

CITY OF NEWTON
Department of Public Works
ENGINEERING DIVISION

MEMORANDUM

To: Alderman Mark Laredo, Land Use Committee Chairman

From: John Daghlian, Associate City Engineer

Re: Special Permit – 157 Herrick Road

Date: September 4, 2015

CC: Lou Taverna, PE City Engineer
Linda Finucane, Associate City Clerk
Alexandria Ananth, Chief Planner
Stephen Pantalone, Sr. Planner

In reference to the above site, I have the following comments for a plan entitled:

*Benchmark at Andover Newton Theological School
Newton, MA
Prepared by: STANTEC
Dated: 5-12-'15*

Executive Summary:

This submission is for a new 51 unit assisted living housed in a 2-story building to be built. The siting of the new building will require the relocation of several utilities including sanitary sewer line, steam, electric, gas, and telecommunication conduits. The construction will take place on an area of land comprising of 64,596 square feet (1.48 acres) of the existing Andover –Newton Theological School. Demolition two buildings and shed will be required to construct the new edifice and parking lot.



The site improvements include a new parking lot to be constructed on a sloped area that has a grade change of 15'; this will be accomplished by constructing a series of two retaining walls that vary in height from 1.5' – 9.5' and regrading of the hill.

The engineer of record has designed a drainage collection system to collect runoff from the parking lot and infiltrate the water into an underground infiltration system within the parking lot; my concern about this is water that permeates from the system is in close proximity of the proposed retaining walls. Retaining wall stability is a major concern specifically when excess water is introduced behind the wall.

Furthermore, the design has an overflow flared end section pipe to discharge excess water from the system down the steep hill towards Cypress Street. This is unacceptable if the overflow pipe is needed, (the design engineer needs to justify the need); the overflow pipe shall be placed underground in a perforated pipe with crushed stone to act as a diffuser rather than discharge as point source and avoid erosion.

An area drain and infiltration units are proposed within an interior courtyard of the new building along with an overflow pipe (a flared end section) towards the downstream embankment, again this is not acceptable; the pipe shall be placed underground as a diffuser with perforated pipe placed in crushed stone to prevent erosion and point discharge.

At the time of this review no drainage study was submitted for review and comment.

The plans also show a generic water service (the size needs to be indicated); furthermore, the building will require a dedicated fire suppression service connection separate from the domestic service. Siamese fire connection is also missing from the plan that the Fire Department will require. Furthermore, there is a concern for fire truck access and turning restriction from Herrick Circle onto the access driveway at the front of the building (see Sheet L-2.0) the curb line seems tight for fire apparatus maneuvering.

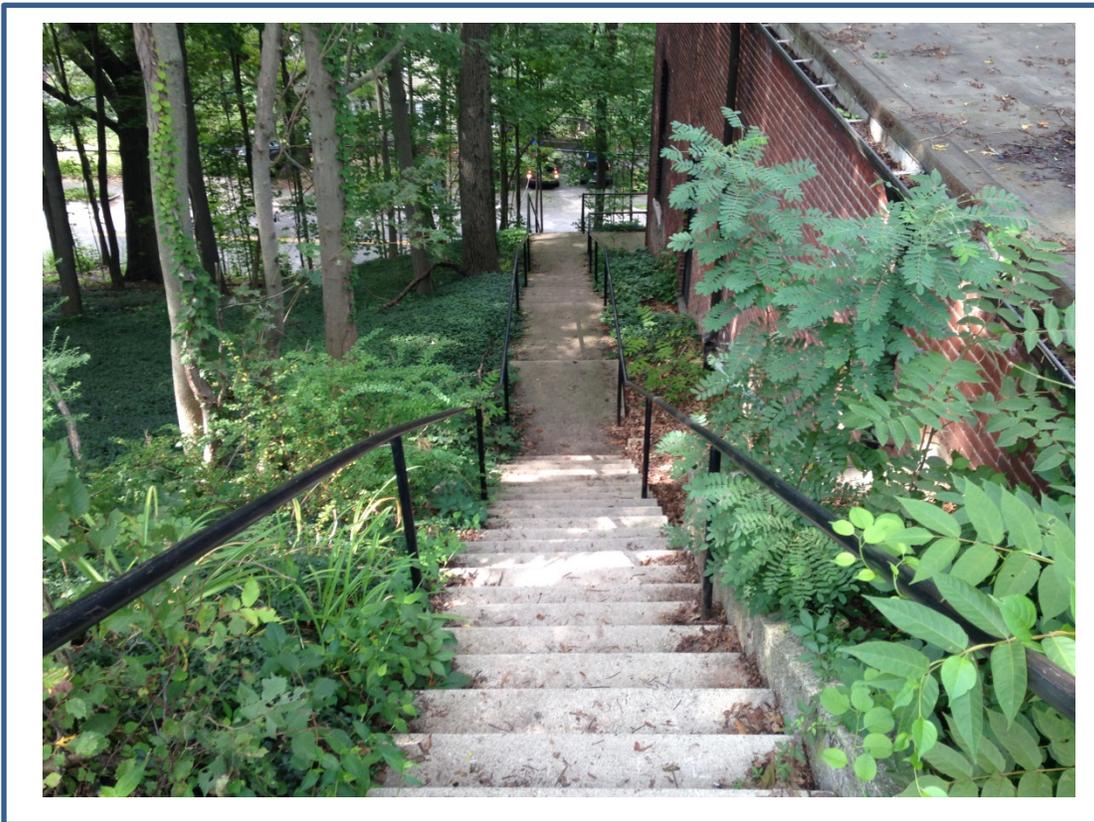
This site is within Sewer basin area B and Project 4, based on the number of bedrooms the Utilities Division will be requesting a contribution towards the reduction of

infiltration & inflow the ratio that is used is 8:1 removal: 110Gal/day/bedroom (daily flow) x \$8.40 gal/bedroom x 62 bedrooms x 8 = \$458,304.00

During a site visit a couple of observation wells were discovered, what is the status of the wells and what is the long-term requirement to monitor the groundwater associated with the underground oil tanks that were removed?

Site stability during and after construction is a concern specifically with the proximity of the steep hill down towards Cypress Street and the juxtaposed power plant building. The engineer of record needs to describe how the site construction will be stabilized and secure. Additionally the area behind the new building (southern side) has a proposed embankment of 2:1 horizontal: vertical slope how will this be maintained and stabilized.

The site also has a series of concrete stairs that provide access to the existing power plant building and Cypress Street. Several neighborhood residents and students utilize these stairs to cut through the campus and access the Bowen School and Cypress Street neighborhood; although this is not a City concern the applicant should be aware of this activity.



Construction Management:

1. A construction management plan is needed for this project. At a minimum, it must address the following: staging site for construction equipment, construction materials, parking of construction worker's vehicles, phasing of the project with anticipated completion dates and milestones, safety precautions, emergency contact personnel of contractor. It shall also address any anticipated dewatering during construction, site safety & stability, and impact to abutting properties.
2. Stabilized driveway entrances are needed during construction which will provide a tire wash and mud removal to ensure City streets are kept clean.

Drainage:

1. A drainage analysis needs to be performed based on the City of Newton's 100-year storm event of 6-inches over a 24-hour period. All runoff from impervious areas need to be infiltrated on site, for the project. The design of the proposed on site drainage system needs to comply with the MassDEP Stormwater Regulations and City Ordinances.
2. An on-site soil evaluation needs to be performed to obtain the seasonal high groundwater elevation, percolation rate in accordance to Title V. This information must be submitted with the drainage study. The locations of these tests need to be shown on the site plan and must be performed within 25-feet of a proposed system.
3. An Operations and Maintenance (O&M) plan for Stormwater Management Facilities needs to be drafted and submitted for review. Once approved the O&M must be adopted by applicant, incorporated into the deeds; and recorded at the Middlesex Registry of Deeds. A copy of the recording instrument shall be submitted to the Engineering Division.
4. It is imperative to note that the ownership, operation, and maintenance of the proposed drainage system and all appurtenances including but not limited to the drywells, catch basins, and pipes are the sole responsibility of the property owner(s).

Environmental:

1. Has a 21E investigation & report been performed on the site, if so copies of the report should be submitted the Newton Board of Health and the Engineering Division.
2. Are there any existing underground oil or fuel tanks, are they to be removed, if they have been evidence should be submitted to the Newton Fire Department, and Newton Board of Health.
3. As the total site disturbance is over an acre, a Phase II General Construction (NPDES) Permit will need to be filed with DEP & EPA. A Stormwater Pollution Prevention Plan (SWPPP) will need to be developed.

Sewer:

1. A detailed profile is needed which shows the existing water main, proposed water service(s), sewer main and proposed sewer service(s) with the slopes and inverts labeled to ensure that there are no conflicts between the sewer services and the water service. The minimum slope for a service is 2.0%, with a maximum of 10%. Pipe material shall be 6" diameter SDR 35 PVC pipe within 10' of the dwelling then 4" pipe per Massachusetts State Plumbing Code. In order to verify the slopes and inverts of the proposed service connection, two manholes of the existing sanitary sewer system need to be identified on the plan with rim & invert elevations. The crown of the service connection & the sewer main need to match.
2. The existing water & sewer services to the building shall be cut and capped at the main and be completely removed from the main and the site then properly back filled. The Engineering Division must inspect this work; failure to having this work inspected may result in the delay of issuance of the Utility Connection Permit.
3. Use City of Newton Details in lieu of the details submitted they are in PDF format on the City's website.
4. All new sewer service and/or structures shall be pressure tested or videotaped after final installation is complete. Method of final inspection shall be determined solely by the construction inspector from the City Engineering Division. All sewer manholes shall be vacuum tested in accordance to the City's Construction Standards & Specifications. The sewer service will NOT be accepted until one of the two methods stated above is completed. All testing MUST be witnessed by a

representative of the Engineering Division. A Certificate of Occupancy will not be recommended until this test is completed and a written report is received by the City Engineer. ***This note must be added to the final approved plans.***

5. All sewer manholes shall be vacuum tested in accordance to the City's Construction Standards & Specifications. The sewer service will NOT be accepted until one of the two methods stated above is completed. All testing MUST be witnessed by a representative of the Engineering Division. A Certificate of Occupancy will not be recommended until this test is completed and a written report is received by the City Engineer. ***This note must be added to the final approved plans.***

Water:

1. Fire flow testing is required for the proposed fire suppression system. The applicant must coordinate this test with both the Newton Fire Department and the Utilities Division; representatives of each department shall witness the testing, test results shall be submitted in a write report. Hydraulic calculation shall be submitted to the Newton Fire Department for approval.
2. For water quality issues a fire hydrant will be required at the end of the proposed water main. This hydrant will be utilized for flushing out the main as required.
3. All water connections shall be chlorinated & pressure tested in accordance to AWWA and the City of Newton Construction Standards and Specifications prior to opening the connection to existing pipes.
4. Approval of the final configuration of the water service(s) shall be determined by the Utilities Division, the engineer of record should submit a plan to the Director of Utilities for approval

General:

1. Finalized utility connection plan reflecting the above changes that meets the minimal design standards of the City of Newton must be submitted for approval by the contractor of record with appropriate Bonds & Insurance. The Engineering Division makes no representations and assumes no responsibility for the design(s) in terms of suitability for the particular site conditions or of the functionality or performance of any items constructed in accordance with the design(s). The City of Newton assumes no liabilities for design assumption, error or omissions by the Engineer of Record.

2. All trench excavation contractors shall comply with Massachusetts General Laws Chapter 82A, Trench Excavation Safety Requirements, to protect the general public from unauthorized access to unattended trenches. Trench Excavation Permit required. This applies to all trenches on public and private property. *This note shall be incorporated onto the plans*
3. All tree removal shall comply with the City's Tree Ordinance.
4. The contractor is responsible for contacting the Engineering Division and scheduling an appointment 48 hours prior to the date when the utilities will be made available for an inspection of water services, sewer service, and drainage system installation. The utility in question shall be fully exposed for the inspector to view; backfilling shall only take place when the City's Inspector has given their approval. *This note should be incorporated onto the plans*
5. The applicant will have to apply for Utilities Connecting permit with the Department of Public Works prior to any construction. *This note must be incorporated onto the site plan.*
6. The applicant will have to apply for a Building Permits with the Department of Inspectional Service prior to any construction.
7. Prior to Occupancy Permit being issued, an As-Built Plan shall be submitted to the Engineering Division in both digital format and in hard copy. The plan should show all utilities and final grades, any easements and final grading. *This note must be incorporated onto the site plan.*
8. All site work must be completed before a Certificate of Occupancy is issued. *This note must be incorporated onto the site plan.*

Note: If the plans are updated it is the responsibility of the Applicant to provide all City Departments [Conservation Commission, ISD, and Engineering] involved in the permitting and approval process with complete and consistent plans.

If you have any questions or concerns please feel free to contact me @ 617-796-1023.