last pumping: Date

Comments (condition of alarm and float switches, etc.):

* Attach copy of current pumping contract (required). Is copy attached? ☐ Yes ☐ No

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D. System Information (cont.)

Distribution Box (if present must be opened) (locate on site plan):

Depth of liquid level above outlet invert N/A

Comments (note if box is level and distribution to outlets equal, any evidence of solids carryover, any evidence of leakage into or out of box, etc.):
N/A

Pump Chamber (locate on site plan):

Pumps in working order: ☒ Yes ☐ No*

Alarms in working order: ☒ Yes ☐ No*

Comments (note condition of pump chamber, condition of pumps and appurtenances, etc.):

Pump chamber, pump and appurtenances appeared to be in good condition at this time. All fuctions were activated and appeared to be in good working order. Pump chamber opening only had one 12" high riser to make access cover 28" deep. Recommended risers to make cover to within 6" deep to owner.

* If pumps or alarms are not in working order, system is a conditional pass.

Soil Absorption System (SAS) (locate on site plan, excavation not required):

If SAS not located, explain why:

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D. System Information (cont.)

Type:

☐	leaching pits	number:	
☐	leaching chambers	number:	
☐	leaching galleries	number:	
☐	leaching trenches	number, length:	
☒	leaching fields	number, dimensions:	1 - 70' L x16' W with 3 laterals each half
☐	overflow cesspool	number:	
☐	innovative/alternative system		

Type/name of technology:

Comments (note condition of soil, signs of hydraulic failure, level of ponding, damp soil, condition of vegetation, etc.):

SAS consists of a leaching field 70' long x 16' wide with a distributing valve sending flow to one half of the field at a time. No soil clogging, hydraulic failure or ponding to the surface was evident at this time. No damp soil at the surface found. Vegetation appeared to be normal in growth at this time. Some damage to lateral flush ports was evident from lawn mower use on leachfield surface. Recommend repairs to ports be made by owner. Stainless steel screws were installed on cover of distributing valve port for safety.

Cesspools (cesspool must be pumped as part of inspection) (locate on site plan):

Number and configuration	N/A
Depth – top of liquid to inlet invert	
Depth of solids layer	
Depth of scum layer	
Dimensions of cesspool	
Materials of construction	
Indication of groundwater inflow	☐ Yes ☐ No

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D. System Information (cont.)

Comments (note condition of soil, signs of hydraulic failure, level of ponding, condition of vegetation, etc.):

Privy (locate on site plan):

Materials of construction: N/A

Dimensions

Depth of solids

Comments (note condition of soil, signs of hydraulic failure, level of ponding, condition of vegetation, etc.):

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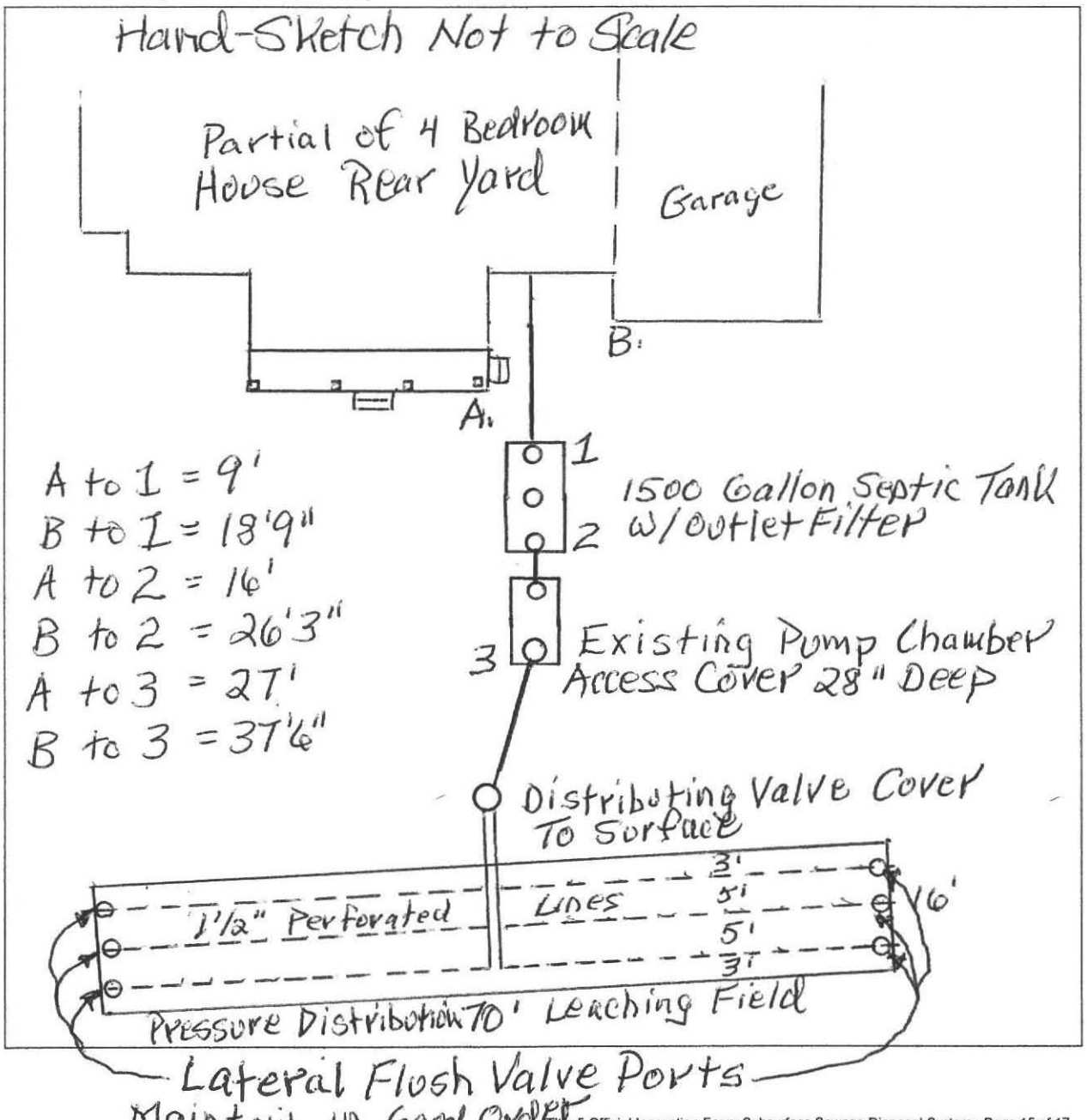
D. System Information (cont.)

Sketch Of Sewage Disposal System: Provide a view of the sewage disposal system, including ties to at least two permanent reference landmarks or benchmarks. Locate all wells within 100 feet. Locate where public water supply enters the building. Check one of the boxes below:

Not a Plot Plan

☒ hand-sketch in the area below
☐ drawing attached separately



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D. System Information (cont.)

Site Exam:

☐ Check Slope

☒ Surface water

☒ Check cellar

☐ Shallow wells

Estimated depth to high ground water: 5+ Below Grade at SAS feet

Please indicate all methods used to determine the high ground water elevation:

☒ Obtained from system design plans on record

If checked, date of design plan reviewed: 03/04/05 Date

☒ Observed site (abutting property/observation hole within 150 feet of SAS)

☒ Checked with local Board of Health - explain:

Agent Present at Inspection

☐ Checked with local excavators, installers - (attach documentation)

☐ Accessed USGS database - explain:

You **must** describe how you established the high ground water elevation:

Design Plan with Soil Sutability Results and Observation of Site Conditions

Before filing this Inspection Report, please see Report Completeness Checklist on next page.

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E. Report Completeness Checklist

- ☒ Inspection Summary: A, B, C, D, or E checked
- ☒ Inspection Summary D (System Failure Criteria Applicable to All Systems) completed
- ☒ System Information – Estimated depth to high groundwater
- ☒ Sketch of Sewage Disposal System either drawn on page 15 or attached in separate file

1/1

PHONE CALL

FOR _____ DATE 4/12/13 TIME 8:48 A.M. / P.M.

M KIMBRE PRENTIS

OF _____

PHONE _____ CELL 617 312 4147

MESSAGE 325 LEVERETT
Home INSPECTION
WELL WATER 5X Upper
limit of Manganese —
significance? common/
uncommon / health ramifications
accountable?

- [x] TELEPHONED
- [ ] RETURNED YOUR CALL
- [x] PLEASE CALL
- [ ] WILL CALL AGAIN
- [ ] CAME TO SEE YOU
- [ ] WANTS TO SEE YOU

SIGNED _____

call at my convenience

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People.™

Tracking Links Environments (showRiskLandingSolution.action) Health Effects (showHealthEffects.action) Population Health (showPopulationData.action) Info by Location (showLocationLanding.action)

not recommended to use water softening systems
W. Springfield – water filtration Gaffney & son

Quick Links

- Well Water and Health (showWellWaterDrinkingHealth.action)
- Well Water Monitoring in the US (showWellWaterMonitor.action)
- Well Water Contaminants (showWellWaterContaminants.action)

Manganese and Your Health

- Exposure and Risk (#exposure)
- Prevention (#prevention)

Manganese occurs naturally in many surface and groundwater sources and in soils that may erode into these waters. Human activities are responsible for much of the manganese contamination in water in some areas.

Manganese is an essential nutrient and eating a small amount of it each day is important to staying healthy. Manganese also occurs naturally in most foods and may be added to food or made available in nutritional supplements. Manganese absorption from drinking water is normally substantially lower than intake from food.

Exposure and Risk

Because manganese is a natural component of the environment, people are regularly exposed to low levels of it in water, air, soil, and food. Groundwater, drinking water, and soil routinely contain manganese at low levels.

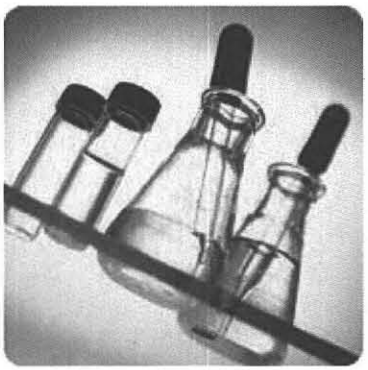
Although manganese is an essential nutrient at low doses, chronic exposure to high doses may be harmful. Exposure to high concentrations of manganese over the course of years has been associated with toxicity to the nervous system, producing a syndrome that resembles Parkinsonism. This effect may be more likely to occur in the elderly. Manganese is unlikely to produce other types of toxicity, such as cancer or reproductive damage.

Children may be more at risk than adults for manganese exposure, especially bottle-fed babies. Certain baby formulas contain manganese, and, if prepared with water that also contains manganese, the baby may receive a higher dose than the rest of the family. In addition, young children appear to absorb more but excrete less manganese than older age groups, which adds up to a greater potential for manganese exposure in the very young. Because manganese's effects on the developing nervous system have not been adequately studied, drinking water for

pregnant women and young children should be below the manganese secondary MCL (javascript:showGlossaryByTermName('Maximum Contaminant Level (MCL)')) of 0.05 mg/L.

Certain occupations such as welding or working in a factory where steel is made may increase people's chances of being exposed to high levels of manganese.

Prevention



Although tap and bottled water generally contain safe levels of manganese, well water may sometimes be contaminated with levels of manganese high enough to create a potential health hazard. If drinking water is obtained from a well, people may want to have the water checked for manganese to ensure the level is below the current secondary MCL (javascript:showGlossaryByTermName('Maximum Contaminant Level (MCL)')) of 0.05 mg/L established by EPA.

People may suspect that manganese is in their water if the water is discolored (brownish red), causes staining of plumbing fixtures (faucets, sinks) or clothing, or has an off-taste or odor. If manganese is suspected, people should have their water tested for manganese by a state-certified laboratory. When they receive the results, people should contact their local health department if they have further questions.

Page created on: April 17, 2012
Page last updated: April 17, 2012
Content source: National Center for Environmental Health, Environmental Health Tracking Branch

Centers for Disease Control and Prevention 1600 Clifton Rd. Atlanta, GA 30333, USA
800-CDC-INFO (800-232-4636) TTY: (888) 232-6348 - cdcinfo@cdc.gov

Drinking Water Notification Level for Manganese

Last Update: July 2, 2011

CDPH's drinking water notification level for manganese is 0.5 milligram per liter (0.5 mg/L). When manganese is present in water served to customers at concentrations greater than the notification level, certain requirements and recommendations apply, as described below.

The notification level applies to all public water systems, whether or not they are covered by the current regulation of manganese.

Current Regulation of Manganese

Manganese is regulated by a 0.05-mg/L secondary maximum contaminant level (MCL) (see drinking water regulations), a standard established to address issues of aesthetics (discoloration), not health concerns. In California secondary MCLs are enforceable. (USEPA's 0.05-mg/L federal secondary standard for manganese is a non-enforceable guideline.)

Secondary MCLs are enforceable standards in California, but are applicable only to community systems. Thus, noncommunity systems, particularly nontransient noncommunity (NTNC) systems such as schools and workplaces, do not receive the benefits of the secondary standard.

Although the aesthetic effects related to elevated manganese in drinking water are likely to be encountered at concentrations below the notification level, the notification level provides an extra layer of protection to consumers of water from systems subject to the secondary MCL requirements.

Background Information

Manganese is a required nutrient. Table 2.1 in ATSDR (2008) has a table of adequate intake levels for manganese, which range from 1.2 mg/day for 1- to 3-year-old infants, to 1.8 -2.3 mg/day for female and male adults. Values are lower for infants and higher for the pregnant or lactating woman. A healthful diet provides adequate manganese for good nutrition (US EPA, 2003). Reviews of typical Western and vegetarian diets showed typical manganese intakes of 0.7 to 10.9 mg/day (WHO, 2004).

However, manganese at very high levels can pose a neurotoxic risk (ATSDR, 2008; US EPA, 1996, 2003, 2004; WHO, 2004). For example, neurologic damage (mental and emotional disturbances, as well as difficulty in moving—a syndrome of effects referred to as "manganism") has been reported to be permanent among manganese miners and other workers exposed to high levels of airborne manganese for long periods of time. Lower chronic exposures in the workplace resulted in decrements in certain motor skills, balance and coordination, as well as increased memory loss, anxiety, and sleeplessness (ATSDR, 2008). USEPA (1996), in developing an oral reference dose for manganese based on dietary intake, mentions an epidemiological study in Greece that showed an increase in neurologic effects such as weakness and fatigue, disturbances in gait, and neuromuscular effects, in people whose drinking water contained 1.6 to 2.3 mg/L. Uncertainties about the levels of dietary manganese and the amount of drinking water consumed did not enable USEPA to use these data for risk assessment purposes.

ATSDR (2008) reports several studies that showed decreased ability in neurobehavioral performance testing and in several educational parameters, in children exposed to high level of manganese in drinking water and diet for at least several years.

Children are considered to be particularly susceptible to possible effects of high levels of manganese exposure because they absorb and/or retain more manganese than adults (ATSDR, 2008; USEPA, 1996).

Attention to the potential health concerns of high levels of manganese in drinking water is appropriate, as the 0.5-mg/L notification level provides, given the possibility of neurologic effects at very high concentrations. Similar advisory levels for manganese have been established by the US EPA , which has a manganese health advisory level of 0.3 mg/L (USEPA, 2004), and the World Health Organization, which has a manganese health guideline level of 0.4 mg/L (WHO, 2004).

Benefits of a Notification Level for Manganese

A health-based notification level for manganese is helpful in addressing high manganese levels in drinking water sources, in several ways:

- It provides guidance and information to systems with manganese above the secondary MCL, as they deal with the regulatory requirements associated with exceeding the secondary standard (PDF) , such as addressing costs associated with treatment.
- It provides guidance to CDPH Drinking Water Program staff in evaluating waivers from treatment requirements to meet the secondary MCL. Currently, consumers are to be surveyed about their acceptance of exceeding a secondary MCL. A notification level allows health-based considerations to enter into the consumer survey and waiver from treatment process.
- It allows consumers of water from NTNC systems to be informed about the potential for health concerns associated with sources that have high levels of manganese.

Requirements and Recommendations

When manganese is present in concentrations greater than the notification level, the following requirements and recommendations apply:

- Systems with drinking water sources with manganese concentrations greater than the notification level are required to notify local city and county governing bodies, just as for other contaminants with notification levels and for contaminants that exceed MCLs.
- Consumer notification is recommended at levels greater than the notification level. This may be handled through the water systems' annual consumer confidence reports. Other means could be used as well, if more appropriate, such as direct mailing, or posting a notice. These should be coordinated with the local CDPH Drinking Water Program district office.
- Source removal is recommended at ten times the notification level.

Monitoring for manganese is required within the framework of secondary MCL regulations, but generally not outside that framework. For sources not subject to the secondary MCL requirements, CDPH recommends analyses of sources that are near other sources that have very high manganese levels.

In 2003, when CDPH (at the time, the California Department of Health Services) established the 0.5-mg/L notification level (then called an "action level") for manganese, we recommended follow-up monitoring for those systems that historically had shown manganese higher than the 0.5-mg/L concentration, but which lacked recent data. Current monitoring allows water systems to confirm earlier values, and to allow them to meet the requirement for notifying its local government body with timely information. If a water system chose not to take a contemporary follow-up sample for manganese analysis, then we recommended notification of the governing body based on prior data. Consumer notification should follow the recommendations mentioned above.

For community systems subject to the secondary MCL monitoring and compliance requirements (22 CCR §64449) with manganese greater than the notification level, CDPH recommends that information about the health concerns associated with high manganese exposures be provided to consumers as part of the required consumer dissatisfaction determination.

Manganese Detections Greater Than 0.5 mg/L

There are ~12,000 sources belonging to ~4,400 community and NTNC systems in California. Historically, about 30 percent of drinking water sources monitoring for manganese have reported manganese detections, reflecting its natural occurrence. The detection limit for purposes of reporting (DLR), the level at which CDPH is confident about the quantification of manganese's presence in drinking water, is 0.02 mg/L.

A number of sources have reported detections greater than the 0.05-mg/L secondary MCL. Results from January 2006 through June 15, 2011 from CDPH's drinking water quality monitoring data show that 384 sources from 272 systems reported a peak detection above 0.5 mg/L. [For purposes of comparison, There are ~12,000 sources belonging to ~4,400 community and NTNC systems.] Sources with a detection above 0.5 mg/L occurred in 46 of

the state's 58 counties, most often in the counties of Sonoma (61 sources), Napa (23), San Diego (21), Santa Barbara (18), Lake (16), and San Luis Obispo (15).

Drinking Water Sources with Manganese Detected above 0.5-mg/L*			
Concentration	**No. of Sources**	**No. of Systems**	**No. of Counties**
Mn > 0.5 mg/L	384	272	46

*These data are from manganese detections above 0.5 mg/L (Excel) (January 2006 - June 2011). In determining the number of sources for this table, inactive wells, abandoned and destroyed wells, agricultural wells, and monitoring wells were excluded. These data will change with subsequent updates, so they should be considered draft.

The peak concentrations should not be viewed as indicative of the levels of manganese in drinking water served to consumers. Readers interested in the levels of manganese in their drinking water should refer to their water systems' annual Consumer Confidence Reports (CCRs). A number of CCRs for California water systems are available on the US EPA's website.

References

- ATSDR, 2008, Toxicological Profile for Manganese, Agency for Toxic Substances and Disease Registry, September 2008.
- US EPA, 1996, Manganese, Integrated Risk Information System, US Environmental Protection Agency, Reference Dose last updated May 1, 1996.
- US EPA, 2003 (PDF), Health Effects Support Document for Manganese, February 2003.
- US EPA, 2004 (PDF), Drinking Water Health Advisory for Manganese, January 2004.
- WHO, 2004 (PDF), Manganese in Drinking-water, Background document for development of WHO Guidelines for Drinking-water Quality, World Health Organization, 2004. See also: WHO, Chemical Hazards in Drinking Water - Manganese.

Chemicals and Contaminants in Drinking Water

Information on Chemicals and Contaminants in Drinking Water

Additional Information

Information for Drinking Water Systems

Division of Drinking Water & Environmental Management

Last modified on: 7/3/2011 12:44 PM

MacLeay Associates, Inc. civil engineers
102 Bridge Street, Shelburne Falls, MA 01370
phone (413) 625-9774
fax (413) 625-9704
email: macleay@crocker.com

SYSTEM INSTALLATION OBSERVATION REPORT

SITE INFORMATION

LOT # 2 325 Leverett Rd

DATE: 7/21/05

STREET LEVERETT ROAD
TOWN AMHERST
JOB # 2002-072-9

OWNER INFORMATION

PROPERTY OWNER AMHERST BUILDING CO.
STREET ADDRESS 25 MAIN STREET; SUITE 445
TOWN NORTHAMPTON, MA 01060

INSTALLER INFORMATION

NAME OF INSTALLER L & F CONSTRUCTION
STREET ADDRESS 608 LONG PLAIN ROAD
TOWN LEVERETT, MA 01054

OBSERVATION RESULTS

DATE OF OBSERVATION: *07/21/05*

(**X**) THE SYSTEM APPEARED TO BE INSTALLED SUBSTANTIALLY IN ACCORDANCE WITH THE APPROVED PLAN, AND IS IN COMPLIANCE WITH TITLE 5.

( ) THE SYSTEM DOES NOT APPEAR TO HAVE BEEN INSTALLED ACCORDING TO THE APPROVED PLAN, AND IS NOT IN COMPLIANCE WITH TITLE 5.

DEFICIENCIES: _____

( ) THE SYSTEM DOES NOT APPEAR TO HAVE BEEN INSTALLED ACCORDING TO THE APPROVED PLAN, BUT IS IN COMPLIANCE WITH TITLE 5. ENCLOSED IS A COPY OF THE PLAN SHOWING "*AS BUILT*" LOCATIONS AND ELEVATIONS.

COMMENTS: _____

DOUGLAS J. MacLEAY, P.E.
PRESIDENT

SEND COPIES TO: BOARD OF HEALTH
L & F
AMHERST BUILDING COMPANY

Town of

AMHERST Massachusetts

AMHERST HEALTH DEPARTMENT, 70 BOLTWOOD WALK, AMHERST, MA 01002
(413) 256-4077
(413) 256-4033 ENVIRONMENTAL HEALTH SERVICES
(413) 256-4083 (FAX)

LOT 2

SUB-GRADE INSPECTION

Location: 325 LEVERETT ROAD

Property Owner: Amherst Building Co.

I certify that I have inspected the excavation to sub-grade of the proposed septic system leaching area prior placement of any fill of stone, or construction of any portion of the system.

I further certify that:

1. All 'A' and 'B' horizon soils (topsoils and subsoils) were removed in the area of the system.
2. There was no evidence of ground water in the excavation.
3. There was no evidence of "mottles" that would be in conflict with the findings of the deep hole soil profile.
4. That the excavation was accomplished to the proper depth and in conformance with the approved plans.

Mac Leay Assoc. Inc.
Designers Name

Designers Signature

102 Bridge St
Street Address

Shelburne Falls MA 01370
Town, State, Zip Code

413-625-9774
Telephone Number

7/15/05

Town of

AMHERST Massachusetts

AMHERST HEALTH DEPARTMENT, 70 BOLTWOOD WALK, AMHERST, MA 01002
(413) 256-4077
(413) 256-4033 ENVIRONMENTAL HEALTH SERVICES
(413) 256-4053 (FAX)

LOT 2

SUB-GRADE INSPECTION

Location: LEVERETT ROAD

Property Owner: Amherst Building Co.

I certify that I have inspected the excavation to sub-grade of the proposed septic system leaching area prior placement of any fill of stone, or construction of any portion of the system.

I further certify that:

1. All 'A' and 'B' horizon soils (topsoils and subsoils) were removed in the area of the system.
2. There was no evidence of ground water in the excavation.
3. There was no evidence of "mottles" that would be in conflict with the findings of the deep hole soil profile.
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MacLeay Assoc. Inc.
Designers Name

Designers Signature

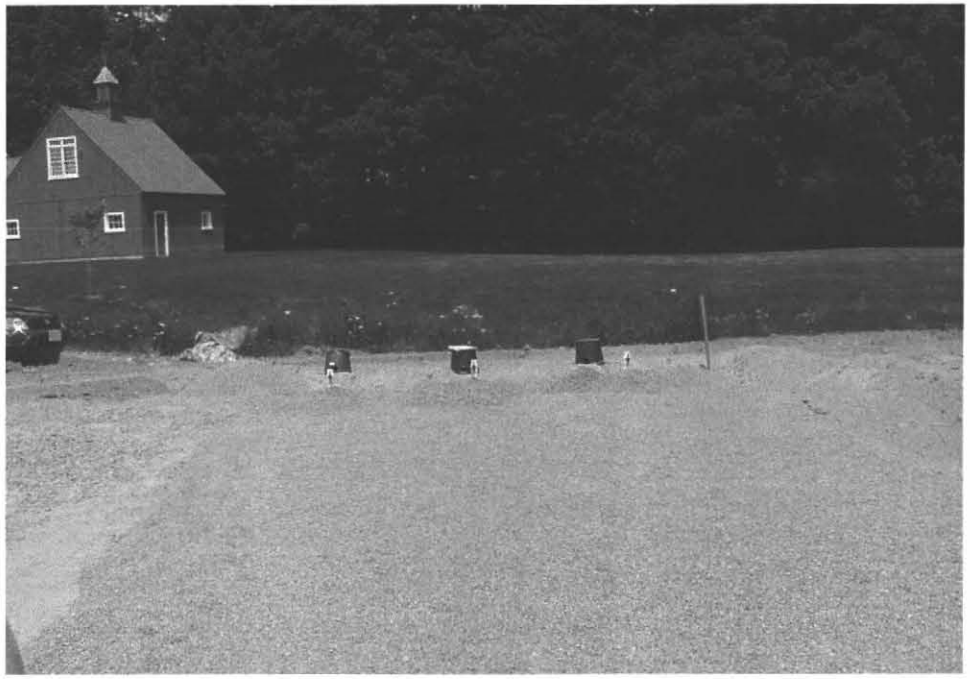
102 Bridge St
Street Address

Shelburne Falls MA 01370
Town, State, Zip Code

413-625-9774
Telephone Number

7/15/05

will be Turned TO
Meet Code (upside down)



FORM 1-APPLICATION FOR DSCP

No 05-04

Fee 100.00 Amus
chk # 11258

Commonwealth of Massachusetts

AMHERST, Massachusetts

Application for Disposal System Construction Permit

Application is hereby made for a Permit to Construct (X) or Repair () an On-site Sewage Disposal system at:

Location Address or Lot No.	Owner's Name, Address and Tel. #
LOT 2, 325 LEVERETT ROAD	AMHERST BUILDING CO 25 MAIN STREET NORTHAMPTON , MA 01060 413-586-5340
Installer's Name, Address, and Tel. #	**Designer's Name, Address and Tel. #**
	MacLeay Associates, Inc. 102 Bridge Street Shelburne Falls, MA 01370 (413) 625-9774

Type of Building:

Dwelling No. of Bedrooms 4 Garbage Grinder NO

Other Type of Building _____ No. of Persons _____ Showers__ Cafeteria_____
Other Fixtures _____

Design Flow 440 gallons per day. Calculated daily flow 448 gallons
Plan Date 03/04/05 Number of Sheets ONE Revision Date NONE
Title SUBSURFACE SEWAGE DISPOSAL PLAN IN AMHERST, MASS FOR LOT 2(325) LEVERETT ROAD.

Description of Soil SANDY LOAM SEE PLAN FOR DETAILED TEST PIT DESCRIPTIONS, SEASONAL HIGH GROUNDWATER AT 36" PERC RATE 24 MIN./INCH, . WITNESSED BY DAVID ZAROZINSKI

Nature of Repairs or Alterations (Answer when applicable)INSTALL SEPTIC TANK, PUMP CHAMBER AND LEACH FIELD .

Date last inspected: _____

-*Agreement:

The undersigned agrees to ensure the construction and maintenance of the aforedescribed on-site sewage disposal system in accordance with the provisions of Title 5 of the Environmental Code and not to place the system in operation until a Certificate of Compliance has been issued by this Board of Health.

Signed [signature] Date 3/23/05

Application Approved by [signature] Date 3/23/05 (23)

Application Disapproved for the following reasons_____

Permit No. 05-04 Date Issued 3/23/05 (23)

Commonwealth of Massachusetts

AMHERST, Massachusetts

Certificate of Compliance

This is to Certify, that the On-site Sewage Disposal System installed (**X**) or repaired/replaced () on _____ by L & F CONSTRUCTION for **AMHERST BUILDING CO** at **LOT 3, 325 LEVERETT ROAD**

has been constructed in accordance with the provisions of Title 5 and the for Disposal System Construction Permit No. 05-04 dated 3/4/05 Use of this system is conditioned on compliance with the provisions set forth below:

_____

_____

_____

_____

The issuance of this certificate shall not be construed as a guarantee that the system will function as designed. The Certificate expires on

_____

Date _____ Inspector _____

Commonwealth of Massachusetts

AMHERST, Massachusetts

Disposal System Construction Permit

No. 05-04

Permission is hereby granted to **AMHERST BUILDING CO.** to construct (**X**) or repair () an On-site Sewage System located at
325 **LOT 3 LEVERETT ROAD**

and as described in the above Application for Disposal System Construction Permit. The applicant recognizes his/her duty to comply with Title 5 and the following local provisions or special conditions.

All construction must be completed within two years of the date below.

Date 3/23/05

Approved by David Pacuzinski for Amherst Health Dept

FORM 1-APPLICATION FOR DSCP

No 05-04

Fee 100.00 Plans ck# 11258

Commonwealth of Massachusetts

AMHERST, Massachusetts

Application for Disposal System Construction Permit

Application is hereby made for a Permit to Construct (X) or Repair () an On-site Sewage Disposal system at:

Location Address or Lot No.	Owner's Name, Address and Tel. #
LOT 2, 325 LEVERETT ROAD	AMHERST BUILDING CO 25 MAIN STREET NORTHAMPTON , MA 01060 413-586-5340
Installer's Name, Address, and Tel. #	**Designer's Name, Address and Tel. #**
	MacLeay Associates, Inc. 102 Bridge Street Shelburne Falls, MA 01370 (413) 625-9774

Type of Building:

Dwelling No. of Bedrooms 4 Garbage Grinder NO

Other Type of Building _____ No. of Persons _____ Showers__ Cafeteria_____
Other Fixtures _____

Design Flow 440 gallons per day. Calculated daily flow 448 gallons
Plan Date 03/04/05 Number of Sheets ONE Revision Date NONE
Title SUBSURFACE SEWAGE DISPOSAL PLAN IN AMHERST, MASS FOR LOT 2(325) LEVERETT ROAD.

Description of Soil SANDY LOAM SEE PLAN FOR DETAILED TEST PIT DESCRIPTIONS, SEASONAL HIGH GROUNDWATER AT 36" PERC RATE 24 MIN./INCH, . WITNESSED BY DAVID ZAROZINSKI

Nature of Repairs or Alterations (Answer when applicable)INSTALL SEPTIC TANK, PUMP CHAMBER AND LEACH FIELD .

Date last inspected: _____

-*Agreement:

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Signed [signature] Date 3/23/05

Application Approved by [signature] Date 3/23/05

Application Disapproved for the following reasons_____

Permit No. 05-04 Date Issued 3/23/05.

Commonwealth of Massachusetts

AMHERST, Massachusetts

Certificate of Compliance

This is to Certify, that the On-site Sewage Disposal System installed (**X**) or repaired/replaced () on _____ by L & F CONSTRUCTION for **AMHERST BUILDING CO** at **LOT 3, 325 LEVERETT ROAD**

has been constructed in accordance with the provisions of Title 5 and the for Disposal System Construction Permit No. 05 - 04 dated 3/4/05 Use of this system is conditioned on compliance with the provisions set forth below:

The issuance of this certificate shall not be construed as a guarantee that the system will function as designed. The Certificate expires on _____

Date 7/21/05 Inspector _____

Commonwealth of Massachusetts

AMHERST, Massachusetts

Disposal System Construction Permit

No. 05-04

Permission is hereby granted to **AMHERST BUILDING CO.** to construct (**X**) or repair () an On-site Sewage System located at
325 **LOT 3 LEVERETT ROAD**

and as described in the above Application for Disposal System Construction Permit. The applicant recognizes his/her duty to comply with Title 5 and the following local provisions or special conditions.

All construction must be completed within two years of the date below.

Date 3/23/05

Approved by David Jaworski for Director Health Agent

pit

Holes 61+62

Stowell Prop

FORM 11: Soil Evaluation Form NO: _____

Commonwealth of Massachusetts
Town of _____

Soil Suitability Assessment : On-Site Sewage Disposal

Performed By: Christian Boysen Date: 12/5/01
Witnessed By: David Zabawski

Location Address of: Lot #	Owner's Name: Stowell Prop Address of: Leonard Road Telephone:
New Construction ☑ Repair ☐	

Office Review

Published Soil Survey Available? No ☐ Yes ☐
Year Published _____ Publication Scale _____ Soil Map Unit _____
Drainage Class _____ Soil Limitations _____

Surficial Geologic Report Available? No ☐ Yes ☐
Year Published _____ Publication Scale _____
Geologic Material (map unit) _____
Landform _____

Flood Insurance Rate Map:
Above 500 year flood boundary? No ☐ Yes ☐
Within 500 year flood boundary? No ☐ Yes ☐
Within 100 year flood boundary? No ☐ Yes ☐

Wetland Area:
National Wetland Inventory Map (map unit) _____
Wetlands Conservancy Program Map (map unit) _____

Current Water Resource Conditions (USGS): month _____
Range: Above Normal ☐ Normal ☐ Below Normal ☐

Other Reference Reviewed:

Determination: Seasonal High Water Table

Methods Used:

☐ Depth observed standing in observation hole _____ inches
☐ Depth weeping from side of observation hole _____ inches
☐ Depth to soil mottles _____ inches
☐ Ground water adjustment _____ feet

Index Well No. _____ Reading Date _____ Index Well Level _____
Adjustment factor _____ Adjusted ground water level _____

Depth of Naturally Occurring Previous Material

Does at least four feed of naturally occurring previous materials exist in all areas observed throughout the area proposed for this soil absorption system? _____

If not, what is the depth of naturally occurring previous material?
_____

Certification

I certify that on _____ (date) I have passed the soil evaluator examination approved by the Department of Environmental Protection and that the above analysis was performed by me consistent with the required training, expertise, and experience described in 310 CMR 15.017.

Signature _____
Date _____

Stowell Prop.

On-Site Review

Deep Hole Number 61 Date: 12/5/01 Time 1:00
Weather Sunny 60
Location (identify on site plan)
Land Use Field Slope (%) 3
Surface Stone —
Vegetation: Grasses

Landform: Till Terrace

Position on Landscape (sketch on back)
Distances from:
Open Water Body 200 feet Drainageway 150 feet
Possible Wet Ares 100 feet Property Line 206 feet
Drinking Water Well 200 feet Other Side To Be Divided

DEEP OBSERVATION HOLE LOG

depth from surface (inches)	soil horizon	soil texture (USDA)	soil color (Munsel)	soil mottling	other (structure, stones, boulders) Consistency, % gravel
8	Ap	FSL	10YR 3/2	—	Loose Crumb Many Fine roots
24	Bw	FSL	10YR 5/6	—	Massive friable 10%
112	C	FSL	2.5Y 4/3	36" 5% 7.5YR 6/6	Massive friable 20 gravel stones occ. Sandy layers

Parent Material (geologic) Abbatoir
Depth to Bedrock 112
Depth to Groundwater :
Standing Water in the Hole —
Weeping from Pit Face —
Estimated Seasonal High Water 36"

On-Site Review

Deep Hole Number 62 Date: 12/5/01 Time 1:00
Weather
Location (identify on site plan)
Land Use Slope (%)
Surface Stone
Vegetation: Same

Landform:

Position on Landscape (sketch on back)
Distances from:
Open Water Body feet Drainageway feet
Possible Wet Ares feet Property Line feet
Drinking Water Well feet Other

DEEP OBSERVATION HOLE LOG

depth from surface (inches)	soil horizon	soil texture (USDA)	soil color (Munsel)	soil mottling	other (structure, stones, boulders) Consistency, % gravel
8	Ap	FSL	10YR 3/2	—	Same as hole 61
26	Bw	FSL	10YR 5/6	—	
114	C	FSL	2.5Y 4/3	36 5% 10YR 4/6	

Parent Material (geologic) Abbatoir Till
Depth to Bedrock 114
Depth to Groundwater :
Standing Water in the Hole —
Weeping from Pit Face —
Estimated Seasonal High Water 36"

Stowell prop.

FORM 12: Percolation Test
Location Adrress or Lot # 61 + 62 Lovewell Rd

Commonwealth of Massachusetts
Town of Ashburnham

PERCOLATION TEST *		
DATE: 12/5/01	TIME:	
Observation Hole #	61	62
Depth of Perc	46"	42"
Start Pre-soak	1:12	1:28
End Pre-soak	1:28	1:43
Time at 12"	1:28	1:43
Time at 9"	2:03	2:16
Time at 6"	3:13	3:17
Time (9"-6")	70	61
Rate Min./Inch	24	22

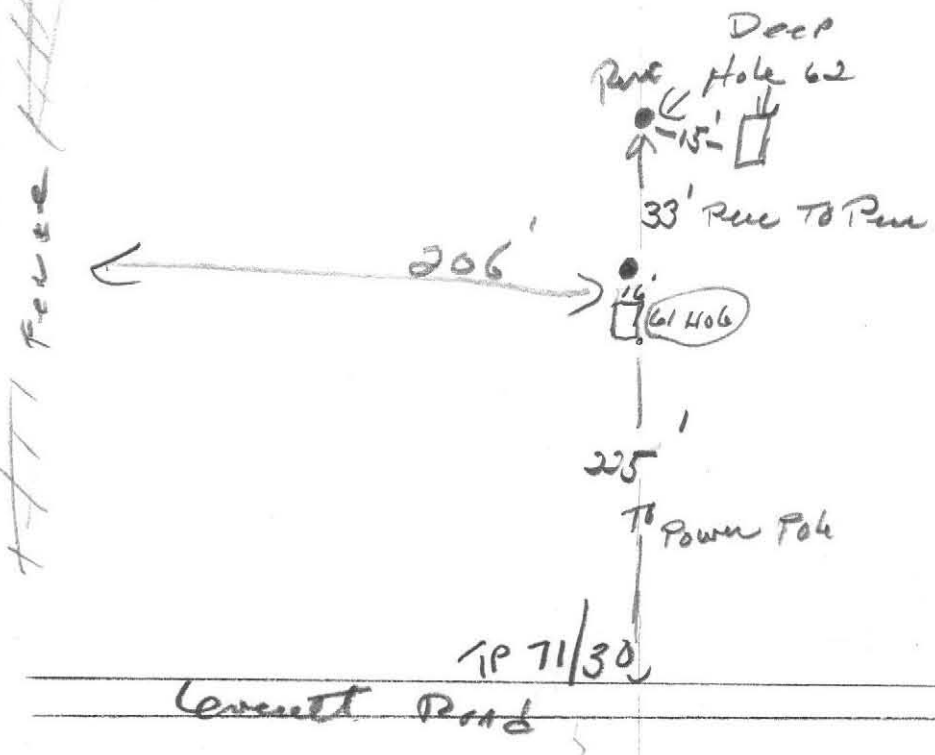
*Minimum of one percolation test must be performed in both the primary area and reserve area.

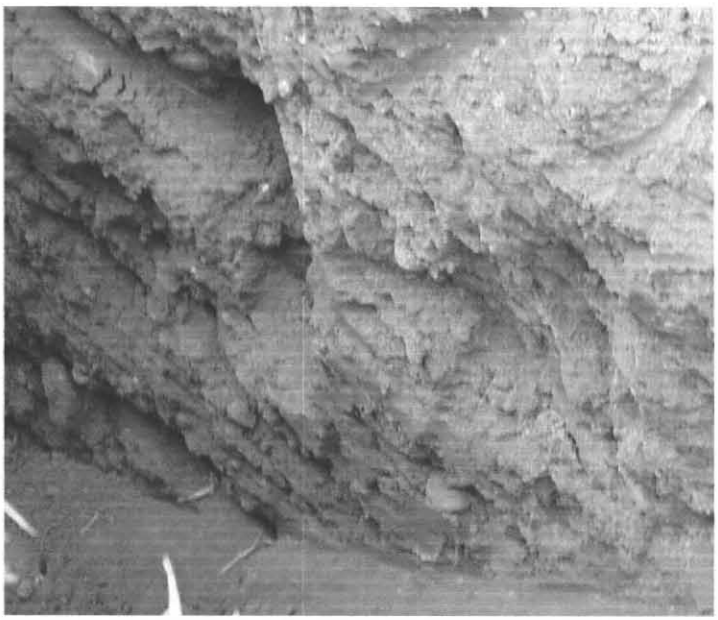
Site Passed ☑ Site failed ☐

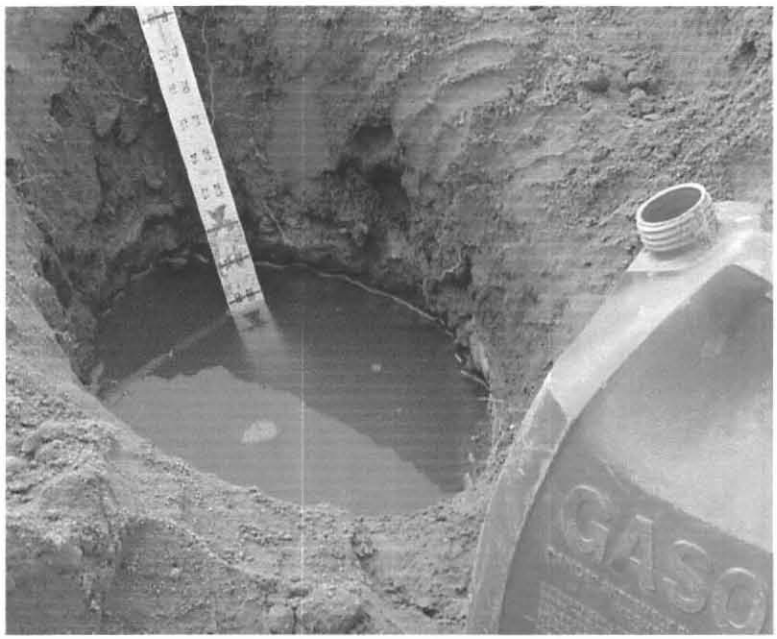
Performed by Christine Boyson

Witnessed by David Zmarowski

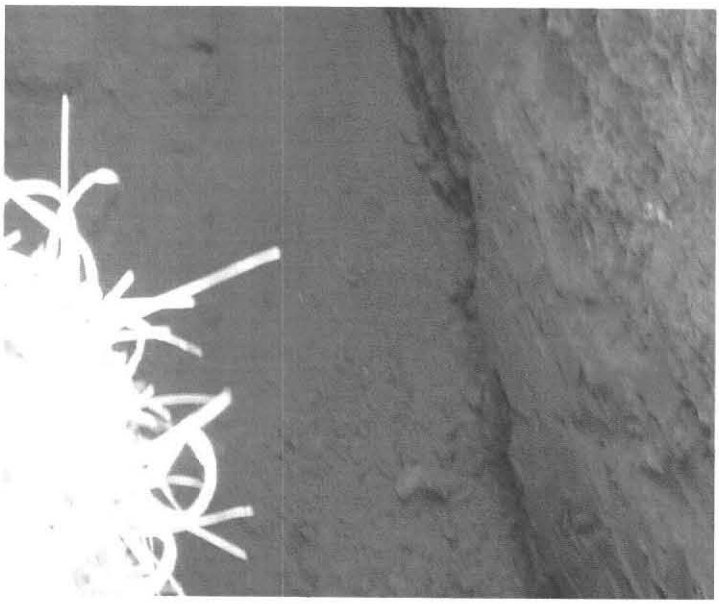
Comments:







Stowall Property Leverett Road Hole #61
Engineer: Christian Boysen



Stowall Property Leverett Road Hole #62
Engineer: Christian Boysen

AMHERST HEALTH DEPT.
TOWN OF AMHERST
HEALTH PERMITS

1434

Received of Amherst Building Co LLC (Name) of 25 Main St Suite 445 Northampton MA 01060 586-5340 (Address)

For Property Located at: 305 Lowell Rd (Lot 2) (Street Address) Amherst Building Co LLC (Owner)

HEA009	Bakery R6510 443509		HEA016	Septic Tank Permit-Installers R6510 443511	
HEA001	Bed & Breakfast R6510 443516		HEA017	Septic Tank Permit-Private R6510 443510	100.00
HEA002	Catering License R6510 443507		HEA018	Septic Tank Reinspection Fee R6510 432301	
HEA003	Food Handler R6510 443515		HEA019	Sub-Division Review Fee R6510 432306	
HEA004	Frozen Deserts R6510 443501		HEA012	Swimming Pool Permits R6510 443512	
HEA005	Health Dept. Housing Isp. R6510 432302		HEA020	Tanning License R6510 443509	
HEA006	Massage Therapy License R6510 443504		HEA034	Immunization Clinic R6510 432307	
HEA008	Motel License R6510 443506		HEA026	Smoking & Tobacco Reg. Violations R6510 443518	
HEA010	Removal of Offal R6510 443513		HEA022	Tobacco License R6510 443505	
HEA021	Removal of Rubbish R6510 443520		HEA042	Body Arts / Tatoo R6510 443521	
HEA011	Percolation Test Fees R6510 432300		HEA043	Food Service Plan Review R6510 432308	
HEA013	Recreation Camp License R6510 443503		HEA044	Porta Potties R6510 432309	
HEA014	Retail Store Permit R6510 443514		HEA045	Ice Rinks R6510 443522	
HEA015	Sanitary Code Booklets R6510 432305		HEA046	Rental Registration R6510 432310	
			HEA047	Fines R6510 48200	
			HEA		
			HEA		

TOTAL FEE: 100.00

Sand Receipts to Town Clerk

Amherst Health Department

3/23/05

Date

OFFICE USE ONLY

CHECK #	CASH

T1146

TOWN OF AMHERST
MISC CASH RECEIPTS
Date / Time : 03/23/05 15:29
Payment : $100.00
Receipt # : 174081
Check/Credit Card #: 11258
Paid by : AMHERST BUILDING

Must be Validated by the Collector's Office to be considered paid

WHITE – Applicant YELLOW – Collector PINK – Accounting GOLD – Health / Inspections

AMHERST HEALTH DEPT.
TOWN OF AMHERST
HEALTH PERMITS

1434

Received of Amherst Building Co LLC (Name) of 25 Main St Suite 445 Northampton MA 01060 586-5340 (Address)

For Property Located at: 305 Lowell Rd (Lot 2) (Street Address) Amherst Building Co LLC (Owner)

HEA009	Bakery R6510 443509		HEA016	Septic Tank Permit-Installers R6510 443511	
HEA001	Bed & Breakfast R6510 443516		HEA017	Septic Tank Permit-Private R6510 443510	100.00
HEA002	Catering License R6510 443507		HEA018	Septic Tank Reinspection Fee R6510 432301	
HEA003	Food Handler R6510 443515		HEA019	Sub-Division Review Fee R6510 432306	
HEA004	Frozen Deserts R6510 443501		HEA012	Swimming Pool Permits R6510 443512	
HEA005	Health Dept. Housing Isp. R6510 432302		HEA020	Tanning License R6510 443509	
HEA006	Massage Therapy License R6510 443504		HEA034	Immunization Clinic R6510 432307	
HEA008	Motel License R6510 443506		HEA026	Smoking & Tobacco Reg. Violations R6510 443518	
HEA010	Removal of Offal R6510 443513		HEA022	Tobacco License R6510 443505	
HEA021	Removal of Rubbish R6510 443520		HEA042	Body Arts / Tatoo R6510 443521	
HEA011	Percolation Test Fees R6510 432300		HEA043	Food Service Plan Review R6510 432308	
HEA013	Recreation Camp License R6510 443503		HEA044	Porta Potties R6510 432309	
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HEA015	Sanitary Code Booklets R6510 432305		HEA046	Rental Registration R6510 432310	
			HEA047	Fines R6510 48200	
			HEA		
			HEA		

TOTAL FEE: 100.00

Amherst Health Department — Date 3/23/05

Must be Validated by the Collector's Office to be considered paid

OFFICE USE ONLY

CHECK #	CASH

T1146

TOWN OF AMHERST
MISC CASH RECEIPTS
Date / Time : 03/23/05 15:29
Payment : $100.00
Receipt # : 174081
Check/Credit Card #: 11258
Paid by : AMHERST BUILDING

WHITE – Applicant YELLOW – Collector PINK – Accounting GOLD – Health / Inspections

Property Location: 325 LEVERETT RD
Vision ID: 100693

MAP ID: 3A/ / 94/ /
Other ID: LOT 2

Bldg #: 1 **Card** 1 **of** 1 **Print Date:** 08/17/2005 14:05

CURRENT OWNER

AMHERST BUILDING COMPANY LLC
C/O DACKO, MARNIE S
34 BERKSHIRE TERR
AMHERST, MA 01002

TOPO.	UTILITIES	STRT./ROAD	LOCATION

SUPPLEMENTAL DATA

Account #
Calc Frontag 150
Owner Occupi
Precinct
School

GIS ID: 3A-94

CURRENT ASSESSMENT

Description	Code	Appraised Value	Assessed Value
RES LAND	1010	108,700	108,700
RESIDNTL	1010	4,000	4,000
Total		112,700	112,700

601
AMHERST, MA

VISION

RECORD OF OWNERSHIP

	BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.
DACKO, MARNIE S	8230/ 128	04/20/2005	Q	V	125,000	00
AMHERST BUILDING COMPANY LLC	7095/ 253	03/14/2003				1G

PREVIOUS ASSESSMENTS (HISTORY)

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
2005	1300	108,700	2004	1300	79,800			
Total:		108,700	Total:		79,800	Total:		

EXEMPTIONS

Year	Type/Description		Amount
2006	NO	NOT OWNER OCCUP	0
		Total:	0

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm. Int.

This signature acknowledges a visit by a Data Collector or Assessor

NOTES

NEW PARCEL FY 04 OUT OF
3A-2 DWB 04/08/03
HOUSE AT 30% ON 6/30/05
DWB

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	0
Appraised XF (B) Value (Bldg)	4,000
Appraised OB (L) Value (Bldg)	0
Appraised Land Value (Bldg)	108,700
Special Land Value	
Total Appraised Card Value	112,700
Total Appraised Parcel Value	112,700
Valuation Method:	Cost/Market Valuation
Net Total Appraised Parcel Value	**112,700**

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments
PLM05-320	6/10/2005	PL	Plumbing	0				4 WTR CLST,5LAV,2TI
BLD05-796	6/3/2005	NC	New Construct	363,000				SFD,4BDRM,BONUS RI
ELE05-1002	5/10/2005	EL	Electric	0				WIRE NEW SFD
BLD05-616	3/30/2005	NC	New Construct	12,000				FOUNDATION FOR SF

VISIT/CHANGE HISTORY

Date	ID	Cd.	Purpose/Result
7/10/2005	DB	03	Building Permit Review
6/8/2005	LT	03	Building Permit Review
4/8/2003	DB	50	New Parcel First year

LAND LINE VALUATION SECTION

B#	Use Code	Description	Zone	D	Frontage	Depth	Units		Unit Price	I. Factor	S.I.	C. Factor	Nbhd.	Adj.	Notes- Adj/Special Pricing	Adj. Unit Price	Land Value
1	1010	SINGLE FAM	RO30		150		30,000.00	SF	3.17	1.00	3	1.00	CU	1.05		3.33	99,900
1	1010	SINGLE FAM	RO31				46,424.00	SF	0.18	1.00	0	1.00	CU	1.05		0.19	8,800
						Total Card Land Units	1.75	AC	Parcel Total Land Area:			1.75 AC				Total Land Value	108,700

Property Location: 325 LEVERETT RD
Vision ID: 100693

MAP ID: 3A/ / 94/ /
Other ID: LOT 2

Bldg #: 1 **Card** 1 **of** 1 **Print Date:** 08/17/2005 14

CONSTRUCTION DETAIL

Element	Cd.	Ch.	Description
Style/ Type	44		Saltbox
Model	01		Residential
Grade	32		Grade = 160%
Stories	1.75		1 3/4 Stories
Occupancy	01		
Exterior Wall 1	11		Clapboard
2			
Roof Structure	05		Salt Box
Roof Cover	03		Asph/F Gls/Cmp
Interior Wall 1	05		Drywall/Sheet
2			
Interior Floor 1	12		Hardwood
2			
Heating Fuel	02		Oil
Heating Type	04		Forced Air-Duc
AC Type	03		Central
Bedrooms	04		4 Bedrooms
Bathrooms	4		4 Bathrooms
	04		Concrete
Total Rooms	12		12 Rooms
Bath Type	02		Modern
Kitchen Style	02		Modern

Commercial Data Elements

Element	Cd.	Ch.	Description
Heat & AC			
Frame Type			
Baths/Plumbing			
Ceiling/Wall			
Rooms/Prtns			
% Common Wall			
Wall Height			

CONDO/MOBILE HOME DATA

Element	Code	Description	Factor
Complex			
Floor Adj			
Unit Location			
Number of Units			
Number of Levels			
% Ownership			

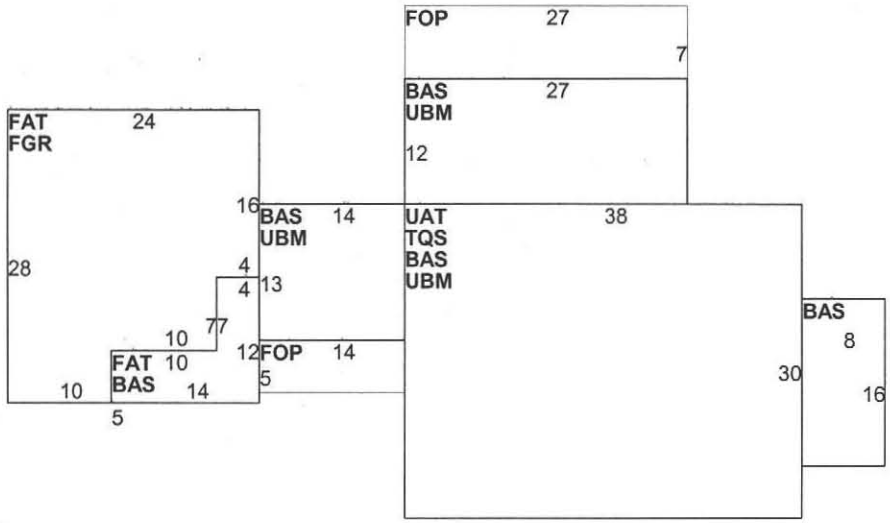
COST/MARKET VALUATION

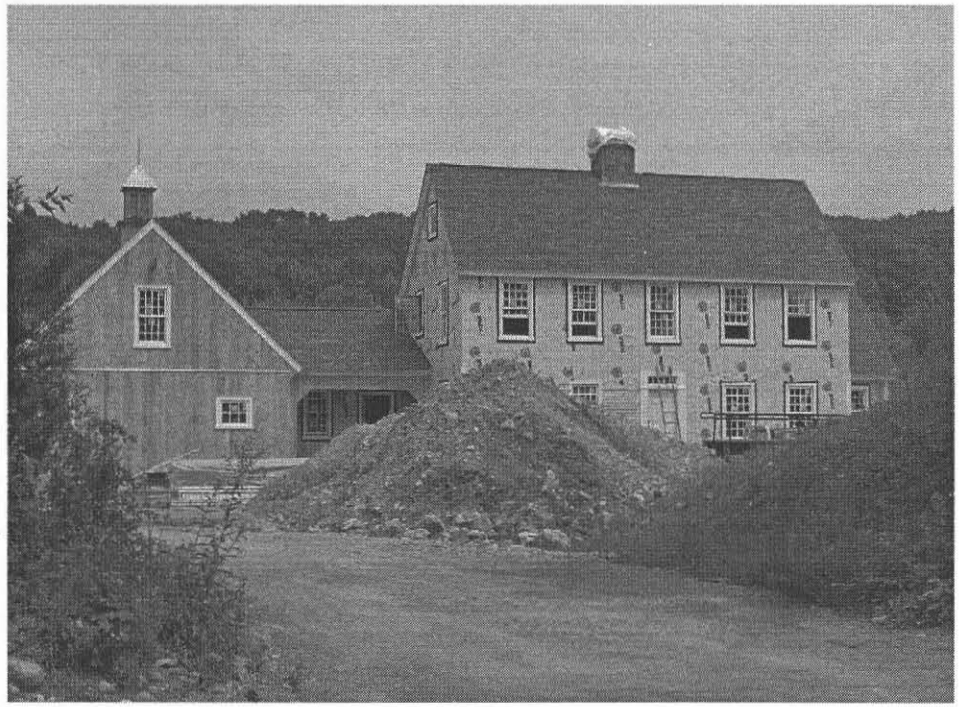
Unadj. Base Rate	69.00
Size Adj. Factor	0.85414
Grade (Q) Index	1.73
Adj. Base Rate	101.96
Bldg. Value New	384,593
Year Built	2005
Eff. Year Built	(EX) 2004
Nrml Physcl Dep	0
Funcnl Obslnc	0
Econ Obslnc	0
Specl. Cond. Code	UC
Specl Cond %	0
Overall % Cond.	0
Deprec. Bldg Value	0

MIXED USE

Code	Description	Percentage
1010	SINGLE FAM	100

SKETCH





OB-OUTBUILDING & YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)

Code	Description	L/B	Units	Unit Price	Yr.	Dp Rt	%Cnd	Apr. Value
FPL3	FIREPLACE 2 ST	B	1	4,000.00	2004	1	100	4,000

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprec. Value
BAS	First Floor	1,872	1,872	1,872	101.96	190,869
FAT	Attic, Finished	235	672	235	35.66	23,961
FGR	Garage, Finished	0	574	258	45.83	26,306
FOP	Porch, Open, Finished	0	259	52	20.47	5,302
TQS	Three Quarter Story	912	1,140	912	81.57	92,988
UAT	Attic, Unfinished	0	1,140	114	10.20	11,623
UBM	Basement, Unfinished	0	1,646	329	20.38	33,545
Ttl. Gross Liv/Lease Area		3,019	7,303	3,772	*Bldg Val:*	384,593

Property Location: 325 LEVERETT RD
Vision ID: 100693

MAP ID: 3A/ / 94/ /
Other ID: LOT 2

Bldg #: 1 **Card** 1 **of** 1 **Print Date:** 08/17/2005 14

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Roof Cover	03		Asph/F Gls/Cmp
Interior Wall 1	05		Drywall/Sheet
2			
Interior Floor 1	12		Hardwood
2			
Heating Fuel	02		Oil
Heating Type	04		Forced Air-Duc
AC Type	03		Central
Bedrooms	04		4 Bedrooms
Bathrooms	4		4 Bathrooms
	04		Concrete
Total Rooms	12		12 Rooms
Bath Type	02		Modern
Kitchen Style	02		Modern

Commercial Data Elements

Element	Cd.	Ch.	Description
Heat & AC			
Frame Type			
Baths/Plumbing			
Ceiling/Wall			
Rooms/Prtns			
% Common Wall			
Wall Height			

CONDO/MOBILE HOME DATA

Element	Code	Description	Factor
Complex			
Floor Adj			
Unit Location			
Number of Units			
Number of Levels			
% Ownership			

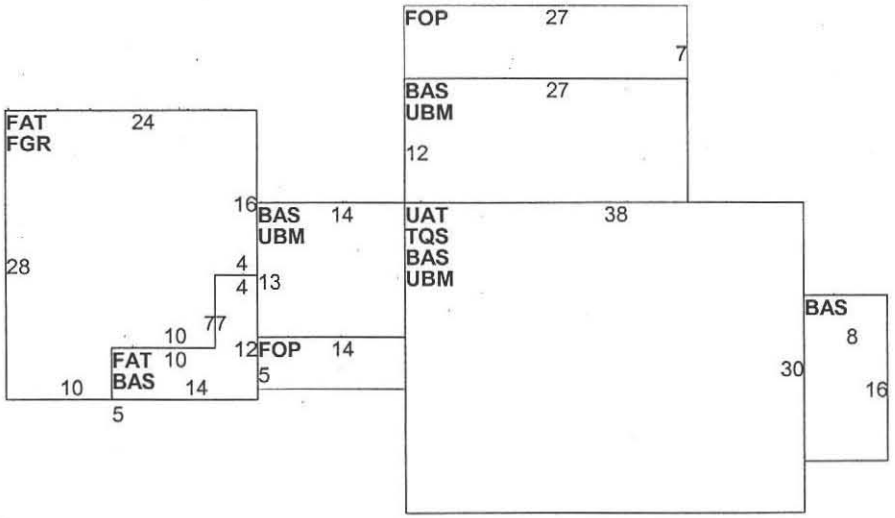
COST/MARKET VALUATION

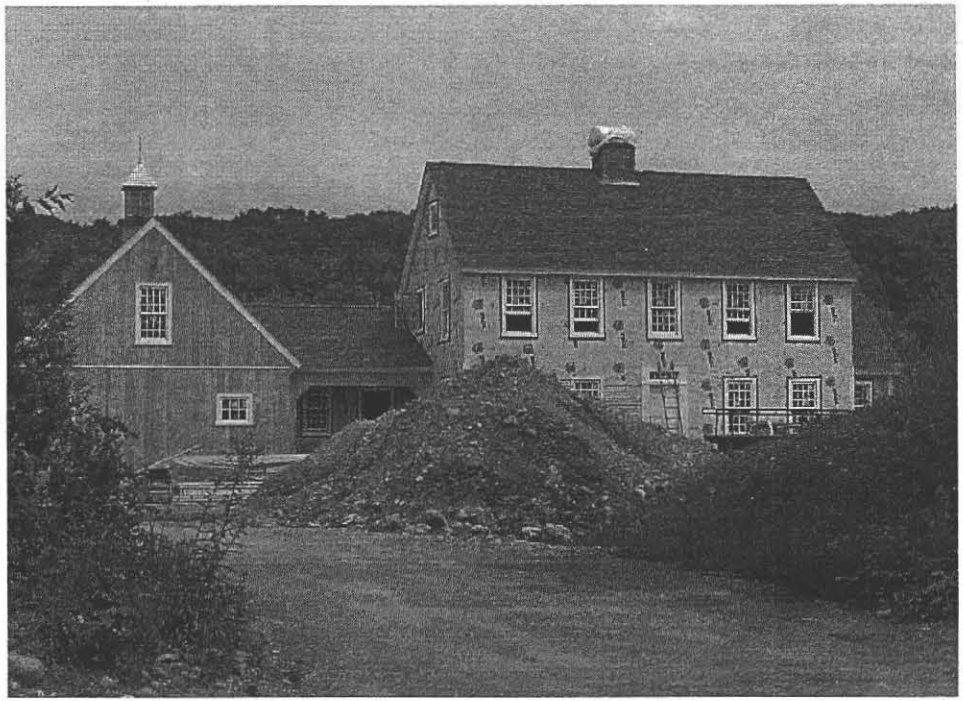
Unadj. Base Rate	69.00
Size Adj. Factor	0.85414
Grade (Q) Index	1.73
Adj. Base Rate	101.96
Bldg. Value New	384,593
Year Built	2005
Eff. Year Built	(EX) 2004
Nrml Physcl Dep	0
Funcnl Obslnc	0
Econ Obslnc	0
Specl. Cond. Code	UC
Specl Cond %	0
Overall % Cond.	0
Deprec. Bldg Value	0

MIXED USE

Code	Description	Percentage
1010	SINGLE FAM	100

SKETCH





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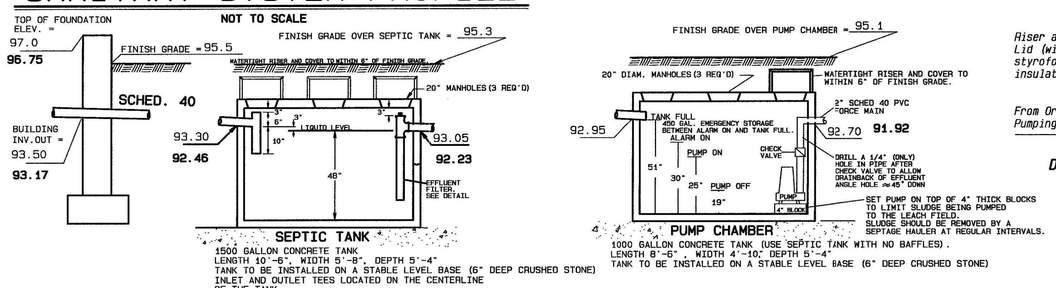
Ttl. Gross Liv/Lease Area		3,019	7,303	3,772	Bldg Val:	384,593

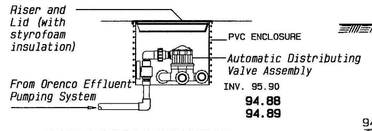
SANITARY SYSTEM PROFILE

NOT TO SCALE

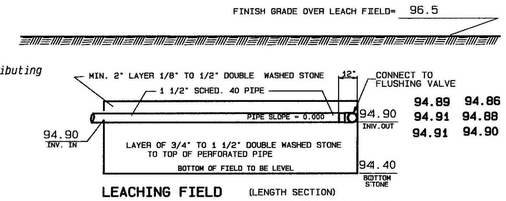


1500 GALLON CONCRETE TANK
LENGTH 10'-6", WIDTH 5'-8", DEPTH 5'-4"
TANK TO BE INSTALLED ON A STABLE LEVEL BASE (6" DEEP CRUSHED STONE)
INLET AND OUTLET TEES LOCATED ON THE CENTERLINE OF THE TANK.

1000 GALLON CONCRETE TANK (USE SEPTIC TANK WITH NO BAFFLES).
LENGTH 8'-6", WIDTH 4'-10" DEPTH 5'-4"
TANK TO BE INSTALLED ON A STABLE LEVEL BASE (6" DEEP CRUSHED STONE)

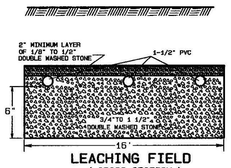


DISTRIBUTING VALVE DETAIL
n.t.s.
#4402
AVAILABLE FROM WASTEWATER TECHNOLOGIES, INC.
18 PRECAST ROAD, WILTON, VT. 05488
(877) 212-3219



LEACHING FIELD (LENGTH SECTION)

GROUND WATER ELEV. ASSUMED AT 36" BELOW GRIADE BASED ON THE ESHWT IN TP # 61 & 62.



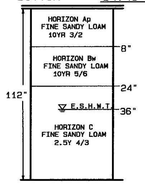
LEACHING FIELD
(CROSS SECTION)
AT INVERT OUT

TEST PIT DATA

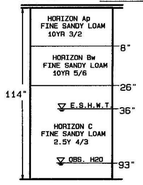
BOARD OF HEALTH WITNESS: DAVE ZAROZINSKI
DATE: DECEMBER 5, 2001
SOIL EVALUATOR: CHRISTIAN BOYSEN

PERC TEST ID	PERC RATE (MIN/IN)	PERC DEPTH (IN)
61	24	46
62	22	42

DEEP HOLE # 61
ELEV. TOP = 93.79
ESHWT = 90.79
OBS. H20 = NONE
BOTTOM = 84.46



DEEP HOLE # 62
ELEV. TOP = 91.71
ESHWT = 88.71
OBS. H20 = 83.96
BOTTOM = 82.21



NOTES:
1. THIS PLAN IS FOR THE CONSTRUCTION OF A NEW SEPTIC SYSTEM
2. REMOVE TOPSOIL & SUBSOIL BENEATH THE LEACH FIELD AND TO 5' ON ALL SIDES OF THE FIELD. REPLACE WITH FILL MATERIAL MEETING THE SPECIFICATIONS OF 310 CMR 15.255(3). (TITLE 5, 310 CMR 15.255(5).)
3. PUMP AND ALARM TO BE ON SEPARATE CIRCUITS. (TITLE 5, CMR REG. 15.05(5))
4. TITLE 5 REQUIRES OBSERVATION OF THE INSTALLED SYSTEM BY THE DESIGN ENGINEER AND A BOARD OF HEALTH MEMBER OR AGENT FOR THE BOARD OF HEALTH. THE SYSTEM MUST NOT BE BACKFILLED PRIOR TO OUR OBSERVATION. CONTACT OUR OFFICE AND THE BOARD OF HEALTH TWO BUSINESS DAYS BEFORE REQUESTED DATE FOR OBSERVATION.
5. ALL DISTURBED AREAS SHOULD BE LOAMED, RAKED, FERTILIZED, SEEDED AND MULCHED AT THE COMPLETION OF CONSTRUCTION.
6. LEVEL SWITCHES ARE TO BE MOUNTED ON THE SPECIFIED STAINLESS STEEL SWITCH BRACKET OR APPROVED EQUAL. THEY ARE TO BE MOUNTED AWAY FROM THE PUMP INLET.

WETLANDS PROTECTION NOTE:
FILING UNDER THE WETLANDS PROTECTION ACT MAY BE REQUIRED FOR THIS PROJECT. THE AMHERST CONSERVATION COMMISSION SHOULD BE CONTACTED FOR A DETERMINATION.

PROPERTY LINE REFERENCE:
PROPERTY LINES AS SHOWN ARE BASED ON A PLAN OF LAND IN AMHERST, MASSACHUSETTS, PREPARED FOR NORTHAMPTON ASSOCIATES, INC. PREPARED BY H.L. EATON ASSOC. DATED FEBRUARY 20, 2003, H.C. REG. OF DEEDS PAGE 195, PAGE 111.

PUMP CHAMBER COMPONENTS SPECIFICATIONS

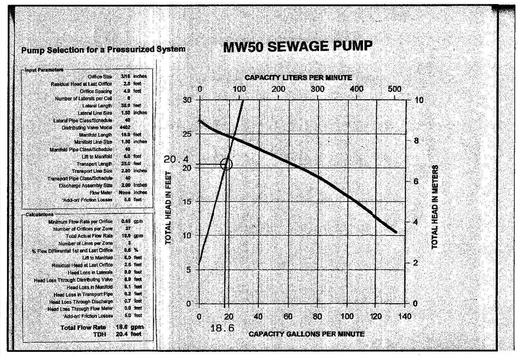
ALL COMPONENTS ARE TO BE AS SPECIFIED OR AN APPROVED EQUAL.

1. 1- MEYERS #WH50, 1/2 HP, SEWAGE PUMP (USE MOST EFFICIENT VOLTAGE AT SITE) (CAPABLE OF PASSING 2" SOLIDS)
2. 1- WATEGUARD S-12 CONTROL PANEL
3. 1- TA-101 HIGH WATER ALARM COMPLETE WITH LEVEL SWITCH
4. 1- SJBS-7 WATER PROOF JUNCTION BOX
5. 2- 2900-25 CONNERY LEVEL SWITCHES
6. 1- 100-4 LEVEL SWITCH BRACKET
7. 1- CHECK VALVE (PVC OR BRONZE)

ALL COMPONENTS LISTED ABOVE AVAILABLE AT:
BLAKE PUMP COMPANY
ADAMS ROAD, GREENFIELD, MA 01301
(413) 773-3683

8. PUMP CHAMBER TO BE 1000 GAL. SEPTIC TANK
9. PUMP ON/OFF LIQUID LEVEL CONTROLS TO BE SET TO PUMP DOWN 6 INCHES TO GIVE A 126.5 GAL. DOSE: 4 GAL. TO FILL FORCE MAIN 124.5 GAL. DOSE TO LEACH FIELD.
10. ALARM CONTROLS TO BE ON SEPARATE CIRCUIT AND SET TO SOUND WHEN LIQUID LEVEL IS 30" ABOVE FLOOR OF TANK.

DOSING FREQUENCY
REG. 15.254(1)(d): EACH ZONE IS TO BE DOSED TWICE PER DAY.
(440 GAL PER DAY / 2 DOSES PER DAY PER ZONE) / 2 ZONES = 110 GAL PER DOSE

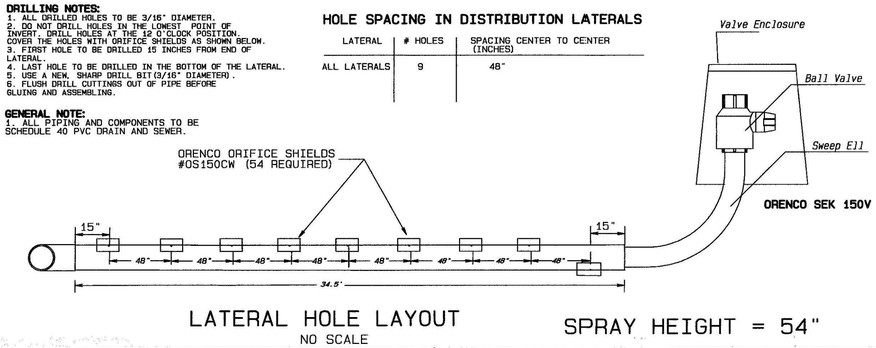


DRILLING NOTES:
1. ALL DRILLED HOLES TO BE 3/16" DIAMETER.
2. DO NOT DRILL HOLES IN THE LOWEST POINT OF INVERT. DRILL HOLES AT THE 12 O'CLOCK POSITION. COVER THE HOLES WITH ORIFICE SHIELDS AS SHOWN BELOW.
3. FIRST HOLE TO BE DRILLED 15 INCHES FROM END OF LATERAL.
4. LAST HOLE TO BE DRILLED IN THE BOTTOM OF THE LATERAL.
5. USE A NEW, SHARP DRILL BIT(3/16" DIAMETER).
6. FLUSH DRILL CUTTINGS OUT OF PIPE BEFORE GLUING AND ASSEMBLING.

GENERAL NOTE:
1. ALL PIPING AND COMPONENTS TO BE SCHEDULE 40 PVC DRAIN AND SEWER.

HOLE SPACING IN DISTRIBUTION LATERALS

LATERAL	# HOLES	SPACING CENTER TO CENTER (INCHES)
ALL LATERALS	9	48"



LATERAL HOLE LAYOUT
NO SCALE

SPRAY HEIGHT = 54"

DESIGN DATA

DESIGN BASED ON SINGLE FAMILY RESIDENCE
DESIGN FLOW 110 GALLON PER DAY PER BEDROOM (4)
TOTAL DESIGN FLOW 440 GALLON PER DAY.

SEPTIC TANK
440 GALLONS X 200% = 880 GALLONS DESIGN CAPACITY.
USE 1500 GALLON SEPTIC TANK.

LEACHING FIELD
BOTTOM:
70' LENGTH X 16' WIDTH = 1120 SQUARE FEET.
1120 SQ. FT. X .40 GAL. PER SQ.FT. = 448 GAL. LEACHING.
TOTAL LEACHING CAPACITY = 448 GALLONS PER DAY.

NOTE: PER TITLE 5, 310 CMR 15.240(6): A FIELD IS DESIGNED FOR THIS SITE DUE TO THE AREA LIMITATIONS CAUSED BY THE GROUND WATER AND PROPERTY LINES.

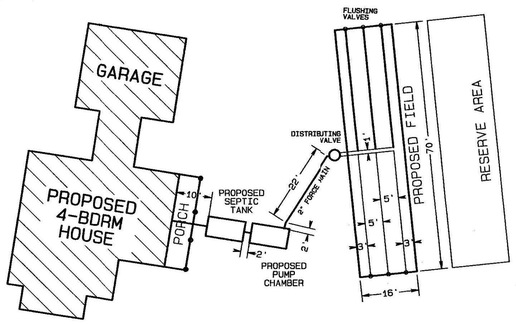
GENERAL NOTES

1. FROM HOUSE OUT TO SEPTIC TANK USE 4" SCHEDULE 40 PVC MINIMUM GRADE: 1/4 INCH PER FOOT (2%)
2. FROM SEPTIC TANK TO PUMP CHAMBER USE 4" SCHEDULE 40 PVC MINIMUM GRADE: 1/8 INCH PER FOOT (1%)
3. FROM PUMP CHAMBER TO MANIFOLD USE 2" SCHED. 40 PVC MINIMUM DRAINBACK GRADE: 1/8 INCH PER FOOT (1%)
4. 1 1/2" SCHED. 40 PVC PIPE TO BE USED IN LEACHING AREA.
5. AMHERST BOARD OF HEALTH MUST BE NOTIFIED WHEN SYSTEM IS NEARLY COMPLETE AND PRIOR TO BACKFILLING.
6. ELEVATIONS BASED ON ASSUMED DATUM
7. UNLESS OTHERWISE NOTED, ALL SYSTEM COMPONENTS SHALL BE INSTALLED IN ACCORDANCE WITH TITLE 5 OF THE STATE SANITARY CODE AND ANY APPLICABLE LOCAL RULES.
8. ANY CHANGE TO THIS PLAN MUST BE APPROVED BY THE BOARD OF HEALTH AND THE DESIGN ENGINEER.
9. THIS SYSTEM IS NOT DESIGNED FOR A GARBAGE GRINDER.

LEGEND

- 100 — EXISTING CONTOURS
- 100 — PROPOSED CONTOURS
- 4" SCHEDULE 40 PVC PIPE
- 2" SCHEDULE 40 FORCE MAIN PVC PIPE
- 1 1/2" SCHEDULE 40 PVC PIPE
- EROSION BARRIER
- EDGE OF WETLAND
- PROPERTY LINE
- AS-BUILT

ORENCO BIOTUBE EFFLUENT FILTER
MODEL # FT0436
AVAILABLE FROM WASTEWATER TECHNOLOGIES, INC.
18 PRECAST ROAD, WILTON, VT. 05488
(877) 212-3219



SYSTEM DIMENSIONS
SCALE: 1"=20'

BUOYANCY CALCULATIONS

SEPTIC TANK

ASSUMPTION:
ESTIMATED SEASONAL HIGH WATER TABLE (ESHWT) IN VICINITY OF SEPTIC TANK IS 36". TOP OF TANK IS 2 INCHES ABOVE EXISTING GRADE
EXISTING GRADE AT TANK = 94.11
ESHWT ELEVATION = 91.11

ASSUME 1500 GALLON TANK #ST1500 ATC (MFG. BY KELLOGG PRECAST CO.)
LENGTH 10'-6", WIDTH 5'-8", HEIGHT 5'-4"
WALLS 3" THICK, TOP AND BOTTOM 4" THICK.

AT TANK:
ELEV. GROUNDWATER(ESHWT) = 91.11

ELEV. TOP OF TANK = 94.90
ELEV. INVERT OUT = 93.05
ELEV. BOTTOM OF TANK = 88.97

VOLUME OF DISPLACED WATER = 10'-6"x 5'-8"x (91.11'-88.97') = 127.4 CU.FT.
WEIGHT OF DISPLACED WATER = 127.4 CU.FT.x 62.4 LB/CU.FT. = 7950 LBS.

WEIGHT OF TANK PER KELLOGG CATALOG = 10988 LBS

WEIGHT OF SOIL OVER TANK:
VOLUME OF SOIL = 10'-6"x 5'-8"x 1.00' = 59.5 CU.FT.
WEIGHT OF SOIL = 59.5 CU.FT.x 100 LBS/CU.FT.= 5950 LBS

WEIGHT OF CONCRETE BALLAST:
THERE WILL BE NO BALLAST PLACED OVER TANK.

WEIGHT OF TANK AND SOIL COVER AND CONCRETE BALLAST:
(10988 + 5950 + 0) LBS = 16938 LBS.

FACTOR OF SAFETY
16938 LBS / 7950 LBS = 2.13 - FACTOR OF SAFETY

PUMP CHAMBER

ASSUMPTION:
ESTIMATED SEASONAL HIGH WATER TABLE (ESHWT) IN VICINITY OF TANK IS 36 INCHES BELOW EXISTING GRADE
EXISTING GRADE AT TANK = 93.80
ESHWT ELEVATION = 90.80

ASSUME 1000 GALLON TANK #ST1000 A (MFG. BY KELLOGG PRECAST CO.)
LENGTH 8'-6", WIDTH 4'-10", HEIGHT 5'-4"
WALLS 3" THICK, TOP AND BOTTOM 4" THICK.

AT TANK:
ELEV. GROUNDWATER(ESHWT) = 90.80

ELEV. TOP OF TANK = 93.95
ELEV. INVERT OUT = 92.70
ELEV. BOTTOM OF TANK = 88.62

VOLUME OF DISPLACED WATER = 8'-6" x 4'-10" (90.80'-88.62') = 89.5 CU.FT.
WEIGHT OF DISPLACED WATER = 89.5 CU.FT.x 62.4 LB/CU.FT. = 5585 LBS.

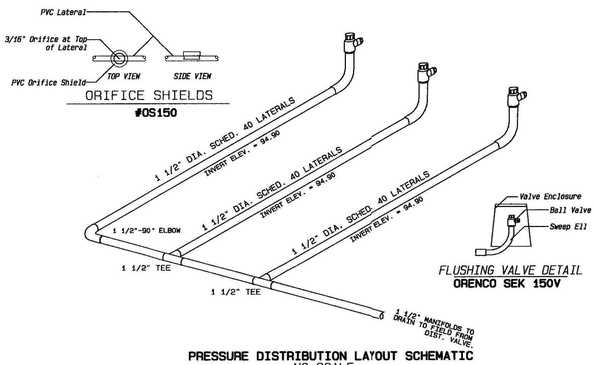
WEIGHT OF TANK PER KELLOGG CATALOG = 8280 LBS

WEIGHT OF SOIL OVER TANK:
VOLUME OF SOIL = 8'-6"x 4'-10"x 1.15' = 47.0 CU.FT.
WEIGHT OF SOIL = 47.0 CU.FT.x 100 LBS/CU.FT.= 4700 LBS

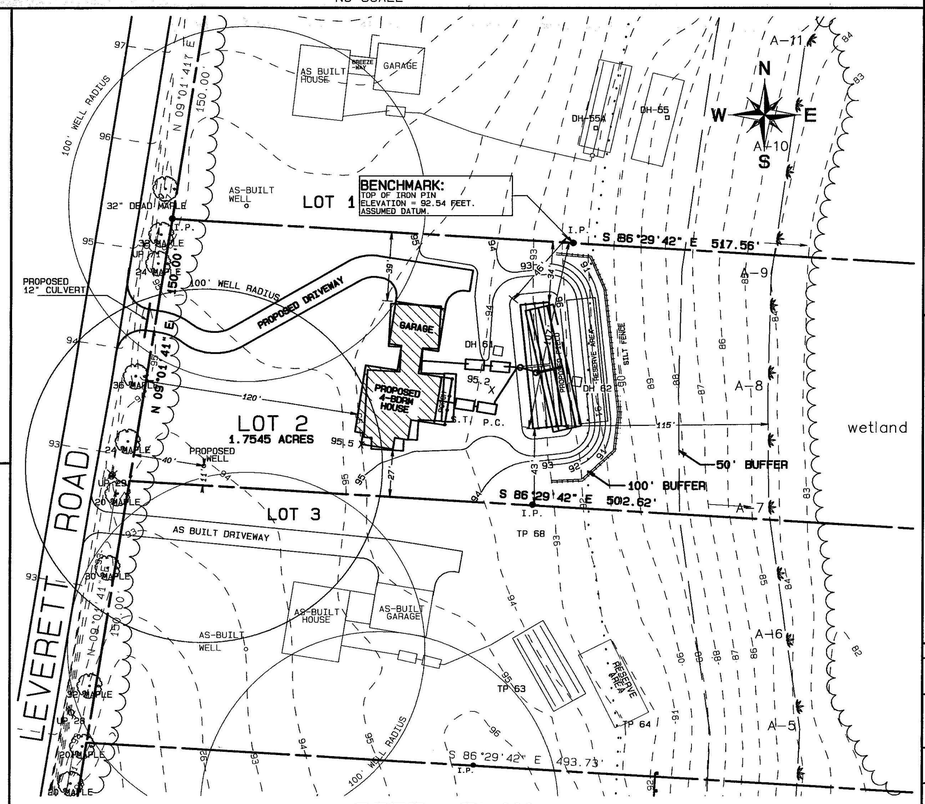
WEIGHT OF CONCRETE BALLAST:
THERE WILL BE NO BALLAST PLACED OVER TANK.

WEIGHT OF TANK AND SOIL COVER AND CONCRETE BALLAST:
(8280 + 0 + 4700) LBS = 13000 LBS.

FACTOR OF SAFETY
13000 LBS / 5585 LBS = 2.33 - FACTOR OF SAFETY



PRESSURE DISTRIBUTION LAYOUT SCHEMATIC
NO SCALE



SITE PLAN
GRAPHIC SCALE 1"=40'
0 40 80 120

AS BUILT LOCATIONS AND ELEVATIONS BASED ON A FIELD SURVEY PERFORMED BY MACLEAY ASSOCIATES DATED 7/21/05

SYSTEM INSTALLED BY:
L & F CONSTRUCTION
608 LONG PLAIN ROAD
LEVERETT, MA 01054
(413) 665-3788

SHEET NO. 1 OF 1.

REV.	DATE	BY	DESCRIPTION	APPR.
1	7/21/05	J.M.	AS BUILT	D.M.

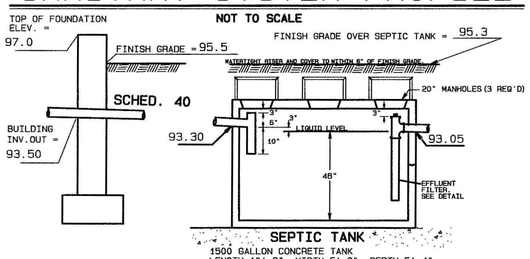
SCALE: AS SHOWN
DRN. BY: J.M.
CHECKED: D.M.
APPROVED: COMMONWEALTH OF MASSACHUSETTS DOUGLAS MACLEAY CIVIL No. 19654 REGISTERED PROFESSIONAL ENGINEER

TITLE: SUBSURFACE SEWAGE DISPOSAL PLAN IN AMHERST, MASS.
FOR: AMHERST BUILDING COMPANY, LLC 325 LEVERETT ROAD
DATE: MARCH 4, 2005
JOB NO. 2002-072-2

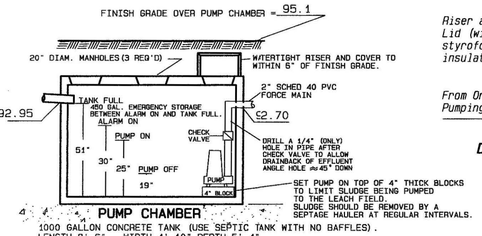
MacLeay Associates, Inc. civil engineers
102 Bridge Street, Shelburne Falls, MA 01370
phone: (413) 625-9774 fax: (413) 625-9704 email: dmacleay@comcast.net

SANITARY SYSTEM PROFILE

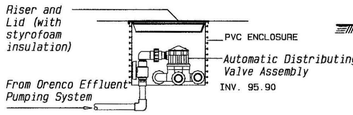
NOT TO SCALE



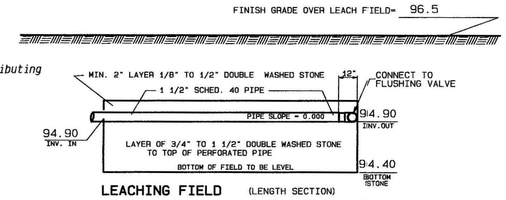
SEPTIC TANK
1500 GALLON CONCRETE TANK
LENGTH 10'-6", WIDTH 5'-8", DEPTH 5'-4"
TANK TO BE INSTALLED ON A STABLE LEVEL BASE (6" DEEP CRUSHED STONE)
INLET AND OUTLET TEES LOCATED ON THE CENTERLINE OF THE TANK.



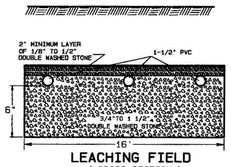
PUMP CHAMBER
1000 GALLON CONCRETE TANK (USE SEPTIC TANK WITH NO BAFFLES).
LENGTH 8'-6", WIDTH 4'-10, DEPTH 5'-4"
TANK TO BE INSTALLED ON A STABLE LEVEL BASE (6" DEEP CRUSHED STONE)



DISTRIBUTING VALVE DETAIL
n.t.s.
#4402
AVAILABLE FROM WASTEWATER TECHNOLOGIES, INC.,
18 PRECAST ROAD, MILTON, VT. 05468
(877) 212-3219



LEACHING FIELD (LENGTH SECTION)
GROUND WATER ELEV. ASSUMED AT 36" BELOW GRADE BASED ON THE ESHWT IN TP # 61 & 62



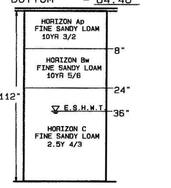
LEACHING FIELD
(CROSS SECTION)
AT INVERT OUT

TEST PIT DATA

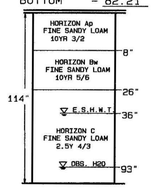
BOARD OF HEALTH WITNESS: DAVE ZAROZINSKI
DATE: DECEMBER 5, 2001
SOIL EVALUATOR: CHRISTIAN BOYSEN

PERC TEST ID	PERC RATE (MIN/IN)	PERC DEPTH (IN)
61	24	46
62	22	42

DEEP HOLE # 61
ELEV. TOP = 93.79
ESHWT = 90.79
OBS. H20 = NONE
BOTTOM = 84.46



DEEP HOLE # 62
ELEV. TOP = 91.71
ESHWT = 88.71
OBS. H20 = 83.96
BOTTOM = 82.21



NOTES:
1. THIS PLAN IS FOR THE CONSTRUCTION OF A NEW SEPTIC SYSTEM
2. REMOVE TOPSOIL & SUBSOIL BENEATH THE LEACH FIELD AND TO 5' ON ALL SIDES OF THE FIELD. REPLACE WITH FILL MATERIAL MEETING THE SPECIFICATIONS OF 310 CMR 15.255(3). (TITLE 5, 310 CMR 15.255(5).)
3. PUMP AND ALARM TO BE ON SEPARATE CIRCUITS. (TITLE 5, CMR REG. 15.09(5).)
4. TITLE 5 REQUIRES OBSERVATION OF THE INSTALLED SYSTEM BY THE DESIGN ENGINEER AND A BOARD OF HEALTH MEMBER OR AGENT FOR THE BOARD OF HEALTH. THE SYSTEM MUST NOT BE BACKFILLED PRIOR TO OUR OBSERVATION. CONTACT OUR OFFICE AND THE BOARD OF HEALTH TWO BUSINESS DAYS BEFORE REQUESTED DATE FOR OBSERVATION.
5. ALL DISTURBED AREAS SHOULD BE LOAMED, RAKED, FERTILIZED, SEEDED AND MULCHED AT THE COMPLETION OF CONSTRUCTION.
6. LEVEL SWITCHES ARE TO BE MOUNTED ON THE SPECIFIED STAINLESS STEEL SWITCH BRACKET OR APPROVED EQUAL. THEY ARE TO BE MOUNTED AWAY FROM THE PUMP INLET.

WETLANDS PROTECTION NOTE:
FILING UNDER THE WETLANDS PROTECTION ACT MAY BE REQUIRED FOR THIS PROJECT. THE AMHERST CONSERVATION COMMISSION SHOULD BE CONTACTED FOR A DETERMINATION.

PROPERTY LINE REFERENCE:
PROPERTY LINES AS SHOWN ARE BASED ON A PLAN OF LAND IN AMHERST, MASSACHUSETTS, PREPARED FOR NORTHAMPTON ASSOCIATES, INC. PREPARED BY H.L. EATON ASSOC. DATED FEBRUARY 20, 2003, H.C. REG. OF DEEDS PAGE 195, PAGE 111.

PUMP CHAMBER COMPONENTS SPECIFICATIONS

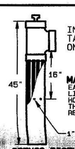
ALL COMPONENTS ARE TO BE AS SPECIFIED OR AN APPROVED EQUAL.

1. 1- MEYERS #WM50, 1/2 HP, SEWAGE PUMP (USE MOST EFFICIENT VOLTAGE AT SITE) (CAPABLE OF PASSING 2" SOLIDS)
2. 1- WATERGUARD S-12 CONTROL PANEL
3. 1- TA-101 HIGH WATER ALARM COMPLETE WITH LEVEL SWITCH
4. 1- SJBS-7 WATER PROOF JUNCTION BOX
5. 2- 2900-25 CONNERY LEVEL SWITCHES
6. 1- 100-4 LEVEL SWITCH BRACKET
7. 1- CHECK VALVE (PVC OR BRONZE)

ALL COMPONENTS LISTED ABOVE AVAILABLE AT:
BLAKE PUMP COMPANY
ADAMS ROAD, GREENFIELD, MA 01301
(413) 773-3683

8. PUMP CHAMBER TO BE 1000 GAL. SEPTIC TANK
9. PUMP ON/OFF LIQUID LEVEL CONTROLS TO BE SET TO PUMP DOWN 6 INCHES TO GIVE A 128.5 GAL. DOSE:
   4 GAL. TO FILL FORCE MAIN
   124.5 GAL. DOSE TO LEACH FIELD.
10. ALARM CONTROLS TO BE ON SEPARATE CIRCUIT AND SET TO SOUND WHEN LIQUID LEVEL IS 30" ABOVE FLOOR OF TANK.

DOSING FREQUENCY
REG. 15.254(1)(d): EACH ZONE IS TO BE DOSED TWICE PER DAY.
(440 GAL PER DAY / 2 DOSES PER DAY PER ZONE) / 2 ZONES = 110 GAL PER DOSE



MAINTENANCE:
EACH TIME THE SEPTIC TANK IS PUMPED, LIFT OUT THE FILTER CARTRIDGE AND HOSE OFF THE SCREEN.
THE FILTER WILL CLOG IF IT IS NOT REGULARLY MAINTAINED.

ORENCO BIOTUBE EFFLUENT FILTER
MODEL # FT0436
AVAILABLE FROM WASTEWATER TECHNOLOGIES, INC.,
18 PRECAST ROAD, MILTON, VT. 05468
(877) 212-3219

BUOYANCY CALCULATIONS

SEPTIC TANK

ASSUMPTION:
ESTIMATED SEASONAL HIGH WATER TABLE (ESHWT) IN VICINITY OF SEPTIC TANK IS 36". TOP OF TANK IS 2 INCHES ABOVE EXISTING GRADE
EXISTING GRADE AT TANK = 94.11
ESHWT ELEVATION = 91.11

ASSUME 1500 GALLON TANK #ST1500 ATC (MFG. BY KELLOGG PRECAST CO.)
LENGTH 10'-6", WIDTH 5'-8", HEIGHT 5'-4"
WALLS 3" THICK, TOP AND BOTTOM 4" THICK.

AT TANK:
ELEV. GROUNDWATER(ESHWT) = 91.11

ELEV. TOP OF TANK = 94.30
ELEV. INVERT OUT = 93.05
ELEV. BOTTOM OF TANK = 88.97

VOLUME OF DISPLACED WATER = (10'-6"x 5'-8"x (91.11'-88.97')) = 127.4 CU.FT.
WEIGHT OF DISPLACED WATER = 127.4 CU.FT.x 62.4 LB/CU.FT.
= 7950 LBS.

WEIGHT OF TANK PER KELLOGG CATALOG = 10988 LBS

WEIGHT OF SOIL OVER TANK:
VOLUME OF SOIL = 10'-6"x 5'-8"x 1.00' = 59.5 CU.FT.
WEIGHT OF SOIL = 59.5 CU.FT.x 100 LBS/CU.FT.= 5950 LBS

WEIGHT OF CONCRETE BALLAST:
THERE WILL BE NO BALLAST PLACED OVER TANK.

WEIGHT OF TANK AND SOIL COVER AND CONCRETE BALLAST:
(10988 + 5950 + 0) LBS = 16938 LBS

FACTOR OF SAFETY
16938 LBS / 7950 LBS = 2.13 = FACTOR OF SAFETY

PUMP CHAMBER

ASSUMPTION:
ESTIMATED SEASONAL HIGH WATER TABLE (ESHWT) IN VICINITY OF TANK IS 36 INCHES BELOW EXISTING GRADE
EXISTING GRADE AT TANK = 93.80
ESHWT ELEVATION = 90.80

ASSUME 1000 GALLON TANK #ST1000 A (MFG. BY KELLOGG PRECAST CO.)
LENGTH 8'-6", WIDTH 4'-10", HEIGHT 5'-4"
WALLS 3" THICK, TOP AND BOTTOM 4" THICK.

AT TANK:
ELEV. GROUNDWATER(ESHWT) = 90.80

ELEV. TOP OF TANK = 93.80
ELEV. INVERT OUT = 92.75
ELEV. BOTTOM OF TANK = 88.62

VOLUME OF DISPLACED WATER = 8'-6" x 4'-10" (90.80'-88.62')= 89.5 CU.FT.
WEIGHT OF DISPLACED WATER = 89.5 CU.FT.x 62.4 LB/CU.FT.
= 5585 LBS.

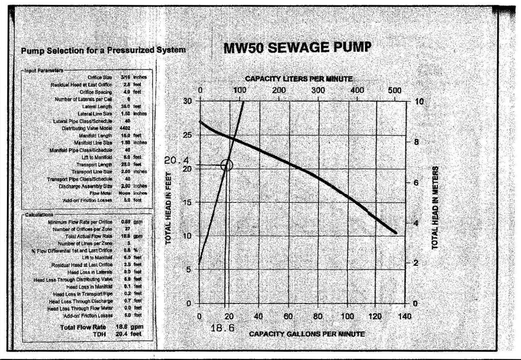
WEIGHT OF TANK PER KELLOGG CATALOG = 8280 LBS

WEIGHT OF SOIL OVER TANK:
VOLUME OF SOIL = 8'-6"x 4'-10"x 1.15' = 47.2 CU.FT.
WEIGHT OF SOIL = 47.2 CU.FT.x 100 LBS/CU.FT.= 4720 LBS

WEIGHT OF CONCRETE BALLAST:
THERE WILL BE NO BALLAST PLACED OVER TANK.

WEIGHT OF TANK AND SOIL COVER AND CONCRETE BALLAST:
(8280 + 0 + 4720) LBS = 13000 LBS

FACTOR OF SAFETY
13000 LBS / 5585 LBS = 2.33 = FACTOR OF SAFETY

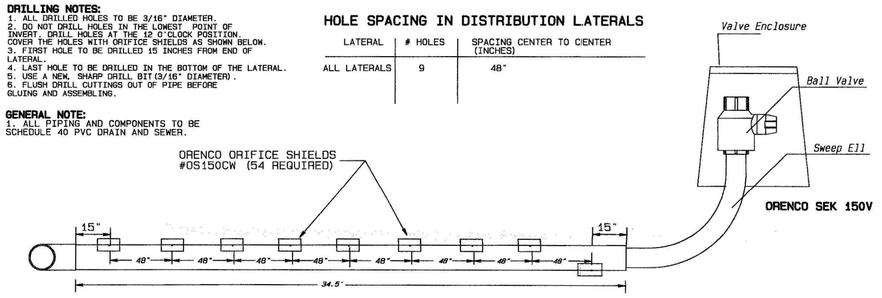


DRILLING NOTES:
1. ALL DRILLED HOLES TO BE 3/16" DIAMETER.
2. DO NOT DRILL HOLES IN THE LOWEST POINT OF INVERT. DRILL HOLES AT THE 12 O'CLOCK POSITION. COVER THE HOLES WITH ORIFICE SHIELDS AS SHOWN BELOW.
3. FIRST HOLE TO BE DRILLED 15 INCHES FROM END OF LATERAL.
4. LAST HOLE TO BE DRILLED IN THE BOTTOM OF THE LATERAL.
5. USE A NEW, SHARP DRILL BIT(3/16" DIAMETER).
6. FLUSH DRILL CUTTINGS OUT OF PIPE BEFORE GLUING AND ASSEMBLING.

GENERAL NOTE:
1. ALL PIPING AND COMPONENTS TO BE SCHEDULE 40 PVC DRAIN AND SEWER.

HOLE SPACING IN DISTRIBUTION LATERALS

LATERAL	# HOLES	SPACING CENTER TO CENTER (INCHES)
ALL LATERALS	9	48"



LATERAL HOLE LAYOUT
NO SCALE

DESIGN DATA

DESIGN BASED ON SINGLE FAMILY RESIDENCE
DESIGN FLOW 110 GALLON PER DAY PER BEDROOM (4)
TOTAL DESIGN FLOW 440 GALLON PER DAY.

SEPTIC TANK
440 GALLONS X 200% = 880 GALLONS DESIGN CAPACITY.
USE 1500 GALLON SEPTIC TANK.

LEACHING FIELD
BOTTOM:
70' LENGTH X 16' WIDTH = 1120 SQUARE FEET.
1120 SQ. FT. X .40 GAL. PER SQ.FT. = 448 GAL. LEACHING.
TOTAL LEACHING CAPACITY = 448 GALLONS PER DAY.

NOTE: PER TITLE 5, 310 CMR 15.240(6): A FIELD IS DESIGNED FOR THIS SITE DUE TO THE AREA LIMITATIONS CAUSED BY THE GROUND WATER AND PROPERTY LINES.

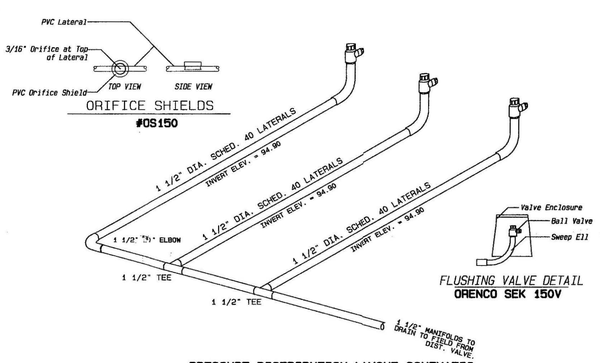
GENERAL NOTES

1. FROM HOUSE OUT TO SEPTIC TANK USE 4" SCHEDULE 40 PVC MINIMUM GRADE: 1/4 INCH PER FOOT (2%)
2. FROM SEPTIC TANK TO PUMP CHAMBER USE 4" SCHEDULE 40 PVC MINIMUM GRADE: 1/8 INCH PER FOOT (1%)
3. FROM PUMP CHAMBER TO MANIFOLD USE 2" SCHED. 40 PVC MINIMUM DRAINBACK GRADE: 1/8 INCH PER FOOT (1%)
4. 1 1/2" SCHED. 40 PVC PIPE TO BE USED IN LEACHING AREA.
5. AMHERST BOARD OF HEALTH MUST BE NOTIFIED WHEN SYSTEM IS NEARLY COMPLETE AND PRIOR TO BACKFILLING.
6. ELEVATIONS BASED ON ASSUMED DATUM
7. UNLESS OTHERWISE NOTED, ALL SYSTEM COMPONENTS SHALL BE INSTALLED IN ACCORDANCE WITH TITLE 5 OF THE STATE SANITARY CODE AND ANY APPLICABLE LOCAL RULES.
8. ANY CHANGE TO THIS PLAN MUST BE APPROVED BY THE BOARD OF HEALTH AND THE DESIGN ENGINEER.
9. THIS SYSTEM IS NOT DESIGNED FOR A GARBAGE GRINDER.

LEGEND

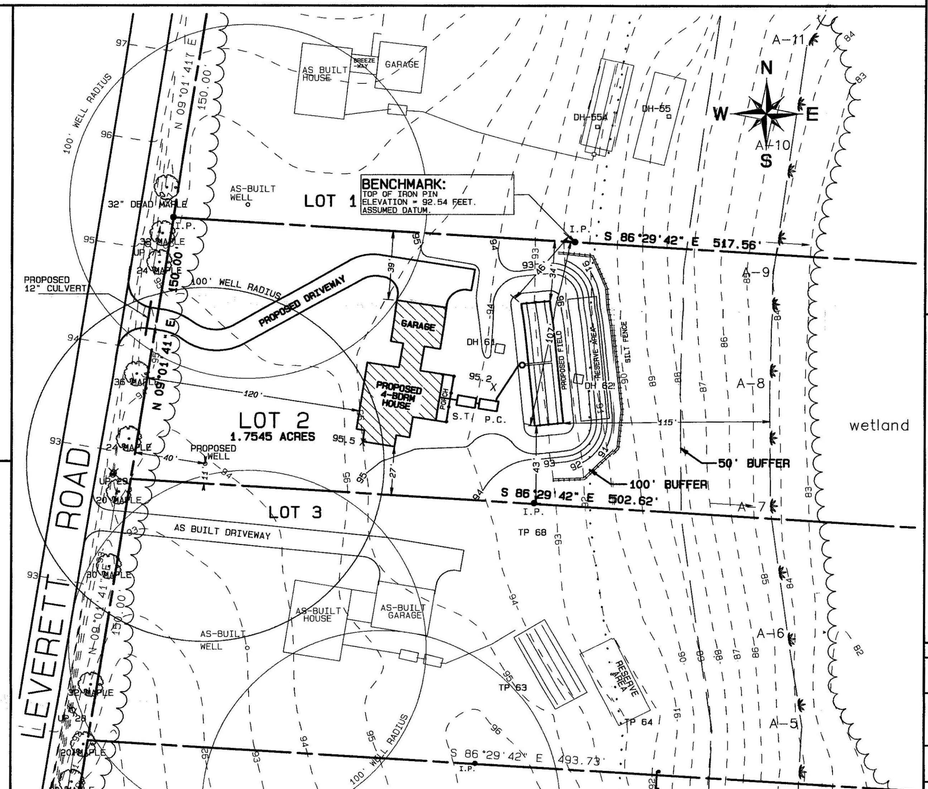
- 100 — EXISTING CONTOURS
- 100 — PROPOSED CONTOURS
- 4" SCHEDULE 40 PVC PIPE
- 2" SCHEDULE 40 FORCE MAIN PVC PIPE
- 1 1/2" SCHEDULE 40 PVC PIPE
- EROSION BARRIER
- EDGE OF WETLAND
- PROPERTY LINE

SYSTEM DIMENSIONS
SCALE: 1"=20'



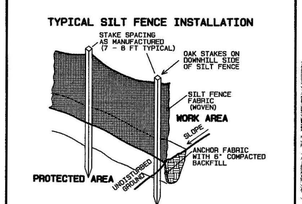
PRESSURE DISTRIBUTION LAYOUT SCHEMATIC
NO SCALE

FLUSHING VALVE DETAIL
ORENCO SEK 150V



SITE PLAN
GRAPHIC SCALE 1"=40'
0 40 80 120

EROSION BARRIER



SITE LOCUS

SHEET NO. 1 OF 1.

REV.	DATE	BY	DESCRIPTION	APPR.

SCALE: AS SHOWN
APPROVED:
DRN. BY: J.M.
CHECKED: D.M

COMMONWEALTH OF MASSACHUSETTS — DOUGLAS J. MACLEAY — CIVIL — NO. 31263 — REGISTERED PROFESSIONAL ENGINEER

TITLE: **SUBSURFACE SEWAGE DISPOSAL PLAN IN AMHERST, MASS.**
FOR: **AMHERST BUILDING COMPANY, LLC**
325 LEVERETT ROAD
DATE: MARCH 4, 2005
JOB NO. 2002-072-2

MacLeay Associates, Inc. civil engineers
102 Bridge Street, Shelburne Falls, MA 01370
phone: (413) 625-6774 fax: (413) 625-9704 email: dmacleay@comcast.net