

NOTICE OF INTENT
Redevelopment of Single-Family Dwelling

**79 GREENWOOD STREET
MELROSE, MASSACHUSETTS**

MAY 17, 2023

Applicant:

Laura Hamadeh
79 Greenwood Street
Melrose, MA 02176

BSC Job Number: 23458.00

Prepared by:



803 Summer Street
Boston, MA 02127

TABLE OF CONTENTS

- 1.0 COVER LETTER
- 2.0 NOTICE OF INTENT FORM
- 3.0 FILING FEE INFORMATION
- 4.0 PROJECT NARRATIVE
 - 4.1 PROJECT DESCRIPTION
 - 4.2 PRE-DEVELOPMENT DRAINAGE CONDITIONS
 - 4.3 POST-DEVELOPMENT DRAINAGE CONDITIONS
 - 4.4 USGS SITE LOCUS MAP
 - 4.5 MELROSE GIS SITE LOCUS MAP
 - 4.6 FEMA MAP AND FLOOD PLAIN
 - 4.7 DEP GIS ZONE II MAP
 - 4.8 NHESP MAP
 - 4.9 SITE PHOTOGRAPHS
- 5.0 PROPOSED IMPROVEMENTS
- 6.0 STORM DRAINAGE ANALYSIS
 - 6.1 SOIL CONDITIONS
- 7.0 OPERATION AND MAINTENANCE PLAN

APPENDICES

- 1 ABUTTERS LIST
- 2 SITE PLAN
- 3 GEOTECHNICAL REPORT
- 4 LOMA FOR 61 MESSENGER COURT

SECTION 1.0

COVER LETTER

May 17, 2023

Melrose Conservation Commission
562 Main St
Melrose, MA 02176

RE: Notice of Intent - 79 Greenwood Street

Members of the Commission,

On behalf of the application Laura Attached find a completed Notice of Intent, supporting information and checks for the application fees for the above listed site filed under the Massachusetts Wetlands Protection Act and the Melrose Wetland Bylaw.

The site includes approximately 0.21 acres of land and has a single-story single-family dwelling, 2-driveways, a deck, front walkway, and a shed.

The applicant is proposing to raze the existing dwelling and construct a new 2-story dwelling unit in the same footprint with a floor grade about 3 feet higher than the lowest elevation of the existing floor. The project will also modify the driveways. This will include removal of about 460 square feet of paved driveway such that the impervious surface on the lot will be reduced from 23% to 21% and thus runoff rates and volumes will be reduced.

The floor of the crawl space will be the same as that the existing dwelling such that no flood storage volume will be lost. The creation of the crawl space will provide 530 c.f. of flood storage that would otherwise be unavailable being located within the existing dwelling and now being open crawl space.

The site will continue to be serviced by municipal water and sewer.

Vegetated Wetland limits are based on other recent filings in the area. There are wetlands on the subject site. A portion of the house is within the 100-foot buffer zone.

The property is in the FEMA 100-year flood zone A. This flood zone has no base flood elevation. For the purpose of determining the 100-year flood elevation, BSC has relied on a Letter of Map Amendment for the nearby property at 61 Messenger Court. This document places the FEMA 100-year flood plain at elevation 70.9 NAVD. (It is noted that the flood level used in the NOI for the adjacent lot (elevation 73.25) is considered inaccurate as the model used is only approximate and would indicate that the flood waters would pass over Greenwood Street at a depth of 1.6 feet rendering Greenwood Street to be impassible. Such flooding is never known to occur at that level and for that reason the LOMA for 61 Messenger Court is considered superior in describing the Limit of Land Subject to Flooding).

During the flood of March 2010, the applicant reported that the flood waters were level with the rear door threshold (elevation 71.5). This elevation deemed the flood of record.

The existing house was constructed in 1956 and has settled with the floor level differing by 0.9 feet from the front to the rear of the building. Due to this settlement, a geotechnical assessment was completed (see appendix 3) resulting in the need to install pilings (helical piles) for the new foundation. As such the plan includes a pile foundation with concrete grade beams and a crawl space below the house. The crawl space at the same elevation as the existing floor slab will allow flood waters above the base flood elevation to go under the building without impact to flood waters.

We look forward to presenting the plan and addressing any questions you may have. Please do not hesitate to contact our office with any inquiries you may have.

Sincerely,
BSC Group, Inc.



David Crispin PE, PLS
Sr. Associate

P:\2345800\Environmental\PermitApplications\noi\2023-05-12 NOI.docx

SECTION 2.0

NOTICE OF INTENT FORM



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

| |
|-----------------------------|
| Provided by MassDEP: |
| MassDEP File Number |
| Document Transaction Number |
| Melrose |
| City/Town |

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



Note:
Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

| | | |
|---|--------------------------------|---------------------------------|
| <u>79 Greenwood Street</u> a. Street Address | <u>Melrose</u> b. City/Town | <u>02176</u> c. Zip Code |
| <u>Latitude and Longitude:</u> | <u>42.4714</u> d. Latitude | <u>-71.0691</u> e. Longitude |
| <u>f. Assessors Map/Plat Number</u> | <u>g. Parcel /Lot Number</u> | |

2. Applicant:

| | | |
|---|--------------------------------|--|
| <u>Laura</u> a. First Name | <u>Hamadeh</u> b. Last Name | |
| <u>79 Greenwood Street</u> c. Organization | | |
| <u>d. Street Address</u> | | |
| <u>Melrose</u> e. City/Town | <u>MA</u> f. State | <u>02176</u> g. Zip Code |
| <u>339-224-1847</u> h. Phone Number | <u>i. Fax Number</u> | <u>laura.hamadeh@gmail.com</u> j. Email Address |

3. Property owner (required if different from applicant): Check if more than one owner

same
a. First Name

b. Last Name

c. Organization

d. Street Address

e. City/Town f. State g. Zip Code

h. Phone Number i. Fax Number j. Email address

4. Representative (if any):

| | | |
|---|--------------------------------------|--|
| <u>David</u> a. First Name | <u>Crispin PE</u> b. Last Name | |
| <u>BSC Group Inc</u> c. Company | | |
| <u>803 Summer Street</u> d. Street Address | | |
| <u>Boston</u> e. City/Town | <u>MA</u> f. State | <u>02127</u> g. Zip Code |
| <u>617 896 4451</u> h. Phone Number | <u>617 896 4301</u> i. Fax Number | <u>dcrispin@bscgroup.com</u> j. Email address |

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

| | | |
|--------------------------------------|--------------------------------------|--|
| <u>\$500.00</u> a. Total Fee Paid | <u>\$237.50</u> b. State Fee Paid | <u>\$262.50</u> c. City/Town Fee Paid |
|--------------------------------------|--------------------------------------|--|



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

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Melrose

City/Town

A. General Information (continued)

6. General Project Description:

Raze and Replace single family dwelling.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- 1. Single Family Home
- 2. Residential Subdivision
- 3. Commercial/Industrial
- 4. Dock/Pier
- 5. Utilities
- 6. Coastal engineering Structure
- 7. Agriculture (e.g., cranberries, forestry)
- 8. Transportation
- 9. Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. Yes No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Middlesex South

a. County

1063862

b. Certificate # (if registered land)

c. Book

d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

- 1. Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
- 2. Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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Document Transaction Number

Melrose

City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

| Resource Area | Size of Proposed Alteration | Proposed Replacement (if any) |
|--|-----------------------------|-------------------------------|
| a. <input type="checkbox"/> Bank | 1. linear feet | 2. linear feet |
| b. <input type="checkbox"/> Bordering Vegetated Wetland | 1. square feet | 2. square feet |
| c. <input type="checkbox"/> Land Under Waterbodies and Waterways | 1. square feet | 2. square feet |
| | 3. cubic yards dredged | |

| Resource Area | Size of Proposed Alteration | Proposed Replacement (if any) |
|---|---|-------------------------------|
| d. <input checked="" type="checkbox"/> Bordering Land Subject to Flooding | 880 (foot print of building) | 880 |
| | 1. square feet | 2. square feet |
| | 0 | 530 |
| e. <input type="checkbox"/> Isolated Land Subject to Flooding | 3. cubic feet of flood storage lost | 4. cubic feet replaced |
| | 1. square feet | |
| f. <input type="checkbox"/> Riverfront Area | 2. cubic feet of flood storage lost | 3. cubic feet replaced |
| | 2. Name of Waterway (if available) - specify coastal or inland | |

2. Width of Riverfront Area (check one):

- 25 ft. - Designated Densely Developed Areas only
- 100 ft. - New agricultural projects only
- 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet _____ b. square feet within 100 ft. _____ c. square feet between 100 ft. and 200 ft. _____

5. Has an alternatives analysis been done and is it attached to this NOI? Yes No

6. Was the lot where the activity is proposed created prior to August 1, 1996? Yes No

3. Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f.** above.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Melrose

City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

| <u>Resource Area</u> | <u>Size of Proposed Alteration</u> | <u>Proposed Replacement (if any)</u> |
|---|---|---|
| a. <input type="checkbox"/> Designated Port Areas | Indicate size under Land Under the Ocean, below | |
| b. <input type="checkbox"/> Land Under the Ocean | _____ | |
| | 1. square feet | |
| | _____ | |
| | 2. cubic yards dredged | |
| c. <input type="checkbox"/> Barrier Beach | Indicate size under Coastal Beaches and/or Coastal Dunes below | |
| d. <input type="checkbox"/> Coastal Beaches | _____ | _____ |
| | 1. square feet | 2. cubic yards beach nourishment |
| e. <input type="checkbox"/> Coastal Dunes | _____ | _____ |
| | 1. square feet | 2. cubic yards dune nourishment |
| | <u>Size of Proposed Alteration</u> | <u>Proposed Replacement (if any)</u> |
| f. <input type="checkbox"/> Coastal Banks | _____ | |
| | 1. linear feet | |
| g. <input type="checkbox"/> Rocky Intertidal Shores | _____ | |
| | 1. square feet | |
| h. <input type="checkbox"/> Salt Marshes | _____ | _____ |
| | 1. square feet | 2. sq ft restoration, rehab., creation |
| i. <input type="checkbox"/> Land Under Salt Ponds | _____ | |
| | 1. square feet | |
| | _____ | |
| | 2. cubic yards dredged | |
| j. <input type="checkbox"/> Land Containing Shellfish | _____ | |
| | 1. square feet | |
| k. <input type="checkbox"/> Fish Runs | Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above | |
| | _____ | |
| | 1. cubic yards dredged | |
| l. <input type="checkbox"/> Land Subject to Coastal Storm Flowage | _____ | |
| | 1. square feet | |
| 4. <input type="checkbox"/> Restoration/Enhancement | If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here. | |
| | _____ | _____ |
| | a. square feet of BVW | b. square feet of Salt Marsh |
| 5. <input type="checkbox"/> Project Involves Stream Crossings | | |
| | _____ | _____ |
| | a. number of new stream crossings | b. number of replacement stream crossings |



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Melrose

City/Town

C. Other Applicable Standards and Requirements

- This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

- a. Yes No **If yes, include proof of mailing or hand delivery of NOI to:**

**Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581**

b. Date of map _____

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

- c. Submit Supplemental Information for Endangered Species Review*

1. Percentage/acreage of property to be altered:
 - (a) within wetland Resource Area _____ percentage/acreage
 - (b) outside Resource Area _____ percentage/acreage

2. Assessor’s Map or right-of-way plan of site

2. Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **
 - (a) Project description (including description of impacts outside of wetland resource area & buffer zone)
 - (b) Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <https://www.mass.gov/ma-endangered-species-act-mesa-regulatory-review>).

Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Melrose

City/Town

C. Other Applicable Standards and Requirements (cont'd)

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
- a. Yes No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
- b. ACEC
5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?
- a. Yes No
6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?
- a. Yes No
7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?
- a. Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:
1. Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)
 2. A portion of the site constitutes redevelopment
 3. Proprietary BMPs are included in the Stormwater Management System.
- b. No. Check why the project is exempt:
1. Single-family house
 2. Emergency road repair
 3. Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

- This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
2. Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.

Online Users:
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Melrose

City/Town

D. Additional Information (cont'd)

3. Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. List the titles and dates for all plans and other materials submitted with this NOI.

C

a. Plan Title

Certified Plot Plan 79 Greenwood
St.Melrose, MA

5/12/23

d. Final Revision Date

David Crispin PE PLS

c. Signed and Stamped by

1"=10'

e. Scale

f. Additional Plan or Document Title

g. Date

5. If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. Attach NOI Wetland Fee Transmittal Form

9. Attach Stormwater Report, if needed.

E. Fees

1. Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

2. Municipal Check Number

3. Check date

4. State Check Number

5. Check date

6. Payor name on check: First Name

7. Payor name on check: Last Name



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

| |
|-----------------------------|
| Provided by MassDEP: |
| MassDEP File Number |
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| Melrose |
| City/Town |

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

| | | |
|---|------------------------|---------|
| 1. Signature of Applicant | <i>Laura A Hamadeh</i> | 5/18/23 |
| | | 2. Date |
| 3. Signature of Property Owner (if different) | <i>[Signature]</i> | 5/19/23 |
| | | 4. Date |
| 5. Signature of Representative (if any) | | 6. Date |

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

SECTION 3.0

FILING FEE INFORMATION



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

| Step 1/Type of Activity | Step 2/Number of Activities | Step 3/Individual Activity Fee | Step 4/Subtotal Activity Fee |
|------------------------------------|-----------------------------|--------------------------------|------------------------------|
| 2 construct single family dwelling | 1 | \$500.00 | \$500.00 |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |

Step 5/Total Project Fee: _____

Step 6/Fee Payments:

| | |
|--------------------------------|--------------------------------------|
| Total Project Fee: | \$500.00 |
| State share of filing Fee: | \$237.50 |
| City/Town share of filing Fee: | \$262.50 |
| | a. Total Fee from Step 5 |
| | b. 1/2 Total Fee less \$12.50 |
| | c. 1/2 Total Fee plus \$12.50 |

C. Submittal Requirements

- a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
 Box 4062
 Boston, MA 02211

- b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

SECTION 4.0

PROJECT NARRATIVE

4.1 PROJECT DESCRIPTION

Laura Hamadeh, the “Applicant”, is proposing to raze and reconstruct the dwelling at 79 Greenwood Street, Melrose Massachusetts. The existing property, approximately 0.21 acres, includes a single-family dwelling, shed and driveways on a cleared lot.

The site plan is attached in appendix 2.

The project has been designed to comply with the Massachusetts Wetland Protection Act (310 CMR 10.00) regulations and local standards and By Laws.

4.2 PRE-DEVELOPMENT DRAINAGE CONDITIONS

The site includes approximately 0.21 acres of land. The site is located within the large watershed that flows from Wakefield and passes through the site in a large culvert (shown on the attached plan). When the culvert is overtaxed the area floods into the rear yard of the site and inundates the area. This inundation area is shown as FEMA 100-year flood zone A. This flood zone has no base flood elevation. For the purpose of determining the regulated 100-year flood elevation, BSC has relied on a Letter of Map Amendment for the nearby property at 61 Messenger Court (see appendix 4). This document places the FEMA 100- year flood plain at elevation 70.9.

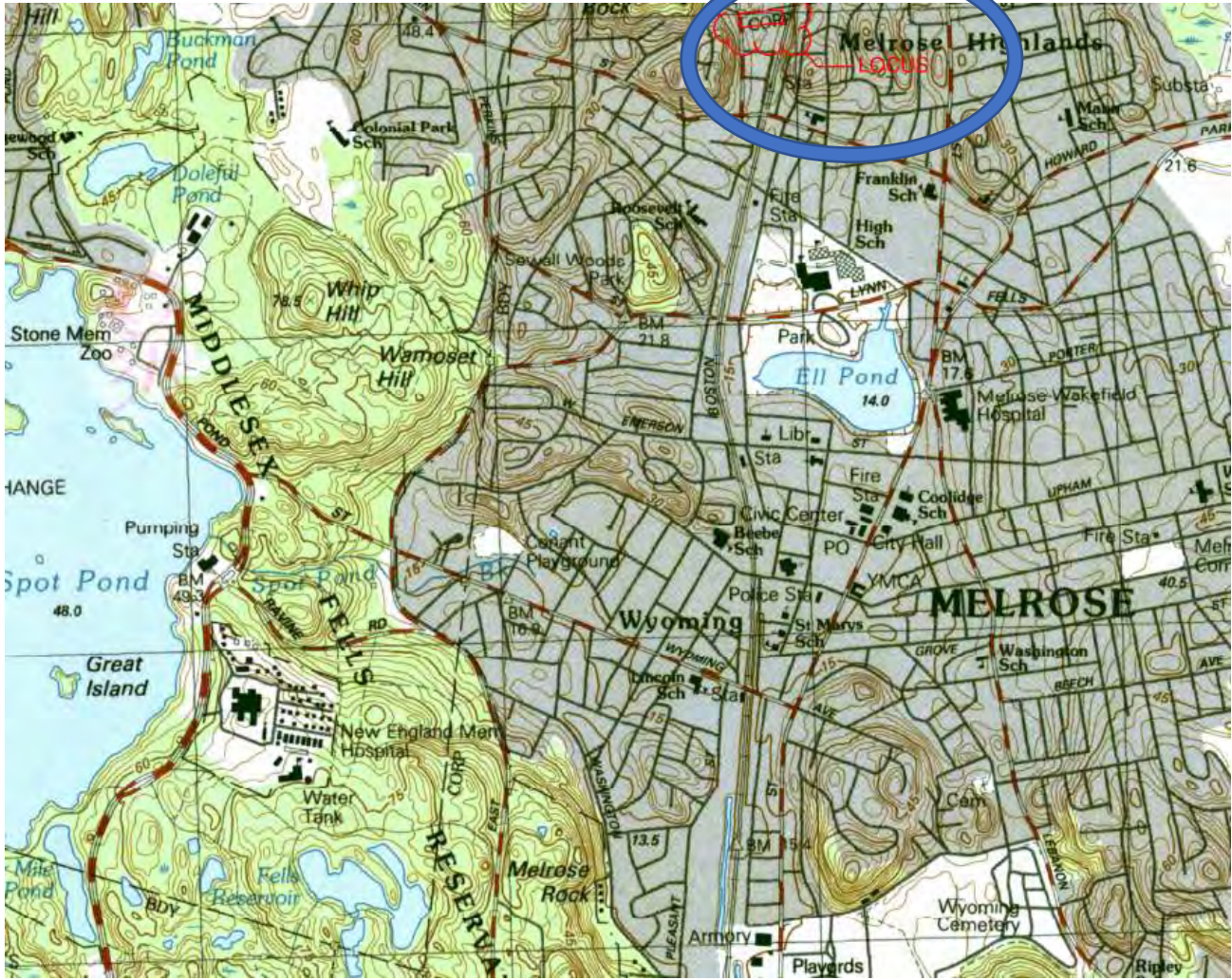
During the flood of March 2010, the applicant reported that the flood waters were level with the rear door threshold (elevation 71.5). This elevation deemed the flood of record.

4.3 POST-DEVELOPMENT DRAINAGE CONDITIONS

The post-development conditions will result in lower runoff rates and volumes than the pre-development as impervious surface is reduced, and the proposed building matches that of the existing footprint and concrete walkway behind the house. Without the need for runoff calculation, the reduction in impervious surface will always be found to reduce runoff rates and volumes.

Thus, the proposed condition has been designed to meet the requirements of the Massachusetts Wetland Protection Act (310 CMR 10.00) as well as the Massachusetts Department of Environmental Protection’s (DEP’s) Massachusetts Stormwater Handbook to the extent practical.

4.4 USGS SITE LOCUS MAP



4.5 MELROSE GIS SITE LOCUS MAP

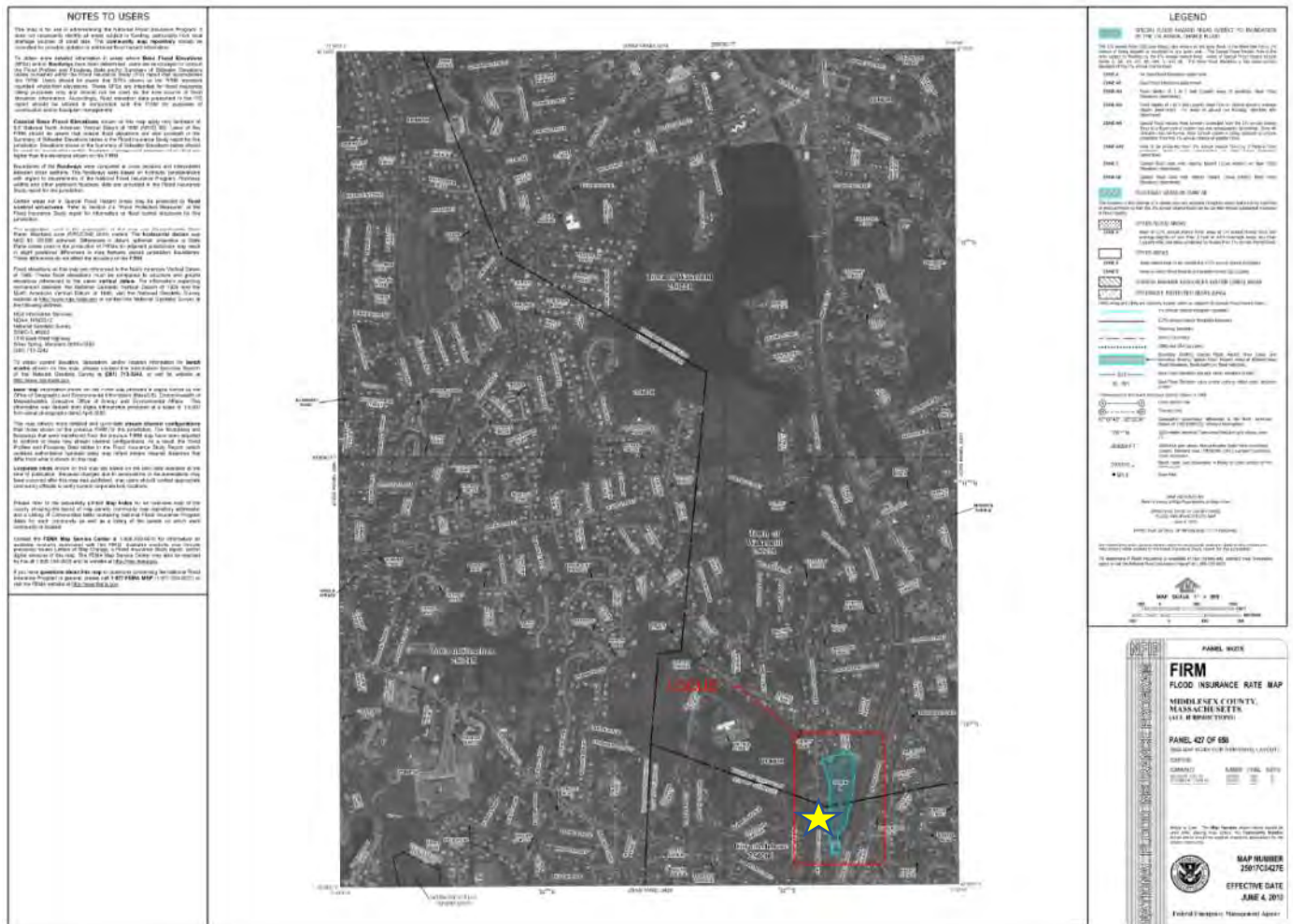


Melrose GIS Map (showing FEMA flood plain in blue)

4.6 FEMA MAP AND FLOOD PLAIN

The lower portion of the site shown as being within the FEMA flood plain (Zone A). (No alteration of the flood plain is proposed.)

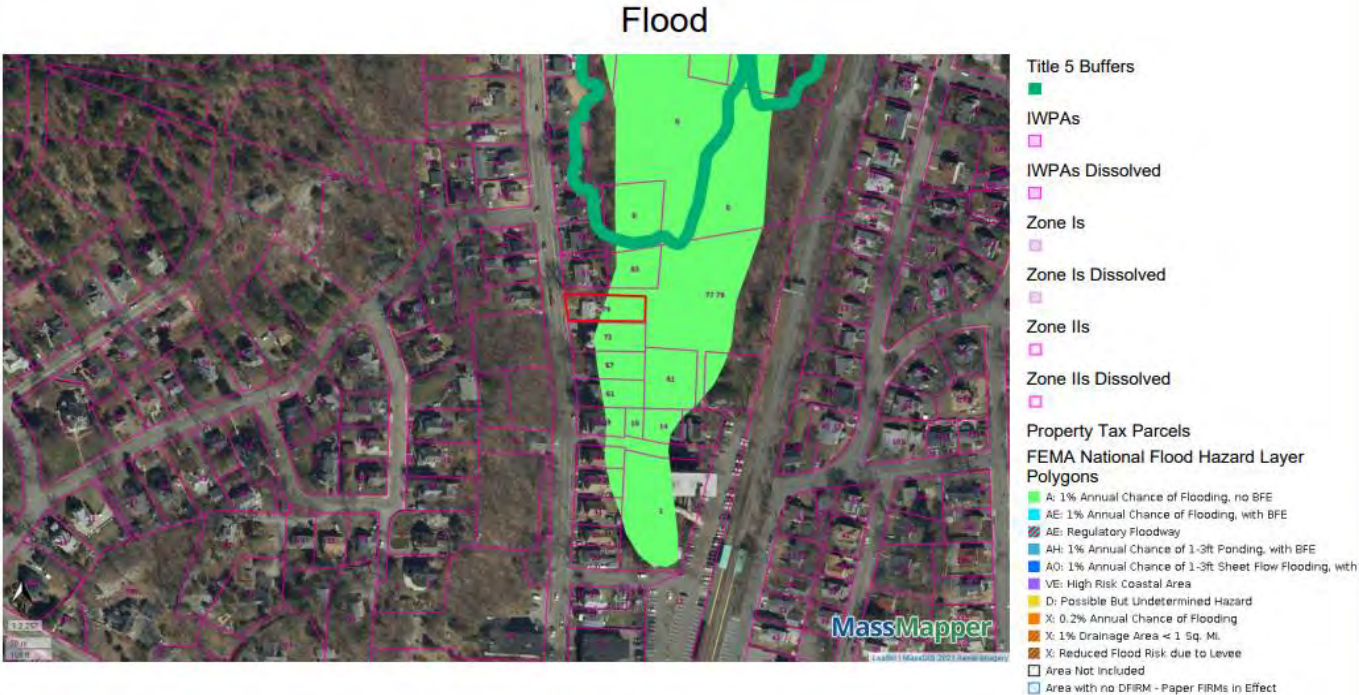
The proposed crawl space will be at the same elevation at the same elevation as the base flood elevation. This will allow flood waters to enter the crawl space during storms above the base flood elevation and then drain out after a flood event. The floor of the crawl space will be the same as that the existing dwelling such that no flood storage volume will be lost. The creation of the crawl space will provide 530 c.f. of flood storage that would otherwise be unavailable being located within the existing dwelling and now being open crawl space.



FEMA Flood Map issued June 4, 2010

4.7 DEP GIS ZONE II MAP

The site is not located in a Zone II water supply area.

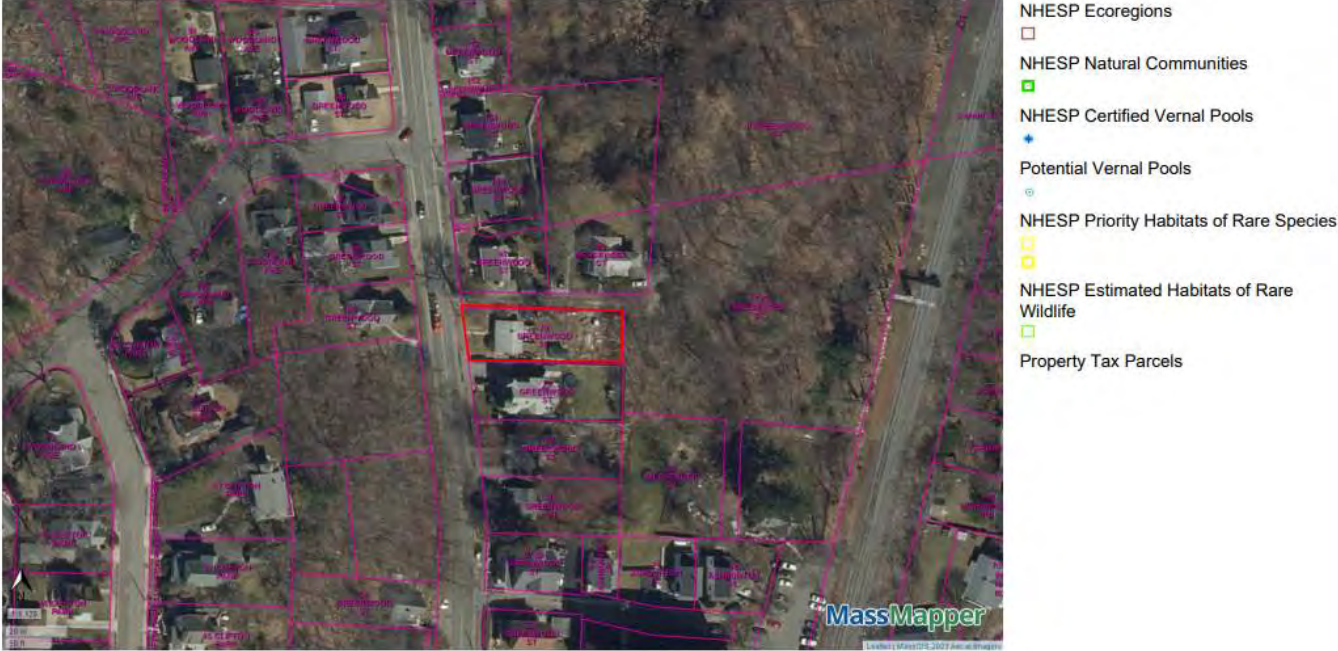


DEP GIS Map

4.8 NHESP MAP

The project limits are not within a NHESP Priority or estimated Habitats of Rare Species.

Species



Estimated Habitat for Rare Species Map (None)

4.9 SITE PHOTOGRAPHS

Image 1



View of the rear of the property from Messenger Court looking south at property. The site is already cleared.

Image 2



Beginning of the drainage culvert that flows through the site (located at the back of 87 Greenwood Street)

Image 3



View of driveway between 73 and 79 Greenwood Street. Site located on left side of picture.

Image 4



View of Messenger Court looking towards Greenwood Street. Site is located on the left side of image.

Image 5



View of Site from Greenwood Street The existing structure is to be removed and replaced with a new dwelling .

Image 6



View of Site from Greenwood Street

SECTION 5.0

PROPOSED IMPROVEMENTS

PROPOSED IMPROVEMENTS

The applicant is proposing to raze the existing dwelling and construct a new 2-story dwelling unit in the same footprint with a floor grade about 3 feet higher than the lowest elevation of the existing floor. The project will also modify the driveways and landscaping. The plan is attached in Appendix 2.

There is a reduction in impervious surfaces as tabulate on the plan, therefore there is no increase in runoff.

The construction sequence for the work shown on the site plan in attachment A is expected to include:

- Installation of erosion controls (straw wattles)
- Demolition of the existing building and foundation
- Installation of helical piles and building foundation.
- Installation of utilities.
- Construction of dwelling
- Landscaping and driveway completion.
- Clean up and removal of erosion controls.

SECTION 6.0

STORM DRAINAGE ANALYSIS

STORM DRAINAGE ANALYSIS

The impervious surface are reduced as tabulated on the site plan in appendix 2 and, without the use of detailed drainage analysis it is certain there is no change in runoff rates or volumes.

6.1 SOIL CONDITIONS

The Natural Resources Conservation Service (NRCS) classifies the site soils as being predominately in Hydrologic Soil Groups B/D (Freetown muck).

52A—Freetown muck, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2t2q9
Elevation: 0 to 1,110 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Freetown and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Freetown

Setting

Landform: Depressions, depressions, swamps, kettles, marshes, bogs
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly decomposed organic material

Typical profile

Oe - 0 to 2 inches: mucky peat
Oa - 2 to 79 inches: muck

Properties and qualities

Slope: 0 to 1 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Rare
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Very high (about 19.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144AY043MA - Acidic Organic Wetlands
Hydric soil rating: Yes

Minor Components

Whitman

Percent of map unit: 5 percent
Landform: Drainageways, depressions

Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

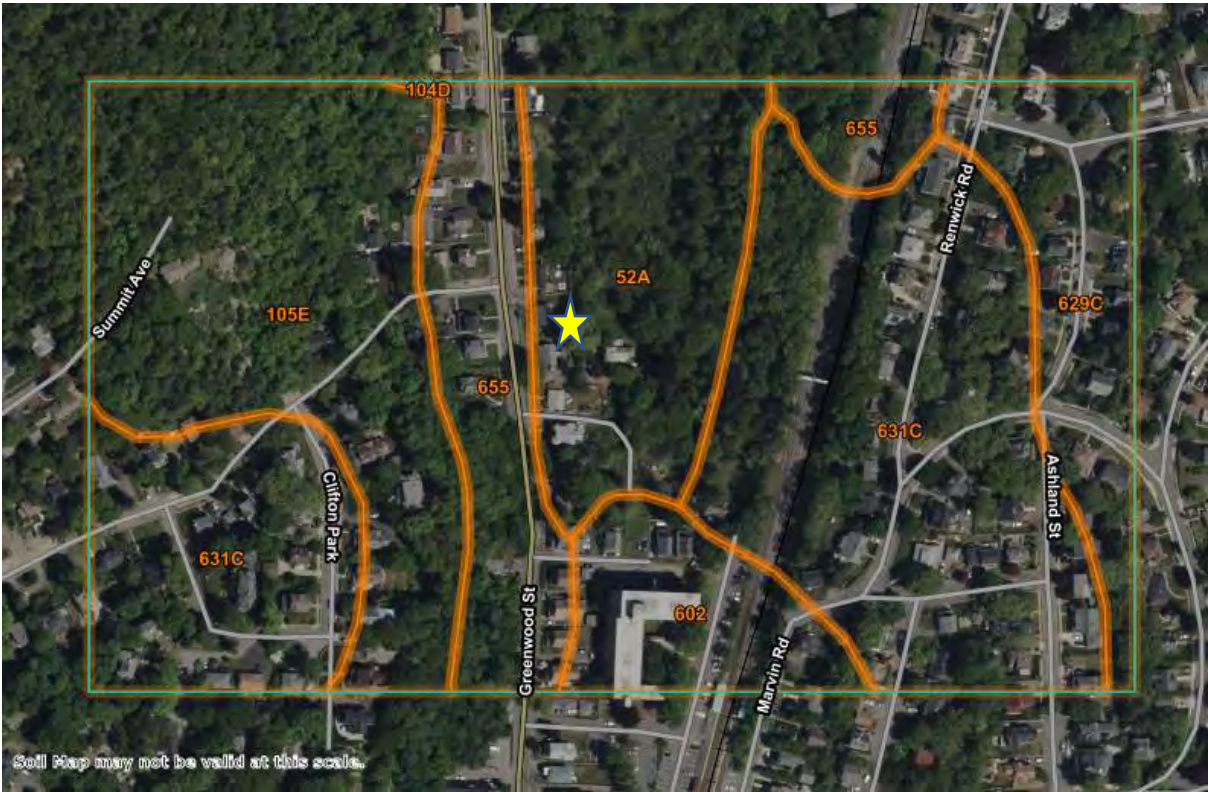
Scarboro

Percent of map unit: 5 percent
Landform: Drainageways, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Swansea

Percent of map unit: 5 percent
Landform: Bogs, swamps, marshes, depressions, depressions, kettles
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

USGS Soils Map



SECTION 7.0

OPERATIONS AND MAINTENANCE PLAN

OPERATIONS AND MAINTENANCE PLAN

GENERAL

The stormwater management plan maintains that of the existing dwelling. During construction, temporary erosion control devices and a construction staging area are proposed. The erosion control devices will serve to minimize construction impacts to wetland resource areas, the surrounding properties, and impacts to undisturbed areas. The temporary measures will be installed prior to any construction within the resource area buffer zones. They will be removed only after surfaces are fully stabilized with permanent vegetation and erosion control has been fully established.

There are no catch basins, recharge chambers, or other drainage facilities on the site that drain the site.

MAINTENANCE RESPONSIBILITY

The site is to be a private property and this maintenance will be by the landowner.

STRAW WATTLE, SILT FENCE AND OTHER TEMPORARY MEASURES

The temporary erosion control measures will be installed up gradient of any wetland resource area where any disturbance or alteration might otherwise allow for erosion or sedimentation. They will be regularly inspected to ensure that they are functioning adequately. Additional supplies of these temporary measures will be stockpiled on site for any immediate needs or routine replacement.

APPENDICES

APPENDIX 1
ABUTTERS LIST

Notification to Abutters

By Hand Delivery, Certified Mail (return receipt requested), or Certificates of Mailing

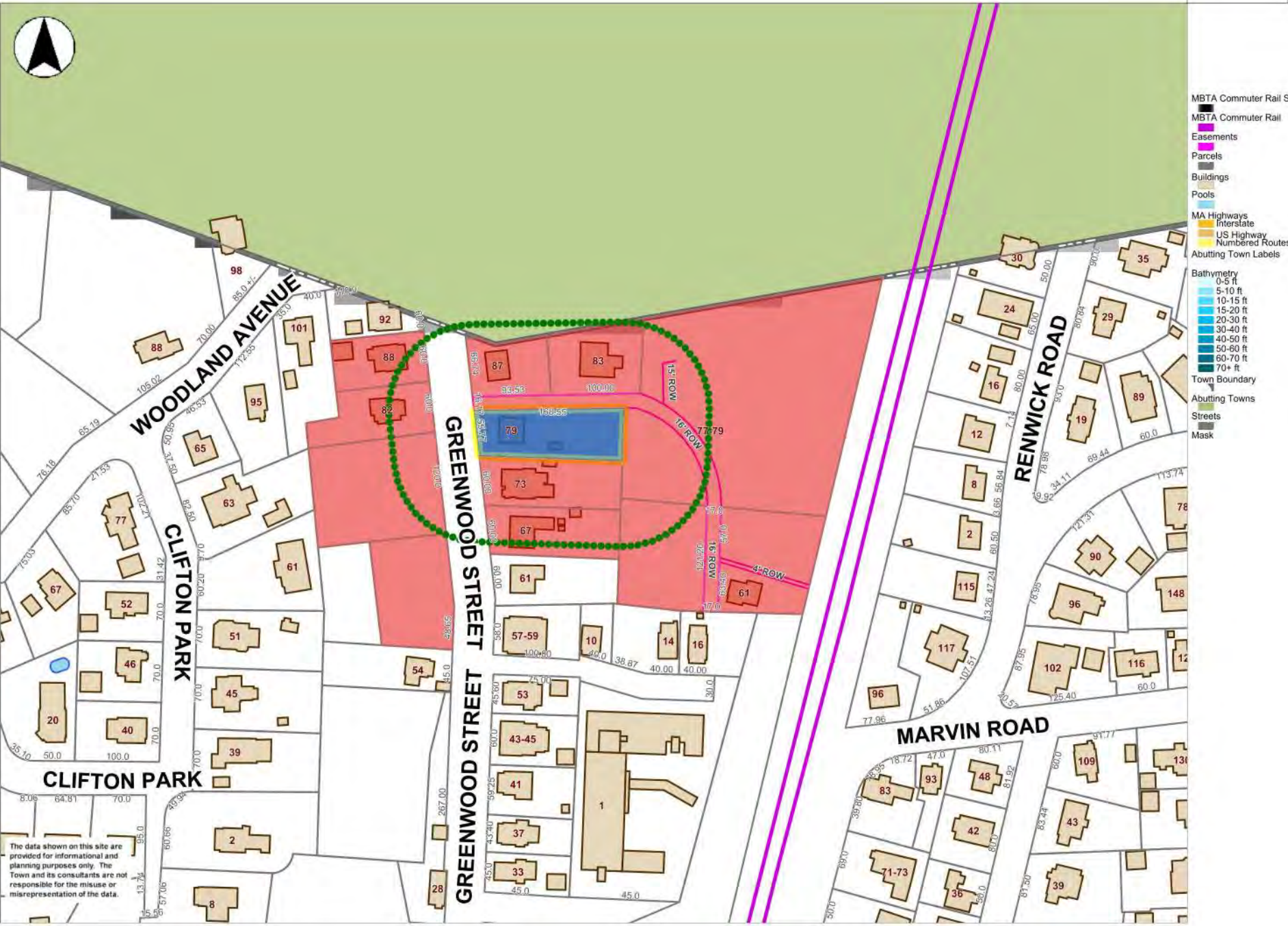
This is a notification required by law. You are receiving this notification because you have been identified as the owner of land abutting another parcel of land for which certain activities are proposed. Those activities require a permit under the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40).

In accordance with the second paragraph of the Massachusetts Wetlands Protection Act, and 310 CMR 10.05(4)(a) of the Wetlands Regulations, you are hereby notified that:

- A. A Notice of Intent was filed with the Melrose Conservation Commission on **June 15, 2023** seeking permission to remove, fill, dredge, or alter an area subject to protection under M.G.L. c. 131 §40. The following is a description of the proposed activity/activities:

The applicant is proposing to raze the existing dwelling and construct a new 2-story dwelling unit in the same footprint with a floor grade about 3 feet higher than the lowest elevation of the existing floor. The project will also modify the driveways.

- B. The name of the applicant is: Laura Hamadeh
- C. The address of the land where the activity is proposed is: 79 Greenwood Street Melrose MA
- D. Copies of the Notice of Intent may be examined or obtained at the office of the Melrose Conservation Commission, located at 562 Main Street Melrose, MA 02176. The regular business hours of the Commission are Monday – Thursday 8:30AM – 4:00PM Friday 8:30AM - 12:30PM and the Commission may be reached at (781) 979-4312
- E. Copies of the Notice of Intent may be obtained from the applicant or her representative by calling David Crispin at BSC Group Inc at 617 896 4451 or by email at dcrispin@bscgroup.com. An administrative fee may be applied for providing copies of the NOI and plans.
- F. Information regarding the date, time, and location of the public hearing regarding the Notice of Intent may be obtained from the Melrose Conservation Commission. Notice of the public hearing will be published at least five business days in advance, in the Melrose Free Press.



The data shown on this site are provided for informational and planning purposes only. The Town and its consultants are not responsible for the misuse or misrepresentation of the data.

0 200 400 ft

Printed on 05/17/2023 at 09:01 AM

Map of 79 Greenwood St.

- MBTA Commuter Rail Station
- MBTA Commuter Rail
- Easements
- Parcels
- Buildings
- Pools
- MA Highways
 - Interstate
 - US Highway
 - Numbered Routes
- Abutting Town Labels
- Bathymetry
 - 0-5 ft
 - 5-10 ft
 - 10-15 ft
 - 15-20 ft
 - 20-30 ft
 - 30-40 ft
 - 40-50 ft
 - 50-60 ft
 - 60-70 ft
 - 70+ ft
- Town Boundary
- Abutting Towns
- Streets
- Mask

| abutters_id_field | abutters_owner1 | abutters_owner2 |
|-------------------|--|--------------------------------|
| B13 0 85 | CITY OF, MELROSE | CONSERVATION |
| B13 0 86 | BARTHOLOMEW, JEAN | FAUSTINO S. RUMBAUA, HWTE |
| B13 0 87 | SINGH, TARUN K. | |
| B13 0 89 | RAZO, MICHAEL D. | LEILANI A. ROSER, HWTE |
| B13 0 89A | JOHNSON, ROBERTA F | |
| B13 0 90 | HAMADEH, LAURA A | |
| B13 0 91 | D'ANTONIO, CHARLES, JR. & ANGELA VITULLI | D'ANTONIO VITULLI FAMILY TRUST |
| B13 0 92 | SANTOS-ROSA LUIS | |
| C13 0 1 | H.B DEVELOPMENT CORP. | |
| C13 0 2-4 | SATHER, AARON | GUADALUPE SATHER, HWTE |
| B13 0 84A | CITY OF MELROSE | CONSERVATION COMMISION |

City Of Melrose Board Of Assessor's Certified Abutter's List



5/17/2023

| abutters_address | abutters_address2 | abutters_town | abutters_state | abutters_zip | abutters_bookpage |
|--------------------|-------------------|---------------|----------------|--------------|-------------------|
| GREENWOOD ST | | MELROSE | MA | 02176 | 0-0 |
| 82 GREENWOOD ST | | MELROSE | MA | 02176 | 70677-426 |
| 88 GREENWOOD ST | | MELROSE | MA | 02176 | 73177-169 |
| 87 GREENWOOD ST | | MELROSE | MA | 02176 | 71373-442 |
| 83 MESSENGER CT | | MELROSE | MA | 02176 | 1191-117* |
| 79 GREENWOOD ST | | MELROSE | MA | 02176 | 1186-160* |
| 73 GREENWOOD ST | | MELROSE | MA | 02176 | 1553-59 |
| 67 GREENWOOD ST | | MELROSE | MA | 02176 | 1567-101 |
| 30 LOWELL ST. | | WILMINGTON | MA | 01887 | 81513-463 |
| 61 MESSENGER COURT | | MELROSE | MA | 02176 | 31906-396 |
| 562 MAIN ST | | MELROSE | MA | 02176 | 51051-13 |

abutters_location

| |
|-----------------|
| GREENWOOD ST |
| 82 GREENWOOD ST |
| 88 GREENWOOD ST |
| 87 GREENWOOD ST |
| 83 MESSENGER CT |
| 79 GREENWOOD ST |
| 73 GREENWOOD ST |
| 67 GREENWOOD ST |
| 77 MESSENGER CT |
| 61 MESSENGER CT |
| GREENWOOD ST |

| abutters_location |
|-------------------|
| GREENWOOD ST |
| 82 GREENWOOD ST |
| 88 GREENWOOD ST |
| 87 GREENWOOD ST |
| 83 MESSENGER CT |
| 79 GREENWOOD ST |
| 73 GREENWOOD ST |
| 67 GREENWOOD ST |
| 77 MESSENGER CT |
| 61 MESSENGER CT |
| GREENWOOD ST |

| abutters_id_field | abutters_owner1 | abutters_owner2 |
|-------------------|--|--------------------------------|
| B13 0 815 | CITY OF MELROSE | CONSERVATION |
| B13 0 86 | BARTHOLOMEW, JEAN | FAUSTINO S. RUMBAUA, HWTE |
| B13 0 87 | SINGH, TARUN K. | |
| B13 0 89 | RAZO, MICHAEL D. | LEILANI A. ROSEB, HWTE |
| B13 0 89A | JOHNSON, ROBERTA F | |
| B13 0 90 | HAMADEH, LAURA A | |
| B13 0 91 | D'ANTONIO, CHARLES, JR. & ANGELA VITULLI | D'ANTONIO VITULLI FAMILY TRUST |
| B13 0 92 | SANTOS-ROSA LUIS | |
| C13 0 1 | H.B DEVELOPMENT CORP. | |
| B13 0 2-4 | SATHER, AARON | GUADALUPE SATHER, HWTE |
| B13 0 84A | CITY OF MELROSE | CONSERVATION COMMISSION |

| abutters_address | abutters_address2 | abutters_town | abutters_state | abutters_zip |
|--------------------|-------------------|---------------|----------------|--------------|
| GREENWOOD ST | | MELROSE | MA | 02176 |
| 82 GREENWOOD ST | | MELROSE | MA | 02176 |
| 88 GREENWOOD ST | | MELROSE | MA | 02176 |
| 87 GREENWOOD ST | | MELROSE | MA | 02176 |
| 83 MESSENGER CT | | MELROSE | MA | 02176 |
| 79 GREENWOOD ST | | MELROSE | MA | 02176 |
| 73 GREENWOOD ST | | MELROSE | MA | 02176 |
| 67 GREENWOOD ST | | MELROSE | MA | 02176 |
| 30 LOWELL ST. | | WILMINGTON | MA | 01887 |
| 61 MESSENGER COURT | | MELROSE | MA | 02176 |
| 562 MAIN ST | | MELROSE | MA | 02176 |

**WAKEFIELD
Abutters List**

Subject Parcel ID: B13 0 90

Subject Property Location: 79 GREENWOOD ST 02176

| ParcelID | Location | Owner | Co-Owner | Mailing Address | City | State | Zip |
|-------------|------------------|-------------------|------------------|--------------------|-----------|-------|-------|
| 27-349-63A1 | 154 GREENWOOD ST | MURPHY DONNA M | | 154 GREENWOOD ST | WAKEFIELD | MA | 01880 |
| 27-350-63A2 | 156 GREENWOOD ST | GALLAGHER RICHARD | GALLAGHER STELLA | 156 GREENWOOD ST | WAKEFIELD | MA | 01880 |
| 27-352-63D | GREENWOOD ST | JOHNSON ROBERTA F | | 83 MESSENGER COURT | MELROSE | MA | 02176 |

Parcel Count: 3

End of Report

Wakefield Abutters within 100ft the Subject Melrose Parcel ID
Requested by: Kyle Merchant of BSC Group
803 Summer Street
Boston, MA 02127
Ph: 207-604-6302

Scott W. Morrison

BOARD OF ASSESSORS

APPENDIX 2
SITE PLAN

APPENDIX 3
GEOTECHNICAL REPORT



Memorandum

Date: April 3, 2023
Recipient: Laura Hamadeh
Sender: Dylan W. Locke; Jason S. Huestis; Jonathan W. Patch, P.E.
Project: 79 Greenwood Street; Melrose, Massachusetts
Project No: 7612
Subject: Geotechnical Engineering Memorandum

This memorandum provides the results of subsurface explorations and our foundation support recommendations for the residence located at the above-referenced site. These services were conducted in accordance with our proposal dated January 20, 2023, and your subsequent authorization. Refer to the Project Location Plan, **Figure 1**, for the general site locus.

Existing and Proposed Site Conditions

Fronting onto Greenwood Street to the west, the project site consists of a 1-story single-family wood-framed residence with no basement. In general, the project site is bounded by residential properties to the north and south, and a wooded area to the east. It is understood that the existing building has settled beyond what would normally be anticipated for a 1-story residence.

Based on conversations with the owner and project team, it is understood that there are three (3) main options for the proposed redevelopment of the residence. The first two options consist of either adding a second-story addition to the residence or adding an addition on the east side of the home. The third option would consist of the demolition of the existing structure and the construction of a modular-style residence. It is anticipated that the modular-style residence would be constructed on perimeter foundation walls with a crawl space.

Subsurface Conditions

A phased subsurface exploration program consisting of three (3) test pits and two (2) borings were completed at the project site to assess the subsurface soil profile and existing foundation conditions. Test pits were completed on February 10, 2023, by TBR Excavating of Boxborough, Massachusetts under contract to others. Borings were completed on March 8, 2023, by Geosearch Inc. of Sterling, Massachusetts under contract to McPhail. The approximate location of the test pits and borings is indicated on the enclosed **Figure 2**, Subsurface Exploration Plan.

The subsurface explorations were monitored by personnel from McPhail who performed field layout by taping from existing structures, prepared test pit and boring logs, obtained and



Memorandum

visually classified soil samples, monitored groundwater conditions in the completed test pits and borings, and determined the depth of the exploration based upon actual subsurface conditions encountered.

A detailed description of the subsurface conditions encountered within the test pits and borings is documented on the attached test pit and boring logs. The following is a description of the generalized subsurface conditions across the project site encountered from the ground surface downward.

Soil Conditions

Based on the explorations performed at the site, the following is a description of the generalized subsurface conditions across the site encountered from the ground surface downward.

The existing ground surface was generally observed to consist of a layer of topsoil ranging from 3 to 6 inches in thickness. In general, the topsoil was observed to consist of a loose, dark brown, sandy silt with some gravel and frequent roots.

A 4.25 to 6.5-foot-thick layer of miscellaneous uncontrolled fill material was encountered underlying the topsoil. The fill material was observed to typically vary from a very loose to compact, light brown to brown, sand and gravel with some silt and frequent cobbles, transitioning to a very loose to compact light gray, sandy silt, some gravel, with coal, ash and cinders.

Below the fill material, a 7.5 to 10-foot-thick highly compressible organic deposit was encountered. The organic deposit consists of a very soft, brown-to-black silt and organic peat. The test pits were terminated at depths of 8 to 9.5 feet, which was the limit of the excavating equipment, in the organics.

Below the organic deposit, a natural glacial outwash deposit was encountered in the borings at depths of 14 and 16 feet. The glacial outwash deposit consists of a compact, orange-brown, sand with some silt. The borings were terminated in the glacial outwash at depths of 27 feet below ground surface.

Groundwater Conditions

The groundwater level in the completed boreholes and test pits completed by McPhail was observed to range from depths of approximately 4 to 6 feet below ground surface. It is anticipated that future groundwater levels across the site may vary from those reported herein due to factors such as normal seasonal changes and alterations of existing drainage patterns or become perched on the surface of the relatively impervious organic deposit, particularly during or following periods of heavy precipitation.



Memorandum

Existing Foundation Conditions

Test pits TP-1 and TP-2 were excavated adjacent to the existing northwest and northeast corners of the building. The foundation was observed in each test pit to consist of a concrete foundation wall supported on a concrete footing bearing directly on the miscellaneous uncontrolled fill deposit. The footings appeared to be earth formed.

The footings were observed to be 18 to 28 inches thick and extend 6 to 8 inches outward from the face of the perimeter foundation wall. The bottom of the footings were observed at depths of 4.5 to 5 feet below the existing ground surface.

Probable Cause of Existing Building Settlement

The observed settlement of the existing structure is considered to be the result of the existing soil-supported spread footings bearing in the uncontrolled fill which is underlain by a highly compressible organic deposit. Specifically, the weight of the existing uncontrolled fill and the load transfer of the fill and from the existing soil supported spread footings to the organics caused the organics to compress which resulted in the overlying structure settling. Its possible that the existing structure will continue to settle even with no appreciable changes to the existing structure.

Foundation Design Recommendations

Additional load applied to the existing footings would result in additional total and differential settlement of the house which could cause additional cosmetic damage to the structure and depending on the magnitude of settlement potentially major structural damage. Therefore, it is not recommended that a second story or an addition be added to the existing structure unless the addition and/or existing structure is resupported on foundations that transfer the load to below the organic soils. Additionally, an addition that is supported by a foundation system that transfers structural loads into the glacial outwash deposit will be on a stiffer foundation system than the existing building. This will cause the addition and existing building to settle differentially and may cause cosmetic and structural damage to the existing building.

In consideration of the subsurface conditions encountered at the site and the scope of the proposed construction, namely its small size and anticipated lightly-loaded nature, it is recommended that foundation support for the proposed new structures be provided by perimeter foundation walls supported by helical pile foundations that transfers the structural loads through the unsuitable fill and compressible organic deposits to the underlying glacial outwash deposit. Perimeter foundation walls should be provided with a minimum 4-foot thickness of soil cover as frost protection. Additionally, if a second floor addition is planned, the existing structure should be resupported on helical piles. A structural engineer should be engaged to design the perimeter foundation wall which should include a layout of the helical piles and pile connection details.



Memorandum

Given the anticipated modest structural loads, helical piles with design compressive capacities of 20 kips are anticipated to be the most economical pile foundation system to provide foundation support for the proposed addition or the proposed modular home. The following subsections provide specific design recommendations for the helical piles as well as general foundation design recommendations.

Helical Pile Recommendations

A helical pile is a factory-manufactured unit consisting of a central round steel shaft and one to four steel, helix-shaped bearing plates welded to the lead shaft. The diameters of the helices typically range from about 6 to 14 inches. Helical piles are installed by simultaneously applying a downward force and rotating the pile into the soil using a hydraulic torque drive. Shaft extensions are added until the helical bearing plates reach the required depth and minimum installation torque within the design bearing stratum required to support the design load. Helical piles can also be equipped with a displacement plate attached to one or more of the shaft extensions that creates a soil void surrounding the shaft as it is advanced. A grout reservoir is maintained in the voided portion during installation and this reservoir creates a hardened grout column surrounding the steel shafts after installation is completed. During installation, the torque should be measured using a direct in-line electronic torque meter that has been recently calibrated.

As indicated above, it is recommended that new structural elements be supported on helical pile foundations. Based on the observed soil conditions and discussions with the design team, it is recommended that a design capacity of 20 kips in compression be utilized for design purposes. To obtain up this capacity, it is anticipated that a 3-helix lead section may be used consisting of 8-inch, 10-inch, and 12-inch diameter helices. However, the actual helix configuration will be dependent on the design of the pile contractor. Each helical pile should have all bearing plates fully embedded in the natural, glacial outwash deposit.

Helical pile capacity is typically dependent on the type of soil and the size and configuration of the helical pile as installed by a specialty foundation pile contractor. Therefore, the helical pile design should be performed by a Professional Engineer registered in the Commonwealth of Massachusetts who is retained by the specialty foundation pile contractor. The helical pile design should be submitted for review to both the project structural engineer and the project geotechnical engineer.

The production helical pile installations should be observed on a full-time basis by a registered design professional or their designated representative in accordance with Section 1705.9 of the Ninth Edition of the Massachusetts State Building Code (Code).

The helical pile lead and extension shafts should consist of round galvanized steel shafts. The interior of the pile shaft should be fully grouted. The helical piles should conform to the design and installation requirements contained within Section 1810.3.1.5, 1810.3.3.1.9, and 1810.4.11 of the Code.



Memorandum

Foundation Construction Considerations

Obstructions to Helical Pile Installation

Based on the nature of the existing fill, namely the observed presence of cobbles within the test pits, obstructions to helical pile installation activities may be encountered. Should an obstruction be encountered which prevents the installation of a particular helical pile, the location should be evaluated on a case-by-case basis to determine the necessity to remove the obstruction by means of excavation or to design the structure to span over the obstruction.

Groundwater Control

Groundwater was observed within the completed borings and test pits at a depth of 4 to 6 feet below ground surface. It is not anticipated that significant groundwater control will be required during the construction period. Dewatering by means of conventional sumping should suffice for groundwater control. It is recommended that all pumped groundwater be recharged on-site.

Closing

It is recommended that McPhail be retained to provide design assistance to the design team during the final design phase of this project. The purpose of this involvement is to review the structural foundation drawings and foundation notes for conformance with the recommendations presented herein. It is also recommended that McPhail be retained during the construction period to observe helical pile installation in accordance with the provisions of the Code. Our involvement during the construction phase of the work should minimize costly delays due to unanticipated field problems since our field engineer would be under the direct supervision of our project manager who was responsible for the subsurface explorations and foundation design recommendations documented herein.

We trust that the above is sufficient for your present requirements. Should you have any questions, please do not hesitate to call us.

N:\Working Documents\Reports\7612_79 Greenwood Street Melrose_Geotechnical Memorandum_040323.docx

DWL/jsh/jwp

Attachments:

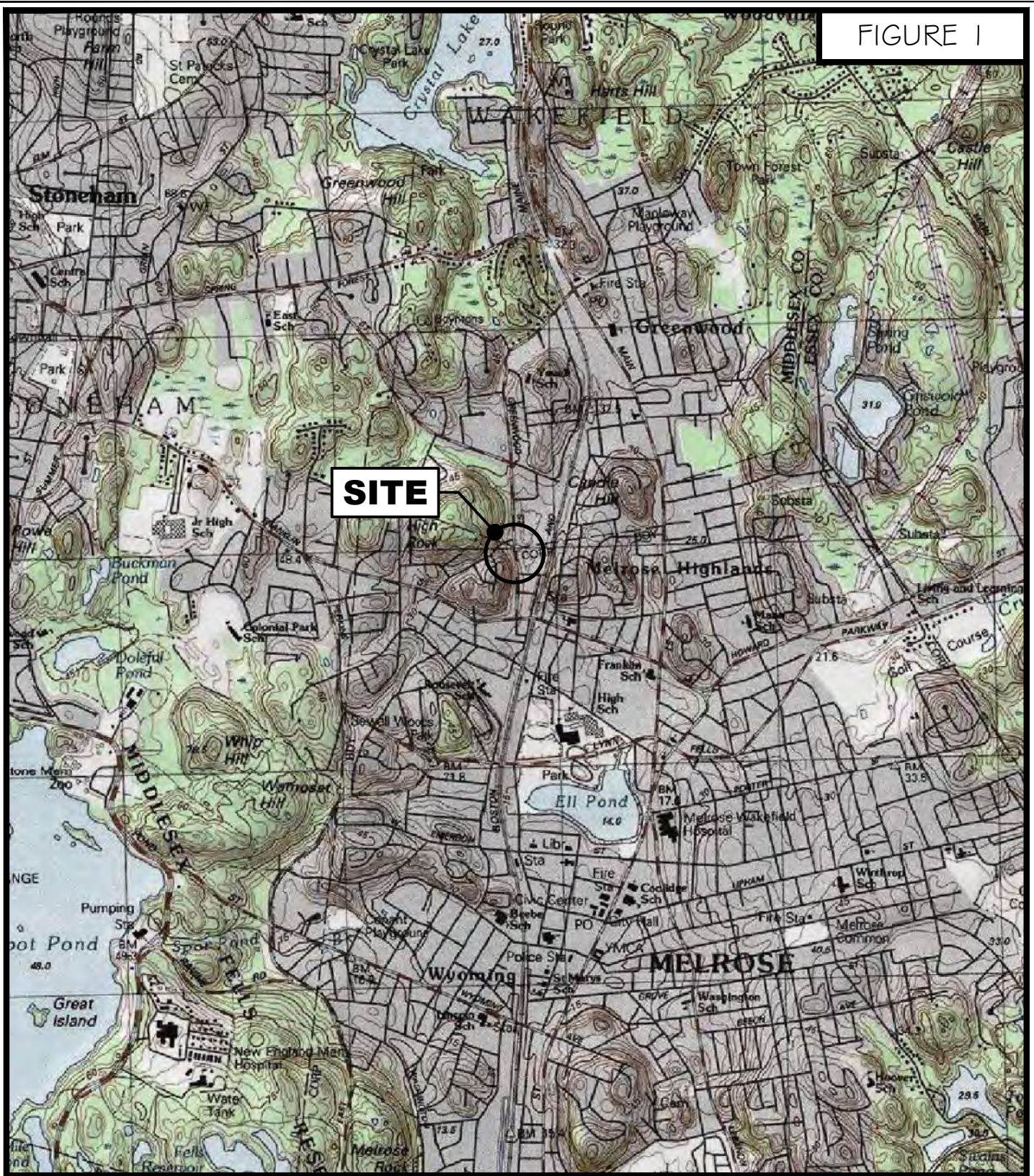
Figure 1 – Project Location Plan

Figure 2 – Subsurface Exploration Plan

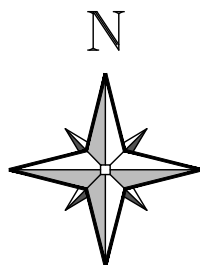
Test Pit Logs TP-1 to TP-3

Boring Logs B-1 to B-2

FIGURE 1



Geotechnical and
Geoenvironmental Engineers
2269 Massachusetts Avenue
Cambridge, MA 02140
617/868-1420
617/868-1423 (Fax)
www.mcphailgeo.com



SCALE 1:25,000

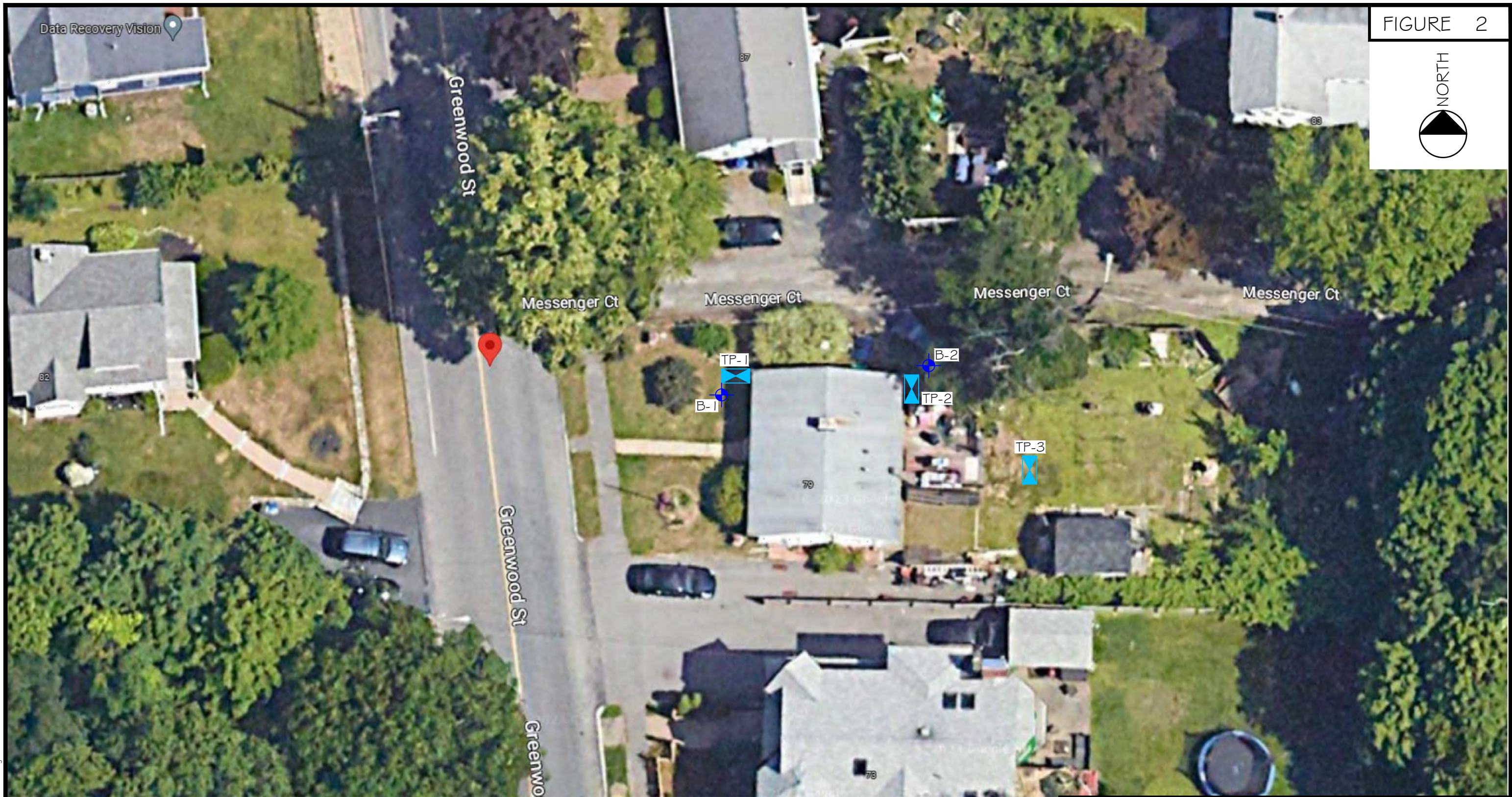
PROJECT LOCATION PLAN

79 GREENWOOD STREET



MELROSE

MASSACHUSETTS

FIGURE 2



LEGEND

-  — APPROXIMATE LOCATION OF TEST PIT PERFORMED BY TBR EXCAVATING ON FEBRUARY 10, 2023 UNDER CONTRACT TO OTHERS AND OBSERVED BY McPHAIL ASSOCIATES, LLC
-  — APPROXIMATE LOCATION OF BOREHOLE PERFORMED BY GEOSEARCH INC. ON MARCH 8, 2023 FOR McPHAIL ASSOCIATES, LLC

REFERENCE: THIS PLAN WAS PREPARED FROM A NOT-TO-SCALE IMAGE ENTITLED, "79 GREENWOOD STREET" OBTAINED ON MARCH 29, 2023 FROM GOOGLE EARTH



McPHAIL ASSOCIATES, LLC
 Geotechnical and Geoenvironmental Engineers
 2269 Massachusetts Avenue
 Cambridge, MA 02140
 617/868-1420
 617/868-1423 (Fax)
 www.mcphailgeo.com

| | | | |
|-----------------------------|------------|---------------|--------|
| 79 GREENWOOD STREET | | | |
| MELROSE | | MASSACHUSETTS | |
| SUBSURFACE EXPLORATION PLAN | | | |
| FOR | | | |
| LAURA HAMADEH | | | |
| BY | | | |
| McPHAIL ASSOCIATES, LLC | | | |
| Date: | MARCH 2023 | Dwn: | M.B.S. |
| Project No: | 7612 | Chkd: | D.W.L. |
| | | Scale: N.T.S. | |



JOB NO. 7612.2.00
 DATE 02/10/23

TEST PIT LOG

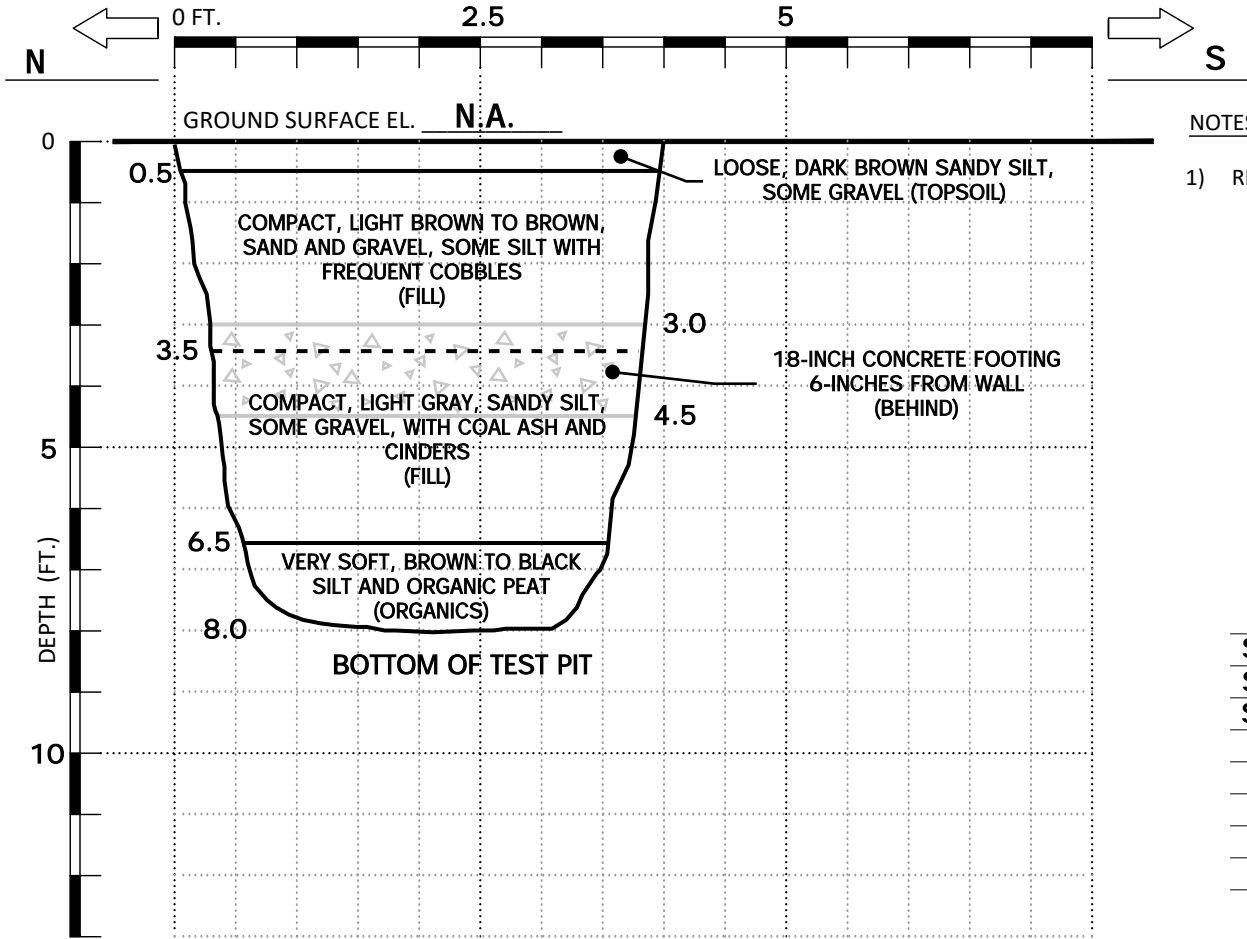
TEST PIT NO. TP-1

McPHAIL REP.: D. Locke
 WEATHER: Sunny 50s

CONTRACTOR: TBR Excavating
 OPERATOR: Thallas

EXCAVATOR MAKE: Bobcat
 EXCAVATOR MODEL: E-85

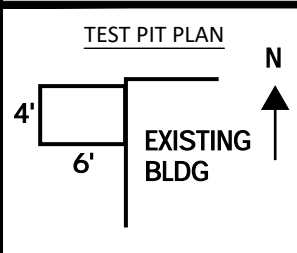
DEPTH TO GROUNDWATER: 5 FT
 FLOW: STANDING WATER
 TRICKLING HIGH FLOW



NOTES:

- 1) REFER TO PHOTO PAGE ATTACHED.

| SAMPLES OBTAINED | | | |
|------------------|--------|------------|-----------|
| I.D. | STRATA | DEPTH (FT) | PID (ppm) |
| S-1 | FILL | 0.5 - 3.5 | |
| S-2 | FILL | 3.5 - 6.5 | |
| S-3 | ORG | 6.5 - 8 | |
| | | | |
| | | | |
| | | | |
| | | | |



| STRATA | COBBLES/BOULDERS | | |
|------------------------|------------------|----------|----------|
| | FILL (1) | FILL (2) | ORGANICS |
| COBBLES (2"-8") | 10-15% | 0% | 0% |
| SMALL BOULDER (8"-24") | 5% | 0% | 0% |
| LARGE BOULDER (>24") | 0% | 0% | 0% |

| SOIL COMPONENT | | |
|-------------------------------|---------------------|--|
| DESCRIPTIVE TERM | PROPORTION OF TOTAL | SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF" |
| "TRACE" | 0-10% | |
| "SOME" | 10-20% | |
| "ADJECTIVE" (eg SANDY, SILTY) | 20-35% | |
| "AND" | 35-50% | |



JOB NO. 7612.2.00
 DATE 02/10/23

TEST PIT LOG

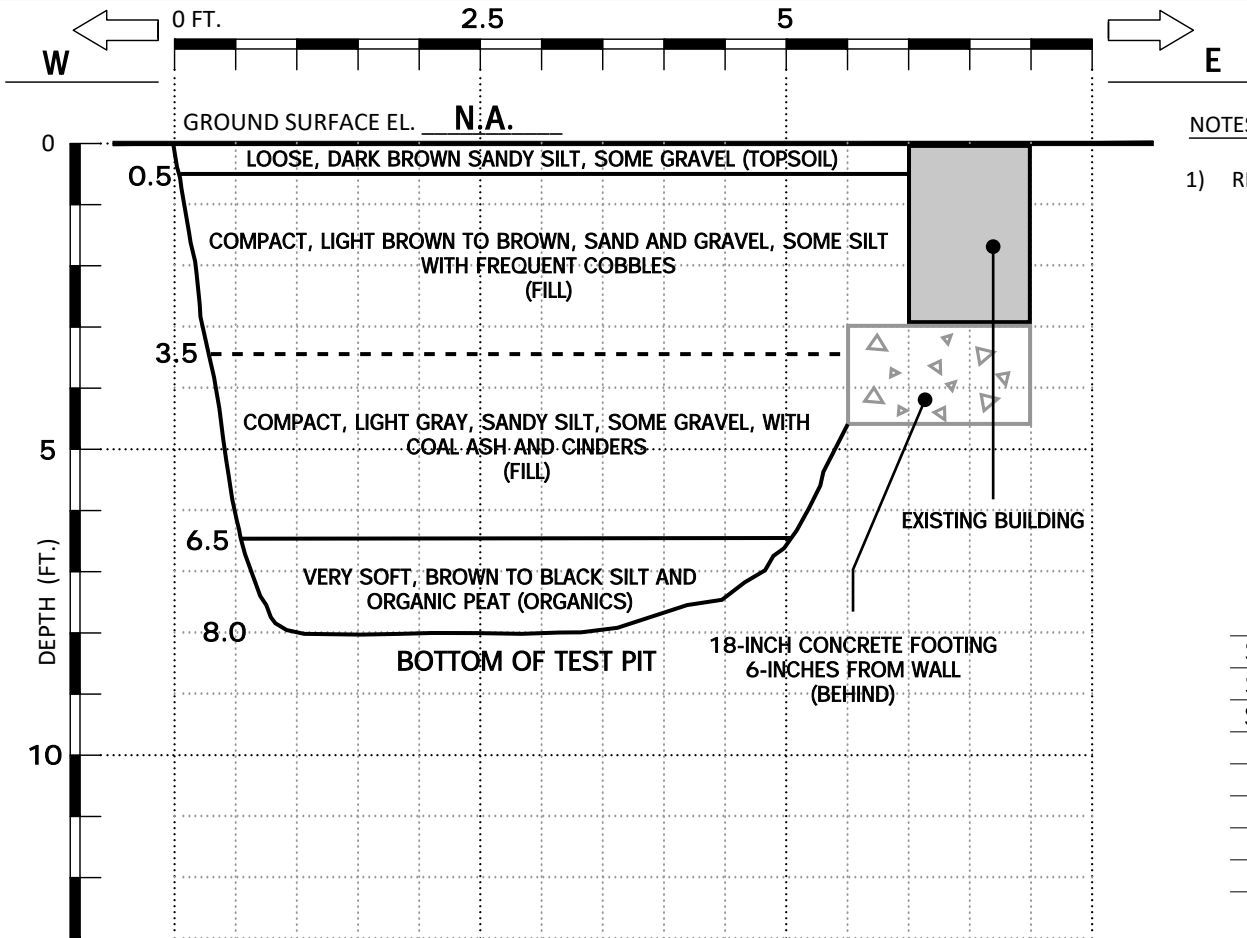
TEST PIT NO. TP-1

McPHAIL REP.: D. Locke
 WEATHER: Sunny 50s

CONTRACTOR: TBR Excavating
 OPERATOR: Thallas

EXCAVATOR MAKE: Bobcat
 EXCAVATOR MODEL: E-85

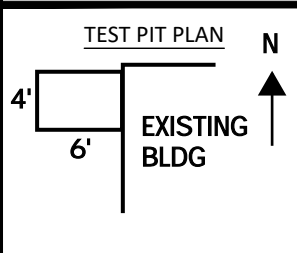
DEPTH TO GROUNDWATER: 5 FT
 FLOW: STANDING WATER
 TRICKLING HIGH FLOW



NOTES:

- 1) REFER TO PHOTO PAGE ATTACHED.

| SAMPLES OBTAINED | | | |
|------------------|--------|------------|-----------|
| I.D. | STRATA | DEPTH (FT) | PID (ppm) |
| S-1 | FILL | 0.5 - 3.5 | |
| S-2 | FILL | 3.5 - 6.5 | |
| S-3 | ORG | 6.5 - 8 | |
| | | | |
| | | | |
| | | | |
| | | | |



| STRATA | COBBLES/BOULDERS | | |
|------------------------|------------------|----------|----------|
| | FILL (1) | FILL (2) | ORGANICS |
| COBBLES (2"-8") | 10-15% | 0% | 0% |
| SMALL BOULDER (8"-24") | 5% | 0% | 0% |
| LARGE BOULDER (>24") | 0% | 0% | 0% |

| SOIL COMPONENT | | |
|-------------------------------|---------------------|--|
| DESCRIPTIVE TERM | PROPORTION OF TOTAL | SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF" |
| "TRACE" | 0-10% | |
| "SOME" | 10-20% | |
| "ADJECTIVE" (eg SANDY, SILTY) | 20-35% | |
| "AND" | 35-50% | |



JOB NO. 7612.2.00
DATE 02/10/23

TEST PIT LOG

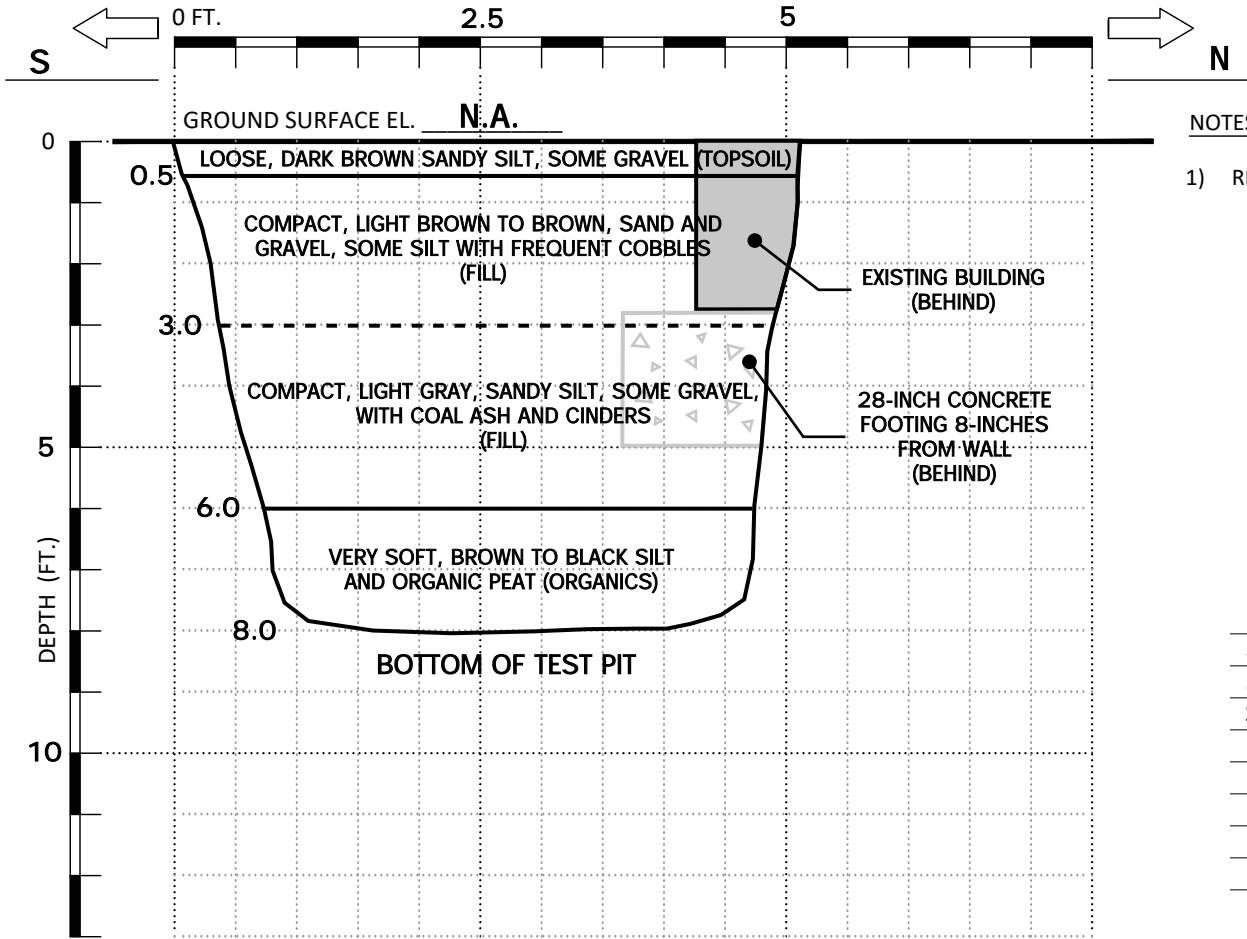
TEST PIT NO. TP-2

McPHAIL REP.: D. Locke
WEATHER: Sunny 50s

CONTRACTOR: TBR Excavating
OPERATOR: Thallas

EXCAVATOR MAKE: Bobcat
EXCAVATOR MODEL: E-85

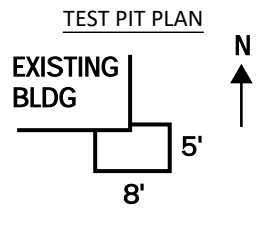
DEPTH TO GROUNDWATER: 6 FT
FLOW: STANDING WATER
 TRICKLING HIGH FLOW



NOTES:

1) REFER TO PHOTO PAGE ATTACHED.

| SAMPLES OBTAINED | | | |
|------------------|--------|------------|-----------|
| I.D. | STRATA | DEPTH (FT) | PID (ppm) |
| S-1 | FILL | 0.5 - 3 | |
| S-2 | FILL | 3 - 6 | |
| S-3 | ORG | 6 - 8 | |
| | | | |
| | | | |
| | | | |
| | | | |



| COBBLES/BOULDERS | | | | |
|------------------------|----------|----------|----------|--|
| STRATA | FILL (1) | FILL (2) | ORGANICS | |
| COBBLES (2"-8") | 10-15% | 0% | 0% | |
| SMALL BOULDER (8"-24") | 0% | 0% | 0% | |
| LARGE BOULDER (>24") | 0% | 0% | 0% | |

| SOIL COMPONENT | | |
|-------------------------------|---------------------|--|
| DESCRIPTIVE TERM | PROPORTION OF TOTAL | SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF" |
| "TRACE" | 0-10% | |
| "SOME" | 10-20% | |
| "ADJECTIVE" (eg SANDY, SILTY) | 20-35% | |
| "AND" | 35-50% | |



JOB NO. 7612.2.00
 DATE 02/10/23

TEST PIT LOG

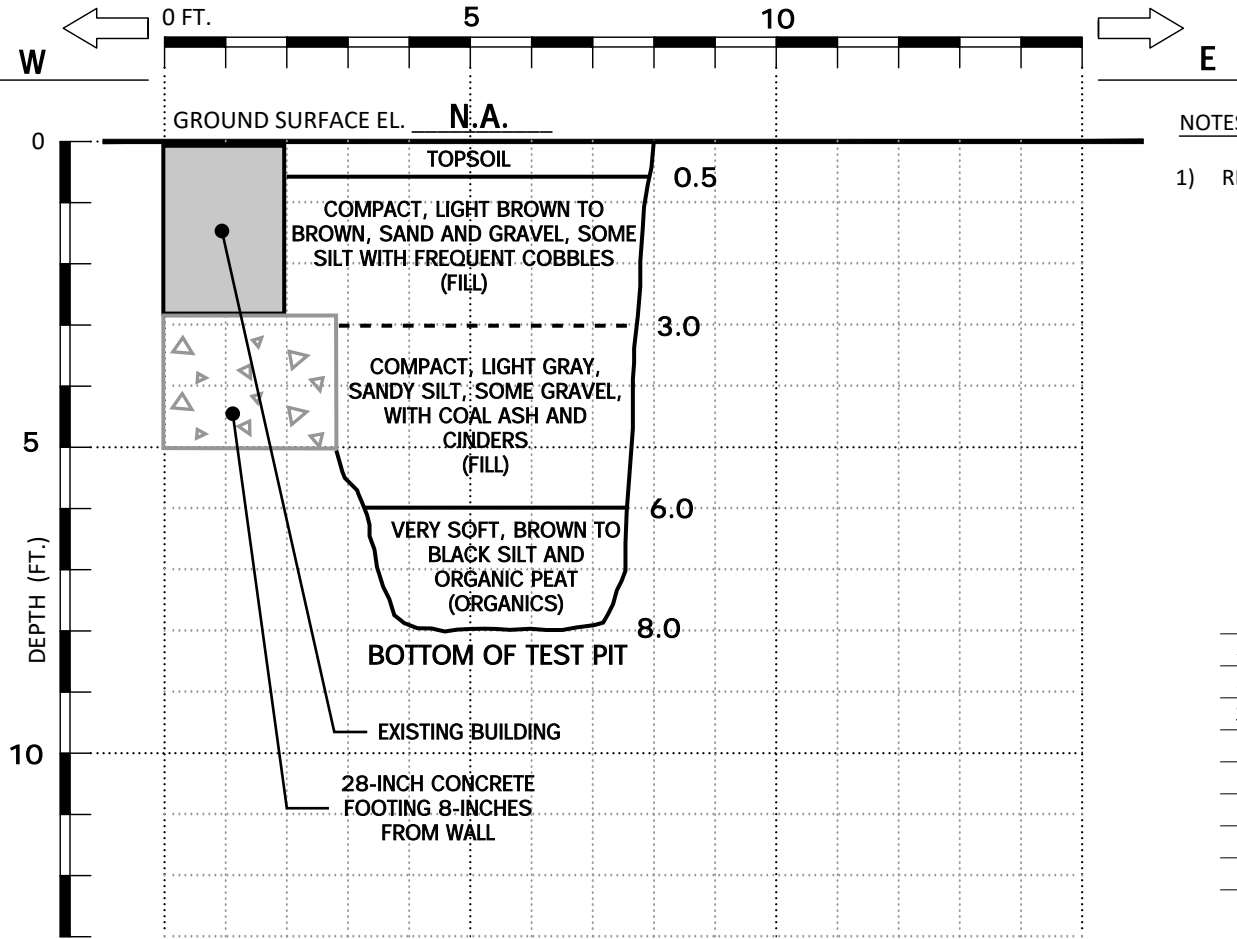
TEST PIT NO. TP-2

McPHAIL REP.: D. Locke
 WEATHER: Sunny 50s

CONTRACTOR: TBR Excavating
 OPERATOR: Thallas

EXCAVATOR MAKE: Bobcat
 EXCAVATOR MODEL: E-85

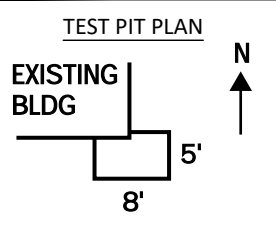
DEPTH TO GROUNDWATER: 6 FT
 FLOW: STANDING WATER
 TRICKLING HIGH FLOW



NOTES:

- 1) REFER TO PHOTO PAGE ATTACHED.

| SAMPLES OBTAINED | | | |
|------------------|--------|------------|-----------|
| I.D. | STRATA | DEPTH (FT) | PID (ppm) |
| S-1 | FILL | 0.5 - 3 | |
| S-2 | FILL | 3 - 6 | |
| S-3 | ORG | 6 - 8 | |
| | | | |
| | | | |
| | | | |
| | | | |



| COBBLES/BOULDERS | | | | |
|------------------------|----------|----------|----------|--|
| STRATA | FILL (1) | FILL (2) | ORGANICS | |
| COBBLES (2"-8") | 10-15% | 0% | 0% | |
| SMALL BOULDER (8"-24") | 0% | 0% | 0% | |
| LARGE BOULDER (>24") | 0% | 0% | 0% | |

| SOIL COMPONENT | | |
|-------------------------------|---------------------|--|
| DESCRIPTIVE TERM | PROPORTION OF TOTAL | SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF" |
| "TRACE" | 0-10% | |
| "SOME" | 10-20% | |
| "ADJECTIVE" (eg SANDY, SILTY) | 20-35% | |
| "AND" | 35-50% | |



JOB NO. 7612.2.00
 DATE 02/10/23

TEST PIT LOG

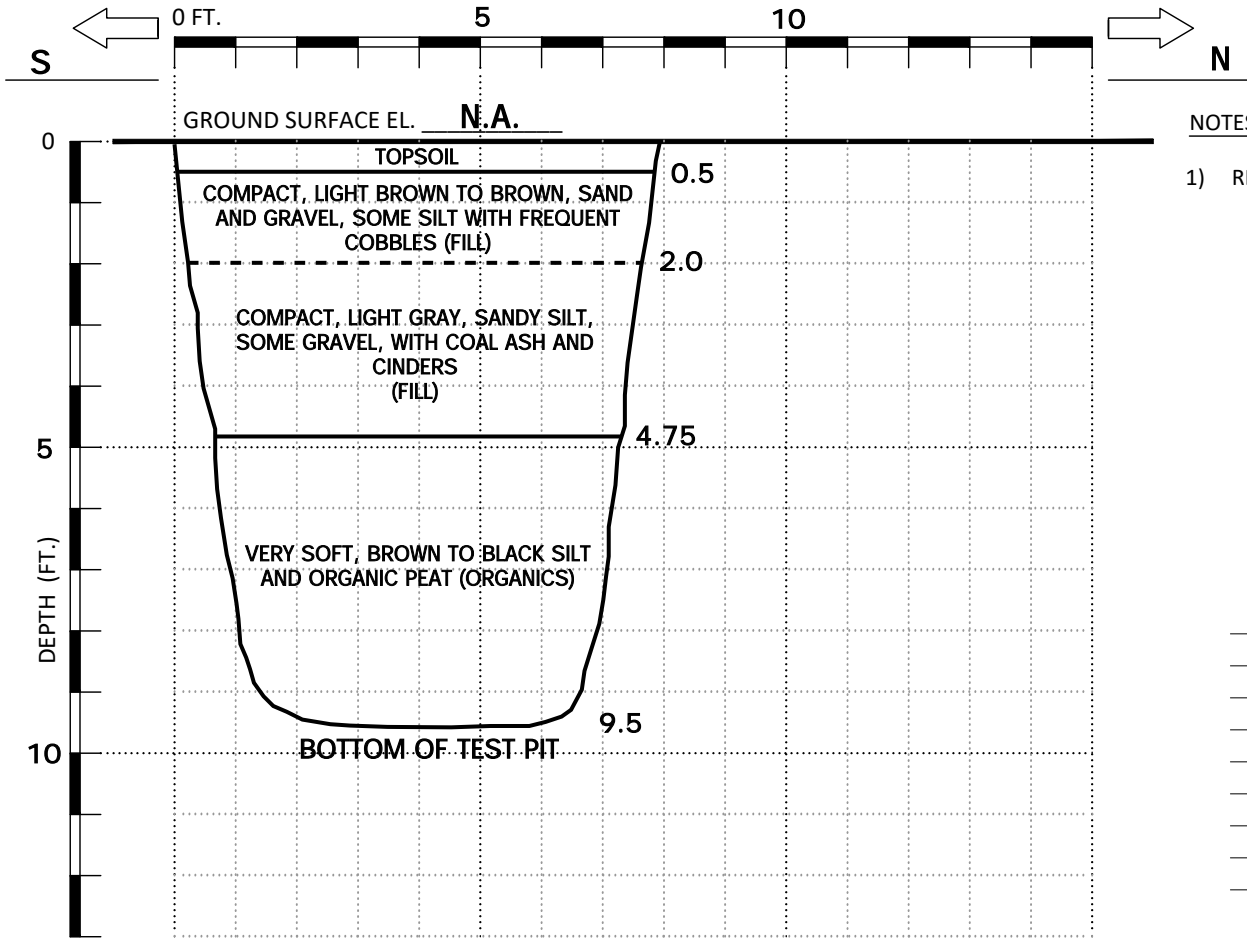
TEST PIT NO. TP-3

McPHAIL REP.: D. Locke
 WEATHER: Sunny 50s

CONTRACTOR: TBR Excavating
 OPERATOR: Thallas

EXCAVATOR MAKE: Bobcat
 EXCAVATOR MODEL: E-85

DEPTH TO GROUNDWATER: 4 FT
 FLOW: STANDING WATER
 TRICKLING HIGH FLOW

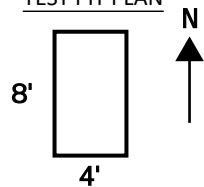


NOTES:

- 1) REFER TO PHOTO PAGE ATTACHED.

| SAMPLES OBTAINED | | | |
|------------------|--------|------------|-----------|
| I.D. | STRATA | DEPTH (FT) | PID (ppm) |
| S-1 | FILL | 0.5 - 2 | |
| S-2 | FILL | 2 - 4.75 | |
| S-3 | ORG | 4.75 - 9.5 | |
| | | | |
| | | | |
| | | | |
| | | | |

TEST PIT PLAN



COBBLES/BOULDERS

| STRATA | FILL (1) | FILL (2) | ORGANICS |
|------------------------|----------|----------|----------|
| COBBLES (2"-8") | 10-15% | 0% | 0% |
| SMALL BOULDER (8"-24") | 0% | 0% | 0% |
| LARGE BOULDER (>24") | 0% | 0% | 0% |

SOIL COMPONENT

| DESCRIPTIVE TERM | PROPORTION OF TOTAL | SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF" |
|-------------------------------|---------------------|--|
| "TRACE" | 0-10% | |
| "SOME" | 10-20% | |
| "ADJECTIVE" (eg SANDY, SILTY) | 20-35% | |
| "AND" | 35-50% | |



TP-1 VIEW LOOKING EAST



TP-2 VIEW LOOKING WEST



TP-3 VIEW LOOKING NORTH

| | | |
|--|------------------------------|--------------------|
| Project: 79 Greenwood Street | Job #: 7612.2.00 | Boring No.: |
| Location: 79 Greenwood Street Melrose, MA | Date Started: 3-8-23 | B-1 |
| City/State: Melrose, MA | Date Finished: 3-8-23 | |

| | | | |
|--|---|---------------------------------|-------|
| Contractor: Geosearch | Casing Type: HW | Groundwater Observations | |
| Driller/Helper: Kenny, Francis | Casing Hammer (lbs)/Drop (in): N/A | Date | Depth |
| Logged By/Reviewed By: N. Rodiger | Sampler Size/Type: 1-3/8" I.D. Split Spoon | 3-8-23 | 6' |
| Surface Elevation (ft): | Sampler Hammer (lbs)/Drop (in): 140 lbs./30 inches | Elev. | Notes |
| | | | |

| Depth (ft) | Elev. (ft) | Symbol | Depth/EL to Strata Change (ft) | Stratum | Sample | | | | | Sample Description and Boring Notes | | | | | |
|------------|------------|--------|--------------------------------|-----------------|-------------|-------|----------------|-----------------|---|--|-----|-------|-----------|-----|---|
| | | | | | N-Value RQD | No. | Pen./Rec. (in) | Depth (ft) | Blows/6" Min/ft | | | | | | |
| 1 | | | 0.2 / | TOPSOIL | 6 | S1 | 24/3 | 0.0-2.0 | WOH 1 5 3 | Loose, brown, silty SAND and GRAVEL. (Fill) | | | | | |
| 2 | | | | FILL | 12 | S2 | 24/3 | 2.0-4.0 | 2 | Compact, brown, SAND and GRAVEL, some silt, with ash and cinders. (Fill) | | | | | |
| 3 | | | 3 | | | | | | | | | | | | |
| 4 | | | 9 | | | | | | | | | | | | |
| 5 | | | | ORGANIC DEPOSIT | 8 | S3 | 24/4 | 4.0-6.0 | 4 | Loose, gray brown, silty SAND and GRAVEL, with ash and cinders. (Fill) | | | | | |
| 6 | | | 5 | | | | | | | | | | | | |
| 7 | | | 3 | | | | | | | | | | | | |
| 8 | | | 6.5 / | ORGANIC DEPOSIT | 2 | S4 | 6/2 | 6.0-6.5 | 2 | Very loose, tan-brown, SAND and GRAVEL some silt. (Fill) | | | | | |
| 9 | | | 14.0 / | | | | | | 3 | | S4A | 18/6 | 6.5-8.0 | 2 | Note: Split spoon wet at 6' below ground surface. Very soft, brown to black SILT and FIBEROUS PEAT. (Organics) |
| 10 | | | | | | | | | | | | | | 1 | |
| 11 | | | ORGANIC DEPOSIT | | | | | | 1 | | S5 | 24/14 | 8.0-10.0 | 1 | Note: Organic odor. Very soft, brown to black SILT and FIBEROUS PEAT. (Organics) |
| 12 | | | | | | | | | | | | | | WOH | |
| 13 | | | | | | | | | | | | | | WOH | |
| 14 | | | GLACIAL OUTWASH | | | | | | WOH | | S6 | 24/16 | 10.0-12.0 | 1 | Very soft, brown, SILT and FIBEROUS PEAT. (Organics) Note: Organic odor. |
| 15 | | | | | | | | | | | | | | WOH | |
| 16 | | | | | | | | | | | | | | WOH | |
| 17 | | | | | | | | | | | | | | 1 | |
| 18 | | | GLACIAL OUTWASH | WOH | S7 | 12/12 | 12.0-13.0 | 3 | Very soft, brown, SILT and FIBEROUS PEAT. (Organics) Note: Organic odor. | | | | | | |
| 19 | | | | | | | | 4 | | | | | | | |
| 20 | | | GLACIAL OUTWASH | 4 | S7A | 12/12 | 13.0-14.0 | 3 | Soft, gray, organic SILT and fine SAND. (Organics) Note: Organic odor. | | | | | | |
| 21 | | | | | | | | 4 | | | | | | | |
| 22 | | | | | | | | GLACIAL OUTWASH | | 5 | S8 | 24/4 | 14.0-16.0 | 5 | Loose, orange-brown, silty coarse SAND and GRAVEL. (Glacial Outwash) |
| 23 | | | | | | | | | | | | | | 2 | |
| 24 | | | 3 | | | | | | | | | | | | |
| 25 | | | 4 | | | | | | | | | | | | |
| 26 | | | GLACIAL OUTWASH | 14 | S9 | 24/1 | 20.0-22.0 | 9 | Compact, orange-brown, silty coarse SAND and GRAVEL. (Glacial Outwash) | | | | | | |
| 27 | | | | | | | | 7 | | | | | | | |
| 28 | | | | | | | | 7 | | | | | | | |
| 29 | | | | | | | | 6 | | | | | | | |

| GRANULAR SOILS | |
|----------------|---------|
| BLOWS/FT. | DENSITY |
| 0-4 | V.LOOSE |
| 4-10 | LOOSE |
| 10-30 | COMPACT |
| 30-50 | DENSE |
| >50 | V.DENSE |

| SOIL COMPONENT | | |
|-------------------------------|---------------------|--|
| DESCRIPTIVE TERM | PROPORTION OF TOTAL | SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF" |
| "TRACE" | 0-10% | |
| "SOME" | 10-20% | |
| "ADJECTIVE" (eg SANDY, SILTY) | 20-35% | |
| "AND" | 35-50% | |

| COHESIVE SOILS | |
|----------------|-------------|
| BLOWS/FT. | CONSISTENCY |
| <2 | V.SOFT |
| 2-4 | SOFT |
| 4-8 | FIRM |
| 8-15 | STIFF |
| 15-30 | V.STIFF |
| >30 | HARD |

Notes:

Weather: Variable



McPHAIL ASSOCIATES, LLC
 2269 MASSACHUSETTS AVENUE
 CAMBRIDGE, MA 02140
 TEL: 617-868-1420
 FAX: 617-868-1423

Page 1 of 2

| | | |
|--|------------------------------|-------------------|
| Project: 79 Greenwood Street | Job #: 7612.2.00 | Boring No. |
| Location: 79 Greenwood Street Melrose, MA | Date Started: 3-8-23 | B-1 |
| City/State: Melrose, MA | Date Finished: 3-8-23 | |

| | | | |
|--|---|---------------------------------|--------------|
| Contractor: Geosearch | Casing Type: HW | Groundwater Observations | |
| Driller/Helper: Kenny, Francis | Casing Hammer (lbs)/Drop (in): N/A | Date | Depth |
| Logged By/Reviewed By: N. Rodiger | Sampler Size/Type: 1-3/8" I.D. Split Spoon | 3-8-23 | 6' |
| Surface Elevation (ft): | Sampler Hammer (lbs)/Drop (in): 140 lbs./30 inches | | |

| Depth (ft) | Elev. (ft) | Symbol | Depth/EL to Strata Change (ft) | Stratum | Sample | | | | | Sample Description and Boring Notes |
|------------|------------|--------|--------------------------------|-----------------|---|-----|-----------------|------------|------------------------|---|
| | | | | | N-Value | No. | Pen. /Rec. (in) | Depth (ft) | Blows/6" Min/ft | |
| | | | | | RQD | | | | | |
| 24 | | ●●●● | | GLACIAL OUTWASH | | | | | | |
| 25 | | | | | | | | | | Compact to dense, orange-brown, silty coarse SAND and GRAVEL. (Glacial Outwash) Note: Refusal on suspected cobble. |
| 26 | | | | | 22 | S10 | 21/8 | 25.0-26.8 | 17 14 8 100/3 | |
| 27 | | | 27.0 / | | Bottom of borehole 27 feet below existing ground surface. | | | | | |
| 28 | | | | | | | | | | |
| 29 | | | | | | | | | | |
| 30 | | | | | | | | | | |
| 31 | | | | | | | | | | |
| 32 | | | | | | | | | | |
| 33 | | | | | | | | | | |
| 34 | | | | | | | | | | |
| 35 | | | | | | | | | | |
| 36 | | | | | | | | | | |
| 37 | | | | | | | | | | |
| 38 | | | | | | | | | | |
| 39 | | | | | | | | | | |
| 40 | | | | | | | | | | |
| 41 | | | | | | | | | | |
| 42 | | | | | | | | | | |
| 43 | | | | | | | | | | |
| 44 | | | | | | | | | | |
| 45 | | | | | | | | | | |

| GRANULAR SOILS | | SOIL COMPONENT | |
|----------------|---------|-------------------------------|---------------------|
| BLOWS/FT. | DENSITY | DESCRIPTIVE TERM | PROPORTION OF TOTAL |
| 0-4 | V.LOOSE | "TRACE" | 0-10% |
| 4-10 | LOOSE | "SOME" | 10-20% |
| 10-30 | COMPACT | "ADJECTIVE" (eg SANDY, SILTY) | 20-35% |
| 30-50 | DENSE | "AND" | 35-50% |
| >50 | V.DENSE | | |

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

| COHESIVE SOILS | | Notes: |
|----------------|-------------|-------------------|
| BLOWS/FT. | CONSISTENCY | |
| <2 | V.SOFT | Weather: Variable |
| 2-4 | SOFT | |
| 4-8 | FIRM | |
| 8-15 | STIFF | |
| 15-30 | V.STIFF | |
| >30 | HARD | |



McPHAIL ASSOCIATES, LLC
 2269 MASSACHUSETTS AVENUE
 CAMBRIDGE, MA 02140
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Page 2 of 2

| | | |
|--|------------------------------|--------------------|
| Project: 79 Greenwood Street | Job #: 7612.2.00 | Boring No.: |
| Location: 79 Greenwood Street Melrose, MA | Date Started: 3-8-23 | B-2 |
| City/State: Melrose, MA | Date Finished: 3-8-23 | |

| | | | |
|--|---|---------------------------------|--------------|
| Contractor: Geosearch | Casing Type: HW | Groundwater Observations | |
| Driller/Helper: Kenny, Francis | Casing Hammer (lbs)/Drop (in): N/A | Date | Depth |
| Logged By/Reviewed By: N. Rodiger | Sampler Size/Type: 1-3/8" I.D. Split Spoon | 3-8-23 | 4.5' |
| Surface Elevation (ft): | Sampler Hammer (lbs)/Drop (in): 140 lbs./30 inches | | |
| | | | |

| Depth (ft) | Elev. (ft) | Symbol | Depth/EL to Strata Change (ft) | Stratum | Sample | | | | | Sample Description and Boring Notes |
|------------|------------|--------|--------------------------------|-----------------|-------------|-----|----------------|------------|--------------------------|--|
| | | | | | N-Value RQD | No. | Pen./Rec. (in) | Depth (ft) | Blows/6" Min/ft | |
| 1 | | | 0.1 / | TOPSOIL | 2 | S1 | 24/8 | 0.0-2.0 | 2 1 1 4 | Very loose, brown, SILT and SAND, some gravel. (Fill) |
| 2 | | | | FILL | 8 | S2 | 24/1 | 2.0-4.0 | 2 5 3 2 | Loose, light gray, silty SAND, some gravel with ash and cinders. (Fill) |
| 3 | | | | | WOH | S3 | 24/1 | 4.0-6.0 | WOH WOH WOH WOH | Very loose, gray-brown, silty SAND, some gravel with ash and cinders. (Fill) Note: Split spoon wet 4.5' below ground surface. |
| 4 | | | | | 1 | S4 | 24/4 | 6.0-8.0 | WOH WOH 1 1 | Very soft, black, SILT and FIBEROUS PEAT trace sand. (Organics) Note: Organic odor. |
| 5 | | | | ORGANIC DEPOSIT | WOH | S5 | 24/8 | 8.0-10.0 | WOH WOH WOH WOH | Very soft, black, SILT and FIBEROUS PEAT. (Organics) Note: Organic odor. |
| 6 | | | 6.0 / | | WOH | S6 | 24/14 | 10.0-12.0 | WOH WOH WOH WOH | Very soft, brown, SILT and FIBEROUS PEAT. (Organics) Note: Organic odor. |
| 7 | | | | | WOH | S7 | 24/8 | 12.0-14.0 | WOH WOH WOH 2 | Very soft, brown, SILT and FIBEROUS PEAT. (Organics) Note: Organic odor. |
| 8 | | | | | WOH | S8 | 12/10 | 14.0-15.0 | WOH WOH | Very soft, brown, SILT and FIBEROUS PEAT. (Organics) Note: Organic odor. |
| 9 | | | | | 12 | S8A | 12/6 | 15.0-16.0 | 3 9 | Stiff, gray, organic SILT and fine SAND. (Organics) Note: Organic odor. |
| 10 | | | | | | | | | | |
| 11 | | | | | | | | | | |
| 12 | | | | | | | | | | |
| 13 | | | | GLACIAL OUTWASH | | | | | | |
| 14 | | | | | | | | | | |
| 15 | | | | | 11 | S9 | 24/4 | 20.0-22.0 | 4 5 6 6 | Compact, orange-brown, fine to medium SAND and GRAVEL, some silt. (Glacial Till) |
| 16 | | | | | | | | | | |
| 17 | | | | | | | | | | |
| 18 | | | | | | | | | | |
| 19 | | | | | | | | | | |
| 20 | | | | | | | | | | |
| 21 | | | | | | | | | | |
| 22 | | | | | | | | | | |

| GRANULAR SOILS | |
|----------------|---------|
| BLOWS/FT. | DENSITY |
| 0-4 | V.LOOSE |
| 4-10 | LOOSE |
| 10-30 | COMPACT |
| 30-50 | DENSE |
| >50 | V.DENSE |

| SOIL COMPONENT | | |
|-------------------------------|---------------------|--|
| DESCRIPTIVE TERM | PROPORTION OF TOTAL | SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF" |
| "TRACE" | 0-10% | |
| "SOME" | 10-20% | |
| "ADJECTIVE" (eg SANDY, SILTY) | 20-35% | |
| "AND" | 35-50% | |

| COHESIVE SOILS | |
|----------------|-------------|
| BLOWS/FT. | CONSISTENCY |
| <2 | V.SOFT |
| 2-4 | SOFT |
| 4-8 | FIRM |
| 8-15 | STIFF |
| 15-30 | V.STIFF |
| >30 | HARD |

Notes:
Weather: Variable



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Page 1 of 2

| | | |
|--|------------------------------|-------------------|
| Project: 79 Greenwood Street | Job #: 7612.2.00 | Boring No. |
| Location: 79 Greenwood Street Melrose, MA | Date Started: 3-8-23 | B-2 |
| City/State: Melrose, MA | Date Finished: 3-8-23 | |

| | | | |
|--|---|---------------------------------|--------------|
| Contractor: Geosearch | Casing Type: HW | Groundwater Observations | |
| Driller/Helper: Kenny, Francis | Casing Hammer (lbs)/Drop (in): N/A | Date | Depth |
| Logged By/Reviewed By: N. Rodiger | Sampler Size/Type: 1-3/8" I.D. Split Spoon | 3-8-23 | 4.5' |
| Surface Elevation (ft): | Sampler Hammer (lbs)/Drop (in): 140 lbs./30 inches | | |

| Depth (ft) | Elev. (ft) | Symbol | Depth/EL to Strata Change (ft) | Stratum | Sample | | | | | Sample Description and Boring Notes |
|------------|------------|--------|--------------------------------|---|---------|-----|-----------------|------------|----------|--|
| | | | | | N-Value | No. | Pen. /Rec. (in) | Depth (ft) | Blows/6" | |
| | | | | | RQD | | | | Min/ft | |
| 24 | | ●●●●● | | GLACIAL OUTWASH | | | | | | |
| 25 | | | | | | | | | | Compact, orange-brown, medium to coarse SAND and GRAVEL, some silt. (Glacial Till) |
| 26 | | | | | 23 | S10 | 24/10 | 25.0-27.0 | 9 | |
| 27 | | | 27.0 / | | | | | | 10 | |
| 28 | | | | Bottom of borehole 27 feet below existing ground surface. | | | | | | |
| 29 | | | | | | | | | | |
| 30 | | | | | | | | | | |
| 31 | | | | | | | | | | |
| 32 | | | | | | | | | | |
| 33 | | | | | | | | | | |
| 34 | | | | | | | | | | |
| 35 | | | | | | | | | | |
| 36 | | | | | | | | | | |
| 37 | | | | | | | | | | |
| 38 | | | | | | | | | | |
| 39 | | | | | | | | | | |
| 40 | | | | | | | | | | |
| 41 | | | | | | | | | | |
| 42 | | | | | | | | | | |
| 43 | | | | | | | | | | |
| 44 | | | | | | | | | | |
| 45 | | | | | | | | | | |

| GRANULAR SOILS | | SOIL COMPONENT | | |
|----------------|-------------|-------------------------------|---------------------|--|
| BLOWS/FT. | DENSITY | DESCRIPTIVE TERM | PROPORTION OF TOTAL | SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF" |
| 0-4 | V.LOOSE | "TRACE" | 0-10% | |
| 4-10 | LOOSE | "SOME" | 10-20% | |
| 10-30 | COMPACT | "ADJECTIVE" (eg SANDY, SILTY) | 20-35% | |
| 30-50 | DENSE | "AND" | 35-50% | |
| >50 | V.DENSE | | | |
| COHESIVE SOILS | | Notes: | | |
| BLOWS/FT. | CONSISTENCY | Weather: Variable | | |
| <2 | V.SOFT | | | |
| 2-4 | SOFT | | | |
| 4-8 | FIRM | | | |
| 8-15 | STIFF | | | |
| 15-30 | V.STIFF | | | |
| >30 | HARD | | | |



McPHAIL ASSOCIATES, LLC
 2269 MASSACHUSETTS AVENUE
 CAMBRIDGE, MA 02140
 TEL: 617-868-1420
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Page 2 of 2

APPENDIX 4
LOMA FOR 61 MESSENGER COURT



Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT DETERMINATION DOCUMENT (REMOVAL)

| COMMUNITY AND MAP PANEL INFORMATION | | LEGAL PROPERTY DESCRIPTION |
|-------------------------------------|--|--|
| COMMUNITY | CITY OF MELROSE, MIDDLESEX COUNTY, MASSACHUSETTS | Lot 5, as described in the Deed, recorded as Document No. 200900194902, in Book 53637, Page 581, in the Office of the Register of Deeds, Middlesex County, Massachusetts |
| | COMMUNITY NO.: 250206 | |
| AFFECTED MAP PANEL | NUMBER: 25017C0427E | |
| | DATE: 6/4/2010 | |

| | |
|---------------------------------|--|
| FLOODING SOURCE: LOCAL FLOODING | APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 42.471, -71.069 SOURCE OF LAT & LONG: STREETS & TRIPS 2010 DATUM: WGS 84 |
|---------------------------------|--|

DETERMINATION

| LOT | BLOCK/SECTION | SUBDIVISION | STREET | OUTCOME WHAT IS REMOVED FROM THE SFHA | FLOOD ZONE | 1% ANNUAL CHANCE FLOOD ELEVATION (NAVD 88) | LOWEST ADJACENT GRADE ELEVATION (NAVD 88) | LOWEST LOT ELEVATION (NAVD 88) |
|-----|---------------|-------------|--------------------|--|-----------------|--|---|---|
| 5 | -- | -- | 61 Messenger Court | Structure | X (unshaded) | 70.9 feet | 70.9 feet | -- |

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

PORTIONS REMAIN IN THE SFHA
ZONE A
STUDY UNDERWAY

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the structure(s) on the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMA Clearinghouse, 6730 Santa Barbara Court, Elkridge, MD 21075.

Luis Rodriguez, P.E., Chief
Engineering Management Branch
Federal Insurance and Mitigation Administration



Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 1 Property.)

Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.

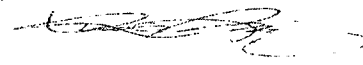
ZONE A (This Additional Consideration applies to the preceding 1 Property.)

The National Flood Insurance Program map affecting this property depicts a Special Flood Hazard Area that was determined using the best flood hazard data available to FEMA, but without performing a detailed engineering analysis. The flood elevation used to make this determination is based on approximate methods and has not been formalized through the standard process for establishing base flood elevations published in the Flood Insurance Study. This flood elevation is subject to change.

STUDY UNDERWAY (This Additional Consideration applies to all properties in the LOMA DETERMINATION DOCUMENT (REMOVAL))

This determination is based on the flood data presently available. However, the Federal Emergency Management Agency is currently revising the National Flood Insurance Program (NFIP) map for the community. New flood data could be generated that may affect this property. When the new NFIP map is issued it will supersede this determination. The Federal requirement for the purchase of flood insurance will then be based on the newly revised NFIP map.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 6730 Santa Barbara Court, Elkridge, MD 21075.



Luis Rodriguez, P.E., Chief
Engineering Management Branch
Federal Insurance and Mitigation Administration