**Preliminary Site Plan and Special Permit**  
**PLPZ202000257**  
(see also Municipal Improvement PLPZ 2020 00258)  

Demolition and reconstruction of the Eastern Greenwich Civic Center with a new single story 35,482 sq. ft. building

<table>
<thead>
<tr>
<th>Location:</th>
<th>90 Harding Road</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone:</td>
<td>R-7</td>
</tr>
<tr>
<td>Lot size:</td>
<td>14.3 acres</td>
</tr>
<tr>
<td>Square feet:</td>
<td></td>
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<tr>
<td>Existing:</td>
<td>31,765 sq. ft.</td>
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<tr>
<td>Proposed:</td>
<td>35,482 sq. ft.</td>
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<tr>
<td>Allowed:</td>
<td>224,246 sq. ft.</td>
</tr>
<tr>
<td>Height:</td>
<td></td>
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<tr>
<td>Existing:</td>
<td>Approx. 35’</td>
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<td>Proposed:</td>
<td>29’</td>
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<td>Green Area:</td>
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<td>Existing:</td>
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<td>Proposed:</td>
<td>71%</td>
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<tr>
<td>Parking:</td>
<td></td>
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<tr>
<td>Existing:</td>
<td>247 (accessible)</td>
</tr>
<tr>
<td>Proposed:</td>
<td>248 (11 accessible)</td>
</tr>
<tr>
<td>Flood Zone:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X (area of minimal flood hazard)</td>
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**APPLICATION SUMMARY:**
This applicant is requesting a preliminary site plan and special permit, for the demolition and reconstruction of the Eastern Greenwich Civic Center with a new single story 35,482 sq. ft. building to contain a new gymnasium, multi-use event space, activity rooms with flexible partitions, storage areas, vending and lounge area, restrooms, exterior restrooms to support field activities, new administrative offices, interior waiting area, and office space to be leased by the OGRCC.

Exterior changes would include new parking areas to the south of the building, new loading dock, new vehicle pick up and drop off lane in front of the building and reconfiguration of existing surface parking, and related site and stormwater management improvements on a 14.3-acres parcel located at 90 Harding Road in the R-7 Zone.

The Board of Selectman moved the Municipal Improvement to Planning and Zoning at their August 13, 2020 meeting.
ISSUES TO BE RESOLVED/RECOMMENDATIONS:
1) Prior to any action by the Commission, the Inland Wetland and Watercourse Agency will need to act. They are scheduled to hear the proposal at the end of the month.
2) It is recommended that the Commission request a schedule of the events that take place over the course of the year so that it can be understood how the events and activities are managed with respect to the demand on parking. Section 6-158 notes that community center require 1 space per every 200 sq. ft. With a 35,482 sq. ft. building 129 spaces would be required where 248 is proposed (33 on site and 215 on the town-owned property across the street). Since the use is dependent on the parking across the street, the Commission should discuss with the applicant how the parking will be secured through time.
3) Department of Public Works (DPW) issued comments that need to be addressed prior to a final submission.
4) Zoning Enforcement Office has no issues
5) Architectural Review Committee (ARC) will hear this proposal on October 7. Conservation and Sewer comments are expected.
6) Section 6-97 and by reference, Section 6-93, permits: streets, parks, playgrounds, public school grounds and Town buildings and uses.

SITE DEVELOPMENT DETAILS:

a. Demolish the existing 31,765 square foot, two story Civic Center.
b. The replacement building will be a single story, structural steel framed building with masonry and glass exterior walls at 35,482 square feet. The replacement building will be totally ADA compliant.
c. The interior space and amenities of the replacement building will have:
   o Multiple use full size gymnasium with roll out spectator seating of 8,100 sq. ft.
   o Multiple use Event Space of 8,100 sq. ft with an event kitchen.
   o Three (3) Activity Rooms that are 1,000 sq. ft each that have a capacity of 49 persons each, two of which share a common folding partition wall that can be opened to create a single larger space.
   o Storage rooms for all gym/event/activity equipment.
   o Expanded vending area with lounge area.
   o Updated and centrally located restrooms with separate family restrooms.
   o Exterior restrooms to support field activities.
   o Administrative office area
   o Interior waiting area
   o Leased OGRCC office

PARKING:
Parking is required at a rate of one space per 200 square feet (sq. ft.) of useable floor area. The proposed gross floor area is 35,482 sq. ft., and the useable floor area is 25,747 sq. ft., which requires 129 parking spaces. Proposed conditions provide 33 on-site parking spaces. An additional 215 parking spaces are provided across Harding Road on the western abutting
property resulting in a total of 248 parking spaces provided. This includes three accessible van spaces and eight other accessible spaces to meet current Americans with Disabilities Act (ADA) requirements. Per recommendations from the Conservation Commission, two future EV charging station locations are shown at the south parking lot. Electrical conduits will be run from the building for future connection. These two stations will be capable of serving four parking spaces.

**Drainage:**
The proposed building will be elevated about 1 foot above the existing slab elevation to improve slope away from the building for drainage purposes and also to adjust to the elevation changes associated with the Harding Road reconstruction project that is currently being designed by the Greenwich Department of Public Works (DPW).

**Grading and tree preservation:**
The redevelopment will impact a few large trees that need to be removed and a few smaller trees that will be relocated or replaced. The majority of stormwater runoff from the site will sheet flow overland to two bioretention basins on the south side of the site. These basins will be designed according to the town Drainage Manual to provide water quality management and peak flow attenuation consistent with the town drainage requirements. As part of this project, the parking lot on the west side of Harding Road that serves the Civic Center and the adjacent ball fields will be reconstructed to adjust grades to the Harding Road improvements and improved drainage conditions. Minor grading changes are proposed to adjust the elevation of curb cuts and collect surface runoff centrally in the parking lot. Currently, all of the parking lot drains directly to Harding Road. The new collection system will discharge to a proposed bioretention basin located in the existing grassed island south of the parking lot and adjacent to Forest Avenue. The storage in this basin will be limited by the relatively flat grades in the area with the bottom being set based on the inverts of the existing drainage system in Forest Avenue. The volume of the basin will be maximized for water quality management of runoff from the parking lot. An increase in impervious surface for the redevelopment of this parking lot is not anticipated but new water quality features will be implemented if need be.

**Storm Drainage**
Proposed stormwater management components are to be designed per the Town of Greenwich Drainage Manual and the applicable State of Connecticut guidelines. The main design goals are to provide water quality management for all impervious surfaces and peak flow attenuation design criteria. Two bioretention systems and pervious pavement or pavers are proposed to provide water quality and mitigate the stormwater peak rates of runoff due to the increase in impervious area from the proposed civic center building and parking areas. Stormwater runoff from portions of the proposed building roof will be mitigated with bioretention areas designed in accordance with the Town of Greenwich Drainage Manual and CTDEEP guidelines. The bioretention systems will discharge to the existing wetlands near the southeastern portion of the site. For further information regarding the storm drainage analysis and design for the site, please see the project Drainage Report dated September 17, 2020, as prepared by MMI in support of the site plan application.
Sanitary Sewer
The existing Civic Center building is currently served by an 18-inch clay tile sewer main that extends onto the site from Forest Avenue. The 18-inch main terminates at a manhole in front of the Civic Center where a sanitary lateral extends east to serve the building. An abandoned main and lift station that used to serve a building east of the Civic Center will be removed as necessary to accommodate the proposed improvements. There are no proposed modifications to the existing sanitary main that enters the site. The existing lateral will be removed and replaced with a new 6" lateral extending from the existing manhole in front of the building to the loading area on the south side. An exterior grease trap is proposed under the loading/unloading area to serve the new kitchen facilities, and a new lateral will enter the building from the south to serve the bathrooms.

Water Service
The Aquarion Water Company maintains an 8" water main in Tomac Avenue. An 8" lateral from the main reduces to a 6" water line and serves an existing fire hydrant on the southwest side of the building. The proposed redevelopment will utilize the existing service lateral for the new building and will relocate the existing fire hydrant per guidance from the Fire Department. The capacity of the proposed water service lines will be confirmed based on the anticipated domestic and fire demands.

Gas:
Connecticut Natural Gas Company maintains a 4" gas main in Tomac Avenue. An existing lateral provides service to a gas meter on the south side of the existing building. It is planned to utilize this existing service lateral for the new building provided it has adequate capacity.

Electric:
The existing building is served by overhead electric service from an existing pole on Tomac Avenue near the south entrance drive. Pole-mounted transformers serve the building from utility poles. The existing service will be removed, and a new underground electrical service will be provided from the same utility pole in Tomac Avenue. A new transformer is proposed adjacent to the loading/unloading area on the south side of the building.

Other:
The project involves the demolition and reconstruction of the Eastern Greenwich Civic Center with no change of use proposed for the site. The new facility will have significant energy efficiency improvements along with updated amenities to better serve the residents that utilize the facility.

Permeable pavers will also be used for the 33 new parking spaces on the south side while the access drive and cul-de-sac at the end will be bituminous concrete paving. Access to the site will originate from the existing curb cuts serving the property, so no change in traffic circulation is anticipated.
Emergency access and adequate maneuvering for first responders will be provided via the turnaround at the end of the new parking area. A new curb cut at the northern end of the front drop-off loop will provide emergency access to the existing athletic fields to the north.

A loading/unloading area is proposed on the south side of the building to accommodate deliveries. Two 6-yard dumpsters are provided with one designated for trash and the other for recyclables.

**DEPT COMMENTS:**
DPW Engineering – See attached
ZEO – See attached
DPW Sewer – Awaiting comments
Conservation – Awaiting comments

**PROJECT HISTORY:**
The Town of Greenwich is planning a complete replacement of the Eastern Greenwich Civic Center located on 90 Harding Road in the Old Greenwich section of Greenwich Connecticut.

The Eastern Greenwich Civic Center at 90 Harding Road was originally constructed as an employee recreation center for Electrolux Corporation in 1950. In 1966, the Town of Greenwich acquired the property and the building, and it became the Eastern Greenwich Civic Center. The existing building is a two-story reinforced concrete and masonry structure totaling approximately 31,765 square feet. The building sits on a Town owned parcel of 13.222 acres (includes playing fields). A separate Town owned parking lot of 2.026 acres sits on Harding Road opposite the Civic Center and the current lot configuration holds 216 parking spaces. This lot is for the exclusive use of the civic center and playing fields. There is limited onsite parking for staff and users of the exterior tennis courts and for the children’s playground at the rear of the building.

The Town had originally targeted this project in 2000 as a building rehabilitation. During the subsequent years, several issues with the building arose which required immediate repair. As the Town undertook those repairs a systematic replacement schedule of major building components was developed as well as investigating other non-related issues such as space utilization, functionality and accessibility. After exploring the existing condition of the structural concrete, exterior masonry skin, windows & flashing, lack of thermal insulation, the steam/hot water/radiant heating system, lack of air conditioning, non-compliant restrooms, deteriorating subterranean plumbing systems, fire code issues at the main open stair, percentage of the buildings unusable space and the cost to make usable, as well as the non-accessible second floor, the Town has determined that the cost of rehabilitation would be such that a new modern replacement building would provide efficiencies in all aspects of operation that the existing building cannot deliver. Therefore, the Town has decided to pursue the buildings complete replacement.
The Eastern Civic Center is operated and staffed by the Town Department of Parks & Recreation who provides a variety of recreation programs for all age groups. In addition, they schedule and rent space in the building for other programs and originations.

In 2018, the First Selectmen established a Committee ascertain the desired amenities that would be required in a new building. To that end Sport Facilities Advisory was hired to inspect the existing facility and to interview all the current stakeholders who utilize the center. Armed with that information they developed a town wide survey so that the residents could also comment on the replacement. The Committee analyzed the survey results and developed a list of replacement goals. The goals included the types of spaces needed in a new building as well as the amenities. The Committee held several public informational meetings to discuss the project and the list of goals. In 2019, the Committee also released a request for proposal to Connecticut licensed architects interested in developing the plans for a replacement building based on the list of replacement goals. After a five-month process, the Committee selected TSKP Studio of Hartford, CT.
SITE PLAN APPLICATION

☐ PRELIMINARY
☐ FINAL

Project Name: Eastern Greenwich Civic Center
Project Address: 90 Harding Rd, Old Greenwich, CT 06870
Property Owner(s): Town of Greenwich C/O Alan Monelli, Superintendent DPW
Tax Account Number(s): 06-4689/S, 06-4692/S Zone(s): R-7 Lot Area: 15.25 Acres

=575,930 SF (13.22 Ac.) + 88,250 SF (2.03 Ac.)

Please select all relevant items below:
☐ Special Permit – Complete special permit application form
☐ Coastal Overlay Zone
☒ Property is within 500 feet of a Municipal Boundary of Stamford (for notification)
☐ Amendment to Building Zone Regulations – Section(s)
☐ Amendment to Building Zone Map – Zone(s) affected
☐ Health Department review needed
☐ Sewer Department review needed
☐ Architectural Review Committee Application attached or Review needed
☐ Planning & Zoning Board of Appeals review needed
☒ Inland Wetlands and Watercourses Agency Review / Approval Required

AUTHORIZED AGENT

Name: Ryszard Szczepk
Street Address: 146 Wyllys St. Ste. 1-203
Phone: 860-547-1970
Signature: [Signature]
Email: rs@tskp.com
Date: 9/17/2020
City: Hartford St: CT Zip: 06106
Firm name: TSKP STUDIO, LLC

PROPERTY OWNER(S) AUTHORIZATION

Name: Town of Greenwich C/O Alan Monelli, Superintendent DPW
Street Address: 101 Field Point Road
Phone: 203-879-9796
Signature: [Signature]
Email: Alan.Monelli@greenwichct.org
Date: 9/17/2020
City: Greenwich ST: CT Zip: 06830

To be completed by P&Z staff only:
Check # Check Amount: $
Application # PZ Site Plan App 2018
# SITE PLAN ZONING STATISTICS

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<th>PROPOSED</th>
<th>PERMITTED/REQUIRED</th>
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<tr>
<td>Gross Floor Area</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Usable Floor Area</td>
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<td></td>
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<tr>
<td>Parking Spaces</td>
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<tr>
<td><strong>COMMERCIAL/RETAIL</strong></td>
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<tr>
<td>Usable Floor Area</td>
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<tr>
<td>Parking Spaces</td>
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<td><strong>OTHER USES</strong></td>
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<td>35,482 S.F.</td>
<td></td>
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<td>Usable Floor Area</td>
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<td>Gross Floor Area</td>
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<tr>
<td>Parking Spaces</td>
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<td><strong>TOTAL SQUARE FOOTAGE</strong></td>
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<td>1 story w/ mechanical mezz. or 29'-0&quot;</td>
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<td><strong>LOT COVERAGE</strong></td>
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<td>248</td>
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<tr>
<td><strong>AGE OF STRUCTURE</strong></td>
<td>75</td>
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This Site Plan Involves:

- ☐ ADDITIONS
- ☐ ALTERATIONS
- ☒ DEMOLITION
- ☒ RE-CONSTRUCTION
**Existing Conditions**

The property consists of approximately 13.2 acres located at 90 Harding Road, Old Greenwich, Connecticut, on the east side of Harding Road and Tomac Avenue near the intersection with Forest Avenue. The Town of Greenwich has retained TSKP STUDIO Architects and Milone & MacBroom, Inc. (MMI) to develop design plans for reconstruction of the Civic Center and the surrounding site and infrastructure that support the facility.

The property is bounded by inland wetlands to the east and a railroad to the south with the athletic fields to the north and frontage on town streets to the west. There is a stone box culvert near the southeast corner of the property that conveys flow under the railroad from a railway swale along the south property line and the wetlands to the east. This culvert daylights to an open channel, which flows through the Innis Arden Golf Club on the other side of the railroad. The property also includes multiuse athletic fields on the north side, tennis courts, and a playground area. The athletic fields and tennis courts are not part of the proposed redevelopment. A parking lot on the west side of Harding Road provides parking for the Civic Center and the athletic fields.

The Inlands Wetlands staff, as part of the RFP, has established a line on the east side of the site that established a limit of developable area that is understood to be generally acceptable for redevelopment with limited impact on the nearby wetlands. This establishes a buffer limit that is being held as part of the design. However, an Inland Wetlands permit will be required. The project will also be subject to a Planning and Zoning site plan permit.

The site was reviewed through the online Federal Emergency Management Agency (FEMA) map portal on September 16, 2020, and the FEMA mapping shows that the Civic Center property is in Zone X, which is an area of minimal flood hazard. Based on this mapping, there is no regulated FEMA Zone A floodplain that extends onto the site. Per the Connecticut Department of Energy & Environmental Protection (CTDEEP) ECO online mapping portal, the property does not lie within an Aquifer Protection Area, nor is it in a public water supply watershed. There are inland wetlands identified on the site that were flagged by MMI on August 12, 2015.
Proposed Improvements

1. Site Improvements, Circulation, and Parking

The project involves the demolition and reconstruction of the East Greenwich Civic Center with no change of use proposed for the site. The new facility will have significant energy efficiency improvements along with updated amenities to better serve the residents that utilize the facility. The completed project will maintain the western access loop and create a new turnaround at the end of the newly configured parking area on the south side. The drop-off loop will be converted from bituminous concrete pavement to permeable pavers. Permeable pavers will also be used for the 33 new parking spaces on the south side while the access drive and cul-de-sac at the end will be bituminous concrete paving. Access to the site will originate from the existing curb cuts serving the property, so no change in traffic circulation is anticipated. Emergency access and adequate maneuvering for first responders will be provided via the turnaround at the end of the new parking area. A new curb cut at the northern end of the front drop-off loop will provide emergency access to the existing athletic fields to the north. A loading/unloading area is proposed on the south side of the building to accommodate deliveries. Two 6-yard dumpsters are provided with one designated for trash and the other for recyclables. The dumpsters will be in an enclosure near the loading area.

Based upon the Town of Greenwich Zoning Regulations, parking is required at a rate of one space per 200 square feet (sf) of useable floor area. The proposed gross floor area is 35,482 sf, and the useable floor area is 25,747 sf, which requires 129 parking spaces. Proposed conditions provide 33 on-site parking spaces. An additional 215 parking spaces are provided across Harding Road on the western abutting property resulting in a total of 248 parking spaces provided. This includes three accessible van spaces and eight other accessible spaces to meet current Americans with Disabilities Act (ADA) requirements. Per recommendations from the Conservation Commission, two future EV charging station locations are shown at the south parking lot. Electrical conduits will be run from the building for future connection. These two stations will be capable of serving four parking spaces.

The proposed building will be elevated about 1 foot above the existing slab elevation to improve slope away from the building for drainage purposes and also to adjust to the elevation changes associated with the Harding Road reconstruction project that is currently being designed by the Greenwich Department of Public Works (DPW). Significant efforts have been made to minimize grading and preserve existing trees on the site. The redevelopment will impact a few large trees that need to be removed and a few smaller trees that will be relocated or replaced. The majority of stormwater runoff from the site will sheet flow overland to two bioretention basins on the south side of the site. These basins will be designed according to the town Drainage Manual to provide water quality management and peak flow attenuation consistent with the town drainage requirements.

As part of this project, the parking lot on the west side of Harding Road that serves the Civic Center and the adjacent ball fields will be reconstructed to adjust grades to the Harding Road improvements and improved drainage conditions. Minor grading changes are proposed to adjust the elevation of curb cuts and collect surface runoff centrally in the parking lot. Currently, all of the parking lot drains directly to Harding Road. The new collection system will discharge to a proposed bioretention basin located in the existing grassed island south of the parking lot and adjacent to Forest Avenue. The storage in this basin will be limited by the relatively flat grades in the area with the bottom being set based on the inverts of the existing drainage system in Forest Avenue. The volume of the basin will be maximized for water quality management of runoff from the parking lot. We do not anticipate any
increase in impervious surface for the redevelopment of this parking lot but will implement new water quality features where none exist now.

**Utility Narrative**

1. **Storm Drainage**

   Proposed stormwater management components are to be designed per the Town of Greenwich Drainage Manual and the applicable State of Connecticut guidelines. The main design goals are to provide water quality management for all impervious surfaces and peak flow attenuation design criteria. Two bioretention systems and pervious pavement or pavers are proposed to provide water quality and mitigate the stormwater peak rates of runoff due to the increase in impervious area from the proposed civic center building and parking areas. Stormwater runoff from portions of the proposed building roof will be mitigated with bioretention areas designed in accordance with the Town of Greenwich Drainage Manual and CTDEEP guidelines. The bioretention systems will discharge to the existing wetlands near the southeastern portion of the site.

   For further information regarding the storm drainage analysis and design for the site, please see the project Drainage Report dated September 17, 2020, as prepared by MMI in support of the site plan application.

2. **Sanitary Sewer**

   The existing Civic Center building is currently served by an 18-inch clay tile sewer main that extends onto the site from Forest Avenue. The 18-inch main terminates at a manhole in front of the Civic Center where a sanitary lateral extends east to serve the building. An abandoned main and lift station that used to serve a building east of the Civic Center will be removed as necessary to accommodate the proposed improvements.

   There are no proposed modifications to the existing sanitary main that enters the site. The existing lateral will be removed and replaced with a new 6" lateral extending from the existing manhole in front of the building to the loading area on the south side. An exterior grease trap is proposed under the loading/unloading area to serve the new kitchen facilities, and a new lateral will enter the building from the south to serve the bathrooms.

3. **Water Service**

   The Aquarion Water Company maintains an 8" water main in Tomac Avenue. An 8" lateral from the main reduces to a 6" water line and serves an existing fire hydrant on the southwest side of the building. The proposed redevelopment will utilize the existing service lateral for the new building and will relocate the existing fire hydrant per guidance from the Fire Department. The capacity of the proposed water service lines will be confirmed based on the anticipated domestic and fire demands.

4. **Gas**

   Connecticu Natural Gas Company maintains a 4" gas main in Tomac Avenue. An existing lateral provides service to a gas meter on the south side of the existing building. It is planned to utilize this existing service lateral for the new building provided it has adequate capacity.

5. **Electric**

   The existing building is served by overhead electric service from an existing pole on Tomac Avenue near the south entrance drive. Pole-mounted transformers serve the building from utility poles.
located on site. The existing service will be removed, and a new underground electrical service will be provided from the same utility pole in Tomac Avenue. A new transformer is proposed adjacent to the loading/unloading area on the south side of the building.
Reviews provided by the Engineering Division are for compliance with the Town’s “Roadway Design Manual and Standard Construction Details” and “Drainage Manual” as amended. Reviews are based upon the information and plans provided. Comments pertaining to the Town’s manuals are not all encompassing. Other reviewing entities may provide additional comments regarding consistency with these manuals in accordance with their jurisdictions. Review of sanitary sewer and septic systems are not reviewed by the Engineering Division.

All New Submittals for Commission Meetings must be received by the Engineering Division four weeks before scheduled Commission Meeting.

All Revised Submittals for Commission Meetings must be received by the Engineering Division three weeks before scheduled Commission Meeting.

Reviewed and Approved by: ________________________________ Date: 9/29/20

Scott Marucci - Senior Civil Engineer

COMMENTS AND CONDITIONS OF APPROVAL:  Resubmit Prior to Final Site Plan Approval

1. Form SC-100 needs to be submitted.
2. Form SC-107 needs to be submitted.
3. A meeting with the Engineering Division is required to discuss the coordination and design elements with the Engineering Division Harding Road Project.
4. The Drainage Summary Report needs to be revised as follows:
   a. A full complete Drainage Summary Report must be submitted with the final site plan submittal.
   b. The necessary deep test holes (saturated hydraulic conductivity tests may be required) need to be completed and submitted in the report on Form SC-101 for each of the stormwater BMPs (driveway loop porous pavement area, service driveway porous pavement areas, Bioretention Basin 110, 120, 210, and any additional stormwater BMPs that will be added).
   c. The existing and proposed watershed maps need to include the time of concentration flow paths.
   d. The proposed stormwater BMPs for WQV for WS 11, WS 30 driveway loop, WS 31, and WS 40 are acceptable in concept for the type of stormwater BMP.
   e. It is unclear what stormwater BMP will be used for WQV for WS 20 and the roofs for WS 30.
   f. The concept design for Bioretention Basin 110, 120, and 210 must first try and design using the required 30” of bioretention soil depth. The 30” soil depth may require the bioretention systems to include an internal water storage zone (this provides enhanced nitrogen removal).
5. The construction plan set needs to be revised as follows:
   a. Existing Conditions Survey Sheet
      i. All of the pipe systems on the property and within the road shall be further investigated to complete the connectivity of the systems to the outfalls.
      ii. The invert elevation of the 3’ x 2’ stone box culvert needs to be added.
      iii. Show spot elevations throughout the property and Right-of-Way.
   b. Site Plan Sheets
      i. Shall be revised with the required information with the final site plan submittal.
      ii. Show excavation and fill quantities in a table.
      iii. Show the entire pipe network from the starting point (roof leaders, catch basin, etc.) to the outfall.
      iv. Show the footing drain network from the house/sump pump to the outfall.
      v. A pedestrian ramp needs to be added for the pedestrian crossing just south of the access driveway. A sidewalk from this pedestrian ramp to the main sidewalk of the building shall be added.
      vi. All catch basins must have a minimum 2-foot sump.
   c. Low Impact Development Plan Sheet:
      i. Depict the site’s soil type and associated Hydrologic Soil Groups (HSG).
      ii. Show deep test pit and saturated hydraulic conductivity test locations (include circular influence zone for each test).
      iii. Each deep test pit (2500 SF) and the saturated hydraulic conductivity test (500 SF) for the proposed BMP’s need to include the required circular influence zone.
      iv. Show structural and non-structural (e.g., source controls) BMPs.
      v. Show each area of roof with a callout specifying which BMP receives runoff.
      vi. Show areas of disconnected roofs.
      vii. Show areas of amended soils.
      viii. Show existing and proposed topography at contour intervals of two feet for the property and Right-of-Way. If possible, include contours ten feet beyond the property limits for neighboring parcels.
      ix. Show topography flatter than 2% with additional spot elevations and contour intervals of one foot.
      x. Show existing and proposed spot elevations throughout the property and Right-of-Way.
      xi. Show the floodplain and floodway limits (as taken from flood hazard mapping prepared by the Federal Emergency Management Agency for the Town of Greenwich). If necessary, the limits of 100-year flood boundaries shall be verified in the field by a licensed land surveyor.
      xii. All slopes (existing and proposed) greater than 25% (4H:1V slope) as measured over a minimum distance of fifty (50) feet.
      xiii. Wetland soils and watercourses (both intermittent and permanent), delineated/flagged wetland areas, riparian buffer areas (as applicable).
   d. Erosion & Sediment Control Sheet
      i. Shall be revised with the required information with the final site plan submittal.
   e. Driveway Profile & Sight Distance Sheet
      i. Show sight distance for existing driveways (use GIS data to supplement the A-2 and T-2 Survey as needed to show the entire road for the required sight distance).
      ii. Show sight distance for all new proposed driveways (use GIS data to supplement the A-2 and T-2 Survey as needed to show the entire road for the required sight distance).
      iii. Show width of driveways at property line.
      iv. Show width of driveways at edge of road.
      v. Show distance from driveways to intersection.
      vi. Show profile for each driveway from edge of road to garage. The profile shall include slopes, spot elevations and if porous pavement is used the entire porous pavement section to the bottom of stone shall be included with elevations.
      vii. Show slope of driveways for first five feet on profile (required minimum slope is +3% to 6%).
      viii. Show slope of driveways for next twenty feet on profile (required maximum slope is 4% when remaining slope ≥ 10%).
      ix. Show slope of driveways for the remaining distance to garage on profile (required maximum slope is 8% for commercial, 12% residential (two or more family), and 15% for residential).
     x. Show all vegetation (trees, bushes, shrubs, etc.) along the property line and within the Right-of-Way.
xi. Show all structures (utility poles, walls, fences, etc.) along the property line and within the Right-of-Way.

xii. Callout all vegetation (trees, bushes, shrubs, etc.) to be removed for the required sight distance to be met.

f. Turning Movement Sheet (Required for Commercial Projects)

   g. Traffic Signage, Pavement Markings, and Parking Space Layout Sheet (Required for Commercial Projects)
      i. Show all traffic signs.
      ii. Show all pavement markings (stop bar, arrows, etc.).
      iii. Show all parking space pavement markings.
      iv. Show all parking space and travel lane dimensions.

   h. Construction Details Sheets
      i. Shall be revised with the required information with the final site plan submittal.
      ii. A detail for the proposed 8” trench drain for the parking lot needs to be added.

i. Building/House Section or Elevation Sheet
   i. Show one section or elevation of the building/house.
   ii. Show all elevations to the deepest footings on section/elevation.
   iii. Show existing and proposed grade elevation on section/elevation.
   iv. Show existing mottling elevation on section/elevation.
   v. Show existing groundwater elevation on section/elevation.
   vi. Show existing ledge elevation on section/elevation.
   vii. Sheet shall be sealed and signed by a State of Connecticut Professional Engineer or Architect.

6. The Operations and Maintenance Plan Report must be a separate document and include the following:
   b. Exhibit A: Long-term Maintenance Plan that prescribes those activities that must be carried out to maintain compliance with this Declaration. A maintenance log form must also be included. A draft must be completed prior to Final Site Plan Approval. The final version must be submitted with the request for Certificate of Occupancy.
   c. Exhibit B: Improvement Location Survey showing a location of the Property and an accurate location of each stormwater management practice affected by this Declaration. This must be submitted prior to the issuance of the Certificate of Occupancy.
   d. The Maintenance Declaration will need to be filed on the Town of Greenwich Land Records prior to a Certificate of Occupancy. A review of the documents above must be completed before filing on the Town of Greenwich Land Records.

**Standard Conditions for Each Submittal**

1. The Engineering Division will no longer keep any records for the submittals. All records for the submittal shall be obtained from the Town of Greenwich Department/Division that has taken in applications and/or submittals. These documents are maintained within each office (e.g. P&Z, IWWA, and DPW Building and Highway Divisions).

2. All revisions to the reports and plans must follow the requirements in the Town of Greenwich Drainage Manual February 2014 as amended.

3. All revisions must be accompanied by a point-by-point written response to the Engineering Division’s comments.

**Standard Conditions of Approval**

1. The Operations and Maintenance Plan Report must include the following for the Certificate of Occupancy:
   b. The final completed Exhibit A, and B
   c. The Maintenance Declaration needs to be filed on the Town of Greenwich Land Records prior to a Certificate of Occupancy. A review of the documents above must be completed before filing on the Town of Greenwich Land Records.

2. The Town of Greenwich – Standard Construction Notes for Site and Subdivision Plans are conditions that must be met.
3. All requests for a Temporary Certificate of Occupancy (T.C.O.) or a Certificate of Occupancy (C.O.) shall be submitted one month before the T.C.O. or C.O. is required.
4. The submittal for a Temporary or Final Certificate of Occupancy must include the following:
   c. Field Inspection Record (All required photos) – Form SC-106 – Sealed and Signed by a Connecticut Licensed Professional Engineer.
   d. Bioretention Soil Testing Certification Sign-Off (as applicable with the bioretention soil gradation test and the phosphorous test for the mixed soil) – Form SC-104 – Sealed and Signed by a Connecticut Licensed Professional Engineer.
   h. A Letter discussing all the work that remains to be completed (Only for a Temporary Certificate of Occupancy Submittal).
ZONING ENFORCEMENT

Project No. PLPZ202000257 & 258
Reviewed for Planning and Zoning Commission.

TITLE OF PLAN REVIEWED: East Greenwich Civic Center

LOCATION: 90 Harding Rd.

PLAN DATE:

ZONE: R-7

☐ Ok for Zoning Permit Sign-off with the following revisions:

☐ Resubmit the following prior to Site Plan/ Subdivision approval:

☒ The subject site plan/subdivision meets the requirements of the Building Zone Regulations, excluding sections 6-15 and 6-17, and is Ok for Zoning Permit Sign-off.

Reviewed by: Jodi Couture
Date: 9/29/2020
Note: These comments do not represent Building Inspection Division approval. Plans subject to review by ZEO at time of building permit application.
Eastern Greenwich Civic Center
Town of Greenwich

PLANNING & ZONING SUBMISSION
SEPTEMBER 18, 2020

ARCHITECT
TSKP STUDIO, LLC
ONE HARTFORD SQUARE WEST
HARTFORD, CT 06106

SITE & CIVIL ENGINEER
MILONE & MACBROOM
99 REALITY DRIVE,
CHESHIRE, CT 06410

PROPERTY/TOPOGRAPHIC SURVEY - SHEET 1 OF 2
PROPERTY/TOPOGRAPHIC SURVEY - SHEET 2 OF 2

LOCATION MAP

APPROVALS

PUBLIC WORKS DATE

AGENCY DATE
CONSTRUCTION SEQUENCE

1. REPRESENTATIVES OF THE CONTRACTOR AND OWNER. AT THIS MEETING, ONE PERSON WILL BE PLACED IN CHARGE OF SEDIMENT AND EROSION CONTROL FOR THE ENTIRE SITE.

2. CONTRACTOR TO STAKE OUT LIMIT OF DISTURBANCE AND VEGETATION TO BE RETAINED. NO DISTURBANCE IS TO BE MADE UPON THE SITE EXCEPT FOR WHAT IS NECESSARY TO EFFECT THE MISSION OF THE CONTRACTOR. THE LOCATION OF ALL EXISTING UTILITIES SHOULD BE CONFIRMED PRIOR TO BEGINNING CONSTRUCTION. CALL "CALL BEFORE YOU DIG", PACK, AND LOCATION MAP.

3. CONTRACTOR TO INSTALL SEDIMENT AND EROSION CONTROLS ALONG THE PERIMETER, AND INSTALL STABILIZED SLOPES WHERE NEEDED. STABILIZATION IS ESTABLISHED AS SOON AS PRACTICAL BEFORE UTILITY INSTALLATION. STABILIZE ALL SLOPES SUPPLIED BY OTHERS.

4. CLEAR AND GRUB SITE AND STOCKPILE TOPSOIL. PLACE SEDIMENT FILTER FENCE AND HAY BALES AROUND SITE. ALL PROPOSED CONTOURS AND SPOT ELEVATIONS INDICATE FINISHED GRADE.

5. COMMENCE BUILDING FOUNDATION WORK.

6. ALL DEWATERING WASTE WATERS SHALL BE DISCHARGED IN A MANNER WHICH MINIMIZES THE DISCOLORATION OF LOCAL WATER.

7. THE SEDIMENT AND EROSION CONTROL PLAN SHALL BE MODIFIED BY THE CONTRACTOR AT THE DIRECTION OF THE PERMITTEE.

8. THE BUILDING IS SERVED BY PUBLIC WATER AND SANITARY SEWER.


10. THE SITE SHOULD BE KEPT CLEAN OF LOOSE DEBRIS, LITTER, AND BUILDING MATERIALS SUCH THAT NONE OF THE LAND OR STRUCTURE IS OBSCURED.

11. ALL FUEL, OIL, PAINT, OR OTHER HAZARDOUS MATERIALS SHOULD BE STORED IN A SECONDARY CONTAINER AND NOT CONFORM TO LOCAL CODE.

12. THE CONTRACTOR MUST MAINTAIN (REPAIR/REPLACE WHEN NECESSARY) THE SILTATION CONTROL UNTIL ALL SEDIMENT AND EROSION CONTROL MEASURES ARE INSTALL AND STABILIZATION IS ESTABLISHED.
REMOVALS NOTES:

1. INFORMATION REGARDING THE LOCATION OF EXISTING UTILITIES WAS BASED UPON AVAILABLE INFORMATION AND MAY BE INACCURATE, AND WHERE AVAILABLE, INFORMATION FROM OWNERS AND CONTRACTORS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL EXISTING UTILITIES BEFORE BEGINNING CONSTRUCTION.

2. THE CONTRACTOR IS RESPONSIBLE FOR AN ACCURATE SURVEY OF THE SITE TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO DEMOLITION.

3. THE PURPOSE OF THIS DRAWING IS TO IDENTIFY EXISTING UTILITIES. HOWEVER, THE DRAWING LEGEND MAY NOT BE A COMPREHENSIVE LIST OF ALL UTILITIES.

4. CONSTRUCTION TO COMPLY WITH ALL PREVIOUS UTILITIES MARKED ON THE SITE WITHIN THE LIMITS OF THE DRAWING.

5. UTILITIES NOT SHOWN SHOULD BE CONSIDERED APPROXIMATE.

6. THE CONTRACTOR IS RESPONSIBLE FOR removing and disposing of all existing utilities in accordance with local, state and federal regulations.

7. ANY MATERIALS DEEMED UNSUITABLE BY THE ENGINEER SHALL BE DISPOSED OF OFF-SITE IN CONFORMANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

8. THE CONTRACTOR SHALL REMOVE OR ABANDON THE EXISTING UTILITY SERVICES AS APPLICABLE TO FULL DEPTH OF DEMOLITION, CLEAR AND GRUB VEGETATION. STRIP, SCREEN AND STOCKPILE TOPSOIL FOR USE IN CONSTRUCTION.

9. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO DEMOLITION.

10. THE LOCATION OF ALL EXISTING UTILITIES SHOULD BE CONFIRMED PRIOR TO BEGINNING CONSTRUCTION.

11. CALL "CALL BEFORE YOU DIG", 1-800-922-4455. ALL UTILITY LOCATIONS THAT DO NOT MATCH THE VERTICAL OR HORIZONTAL CONTROL SHOWN ON THE DRAWING SHOULD BE CONSIDERED APPROXIMATE.

12. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO DEMOLITION.

13. INFORMATION REGARDING THE LOCATION OF EXISTING UTILITIES HAS BEEN BASED UPON AVAILABLE INFORMATION AND MAY BE INCOMPLETE, AND WHERE AVAILABLE, INFORMATION FROM OWNERS AND CONTRACTORS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL EXISTING UTILITIES BEFORE BEGINNING CONSTRUCTION.

14. THE CONTRACTOR IS RESPONSIBLE FOR AN ACCURATE SURVEY OF THE SITE TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO DEMOLITION.

15. ANY MATERIALS DEEMED UNSUITABLE BY THE ENGINEER SHALL BE DISPOSED OF OFF-SITE IN CONFORMANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
NOTES:

1. All trees will be removed due to construction activities.

2. Trees on the property line must be accessible to the public.

3. Clearing and grading activities for construction by the Project Landscape Architect and Town Representative are required.

4. Trees in the vicinity of the construction limits may be removed and/or protected.

5. Trees in the work area shall be removed to the condition shown on the Landscape Plan.

6. Trees in work area to be protected.

7. Trees may be removed for construction.
LAYOUT NOTES
1. All underground and surface utilities, as shown on the plan, shall remain undisturbed by the Project.
2. All utilities and/ or structures shall be located according to the approved plan.
3. Revegetation must be provided in the stormwater management areas, as shown on the plan.
4. All plants shall be properly placed to comply with architectural and structural requirements.
5. All topsoil shall be placed in the proposed locations as shown on the plan.

PLANTING NOTES
1. The Contractor shall supply and install all plants as shown on the plan.
2. All plants shall be furnished in the proper manner as shown on the plan.
3. All plants shall be provided with the proper care and maintenance as shown on the plan.
4. All plants shall be properly placed to comply with architectural and structural requirements.
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9. All plants shall be properly placed to comply with architectural and structural requirements.
10. All plants shall be properly placed to comply with architectural and structural requirements.

STORMWATER MANAGEMENT & WETLAND NOTES
1. The Contractor shall supply and install all plants as shown on the plan.
2. All plants shall be furnished in the proper manner as shown on the plan.
3. All plants shall be provided with the proper care and maintenance as shown on the plan.
4. All plants shall be properly placed to comply with architectural and structural requirements.
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10. All plants shall be properly placed to comply with architectural and structural requirements.

TO THE ATTENTION OF THE ENGINEER.
SITE PLAN - SEDIMENT & EROSION CONTROL

SOIL EROSION AND SEDIMENT CONTROL NARRATIVE:

1. PURPOSE AND DESCRIPTION OF WORK:
   The construction of the project will result in the disturbance of soils and sediments, which may require the implementation of erosion and sediment control measures. The purpose of this narrative is to outline the measures that will be taken to control soil erosion and sediment transport.

2. IDENTIFICATION OF EROSION AND SEDIMENT CONTROL CONCERNS:
   A. CUTS AND FILLS ASSOCIATED WITH BUILDING CONSTRUCTION.
   B. PROTECTION OF ON-SITE AND OFF-SITE STORM DRAINAGE.

3. CONSTRUCTION PRACTICES:

4. CONSTRUCTION PRACTICES INCORPORATED INTO THE PROJECT ARE AS FOLLOWS:

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SOIL AND EROSION CONTROLS. A SPECIFIC INDIVIDUAL SHALL BE NAMED AT THE PRE-CONSTRUCTION MEETING.

6. HARDING ROAD SHALL BE INSPECTED WEEKLY OR AFTER ANY STORM EVENTS.

DATE: 4/22/2020

PURPOSE:

A. 3.3 ACRES

SOIL EROSION AND SEDIMENT CONTROL NARRATIVE:

1. PURPOSE AND DESCRIPTION OF WORK:
   The construction of the project will result in the disturbance of soils and sediments, which may require the implementation of erosion and sediment control measures. The purpose of this narrative is to outline the measures that will be taken to control soil erosion and sediment transport.

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DATE: 4/22/2020

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5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SOIL AND EROSION CONTROLS. A SPECIFIC INDIVIDUAL SHALL BE NAMED AT THE PRE-CONSTRUCTION MEETING.

6. HARDING ROAD SHALL BE INSPECTED WEEKLY OR AFTER ANY STORM EVENTS.

DATE: 4/22/2020

PURPOSE:

A. 3.3 ACRES
1. "ACCESSIBLE ROUTES' SLOPES SHALL BE 1:20 (5%) OR LESS AND THE CROSS SLOPES SHALL NOT EXCEED 1:50 (2%). CHANGES IN LEVELS SHALL NOT BE GREATER THAN 1/2 INCH, AND SLOPES SHALL NOT BE GREATER THAN 1:20 UNLESS RAMPS OR LIFTS ARE PROVIDED.

2. ALL RAMPS SHALL HAVE A MAXIMUM SLOPE OF 1:12. ALL RAMPS, EXCLUDING SIDEWALK DROP RAMPS, SHALL HAVE HANDRAILS ON BOTH SIDES (AS SPECIFIED AND DETAIL).  

3. ALL RAMP LANDINGS SHALL BE A MINIMUM OF 5'X5' CLEAR WITH A MAXIMUM SLOPE AND CROSS-PITCH OF 2%.

4. ALL ACCESSIBLE DOORS SHOWN ARE .02" DIFFERENCE IN ELEVATION FROM EXTERIOR TO INTERIOR FINISHED FLOOR ELEVATIONS. LINES AT ACCESSIBLE DOORS DO NOT INDICATE A CHANGE IN ELEVATION GREATER THAN .02". SEE GRADING PLAN FOR MORE DETAILED INFORMATION.

5. ALL ACCESSIBLE PARKING SPACES SHALL NOT EXCEED 2% CROSS PITCH IN ANY DIRECTION.

PARKING SUMMARY

EXISTING PARKING: 247

ACCESSIBLE PARKING SPACE: 24

TOTAL ACCESIBLE PARKING SPACES: 24

ACCESSIBLE PARKING SPACE:

SOUTHERN PARKING LOT: 19

WESTERN PARKING LOT: 25

TOTAL ACCESSIBLE PARKING SPACES: 44

NOTES:

ACCESSIBLE MEANS OF INGRESS/EGRESS:

ACCESSIBLE ROUTES
STIFF BROOM FINISH

0.45" MIN. TO 0.9" MAX.

SEE LAYOUT PLAN FOR CONCRETE MOUNT SIGN WITH (2) COMPOSITE PLASTIC WHEEL STOP STAINLESS STEAL WASHER, -TYP. ALL ACCESSIBLE

1.6" MIN. TO 2'

IF SPACE IS ADJACENT TO CURB

18'

ADJACENT TO CURB

4" WHITE LINE OR AS PER LOCAL REGULATIONS

THE DETECTABLE WARNING STRIP SHALL BE:

7"

1.5% AWAY FROM COMPACTED CRUSHED STONE

SAND LEVELING COURSE (SEE SPECIFICATION FOR MATERIAL)

EXPANSION JOINTS 20' O.C. MAXIMUM.

CONCRETE BASE SHALL BE SCREEDED WITH A FLOAT TO REMOVE AIR ENTRAINMENT AND 4x4

SCORE JOINTS 5' O.C. TYP (OR AS SHOWN ON PLANS)

RAISED ISLANDS IN MARKED CROSSINGS SHALL HAVE SIDEWALK RAMPS AT BOTH SIDES AND A LEVEL AREA AT LEAST 4'

PEDESTRIAN TRAVEL.
STORM DRAINAGE TRENCH

FROM APPENDIX G - BIORETENTION SOIL DESIGN GUIDANCE FOR STRUCTURAL STORMWATER BMPS - TOWN OF GREENWICH DRAINAGE MANUAL FEBRUARY 2014

THE BIORETENTION SOILS GENERALLY CONSIST OF A 90% BLENDED ENGINEERED MEDIA AND 10% ORGANICS CAN BE LEAF COMPOST OR PEAT MOSS. THE ORGANIC SOURCES CAN BE FROM MUNICIPAL LEAF COMPOSTING FACILITIES OR COMMERCIALLY AVAILABLE SOURCES OF PEAT. COMPOST USING MUNICIPAL SLUDGE SHOULD NOT BE USED AS IT IS HIGHLY CONTAMINATED WITH NUTRIENTS AND HEAVY METALS AND WILL EXPORT NUTRIENTS.

SOILS BENEATH THE BMP SHALL BE SCARIFIED OR TILLED TO IMPROVE INFILTRATION.

NOTE: THIS DETAIL IS FOR GRAPHIC PURPOSES ONLY AND IS NOT TO SCALE. SEE GRADING PLAN AND LANDSCAPE PLAN FOR SIZING AND PLANTING OF INDIVIDUAL BIO RETENTION AREAS SHOWN.
1. All manholes and cleanouts on external grease traps shall be extended to grade to facilitate cleaning. All new grease traps shall be provided with manhole covers which have been placarded with notification as to the danger of entering the chamber due to noxious gases (placarding shall become effective January 1, 1990).

2. Support 6" inlet and outlet baffle pipes adequately with stainless steel straps and anchor bolts.

3. Install minimum 12" manhole frames and covers over inlet and outlet baffle pipes. The following covers are acceptable: heavy duty (pavement areas) - Campbell Pattern #1000; light duty (grass areas) - Campbell Pattern #1300A.

4. Extending outlet riser to within 8" of finished grade and installing a watertight neoprene & rubber screw-type plug.

5. Outlet to sanitary sewer system for cleaning.

6. Inspection & sampling cover extended to grade.

7. Inspection & sampling cover extended to grade.

8. Standard protective coating (exterior) and protective coating (interior).


10. Sanitary sewer trench detail.

11. Sanitary cleanout detail.

12. Hydrant assembly (top).

13. Typical trench detail.

14. Exterior protective coating and interior protective coating.

15. Inlet baffle pipe 6" min.

16. Outlet baffle pipe 6" min.

17. 4" to 6" watertight sealed joints (typical).

18. 6" - 12" special foundation if ordered by engineer.


20. Sanitary cleanout.

21. Inspectors cover extended to grade.

22. Extension of outlet riser to within 8" of finished grade and installing a watertight neoprene & rubber screw-type plug.

23. Outlet to sanitary sewer system.

24. Support 6" inlet and outlet baffle pipes adequately with stainless steel straps and anchor bolts.

25. Installation of minimum 12" manhole frames and covers over inlet and outlet baffle pipes. The following covers are acceptable: heavy duty (pavement areas) - Campbell Pattern #1000; light duty (grass areas) - Campbell Pattern #1300A.

26. Inspectors cover extended to grade.

27. Inspection & sampling cover extended to grade.

28. Standard protective coating (exterior) and protective coating (interior).

29. Inlet baffle pipe 6" min.

30. Outlet baffle pipe 6" min.

31. 4" to 6" watertight sealed joints (typical).

32. 6" - 12" special foundation if ordered by engineer.

33. Sanitary sewer trench.

34. Sanitary cleanout.

35. Inspectors cover extended to grade.

36. Extension of outlet riser to within 8" of finished grade and installing a watertight neoprene & rubber screw-type plug.

37. Outlet to sanitary sewer system.

38. Support 6" inlet and outlet baffle pipes adequately with stainless steel straps and anchor bolts.

39. Installation of minimum 12" manhole frames and covers over inlet and outlet baffle pipes. The following covers are acceptable: heavy duty (pavement areas) - Campbell Pattern #1000; light duty (grass areas) - Campbell Pattern #1300A.

40. Inspectors cover extended to grade.

41. Inspection & sampling cover extended to grade.

42. Standard protective coating (exterior) and protective coating (interior).

43. Inlet baffle pipe 6" min.

44. Outlet baffle pipe 6" min.

45. 4" to 6" watertight sealed joints (typical).

46. 6" - 12" special foundation if ordered by engineer.

47. Sanitary sewer trench.

48. Sanitary cleanout.

49. Inspectors cover extended to grade.

50. Extension of outlet riser to within 8" of finished grade and installing a watertight neoprene & rubber screw-type plug.

51. Outlet to sanitary sewer system.

52. Support 6" inlet and outlet baffle pipes adequately with stainless steel straps and anchor bolts.

53. Installation of minimum 12" manhole frames and covers over inlet and outlet baffle pipes. The following covers are acceptable: heavy duty (pavement areas) - Campbell Pattern #1000; light duty (grass areas) - Campbell Pattern #1300A.
TEMPORARY VEGETATIVE COVER

1. TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED ON ALL UNPROTECTED AREAS THAT PRODUCE TEMPORARY PERVIOUS BARRIERS USING BALES OF HAY OR STRAW, HELD IN PLACE WITH STAKES DRIVEN THROUGH THE GROUND OR GEOTEXTILE FABRICFASTENED INTO THE GROUND OR GEOTEXTILE FABRIC FASTENED TO A 100° DEGREE HORIZONTAL PLANE AT A DISTANCE NOT TO EXCEED 12 INCHES (30.5 CM) AND SUBSEQUENTLY KEPT APART BY STAKES OR WIRE.

2. TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED ON LOCATIONS WHERE UNSTABILIZED SOILS MAY BE EXPOSED FOR PERIODS OF TIME LONGER THAN 12 MONTHS. TEMPORARY VEGETATIVE COVER SHALL BE UNITS OF COVER OR EROSION CONTROL FOR A DISTANCE OF 10 FT. (3 M) BEYOND THE MARGINS OF THE CONSTRUCTIONactivities.

3. TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED ON ALL UNPROTECTED AREAS WITHIN THE DESIGNATED CONSTRUCTION ZONES AND RECEIVING DRAINAGE FROM THE CONSTRUCTIONACTIVITIES.

4. TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED ON ALL UNPROTECTED AREAS WITHIN THE DESIGNATED CONSTRUCTION ZONES AND RECEIVING DRAINAGE FROM THE CONSTRUCTIONACTIVITIES.

5. TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED ON ALL UNPROTECTED AREAS WITHIN THE DESIGNATED CONSTRUCTION ZONES AND RECEIVING DRAINAGE FROM THE CONSTRUCTIONACTIVITIES.

6. TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED ON ALL UNPROTECTED AREAS WITHIN THE DESIGNATED CONSTRUCTION ZONES AND RECEIVING DRAINAGE FROM THE CONSTRUCTIONACTIVITIES.

GENERAL:

1. TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED ON ALL UNPROTECTED AREAS WITHIN THE DESIGNATED CONSTRUCTION ZONES AND RECEIVING DRAINAGE FROM THE CONSTRUCTIONACTIVITIES.

2. TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED ON ALL UNPROTECTED AREAS WITHIN THE DESIGNATED CONSTRUCTION ZONES AND RECEIVING DRAINAGE FROM THE CONSTRUCTIONACTIVITIES.

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4. TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED ON ALL UNPROTECTED AREAS WITHIN THE DESIGNATED CONSTRUCTION ZONES AND RECEIVING DRAINAGE FROM THE CONSTRUCTIONACTIVITIES.

VEGETATIVE COVER SELECTION & MULCHING

1. TOPSOIL SHOULD HAVE PHYSICAL, CHEMICAL, AND BIOLOGICAL CHARACTERISTICS TAILORMADE FOR THE SPECIFIC SITUATION. TOPSOIL SHOULD HAVE A MINIMUM COMPOSITION OF 10% OR MORE OF FINE MATERIALS (SAND, SILT, AND CLAY) WITH A MINIMUM COMPOSITION OF 50% OR MORE OF FINE MATERIALS (SAND, SILT, AND CLAY) WITH A MINIMUM COMPOSITION OF 50% OR MORE.

2. TOPSOIL SHOULD HAVE A MINIMUM OF 50% OR MORE OF FINE MATERIALS (SAND, SILT, AND CLAY) WITH A MINIMUM COMPOSITION OF 30% OR MORE OF FINE MATERIALS (SAND, SILT, AND CLAY) WITH A MINIMUM COMPOSITION OF 30% OR MORE.

3. TOPSOIL SHOULD HAVE A MINIMUM OF 30% OR MORE OF FINE MATERIALS (SAND, SILT, AND CLAY) WITH A MINIMUM COMPOSITION OF 15% OR MORE OF FINE MATERIALS (SAND, SILT, AND CLAY) WITH A MINIMUM COMPOSITION OF 15% OR MORE.

4. TOPSOIL SHOULD HAVE A MINIMUM OF 15% OR MORE OF FINE MATERIALS (SAND, SILT, AND CLAY) WITH A MINIMUM COMPOSITION OF 10% OR MORE OF FINE MATERIALS (SAND, SILT, AND CLAY) WITH A MINIMUM COMPOSITION OF 10% OR MORE.

5. TOPSOIL SHOULD HAVE A MINIMUM OF 10% OR MORE OF FINE MATERIALS (SAND, SILT, AND CLAY) WITH A MINIMUM COMPOSITION OF 5% OR MORE OF FINE MATERIALS (SAND, SILT, AND CLAY) WITH A MINIMUM COMPOSITION OF 5% OR MORE.
Stormwater Management Report
(Preliminary Site Plan Application)
Eastern Greenwich Civic Center
90 Harding Road
Old Greenwich, Connecticut
September 23, 2020

Prepared for:
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1.0 PROJECT OVERVIEW

The narrative, descriptions, and appendices provided in this Stormwater Management Report have been prepared in support of a permit application for the Eastern Greenwich Civic Center reconstruction project. The Town of Greenwich has retained TSKP Studio Architects and Milone & MacBroom, Inc. (MMI) to develop design plans for the reconstruction of the Civic Center and the surrounding site and infrastructure that support the facility.

The existing Eastern Greenwich Civic Center is situated on a 13-acre parcel with roadway frontage along Harding Road and Tomac Avenue near the intersection of Forest Avenue. The Civic Center property will be redeveloped with a new building, access drives, parking areas, and updated utility and stormwater management infrastructure. The new building will have significant energy efficiency improvements along with updated amenities to better serve the residents that utilize the facility. The completed project will maintain the western access loop and create a new turnaround at the end of the newly configured parking area on the south side of the building. The drop-off loop will be converted from bituminous concrete pavement to permeable pavers. Permeable pavers will also be used for 33 new parking spaces within the southerly parking area, while the access driveway and cul-de-sac will be paved with bituminous concrete. Access to the site will originate from the existing curb cuts serving the property, so no change in traffic circulation is anticipated. Emergency access and adequate maneuvering for first responders will be provided via the turnaround at the end of the new parking area to the south of the proposed building. A new curb cut at the northern end of the front drop-off loop will provide emergency access to the existing athletic fields to the north. A loading area is proposed on the south side of the building to accommodate deliveries.

The proposed building will be elevated about 1 foot above the existing slab elevation to improve slopes and drainage away from the building and also to adjust to the elevation changes associated with the Harding Road reconstruction project that is currently being designed by the Greenwich Department of Public Works (DPW). Significant efforts have been made to minimize grading and preserve existing trees on the site. The redevelopment will impact a few large trees that need to be removed and a few smaller trees that will be relocated or replaced. The majority of stormwater runoff from the site will sheet flow overland to two bioretention basins on the south side of the site. These basins will be designed according to the 2012 Town of Greenwich Drainage Manual (revised June 2019) to provide water quality management and peak-flow attenuation consistent with the Town of Greenwich Low Impact Development and Stormwater Management Standards.

As part of this project, the parking lot on the west side of Harding Road that serves the Civic Center and the adjacent ballfields will be reconstructed to improve drainage and to adjust grades to tie into the proposed Harding Road improvements. Minor grading changes are proposed to adjust the elevation of the curb cuts and direct stormwater runoff to a centrally located collection system proposed in the improved parking lot. Currently, most of the parking lot drains directly to Harding Road. The new collection system will discharge to a proposed bioretention basin located in the existing grassed island south of the parking lot and adjacent to Forest Avenue. The storage in this basin will be limited by the relatively flat grades in the area, with the bottom being set based on the inverts of the existing drainage system in Harding Road and Forest Avenue. The volume of the basin will be maximized for water quality management of runoff from the parking lot.
lot. We do not anticipate any increase in impervious surface for the redevelopment of this parking lot; however, we will implement new water quality features where none currently exist.

More detailed information regarding the analyses conducted to design the stormwater management system is provided in Section 3.0 and Section 4.0, while a narrative describing how the stormwater management design meets the Town of Greenwich Stormwater Management Standards is provided in Section 5.0. Supporting documentation, computations, and modeling results are provided in the Appendix of this report.

Please note not all information is provided as part of the preliminary site plan submission, since more detailed computations will be provided as part of the final permit application to address staff comments.
2.0 EXISTING CONDITIONS

The East Greenwich Civic Center property is bounded by inland wetlands to the east and an existing railroad to the south, with the athletic fields to the north and frontage on town streets to the west. There is a stone box culvert near the southeast corner of the property that conveys flow under the railroad from the existing swale along the southern property line and from the wetlands along the eastern property line. This culvert daylights to an open channel that flows through the Innis Arden Golf Club course on the other side of the railroad. The Inland Wetlands staff, as part of the Request for Proposal (RFP), has established a limit of developable area on the east side of the site where it is understood to be generally acceptable for redevelopment with limited impact to the nearby wetlands. This establishes a buffer limit that is being held as part of the proposed redevelopment design.

Primary vehicular access to the Civic Center is from Harding Road and Tomac Avenue. There is a one-way drop-off loop in the front and a secondary access on the south side of the proposed building. There is a small parking lot behind the Civic Center on the east side. The majority of the parking is located in a parking lot on the west side of Harding Road, which also supports the existing athletic fields located in the northern portion of the property. A crosswalk at Harding Road accommodates pedestrian access from the western parking lot to the walkways leading to the Civic Center.

The topography of the site is largely flat, with very little existing storm drainage infrastructure. A group of yard drains are located between the Civic Center and the athletic fields to the north of the building, which will remain and drain to both the Harding Road drainage system and the channel to the east. The front of the building drains directly to Harding Road along the curb lines of the front access drive. The south and east side of the site drain by overland flow to a swale located along the railroad and the channel along the eastern property boundary. There is also a small-diameter drainage system that collects the roof leaders, which appears to discharge to the channel to the east; however, the outlet location has not been identified. Surface stormwater runoff from the parking lot on the west side of Harding Road drains via overland flow to Harding Road, with most of it collecting at a single catch basin inlet located in a vegetated island between the road and the parking lot. The Harding Road drainage system flows southerly, discharging into the railroad swale at an end wall adjacent to Tomac Avenue. All the runoff from the project area, including street drainage, flows southerly under the railroad through a stone box culvert.

For the design of the stormwater management system, the existing site will be divided into several subcatchment areas in order to evaluate stormwater runoff from the existing and proposed site. The main analysis point for the entire project area is at the stone box culvert that conveys the existing stream under the railroad. Effectively, all stormwater runoff related to this project site flows directly to Long Island Sound through the Innis Arden Golf Club, passing under Shore Road to a cove west of Cummings Point. This watershed lies in the Southwest Shoreline Basin identified as Subbasin 7000 on the Connecticut Department of Energy & Environmental Protection (CTDEEP) Atlas of Public Water Supply Sources and Drainage Basins. The Southwest Shoreline Basin is located within the Southwest Coast Major Basin.
Soils information provided as part of the RFP shows that the site is all or mostly fill soil, with the groundwater table anticipated to be about 4 feet below the ground surface. In general, there is up to 2 feet of topsoil over sandy fill to a depth of 6 feet with an organic layer below that. Based on these soil conditions we expect the soils will have a relatively low permeability; therefore, underdrains will likely be needed to drain the stormwater basins dry within a 72-hour period. Additional soil testing may be needed at each stormwater management basin to confirm the design parameter.

The site was reviewed through the online Federal Emergency Management Agency (FEMA) map portal on September 16, 2020. The FEMA mapping shows the Civic Center property being located within the Zone X Special Flood Hazard Area (SFHA), which is defined as an area with minimal flood hazard risk. Based on the effective mapping reviewed, there are no regulated FEMA floodplains or SFHAs that extend onto the site. Per the CTDEEP Environmental Conditions Online (ECO) mapping portal, the property does not lie within an Aquifer Protection Area nor is it located within a public water supply watershed.
3.0 HYDROLOGIC ANALYSIS

A hydrologic analysis will be prepared to evaluate the predevelopment and post-development peak-flow rates and runoff volumes from the project site. Runoff to one analysis point located at the culvert that crosses under the railroad to the south will be evaluated. This analysis point was chosen because all stormwater runoff originating from the site contributes to this point. Note that the hydrologic analysis only considers runoff from the site and does not include contributions from the larger watershed area that drains to the channel from the north and east. Under existing conditions, four subwatersheds will be used to evaluate stormwater runoff. Under proposed conditions, the existing subwatersheds are modified and split into six subwatersheds to evaluate runoff at proposed stormwater management areas. The total combined watershed area delineated to the analysis point is approximately 8 acres under existing and proposed conditions. Preliminary watershed maps for both the predevelopment and post-development conditions are provided as Exhibit 1 and Exhibit 2 in Appendix L of this report.

The computer program entitled Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019, Version 2020, will be used to estimate the surface water runoff rates and volumes from the project site. The Hydrographs computer modeling program utilizes the same methods for computing runoff rates and volumes that were originally developed by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) (formerly known as the Soil Conservation Service [SCS]) in the Technical Release No. 20 computer modeling program. The hydrologic analysis will evaluate storm events with statistical recurrence frequencies of 1, 2, 5, 10, 25, 50, and 100 years in accordance with the Town of Greenwich Drainage Manual. All supporting input computations (Appendix D) and hydrologic modeling results (Appendix E) will be provided when submitting final Planning and Zoning Commission (PZC) site plan permitting. Section 5.0 of this report provides additional information on how the proposed stormwater management system meets the Town of Greenwich Stormwater Management Standards.

4.0 HYDRAULIC ANALYSIS

The proposed stormwater management systems will be designed to safely convey stormwater runoff from the site. The computer program entitled Hydraflow Storm Sewers Extension for Autodesk® AutoCAD Civil 3D®, Version 10.514, will be used for designing the proposed storm drainage system. Storm drainage computations performed will include pipe capacity calculations, hydraulic grade line calculations, and inlet capacity computations. The proposed storm drainage systems will be designed to provide adequate pipe capacity to convey at least the 25-year storm event; in some cases, the pipes may convey up to and including the 100-year storm event. Supporting storm drainage computations (Appendix G) will be provided as part of a formal permitting application. Section 5.0 of this report provides additional information on how the proposed stormwater drainage system meets the Town of Greenwich Stormwater Management Standards.
5.0 STORMWATER MANAGEMENT STANDARDS

The following narrative describes how each of the Stormwater Management Standards presented in the Town of Greenwich Drainage Manual are met by the stormwater management systems proposed (if applicable). The hydrologic analysis, hydraulic analysis, and other supporting computations to be provided will demonstrate compliance with applicable standards. Due to site constraints such as low permeability soils, high seasonal groundwater levels, and flat terrain, some stormwater management standards may not be fully met; however, the proposed design will address key stormwater standards to the extent practicable.

5.1 Standard 1 – Low Impact Development (LID)

LID techniques have been considered to the maximum extent practicable when planning and designing the proposed project. See below for a brief narrative on each of the nonstructural LID site planning and design techniques considered.

A. Minimizing Soil Compaction

Many of the soils on the existing property have been disturbed as part of the original development of the Civic Center and are known to be fill. Soil compaction will be minimized in landscaped and stormwater management areas during the reconstruction to the extent practicable. Soil beneath LID Best Management Practices (BMPs) will be scarified or tilled to improve infiltration potential.

B. Minimizing Site Disturbance

The property is largely developed as part of the existing Civic Center facility. The proposed project will not disturb areas that are not already developed other than to install stormwater management basins designed to improve runoff conditions where none exist on site currently. The area to be disturbed has been minimized to the greatest extent practicable and is largely focused in previously disturbed areas.

C. Protecting Sensitive Natural Areas

The proposed redevelopment design will avoid direct impacts to the existing wetland areas and channels located on the property. The design also respects the limits of development on the east side of the site as established in the original RFP for the project. Stormwater management will be utilized to avoid indirect impacts to existing sensitive and natural areas.

D. Protecting Riparian Buffers

There is no in-channel work proposed as part of the proposed redevelopment and no work is proposed within the pre-established buffer along the eastern portion of the property in order to protect existing riparian buffers. In addition, the proposed redevelopment has been designed to maintain existing trees to the extent practicable.
E. Avoiding Disturbance of Steep Slopes

In general, there are no steep slopes located on the project site that would require special attention and avoidance.

F. Siting Relative to Permeable and Erodible Soils

The soils found on site are described primarily as Hydrologic Soil Group B in the Soil Survey of Fairfield County, Connecticut, published by NRCS. A soil survey report for the project site and surrounding area was created using the NRCS Web Soil Survey interactive website and is included as Appendix A. Test pits may be required to determine permeability and restrictive groundwater or bedrock layers.

G. Protecting Natural Flow Pathways

The existing flow pathways have been maintained to mimic existing conditions to the greatest extent practicable. Existing natural drainage features are limited as the site has previously been developed. The stormwater management systems proposed will mitigate potential impacts in the peak flow and volume of runoff from the redeveloped site.

H. Reducing Impervious Surfaces

Impervious surfaces have been minimized to the extent practicable. Permeable paver systems are proposed in the loop driveway area to the west of the proposed building and in parking stall areas of the southerly parking lot. The permeable paver systems have been proposed in an effort to decrease the potential impacts of traditional impervious surfaces to the extent practicable.

I. Stormwater Disconnection

A portion of the access driveway and parking areas will sheet runoff into grassed areas and into stormwater management basins, rather than collect in piped drainage systems. Stormwater disconnection will be utilized to the extent practicable.

5.2 Standard 2 – Protection of Natural Hydrology

A. Site Disturbance

New site disturbance beyond the existing development has been minimized to the greatest extent practicable and is primarily focused in previously disturbed areas. The project area includes only the area necessary to reasonably accommodate proposed construction activities.
B. Soil Compaction

The existing soils on the project site have largely been disturbed as part of the original development. Soils beneath the proposed LID BMPs will be scarified or tilled to reduce potential preexisting compaction and improve infiltration to the extent practicable.

C. Time of Concentration

The proposed times of concentration associated with stormwater BMPs will be similar to or greater than times of concentrations under existing conditions. Currently there are no features on site that would help increase time of concentration or attenuate stormwater runoff.

D. Grading Plan

The proposed grading has been designed to follow the existing terrain and minimize grading. The existing project site is largely flat with shallow slopes. The proposed site has been designed to remain close to the existing grades to minimize the import or export of material to the extent practicable.

E. Compost Amended Soils

Compost amended soils are to be used within the proposed bioretention areas along the southern property boundary and within the southern island located adjacent to the improved parking area to the west of Harding Road.

F. Ground Disturbance

Ground disturbance will be minimized to the extent possible. All disturbed areas to be landscaped will be tilled or decompacted, topsoiled, and planted as part of the landscape plan.

G. Surface Water Systems

The drainage channel along the eastern property boundary and the swale to the south along the railroad will be maintained and no changes are proposed.

H. Roadway and Driveway Crossings (Surface Waters)

There are no new roadway or driveway crossings of surface waters proposed as part of this project.

I. Roadway and Driveway Crossings (Streams)

There are no new roadway or driveway crossings of streams proposed as part of this project.
5.3 **Standard 3 – Stormwater BMPs**

Several stormwater BMPs have been incorporated into the design of the proposed stormwater management systems. The BMPs have been designed to meet Town of Greenwich Stormwater Management Standards for runoff volumes and peak flows, pollutant reduction, and maintenance of groundwater recharge to the extent practicable.

A. **Hydrologic Conditions**

The proposed BMPs selected as part of the project were chosen to reduce runoff from the site utilizing techniques that best fit the site design proposed. Runoff from the building and impervious areas are conveyed to stormwater management basins that will encourage infiltration to the extent practicable and attenuate peak flows as needed to maintain existing hydrologic conditions.

B. **Design Calculations**

Design calculations will be provided in the appendix of this report illustrating compliance with applicable Town of Greenwich Stormwater Management Standards to the extent practicable, such as runoff reduction, groundwater recharge, peak-flow control, and pollutant reduction/Water Quality Volume (WQV).

C. **Shutdown and Containment**

The nature of the proposed redevelopment project does not present a need to provide shutdown and containment of the stormwater management system.

D. **Pumping of Stormwater**

There is no pumping of stormwater runoff proposed as part of the project.

E. **Pumping of Uncontaminated Groundwater**

There is no pumping of uncontaminated groundwater proposed as part of the project.

5.4 **Standard 4 – Runoff Reduction Volume and Groundwater Recharge**

A. **Runoff Reduction Volume**

The hydrologic analysis conducted to design the stormwater management system will evaluate pre- and post-development runoff volume during the 1-year storm event in support of complying with the runoff reduction volume. The proposed design will provide stormwater retention to the extent practicable given the site constraints in order to meet the RRV standard. Based on available soil testing, low permeability and high seasonal groundwater is anticipated, which will prohibit the extensive use of infiltration BMPs on this site.
B. Groundwater Recharge

Groundwater recharge volume (GRV) will be evaluated as part of the design of the stormwater management system. The proposed design will provide stormwater retention to the extent practicable given the site constraints in order to meet the GRV standard. Based on available soil testing, low permeability and high seasonal groundwater is anticipated, which will prohibit the extensive use of infiltration BMPs on this site.

C. Runoff Capture

The Runoff Capture Volume is equivalent to the WQV and is captured and stored on the project site through the use of stormwater BMPs. Additional information regarding the WQV standard is presented under Standard 6 that follows.

5.5 Standard 5 – Peak Flow Control

The stormwater management system proposed as part of this project will meet the peak-flow control design standards through the use of LID and other BMP planning and design principles. Rainfall depth values were obtained from the *Town of Greenwich Drainage Manual* (February 2014). Rainfall intensities used in the conveyance calculations were obtained through the Northeast Regional Climate Center (NRCC). Peak-flow rates for the stream channel protection standard (2-year, 24-hour storm), peak-flow attenuation (10-year and 25-year, 24-hour storm), conveyance protection (25-year, 24-hour storm), as well as emergency outlet sizing (100-year, 24-hour storm) will be provided as part of the formal permitting application.

5.6 Standard 6 – Pollution Reduction

The WQV will be evaluated in accordance with the *Town of Greenwich Drainage Manual*. The proposed design will provide stormwater retention to the extent practicable given the site constraints in order to meet the WQV standard. Based on available soil testing, low permeability and high seasonal groundwater is anticipated, which will prohibit the extensive use of infiltration BMPs on this site.

5.7 Standard 7 – High Load Areas

The proposed project is not considered a high load area; therefore, Standard 7 is not applicable.

5.8 Standard 8 – Critical Areas

The proposed site is not located in nor near a critical area; therefore, Standard 8 is not applicable.

5.9 Standard 9 – Redevelopment

The proposed project consists almost entirely of redevelopment. The portions of the site undergoing redevelopment will be designed to meet the applicable design standards presented in the drainage manual to the extent practicable.
5.10 **Standard 10 – Construction Sediment and Erosion (S&E) Control**

A detailed S&E control plan has been developed to mitigate the short-term impacts of the development during construction. The S&E control plan includes descriptive specifications concerning land grading, topsoiling, temporary vegetative cover, permanent vegetative cover, vegetative cover selection and mulching, and erosion check. Details are provided for all erosion controls with corresponding labels on the S&E control site plan. In all cases, the S&E control plan shall be implemented in accordance with the [Connecticut Guidelines for Soil Erosion and Sediment Controls](#) (as amended) and the requirements for regulated activities of the CTDEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities. Specific notes on the plans provide operation and maintenance requirements for the S&E controls as well as when the controls are to be installed and subsequently removed.

5.11 **Standard 11 – Construction Inspections**

A. **Surety**

The owner will post a bond, cash, or other acceptable surety in an amount deemed sufficient to ensure that the work will be completed in accordance with the approved plans if requested by the approving authority.

B. **Notification of Work**

The approving authority will be notified prior to the start of land-disturbing activity and before the construction of key components of the stormwater management system. Notes specific to this substandard have been provided on the site plans.

C. **Stormwater Management System Inspections**

The project engineer will conduct periodic inspections of the stormwater management system during construction.

D. **Site Inspections**

The project engineer will conduct periodic site inspections including the initial site inspection prior to the approval of any plan as well as the inspection of the site erosion controls and of the stormwater management system prior to backfilling any underground drainage or conveyance structure. Additionally, the stormwater management system shall be inspected to verify its as-built features and shall be inspected during a storm event of 0.5 inches or greater, if possible. If any inadequacies are observed, the approving authority will be notified immediately. A final inspection shall be conducted prior to releasing any required surety.

E. **Failing Stormwater Management System**

The approving authority will be notified immediately if it is found that the stormwater management system is inadequate, even if it was built in compliance with the approved
plans. The design shall then be corrected prior to final approval granted by the approving authority.

F. Project Completion

The project’s compliance with the approved plans will be certified, and all required inspection certifications will be provided to the approving authority upon completion of construction.

5.12 Standard 12 – Operation and Maintenance (O&M)

A. O&M Plan

A longterm O&M plan that outlines the maintenance measures required to ensure longterm functionality of the proposed stormwater management system and its components will be developed.

B. O&M Plan Components

The O&M plan will identify all applicable items outlined in Section 5 and Section 7 of the Town of Greenwich Drainage Manual (February 2014, as amended).

C. O&M Plan Implementation

The O&M plan will identify the parties or entities that are legally responsible for implementing the O&M plan, and a copy of the legal instrument (deed, homeowners association, utility trust, or other legal entity) that establishes the terms of the O&M of the stormwater BMPs will be provided.

D. O&M Plan Records

The parties or entities responsible for the O&M plan shall keep records of all work to install, maintain, and repair the stormwater management system and shall retain the records for a minimum of 5 years.

E. Proof of O&M Plan Records

The parties or entities responsible for the O&M plan shall provide records of all maintenance and repairs conducted during inspections when requested.

F. Failure to Implement O&M Plan

The parties or entities responsible for the O&M plan will be informed that failure to implement the O&M plan can result in the municipality assuming responsibility for implementation and securing reimbursement for associated expenses from the responsible party, including placing a lien on the subject property, if necessary.
5.13 **Standard 13 – Stormwater Management Report**

A stormwater management report will be prepared in compliance with stormwater management design standards and correspond with the stormwater management system proposed on the site plans.

5.14 **Standard 14 – Illicit Discharges**

There are no existing illicit discharges located on the project site, and the proposed project does not include the installation of any illicit discharges.
APPENDIX A
NRCS WEB SOIL SURVEY REPORT
Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.
Custom Soil Resource Report
Soil Map (East Greenwich Civic Center)

Map Scale: 1:3,680 if printed on an A landscape (11" x 8.5") sheet.

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

Soil Map may not be valid at this scale.
The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut
Survey Area Data: Version 20, Jun 9, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 21, 2014—Aug 27, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.
**Map Unit Legend (East Greenwich Civic Center)**

<table>
<thead>
<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Raypol silt loam</td>
<td>0.2</td>
<td>0.5%</td>
</tr>
<tr>
<td>13</td>
<td>Walpole sandy loam, 0 to 3 percent slopes</td>
<td>0.1</td>
<td>0.2%</td>
</tr>
<tr>
<td>18</td>
<td>Catden and Freetown soils, 0 to 2 percent slopes</td>
<td>0.3</td>
<td>0.7%</td>
</tr>
<tr>
<td>73C</td>
<td>Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky</td>
<td>0.8</td>
<td>2.1%</td>
</tr>
<tr>
<td>75C</td>
<td>Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes</td>
<td>0.2</td>
<td>0.4%</td>
</tr>
<tr>
<td>306</td>
<td>Udorthents-Urban land complex</td>
<td>22.4</td>
<td>58.9%</td>
</tr>
<tr>
<td>307</td>
<td>Urban land</td>
<td>14.1</td>
<td>37.2%</td>
</tr>
<tr>
<td><strong>Totals for Area of Interest</strong></td>
<td></td>
<td><strong>38.0</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

**Map Unit Descriptions (East Greenwich Civic Center)**

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas
are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a soil series. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into soil phases. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A complex consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An association is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An undifferentiated group is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include miscellaneous areas. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.
State of Connecticut

12—Raypol silt loam

Map Unit Setting

National map unit symbol: 9ljx
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Raypol and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Raypol

Setting

Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from granite and/or schist and/or gneiss

Typical profile

Ap - 0 to 8 inches: silt loam
Bg1 - 8 to 12 inches: very fine sandy loam
Bg2 - 12 to 20 inches: silt loam
Bw1 - 20 to 26 inches: silt loam
Bw2 - 26 to 29 inches: very fine sandy loam
2C1 - 29 to 52 inches: stratified very gravelly coarse sand to loamy fine sand
2C2 - 52 to 65 inches: stratified very gravelly coarse sand to loamy fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F144AY028MA - Wet Outwash
Hydric soil rating: Yes
Minor Components

Haven
Percent of map unit: 5 percent
Landform: Outwash plains, terraces
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Enfield
Percent of map unit: 5 percent
Landform: Terraces, outwash plains
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Ninigret
Percent of map unit: 3 percent
Landform: Outwash plains, terraces
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Tisbury
Percent of map unit: 2 percent
Landform: Outwash plains, terraces
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Scarboro
Percent of map unit: 2 percent
Landform: Depressions, drainageways, terraces
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Walpole
Percent of map unit: 2 percent
Landform: Depressions on terraces, drainageways on terraces
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Unnamed, loamy substratum
Percent of map unit: 1 percent

13—Walpole sandy loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 2svkl
**Elevation:** 0 to 1,020 feet  
**Mean annual precipitation:** 36 to 71 inches  
**Mean annual air temperature:** 39 to 55 degrees F  
**Frost-free period:** 140 to 250 days  
**Farmland classification:** Farmland of statewide importance

**Map Unit Composition**  
Walpole and similar soils: 80 percent  
Minor components: 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Walpole**

**Setting**  
Landform: Outwash terraces, outwash plains, depressions, deltas, depressions  
Landform position (two-dimensional): Toeslope  
Landform position (three-dimensional): Tread, dip, talf  
Down-slope shape: Concave  
Across-slope shape: Concave  
Parent material: Sandy glaciofluvial deposits derived from igneous, metamorphic and sedimentary rock

**Typical profile**  
Oe - 0 to 1 inches: mucky peat  
A - 1 to 7 inches: sandy loam  
Bg - 7 to 21 inches: sandy loam  
BC - 21 to 25 inches: gravelly sandy loam  
C - 25 to 65 inches: very gravelly sand

**Properties and qualities**  
Slope: 0 to 3 percent  
Depth to restrictive feature: More than 80 inches  
Drainage class: Poorly drained  
Runoff class: Very high  
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 4 inches  
Frequency of flooding: None  
Frequency of ponding: None  
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)  
Available water capacity: Moderate (about 6.4 inches)

**Interpretive groups**  
Land capability classification (irrigated): None specified  
Land capability classification (nonirrigated): 4w  
Hydrologic Soil Group: B/D  
Ecological site: F144AY028MA - Wet Outwash  
Hydric soil rating: Yes

**Minor Components**

**Sudbury**  
Percent of map unit: 10 percent  
Landform: Deltas, outwash plains, terraces  
Landform position (two-dimensional): Footslope  
Landform position (three-dimensional): Tread, dip  
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Scarboro
Percent of map unit: 10 percent
Landform: Outwash terraces, deltas, outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

18—Catden and Freetown soils, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: 2t2r2
Elevation: 0 to 1,390 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
Catden and similar soils: 45 percent
Freetown and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the map unit.

Description of Catden
Setting
Landform: Depressions, depressions, fens, bogs, depressions, swamps, marshes, kettles
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly decomposed herbaceous organic material and/or highly decomposed woody organic material

Typical profile
Oa1 - 0 to 2 inches: muck
Oa2 - 2 to 79 inches: muck

Properties and qualities
Slope: 0 to 2 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: None Rare
Frequency of ponding: Frequent
Maximum salinity: Nonsaline (0.0 to 1.9 mhos/cm)
Available water capacity: Very high (about 26.9 inches)

Interpretive groups
- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 5w
- Hydrologic Soil Group: B/D
- Ecological site: F144AY042NY - Semi-Rich Organic Wetlands
- Hydric soil rating: Yes

Description of Freetown

Setting
- Landform: Swamps, bogs, depressions, marshes, depressions, kettles
- 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 2 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 None
- Frequency of ponding: Frequent
- Available water capacity: Very high (about 26.9 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

Natchaug
- Percent of map unit: 7 percent
- Landform: Depressions, depressions, depressions
- Landform position (three-dimensional): Base slope, tread
- Down-slope shape: Concave
- Across-slope shape: Concave
- Hydric soil rating: Yes

Whitman
- Percent of map unit: 6 percent
Landform: Depressions, drainageways
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Timakwa
Percent of map unit: 5 percent
Landform: Depressions
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scarboro
Percent of map unit: 2 percent
Landform: Outwash terraces, outwash deltas, drainageways, depressions
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

73C—Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky

Map Unit Setting
National map unit symbol: 2w698
Elevation: 0 to 1,550 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
Charlton, very stony, and similar soils: 50 percent
Chatfield, very stony, and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton, Very Stony
Setting
Landform: Hills, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist
Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: fine sandy loam
Bw - 4 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Chatfield, Very Stony

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 2 inches: fine sandy loam
Bw - 2 to 30 inches: gravelly fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 41 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components
Sutton, very stony
Percent of map unit: 5 percent
Landform: Ground moraines, hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop
Percent of map unit: 5 percent
Hydric soil rating: No

Hollis, very stony
Percent of map unit: 5 percent
Landform: Ridges, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Leicester, very stony
Percent of map unit: 5 percent
Landform: Drainageways, depressions
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

75C—Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes

Map Unit Setting
National map unit symbol: 9lqn
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland
Map Unit Composition

Hollis and similar soils: 35 percent
Chatfield and similar soils: 30 percent
Rock outcrop: 15 percent
Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hollis

Setting
Landform: Hills, ridges
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy melt-out till derived from granite and/or schist and/or gneiss

Typical profile
Oa - 0 to 1 inches: highly decomposed plant material
A - 1 to 6 inches: gravelly fine sandy loam
Bw1 - 6 to 9 inches: channery fine sandy loam
Bw2 - 9 to 15 inches: gravelly fine sandy loam
2R - 15 to 80 inches: bedrock

Properties and qualities
Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.8 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144AY033MA - Shallow Dry Till Uplands
Hydric soil rating: No

Description of Chatfield

Setting
Landform: Hills, ridges
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Coarse-loamy melt-out till derived from granite and/or schist and/or gneiss

Typical profile
Oa - 0 to 1 inches: highly decomposed plant material
A - 1 to 6 inches: gravelly fine sandy loam
Bw1 - 6 to 15 inches: gravelly fine sandy loam
Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Rock Outcrop

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Runoff class: Very high

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Minor Components

Charlton

Percent of map unit: 7 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Sutton

Percent of map unit: 5 percent
Landform: Depressions, drainageaways
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Leicester

Percent of map unit: 5 percent
Landform: Depressions, drainageaways
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes
**Unnamed, sandy subsoil**

*Percent of map unit: 1 percent*

*Hydric soil rating: No*

**Brimfield**

*Percent of map unit: 1 percent*

*Landform: Hills, ridges*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Hydric soil rating: No*

**Unnamed, red parent material**

*Percent of map unit: 1 percent*

*Hydric soil rating: No*

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**306—Udorthents-Urban land complex**

**Map Unit Setting**

*National map unit symbol: 9lmg*

*Elevation: 0 to 2,000 feet*

*Mean annual precipitation: 43 to 56 inches*

*Mean annual air temperature: 45 to 55 degrees F*

*Frost-free period: 120 to 185 days*

*Farmland classification: Not prime farmland*

**Map Unit Composition**

*Udorthents and similar soils: 50 percent*

*Urban land: 35 percent*

*Minor components: 15 percent*

*Estimates are based on observations, descriptions, and transects of the map unit.*

**Description of Udorthents**

**Setting**

*Down-slope shape: Convex*

*Across-slope shape: Linear*

*Parent material: Drift*

**Typical profile**

*A - 0 to 5 inches: loam*

*C1 - 5 to 21 inches: gravelly loam*

*C2 - 21 to 80 inches: very gravelly sandy loam*

**Properties and qualities**

*Slope: 0 to 25 percent*

*Depth to restrictive feature: More than 80 inches*

*Drainage class: Well drained*

*Runoff class: Medium*
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: About 54 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.8 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydric Soil Group: B
Hydric soil rating: No

Description of Urban Land

Typical profile
H - 0 to 6 inches: material

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric Soil Group: D
Hydric soil rating: Unranked

Minor Components

Unnamed, undisturbed soils
Percent of map unit: 8 percent
Hydric soil rating: No

Udorthents, wet substratum
Percent of map unit: 5 percent
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop
Percent of map unit: 2 percent
Hydric soil rating: No

307—Urban land

Map Unit Setting
National map unit symbol: 9lmh
Elevation: 0 to 2,000 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 120 to 185 days
Farmland classification: Not prime farmland
Map Unit Composition

Urban land: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the map unit.

Description of Urban Land

Typical profile

H - 0 to 6 inches: material

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Minor Components

Unnamed, undisturbed soils
Percent of map unit: 10 percent
Hydric soil rating: No

Udorthents, wet substratum
Percent of map unit: 10 percent
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No
Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group (East Greenwich Civic Center)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.
Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.
The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut
Survey Area Data: Version 20, Jun 9, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 21, 2014—Aug 27, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.
### Table—Hydrologic Soil Group (East Greenwich Civic Center)

<table>
<thead>
<tr>
<th>Map unit symbol</th>
<th>Map unit name</th>
<th>Rating</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
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</thead>
<tbody>
<tr>
<td>12</td>
<td>Raypol silt loam</td>
<td>C/D</td>
<td>0.2</td>
<td>0.5%</td>
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<tr>
<td>13</td>
<td>Walpole sandy loam, 0 to 3 percent slopes</td>
<td>B/D</td>
<td>0.1</td>
<td>0.2%</td>
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<tr>
<td>18</td>
<td>Catden and Freetown soils, 0 to 2 percent slopes</td>
<td>B/D</td>
<td>0.3</td>
<td>0.7%</td>
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<td>73C</td>
<td>Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky</td>
<td>B</td>
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<td>75C</td>
<td>Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes</td>
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<td>Udorthents-Urban land complex</td>
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<td>307</td>
<td>Urban land</td>
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<td><strong>38.0</strong></td>
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### Rating Options—Hydrologic Soil Group (East Greenwich Civic Center)

*Aggregation Method:* Dominant Condition  
*Component Percent Cutoff:* None Specified  
*Tie-break Rule:* Higher
References


Custom Soil Resource Report


APPENDIX B
FEMA FLOOD INSURANCE RATE MAP
National Flood Hazard Layer FIRMette

This map complies with FEMA’s standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA’s basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/16/2020 at 9:17 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Legend

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE)
  Zone A, AE, AR
- With BFE or Depth Zone AE, AO, AH, VE, AR
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee. See Notes, Zone X
- Area with Flood Risk due to Levee Zone D

OTHER AREAS

- Area of Minimal Flood Hazard Zone X
- Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES

- Cross Sections with 1% Annual Chance Flood Hazard
  Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline

OTHER FEATURES

- Profile Baseline
- Hydrographic Feature
- Digital Data Available
- No Digital Data Available
- Unmapped

MAP PANELS

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.
APPENDIX C
NRCC EXTREME RAINFALL DEPTHS
(TO BE DETERMINED)
APPENDIX D
HYDROLOGIC INPUT COMPUTATIONS
(TO BE DETERMINED)
APPENDIX F
NRCC EXTREME RAINFALL INTENSITIES
(TO BE DETERMINED)
APPENDIX G
CONVEYANCE CAPACITY COMPUTATIONS
(TO BE DETERMINED)
APPENDIX H
CREDITS FOR LID CHECKLIST (STANDARD 1)
(TO BE DETERMINED)
APPENDIX I
RUNOFF REDUCTION AND GROUNDWATER RECHARGE VOLUME (STANDARD 4)
(TO BE DETERMINED)
APPENDIX J
WATER QUALITY VOLUME AND TSS REMOVAL WORKSHEETS (STANDARD 6)
(TO BE DETERMINED)
APPENDIX K
SOIL TESTING DATA ON TOWN STANDARD FORMS
(TO BE DETERMINED)
APPENDIX L
WATERSHED MAPS
Introduction

On August 12, 2015, the boundaries of inland wetlands and watercourses on the site were delineated by William A. Root, MES, a certified professional soil scientist, in accordance with the regulations of the Town of Greenwich, Connecticut and the State of Connecticut Inland Wetlands and Watercourses Act, CGS 22a-36 through 45. Regulated wetland areas consist of any of the soil types designated by the National Cooperative Soils Survey as poorly drained, very poorly drained, alluvial, or floodplain. Regulated watercourses consist of rivers; streams; brooks; waterways; lakes; ponds; marshes; swamps; bogs; and all other bodies of water, natural or artificial, vernal or intermittent, public or private, not regulated pursuant to CGS sections 22a-28 to 22a-35, inclusive (tidal wetlands).

Methodology

In general, transects were walked over the site looking for evidence of redoximorphic features in the soil (hydric soils), a predominance of wetland-adapted plants (hydrophytic vegetation), and evidence of high groundwater persisting into the growing season (wetland hydrology). Areas of flowing or standing water and incised channels were inspected for evidence of ordinary high water marks, a diagnostic feature of watercourses (perennial or intermittent).

Prior to the fieldwork, geospatial data was accessed via the Web Soil Survey to determine current United States Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS) soil survey mapping for the project site (http://websoilsurvey.nrcs.usda.gov).

A copy of the web soil survey mapping is appended to this report. The USDA-NRCS maps the following soil units in the vicinity of the project area:

- Udorthents – Urban Land (#306), well drained
- Catden – Freetown soils (#18), very poorly drained, organic soils

Upland Soils

The upland soils in the area are glacial till soils formed in schist, granite, and gneiss. Much of the area has been cut, filled, graded, and built upon. This is reflected in the site being mapped as Udorthents (disturbed soils) and Urban Land.

Wetland Soils

The broad emergent marsh and shrub wetland north of the playing fields is mapped as a very poorly drained organic soil.

The Catden series consists of very deep, very poorly drained soils formed in woody and herbaceous organic materials in depressions on lake plains, outwash plains, moraines, and floodplains. Saturated hydraulic conductivity ranges from moderately low to high. Slope ranges from 0 to 2 percent.

TAXONOMIC CLASS – Euic, mesic Typic Haplosaprist
DRAINAGE AND PERMEABILITY – Very poorly drained. Depth to the seasonal high water table ranges from 1 foot above the surface to 1 foot below the surface from September to June. Surface runoff is very low or negligible. Saturated hydraulic conductivity ranges from moderately low to high. Some areas are subject to rare, very brief flooding during March and April.

USE AND VEGETATION – Most areas are used for wildlife or are in woodland or cutover woodland. Some of these soils are used for pasture. Common vegetation is red maple, skunk cabbage, marsh fern, and sphagnum moss.

Field Survey

The field survey essentially confirmed the published resource mapping. There is a broad emergent marsh and shrub wetland immediately adjacent to the playing fields on the north side. The vegetation is hydrophytic (water loving). Dominant species observed were red maple, pin oak, ash, Eastern hemlock, sweet pepper bush, northern arrow-wood, silky dogwood, highbush blueberry, common winterberry, multiflora rose, cattail, soft rush, spotted jewelweed, sensitive fern, purple loosestrife, smartweed, grape, poison ivy, arrow arum, Joe-pye weed, nettle, and duckweed.

This wetland drains to the south via an excavated drainage channel that borders the playing fields on the east. Flow in the channel was strong on the date of the survey, so the ditch is likely a perennial watercourse although there was heavy rain the day before. There is a shallow pool between the northern wetland and the beginning of the drainage channel that may provide vernal pool habitat. There is a tributary from the east (Stamford) that flows over a water control structure (see attached photographs). Small fish were observed in the watercourse at this location. Flow continues off the property to the south under the railroad tracks.

Wetland boundaries were marked with sequentially numbered, colored flagging affixed to sturdy vegetation to facilitate survey work. A handheld Trimble GPS device was used to locate the wetland flags for transfer onto the site plan. The soil scientist reviewed the plotted wetland boundary on the site plan to verify its accuracy.

If there are any questions regarding this report or the wetlands at the site, feel free to contact me.

Very truly yours,

MILONE & MACBROOM, INC.

William A. Root, MS
Senior Project Specialist, Environmental

Attachments: USDA-NRCS Soil Survey Map
Photo Log

1759-81-au1315-rpt
### MAP LEGEND

<table>
<thead>
<tr>
<th>Area of Interest (AOI)</th>
<th>Special Point Features</th>
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<tr>
<td>Area of Interest (AOI)</td>
<td>Blowout</td>
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<td>Soils</td>
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<td>Soils</td>
<td>Closed Depression</td>
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<td>Soils</td>
<td>Granit Spilt</td>
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<td>Soils</td>
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<td>Line Flow</td>
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<td>Mine or Quarry</td>
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<td>Severely Everted Spilt</td>
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<td>Aerial Photography</td>
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### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

**Warning:** Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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**Source of Map:** Natural Resources Conservation Service


**Coordinate System:** Web Mercator (EPSG:3857)

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This product is generated from the USDA-NRCS certified data as of the version date(s) listed below:

**Soil Survey Area:** State of Connecticut

**Survey Area Date:** Version 3, Oct 28, 2014

**Soil map units are labeled as space allows; for map scales 1:50,000 or larger:**

- Date(s) aerial images were photographed: Jul 21, 2014—Aug 27, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.
# Map Unit Legend

<table>
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<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
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<td>Raypole silt loam</td>
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<td>0.8%</td>
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<td>Walpole sandy loam, 0 to 3 percent slopes</td>
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<td>Calden and Freetown soils</td>
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<td>50B</td>
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<td><strong>Totals for Area of Interest</strong></td>
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<td><strong>100.0%</strong></td>
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</table>
Photo Log
Site Photo Log

HARDING ROAD

August 14, 2015
Pictures were taken August 12, 2015
MMI #1759-81

Emergent Marsh and Shrub Wetland North of the Playing Fields
Pool Area East of Fields between Northern Wetland and Drainage Channel

Drainage Channel Conveys Flow Southward on the East Side of the Fields (1)
Drainage Channel Conveys Flow Southward on the East Side of the Fields (2)

Formal Drainage Structure along Stamford Boundary Adds Flow to Drainage Channel
EXEMPT

VALUATION RECORD

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LAND DATA AND CALCULATIONS

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Supplemental Cards
TRUE TAX VALUE
10008300

Supplemental Cards
TOTAL LAND VALUE
10008300
EXEMPT

VALUATION RECORD

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LAND DATA AND CALCULATIONS

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Permit Number | Filing Date | Est. Cost | Field Visit |
--------------|-------------|-----------|-------------|
Supplemental Cards | TRUE TAX VALUE | $10008300 |
Supplemental Cards | TOTAL LAND VALUE | $10008300 |
## PHYSICAL CHARACTERISTICS

**ROOFING**

Built-up

**WALLS**

- Frame: B 1 / 2 U
- Brick: Yea Yea Yea
- Metal: Guard

**FRAMING**

- B 1 2 U
- R Conc: 2992 26445 3956 0

**HEATING AND AIR CONDITIONING**

- Heat: 1646 26445 3956 0
- Sprink: 2992 26445 3956 0

## IMPROVEMENT DATA

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### SUMMARY OF IMPROVEMENTS

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**Data Collector/Date:** bd 10/23/2012  
**Appraiser/Date:** TOG 10/01/2015  
**Neighborhood:** Neigh 112060 AV  
**Supplemental Cards:** TOTAL IMPROVEMENT VALUE 16271600