# TOWN OF NORFOLK
**BOARD OF SELECTMEN**

**ONE LIBERTY LANE**
**NORFOLK, MASSACHUSETTS 02056**

**JACK HATHAWAY**
**Town Administrator**

**(508) 528-1408**
**(508) 541-3366 – Fax**


April 3, 2017

Ms. Jessica Malcom
Massachusetts Housing Finance Agency
One Beacon Street
Boston, MA 02108

**RE: Town of Norfolk Comments to Lakeland Hills/Commons 40B Development Plans**

Dear Ms. Malcom,

On behalf of the town of Norfolk, I am writing to you with regard to the two proposed 40B developments entitled "Lakeland Hills" and "Lakeland Commons" located at 144 Seekonk Street, Norfolk. I am providing you with a summary of this information in order for you to better understand the town's concerns and challenges for these projects and to help prepare for your review.

The Town Planner has met with the developer of both projects and discussed how challenging this particular project will be. The town does not support this project going forward because of many reasons. Although the 40B process requires certain steps to be followed and a particular order, I believe that this unique project requires additional consideration by Mass Housing in order to effectively deal with the obstacles associated with this development proposal. The following is a summary of the issues the town has regarding the current plans:

1. **Site Conditions.** The Town Planner and members of the town staff as well as the Conservation Commission were able to accompany you and Mr. Busby on a site visit on March 28, 2017. This site walk revealed some of the many challenges to this development. The site includes a steep climb from Seekonk Street along a narrow strip of land of over 1,000 feet long which breaks out into the larger portion of the parcel that is generally sloping west to east down to the Stop River. In this area there are at least 5 areas of hills and/or steep slopes with rock outcroppings which are a major concern for a development proposal this dense. If this proposal is to be built as depicted, all five of these areas will have to be leveled and made usable. The cost of such work could top $2,000,000 making the project infeasible and would result in the destruction of the sites character and appeal. The site also has a large wetland complex that bisects the property and if built as proposed would require two wetland crossings. It is not common for a project to gain approval for two wetland crossings, even under Mass Wetland Regulations.

2. **Pro-forma:** Prior development proposals: Granite Estates (2007) was a 50 acre, 24 unit openspace development proposal comprised of two parcels which included this parcel. It did not get town approval from the Planning Board. This proposal did reveal many of the site constraints that the current proposal must overcome, the major one being the site conditions. The town believes that the pro-forma is woefully

inadequate when addressing the costs of rock removal, and site grading that is necessary to build roads, install drainage, septic systems, water systems and finally the buildings themselves.
In reviewing the applicants supplied financial information, they estimate that the site construction costs of approximately $3M for the entire project. We have learned that designing and installing a smaller package septic system in town has cost $2 - 4 million dollars. Based on this information, we do not believe that these pro-forma numbers are reliable.
Property transfer records show that the applicant acquired the site for $380,000 in August 2015, but the acquisition cost in the pro-forma shows $1,250,000. An overstated acquisition cost inflates the basis for determining developabilty of the site and with these reduced construction costs the project feasibility can mistakenly seem reasonable.

3. **Soil Conditions:** We recommend that soil borings be done throughout the site where the home sites, roads, drainage and septic systems are proposed to be installed. Since no soil testing has been done by the applicant and the only soil testing that was done in the past was by the Granite Estates developer for only 24 home sites over 50 acres, it is questionable that this site can be developed to handle the 244 bedrooms proposed with a shared septic system on soils which are sandy loam in many places, but contain "massive bulky sub-angular" boulders in the soil. These types of soils do not make for good development and must be removed prior to construction of any improvements. I have attached relevant excerpts from the 2007 soil evaluation and the corresponding drawing for your edification.

4. **Wetland Delineation:** No wetland delineation has been done by the applicant in preparation for the submittal. Any flagging that is to be accepted, must be witness and verified by the Conservation Commission. Based on the wetland flagging from the previous subdivision plan it has been determined that the wetlands have been under estimated. Using the previously flagged wetlands from the Granite Estates plan, but being generous to the applicant and not including the 50 foot perimeter, there are at least 30,000 square feet (0.68 acres) of actual wetlands not 15,000 square feet (0.34 acres). In addition, while on site, the Conservation Commission Agent identified a potential vernal pool which could further constrain development and increase buffer areas and thus the wetland calculation.

5. **Steep slopes:** Using the earlier plan, it is cautiously estimated that there are at least 125,875 square feet (2.8 acres) of steep slopes on this parcel. No accounting of this normally non-buildable land has been considered in the development proposal. It is common practice to avoid development in these areas for many reasons including cost to regrade these areas. No consideration of this issue has come with this development proposal.

6. **Density of the development:** This development is aggressively dense considering a number of factors. If you remove the non-buildable land as estimated above, you will result in 7 units per the buildable acres. This is the most dense 40B development proposed in Norfolk to date and is out of proportion with the 1+ acre lots that surround this parcel. It is an example of over the top development that is not considerate of site conditions. It is out of character with development patterns in Norfolk and even with a more developable site, would be overbearing to the surrounding community.

7. **Developers Experience:** There is concern about the applicants experience with developing a site of with this many units, the complexity of the site and the familiarity with such a rocky and sloping site. As you know we became familiar with Mr. O'Harte on his 84 Cleveland Street project. We were skeptical of his ability to develop that much smaller project. To our knowledge, he has since sold it and did not prove his ability to the town and is now proposing a project 3 times the size. He has not built any projects of this

type on his own. His experience has not been in developing raw land or 40B's of this magnitude. Taking on a project of this magnitude and complexity is highly risky and not good planning.

8. **Infrastructure Improvements:** The town water department is currently strained due to reduced yields from our current wells and by development which has occurred in the past. We are attempting to find additional sources of water, but have been limited in finding qualified sources for the quantity and quality of water we need. This development will further strain the system and may require an additional pumping station to bring water to the proposed homes further adding to the cost of the development. Finally, this site will need to have water brought in from Seekonk Street through untold rock and ledge at a cost to the developer that is under estimated in the pro-forma and development proposal.

9. **Fire Protection and Public Safety:** The roads proposed in the development are to be privately held and maintained. It is questionable that given the locations of the proposed roads and the existing grade changes, this site will be able to meet the NFPA fire protection codes and standards for access. In speaking with Chief Bushnell, a Simulation Analysis would have to be performed with includes an analysis of angle of departure, grade deviation and turning radius analysis. This is in addition to ensuring that parking does not impede public safety vehicles. As a matter of course and something that does not seem to be factored into the cost analysis is the need for a fire protection system. NFPA requires adequate fire suppression systems which in the case of Meetinghouse Condos, requires a pump house to ensure adequate pressure for fire suppression. This does not seem to be a consideration in the development proposal.
   To a lesser extent but still very important, we are also concerned with access and egress to the site. With the actual speed of drivers on this main thoroughfare, it is a safety concern to make sure people can see and be seen coming out of this development. Ensuring proper line of sight of at least 1000 feet is a target that the town strives for. This project, if built will need to ensure that this objective is reached.

10. **Proximity to Existing Gun Range:** This development directly sits across the Stop River from the Walpole Sportsman's Club range. This 75+ year old range is allowed to operate 9 am to 9 pm 7 days a week. The noise will impact at least a third of the proposed units in this development. If allowed to be developed, it will create a noise nuisance to which the new unit owners will have to complain to nearby Walpole.

With regard to the decisions that Mass Housing needs to make as referenced in CMR 56.04, Project Eligibility, the following comments are made:

2.c Elements of Application: Locus map "accompanied by photographs of the surrounding buildings and features that provide an understanding of the physical context of the site" have not been provided. It is our position that this development is out of context with the surrounding development and will pose a risk to the rural farming and other uses that currently exists on the adjacent and nearby parcels of land. To the North is an existing horse farm, to the East is the 75+ year old Walpole Gun Club and to the South and West are single family residential homes, one of which sits close to the property line and 30 feet below some of the proposed units. The proposed units would loom over the existing home on Stop River Road and severely reduce its appeal, thus its property value.

2.h Narrative description of the approach to building massing, relationships to adjacent properties and the proposed exterior building materials." The design approach and building massing does not bear any resemblance to the land it is on, the adjacent properties and is completely out of character with these existing uses. There is little consideration for what exists there today and this proposal would destroy any character that the land currently has.

4.b "that the site of the proposed project is <u>generally appropriate for residential development...</u>"As stated above with the excessive grade changes, massive ledge outcroppings, steep slopes, proximity to other existing uses, this is not "generally appropriate for residential development." The town of Norfolk has

approved three affordable housing projects as "friendly 40B's" and most recently has worked with a developer to approve a site within a one quarter mile of the Norfolk MBTA station. The town encourages these types of development opportunities as they are sited appropriately and add to the viability of town center. This project offers none of these attributes to the town.

4.c " that the conceptual project design is generally appropriate for the site on which it is located, taking into consideration factors that may include proposed use, conceptual site plan and building massing, topography, environmental resources, and integration into the existing development patterns." As stated above the proposed use does not take into account the existing topography and is too intense for the area and the land. The building massing which may work near town center, does not in this area with 104 units next to an operating horse farm and firing range. The topography is one of the most challenging elements of this development. There is little in way of flat and boulder free land anywhere in this site, which makes the site almost impossible to develop. It contains a wetland system that bisects the rear portion of the parcel and cuts it nearly in half. This makes for two wetland crossings which are totally unnecessary and will be damaging to the existing habitat and resources. The proposal does not integrate well into the existing development pattern of the surrounding area due to the number of dwellings proposed as well as the need to disturb most of the site in order to develop at such an intense level.

4.d "that the proposed project appears financially feasible within the housing market in which it will be situated." This type of housing may be financially feasible, but with the work necessary to develop the site as enumerated above and the fact that prior property development proposals have failed due to the large cost of developing this site, this appears to be a poor choice for a financially feasible project.

4.e "that the initial pro-forma has been reviewed including land valuation determination consistent with the departments guidelines and the project appears to be financially feasible and consistent..." The value of the property is greatly inflated in the pro-forma. It has been for sale for years and sold for $380,000 to this developer. He has stated an acquisition cost of $1.2M which is very high. Even developing one single family home on this parcel would be extremely costly. Had this property not placed such a heavy burden on a developer, it would have already been developed. This property has been for sale since 2008 and buyers ultimately all walked away due to the cost to develop the property.

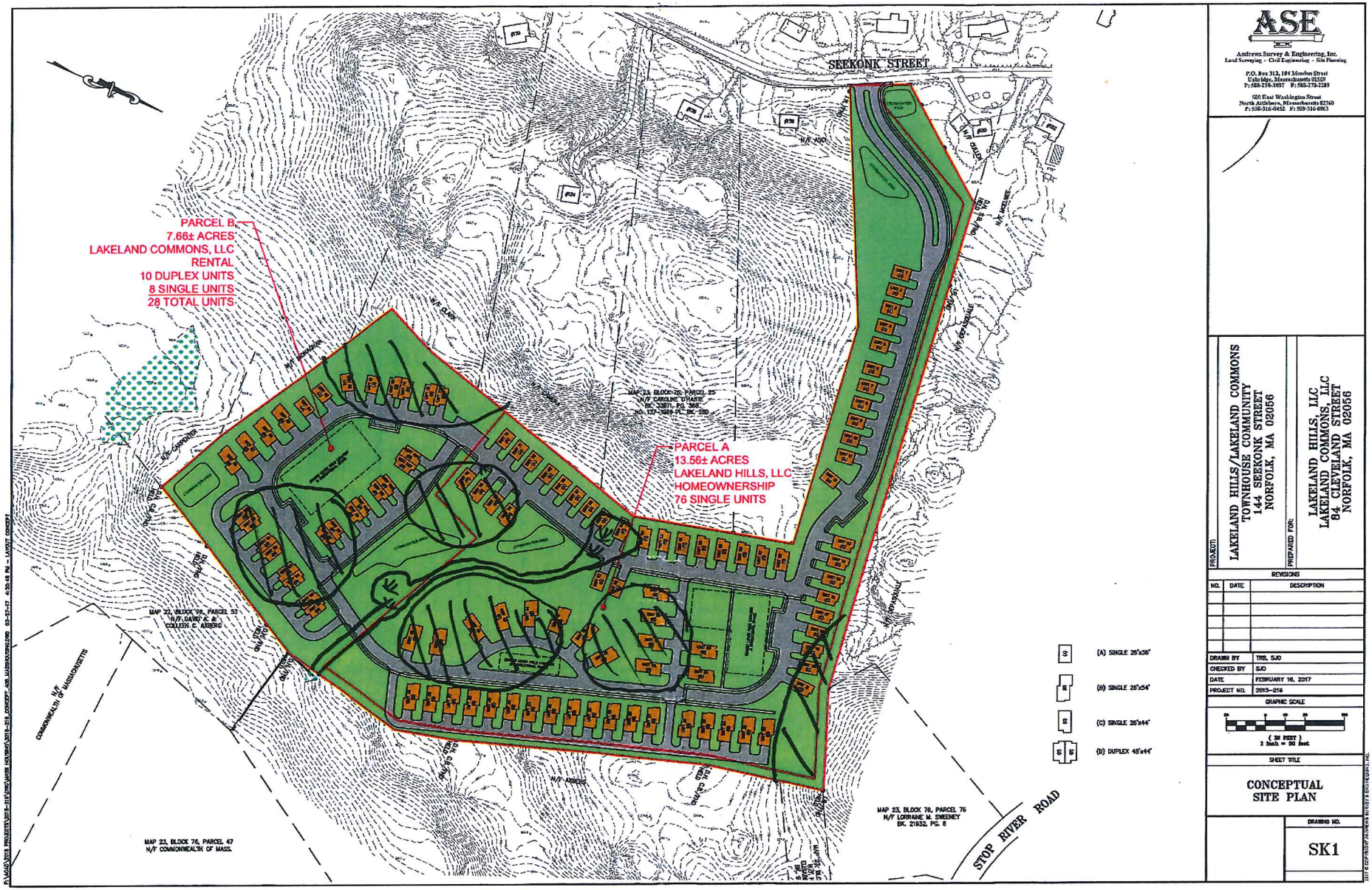
There are far more development opportunities for affordable housing in Norfolk. This site and the density of the development are excessive and should not be allowed. This proposal is not in keeping with the best practices in planning or developing affordable housing. It is the town of Norfolk's position that this is an example of inadequate planning and design. This development, if allowed to move forward with site eligibility, will only lead to a push back from the town, neighbors and ultimately end up in litigation for years to come.

If there is anything that the Town can do to assist you in denying the eligibility letter, please do not hesitate to contact Town Administrator, Mr. Jack Hathaway at 508-440-2855 or Town Planner, Mr. Raymond Goff, Town Planner at 508-440-2807.

Sincerely yours,

Scott Bugbee,
Vice Chairman,
Board of Selectmen

Cc: Town Planner, Planning Board, Board of Selectmen, Zoning Board of Review, Conservation Commission, Board of Health, Police Chief, Fire Chief, Building Official, DPW Director.




ASE
Andrews Survey & Engineering, Inc.
Land Surveying - Civil Engineering - Site Planning
P.O. Box 313, 104 Mendon Street
Uxbridge, Massachusetts 01569
P: 508-278-3997 F: 508-278-2289
520 East Washington Street
North Attleboro, Massachusetts 02760
P: 508-316-0452 F: 508-316-6963

PROJECT:
LAKELAND HILLS/LAKELAND COMMONS
TOWNHOUSE COMMUNITY
144 SEEKONK STREET
NORFOLK, MA 02056

PREPARED FOR:
LAKELAND HILLS, LLC
LAKELAND COMMONS, LLC
84 CLEVELAND STREET
NORFOLK, MA 02056

REVISIONS

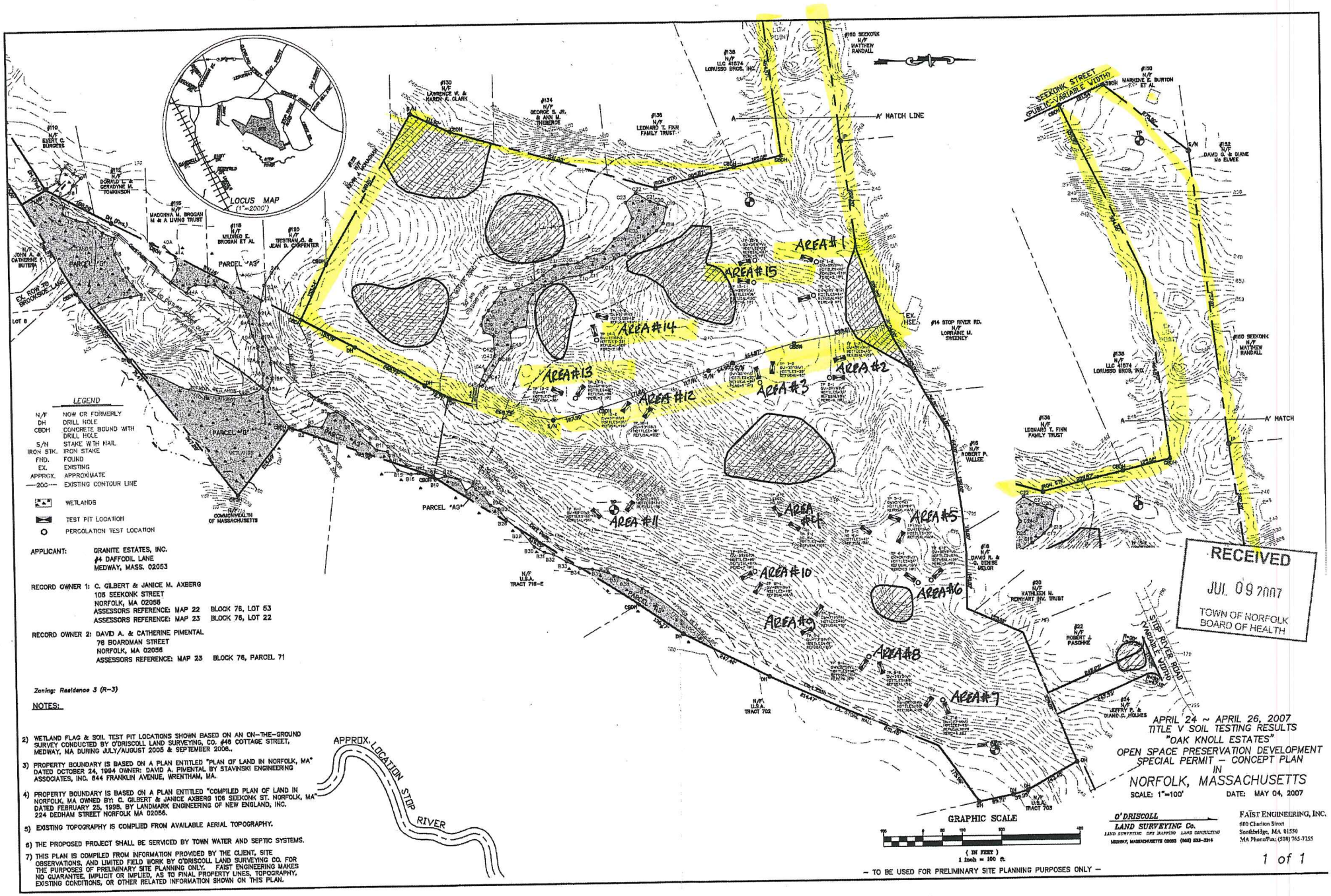
| NO. | DATE | DESCRIPTION |
|---|---|---|
| | | |

| | |
|---|---|
| DRAWN BY | TRS, SJO |
| CHECKED BY | SJO |
| DATE | FEBRUARY 16, 2017 |
| PROJECT NO. | 2015-218 |

GRAPHIC SCALE
( IN FEET )
1 inch = 80 feet

SHEET TITLE
CONCEPTUAL SITE PLAN

DRAWING NO.
SK1




LEGEND

| | |
|---|---|
| N/F | NOW OR FORMERLY |
| DH | DRILL HOLE |
| CBDH | CONCRETE BOUND WITH DRILL HOLE |
| S/N | STAKE WITH NAIL |
| IRON STK. | IRON STAKE |
| FND. | FOUND |
| EX. | EXISTING |
| APPROX. | APPROXIMATE |
| —200— | EXISTING CONTOUR LINE |
| | WETLANDS |
| | TEST PIT LOCATION |
| O | PERCOLATION TEST LOCATION |

APPLICANT: GRANITE ESTATES, INC.
#4 DAFFODIL LANE
MEDWAY, MASS. 02053

RECORD OWNER 1: C. GILBERT & JANICE M. AXBERG
105 SEEKONK STREET
NORFOLK, MA 02056
ASSESSORS REFERENCE: MAP 22 BLOCK 76, LOT 53
ASSESSORS REFERENCE: MAP 23 BLOCK 76, LOT 22

RECORD OWNER 2: DAVID A. & CATHERINE PIMENTAL
76 BOARDMAN STREET
NORFOLK, MA 02056
ASSESSORS REFERENCE: MAP 23 BLOCK 76, PARCEL 71

*Zoning: Residence 3 (R-3)*

NOTES:

2) WETLAND FLAG & SOIL TEST PIT LOCATIONS SHOWN BASED ON AN ON-THE-GROUND SURVEY CONDUCTED BY O'DRISCOLL LAND SURVEYING, CO. #46 COTTAGE STREET, MEDWAY, MA DURING JULY/AUGUST 2005 & SEPTEMBER 2006..

3) PROPERTY BOUNDARY IS BASED ON A PLAN ENTITLED "PLAN OF LAND IN NORFOLK, MA" DATED OCTOBER 24, 1994 OWNER: DAVID A. PIMENTAL BY STAVINSKI ENGINEERING ASSOCIATES, INC. 844 FRANKLIN AVENUE, WRENTHAM, MA.

4) PROPERTY BOUNDARY IS BASED ON A PLAN ENTITLED "COMPILED PLAN OF LAND IN NORFOLK, MA OWNED BY: C. GILBERT & JANICE AXBERG 105 SEEKONK ST. NORFOLK, MA" DATED FEBRUARY 25, 1998. BY LANDMARK ENGINEERING OF NEW ENGLAND, INC. 224 DEDHAM STREET NORFOLK MA 02056.

5) EXISTING TOPOGRAPHY IS COMPILED FROM AVAILABLE AERIAL TOPOGRAPHY.

6) THE PROPOSED PROJECT SHALL BE SERVICED BY TOWN WATER AND SEPTIC SYSTEMS.

7) THIS PLAN IS COMPILED FROM INFORMATION PROVIDED BY THE CLIENT, SITE OBSERVATIONS, AND LIMITED FIELD WORK BY O'DRISCOLL LAND SURVEYING CO. FOR THE PURPOSES OF PRELIMINARY SITE PLANNING ONLY. FAIST ENGINEERING MAKES NO GUARANTEE, IMPLICIT OR IMPLIED, AS TO FINAL PROPERTY LINES, TOPOGRAPHY, EXISTING CONDITIONS, OR OTHER RELATED INFORMATION SHOWN ON THIS PLAN.

RECEIVED
JUL 09 2007
TOWN OF NORFOLK
BOARD OF HEALTH

APRIL 24 ~ APRIL 26, 2007
TITLE V SOIL TESTING RESULTS
"OAK KNOLL ESTATES"
OPEN SPACE PRESERVATION DEVELOPMENT
SPECIAL PERMIT - CONCEPT PLAN
IN
NORFOLK, MASSACHUSETTS
SCALE: 1"=100' DATE: MAY 04, 2007

O'DRISCOLL LAND SURVEYING Co.
LAND SURVEYING GPS MAPPING LAND CONSULTING
MEDWAY, MASSACHUSETTS 02053 (508) 533-2314

FAIST ENGINEERING, INC.
600 Clarion Street
Southbridge, MA 01550
MA Phone/Fax: (508) 765-7355

1 of 1

## *On-site Review*

AREA #1
Deep Hole Number NO. 1 Date : 4/26/07 Time : 11:35 Weather : SUNNY 60°S

Location (identify on site plan) SEE SITE PLAN

Land Use VACANT Slope (%) 8-15% Surface Stones YES

Vegetation MATURE WOODLAND

Landform KAME TERRACE

Position on landscape

Distances from:

Open Water Body N/A feet Drainageway N/A feet

Possible Wet Area > 150 feet Property Line > 50 feet

Drinking Water Well N/A feet Other --

# DEEP OBSERVATION HOLE LOG

| Depth from Surface (Inches) | Soil Horizon | Soil Texture (USDA) | Soil Color (Munseil) | Soil Mottling | Other (Structure, Stones, Boulders, Consistency, %Gravel) |
|---|---|---|---|---|---|
| 0"-10" | A | LOAM | 10YR 3/2 | | CRUMB |
| 10"-24" | BW | SANDY LOAM | 7.5YR 5/6 | | BLOCKY, MASSIVE SUBANGULAR C/B |
| 24"-90" | C, | SANDY LOAM | 10YR 6/2 | 44" 10YR 5/8 | 50% GRAVEL SUBANGULAR C/B (TIGHT) |
| | | | | | |
| | | | | | |
| | | | | | |

Parent Material (geologic) Depth to Bedrock: 90"

Depth to Groundwater: Standing Water in the Hole: NONE Weeping from Pit Face: NONE

Estimated Seasonal Ground Water: 44" (MOTTLES) PERCHED?

PVC MONITOR PIPE INSTALLED

AREA #1

## *On-site Review*

Deep Hole Number No.2 Date : 4/26/07 Time : 11:50 Weather : SUNNY 60°S

Location (identify on site plan) SEE SITE PLAN

Land Use VACANT Slope (%) 8-15% Surface Stones YES

Vegetation MATURE WOODLAND

Landform KAME TERRACE

Position on landscape

Distances from:

Open Water Body N/A feet Drainageway N/A feet

Possible Wet Area >150 feet Property Line >50 feet

Drinking Water Well N/A feet Other --

# DEEP OBSERVATION HOLE LOG

| Depth from Surface (Inches) | Soil Horizon | Soil Texture (USDA) | Soil Color (Munseil) | Soil Mottling | Other (Structure, Stones, Boulders, Consistency, %Gravel) |
|---|---|---|---|---|---|
| 0"-10" | A | LOAM | 10YR 3/2 | | CRUMB |
| 10"-24" | Bw | SANDY LOAM | 10YR 5/6 | | MASSIVE BLOCKY |
| 24"-36" | $C_1$ | LOAMY SAND | 10YR 5/4 | | <5% GRAVEL FINE-MED. SAND |
| 36"-100" | $C_2$ | LOAMY SAND | 10YR 6/2 | 40" 10YR 5/6 | 50% GRAVEL SUBANGULAR COBBLES/BOULDERS (C/B) |
| | | | | | |
| | | | | | |

Parent Material (geologic) Depth to Bedrock: 100"

Depth to Groundwater: Standing Water in the Hole: NONE Weeping from Pit Face: NONE

Estimated Seasonal Ground Water: 40" (MOTTLES) PERCHED?

PVC MONITOR PIPE INSTALLED

O'Driscoll Land Surveying Co. (508) 533-3314

**FORM 12 - PERCOLATION TEST**

Location Address or Lot No. AREA #1

# COMMONWEALTH OF MASSACHUSETTS

NORFOLK , Massachusetts

| Percolation Test* | | |
|---|---|---|
| Date: 4/26/07 | Time: | SEE BELOW |
| Observation Hole # | No. 1 @ DTH 1 | No. 2 @ DTH 2 |
| Depth of Perc | 42" TO 60" | 40" TO 60" |
| Start Pre-soak | 1:03 | 2:17 |
| End Pre-soak | SEE BELOW | SEE BELOW |
| Time at 12" | 12"@ 1:18 11"@ 1:23 10"@ 1:28 | 12"@ 2:33 11"@ 2:35 10"@ 2:37 |
| Time at 9" | 9"@ 1:35 8"@ 1:42 7"@ 1:49 | 9"@ 2:40 8"@ 2:42 7"@ 2:45 |
| Time at 6" | 6"@ 1:57 | 6"@ 2:47 |
| Time (9"-6") | 22 MIN | 7 MIN |
| Rate Min./Inch | 8 MIN./INCH | 3 MIN/INCH |

* Minimum of 1 percolation test must be performed in both the primary area AND reserve area.

PASS / FAIL REFERS TO PERCOLATION TEST ONLY

Site Passed ☒ Site Failed ☐

Performed By: DANIEL A. O'DRISCOLL

Witnessed By: WILLIAM DOMEY

Comments:

DEP

DEP APPROVED FORM - 12/07/95

Location Address or Lot No. Area 13

# *On-site Review*

Deep Hole Number: 1 Date: 4/25/07 Time: A.M. Weather: Ptly cloudy, 60

Location (identify on site plan) _____

Land Use Residential Slope (%) 8%-15% Surface Stones Common

Vegetation Woodland

Landform Kame Terrace

Position on landscape (sketch on back) _____

Distances from:

Open Water Body >100 feet Drainage way >100 feet

Possible Wet Area >100 feet Property Line >25 feet

Drinking Water Well >100 feet Other _____

## DEEP OBSERVATION HOLE LOG*

| Depth from Surface (Inches) | Soil Horizon | Soil Texture (USDA) | Soil Color (Munsell) | Soil Mottling | Other (Structure, Stones, Boulders, Consistency, % Gravel) |
|---|---|---|---|---|---|
| 0"-8" | Ap | Fine sandy loam | 10YR3/2 | None observed | Granular, Friable, <5% gravel, Common roots |
| 8"-28" | Bw | Loamy sand | 10YR5/6 | None observed | Massive, Friable, <5% gravel, Common roots |
| 28"-96" | C | Loamy sand | 2.5Y5/4 | @ 42" 7.5YR5/8 | Massive, Friable, 20% gravel, 10% angular rock, Few roots |

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic): Till Depth to Bedrock: 96"

Depth to Groundwater: 86" Standing Water in Hole: 86" Weeping from pit face: 86"

Estimated Seasonal High Groundwater: 42"

Location Address or Lot No. Oak Knoll Estates Area 13 Deep 1

# ***Determination for Seasonal High Water Table***

Method Used:

- ☐ Depth observed standing in observation hole_____inches
- ☐ Depth weeping from side of observation hole_____ inches
- ☒ Depth to soil mottles 42 inches
- ☐ Groundwater adjustment_____feet

Index Well Number_____Reading Date _____ Index well level _____

Adjustment factor _____ Adjusted groundwater level _____

Depth of Naturally Occurring Pervious Material

Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system? yes

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

Certification

I certify that on 5/27/99 (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 5/4/2007

Location Address or Lot No. Area 13

# *On-site Review*

Deep Hole Number: 2 Date: 4/25/07 Time: A.M. Weather: Ptly cloudy, 60

Location (identify on site plan) _____

Land Use Residential Slope (%) 8%-15% Surface Stones Common

Vegetation Woodland

Landform Kame Terrace

Position on landscape (sketch on back) _____

Distances from:

Open Water Body >100 feet Drainage way >100 feet

Possible Wet Area >100 feet Property Line >25 feet

Drinking Water Well >100 feet Other _____

## DEEP OBSERVATION HOLE LOG*

| Depth from Surface (Inches) | Soil Horizon | Soil Texture (USDA) | Soil Color (Munsell) | Soil Mottling | Other (Structure, Stones, Boulders, Consistency, % Gravel) |
|---|---|---|---|---|---|
| 0"-6" | Ap | Fine sandy loam | 10YR3/2 | None observed | Granular, Friable, <5% gravel, Common roots |
| 6"-30" | Bw | Loamy sand | 10YR5/6 | None observed | Massive, Friable, <5% gravel, Common roots |
| 30"-96" | C | Loamy sand | 2.5Y5/4 | @ 40" 7.5YR5/8 | Massive, Friable, 10% gravel, Few roots |

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic): Till Depth to Bedrock: 96"

Depth to Groundwater: 56" Standing Water in Hole: 56" Weeping from pit face: 56"

Estimated Seasonal High Groundwater: 40"

Location Address or Lot No. Oak Knoll Estates Area 13 Deep 2

# ***Determination for Seasonal High Water Table***

Method Used:

- ☐ Depth observed standing in observation hole_____inches
- ☐ Depth weeping from side of observation hole_____ inches
- ☒ Depth to soil mottles 40 inches
- ☐ Groundwater adjustment_____feet

Index Well Number_____Reading Date _____ Index well level _____

Adjustment factor _____ Adjusted groundwater level _____

Depth of Naturally Occurring Pervious Material

Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system? yes

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

Certification

I certify that on 5/27/99 (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 5/4/2007

Location Address or Lot No. Oak Knoll Estates Area 13

**Commonwealth of Massachusetts**
NORFOLK [redacted], **Massachusetts**

| **Percolation Test*** | | |
|---|---|---|
| Date: 4/25/07 | Time: P.M. | |
| Observation Hole # | Perc 1 | |
| Depth of Perc | 66" | |
| Start Pre-soak | 2:20 | |
| End Pre-soak | 2:35 | |
| Time at 12" | 2:35 | |
| Time at 9" | 2:41 | |
| Time at 6" | 2:48 | |
| Time (9"-6") | 7 Min. | |
| Rate Min. / Inch | 3 Min. / Inch | |

* Minimum of 1 percolation test must be performed in both the primary area AND reserve area.

Site Passed ☒ Site Failed ☐

Performed By: Seth L. Lajoie, Soil Evaluator

Witnessed By: William Domey

Comments: 11" - 2:37; 10" - 2:39; 8" - 2:43; 7" - 2:46

Location Address or Lot No. Area 14

# *On-site Review*

Deep Hole Number: 1 Date: 4/25/07 Time: A.M. Weather: Ptly cloudy, 60

Location (identify on site plan) _____

Land Use Residential Slope (%) 8%-15% Surface Stones Common

Vegetation Woodland

Landform Kame Terrace

Position on landscape (sketch on back) _____

Distances from:

Open Water Body >100 feet Drainage way >100 feet

Possible Wet Area >100 feet Property Line >25 feet

Drinking Water Well >100 feet Other _____

## DEEP OBSERVATION HOLE LOG*

| Depth from Surface (Inches) | Soil Horizon | Soil Texture (USDA) | Soil Color (Munsell) | Soil Mottling | Other (Structure, Stones, Boulders, Consistency, % Gravel) |
|---|---|---|---|---|---|
| 0"-10" | Ap | Fine sandy loam | 10YR3/2 | None observed | Granular, Friable, <5% gravel, Common roots |
| 10"-32" | Bw | Loamy sand | 10YR5/6 | None observed | Massive, Friable, <5% gravel, Common roots |
| 32"-70" | C1 | Loamy sand | 2.5Y5/5 | @ 32" 7.5YR5/8 | Massive, Friable, <5% gravel, Common roots |
| 70"-120" | C2 | Sandy loam | 2.5Y5/3 | S.A.A. | Massive, Friable, 20% gravel, 10% angular rock, Few roots |

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic): Till Depth to Bedrock: 120"

Depth to Groundwater: 48" Standing Water in Hole: 48" Weeping from pit face: 48"

Estimated Seasonal High Groundwater: 32"

Location Address or Lot No. Oak Knoll Estates Area 14 Deep 1

# *Determination for Seasonal High Water Table*

Method Used:

- ☐ Depth observed standing in observation hole_____inches
- ☐ Depth weeping from side of observation hole_____ inches
- ☒ Depth to soil mottles 32 inches
- ☐ Groundwater adjustment_____feet

Index Well Number_____Reading Date _____ Index well level _____

Adjustment factor _____ Adjusted groundwater level _____

Depth of Naturally Occurring Pervious Material

Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system? yes

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

Certification

I certify that on 5/27/99 (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 5/4/2007

Location Address or Lot No. Area 14

# *On-site Review*

Deep Hole Number: 2 Date: 4/26/07 Time: A.M. Weather: Ptly cloudy, 60

Location (identify on site plan) _____

Land Use Residential Slope (%) 8%-15% Surface Stones Common

Vegetation Woodland

Landform Kame Terrace

Position on landscape (sketch on back) _____

Distances from:

Open Water Body >100 feet Drainage way >100 feet

Possible Wet Area >100 feet Property Line >25 feet

Drinking Water Well >100 feet Other _____

## DEEP OBSERVATION HOLE LOG*

| Depth from Surface (Inches) | Soil Horizon | Soil Texture (USDA) | Soil Color (Munsell) | Soil Mottling | Other (Structure, Stones, Boulders, Consistency, % Gravel) |
|---|---|---|---|---|---|
| 0"-8" | Ap | Fine sandy loam | 10YR3/2 | None observed | Granular, Friable, <5% gravel, Common roots |
| 8"-24" | Bw | Loamy sand | 10YR5/6 | None observed | Massive, Friable, 10% gravel, Common roots |
| 24"-84" | C | Loamy sand | 2.5Y5/3 | @ 42" 7.5YR5/8 | Massive, Friable, 20% gravel, 10% angular rock, Few roots |

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic): Till Depth to Bedrock: 84"

Depth to Groundwater: ≥84" Standing Water in Hole: >84" Weeping from pit face: >84"

Estimated Seasonal High Groundwater: 42"

Location Address or Lot No. Oak Knoll Estates Area 14 Deep 2

# ***Determination for Seasonal High Water Table***

Method Used:

- ☐ Depth observed standing in observation hole_____inches
- ☐ Depth weeping from side of observation hole_____ inches
- ☒ Depth to soil mottles 42 inches
- ☐ Groundwater adjustment_____feet

Index Well Number_____Reading Date _____ Index well level _____

Adjustment factor _____ Adjusted groundwater level _____

Depth of Naturally Occurring Pervious Material

Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system? yes

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

Certification

I certify that on 5/27/99 (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 5/4/2007

Location Address or Lot No. Oak Knoll Estates Area 14

**Commonwealth of Massachusetts**
NORFOLK [redacted], **Massachusetts**

| **Percolation Test*** | | |
|---|---|---|
| Date: 4/26/07 | Time: A.M. | |
| Observation Hole # | Perc 1 | |
| Depth of Perc | 54" | |
| Start Pre-soak | 10:12 | |
| End Pre-soak | 10:27 | |
| Time at 12" | 10:27 | |
| Time at 9" | 10:31 | |
| Time at 6" | 10:38 | |
| Time (9"-6") | 7 Min. | |
| Rate Min. / Inch | 3 Min. / Inch | |

* Minimum of 1 percolation test must be performed in both the primary area AND reserve area.

Site Passed ☒ Site Failed ☐

Performed By: Seth L. Lajoie, Soil Evaluator

Witnessed By: William Domey

Comments: 11" - 10:29; 10" - 10:30; 8" - 10:33; 7" - 10:36

NORFOLK Massachusetts

# *Soil Suitability Assessment for On-site Sewage Disposal*

Date: 4/26/07

Performed By: DANIEL A. O'DRISCOLL

No. of observation:

Witnessed By: WILLIAM DOMEY

hole logs attached: 2

| | |
|---|---|
| Location Address or Lot #: OAK KNOLL ESTATES AREA #15 OFF SEEKONK ST. | Owner s Name: GILL AXBERG<br>Address: DAVID PIMENTAL |
| New construction ☒ Repair ☐ | Telephone #: |

Office Review

Published Soil Survey Available: No ☐ Yes ☐ Soil: CHARLTON - HOLLIS

Year Published 1989 Publication Scale 1:25000 Soil Map Unit: CbC & ChD

Drainage Class B Soil Limitations DEPTH TO BEDROCK

Surficial Geologic Report Available: No ☒ Yes ☐

Year Published Publication Scale

Geologic Material (Map Unit)

Land form

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 ☐

O'Driscoll Land Surveying Co.
46 Cottage Street
Medway, MA 02053
(508) 533-3314

Wetland Area:

National Wetland Inventory Map (map unit)

Wetlands Conservancy Program Map (map unit)

Current water Resourse Conditions (USGS): Month

Range : ☒ Above Normal ☐ Normal ☐ Below Normal

Other References Reviewed: USGS QUADRANGLE

Method Used: ***Determination for Seasonal High Water Table***

☐ Depth observed standing in observation hole ____ inches ____

☐ Depth weeping from side of observation hole ____ inches ____

☒ Depth to soil mottles No.1 No.2 inches 36" 38"

☐ Ground water adjustment ____ feet ____

Index Well Number ____ Reading Date ____ Index well level ____

Adjustment factor ____ Adjusted ground water level ____

Depth of Naturally Occurring Pervious Material

Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system? YES

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

Certification

I certify that on ( 4/29/97 )I have passed the soil evaluator examination approved by the Department of Environmental Protection and that the above analysis was performend by me consistent with the required training, expertise and experience

Signature Daniel A. O'Driscoll Date 5/04/07

## *On-site Review*

AREA #15

Deep Hole Number NO.1 Date : 4/26/07 Time : 2:00 Weather : SUNNY 60°S

Location (identify on site plan) SEE SITE PLAN

Land Use VACANT Slope (%) 8-15% Surface Stones YES

Vegetation MATURE WOODLAND

Landform KAME TERRACE

Position on landscape

Distances from:

Open Water Body N/A feet Drainageway N/A feet

Possible Wet Area >100 feet Property Line >50 feet

Drinking Water Well N/A feet Other --

# DEEP OBSERVATION HOLE LOG

| Depth from Surface (Inches) | Soil Horizon | Soil Texture (USDA) | Soil Color (Munseil) | Soil Mottling | Other (Structure, Stones, Boulders, Consistency, %Gravel) |
|---|---|---|---|---|---|
| 0"-6" | A | LOAM | 10YR 3/2 | | CRUMB |
| 6"-24" | BW | SANDY LOAM | 10YR 4/6 | | MASSIVE, BLOCKY |
| 24"-105" | C1 | LOAMY SAND | 10YR 5/3 | 36" 10YR 5/8 | 50% GRAVEL SUBANGULAR C/B |

Parent Material (geologic) LOOSE TILL Depth to Bedrock: 105"

Depth to Groundwater: Standing Water in the Hole: NONE Weeping from Pit Face: NONE

Estimated Seasonal Ground Water: 36" (MOTTLES) PERCHED?

PVC MONITOR PIPE INSTALLED

AREA #15

## *On-site Review*

Deep Hole Number No.2 Date : 4/26/07 Time : 3:15 Weather : SUNNY 60°S

Location (identify on site plan) SEE SITE PLAN

Land Use VACANT Slope (%) 8-15% Surface Stones YES

Vegetation MATURE WOODLAND

Landform KAME TERRACE

Position on landscape

Distances from:

Open Water Body N/A feet Drainageway N/A feet

Possible Wet Area > 100 feet Property Line > 50 feet

Drinking Water Well N/A feet Other --

# DEEP OBSERVATION HOLE LOG

| Depth from Surface (Inches) | Soil Horizon | Soil Texture (USDA) | Soil Color (Munsell) | Soil Mottling | Other (Structure, Stones, Boulders, Consistency, %Gravel) |
|---|---|---|---|---|---|
| 0-8" | A | LOAM | 10YR 3/2 | | CRUMB |
| 8"-28" | Bw | SANDY LOAM | 10YR 4/6 | | BLOCKY, MASSIVE |
| 28"-117" | C | LOAMY SAND | 10YR 5/3 | 38" 10YR 5/8 | 5% GRAVEL SUBANGULAR C/B |

Parent Material (geologic) LOOSE TILL Depth to Bedrock: 117"

Depth to Groundwater: Standing Water in the Hole: NONE Weeping from Pit Face: NONE

Estimated Seasonal Ground Water: 38" (MOTTLES) PERCHED?

PVC MONITOR PIPE INSTALLED

)'Driscoll Land Surveying Co. (508) 533-3314

**FORM 12 - PERCOLATION TEST**

Location Address or Lot No. AREA #15

# COMMONWEALTH OF MASSACHUSETTS

NORFOLK , Massachusetts

| Percolation Test* | | |
|---|---|---|
| Date: 4/26/07 | Time: SEE BELOW | |
| Observation Hole # | No.1 | No.2 |
| Depth of Perc | 30" TO 48" | 32" TO 50" |
| Start Pre-soak | 3:02 | 2:50 |
| End Pre-soak | SEE BELOW | SEE BELOW |
| Time at 12" | 12"@ 3:17, 11"@ 3:21 10"@ 3:26 | 12"@3:05 11"@ 3:08 10"@ 3:11 9"@ 3:15 |
| Time at 9" | 9"@3:31, 8"@3:37 | 8"@ 3:18 7"@ 3:23 |
| Time at 6" | 7"@ 3:43. 6"@3:48 | 6"@ 3:28 |
| Time (9"-6") | 17 MIN | 13 MIN |
| Rate Min./Inch | 6 MIN/INCH | 5 MIN/INCH |

* Minimum of 1 percolation test must be performed in both the primary area AND reserve area.

PASS / FAIL REFERS TO PERCOLATION TEST ONLY

Site Passed ☑ Site Failed ☐

Performed By: DAVID T. FAIST

Witnessed By: WILLIAM DOMEY

Comments:

DEP APPROVED FORM - 12/07/95