



**TOWN OF NEEDHAM, MASSACHUSETTS
PUBLIC WORKS DEPARTMENT
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December 12, 2013

Needham Board of Appeals
Needham Public Service Administration Building
500 Dedham Avenue
Needham, MA 02492

RE: Application for Comprehensive Permit
Needham Mews-692 and 744 Greendale Avenue
Plan Revision 11/8/13

Dear Members of the Board,

The Department of Public Works has completed its review of the above referenced revised plans for a Chapter 40B Comprehensive Permit. The applicant is proposing to develop a 268-unit rental apartment development on approximately 6-acres on Greendale Avenue adjacent to Route 128.

The review was conducted in accordance with Needham's non-zoning regulations and standard engineering practice.

During the course of the review, the Department of Public Works has determined that the above referenced property is not capable of supporting the level of development proposed for it. The revised documents submitted for review are as follows:

- Stormwater Management System Revised Drainage Calculations, prepared by Tetra Tech dated April 12, 2103 Revised November 8, 2013 with included Existing and proposed watershed plans;
- Lot Consolidation Plan of Land, compiled by Tetra Tech for Greendale Avenue Venture LLC, signed and stamped by Robert F. Daylor, PLS, dated 4/12/13 and revised 10/31/13, 1 page;
- Comprehensive Permit Plans, Needham Mews Residential Development, 692 + 744 Greendale Avenue, prepared by Tetra Tech for Greendale Avenue LLC, consisting of 14 sheets dated 4/12/13 and revised 11/8/13;
- Architectural Plans, Needham Mews, 692 + 744 Greendale Avenue, Needham, MA, Application for Comprehensive Permit Site Approval, prepared by TAT The Architectural Team for Greendale Avenue Venture, LLC, consisting of 15 sheets: dated 9/16/2013 and revised 10/31/13;
- Landscape Plans and Materials Plans, prepared by TAT The Architectural Team, Consultant: Stantec Consulting Services, consisting of 3 sheets: dated 9/16/2013 and revised 10/31/13;
- Letter from Goulston & Storrs to the Zoning Board of Appeals dated November 13, 2013 referencing revised plan submittal.
- Letter from Tetra Tech to the Zoning Board of Appeals dated November 12, 2013 referencing response to Comments.

Our comments and recommendations are as follows:

- We have not received a revised Zoning waiver request reflecting the new design. Fourteen zoning related waivers were requested under the original design. The applicant has indicated that they will be submitted with the final design.
- The applicant proposes to construct a reinforced concrete "culvert" within the limits of the existing sewer easement. Permission is required from the Board of Selectmen to allow construction of the structure within the limits of the sewer easement. Based on the design provided, the culvert would interfere with the Town's ability to own, operate and maintain the existing sewer main and therefore permission cannot be granted. The applicant has argued that permission is not required from the Selectmen because the culvert is not to be used for habitation. The applicant has also argued that 14'-6" clearance height is sufficient for the Town to own, operate and maintain the sewer. The proposed clearance height is not sufficient. The culvert design including its foundation and width is not sufficient and will interfere with the Town's right to own operate and maintain the sewer. The proposed ground slope is 2H:1V and is too steep for a backhoe to access the sewer pipe. An excavator with tracks is required to access the sewer. A 24 ft clearance height is needed under the culvert bridge to operate the excavator. With this design approach. The proposed culvert foundation is too shallow to prevent undermining should the sewer need to be excavated. The soils present on site are sand and gravel and are susceptible to the cut banks caving in. Permission must be sought from the Selectmen to determine whether the proposed culvert will interfere with the sewer in accordance with the easement language.
- We have not received a revised General Bylaw waiver request reflecting the new design. Eight "waivers" were requested from the General Bylaws under the original design. To the extent that the original waiver requests apply to the new design; we do not recommend that the "waivers" regarding fire lane width, signs, monument signs, and storage of flammable materials be granted. We recommend that a revised waiver request be submitted reflecting the new design. We also recommend that the Boards and Town Officials most familiar with and knowledgeable of each area of the General Bylaws dealing with each request review and comment on each "waiver". The applicant has indicated that the list will be submitted with the final design.
- We recommend that the applicant be required to comply with the Town's Street Permit requirements and Trench Permit bylaws and regulations. The applicant has indicated that they agree with this comment and will comply.
- We recommend that the applicant list any other waivers that they may be seeking for the new design. The applicant has indicated that they will be submitting the list with the final design.
- The MassHousing Project Eligibility (Site Approval) Application letter submitted reflecting the original design requires that the applicant comply with the Commonwealth's Sustainable Development Principles embraced by the DHCD as part of their Final Approval application submittal. No revised information has been submitted reflecting the new design. The applicant should submit a revised narrative showing how the revised development design will advance the sustainable development principles adopted by the Commonwealth of Massachusetts. The applicant informed the Town (verbally) that the revised narrative information was included on the revised design plans. No revised narrative information has been included on any of the plans or documents submitted for our review. According to our review of the information submitted, the revised development design will not advance the principles for the following reasons:
 1. The revised development is inconsistent with the surrounding development. The development proposes a 268 unit apartment complex in a mostly wooded area with 10,000 sf house lots across the street. The revised development proposes to restrict access and interferes with maintenance of the town's existing sewer

main by constructing a reinforced concrete culvert above the sewer and within the limits of the sewer easement to accommodate the revised development. The development will substantially reduce open space and provides no pedestrian link from the revised development to the adjacent conservation areas due to the proposed construction of a retaining wall surrounding two-thirds of the property and provides no pedestrian walkway to the only opening in the retaining wall where access might be made. The revised design has been changed to provide a wooden guard rail with an opening in the guard rail to the existing trail network below the wall. The proposed guard rail will prevent access to the sewer easement.

2. The revised development will not protect land and ecosystems. The revised proposal calls for removing almost every single tree on site. It will not increase the quality of the existing conservation land adjacent to the site, nor will it increase accessibility to it.
3. The revised development will not use Natural Resources wisely by encouraging recycling. The recycling stations at the trash areas in the buildings shown in the original design have all been removed in the revised design. No trash or recycling areas have been designated in any of the buildings in the revised design.
4. The revised development will not use Natural Resources wisely by encouraging use of public transportation and carpooling. The developer proposes to construct a total of 379 underground parking spaces and 79 surface parking spaces to serve 268 units (536 bedrooms – of which 62 are lofts). In the original proposal the developer proposed to charge a \$50 fee per month for 225 of the underground parking spaces no information has been submitted regarding a fee being charged in the revised design. If a fee is proposed to be charged under the new design; the applicant should disclose the affected number of spaces and the fee amount. The developer also claims to provide bike storage in the buildings to encourage bicycling. There are storage areas proposed in all the buildings, but the developer proposed to charge \$50 per month for 50 units to use them in the original design. No information has been provided in the revised design.
5. The developer claims that linkages have been provided to conservation land by constructing one or more pathways from the site to the conservation land. No pathways linking the revised development to the opening in the guard rail are shown.
6. The developer claims that the site is designed to minimize the disturbed area of the site. The plans indicate that almost the entire site is proposed to be disturbed (98.1%). The area around the existing house at 692 Greendale under the original proposal is now proposed to be removed in the revised design; leaving only 1.9% of the site undisturbed. This amount of disturbance does not meet the Sustainable Development Principles cited above. The amount of disturbance will also require a National Pollutant Discharge Elimination (NPDES) Permit from the EPA.
7. The developer claims that stormwater is proposed to be infiltrated entirely on site. The revised drainage calculations have been revised again to provide a description, analysis, and conclusions. The design indicates that the proposed system will surcharge and is not capable of serving the proposed development as designed.
8. The developer claims that the residents, building manager and management team will be educated and trained about the green features of the apartment homes. No office space or work area has been provided for the building manager and the management team.
9. The MassHousing General Development Information form reflecting the original design has several inconsistencies and missing and/or conflicting information as to the number of buildings on site, the number of existing buildings to be torn

down, the number of units proposed, explanation as to how the increased density (above 8 units per acre) is compatible with or enhances the surrounding area, utility allowances, etc. No revisions to the form have been made reflecting the revised development plan.

The applicant has indicated that the review of the applicant's Project Eligibility letter is solely within the purview of MassHousing. The project eligibility application was submitted as part of the application to the Board of Appeals. Discrepancies between the language in the application and the design of the project as shown on the plans should be considered in the Board's deliberations.

Property Lot Consolidation Plan

- Lot consolidation Plan of Land Sheet 1 has been revised to comply with the Registry of Deeds recordable format. The plan must be revised to provide the signature block for the members of the Planning Board to sign the plan. The revised plan has not been stamped and signed by a Registered Professional Surveyor. The plan has been revised to comply.
- The portion of Hardy Street along the Northwesterly property boundary may not be passable by some motor vehicles, but is passable by others. It is also passable by pedestrians. The note should be revised to reflect the current condition of Hardy Street. The plan has been revised to comply.
- The Flood Plain referenced information has been corrected. The plan has been revised to comply.
- The total property area shown as 6.02 Acres does not match the existing record information. The reason the property area does not match is that the applicant is claiming a portion of the abandoned section of Hardy Street.
- The plan appears to "claim" a portion of the abandoned section of Hardy Street along the southeasterly corner of the property. No recorded deed or plan information exists to support the claim. The bearings and or distances in the south easterly corner of the property do not conform to any plan of record.
- The property within the boundaries of Hardy Street may be owned, "in fee" by the Town of Needham. We recommend that Town Counsel be consulted regarding the disposition of Hardy Street.
- The reference information regarding the "Drain Easement to be Acquired" plan does not about the subject property and the consolidation plan provides no mathematical relationship to the drain easement shown on the plan.
- The two referenced plans by Needham Survey Associates, Inc., do not appear to be recorded at the Registry of Deeds.

Based on the above, the property boundaries and the area have not been established for the property to support the proposed development.

Stormwater Report and Plans:

The applicant has prepared revised stormwater calculations and report that are not consistent with standard engineering practice. The applicant has not documented compliance with stormwater and drainage requirements for both predevelopment and postdevelopment. The proposed development may result in flooding on the adjacent State Highway property and may increase flooding on land N/F Town of Needham and land N/F Greendale Avenue Worship Center.

The Engineering Division has completed the review of the most recent stormwater plans and report submitted November 8, 2013. The revised Stormwater report was unstamped and received on November 13, 2013.

- Sub-catchment areas for pre development collection of stormwater have now been reconfigured; A section of 128 catchment area is still absent from the existing and proposed condition design to accurately represent the existing watershed flow.
- Potential stormwater drainage entering the site from Greendale Avenue at two locations has been addressed.
- The applicant has adjusted the pond configurations based on revised topography.
- The applicant has revised the sub-catchment design point (1R) from a point at the downstream neighboring property to the applicant's property line upstream of the neighboring property. Now the calculations accurately reflect the rate and volume of stormwater that leaves the site onto the neighboring property.
- The routing diagram and calculations for the existing water shed should show, Depression 2 discharges into Depression 3 before routing off the property.
- The revised analysis indicates that the existing "Soil Hydrologic Group" categories on the site have been corrected.
- Time of concentration used for post development conditions are direct entry values. The response letter provides justification for the time of concentrations.
- For post-development stormwater mitigation, the analysis indicates that a greater storage capacity was used in the infiltration chamber calculations than that provided for on the plans and details. Furthermore, the design is relying on storage above the actual discharge points, indicating that the system is designed to surcharge. The stormwater analysis must be revised so they do not conflict with each other. The stormwater storage system cannot be designed to surcharge. Although changes have been made to the calculations, the calculations still specify a greater volume of stormwater storage is needed than that provided for in the design.
- The void space percentage used in the storage calculations should not exceed 35% based on the proposed crushed stone gradation. Based on an expected life of the stormwater infiltration system of 25 plus years and the specification of the crushed stone. The designer indicates that 40% voids is an acceptable assumption, but has failed to consider sediment which will escape the water quality chambers and enter into the infiltration system over its design life.
- Post construction catchment areas for the post development Roof lines have been provided for the courtyard and pool areas.
- As part of the NPDES requirements, the applicant must comply with the Public Outreach & Education and Public Participation & Involvement control measures. The applicant shall submit a letter to the town identifying the measures selected and dates by which the measures will be completed in order to incorporate it into the Zoning Board's decision. The applicant has indicated they will comply prior to construction. This compliance should be incorporated into the ZBA's decision.
- The applicant is required to comply with the Memorandum of Understanding signed by the Town with the EPA. The Massachusetts Stormwater Management Policy applies. The applicant has indicated that they will comply.

Layout Plan Sheet C-2:

- The Layout Plan has been revised to show the Town's existing 20' wide sewer easement crossing the properties. The plan has been revised to comply.
- The boundary lines and area of the properties have not been established. The boundary lines need to be corrected.

- A reinforced concrete culvert is proposed within a portion of the existing sewer easement. The culvert will prevent access to the Town's sewer main. The culvert design needs to be corrected or an alternate proposal made.
- The driveway width has been increased to 24 ft. (18 ft minimum where no parking is allowed) The plan has been revised to comply
- The revised design provides the ability for fire truck based on a 50' design vehicle at various hinge points on site. (horizontally) The plan has been revised to comply
- Overall dimensions of the proposed buildings have been provided on the revised plans. The plan has been revised to comply
- The driveway curb roundings are too sharp to accommodate the speed of traffic on Greendale Avenue (50 mph). The plan has been revised to accommodate the speed of traffic.

Grading and Drainage Plan Sheet C-3:

- The grade of the two driveway accesses from Greendale Avenue to the main site drive is unsafe. The slope is too steep for emergency vehicles to access under emergency conditions. The two access drives from Greendale Avenue to the main site drive must be redesigned. The two driveway accesses have not been corrected. The vertical curves proposed are insufficient and do not meet minimum design criteria. The road network is supposed to provide safe and adequate access for 268 apartment units. As such, it cannot be designed as a residential driveway serving one to four units. Safe and adequate access is required for all emergency vehicles accessing all buildings on the site in an unimpeded way. The current design of the entrance drives supports a design speed of less than 20 mph which is unsuitable for emergency situations.
- The slope of the driveway behind Building B is too steep and does not provide access to the proposed garage entrances. The driveway elevations at each garage entrance are 14 inches to 18 inches below the garage slab elevations. It appears this was done to make it appear that a maximum 8% driveway slope is proposed between the two garage entrance locations. The distance between the two garage openings is 90 feet with a garage slab elevation differential of 10 feet. Vertical curves are required to change the driveway profile grade as the driveway passes by the garage entrances which will result in a shorter distance between the two garage entrances to access the garage slab elevations. The driveway slope is 11.1% based on the current configuration without considering vertical curves. It appears that the actual slope resulting from the layout as proposed would exceed 22%. The current design as proposed is unsafe.
- There is a proposed puddle in front of the townhouse located northerly of the southernmost driveway access. The plan has been revised to comply
- There is a proposed 1:2 (Vertical : Horizontal) slope proposed immediately adjacent to the access drive near Route 128 at the sewer easement. The design creates a safety problem for pedestrians and inhibits access to the trail network. The plan has been revised to comply
- The handicap accessible surface parking space and accessible route exceeds 2% slopes near the southerly access drive entering the site. The plan has been revised to comply
- No details have been provided for the retaining wall adjacent to Building A. The wall is structurally significant and will require a building permit to construct. The wall and building is likely to be impacted by access to the sewer main. The applicant has indicated the design will be completed in the final design
- The design indicates that grading and public shade tree removal will be required within the Greendale Avenue public right of way to support the proposed design (at the site drive entrances). The applicant agrees.
- There are two proposed point source stormwater discharges from the property onto Route 128. No easement has been provided to accommodate the discharges. The

applicant has not complied and disagrees. An easement or permission must be granted by MassDOT to allow the discharges.

The review indicates that the site as currently designed is not capable of supporting the level of development proposed for it.

Additional review will be required should the plans be revised.

If you have any questions regarding the above, please contact our office at 781-455-7550.

Truly yours,

Anthony L Del Gaizo
Town Engineer

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