Site Coastal Plan Final
PLPZ 2021 00014
Prepared by: Patricia Gillego Barakett

To demolish the existing structure and construct a new single-family dwelling, pool, dock and related site improvements.

LOCATION: 675 Steamboat Road
EXISTING ZONE: R-6 (7,500 sq.ft. minimum lot size) and COZ
FLOOD ZONES: X, AE 13, and VE 15
PARCEL SIZE: 27,067.0 sq.ft. (0.621-acres)
UTILITIES: Public Water Supply and Town Sewer

<table>
<thead>
<tr>
<th>EXISTING</th>
<th>ALLOWABLE</th>
<th>REQUESTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROSS SQUARE FEET:</td>
<td>Not provided by the applicant</td>
<td>14,887 sq.ft.</td>
</tr>
<tr>
<td>FLOOR AREA RATIO:</td>
<td>Not provided by the applicant</td>
<td>0.55</td>
</tr>
<tr>
<td>GREEN SPACE:</td>
<td>65.6%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Residential Dwelling

<table>
<thead>
<tr>
<th>EXISTING</th>
<th>ALLOWABLE</th>
<th>REQUESTED</th>
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</thead>
<tbody>
<tr>
<td>FIRST FLOOR ELEVATION (with approval of CLOMR-F, the dwelling will be within the X Flood Zone, without approval it is within the AE-13 Flood Zone):</td>
<td>14.1’ (existing dwelling is within the AE-13 and VE-15 Flood Zones)</td>
<td>Flood Zone Elevation is + 1’. With approval of CLOMR-F, the dwelling will be within the X Flood Zone, without approval it is within the AE-13 Flood Zone.</td>
</tr>
<tr>
<td>DWELLING HEIGHT:</td>
<td>Not provided by the applicant</td>
<td>35’</td>
</tr>
<tr>
<td>DWELLING SETBACKS (Min. Req./Prop.):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Front Yard Setback:</td>
<td>&gt;25’</td>
<td>25’</td>
</tr>
<tr>
<td>• Side Yard Setback:</td>
<td>5.1’ and &gt;10’(sum = 41.8’)</td>
<td>5’ sum of both not less than 15’</td>
</tr>
<tr>
<td>• Rear Yard Setback:</td>
<td>15.8’</td>
<td>25’</td>
</tr>
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UPATED STAFF REPORT:
The applicant is requesting Final Coastal Site Plan approval under Sections 6-5, 6-13, 6-111, 6-134, 6-139.1, and 6-205 of the Building Zone Regulations. This project was initially reviewed at the March 2, 2021 P+Z meeting. It appears there are some outstanding questions since the CLOMR-F has not been accepted by FEMA as this time. Regarding the basement elevation – the floor plans show an elevation of 6.35’. The applicant has indicated that the CLOMR-F application was clarified with supplemental documentation to clarify that there is indeed a basement crawl space and that the house is not on slab. Conservation submitted comments requesting an increased vegetative buffer. Have the requirements set forth in Site Plan 1503 been met with this proposal? The applicant is requesting the Commission approve the Site Plan as the acceptance of the CLOMR-F by FEMA would result in the house being outside of the AE and VE flood zones.
APPLICATION SUMMARY:
The applicant is requesting Final Coastal Site Plan approval under Sections 6-5, 6-13, 6-111, 6-134, 6-139.1, and 6-205 of the Town of Greenwich Building Zone Regulations (BZR) to demolish an existing single-family dwelling and to construct a new single-family residence, pool, dock, and related site improvements on a 27,067 sq. ft. (0.6214-acre) property located at 675 Steamboat Road in the R-6 and COZ zones.

 ISSUES/RECOMMENDATIONS:
1. **The Inland Wetlands Agency** issued a green sheet sign off dated 1/19/2021 indicating no action is required.
2. **Sewer** issued comments dated 2/23/2021 and has concerns to be addressed during the Planning & Zoning phase. The RACE letter dated 2-16-21 indicates there will be a basement crawl space. The development plans show the crawl space at elevation 6.35'. Sewer has concern for any sewer utilities located in this basement area.
3. **The Zoning Enforcement Officer** issued comments on 2/24/2021 and does not see any concerns at this time provided the applicant receives the CLOMR-F that they applied for.
4. **Engineering** issued comments on 2/22/2021 and requests the applicant resubmit prior to Zoning/Building Permit Approval.
5. **Conservation** issued comments dated 2-26-21 with recommendations for improving the plan including providing an increased vegetative buffer.
6. **HMC** comments dated 3-5-21 indicate no objection to the project however they request that the applicant show the extended littoral property lines into Smith Cove and the distances from proposed structures to those lines on plans.
7. **DEEP** comments dated 3-2-21 indicate no objection to the project however that endorsement is contingent on FEMA accepting the CLOMR-F request.
8. **CLOMR-F Application** - The applicant shows that Race Coastal Engineering submitted a CLOMR-F application to FEMA. The report submitted to FEMA is dated December 2020. The Commission may ask the applicant to describe where they are in the CLOMR process.
9. **CAM Planting Plan** – Per the recently revised Section 6-111 of the BZR, the applicant provided a CAM Planting Plan with their application submission.
10. **Dock application pending with DEEP** – The applicant would like to have the dock included in this application, but not to condition ZPSO on the DEEP approval of the dock. The Commission may wish to make the dock approval a condition of the Certificate of Occupancy (CO). The applicant received receipt of their dock application to DEEP on 1/11/2021.
11. **Town Storm Water Drain**: As part of the construction of the new home, an existing Town storm water drain that is connected to catch basins in Steamboat Road will be relocated from the middle of this site to south of the proposed building footprint. Applicant shall grant a right to drain to the Town to formalize its rights for the relocated line. The new single-family dwelling will reconnect to the Town Sewer main in Steamboat Road, which currently serves the property.
12. **Final Coastal Site Plan #1503-C**: The Commission previously reviewed this property in 1991 as part of a Final Coastal Site Plan #1503-C to use the property for the owner’s law office. At that time, the Commission noted conditions of approval. While the current owner will be using the property for only residential purposes, they are willing to maintain some of the previous requirements and are asking the Commission for permission to adjust others. The Commission may review the conditions of approval for FCSP #1503-C and determine what is still important at this time.

PROPOSAL: The applicant is requesting Final Coastal Site Plan approval to demolish an existing single-family dwelling, and to then construct a new single-family dwelling, pool, dock, related site improvements and landscaping on the site.
The existing dwelling was constructed in 1875 according to the Field Card and does not comply with Section 6-139.1(f)(11) of the BZR that states “[n]ew construction or substantial improvement of any residential structure shall have the lowest floor, including basement, elevated at least one (1) foot above the base flood elevation.” The existing dwelling is partially within the VE-15 Flood Zone. The applicant is proposing to construct the proposed dwelling further from the coastline and closer to Steamboat Road. This would remove the dwelling fully from the VE-15 Flood Zone.

The applicant is also applying for a CLOMR-F to FEMA. They submitted a report dated December 2020 to FEMA for their review. If approved, the CLOMR-F would put the entire proposed dwelling in the X Flood Zone.

The property is currently improved with a single-family residence, patio, porches, driveway and walks, landscaping, a seawall that extends most of the eastern property line, masonry steps, a gazebo in the southeastern corner of the property, and exposed ledge that runs down to the mean high-water line in the southeastern corner of the property.

The existing seawall, masonry stairs, gazebo and exposed ledge will all remain as is.

DEPARTMENT COMMENTS:
- ZEO - see attached memo of 2/24/2021
- ENGINEERING - see attached memo of 2/22/2021
- CONSERVATION - see attached memo of 2/26/2021
- SEWER - see attached memo of 2/23/2021
- CT-DEEP - see attached memo of 3/2/2021
- Harbor Management Commission - see attached memo of 3/5/2021
- IWWA - see attached greensheet from 1/19/2020

COASTAL RESOURCES AND STRUCTURES: The site is a direct waterfront property on Long Island Sound, specifically the Smith Cove area, and is within the Coastal Overlay Zone. It is therefore subject to all the provisions of Section 6-111 of the BZR. The site is within Flood Zones X, AE 13 and VE 15. Race Coastal Engineering filed a CLOMR-F application on behalf of the project. An existing seawall runs along much of the eastern side of the property.

CLOMR-F APPLICATION PENDING WITH FEMA: The applicant has RACE Coastal Engineers applying to FEMA to relocate the AE-13 flood zone line on the property, to track the elevation 13 grade line and proposed grade walls at the rear of the house. By shifting the AE-13 flood zone line, the proposed dwelling will be fully removed from the AE-13 flood zone, and not need to comply with the standards of Section 6-139.1 of the BZR. The report submitted to FEMA is dated December 2020. The Commission may ask the applicant to describe where they are in the CLOMR process.

DOCK APPLICATION PENDING WITH DEEP: The applicant would like to have the dock included in this current CAM application, but not to condition ZPSO on the DEEP approval of the dock. The Commission may wish to make the dock approval a condition of the Certificate of Occupancy (CO). RACE Coastal Engineering prepared a report dated January 2021 to submit to DEEP in pursuit of the dock approval. The applicant received receipt of their dock application to DEEP on 1/11/2021. The applicant and RACE are currently waiting for feedback from DEEP. The new dock will replace a previously approved dock that has since been removed.

DRAINAGE: As part of the construction of the new home, an existing Town storm water drain that is connected to catch basins in Steamboat Road will be relocated from the middle of this site to south of the proposed building footprint. Applicant shall grant a right to drain to the Town to formalize its rights for the relocated line. The new dwelling will reconnect to the Town Sewer main in Steamboat Road, which currently serves the property.
The proposed site development plan utilizes LID strategies. The proposed dwelling will be significantly further from Smith Cove, allowing for a larger planted buffer between the site development and Long Island Sound. All direct connection from the site’s existing impervious surfaces to Long Island Sound will be removed. Instead, the majority of runoff from impervious surfaces on the site will be treated before they leave the property. Runoff from portions of the house will be directed to vegetated lawn and landscaped areas, utilized LID techniques for stormwater disconnection. A rain garden (located to the east of the proposed pool) and permeable driveway will collect roof, patio and driveway runoff, and will utilize water quality treatment, peak flow attenuation, groundwater recharge, and runoff volume reduction for the site.

**ZONING:** The proposed dwelling satisfies the regulations for height, massing and setbacks per Section 6-205 of the BZR.

**SEWER DIVISION:** In comments dated 2/23/2021, the Sewer Division notes concerns about the CLOMR-F application and the basement/slab on grade construction that is proposed. There is apprehension regarding the basement plumbing fixtures and bathroom. Another concern is to call attention to the sanitary sewers which are designed for first floor elevation. Therefore, any plumbing fixtures in lower levels (basements) could be subject to sewer backups/overflows.

**BACKGROUND:** The Commission previously reviewed this property in 1991 as part of a Final Coastal Site Plan #1503-C. At that time, the owner of the property sought to use the property for his law office. At that time, the Commission noted that the wall along Steamboat Road provided screening for the parking in the front yard and called for a one-way circulation plan to avoid on-site conflicts. The approval also called for a tree preservation plan along the Steamboat Road property line. While the current owner will be using the property for only residential purposes, they are willing to maintain the one-way circulation plan and install new tree plantings along the Steamboat Road property line. The Commission may review the existing versus the proposed planting design for this area along Steamboat Road and confirm satisfaction.

**APPLICABLE ZONING REGULATIONS:**
- Section 6-5 – Definitions
- Section 6-13 – Site Plan Approval Required by Planning and Zoning Commission
- Section 6-15 – [Site Plan] Standards
- Section 6-111 – Coastal Overlay Zone
- Section 6-134 – Measurements
- Section 6-139.1 – Flood Hazard Overlay Zone
- Section 6-205 – Schedule of Required Open Spaces, Limiting Heights and Bulk of Bdgs.
March 5, 2021

Ms. Susan Jacobson
Connecticut Department of Energy and Environmental Protection
Land and Water Resources Division
79 Elm Street
Hartford, Connecticut 06106-5127

Subject: General Permit Registration by Patricia Barakett to install a “4/40” residential dock in the Greenwich Harbors Area

Dear Ms. Jacobson:

The Greenwich Harbor Management Commission (HMC) has received a copy of the General Permit Registration Form submitted to the Department of Energy and Environmental Protection’s Land and Water Resources Division (LWRD) by Patricia Barakett (the Registrant), 39 Barrow Street, New York, New York. The proposed work involves installation of a “4/40” residential dock including a floating dock and gangway in Smith Cove in the Greenwich Harbors Area (GHA) at 675 Steamboat Road.

In accordance with LWRD requirements, it is the responsibility of the Registrant to provide a copy of the Registration Form to the HMC. It is the responsibility of the HMC, set forth in the Greenwich Harbor Management Plan (the Plan) and Greenwich Code, to review the Registrant’s proposal for consistency with the Plan and provide recommendations to the LWRD. Pursuant to Sec. 22a-113n of the General Statutes, a recommendation of the HMC that is consistent with and adequately supported by the Plan is binding on any official of the State of Connecticut when making regulatory decisions or undertaking or sponsoring development affecting the GHA, unless such official shows cause why a different action should be taken.
The HMC discussed this matter during its meeting on February 17, 2021 and has no objection to the proposed project at this time provided appropriate Best Management Practices are employed during construction to avoid any significant adverse impacts on environmental quality, including water quality, in the GHA.

In addition, it is a policy of the HMC that all plans for in-water structures in the GHA must show the extension of the applicant’s/registrant’s littoral property lines and the distances from the proposed structures to those lines. Accordingly, the HMC recommends that prior to any further action on the Registrant’s proposal the Proposed Site Plan should be amended to show the Registrant’s extended littoral property lines in Smith Cove and the distances from the proposed structures to those lines.

Please be advised that: 1) the HMC reserves its right to continue to review the Registrant’s proposal if it should be modified or if additional information concerning the proposal may become available; and 2) it is the responsibility of the Registrant to ensure compliance with all applicable Town codes and regulations, including the Building Code.

Please contact me at (203) 550-7839 or bernard.armstrong@att.net if you have any questions.

Sincerely,

Bernard Armstrong
Bernard Armstrong
Chairman, HMC Application Review Committee

cc:
Mr. Roger Bowgen, Chair, Greenwich Shellfish Commission
Ms. Beth Forbes, HMC Application Review Committee
Mr. Patrick LaRow, Planning and Zoning Department
Mr. Casey McKee, HMC Application Review Committee
Ms. Jill Pietropaolo, P.E., RACE Coastal Engineering
Ms. Jacalyn Pruitt, Planning and Zoning Department
Ms. Diane Ray, U.S. Army Corps of Engineers
Mr. Mike Van Oss, Chair, HMC
From: Gaucher, John <John.Gaucher@ct.gov>
Sent: Tuesday, March 2, 2021 10:55 AM
To: Dygert, Bianca <bianca.dygert@greenwichct.org>
Cc: Pruitt, Jacalyn <jacalyn.pruitt@greenwichct.org>; John Heagney <JHeagney@hls248.com>
Subject: RE: ROUTING - 675 Steamboat Road - PLPZ 2021 00014 - Final Coastal Site Plan
Importance: Low

[EXTERNAL]

Bianca,

We have reviewed the above-referenced proposal for consistency with Connecticut Coastal Management Act policies and have no comments for the Planning & Zoning Commission’s consideration. However, this is with the understanding that any coastal site plan approval would be contingent upon FEMA approving the applicant’s CLOMR-F request.

Please let me know if you have any questions or if you need any additional information.

John Gaucher
Environmental Analyst III
Land & Water Resources Division
Bureau of Water Protection and Land Reuse
79 Elm Street
Hartford, CT 06106

Phone 860.424.3660
fax 860.424.4054
TOWN OF GREENWICH
Town Hall ~ 101 Field Point Road ~ Greenwich, CT 06830
Inland Wetlands & Watercourse Agency ~ 203-622-7736 ~ Fax.203-622-7764

PERMIT-NEED QUESTIONNAIRE
This form is NOT an IWWA Application

Project Address: 675 Steamboat Road, Greenwich, CT 06830
Tax ID: 02-1505/S

Property Owner: Patricia Gillego Barakett
Address: 675 Steamboat Rd, Greenwich, CT 06830

Contact information – Email or Cell Phone: ____________________________________________

Authorized Agent: Heagney, Lennon & Slane, LLP
Address: 248 Greenwich Ave, Greenwich CT 06830

Contact information – Email or Cell Phone: John Heagney (203) 661-8400 JHeagney@HLS248.com

Has there ever been an IWWA application for this site? YES ☐ NO ☒ Appl. # ________________

ACTIVITY: [Check one] Addition ☐ Demolition ☐ Deck ☐ Garage ☐ Interior renovations ☐
New residence ☐ Tennis Court ☐ Pool ☐ Site Work/Landscaping ☐
Septic ☐ Generator ☐ Other (specify) ☐ site improvements ☐

Will this activity require an addition to the septic system or a B100a? YES ☐ NO ☒

FEE: $65 for reviews requiring a site visit

A PLOT PLAN IS REQUIRED SHOWING THE PROPOSED ACTIVITY.

IWWA staff will review the project proposal to determine if regulated activities are associated with the proposal and whether an IWWA permit is required. If an IWWA permit is required, the appropriate permit application packet will be provided.

Do not apply for a Building Permit until this review is complete.

No work may begin until an IWWA permit is issued and/or the “Building Permit Application Sign-Off Sheet” has been signed.

The issuance of a building permit alone does not constitute an authorization to proceed.

As the property owner ☐ or, authorized agent ☐ [check one] I believe the information I have submitted is correct.

Signature ____________________________ Date 01/19/2021

STAFF NOTES

Office Rev Date 01/19/2021 WET/WC? YES ☐ NO ☐ TIDAL ☐
Field Inv Date 01/19/2021 Staff Jenn Urena
Action Required? YES ☐ NO ☐ If yes, DR ☐ AA ☐ AR ☐ SIA ☐
Soils Report Date __/__/__ Author ___________________________ Soils ___________________________
Comments: no inland wetlands; tidal only; no IWWA permit required

Received

IWWA Questionnaire Revised 3/24/2020
DEPARTMENT OF PUBLIC WORKS – ENGINEERING DIVISION
SITE DEVELOPMENT REVIEW

Engineering Project No. 21-5(8)  Department Project No.  PLPZ202100014
Submittal Received Date: 2/3/2021

Submittal Reviewed For:  Traffic Review Requested:  No
Planning and Zoning

Review Type: Final Site Plan

PLAN SET INFORMATION

Plan Title: Patricia Barakett  Project Address: 675 Steamboat Road

Engineering Firm: McChord Engineering  Original Plan Date: 1/15/2021
Latest Plan Revision Date: ______

DRAINAGE SUMMARY REPORT INFORMATION

Engineering Firm: McChord Engineering  Original Report Date: 1/18/2021
Latest Report Revision Date: ______

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: Scott Marucci - Senior Civil Engineer  Date: 2/22/21

COMMENTS AND CONDITIONS OF APPROVAL:  Resubmit Prior to Zoning/Building Permit Approval

1. The following standards for the two existing driveways need to be met or a waiver must be requested from the Highway Division prior to zoning/building permit sign-off:
   a. The required sight distance standard in both directions for each driveway is 250-feet and the plan shows the existing is only 150-feet in each direction for each driveway.
   b. The maximum width of a driveway at the edge of the road is 25-feet and the southern driveway is approximately 29-feet and the northern driveway is approximately 28-feet.
   c. The minimum distance to a driveway gate from the edge of the road is 25-feet and the southern driveway is approximately 24-feet and the northern driveway is approximately 15-feet.
   d. Revise plans to meet the required standards are submit approved wavier.

2. A Grant of the Right to Drain Watershed Area must be provided to the Town for the existing discharge from Steamboat Road through the existing pipe on the property. A digital copy of the document will be sent to the project engineer so a draft of the document (must include draft schedule A and draft map) can be submitted prior to zoning/building permit sign-off.

3. The final copy of the Grant of the Right to Drain Watershed Area (must include schedule A and mylar of map) shall be submitted directly to the Engineering Division prior to the request for T.C.O./C.O. sign-off.

4. A revised Form SC-107 (February 2021) needs to be submitted.
5. The Drainage Summary Report is acceptable in concept for the types of BMPs proposed. The following revisions and additional information need to be submitted:
   b. The Hydrologic Soil Group Table needs to include the rating (A, B, C, D).
   c. Because the property is located in the Critical Area the rain garden must provide the WQV below the outlet pipe (current design outlet 7.30 provides only 288 CF).
   d. The rain garden design does not provide the required 414 CF of WQV.
   e. The rain garden exfiltration outlet device must be removed from the analysis.
   f. The mulch/grass layer must use a void ratio of 10% and not 30%.
   g. The RRV computation needs to be revised to only show the storage provided by each infiltration BMP during the 1-year storm.
   h. The drawdown computation for the rain garden needs to be revised to match the revised design (the storage provided at the first overflow shall be used).
   i. Review and revise all other computations as needed.

6. The construction plan set needs to be revised as follows:
   a. Existing Conditions Survey Sheet
      i. Show one (1) permanent benchmark on the site within one hundred feet of the proposed construction.
   b. Site Plan Sheets
      i. Show excavation and fill quantities in a table.
      ii. Show notes for construction phasing.
      iii. Show the footing drain network from the house/sump pump to the outfall.
      iv. The roof discharge into the stone bed of the porous pavement system must be discharged into its own perforated pipe and not connected to the discharge pipe. The pipe invert for the roof drainage must be a minimum of 1-foot from the bottom of stone elevation 10.70.
      v. A 30-mil impermeable liner must be installed between the stone bed of the porous pavement system and the standard impervious driveway areas. The liner shall be wrapped under the stone bed a minimum of 2-feet and a maximum of 3-feet. Show and callout on plans.
      vi. A 30-mil impermeable liner must be installed between the stone bed of the porous pavement system and the foundation of the house where any footing drains are proposed. The liner shall be wrapped under the stone bed a minimum of 2-feet and a maximum of 3-feet. Show and callout on plans.
      vii. The porous pavement area must be clearly delineated on the plan.
      viii. Show each riprap apron with the following in the callout:
            1. Dimensions (length and width).
            2. Depth of stone.
            3. Pipe/stone elevation.
            4. Pipe size.
            5. Pipe material.
      ix. Show the rain garden with the following in the callout:
            1. Top of berm elevation and surface area.
            2. Top of mulch/sod elevation and surface area.
            3. Top of bioretention soil mix elevation and surface area.
            4. Overflow/weir elevation and dimensions.
            5. Bottom of bioretention soil mix elevation and surface area.
            6. Bottom of stone elevation and surface area.
            7. Underdrain/outlet pipe sizes, material, and invert elevations.
      x. Show the permeable pavement with the following in the callout:
            1. Permeable surface type (unilock eco-pavers, porous asphalt, gravel pave 2, etc.).
            2. Permeable Pavement surface thickness.
            3. Permeable Pavement surface area.
            4. Bottom of no. 8 stone elevation.
            5. Bottom of no.57 stone elevation.
            6. Bottom of no.2 stone elevation.
7. Underdrain/outlet pipe sizes, material, and invert elevations.

c. Low Impact Development Plan Sheet:
   i. Deep test pit 2, 3, and 4 (2,500 SF) need to include the required circular influence zone.

d. Driveway Profile & Sight Distance Sheet
   i. Show sight distance for existing/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).
   ii. Show width of driveways at property line.
   iii. Show width of driveways at edge of road.
   iv. Show distance between driveways.
   v. Show distance from edge of road to driveway gates (required minimum distance is 25 feet).
   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 \( \geq 10\% \)).
   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.

e. Construction Details Sheets
   i. The rain garden outlet detail has the 4” pipe (6.70) above the 8” pipe (7.30). Review and revise.

f. 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.

7. The draft Operations and Maintenance Plan Report shall include the following revisions:
   a. Exhibit A: Long-term Maintenance Plan needs a maintenance item added for stormwater control structures.

**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).
Memorandum

To: Jacalyn Pruitt, Planner II

From: Patricia Sesto, Director

Date: February 26, 2021

Re: 675 Steamboat Road – PZC 2021 00014

I have reviewed the documents submitted with the application and conducted a site inspection. Below are comments and recommendations for your consideration.

1. The redevelopment of the parcel provides opportunities to bring all aspects of the site into conformance with current codes and practices. Among these is the opportunity to provide protection to coastal waters and enhancement to the coastal habitat. Guidance for this expectation is provided in section 6-111 of the regulations and expressly states the coastal resources shall be protected with naturally vegetated buffers in balance with the remainder of the site.

   The redevelopment proposal shows the new dwelling moved westward, away from the water. This is a positive step to separate hardscape from the protected resource. The plan then consumes half of the remaining rear yard with outdoor living areas, including a pool. The remaining yard is variable in depth but is roughly 30 feet deep on average. This lawn fully extends up to the seawall for about 80 feet of the 160 feet of the lot’s width. The buffer that is proposed is mostly five feet deep and gains width as it approaches the northern property line.

   The applicant has given some recognition to the regulatory requirements but has come up short in terms of balance. Even with the sea wall extending above grade, the planting plan should be revised to have 75% of the area across the seawall protected with a vegetative buffer no less than 10 feet deep, with and average depth of 15 feet. There are endless options that would enhance the ecological balance of the development while allowing the residents to fully enjoy the setting.

2. There is yard drain midpoint across the eastern boundary of the property. It is likely this yard drain historically collected the polluted runoff from the parcel and discharged it directly to the cove. Site plan SE-1 depicts the basin but does not show where it drains to. Regardless, there is likely an inappropriate existing discharge point that does not provide any water quality treatment. Accordingly, the yard drain should be removed, and the buffer planting should be allowed to renovate overland flows.
ZONING ENFORCEMENT

Project No. PLPZ202100014

Reviewed for Planning and Zoning Commission.

TITLE OF PLAN REVIEWED: Barakett

LOCATION: 675 Steamboat Rd

PLAN DATE: 

ZONE: R-6

☐ 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.

* Provided the applicant receives the CLOMRF applied for

Reviewed by: Jodi Couture

Date: 2/24/2021

Note: These comments do not represent Building Inspection Division approval. Plans subject to review by ZEO at time of building permit application.
Date: February 23, 2021

To: Katie Deluca, Director, Planning & Zoning

From: Richard C. Feminella, Wastewater Division Manager

Copy: Chris Mandras, Maintenance Manager - Sewer Division
     Al Romano, Environmental Asset Engineer – Sewer Division

Re: PLPZ202100014: 675 Steamboat Road, Patricia Gillego Barakett

We have prepared the following comments and questions regarding the proposed application.

Project Summary:
- Demolish the existing structure and construct a new 7,561sf single-family dwelling, pool and associated improvements.

Sewer Division Comments:
Comments to be addressed during P&Z phase:
- It is not clear from the submission and maybe we have missed something, but it appears that the CLOMRF application indicates slab on grade construction, but the proposed plans appear to include a basement. It appears that the proposed basement finished floor elevation is over 6 feet below the base flood elevation. Please provide written documentation to prove that the proposed basement plumbing fixtures will be a minimum of 1-foot above the FEMA flood elevation. If this flood elevation requirement cannot be met, the basement plumbing fixtures and bathroom must be removed. In addition, the applicant/owner’s attention is called to another comment later in this memo regarding that sanitary sewers are designed for first floor elevations. Therefore, any plumbing fixtures in lower levels (basements) could be subject to sewer backups/overflows. The property owner is strongly recommended to consider and review this and plan accordingly to protect themselves in those situations. The Town is not responsible for damages as a result of these connections/installations.

Comments to be addressed during Sewer and Building Permit phase:
- The applicant/owner will be required to obtain all necessary Sewer Permits. Please coordinate directly with the Sewer Division for permitting.
- The applicant/owner will be required to perform CCTV inspections of all of the sanitary sewer laterals and private mains (if applicable) that serve the existing buildings to confirm there are no issues with the existing sanitary sewer lateral or its connection to the sewer main. Any televising of sanitary sewer laterals must be performed in the presence of the Environmental Asset Engineer. Please coordinate with Sewer Division – Environmental Asset Engineer (203) 622-0963 extension 5. Make a DVD of this inspection. Submit a copy of the DVD to the Wastewater Division Manager. Failure to have the Sewer Inspector present during the TVing will result in the Sewer Division not accepting the DVD. Note: VHS format is not accepted. Only DVDs are accepted. Make a copy of the DVD for your records. The Town will not return DVDs. The Town cannot make copies of DVDs. The DVD should be submitted along with a site plan that
identifies each investigation run on the DVD. It is our understanding that a CCTV inspection is scheduled for February 24, 2021.

- Please note, sanitary sewers are designed for first floor elevations. Therefore, any plumbing fixtures in lower levels (basements) could be subject to sanitary sewer backups/overflows. The property owner is strongly recommended to consider and review this and plan accordingly to protect themselves in those situations. The Town is not responsible for damages as a result of these connections/installations. The proposed development which is in a flood zone shows the basement including plumbing. Please consider this and revise accordingly.

- The proposed pool must be a closed loop system and cannot discharge any backwash to the sanitary sewer system. Written confirmation is required during Sewer Permitting.

- The applicant will be required to provide written confirmation on whether they will be installing any outdoor plumbing fixtures (such as sinks for patio areas, outdoor showers, etc.) and how the proposed discharge will be handled.

- Please note, in accordance with Town regulations and standard practice, all clear water sources cannot discharge to sanitary sewer. This includes air conditioning and high efficiency heating system condensate lines. Please confirm that the new development will not discharge any clear water sources to sanitary sewer.

- Please note, any portion of sanitary sewer lateral that crosses under drainage areas, permeable paver or pervious pavement areas, or within 10-feet of storm drainage systems (such as cultecs) are required to be encased in concrete to the nearest upstream and downstream joints to inhibit infiltration. Please coordinate with the Sewer Division for details.

**Please NOTE:** These comments are intended for P&Z review only. These comments do not take the place of Sewer Permit(s). Any Sewer Permit Applications receive thorough reviews and may result in additional comments/requirements at that time. In addition, please be reminded that in order to receive Building Permits, the applicant must have secured all other necessary permits, including, but not limited to, Sewer Permits **PRIOR** to obtaining their Building Permits.

Also, please note, the applicant should NOT submit for Sewer Permits until the project has received approval from P&Z.
February 26, 2021

LOMC Clearing House
Attention: Revisions Manager
3601 Eisenhower Avenue, Suite 500
Alexandria, VA 22304-6426

Reference: LOMR-F Case No. 21-01-0338C
Community: Town of Greenwich, Fairfield County, Connecticut
675 Steamboat Road
Greenwich, CT 06830
RACE Project No. 2020113

Dear Mr. Natale:

RACE COASTAL ENGINEERING (“RACE”), on the behalf of Ms. Patricia Barakett, herein submits the additional information which was requested in your January 18, 2021 letter. The information you requested is shown in italics below and our response follows.

1. **Upon further review, a portion of the metes and bounds boundary coincides with a retaining wall, as shown on the submitted site plan. Please note that the proposed Low Lot Elevation should be taken at the bottom (outside) of the wall if the metes and bounds boundary is located directly on top of the wall (no set-back). In order to proceed with your request, please provide the LLE taken at the bottom of the retaining wall. Otherwise, please revise your metes and bounds boundary so that the area described is CLEARLY set back from the retaining wall. If the metes and bounds boundary is intended to be set back from the retaining wall, please show this by drawing the retaining wall on the site plan. The revised site plan should show that the metes and bounds boundary is CLEARLY set back from the retaining wall. Revisions to existing documents must be initialed and dated by the individual who signed/certified the original.**

   The metes and bounds drawing, and associated coordinate sheet, have been updated to show that the metes and bounds boundary is set back landward from the retaining wall. The updated drawing and associated coordinate sheet have been signed, sealed and dated by the individual who signed/certified the original documents.

2. **Upon review of the submitted site plan, the proposed structure on the property appears to include a bilco and several windows wells, suggesting that the structure may include a basement or sub-grade crawlspace. If the structure includes a basement or sub-grade crawlspace, please provide the basement floor or lowest floor elevation on the site plan. In addition, please provide the proposed LAG for the structure on the Elevation Form. Please note that the LAG is defined as the elevation of the lowest point of ground touching a structure and must include the exterior basement stairs and the elevation at the bottom of a window well. If the type of construction is a slab on grade as indicated on the Elevation Form, please provide plans or drawings that show this.**

   The proposed structure on the property will include a bilco, window wells, and a basement crawlspace. The elevations of these features have been provided on the updated metes and bounds drawing. These proposed features will be located within the existing X Zone on the site. In addition, the proposed
grade waterward of these features will be raised from existing, and the proposed grade will reach an elevation of +14’ NAVD 88. Since the BFE at the project site is +13’, flood waters may not continue landward, onto the site, after an elevation of +13’ NAVD 88 has been intersected. Therefore, it is anticipated that the proposed features will not jeopardize the dwelling during a 100-year storm event as the portion of the property is reasonably safe from flooding.

It is anticipated that this information is acceptable and that the application can be processed in a timely manner. If you have any questions, please do not hesitate to contact the undersigned.

Very truly yours,

RACE COASTAL ENGINEERING

Hailey Simpson
Coastal Engineer

Enclosures: As Stated
March 4, 2021

Mr. Richard C. Feminella
Wastewater Division Manager
Greenwich DPW – Sewer Division
101 Field Point Road
Greenwich, CT 06830

Re: 675 Steamboat Road, Greenwich, CT
Patricia Barakett
PLPZ202100014

Dear Mr. Feminella:

In response to the DPW-Sewer Division, Interoffice Correspondence for the referenced project dated February 23, 2021, our office offers the following:

- **COMMENT:** It is not clear from the submission and maybe we have missed something, but it appears that the CLOMRF application indicates slab on grade construction, but the proposed plans appear to include a basement. It appears that the proposed basement finished floor elevation is over 6 feet below the base flood elevation. Please provide written documentation to prove that the proposed basement plumbing fixtures will be a minimum of 1-foot above the FEMA flood elevation. If this flood elevation requirement cannot be met, the basement plumbing fixtures and bathroom must be removed. In addition, the applicant/owner's attention is called to another comment later in this memo regarding that sanitary sewers are designed for first floor elevations. Therefore, any plumbing fixtures in lower levels (basements) could be subject to sewer backups/overflows. The property owner is strongly recommended to consider and review this and plan accordingly to protect themselves in those situations. The Town is not responsible for damages as a result of these connections/installations.

- **RESPONSE:** The plan includes a basement under a portion of the proposed house. This has also been clarified with FEMA through additional information that was recently submitted for the CLOMR-F application. The proposed grading associated with the project will raise the grade surrounding the house to elevation 14.0 or higher. Therefore the new house will be outside of the flood zone, since the BFE at the property is elevation 13.0. The pending CLOMR-F also identifies the portion of the site to be removed from the flood zone. Since the proposed house will not be jeopardized by the 100-year flood event, we do not believe there is a conflict with the proposed basement plumbing fixtures.

We agree that basement fixtures are more susceptible to sewer backups/overflows. We have reviewed this concern with the owner and the architect and believe that adequate measures can be installed in order to mitigate the risk of backup. The basement plumbing fixtures will utilize a sewage ejector pump, and do not rely on gravity flow to the sewer lateral. The ejector pump will also include a check valve in order to prevent backflow.

The additional comments from the Sewer Division are appreciated and will be addressed during the Sewer and Building Permit Phase. Please feel free to contact our office with any questions or concerns.

Sincerely,

Thomas Nelson, P.E.
Project Manager

Cc: Katie Deluca, Director, Planning & Zoning
PROPOSED C-LOMR-F METES AND BOUNDS

Property of Patricia Barakett at 675 Steamboat Rd, Greenwich, CT

Modifying the AE13 Hazard Line of Panel 09001C0513G effective 7/8/2013.

Beginning at the southwest corner of the subject property known as 675 Steamboat Rd at Latitude N:41.01281822 degrees and Longitude W:73.62206891 degrees (per NAD83 realization of 2011 referenced to CORS-CTDA)

and proceeding northerly along the easterly side of Steamboat Rd with bearings in the CT State Plane Coordinate system

the following courses:

N 02°41'53" E a distance of 11.55';

thence N 02°12'53" E a distance of 164.40' to the northwest corner of the subject property;

thence easterly along the boundary of the property known as 665 Steamboat Rd S 88°40'37" E a distance of 71.54' to a proposed elevation of 13.0 feet NAVD;

thence along a proposed contour of elevation 13 FT NAVD a bearing of S 01°24'40" E a distance of 4.74';

thence with a curve turning to the left with an arc length of 15.33', with a radius of 15.60', with a chord bearing of S 32°09'25" E, with a chord length of 14.72';

thence with a curve turning to the left with an arc length of 19.15', with a radius of 38.92', with a chord bearing of S 73°20'31" E with a chord length of 18.96';

thence S 01°44'17" W a distance of 4.03';

thence S 01°46'49" W a distance of 27.00';

thence N 88°13'11" E a distance of 11.42';

thence S 01°46'49" W a distance of 22.67';

thence N 88°13'11" W a distance of 7.83';

thence S 01°46'49" W a distance of 3.38';
thence along a proposed contour of elevation 13 FT NAVD with a curve turning to the left with an arc length of 19.20', with a radius of 12.72',
with a chord bearing of S 19°23'13" W, with a chord length of 17.43';

thence S 29°30'42" E a distance of 5.91'; thence S 31°41'02" E a distance of 2.82';
thence S 43°56'24" E a distance of 12.74'; thence S 19°30'10" E a distance of 7.67';

thence along the boundary of property known as 697 Steamboat Rd N 86°50'07" W a distance of 114.65';
which is the point of beginning,
having an area of 17,661.28 square feet, 0.405 acres.

Michael W. Finkbeiner

Michael W Finkbeiner, PLS
6 Oak St West Suite E
Greenwich CT 06830
TOWN OF GREENWICH  
Town Hall ~ 101 Field Point Road ~ Greenwich, CT 06830  
Planning & Zoning Department ~ 203-622-7894 ~ Fax.203-622-3795

Site Plan Application

Property Address: 675 Steamboat Road, Greenwich, CT 06830  
Tax ID: 02-1505/S

Property Owner: Patricia Gilgo Barakett  
Address: 675 Steamboat Road, Greenwich, CT 06830

Email: __________________________  
Cell Phone: __________________________  
Other Phone: __________________________

Applicant: Patricia Gilgo Barakett  
Address: 675 Steamboat Road, Greenwich, CT 06830

Email: __________________________  
Cell Phone: __________________________  
Other Phone: __________________________

Authorized Agent: Heagney, Lennon & Slane, LLP  
Address: 248 Greenwich Avenue, Greenwich, CT 06830

Email: JHeagney@HLS248.com  
Cell Phone: (203) 661-8400  
Other Phone: __________________________

Select One: ☒ Final  

Zone(s): R-6  
Lot Area: 27,067 sf

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 __________________________ (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
☐ Scenic Road Designation

To be completed by P&Z staff only:
Check # ______________  
Check Amount: $ ____________

Application # ________________________________

pzSitePlanApp 2020
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**THIS SITE PLAN INVOLVES:**
- [ ] Alterations
- [X] Demolition
- [X] Re-Construction

pzSitePlanApp 2020
Application Signature Page

Property Address: 675 Steamboat Road, Greenwich, CT 06830
Tax ID: 02-1505/S

Property Owner 1: Patricia Gillego Barakett
Address: 675 Steamboat Road, Greenwich, CT 06830
Email: 
Cell Phone: 
Other Phone: 
Signature: *See Authorization Letter
Date: 

Property Owner 2:
Address: 
Email: 
Cell Phone: 
Other Phone: 
Signature: 
Date: 

Property Owner 3:
Address: 
Email: 
Cell Phone: 
Other Phone: 
Signature: 
Date: 

Property Owner 4:
Address: 
Email: 
Cell Phone: 
Other Phone: 
Signature: 
Date: 

Applicant: Patricia Gillego Barakett
Address: 
Email: 
Cell Phone: 
Other Phone: 
Signature: *See Authorization Letter
Date: 

Authorized Agent: Heagney, Lennon & Slane, LLP
Address: 248 Greenwich Avenue, Greenwich, CT 06830
Email: JHeagney@HLS248.com
Cell Phone: (203) 661-8400
Other Phone: 
Signature: 
Date: \[1/9/2021\]
Site Plan Review Checklist

Property Address: 675 Steamboat Road, Greenwich, CT 06830  
Tax ID: 02-1505/S  
Anticipated Type of Application: Coastal Site Plan

All applications for preliminary and final site plan approval shall be made on the appropriate forms as provided by the Planning Staff. The following items must also be provided with the application. If any of the following items are not filed at the time of application, the application may be returned to the applicant in order that it may be filed in the entirety at an appropriate future date. Required Items: (Sec. 6-14)

Please check the items submitted below:

X 1. Fifteen copies of a survey, folded to 9" x 12", showing existing conditions, including:
   □ a. Locations and dimensions of all existing buildings, structures, fences, retaining walls, utility facilities, trees of six (6) inches or more in diameter at breast height, and other similar features.
   □ b. Existing contours at no more than a two-foot vertical interval, unless waived by the commission Staff in circumstances where such contours may not be necessarily pertinent. The survey shall indicate topographic conditions of property immediately adjoining the subject parcel.
   □ c. The location of all existing watercourses, intermittent streams wetlands as required by IWWA, Flood Hazard Lines as determined by FEMA, springs and rock outcrops or a note indicating that none exist, with the sources of information listed.
   □ d. The zone in which the land to be developed falls and the location of any town and zone boundary lines within or adjoining the tract, and yard dimensions to existing buildings. Lot area, by zone, shall be indicated.
   □ e. The title of the development, date, revision date if any and nature of revision, north arrow, scale, and the name and address of owner and names of owners of adjacent land.
   □ f. Street and property lines, curbs, edges of pavement, sidewalks, easements, right-of-way, covenants, and deed restrictions.
   □ g. Traffic lights and controls, public trees, catch basins, hydrants, and power and telephone lines in adjacent streets.
   □ h. Certification with the signature and seal or registration number of a registered land surveyor licensed in the State of Connecticut that the drawing is substantially correct to A-2 Standards, and that the property is in a designated zone under the zoning regulations.

X 2. Fifteen sets of a detailed Site development plan, at a readable scale, folded to 9" x 12", prepared in accordance with all applicable Town standards including the Roadway Design and Drainage Design Manuals, and signed by a professional architect, land surveyor, or engineer licensed in the State of Connecticut, showing:
   □ a. Location, dimension, and elevation of all proposed buildings, structures, walls, fences.
   □ b. Location dimensions and surface treatment of all existing and proposed parking and loading spaces, traffic access and circulation drives, and pedestrian walks. Sidewalks are to be provided as required by the Building Zone Regulations.
   □ c. Approximate location of proposed utility lines, including water, gas, electricity, sewer and the location of any transformers.
   □ d. Note specifying source of water supply and method of sewage disposal.
   □ e. Existing and proposed contours at units of no more than a two-foot interval unless waived by the Commission's staff. Cuts and fills and estimates of blasting to be submitted at time of final site plan.
   □ f. Location, size and type of proposed landscaping and buffer planting and the designation of those areas of natural vegetation not to be disturbed.
   □ g. Any other similar information determined by the Commission staff to provide for the proper enforcement of the Building Zone Regulations.
   □ h. Zoning statistics including: Gross Floor Area, Floor Area Ratio, Usable Floor Area, Required Parking, Actual Parking

pzSitePlanChecklist 2020
Provided, Building Height, Building Footprint, and Area Devoted to Surface parking, Building and Drives.

☐ i. Provisions for compliance with Americans with Disabilities Act (Handicap Access) and State Building Code.

☐ j. Coastal Area Management Application for projects within the Coastal Overlay Zone.

☐ 3. Eight sets of architectural plans, signed and sealed by an architect registered in the State of Connecticut, of all floors, all exterior elevations showing existing and proposed grade conditions. Elevations are to detail architectural elements by labeling materials, color and dimensions. Each architectural elevation shall show the absolute building height as well as building height for zoning purposes. All HVAC facilities are to be shown on architectural elevations.

☐ 4. Three copies of Floor Plan Work Sheets with the dimensions and calculated floor areas for each floor prepared in accordance with Sec. 6-5(22). Consult Commission Staff for required format.

☐ 5. Three copies of "building coverage" computation sheets.

☐ 6. Three copies of "area devoted to surface parking, building, and drives" worksheets.

☐ 7. Five copies of sight distance certification reports when required by a preliminary site plan review or when advised by the commission staff pursuant to item 2(g) of this checklist.

☐ 8. Three copies of Volume calculations per 6-101.

☐ 9. Completed Traffic Impact Evaluation Form if applicable. Submission requirements are defined on the form, available at the Commission office. A traffic report may be required.

☐ 10. Ten copies of completed application form signed by applicant or authorized agent, owners and contract purchasers, as applicable.

☐ 11. Ten copies of completed Special Permit form, if required by Building Zone Regulations.

☐ 12. Fifteen copies of detailed, inclusive narrative description of the proposed project. For those projects involving amendments to the Building Zone Regulations and/or amendments to the Building Zone Regulation Map, the narrative description must provide the section number and text for the proposed amendments(s) to the BZR and an explanation providing justification for the proposal. For map changes, a scaled drawing at 1" to 400' needs to be provided for affected areas(s).

☐ 13. Eight copies of reductions in, 11 x 17 size, or other appropriate size, providing a readable, clear plan of proposed site development and architectural plans.

☐ 14. A showing that an adequate source of potable water is available to satisfy the needs of the proposed development as per Sec. 6-15(a) (5), signed by C.A.W.C.

☐ 15. An affidavit certifying that all abutting property owners have been notified, as evidenced by the submission of a certificate of mailing or certified or registered mail receipts about said application. A schedule of names, addresses, shown on a GIS map with lot lines indicating the location of the notified property owners. Owners of lots, or portions of lots, which are across a public or private street shall be deemed to be abutting property owners. For projects which require the preliminary review by the Conservation Commission, the notice shall be sent by the applicant to abutting owners two weeks prior to any scheduled hearing date of the Conservation Commission.

☐ 16. Authorization for the agent and contract purchasers to act on behalf of the certified property owner(s).

☐ 17. A separate schematic plan at a scale no larger than 1"-100" indicating buildings, parking and drives on the site and all adjoining properties, including those across the street, and the nearest cross street.

☐ 18. Five copies of a Drainage Summary Report as per Department of Public Works and the Town Drainage Design Manual. The summary report must be prepared in accordance with the following formats: PRELIMINARY: Existing and proposed storm water distribution, existing and proposed runoff rates, capability of off-site drainage facilities to accommodate proposed runoff, capability of off-site soils to accommodate percolation or detention if proposed, and identification of proposed drainage structures. FINAL: Final structure design details, prior approval from IWWA, Engineering Division and Conservation Commission as appropriate, and all information required by the preliminary report or two copies of drainage exemption forms.

☐ 19. In accordance with Sec. 6-183.1 to 6-183.10 of the Building Zone regulations, tree protection and sedimentation and erosion control plans shall be submitted with all site plan applications.

☐ 20. All applications for final site plans shall be in the form of a survey prepared by a registered Connecticut land surveyor having metes and bounds, dimensions of all buildings, parking and drives, setbacks of all structures from property lines, setbacks between buildings, and certification that building dimensions shown thereon are the same as the approved architectural plans Architectural and drainage plans are to be references by title, date(s) and sheet numbers.

☐ 21. Required fee submitted at time of application (see fee schedule).

☐ 22. "It is the belief of the PZC staff that this application is incomplete because of the failure of the applicant to provide the materials
referred to above. This application will be reviewed by the PZC and a decision made as to whether it is complete or incomplete at its public meeting to be held in the PZC office.

All applicants must make an appointment to submit this application with the Applications Coordinator, Peter Mangs, who can be reached by (email) Peter.Mangs@greenwichct.org or (phone) 203-622-7894.

NOTE: Any new documentation presented at Planning and Zoning Meetings shall be submitted to staff so that they can be made part of the record. Please ensure all documents can easily be removed from presentation boards.
APPLICATION FOR REVIEW OF COASTAL SITE PLAN

Applicant’s Name: Patricia Barakett  Date: 1-19-21
Address: 675 Steamboat Road, Greenwich, CT
Project Address or Locations: 675 Steamboat Road

The following information must be supplied by the applicant and submitted in addition to, and along with, any application, plans and data required for approval of the proposed project under the zoning and/or subdivision regulation of the municipality. Attach additional sheets if more space is required.

1. PLANS

A. Project Plan(s)
   This application must be accompanied by a plan (or plans) of the entire project indicating 1) project location, 2) design of all existing and proposed buildings, structures, and uses, 3) all proposed site improvements or alterations, and 4) ownership and type of use on adjacent properties.

B. Costal Resources
   This application must be accompanied by a plan showing the location of all coastal resources (as defined in Section 22a-93(7) of the Connecticut Coastal Management Act) on and contiguous to the site.

2. WRITTEN INFORMATION

A. Description of the Proposed Project
   Describe the entire project including types of buildings and structures, uses, methods and timing of construction, type and extend of development adjacent to the site. This information should supplement and/or clarify plans in 1(A) above.

The property consists of 0.6214-acres and is located on the east side of Steamboat Road on Smith Cove. The property is currently fully developed with a single family residence, gazebo, driveway, patios, lawn and landscaped areas. There is an existing stone seawall along Smith Cove on the east property line. The existing house is located with the AE and VE flood zones and is very close to the seawall. All of the impervious surfaces on the site are directly connected through the seawall to Long Island Sound.

The proposed project consists of the demolition the existing residence and the subsequent construction of a new house, driveway, pool and patio areas. The existing gazebo, seawall and a small patio area will remain. Fill is proposed to elevate the new residence outside of the AE flood zone. The proposed development will be further from the seawall, allowing for an increased vegetated buffer. The majority of the proposed impervious surfaces will have water quality treatment prior to discharge to Smith Cove.
B. Description of Coastal Resources

Identify the coastal resources on and contiguous to the site (as shown on the coastal resources map) and describe their condition. This information should supplement and/or clarify the plan in 1(B) above.

Coastal Hazard Area - Portions of the property are located within the VE (Elev. 15) and AE (Elev 13) flood zone as depicted on the FEMA Flood Insurance Rate Map No. 09001C0513G.
Shorelands - The remainder of the property is considered shorelands since it is not subject to dynamic coastal processes and is comprised of typical upland features.

C. Assessment of the Suitability of the Project for the Proposed Site and the Capability of the Resources to Accommodate the Proposed Use.

(1) Identify any and all coastal use policies (in Section 22a-92(10)(b)(1) of Connecticut Coastal Management Act) applicable to the proposed project.

To require that structures in tidal wetlands and coastal waters be designed, constructed and maintained to minimize adverse impacts on coastal resources, circulation and sedimentation patterns, water quality, and flooding and erosion, to reduce to the maximum extent practicable the use of fill, and to reduce conflicts with the riparian rights of adjacent landowners.

(2) Identify and all coastal resource policies (in Section 22a-92(10)(b)(2) of Connecticut Coastal Management Act) applicable to the proposed project.

Coastal Hazard Area – to manage coastal hazard areas so as to insure that development proceeds in such a manner that hazards to life and property are minimized and to promote nonstructural solutions to flood and erosion problems.
Shorelands – to regulate shoreland use and development in a manner which minimizes adverse impacts upon adjacent coastal systems and resources.

(3) Describe how the proposed project is consistent with all of the coastal policies identified in C (1) and (2) above (i.e. describe the extent to which the project complies or conflicts with each policy, the project should be modified to reduce or eliminate the conflict.

Coastal Hazard Area – No structures are proposed within the VE flood zone. Fill is proposed to remove the house from the AE flood zone.
Shorelands – Development of the property is proposed in a manner which minimizes adverse impacts upon adjacent coastal systems and resources. The project has proposed soil and erosion controls to protect coastal resources during construction, will increase the buffer from the coastal resources post construction, and provides water quality treatment of post construction runoff.

D. Evaluation of the Potential Beneficial and Adverse Impacts of the Project and Description of Proposed Methods to Mitigate Adverse Effects.

(1) Identify and describe the potential adverse impacts (as defined in Section 22a-93(15) of Connecticut Coastal Management Act and potential beneficial impacts of the project on coastal resources.

No adverse impacts to coastal resources are anticipated. There is no direct impact to coastal resources as a result of the proposed project. Soil and erosion controls, including silt fence and hay bales, will be employed to protect coastal resources during construction. A vegetated buffer, rain garden and permeable gravel driveway will treat stormwater runoff from the site after construction is complete.

FOR WATERFRONT PROPERTY ONLY:

(2) Is the project a water dependent use as defined in Section 22a-93(16) OF THE CONNECTICUT Coastal management Act? If, so, explain why.

No, the project does not meet the definition of a "water dependent use". However, the property has historically been used for residential purposes and is surrounded by other residential properties to the north and south.
FOR WATERFRONT PROPERTY ONLY:

(3) Describe the impacts of effects (either positive or negative) that the project will have on future water dependent uses or development on and adjacent to this site as defined in Section 22a-93(17).

The redevelopment of the property for a single family residence should have no impact to adjacent development.

(4) Describe the proposed measures to mitigate (reduce or eliminate) any adverse impacts on coastal resources described in D(1) and, if applicable, on future water dependent development opportunities described in D(3).

The improved water quality treatment and vegetated buffer from Smith Cove should benefit the health of the coastal waters, which will benefit the use by other water dependent development.

E. Demonstration of the Acceptability of Remaining or Unmitigated Adverse Impacts on Coastal Resources and Future Water Dependent Uses and Development.

(1) Describe any adverse impacts that remain after employing all reasonable mitigation measures.

The nature of the proposed development in conjunction with the proposed mitigation measures should eliminate adverse impacts to coastal resources.

(2) Explain why these remaining adverse impacts were not mitigated.

n/a

(3) Explain why the commission reviewing this application should find these remaining adverse impacts to acceptable.

n/a
### Notes:
1. The maximum allowable F.A.R according to Zoning Enforcement Officer is 13,895 sq. ft. and the existing F.A.R. is 6,382 sq. ft.
2. Required Green Area is 35% and estimated existing Green Area 60%.
3. No violations in Zoning Enforcement.

**WETLANDS:** □ Yes ☒ No  
Please see attached Green Sheet dated 2/6/2012 indicating no inland wetlands as indicated by office staff.

**ZBA:** □ Yes ☒ No  
None

**P & Z:** ☒ Yes □ No  
Please find attached:
- Coastal Site Plan #1503-C (Coastal)
  - Planning and Zoning Commission Decision Letter dated 7/24/1994
  - Application for Final Site Plan Approval dated 7/3/1991
  - 3-page site plan floor plan
  - Background observations dated 7/11/1991
  - Site plan map

**Health:** □ Yes ☒ No  
No violations or complaints reported

**Fire:** □ Yes ☒ No  
No file reported by Greenwich Fire Marshal

*Additional Comments if any.*

**PROPOSED SCHEDULE A WITH RESTRICTIONS AND TOGETHER WITH PROVISIONS:**

All that certain tract, piece or parcel of land, together with the buildings and improvements thereon, situated in the Town of Greenwich, County of Fairfield and State of Connecticut, which said tract is more particularly described as follows:

Beginning at the point formed by the intersection of the division line between the herein described land and land now or formerly of James D. McNitt and Helen L. McNitt with the easterly line of Steamboat Road, and running thence northerly along the easterly line of Steamboat Road North 14° 15' East 11.55 feet and North 13° 46' East 164.4 feet; thence along land now or formerly of Lucile R. Gray South 77° 07' 30" East about 144.9 feet to the waters of Indian Harbor; thence southerly, easterly, again southerly, westerly, and again southerly along the Mean High Water Line of Indian Harbor about 251 feet; and thence along land now or formerly of said McNitt North 75° 17' West 151.7 feet to the point of beginning.

The general boundaries of the above-described tract of land are northerly by land now or formerly of Gray and the Mean High Water Line of Indian Harbor, easterly by the Mean High Water Line of Indian Harbor, southerly by the Mean High Water Line of Indian Harbor and land now or formerly of McNitt, and westerly by Steamboat Road.

Said premises are conveyed together with all right, title and interest in and to the highway, Steamboat Road, in front of and adjoining said premises to the center line thereof, and all riparian rights and other rights, title and interest in and to the land or lands under water adjoining the above-described premises.
Mr. Henry Pascarella  
2 Glen Court  
Greenwich, Ct. 06830

RE: SITE PLAN #1503-C

Dear Mr. Pascarella:

The Planning and Zoning Commission, in accordance with Sections 6-13 through 6-16.1 of the Building Zone Regulations, reviewed your site plan of Resident/Professional use at 675 Steamboat Rd. at a regular meeting held on July 16, 1991 and took the following action:

Upon a motion made by Mr. Ragland and seconded by Mrs. Stone the following resolution was unanimously adopted: (Voting on this item: Messrs. Joyce and Ragland and Mesdames Siefert, Hess & Stone).

WHEREAS, the Commission held a meeting on July 16, 1991 and took all testimony; and

WHEREAS, pursuant to Sec. 6-95(a)(1) and 6-15 applicant has requested use of the property as a residence and a law office for his personal use;

WHEREAS, the Commission finds that there is an ample sized lot which can handle the required 6 parking spaces on site with no adverse impact on street safety or an adjoining properties; and

WHEREAS, the Commission finds that parking spaces in the front yard can be approved in this instance because of the large setback area in front of the house, the circular drive which sets the 3-4 spaces well back from the street and adjoining properties; and most important because of the screening provided by the tall stone wall along the entire property frontage on Steamboat Road.

THEREFORE, BE IT RESOLVED that Site Plan #1503 for Pascarella at 675 Steamboat Road for residential/professional use as shown on plan of William Schwartz, Architect dated 6/24/91 is hereby approved with modifications.

The modifications are as follows and must be resolved to Planning and Zoning Staff and Zoning Enforcement Officer satisfaction and signoff prior to any Building Permit or C.O. issuance:

1. A note be added to the final revised plan stating that the existing stonewall will remain or be replaced with another stonewall or significant screening to block and screen the parking in the front yard.
2. Applicant will minimize signage and a historic type plaque on the stonewall will be shown on final plan as the type of signage for the resident professional.

3. A note be added to final revised plan that any conversion of this resident-professional attorney use to a medical or dental resident-professional use will require a revised site plan to be submitted to the Planning and Zoning Commission for review and approval since there is a different parking requirement for medical/dental use. Any change involving other uses permitted in the R6 zone will require review of the Zoning Enforcement Officer and Planning and Zoning Staff to determine the adequacy of parking for proposed combination of uses on site and necessary permit procedures.

4. Existing sight-line certification be submitted to Planning and Zoning and Department of Public Works Engineering prior to any C.O. Since this is a one-way circulation plan the appropriate entry and exit shall be determined and discretion marked to avoid on-site conflicts.

5. Applicant will work with the Planning and Zoning staff to revise the site plan in response to Zoning Enforcement Officer's observation that an additional 5-foot back-up area is needed for parking space #3 (at the side of the house) for vehicle maneuvering. It may be desirable and more protective of existing site features (trees and walls) to relocate space #3 to the circular drive, making 4 spaces in all along the driveway.

6. A tree preservation plan shall be submitted showing preservation to the greatest extent practicable of the significant trees on the property, notably the deciduous tree along parking spaces #1 and #2 at the side of the house and trees along the front wall which provide effective canopy and screening on the perimeter. Every effort shall be made to preserve evergreen trees deemed to be in healthy condition, consistent with implementing the approved parking plan.

7. No C.O. for office use can be issued until the professional has taken up legal residence in the premises.

If you have any questions, please call our office.

DWP's
cc: Jeanne Shaffer
Ennio DeVita
Bruce Dixon
William Harr
Jim Maloney
Phillip Drake
1. It is recommended that sight distance be certified for compliance with Town standard.
site Plan #1503-C

Henry Pascarella (Resident Professional Final Site Plan)
675 Steamboat Rd.
R-6

Use: Proposed. Resident/Professional
Lot Area: 28,000 sq.ft.
Floor Area: Residential Use: 2766
(513 living room & 205 den)
Total: 3487 sq.ft.

No. of Parking Spaces:

4 - office
2 - residential

BACKGROUND OBSERVATIONS

Applicant is proposing to lease the 675 Steamboat Rd. property owned by Tunick effective June 24 for Resident Professional Use under Sec. 6-95. Purchase of the premises will occur after approval of this resident professional. It is assumed Mr. Pascarella will live as well as work on the premises and will forgo his residence on 2 Glen Court.

The proposed parking spaces show 3 on the circular drive in front of the house and 3 to the side of the house. The three new spaces on the circular drive will be cut out of present lawn.

However, this area needs to be expanded because the Zoning Enforcement Officer has stated that the back-up area for parking space #3 needs to be increased to 5 ft. to provide maneuverability.

DEPARTMENT COMMENTS:

Zoning Enforcement Officer: The backup area for parking space 3 needs to be increased to 5 feet to provide maneuverability.

Traffic Department: We are concerned with the continued expansion of "commercial/professional development" along Steamboat Road and the stress created by demands for on-street parking. While the applicant indicates his parking will be on-site, we have found that this is often "forgotten" soon after and additional demands for on-street parking (i.e., such as 666 Steamboat Road which has expanded operation over the years) occur.

The Engineering Division should review driveway sight lines.
NARRATIVE

Applicant proposes to demolish the existing structure and construct a new 7,561sf single-family dwelling, pool and associated improvements at 675 Steamboat Road.

Pursuant to BZR §6-111, final coastal site plan approval is requested for to construct the proposed home and pool within 100’ of the Smith Cove and the Long Island Sound. In accordance with the coastal site plan standards and State Coastal Management Act, the project will not have an adverse impact on coastal resources. The existing seawall, masonry stairs, and gazebo in the southeast corner of the property will all remain as is. The exposed ledge that runs down to the mean high water line in the southwest corner of the property will also remain as is. Additionally, the project will not adversely affect storm drainage, sewage disposal, or other municipal services. As part of the construction of the new home, an existing Town storm water drain connected to catch basins in Steamboat Road will be relocated from the middle of the property to south of the building footprint. Applicant shall grant a right to drain to the Town to formalize its rights for the relocated line. The new home will reconnect to the Town Sewer main in Steamboat Road, which currently serves the property.

Applicant has retained RACE Coastal Engineers to file a CLOMR-F Application with FEMA to relocate the flood zone line on the property, so that the relocated AE-13 flood zone line tracks the elevation 13 grade line and proposed grade walls at the rear of the house. By shifting the line, the proposed home will be fully out of the flood zone and not need to comply with the standards in BZR §6-139.1.

Additionally, RACE Coastal Engineers has filed a proposed dock application with the State Department of Energy and Environmental Protection. The new dock will replace a previously approved dock that has since been removed.
In accordance with BZR §6-111(D)(6), Applicant has proposed coastal buffer plantings within the area of the property that will still be located within the AE-flood zone following the approval of the CLOMR-F. The plantings consist of native and salt-tolerant species. Applicant requests that the Planning and Zoning Commission approve the proposed coastal buffer due to the fact that the coastal resources adjacent to the property are located beyond the existing seawall.

The new home will meet all of the zoning criteria for the R-6 zone, including story, building height, and green space. The project is exempt from submitting FAR worksheets because the proposed home is not within 10% of the maximum allowable FAR. The proposed grade walls at the rear of the property shall comply with BZR §6-134.

Applicant seeks to maintain the existing curb cuts, stone wall and gates along the Steamboat Road property line. Applicant requests that the Highway Department waive their requirements to maintain the existing conditions. The Department granted a similar approval for the property to the North at 665 Steamboat Road in 2017.

The Planning and Zoning Commission previously reviewed this property in 1991 as part of Final Coastal Site Plan #1503-C. At the time, Henry Pascarella, the predecessor-in-title, sought to use the property for his law office. At the time, the Commission noted that the stonewall along Steamboat Road provided screening for the parking in the front yard and called for a one-way circulation plan to avoid on-site conflicts. The approval also called for a tree preservation plan along the Steamboat Road property line. While the Applicant will be using the property for residential purposes, they are willing to maintain the one-way circulation plan and install new trees along the Steamboat Road property line.
The Inland Wetlands and Watercourses Agency staff has issued an administrative green sheet approval for the project.

Applicant requests that the Planning and Zoning Commission grant final coastal site plan approval to construct the new 7,561sf single-family dwelling, pool and associated improvements at 675 Steamboat Road.

Respectfully Submitted,
John J. Heagney
Dated: January 19, 2021
February 13, 2020

Planning and Zoning Commission
Town of Greenwich
101 Field Point Road
Greenwich, CT 06830

RE: 675 Steamboat Road
Greenwich, CT 06830

To Whom It May Concern:

I hereby authorize Heagney, Lennon & Slane, LLP to act as my agent to appear before the Town of Greenwich Planning and Zoning Commission or any other Town Municipal Board in connection with the filing of applications for the above captioned property.

[Signature]
Patricia Barakett
PASCARELLA HENRY W TR

STEAMBOAT ROAD 0675

LOT NO 29 STEAMBOAT RD 837

RESIDENTIAL

VALUATION RECORD

Assessment Year: 10/01/2010

Reason for Change: 2010 Reval

2015 Prelim

2015 Final

2016 List

2017 List

2018 List

2019 List

VALUATION

L 3455400 3009400 3009400 3009400 3009400 3009400

Market

R 1139700 2370700 2370700 2370700 2370700 2370700

T 4622500 5380100 5380100 5380100 5380100 5380100

VALUATION

I 2618780 2106580 2106580 2106580 2106580 2106580

70% Assessed

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LAND DATA AND CALCULATIONS

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Supplemental Cards

TOTAL TAX VALUE: 3009400

Supplemental Cards

TOTAL LAND VALUE: 3009400
### PHYSICAL CHARACTERISTICS

- **Style**: Mediterranean
- **Occupancy**: Single family
- **Story Height**: 2.0
- **Finished Area**: 6339
- **Attic**: None
- **Basement**: Yes

### ROOFING
- **Material**: Slate or tile
- **Type**: Gable
- **Pitch**: Not available

### FLOORING
- **Slab**: B 1.0
- **Sub and Joists**: 2.0, 3.0
- **Base Allowance**: 1.0, 2.0, 3.0

### EXTERIOR COVER
- **Stucco**: 1.0, 2.0, 3.0

### INTERIOR FINISH

#### ACCOMMODATIONS
- **Finished Rooms**: 13
- **Bedrooms**: 3
- **Formal Dining Rooms**: 1
- **Fireplaces**: 3

#### HEATING AND AIR CONDITIONING
- **Primary Heat**: Gas
- **Upper/Lower**: Full Part
- **Air Cond**: 0

### FENCING
- **Fence**: 0

### REMODELING AND MODERNIZATION
- **Date**: 02/29/2008
- **Kitchen**: 01/03/19

### OFFICIAL FEATURES

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### SUMMARY OF IMPROVEMENTS

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### DATA COLLECTOR/DATE
- **Appraiser/Date**: 10/01/2015
- **Neighborhood**: Neigh 100021 AV
- **Total Improvement Value**: 2334000

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**NOTE:** The image contains a diagram and a table with data related to the physical characteristics and improvements of a property. The data includes details about the style, occupancy, story height, finished area, attic, basement, roofing, flooring, exterior cover, interior finish, accommodations, heating and air conditioning, fencing, and remodeling and modernization. The table provides a summary of improvements with descriptions, values, and specific details about the density of wood and basic materials. The data collector and appraiser dates are also provided, along with the neighborhood and total improvement value.
TOWN OF GREENWICH

AFFIDAVIT OF NOTIFICATION OF COASTAL SITE PLAN APPLICATION TO PLANNING AND ZONING COMMISSION

STATE OF CONNECTICUT   )
COUNTY OF FAIRFIELD    ) ss: Greenwich

I, JOHN HEAGNEY, being first duly sworn, do hereby certify that on January 14, 2021, I caused to be mailed, postage prepaid, evidenced by certificate of mailing, to those persons whose names are set forth on Exhibit A attached hereto, a copy of the notice Exhibit B. Said persons are the record owners, as of January 14, 2021 as shown on the Town Tax Assessor’s Office records of property abutting and across the street from the properties for which an application for a coastal site plan for the property located at 675 Steamboat Road in Greenwich, Connecticut has been filed with the Town of Greenwich Planning and Zoning Commission.

[Signature]

JOHN HEAGNEY

Subscribed and sworn to before me this 14th day of January, 2021

[Signature]

EMMA A. MUTINO
NOTARY PUBLIC
My Commission Expires Apr. 30, 2025

EMMA A. MUTINO
NOTARY PUBLIC
My Commission Expires Apr. 30, 2025
EXHIBIT A

Abutting property owners of 675 Steamboat Road, Greenwich:

672 Steamboat LLC
6 Indian Chase Drive
Greenwich, CT 06830
02-1397/S

John & Kim Iorillo
10 Spyglass Court
Park City, UT 84060
02-1068/S

Steamboat 697 LLC
c/o ROBERT W MCNITT
2901 Park Lake Drive
Boulder, CO 80301-5138
02-1244/S

Harborside Owners Corp.
c/o STAMFORD RE INC.
1127 High Ridge Road #343
Stamford, CT 06905
02-1398/S
EXHIBIT B

January 14, 2021

To Whom It May Concern:

Notice is hereby given that Patricia Gillego Barakett has filed an application with the Town of Greenwich Planning and Zoning Commission to request coastal site plan approval to construct a new single-family dwelling, pool and associated site improvements at the property located at 675 Steamboat Road in Greenwich, Connecticut.

Further information regarding this application may be obtained at the Planning and Zoning Commission or this office.

John Heagney

For information contact:
Planning and Zoning Commission
Town Hall, 101 Field Point Road
Greenwich, CT 06836
Tel: 203-622-7894
January 14, 2021

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</tr>
</tbody>
</table>
Zoning Floor Area Ratio and Building Volume Analysis

675 Steamboat Road
Greenwich, CT 06

Zone:   R-6
(1&2 Family Residential)
Minimum Lot Size:   7,500 S.F.   27,067 S.F.
(0.172 Acre)  (0.6214 Acre)
Floor Area Ratio (FAR):  0.55     0.2793
Floor Area:    14,887 S.F.  7,561 S.F.

Per direction of Greenwich Zoning Enforcement staff, for the CAM application:

1. Because we are less than 90% of the maximum allowable FAR (we are at approximately 51%), we are not required to file the detailed FAR worksheets required for submissions with higher FAR.

2. Because we are below the 10,000 square foot floor area threshold, we are not required to submit volume calculations.
Dear Applicant:

This letter is to confirm the receipt of the following application package:

Applicant/Registrant: PATRICIA BARAKETT  
Permit Type: 4/40 Docks/Access Stairs-GP

To install a float and gangway system to extend no farther than 40 feet from the mean high water line. The system would consist of a concrete foundation, (1) 3'x31' gangway, (1) 5'x6' landing float, (1) timber float frame, and (1) 8'x12' floating dock supported by (4) timber piles. - 675 Steamboat Rd Greenwich, CT 06830

Your application has been assigned the following number: 202100277
Please include this number on all correspondence regarding this application.

As of today, the following materials have been received:

<table>
<thead>
<tr>
<th>ITEM</th>
<th>REQUIRED FEE</th>
<th>FEE RECEIVED</th>
<th>RECEIVED ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Package</td>
<td></td>
<td></td>
<td>1/08/2021</td>
</tr>
<tr>
<td>Application Fee</td>
<td>700.00</td>
<td>700.00</td>
<td>1/08/2021</td>
</tr>
</tbody>
</table>

To complete application submission:

a. Send an empty/blank email to DEEP.LWRDRegulatorySubmittals@ct.gov

b. An automated email response will contain instructions for uploading a PDF of the Transmittal Form and applicable Program Forms, management plans, or additional supporting documents of your application to the LWRD File Transfer Protocol (FTP) website.

c. Follow directions contained in the email for uploading the Transmittal and Application Forms.

If there are any questions regarding this notice, please feel free to contact the Central Permit Processing Unit at (860) 424-4004 or DEEP.CentralPermits@ct.gov

If you have specific technical questions regarding your application, please contact the Land and Water Resources Division at 860-424-3019
Please remember to check your security settings to be sure you can receive e-mails from (ct.gov) addresses. Also, please notify the department if your e-mail address changes.

Thank you.

Sincerely,

Central Permit Processing Unit
Coastal General Permit Registration
for 4/40 Dock

APPLICANT:

Patricia Barakett
675 Steamboat Road
Greenwich, CT 06830

January 2021

Prepared By:

RACE
611 Access Road
Stratford, CT06615
Tel: (203) 377-0663
Fax: (203) 375-6561

Project No. 2020119
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<table>
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<th>Description</th>
<th>Form</th>
</tr>
</thead>
<tbody>
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<td></td>
</tr>
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<td></td>
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<td>14</td>
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<td></td>
</tr>
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<td>DEEP-APP-002</td>
</tr>
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<td>5.</td>
<td>42</td>
<td>Applicant Background Information Form</td>
<td>DEEP-APP-008</td>
</tr>
<tr>
<td>6.</td>
<td>43</td>
<td>Other Information</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Historic 1934 Aerial Photograph</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• CT DEEP Permit SD-KM-92-058 dated June 10, 1993</td>
<td></td>
</tr>
</tbody>
</table>
SECTION 1

LWRD License Application Form I
DEEP-LWRD-APP-001I
LWRD License Application Form I

Coastal General Permit Registration for 4/40 Docks and Access Stairs

All sections of the LWRD License Application, when applicable, must be posted to the DEEP LWRD FTP site as instructed on Part VII of the LWRD Transmittal Form. See LWRD Application Instructions for general guidance.

Application Number as assigned in CPPU e-mail: 202100277
Applicant Name (same name used on Part III of the LWRD Transmittal Form): Patricia Barakett

Part I: Pre-Submission Consultations

The application process requires preliminary coordination and input from other agencies/groups depending on the activity and the location. Consultations with other agencies must occur prior to application submission. Please allow 6-8 weeks for the necessary coordination. For this application, the applicant should start with these consultations, as applicable (See Part VI for further guidance).

Attachments:
20 NDDB
21 Wildlife-osprey

Part II: Notifications

If your town has a Harbor Management Commission, submit a copy of this completed application by certified mail to the Commission and submit the certified mail receipt as Attachment 6 following this form.

Part III: Site and Resource Information

1. SITE ADDRESS
   Address of Site: 675 Steamboat Road  City/Town: Greenwich  State: CT  Zip Code: 06830

2. MUNICIPAL ZONING
   Is the proposed work consistent with municipal zoning requirements?
   ☑ Yes  ☐ No  If no, explain: N/A

3. WATERBODY/WATERCOURSES/WETLANDS
   List names of all waters impacted by the proposed activity: Smith Cove - Long Island Sound

4. INDIAN LANDS
   Is the activity that is the subject of this application located on federally recognized Indian lands? ☐ Yes  ☑ No
Part III: Site and Resource Information (continued)

5. AQUIFER PROTECTION AREAS
Is the site located within a mapped Level A or Level B Aquifer Protection Area, as defined in CGS section 22a-354a through 22a-354bb? ☐ Yes ☒ No If yes, check one: ☐ Level A or ☒ Level B

If Level A, are any of the regulated activities, as defined in RCSA section 22a-354i-1(34), conducted on this site? ☐ Yes ☒ No If yes, and your business is not already registered with the Aquifer Protection Program, contact the aquifer protection agent or DEEP to take appropriate action.

For more information on the Aquifer Protection Area Program, contact the program at 860-424-3019 or visit the website at www.ct.gov/deep/aquiferprotection. See LWRD Application Instructions for further guidance.

6. CONSERVATION OR PRESERVATION RESTRICTIONS
Will the activity which is the subject of this application be located within a conservation or preservation restriction area? ☐ Yes ☒ No

If yes, provide proof of written notice of this application to the holder of such restriction, and/or or a letter from the holder of such restriction verifying that this application is in compliance with the terms of the restriction, as Attachment 8.

7. LICENSE HISTORY
Indicate the number and date of issuance of any previous state permits or certificates issued by DEEP or USACE which authorized work at the site, and the names to whom they were issued.

<table>
<thead>
<tr>
<th>License/Permit/COP</th>
<th>Authorization Number and Name of Agency</th>
<th>Date Issued</th>
<th>Name of Permittee/Certificate Holder</th>
<th>Brief Description of Work Authorized</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD-KM-92-058</td>
<td>Henry &amp; Tessa Pascarella</td>
<td>06/10/1993</td>
<td>Floating Dock &amp; Ramp Construction</td>
<td></td>
</tr>
</tbody>
</table>

8. ENFORCEMENT HISTORY
Is this application associated with a formal or informal enforcement action that is pending with DEEP? ☐ Yes ☒ No

If yes, please provide the enforcement action reference number and name of the DEEP staff contact:

- Enforcement Action #: N/A
- DEEP Division/Program: N/A
- DEEP Staff Contact: N/A

If the property was the subject of any historical enforcement actions known to the applicant, explain: No historical enforcement actions are known by the Applicant.

Indicate the landward extent of the State’s regulatory jurisdiction by checking one box:

- ☒ Coastal Jurisdiction Line (CJL) – for CJL information, refer to the Coastal Jurisdiction Fact Sheet and Chart.

- ☐ Mean High Water (MHW) – for projects located upstream of a tide gate, dam or weir (structure must be shown on project plans).

- ☐ Tidal Wetland Boundary – To be used if tidal wetlands are located landward of CJL or MHW. Include one foot above local extreme high water, if applicable.

10. TIDAL ELEVATIONS
Provide site elevations for CJL, MHW, Mean Low Water (MLW) and the High Tide Line (HTL)* in NAVD88. For general elevation reference and conversion, please refer to USACE Tidal Flood Profiles; CO-OPS Map - NOAA Tides & Currents; or, Online VDatum: Vertical Datums Transformation

| CJL = 5.5’ | MHW = +3.4’ | MLW = -3.8’ | HTL = +4.8’ |

*The HTL is necessary for USACE jurisdiction and required as part of the USACE application.
### Part III: Site and Resource Information (continued)

#### 11. Coastal Resource Impact Table

Check the applicable boxes below to identify coastal resources to be impacted by the proposed activity at the project site. Describe the impacts, as applicable. For definitions, refer to the [Connecticut Coastal Management Manual](https://www.coastalmanagement.state.ct.us/).

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>square feet</th>
<th>Describe Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Permanent</td>
<td>Temporary</td>
</tr>
<tr>
<td></td>
<td>impact</td>
<td>impact</td>
</tr>
<tr>
<td><strong>Beaches/Dunes below HTL</strong></td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Tidal Wetlands</strong></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>Nearshore waters</strong></td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

#### Describe Impacts (temporary and permanent)

- **Benthic Habitat**: Impacts to benthic habitat will be limited to pile footprints.
- **Intertidal Flats**: Impacts to the intertidal flats will be limited in nature. The Applicant proposes to construct a timber float stop to prevent the proposed gangway and floating dock structures from resting on the bottom substrate of the existing intertidal flats.
- **Submerged Aquatic Vegetation (SAV)**: N/A
- **Rocky Shorefront**: Include rocky intertidal areas. Impacts to rocky shorefront will be limited to pile footprints.
- **Finfish**: The proposed work will not impact the circulation of tidal waters. Therefore, finfish habitat around and below the proposed structures will be maintained.
- **Wildlife**: The proposed work will not impact the circulation of tidal waters. Therefore, wildlife around and below the proposed structures will be maintained.
- **Shellfish Areas**: Maps available at [The Aquaculture Mapping Atlas](https://www.coastalmanagement.state.ct.us/). A town managed shellfish bed is located just offshore of the project site. A natural bed of soft clams is located approximately 230’ offshore of the project site. The proposed gangway and floating dock system will extend no further than 40’ from the existing stone patio. Therefore, no impacts to shellfish are anticipated.
- **Coastal Hazard Area**: Discuss FEMA compliance. The proposed work will be designed such that there will be no impacts to the Coastal Hazard Area.
- **Bluffs/Escarpments**: Describe impacts associated with flood and erosion control structures. N/A
### Islands
If new access is proposed, describe how island resources will be impacted.
N/A

### Coastal Flooding
Describe how tide gates/fill/seawall height increases will impact flooding.
N/A

### Water Circulation Patterns
Describe impacts from groins/abutments/jetties.
N/A

### Drainage Patterns
Describe impacts from impervious surfaces/outfalls/weep holes and stormwater modifications.
N/A

### Visual Quality
Only applies to public views of statewide scenic significance.
N/A

### Water Quality
Discuss sediment and erosion controls, water handling, and stormwater treatment.
N/A

---

#### Part IV: Project Information

1. **Describe the existing structures, conditions and uses at the site of the proposed work.**
   
   **Provide photographs showing resources and existing site conditions as Attachment 10.**

   675 Steamboat Road is a residential lot along Smith Cove of the Long Island Sound. The site is comprised of a dwelling, driveway, pool and pre-1939, authorized stone seawall. A rocky shorefront exists waterward of the existing seawall. A gangway and floating dock configuration was previously approved to be placed at the site per CT DEEP permit application No. SD-KM-92-058. A gangway and floating dock do not currently exist at the site today. Small patches of salt water tidal vegetation exist along the southern property line.

2. a. **Describe the proposed regulated work and activities in a detailed narrative, including the number and dimensions of structures and the volume and area of fill or excavations.**

   The Applicant proposes to install a float and gangway system to extend no farther than 40 feet from the mean high water line, which is along the existing pre-1939, authorized stone seawall. The configuration will be comprised of a concrete foundation, (1) 3' x 31' (93 SF) gangway, (1) 5' x 6' (30 SF) landing float, (1) timber float frame and (1) 8' x 12' (96 SF) floating dock supported by (4) timber piles. At mean high water, the configuration will extend approximately 40’ from the existing stone patio. The proposed location of the gangway and floating dock is in line with the previously approved CT DEEP permit application No. SD-KM-92-058. The floating dock will be installed on top of a timber float frame to hold the dock at a minimum of 18” above the intertidal substrate during periods of low water.

   b. **Describe the construction activities involved for the project in detail, including methods, sequencing, equipment, and any alternative construction methods that might be employed.**

   The work will be completed using land-based equipment, a barge-based crane for waterside work, and multiple hand tools. The piles will be installed by impact and vibratory pile driving hammers operated from a barge mounted crane. Where site conditions in the field do not allow for pile driving to an adequate depth for pile stability, the piles will be drilled into place. Again, the drilling would be accomplished from a barge.

   The proposed structure will be prefabricated, transported to the site by barge and will be secured in place by laborers using hand tools. Any work done by barge shall be done during periods of adequate high water, as not to disturb adjacent submerged habitats. Best practices to be used to minimize turbidity and impact.

   c. **Describe any erosion and sedimentation or turbidity control installation and maintenance schedule and plans in detail.** Such plans should be prepared in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as revised, established pursuant to CGS section 22a-328.

   Site impact such as increased activity and noise at the site will be temporary, limited to the duration of construction, and minor in nature. It is anticipated that the contractor will work with the tides to minimize...
the project sites exposure to erosion and sedimentation. Pile driving is expected to cause little or no turbidity impacts beyond the immediate pile tip. If increased turbidity is observed from drilling piles beyond 10 feet from the pile, a turbidity curtain will be installed.

d. Anticipated date of project initiation: April 2021
Indicate the length of time needed to complete the project and identify any anticipated time restrictions:
The proposed work will take approximately 3 weeks to complete. There are no time restrictions anticipated.

Part V: General Permit Eligibility
Please confirm dock/access stair eligibility by checking the applicable boxes in the checklist below.

<table>
<thead>
<tr>
<th>Not applicable</th>
<th>Confirm</th>
<th>Eligibility Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>There is no submerged aquatic vegetation in the vicinity of the dock/stair.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The site is a residential property.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The dock/stair is not located in a right-of-way or easement.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The dock/stair is not an obstruction to: navigation; pedestrian access at mean high water; or water access at adjacent parcels.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The dock/stair is the only water access for this site. (It may be reasonable to propose a dock at a site with an existing stair depending on site circumstances – check with LWRD staff for guidance.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The dock, including boat lift, hoist or davits, (tie-off pilings excluded) does not extend past a depth of -4.0’ mean low water or a distance of 40’ from mean high water, whichever is shortest.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Any fixed pier is ≤ 4.0’ wide.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The most waterward float is ≤ 100 s.f. and any ramp landing float is ≤ 30 s.f.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total dock surface area waterward of mean high water is ≤ 220 s.f.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For docks over tidal wetlands, there are no floats over the tidal wetland vegetation and the lowest horizontal member of any fixed pier is ≥ 5.0’ off the substrate.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Site conditions allow for a float ≤ 100 s.f off a bulkhead or seawall with a ramp parallel to the wall and a 40 s.f. platform.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Access stairs are designed such that: no support piles, footing or landings are located over tidal wetlands; orientation is parallel to shore; stair is ≤ 4.0’ wide; landing is ≤ 5.0’ wide; and stair extends ≤ 6.0’ off the toe of any wall.</td>
</tr>
</tbody>
</table>

Part VI: Supporting Documents
The following attachments correspond to Form I. If the Attachment name is followed by “REQUIRED”, the attachment must be submitted with every application. When submitting any supporting documents, please label the documents as indicated in this part (e.g., Attachment 21, etc.) and be sure to include the same applicant name used on Page 1 of this application form. Please check the box next to the attachments listed to indicate that they have been submitted, and provide the applicable attachments following this form. NOTE: Attachment numbering is NOT consecutive as the attachments relate to multiple LWRD program applications.

<table>
<thead>
<tr>
<th>Attachment I.D.</th>
<th>Attachment Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ Attachment 6</td>
<td>Harbor Management Notification</td>
</tr>
<tr>
<td></td>
<td>If your town has a Harbor Management Commission, submit the certified mail receipt as proof that this completed application was sent by certified mail to the Commission.</td>
</tr>
<tr>
<td>☐ Attachment 8</td>
<td>Conservation or Preservation Restriction Information, if applicable.</td>
</tr>
</tbody>
</table>
Attachment 10 Photographs showing existing conditions of the site REQUIRED

Attachment 14 Project Plans, use Project Plan Checklist for requirements REQUIRED

Attachment 20 Natural Diversity Data Base (NDDB)
NDDB Determination #: ______
If the proposed activity is within an NDDB area, complete and submit a Request for NDDB State Listed Species Review Form (DEEP-APP-007) to the address specified on the form, prior to submitting this application. For NDDB maps and more information, visit the DEEP website at www.ct.gov/deep/nddbrequest or call the NDDB staff at 860-424-3011.

Please note NDDB review generally takes 4 to 6 weeks and may require the applicant to produce additional documentation, such as ecological surveys, which must be completed prior to submitting this permit application. A copy of the NDDB Final Determination response letter that has not expired must be submitted as Attachment 20. Include a copy of any mitigation measures or management plan developed for this activity and approved by NDDB. Please DO NOT include a copy of the NDDB Review Request/Application. Be aware that you must renew your NDDB Determination if it expires before project work commences.

Attachment 21 DEEP Wildlife Division – Osprey Consultation
If the proposed activity will occur within 300 feet of an osprey platform, please note that work will be prohibited between May 1st and July 31st unless a DEEP waiver is obtained. If this seasonal prohibition conflicts with the proposed work schedule, please contact the DEEP Wildlife Division’s Wildlife Diversity Program staff at deep.wildlife@ct.gov or 860-424-3011 for technical assistance before submitting your application. If you are seeking a seasonal prohibition waiver, documentation of the waiver issued by Wildlife Diversity Program staff must be submitted as Attachment 21. For known nesting locations, reference the Osprey Map at: https://www.google.com/maps/d/viewer?mid=1GyxnB-UAGxmselecH9j4UdH1ug&usp=sharing or https://www.ctaudubon.org/citizen-science.

Attachment 41 Applicant Compliance Information Form (DEEP-APP-002) REQUIRED

Attachment 42 Applicant Background Information Form (DEEP-APP-008) REQUIRED

Attachment 43 Other Information: Any other applicable information the applicant deems relevant or is required by DEEP.
SECTION 2

Attachment 6

Harbor Management Notification
## Harbor Management Commissions in Connecticut
### April 2019

<table>
<thead>
<tr>
<th>Commission Name</th>
<th>Address</th>
<th>Contact Information</th>
<th>Plan Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridgeport Harbor Commission</td>
<td>c/o Bridgeport Harbor Master</td>
<td>330 Water Street Bridgeport, CT 06604</td>
<td>203-332-5608</td>
</tr>
</tbody>
</table>
|                                                      |                                                                         | booklet cover page 3         | |[

| Five Mile River Commission – Norwalk & Darien        | PO Box 119                                                             | Rowayton, CT 06853           |                                                   |
| Chester Harbor Management Commission                 | Town Hall                                                               | 203 Middlesex Avenue Chester, CT 06412               | 860-526-0013                                      |
|                                                      |                                                                         | booklet cover page 3         | |[

| Greenwich Harbor Management Commission               | Selectmen’s Office                                                      | 101 Field Point Road Greenwich, CT 06836-2540       | 203-622-7710                                      |
| Clinton Harbor Management Commission                 | Town Hall                                                               | 54 East Main Street Clinton, CT 06413                | 860-669-9101                                      |
|                                                      |                                                                         | booklet cover page 3         | |[

| Groton (City) Harbor Management Commission           | City Hall                                                               | 295 Meridian Street Groton, CT 06340                 | 860-446-4103                                      |
| Darien Advisory Commission on Coastal Waters         | Darien Town Hall                                                        | 2 Renshaw Road Darien, CT 06820                      | 203-656-7300                                      |
|                                                      |                                                                         | booklet cover page 3         | |[

| Groton (Town) Harbor Management Commission           | Town Hall                                                               | 45 Fort Hill Road Groton, CT 06340                   | 860-441-6640                                      |
| East Lyme Harbor Management Commission               | Town Hall                                                               | 108 Pennsylvania Avenue Niantic, CT 06357            | 860-739-6931                                      |
|                                                      |                                                                         | booklet cover page 3         | |[

| Guilford Harbor Management Commission                | Town Hall                                                               | 31 Park Street Guilford, CT 06437                    | 203-453-8001                                      |
| Essex Harbor Management Commission                   | Town Hall                                                               | 29 West Avenue P. O. Box 98 Essex, CT 06426          | 860-767-4340                                      |
|                                                      |                                                                         | booklet cover page 3         | |[

| Lyme Planning and Zoning Commission                  | 480 Hamburg Road                                                       | Lyme, CT 06371                                      | 860-434-7733                                      |
| Fenwick, Borough of (Old Saybrook)                   | 580 Maple Avenue                                                       | Old Saybrook, CT 06475                               | 860-388-3499                                      |
| Harbor Management Commission                         |                                                                         | booklet cover page 3         | |[

| Middletown Harbor Improvement Agency                 | City of Middletown                                                      | 245 deKoven Drive Middletown, CT 06457              | 860-344-3400                                      |
|                                                      |                                                                         | booklet cover page 3         | |[

Harbor Management Commissions  4/1/2019
<table>
<thead>
<tr>
<th>Harbor Management Commission</th>
<th>City Hall</th>
<th>110 River Street</th>
<th>Milford, CT 06460</th>
<th>203-783-3210</th>
<th>Milford Harbor Management Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southport Harbor Management Commission (Fairfield)</td>
<td>c/o Department of Public Works</td>
<td>725 Old Post Road</td>
<td>Fairfield, CT 06825</td>
<td>203-256-3010</td>
<td>Southport Harbor Management Plan</td>
</tr>
<tr>
<td>Milford Harbor Management Plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mystic Harbor Management Commission (Stonington)</td>
<td>Town Hall</td>
<td>152 Elm Street</td>
<td>P. O. Box 352</td>
<td>Stonington, CT 06378</td>
<td>860-535-5060</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stamford Harbor Management Commission</td>
<td>City Hall</td>
<td>888 Washington Boulevard</td>
<td>Stamford, CT 06901</td>
<td>203-977-4140</td>
<td>City of Stamford Harbor Management Plan</td>
</tr>
<tr>
<td>Norwalk Harbor Management Commission</td>
<td>City Hall</td>
<td>125 East Avenue</td>
<td>Norwalk, CT 06856-5125</td>
<td>203-854-3200</td>
<td>Norwalk Harbor Management Plan</td>
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<td></td>
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</tr>
<tr>
<td>Waterford Harbor Management Commission</td>
<td>Town Hall</td>
<td>15 Rope Ferry Road</td>
<td>Waterford, CT 06385</td>
<td>860-440-0548</td>
<td>Waterford Harbor Management Plan</td>
</tr>
<tr>
<td>Old Lyme Harbor Management Commission</td>
<td>Town Hall</td>
<td>52 Lyme Street</td>
<td>Old Lyme, CT 06371</td>
<td>860-434-1605</td>
<td>Old Lyme Harbor Management Plan</td>
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</tr>
<tr>
<td>West Haven Harbor Management Commission</td>
<td>City Hall</td>
<td>355 Main Street</td>
<td>West Haven, CT 06516</td>
<td>203-937-3580, ext. 3007</td>
<td>West Haven Harbor Management Plan</td>
</tr>
<tr>
<td>Old Saybrook Harbor Management Commission</td>
<td>Town Hall</td>
<td>302 Main Street</td>
<td>Old Saybrook, CT 06475</td>
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<td>866 Boston Post Road</td>
<td>Westbrook, CT 06498</td>
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<td>Town Hall</td>
<td>152 Elm Street</td>
<td>P. O. Box 352</td>
<td>Stonington, CT 06378</td>
<td>860-535-5060</td>
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<td>505 Silas Deane Highway</td>
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Harbor Management Commissions 4/1/2019
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<td>CT DEEP</td>
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<tr>
<td>Land and Water Resources Division</td>
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<tr>
<td>Planning Section</td>
</tr>
<tr>
<td>79 Elm Street</td>
</tr>
<tr>
<td>Hartford, Connecticut 06106-5127</td>
</tr>
<tr>
<td>Phone: 860-424-3019</td>
</tr>
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</table>
Good Morning Mr. Armstrong,

RACE Coastal Engineering has prepared a CT Department of Energy & Environmental Protection 4/40 Dock Application to construct a float and gangway system at 675 Steamboat Road in Greenwich. The 4/40 Dock Application has been attached for the Greenwich Harbor Management Commission records.

Thank you,

Hailey Simpson
Coastal Engineer
611 Access Road, Stratford, CT 06615
T: 203.377.0663 I M: 585.755.3046
hailey@racecoastal.com
www.racecoastal.com

Winner of 2019 “Excellence in Engineering” and “National Recognition” Awards by ACEC
Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:

bernard.armstrong@att.net (bernard.armstrong@att.net)

Subject: CT DEEP 4/40 Dock Application - 675 Steamboat Rd Greenwich
SECTION 3

Attachment 10
Site Photographs
Site Photographs

Aerial Photograph: Google Earth dated May 31, 2019
Site Photographs: RACE Field Personnel Taken on December 8, 2020

Figure 1: Project Site, Google Earth (05/31/2019)

Figure 2: Proposed Location of Gangway & Floating Dock Structure to Extend from Existing Stone Seawall and Stone Patio, Looking Northwest
Figure 3: Proposed Location of Gangway & Floating Dock Structure to Extend from Existing Stone Seawall and Stone Patio, Looking North

Figure 4: Void in Stone Seawall at Proposed Placement of Gangway & Floating Dock Structure, Looking South
Figure 5: Existing Stone Patio, Looking West

Figure 6: Existing Stone Wall & Gazebo Located South of the Existing Stone Patio, Looking Southwest
Figure 7: Existing Stone Wall, Stone Stairs, Gazebo, Rock Ledge and Beach, Looking East

Figure 8: Existing Stone Seawall Located North of the Existing Stone Patio, Looking Northwest
Figure 9: Existing Stone Seawall, Looking North

Figure 10: Existing Stone Seawall. Proposed Location of Gangway & Floating Dock Structure to Extend from Existing Stone Seawall and Stone Patio (Beyond), Looking South
Figure 11: Existing Gangway and Floating Dock Structures South of the Project Site, Looking South
SECTION 4

Attachment 14
Project Plans
GENERAL NOTES

1. THE PURPOSE OF THESE DRAWINGS ARE FOR REGULATORY REVIEW ONLY.

2. VICINITY MAP TAKEN FROM STAMFORD QUADRANGLE CONNECTICUT - FAIRFIELD COUNTY 7.5-MINUTE SERIES 2018.

3. ELEVATIONS REFERENCE NAVD 88, UNLESS NOTED OTHERWISE.

4. THIS SITE INFORMATION HAS BEEN TAKEN FROM A DRAWING TITLED "EXISTING BUILDING LOCATION SURVEY", PREPARED FOR PATRICIA BARAKETT, BY EARTH IMAGE, DATED 02/04/2020.

5. SUPPLEMENTARY INFORMATION OBTAINED BY RACE COASTAL ENGINEERING, LLC ON 12/08/2020 AND ONLY REPRESENT THE SITE CONDITIONS AT THAT TIME.

6. TIDAL ELEVATION DATA HAS BEEN TAKEN FROM BENCH MARK SHEET FOR MIANUS, CT STA. 8469057 FROM THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION TIDES AND CURRENTS WEBSITE.

PROJECT TIDAL ELEVATIONS:

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EXISTING SECTION A-A

- PRE-1939, AUTHORIZED STONE SEAWALL WITH CONCRETE CAP
- STONE PATIO
- RAILING (TYP.)
- TOP OF PATIO EL. 8.4'±
- TOP OF WALL EL. 6.0'±
- GRADE (VARIES)
- B.O.W. EL. -2.1'±
- MLW EL. -3.8'
- C.L. EL. +5.5'
- HTL EL. +4.8'
- MHW EL. +3.4'

PROPOSED SECTION A-A

- RAILING TO BE REMOVED
- CONCRETE FOUNDATION
- STONE PATIO
- 31' LONG X 3' WIDE GANGWAY
- 8' X 12' FLOATING DOCK
- 5' X 6' LANDING FLOAT
- B.O.W. EL. -2.1'±
- TIMBER FLOAT FRAME & FLOAT STOPS (TYP.)
- GRADE (VARIES)
- MLW EL. -3.8'
- C.L. EL. +5.5'
- HTL EL. +4.8'
- MHW EL. +3.4'

Prepared For: PATRICIA BARAKETT
39 BARROW STREET
NEW YORK, NY 10014

Project: PROPOSED DOCK STRUCTURES
675 STEAMBOAT ROAD
GREENWICH, CT 06830

Seal: [Seal Image]

Patricia Baraket
Stratford, CT 06615
Tel: 203-377-0663 racecoastal.com

ALL RIGHTS RESERVED. ©2020 RACE COASTAL ENGINEERING, LLC.
NOT FOR CONSTRUCTION FOR REGULATORY REVIEW ONLY
NOT VALID WITHOUT ENGINEER'S SEAL
ADS 12-16-2020
HNS 611 Access Road Stratford, CT 06615
Tel: 203-377-0663 racecoastal.com

6 of 6
SECTION 5

Attachment 41
Applicant Compliance Information Form
DEEP-APP-002
Applicant Name: Patricia Barakett
Mailing Address: 39 Barrow Street
City/Town: New York State: NY Zip Code: 10014
Business Phone: ext.: Contact Person: Patricia Barakett Phone: ext.
*E-mail: barakett@gmail.com

If you answer yes to any of the questions below, you must complete the Table of Enforcement Actions on the reverse side of this sheet as directed in the instructions for your permit application.

A. During the five years immediately preceding submission of this application, has the applicant been convicted in any jurisdiction of a criminal violation of any environmental law?
   ☐ Yes ☒ No

B. During the five years immediately preceding submission of this application, has a civil penalty been imposed upon the applicant in any state, including Connecticut, or federal judicial proceeding for any violation of an environmental law?
   ☐ Yes ☒ No

C. During the five years immediately preceding submission of this application, has a civil penalty exceeding five thousand dollars been imposed on the applicant in any state, including Connecticut, or federal administrative proceeding for any violation of an environmental law?
   ☐ Yes ☒ No

D. During the five years immediately preceding submission of this application, has any state, including Connecticut, or federal court issued any order or entered any judgement to the applicant concerning a violation of any environmental law?
   ☐ Yes ☒ No

E. During the five years immediately preceding submission of this application, has any state, including Connecticut, or federal administrative agency issued any order to the applicant concerning a violation of any environmental law?
   ☐ Yes ☒ No
## Table of Enforcement Actions

<table>
<thead>
<tr>
<th>(1) Type of Action</th>
<th>(2a) Date Commenced</th>
<th>(2b) Date Terminated</th>
<th>(3) Jurisdiction</th>
<th>(4) Case/Docket/Order No.</th>
<th>(5) Description of Violation</th>
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☐ Check the box if additional sheets are attached. Copies of this form may be duplicated for additional space.
SECTION 6
Attachment 42
Applicant Background Information Form
DEEP-APP-008
Check the box by the entity which best describes the applicant and complete the requested information. **You must choose one of the following:** corporation, limited liability company, limited partnership, general partnership, voluntary association and individual or business type. Be sure to include the signatory authority or authorized representative certifying the application.

<table>
<thead>
<tr>
<th>Corporation</th>
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<tbody>
<tr>
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<tr>
<td>☐ Check the box if additional sheets are necessary. If so, label and attach additional sheet(s) to this sheet with the required information.</td>
</tr>
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1. Parent Corporation
   - Name:
   - Mailing Address:
     - City/Town: State: Zip Code: 
     - Business Phone: ext.: 
     - Contact Person: Phone: ext. 
     - E-mail:

2. Subsidiary Corporation:
   - Name:
   - Mailing Address:
     - City/Town: State: Zip Code: 
     - Business Phone: ext.: 
     - Contact Person: Phone: ext. 
     - E-mail:

3. Directors:
   - Name:
   - Mailing Address:
     - City/Town: State: Zip Code: 
     - Business Phone: ext.: 
     - E-mail:

4. Officers:
   - Name:
   - Mailing Address:
     - City/Town: State: Zip Code: 
     - Business Phone: ext.: 
     - E-mail:
**Applicant Background Information (continued)**

- **Limited Liability Company**
  - Check the box if additional sheets are necessary. If so, label and attach additional sheet(s) to this sheet with the required information.

1. List each member:

   Name:
   Mailing Address:
   City/Town: State: Zip Code: Business Phone: ext.: E-mail:

   Name:
   Mailing Address:
   City/Town: State: Zip Code: Business Phone: ext.: E-mail:

   Name:
   Mailing Address:
   City/Town: State: Zip Code: Business Phone: ext.: E-mail:

2. List any manager(s) who, through the articles of organization, are vested the management of the business, property and affairs of the limited liability company.

   Name:
   Mailing Address:
   City/Town: State: Zip Code: Business Phone: ext.: E-mail:

   Name:
   Mailing Address:
   City/Town: State: Zip Code: Business Phone: ext.: E-mail:

   Name:
   Mailing Address:
   City/Town: State: Zip Code: Business Phone: ext.: E-mail:

   Name:
   Mailing Address:
   City/Town: State: Zip Code: Business Phone: ext.: E-mail:
Applicant Background Information (continued)

**Limited Partnership**

Check the box if additional sheets are necessary. If so, label and attach additional sheet(s) to this sheet with the required information.

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### Applicant Background Information (continued)

**General Partnership**

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Applicant Background Information (continued)

☐ Voluntary Association

☐ Check box if additional sheets are necessary. If so, label and attach additional sheet(s) to this sheet with the required information.

1. List authorized persons of association or list all members of association.

   Name:
   Mailing Address:
   City/Town:  State:  Zip Code:
   Business Phone:  ext.:
   E-mail:

   Name:
   Mailing Address:
   City/Town:  State:  Zip Code:
   Business Phone:  ext.:
   E-mail:

   Name:
   Mailing Address:
   City/Town:  State:  Zip Code:
   Business Phone:  ext.:
   E-mail:

   Name:
   Mailing Address:
   City/Town:  State:  Zip Code:
   Business Phone:  ext.:
   E-mail:

   Name:
   Mailing Address:
   City/Town:  State:  Zip Code:
   Business Phone:  ext.:
   E-mail:

☐ Individual or Other Business Type

☐ Check the box, if additional sheets are necessary. If so, label and attach additional sheet(s) to this sheet with the required information.

1. Name: Patricia Barakett
   Mailing Address: 39 Barrow Street
   City/Town: New York  State: NY  Zip Code: 10014
   Business Phone:  ext.:
   E-mail: barakett@gmail.com

2. State other names by which the applicant is known, including business names.
   Name:
SECTION 7

Attachment 43
Other Information

• Historic 1934 Aerial Photograph
• CT DEEP Permit SD-KM-92-058 dated June 10, 1993
Historic 1934 Aerial Photograph

Figure 1: Historic 1934 Aerial Photograph, Project Site Shown in Red Circle
CERTIFIED MAIL
RETURN RECEIPT REQUESTED

June 10, 1993

Mr. & Mrs. Henry Pascarella
675 Steamboat Road
Greenwich, CT 06830

SUBJECT:  PERMIT NO. SD-KM-92-058
Mr. & Mrs. Henry W. Pascarella
Town of Greenwich

Dear Mr. & Mrs. Pascarella:

Enclosed is the signed permit which constitutes the approval of your application to conduct regulated activities. Your attention is directed to the conditions of the enclosed permit. Construction or work must conform to that which is authorized.

If you have not already done so, you should contact your local Planning and Zoning Office and the U.S. Army Corps of Engineers to determine local and federal permit requirements on your project, if any. Write the Corps' New England Division, Regulatory Branch, 424 Trapelo Road, Waltham, Massachusetts 02254; or, call (617) 647-8332.

If you have any questions concerning your permit, please contact staff of the Permit section at 566-4202.

Sincerely,

Arthur J. Rocque, Jr.
Assistant Commissioner

AJR/jan
encl.

Sent Certified Mail, Return Receipt Requested to: Commissioner of Transportation; Adjacent Property Owners; All Parties; the Mayor, First Selectman or Town Manager; Shellfish Commission; the Planning and Zoning Commissions; and the Harbor Management Commission.

Copies Furnished to:

Conservation Commission
U.S. Army Corps of Engineers
U.S. Fish & Wildlife Service
NMFS/Habitat Protection

Fred Banach, DEP/Water Mgt. Bureau
DEP/Wildlife Division
DOT/Bureau of Aeronautics and Ports
Dept. of Agriculture
Aquaculture Division

Phone: (203) 566-7404  Fax No. 566-5488
(Printed on Recycled Paper)
165 Capitol Avenue • Hartford, CT 06106
An Equal Opportunity Employer
STATE OF CONNECTICUT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  

PERMIT  

Permit No.: SD-KM-92-058  
Town: Greenwich  

Permit Site: Smith Cove off property located at 675 Steamboat Road  
Permittee: Mr. Henry and Mrs. Tessa Pascarella  

Pursuant to sections 22a-98 and 22a-361 of the General Statutes, the Commissioner of Environmental Protection (Commissioner) has considered your application SD-KM-92-058 to conduct regulated activities in tidal, coastal or navigable waters of the state in Smith Cove off property located at 675 Steamboat Road. In accordance with section 22a-98 and sections 22a-359 to 22a-363f of the General Statutes, and the Connecticut Water Quality Standards dated January 1992, a permit is hereby granted to construct a ramp and float for private residential use and is more specifically described below in the SCOPE OF AUTHORIZATION.

FAILURE TO CONFORM TO THE TERMS AND CONDITIONS OF THIS PERMIT MAY SUBJECT THE PERMITTEE TO ENFORCEMENT ACTIONS, INCLUDING PENALTIES, AS PROVIDED BY LAW.

SCOPE OF AUTHORIZATION

A. You are hereby authorized to conduct the following work as shown on plans, submitted by the permittee to the Commissioner and attached hereto, dated 6/4/92 and revised 9/1/92, entitled "Proposed Construction of Ramp and Float" prepared by Ocean and Coastal Consultants, Inc; and as described in application materials originally received on July 23, 1992 and revised through October 21, 1992:

- Install a 32' x 24" aluminum ramp extending from an existing seawall to a 10' x 12' floating dock.

B. The permittee may, consistent with all terms and conditions of this permit, conduct routine maintenance as defined in section 22a-363a of the General Statutes to the structures authorized hereunder.

UPON INITIATION OF ANY WORK AUTHORIZED HEREIN, THE PERMITTEE ACCEPTS AND AGREES TO COMPLY WITH ALL TERMS AND CONDITIONS OF THIS PERMIT.

GENERAL TERMS AND CONDITIONS

1. All work authorized by this permit shall be completed within three years from date of issuance of this permit, except that maintenance activities specified in the SCOPE OF AUTHORIZATION may be conducted at any time, in accordance with all applicable conditions.
a. The permittee may request a one year extension of the work completion date specified above. Such request shall be in writing and shall be submitted to the Commissioner at least 30 days prior to said work completion date. Such request shall describe the work done to date, what work still needs to be completed and the reason for such extension. Such request shall be subject to the Commissioner's sole discretion.

b. Any work authorized hereunder, other than authorized or routine maintenance, conducted after said work completion date or any authorized one year extension thereof is a violation of this permit and may subject the permittee to enforcement action, including penalties, as provided by law.

2. All work authorized hereunder shall be undertaken in accordance with the plans identified in the **SCOPE OF AUTHORIZATION** and no change from such plans shall be implemented without the prior written approval of the Commissioner.

3. The permittee shall, consistent with the **SCOPE OF AUTHORIZATION**, maintain all structures or work authorized hereunder in good condition.

4. Prior to the commencement of any work authorized hereunder, the permittee shall cause a copy of this permit to be given to any contractor(s) employed to conduct such work. The permittee shall have, on the work site and available for inspection whenever work is being performed, a copy of this permit and the final plans for the work authorized hereunder.

5. Not later than two weeks prior to the commencement of any work authorized hereunder, the permittee shall submit to the Commissioner, on the form attached hereto as Appendix A, the name(s) and address(es) of any contractor(s) employed to conduct such work and the expected date for commencement and completion of such work.

6. The permittee shall notify the Commissioner in writing of the commencement of any work and completion of all work authorized hereunder no later than three days prior to the commencement of such work and no later than seven days after the completion of such work.

7. On or before (a) 90 days after completion of the work authorized hereunder, or (b) upon expiration of the work completion date identified in paragraph 1 of the **GENERAL TERMS AND CONDITIONS** or any authorized one year extension thereof, whichever is earlier, the permittee shall submit to the Commissioner "as built" plans of the permit site showing all contours, bathymetries, tidal datums and structures.

8. In undertaking the work authorized hereunder, the permittee/Certificate Holder shall not cause or allow pollution of wetlands or watercourses, including pollution resulting from sedimentation and erosion. For purposes of this permit/certificate, "pollution" means "pollution" as defined by section 22a-423 of the General Statutes.

9. Upon completion of any work authorized hereunder, the permittee shall restore all areas impacted by construction, or used as a staging area or accessway in connection with such work, to their condition prior to the commencement of such work.
10. Any document required to be submitted to the Commissioner under this permit or any contact required to be made with the Commissioner shall, unless otherwise specified in writing by the Commissioner, be directed to:

    Permit Section  
    Office of Long Island Sound Programs  
    Department of Environmental Protection  
    79 Elm Street  
    Hartford, Connecticut 06106  
    (203) 566-3740 
    Fax # (203) 566-5488

11. The date of submission to the Commissioner of any document required by this permit shall be the date such document is received by the Commissioner. The date of any notice by the Commissioner under this permit, including but not limited to notice of approval or disapproval of any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the Commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" as used in this permit means calendar day. Any document or action which is required by this permit to be submitted or performed by a date which falls on a Saturday, Sunday or a Connecticut or federal holiday shall be submitted or performed on or before the next day which is not a Saturday, Sunday, or a Connecticut or federal holiday.

12. Prior to the abandonment of any work authorized hereunder, the permittee shall notify the Commissioner in writing of the intent to abandon. If ordered by the Commissioner, the permittee shall remove any remaining structures or facilities and restore the permit site to the specifications of the Commissioner.

13. a. No change in the purpose or use of the authorized work or facilities as set forth in this permit may occur without the prior written authorization of the Commissioner. The permittee shall, prior to undertaking or allowing any change in use or purpose from that which is authorized by this permit, request authorization from the Commissioner for such change. Said request shall be in writing and shall describe the proposed change and the reason for the change. Except as authorized by this permit, any change in the use or purpose of a regulated structure, facility, filled area or dredged basin, without prior written authorization of the Commissioner shall constitute a violation of this permit and of sections 22a-361 of the General Statutes, and may subject the permittee to all applicable enforcement actions.

b. The permittee shall submit an application pursuant to sections 22a-361 of the General Statutes when the proposed changes in use or purpose may diminish or adversely affect water-dependent uses as defined by section 22a-93(16) of the General Statutes. Such application shall be processed in accordance with the applicable provisions of the General Statutes in effect at the time of review.

14. This permit may be revoked, suspended, or modified in accordance with applicable law.

15. This permit is not transferable without prior written authorization of the Commissioner. A request to transfer a permit shall be submitted in writing and shall describe the proposed transfer and the reason for such transfer. Until such time as a transfer is
authorized by the Commissioner, the permittee shall remain responsible and shall retain all liabilities associated with this permit. Nothing in this condition shall be construed as limiting the liability of any other person.

16. The permittee shall allow representatives of the Commissioner to inspect the work authorized hereunder at reasonable times to ensure that it is being or has been accomplished in accordance with the terms and conditions of this permit.

17. In granting this permit, the Commissioner has relied on all representations of the permittee, including information and data provided in support of the permittee's application and those representations as to the structural integrity of the design of any structures authorized hereunder and the issuance of this permit shall not be construed to constitute an assurance or assumption of liability by the Commissioner as to the structural integrity, the engineering feasibility or the efficacy of the design authorized hereunder.

18. In the event that the permittee becomes aware that he did not or may not comply, or did not or may not comply on time, with any provision of this permit or of any document required hereunder, the permittee shall immediately notify the Commissioner and shall take all reasonable steps to ensure that any noncompliance or delay is avoided or, if unavoidable, is minimized to the greatest extent possible. In so notifying the Commissioner, the permittee shall state in writing the reasons for the noncompliance or delay and propose, for the review and written approval of the Commissioner, dates by which compliance will be achieved, and the permittee shall comply with any dates which may be approved in writing by the Commissioner. Notification by the permittee shall not excuse noncompliance or delay and the Commissioner's approval of any compliance dates proposed shall not excuse noncompliance or delay unless specifically stated by the Commissioner in writing.

19. In evaluating the application for this permit the Commissioner has relied on information and data provided by the permittee and on the permittee's representations concerning site conditions, design specifications and the proposed purpose and use of the proposed work, including but not limited to the commercial, public or private nature of the facility/structure, the water-dependency of the proposed regulated activities, its availability to the general public, and the ownership of regulated structures or filled areas. If such information proves to be false, deceptive, incomplete or inaccurate, this permit may be modified, suspended or revoked, and any unauthorized activities may be subject to enforcement action.

20. Any dredging or the placement of any structures, fill, obstructions, encroachments, or any work incidental thereto, waterward of the high tide line as defined by section 22a-359 of the General Statutes, or regulated activities as defined in section 22a-29(3) of the General Statutes conducted upon any tidal wetlands, which are not specifically identified and authorized herein at this permit site, shall constitute a violation of this permit and may result in its modification, suspension or revocation, and shall also constitute a violation of state law which may subject the permittee to an injunction and penalties under Chapters 439, 440 and 446i of the General Statutes.

21. The issuance of this permit does not relieve the permittee of his obligations to obtain any other approvals required by applicable federal, state and local law.
22. Any document, including but not limited to any notice, which is required to be submitted to the Commissioner under this permit shall be signed by the permittee and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows: "I have personally examined and am familiar with the information submitted in this document and all attachments and certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief, and I understand that any false statement made in this document or its attachments may be punishable as a criminal offense."

23. This permit is subject to and does not derogate any present or future property rights or powers of the state of Connecticut, and conveys no property rights in real estate or material nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state or local laws or regulations pertinent to the property or activity affected hereby.
*****NOTICE TO CONTRACTORS*****

FAILURE TO CONFORM TO THE TERMS AND CONDITIONS OF THIS PERMIT MAY SUBJECT THE PERMITTEE TO ENFORCEMENT ACTION FOR NONCOMPLIANCE WITH THIS PERMIT AND SECTION 22a-361 OF THE GENERAL STATUTES AND MAY SUBJECT THE CONTRACTOR TO ENFORCEMENT ACTION FOR VIOLATION OF SECTION 22a-361. ENFORCEMENT ACTION MAY INCLUDE PENALTIES AND INJUNCTIONS, AS PROVIDED BY LAW.

Issued on  June 7, 1993.

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Robert E. Moore
Deputy Commissioner

Permit Application No. SD-KM-92-058
Mr. Henry and Mrs. Tessa Pascarella   Certified Mail #
OFFICE OF LONG ISLAND SOUND PROGRAMS

APPENDIX A

TO: Permit Section
    Department of Environmental Protection
    Office of Long Island Sound Programs
    165 Capitol Avenue
    Hartford, CT 06106

PERMITTEE: Mr. Henry and Mrs. Tessa Pascarella
           675 Steamboat Road
           Greenwich, CT 06830

PERMIT NO: SD-KM-92-058

CONTRACTOR 1: ________________________________
               Address: ________________________________
               ________________________________
               Telephone #: ________________________________

CONTRACTOR 2: ________________________________
               Address: ________________________________
               ________________________________
               Telephone #: ________________________________

CONTRACTOR 3: ________________________________
               Address: ________________________________
               ________________________________
               Telephone #: ________________________________

EXPECTED DATE OF COMMENCEMENT OF WORK: ________________

EXPECTED DATE OF COMPLETION OF WORK: ________________

PERMITTEE: ________________________________
            (signature) ________________________________
            (date)
VICINITY MAP

Purpose: To construct a ramp and floating dock

Date: N.G.V.D.
Adjacent property owners
1. McNitt
2. Gray

Agent: Ocean and Coastal Consultants, Inc.

Proposed construction of ramp and float
Smith Cove
Town of Greenwich
County of Fairfield
State of Connecticut
Application by: Henry W. Pascarella

Sheet 1 of 5
Date: 6-4-92
EXISTING SITE PLAN

NOTE:
Existing Upland Site Information Taken From Map
Entitled "Property Of Henry W. Pascarella
Greenwich, Connecticut". Prepared By S.E. Minor
And Co., Inc. Civil Engineers, Dated July 25, 1979.

PURPOSE: TO CONSTRUCT A RAMP AND FLOATING DOCK

DATUM: N.G.V.D.
ADJACENT PROPERTY OWNERS
1. McEIII
2. Gray
AGENT: OCEAN AND COASTAL CONSULTANTS, INC.

PROPOSED CONSTRUCTION OF RAMP AND FLOAT
SMITH COVE
TOWN OF GREENWICH
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: HENRY W. PASCARELLA

SHEET 2 OF 5
DATE: 6-4-92
PROPOSED PLAN

PURPOSE: TO CONSTRUCT A RAMP AND FLOATING DOCK

DATUM: N.G.V.D.
ADJACENT PROPERTY OWNERS
1. McNett
2. Gray
AGENT: OCEAN AND COASTAL CONSULTANTS, INC.

PROPOSED CONSTRUCTION OF RAMP AND FLOAT
SMITH COVE
TOWN OF GREENWICH
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: HENRY W. PASCARELLA

SHEET 3 OF 5
DATE: 6-4-92
EXISTING SECTION A

PURPOSE: TO CONSTRUCT A RAMP AND FLOATING DOCK

DATUM: N.G.V.D.
ADJACENT PROPERTY OWNERS
1. McGhee
2. Gray
AGENT: OCEAN AND COASTAL CONSULTANTS, INC.

PROPOSED CONSTRUCTION OF RAMP AND FLOAT
SMITH COVE
TOWN OF GREENWICH
COUNTY OF FAIRFIELD
STATE OF CONNECTICUT
APPLICATION BY: HENRY W. PASCARELLA

SHEET 4 OF 5
DATE: 6-4-92

9229-2
Rev. 9-1-92
Engineer of Record Certification

Project Name: BARAKET RESIDENCE

Project Address: 675 STEAMBOAT ROAD

Engineer's Name: THOMAS NELSON, P.E.

Engineering Firm's Name: McCORD ENGINEERING ASSOC. INC.

Street Address: 1670 MUNICIPAL PLaza City: WESTON State: CT Zip: 06897

Phone: 203-834-0569 Fax: - Email: TNELSON@MCCORDENG.COM

The undersigned Registered Professional Engineer of Record certifies that the Stormwater Management Report and Plans submitted herewith entitled:

CONSTRUCTION SITE PLAN REVIEW SET

STORMWATER MANAGEMENT REPORT

Stormwater Management Report Last Revision Date: 1-18-21

Number of Plan Sheets: 8 (incl. cover) Last Revision Date: 1-15-21


Engineer's Signature: __________________________ Date: 1-18-21

[Stamp: STATE OF CONNECTICUT PROFESSIONAL ENGINEER]

Engineer's Seal

Form SC-100 February 2014
**IMPERVIOUS AREA WORKSHEET**

This worksheet shall be used to quantify impervious surfaces\(^1\) associated with existing and proposed construction on your site. Please complete columns 1, 2, and 3 below listing the first floor or ground level square footage of each existing or proposed structure or site amenity. Each point of concern shall use a separate worksheet.

<table>
<thead>
<tr>
<th>POINT OF CONCERN</th>
<th>(1) Existing Conditions Impervious Surfaces (sq ft)</th>
<th>(2) Proposed Conditions Impervious Surfaces (sq ft)</th>
<th>(3) Proposed New Impervious Surfaces (sq ft) [Column 2 minus column 1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>House/Buildings</td>
<td>9,124</td>
<td>4,678</td>
<td>554</td>
</tr>
<tr>
<td>Driveways</td>
<td>5,056</td>
<td>5,644</td>
<td>588</td>
</tr>
<tr>
<td>Sidewalks/Paths</td>
<td>141</td>
<td>580</td>
<td>419</td>
</tr>
<tr>
<td>Swimming Pool</td>
<td>0</td>
<td>966</td>
<td>966</td>
</tr>
<tr>
<td>Patios</td>
<td>1,630</td>
<td>1,430</td>
<td>-200</td>
</tr>
<tr>
<td>Tennis Court/Sport Court</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTALS:</td>
<td>10,951</td>
<td>13,278</td>
<td>2,327</td>
</tr>
</tbody>
</table>

\(^1\) Refer to the glossary in the Town of Greenwich Drainage Manual for a definition of “impervious surface.”
**DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA) CERTIFICATION**

**PRE-CONSTRUCTION**

Property Address: **675 STEAMBOAT ROAD**

Tax Account No.: 

Building Permit No.: 

**PLANS & DRAINAGE SUMMARY REPORT INFORMATION**

Engineering Firm: **McHale Environmental Inc.**

Design Plans Date: **1-15-21**

Drainage Report Date: **1-18-21**

**PROPERTY INFORMATION FOR DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Area (SF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Property Area</td>
<td>27,067</td>
</tr>
<tr>
<td>Total Proposed Site Disturbance Area (SF)</td>
<td>23,728</td>
</tr>
<tr>
<td>Total Impervious Area Under Existing Conditions (SF)</td>
<td>10,951</td>
</tr>
<tr>
<td>Total Impervious Area Under Proposed Conditions (SF)</td>
<td>13,278</td>
</tr>
<tr>
<td>Total Disconnected Impervious Area Under Proposed Conditions (SF)</td>
<td>12,212</td>
</tr>
<tr>
<td>Total Directly Connected Impervious Area Under Proposed Conditions (SF)</td>
<td>1,066</td>
</tr>
</tbody>
</table>

1 The entire property area (i.e. parcel/lot area) based on property address and tax account number.

2 The entire area being disturbed for the proposed construction activity (foundations, buildings, houses, stormwater systems, septic systems, pools, patios, accessory structures, vegetative soil cover modifications, etc.). The project disturbance area (delineated with construction/silt fence) shall be depicted on the design, construction, and mitigation plans, and shall be installed on-site prior to commencing land disturbance activities.

3 Impervious surfaces include but are not limited to roofs (including green roofs), buildings, houses, walks, patios, walls, tennis/sport courts (all surface types must be counted), landscape ponds, pools, paved streets/drives/parking areas constructed with concrete, asphalt, compacted dirt, gravel, or permeable pavements.

4 All impervious surfaces that are directed to stormwater BMPs that meet the water quality volume (WQV) standard will be considered disconnected impervious cover. Acceptable stormwater BMPs are Bioretention (infiltrating/filtering), Constructed Stormwater Wetlands, Extended Dry Detention Basins (infiltration required), Gravel Wetlands, Constructed Wet Stormwater Ponds, Sand/Organic Filters (sand filters, tree filters, stormwater planters, etc.), Infiltration Systems (drywells, Culverts, etc.), Permeable Pavement Areas (infiltrating/filtering), Green Roofs, and Disconnected Impervious Area (must meet all the standards under Simple Disconnection on page 44 and 45 of the Drainage Manual).

5 Subtract the Total Disconnected Impervious Area Under Proposed Conditions (SF) from the Total Impervious Area Under Proposed Conditions (SF).

Engineer's Signature: 

Date: **1-18-21**

[Engineer's Seal]

Form SC-107

June 2019
FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

CLOMR-F APPLICATION

APPLICANT:

Patricia Barakett
675 Steamboat Road
Greenwich, CT 06830

December 2020

Prepared By:

RACE
COASTAL ENGINEERING
611 Access Road
Stratford, CT 06615
Tel: (203) 377-0663
Fax: (203) 375-6561

Project No. 2020113
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<th>Description</th>
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<tr>
<td>2.</td>
<td>Property Deed &amp; Tax Assessor’s Map</td>
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<tr>
<td>3.</td>
<td>MT-1 Form 2 – Elevation Form</td>
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<td>4.</td>
<td>MT-1 Form 3 – Community Acknowledgement Form</td>
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<td>5.</td>
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<td>6.</td>
<td>Metes and Bounds Drawing</td>
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Section 1

Effective FIRM
Section 2

Property Deed & Tax Assessor’s Map
STATUTORY TRUSTEE'S DEED

HENRY W. PASCARELLA, TRUSTEE of the PASCARELLA QUALIFIED PERSONAL RESIDENCE TRUST Created by Tessa P. Pascarella under Agreement dated December 17, 1999, having an address of 675 Steamboat Road, Greenwich, Connecticut 06830 (hereinafter referred to as the Grantor), duly qualified as Trustee, for consideration paid, grant to PATRICIA GILLEGOS BARAKETT, of 39 Barrow Street, New York, New York, 10014 (hereinafter referred to as the Grantee), with TRUSTEE'S COVENANTS all of Grantor's interest in and to certain real property known as 675 STEAMBOAT ROAD, GREENWICH, CONNECTICUT, more particularly described below:

ALL THAT CERTAIN tract, piece or parcel of land, together with the buildings and improvements thereon, located on the easterly side of Steamboat Road, in the Town of Greenwich, County of Fairfield and State of Connecticut, which said tract is more particularly described as follows:

BEGINNING at the point formed by the intersection of the division line between the herein described land and land now or formerly of James D. McNitt and Helen L. McNitt with the easterly line of Steamboat Road, and running thence northerly along the easterly line of Steamboat Road North 14° 15' East 11.55 feet and North 13° 46' East 164.4 feet; thence along land now or formerly of Lucile R. Gray South 77° 07' 30" East about 144.9 feet to the waters of Indian Harbor; thence southerly, easterly, again southerly, westerly and again southerly along the Mean High Water Line of Indian Harbor about 251 feet; and thence along land now or formerly of said McNitt North 75° 17' West 151.7 feet to the point of beginning.

THE GENERAL BOUNDARIES of the above-described tract of land are northerly by land now or formerly of Gray and the Mean High Water Line of Indian Harbor, easterly by the Mean High Water Line of Indian Harbor, southerly by the Mean High Water Line of Indian Harbor and land now or formerly of McNitt, and westerly by Steamboat Road.

TOGETHER WITH all right, title and interest in and to the highway, Steamboat Road, in front of and adjoining said premises to the center line thereof, and all riparian rights and all other rights, title and interest in and to the land or lands under water adjoining said above described premises.

SAID premises are conveyed subject to the following:

1. Any restrictions, regulations, ordinances, laws and/or limitations imposed or to be imposed by governmental authority, including, but not limited to, all building lines, building, zoning and planning rules and regulations of the City or Town, and region or district, if any, in which the Premises are situated.

2. Taxes of the City or Town in which the Premises are situated which become due and payable after the date of the delivery of the deed, which taxes the Buyer will assume and agree to pay as part of the consideration for the deed.
3. The effect of the fact that the Premises are located in an area which qualifies them for governmental subsidized insurance under the National Flood Insurance Act of 1968, or any acts amendatory thereof.

4. The effect of the Connecticut Coastal Management Act and the Town of Greenwich Coastal Overlay Zone regulations.

5. Any state of facts which might be disclosed by an accurate survey or personal inspection of the Premises.

IN WITNESS WHEREOF, the Grantor has hereunto caused to be set this 15th day of October, 2020.

Signed, Sealed and Delivered in the Presence Of:

Lorraine B. Pace

Henry W. Pascarella, Trustee

By Aldo Pascarella, his Attorney-in-Fact
Pursuant to a Power of Attorney dated 2/9/2020

STATE OF CONNECTICUT
ss: Greenwich
COUNTY OF FAIRFIELD

On the 15th day of October, 2020, before me, the undersigned, personally appeared Aldo Pascarella, personally known to me to be the individual whose name is subscribed to the within instrument and acknowledged before me that he executed the same as his free act and deed, that he has proper authority to execute same in his capacity therein stated, and that his signature on the instrument evidences the free act and deed of Henry W. Pascarella, Trustee as aforesaid.

Lorraine B. Pace, Notary Public
My Commission Expires: 1/31/2023
Section 3

MT-1 Form 2 – Elevation Form
DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY
ELEVATION FORM

O.M.B. NO. 1660-0015
Expires February 28, 2014

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this data collection is estimated to average 1.25 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and submitting the form. This collection is required to obtain or retain benefits. You are not required to respond to this collection of information unless a valid OMB control number is displayed on this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington, VA 20598-3005, Paperwork Reduction Project (1660-0015). NOTE: Do not send your completed form to this address.

This form must be completed for requests and must be completed and signed by a registered professional engineer or licensed land surveyor. A DHS - FEMA National Flood Insurance Program (NFIP) Elevation Certificate may be submitted in lieu of this form for single structure requests.

For requests to remove a structure on natural grade OR on engineered fill from the Special Flood Hazard Area (SFHA), submit the lowest adjacent grade (the lowest ground touching the structure), including an attached deck or garage. For requests to remove an entire parcel of land from the SFHA, provide the lowest lot elevation; or, if the request involves an area described by metes and bounds, provide the lowest elevation within the metes and bounds description. All measurements are to be rounded to nearest tenth of a foot. In order to process your request, all information on this form must be completed in its entirety. Incomplete submissions will result in processing delays.

1. NFIP Community Number: 090008 Property Name or Address: 675 Steamboat Road, Greenwich, CT 06830

2. Are the elevations listed below based on □ existing or □ proposed conditions? (Check one)

3. For the existing or proposed structures listed below, what are the types of construction? (check all that apply)
   □ crawl space □ slab on grade □ basement/enclosure □ other (explain)

4. Has DHS - FEMA identified this area as subject to land subsidence or uplift? (see instructions) □ Yes □ No
   If yes, what is the date of the current re-leveling? / (month/year)

5. What is the elevation datum? □ NGVD 29 □ NAVD 88 □ Other (explain)
   Local Elevation +/- ft. = FIRM Datum
   If any of the elevations listed below were computed using a datum different than the datum used for the effective Flood Insurance Rate Map (FIRM) (e.g., NGVD 29 or NAVD 88), what was the conversion factor?

6. Please provide the Latitude and Longitude of the most upstream edge of the structure (in decimal degrees to the nearest fifth decimal place):
   Indicate Datum: □ WGS84 □ NAD83 □ NAD27 Lat. 41.01323 Long. -73.62165
   Please provide the Latitude and Longitude of the most upstream edge of the property (in decimal degrees to the nearest fifth decimal place):
   Indicate Datum: □ WGS84 □ NAD83 □ NAD27 Lat. 41.01329 Long. -73.62152

<table>
<thead>
<tr>
<th>Address</th>
<th>Lot Number</th>
<th>Block Number</th>
<th>Lowest Lot Elevation*</th>
<th>Lowest Adjacent Grade To Structure</th>
<th>Base Flood Elevation</th>
<th>BFE Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>675 Steamboat Road</td>
<td>02-1505/S</td>
<td>N/A</td>
<td>13.0</td>
<td>N/A</td>
<td>13</td>
<td>Long Island Sound</td>
</tr>
</tbody>
</table>

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Certifier’s Name: Jill Pietropaolo, PE
License No.: 31773
Expiration Date: 01/31/2021

Company Name: RACE Coastal Engineering
Telephone No.: 203-377-0663
Fax No.: 203-375-6561
Email: Jill@racecoastal.com
Signature: [Signature]
Date: 12/03/2020

* For requests involving a portion of property, include the lowest ground elevation within the metes and bounds description. Please note: If the Lowest Adjacent Grade to Structure is the only elevation provided, a determination will be issued for the structure only.
<table>
<thead>
<tr>
<th>Address</th>
<th>Lot Number</th>
<th>Block Number</th>
<th>Lowest Lot Elevation*</th>
<th>Lowest Adjacent Grade To Structure</th>
<th>Base Flood Elevation</th>
<th>BFE Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Certifier's Name:  
License No.:  
Expiration Date:  
Company Name:  
RACE Coastal Engineering  
Telephone No.:  
203-377-0863  
Fax No.:  
Signature:  
Date:  

* For requests involving a portion of property, include the lowest ground elevation within the metes and bounds description. Please note: If the Lowest Adjacent Grade to Structure is the only elevation provided, a determination will be issued for the structure only.

Seal (optional)
Section 3

MT-1 Form 3 – Community Acknowledgement Form
PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this data collection is estimated to average 1.38 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and submitting the form. This collection is required to obtain or retain benefits. You are not required to respond to this collection of information unless a valid OMB control number is displayed on this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington, VA 20598-3005, Paperwork Reduction Project (1660-0015). NOTE: Do not send your completed form to this address.

This form must be completed for requests involving the existing or proposed placement of fill (complete Section A) OR to provide acknowledgment of this request to remove a property from the SFHA which was previously located within the regulatory floodway (complete Section B).

This form must be completed and signed by the official responsible for floodplain management in the community. The six digit NFIP community number and the subject property address must appear in the spaces provided below. Incomplete submissions will result in processing delays. Please refer to the MT-1 Instructions for additional information about this form.

Community Number: 090008 Property Name or Address: 675 Steamboat Road

A. REQUESTS INVOLVING THE PLACEMENT OF FILL

As the community official responsible for floodplain management, I hereby acknowledge that I have received and reviewed this Letter of Map Revision Based on Fill (LOMFR-F) or Conditional LOMFR-F request. Based upon the community’s review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirement that no fill be placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a Conditional LOMFR-F, will be obtained. For Conditional LOMFR-F requests, the applicant has or will document Endangered Species Act (ESA) compliance to FEMA prior to issuance of the Conditional LOMFR-F determination. For LOMFR-F requests, I acknowledge that compliance with Sections 9 and 10 of the ESA has been achieved independently of FEMA’s process. Section 9 of the ESA prohibits anyone from “taking” or harming an endangered species. If an action might harm an endangered species, a permit is required from U.S. Fish and Wildlife Service or National Marine Fisheries Service under Section 10 of the ESA. For actions authorized, funded, or being carried out by Federal or State agencies, documentation from the agency showing its compliance with Section 7(a)(2) of the ESA will be submitted. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by DHS-FEMA, all analyses and documentation used to make this determination. For LOMFR-F requests, we understand that this request is being forwarded to DHS-FEMA for a possible map revision.

Community Comments:

Community Official’s Name and Title: (Please Print or Type) Mr. Jodi Couture Planning Enforcement Officer Community Name: Town of Greenwich Community Official’s Signature (required):

Telephone No.: 203-622-2218 Date: 12/8/20

B. PROPERTY LOCATED WITHIN THE REGULATORY FLOODWAY

As the community official responsible for floodplain management, I hereby acknowledge that I have received and reviewed this request for a LOMA. We understand that this request is being forwarded to DHS-FEMA to determine if this property has been inadvertently included in the regulatory floodway. We acknowledge that no fill on this property has been or will be placed within the designated regulatory floodway. We find that the completed or proposed project meets or is designed to meet all of the community floodplain management requirements.

Community Comments:

Community Official’s Name and Title: (Please Print or Type) N/A Telephone No.:

Community Name:

Community Official’s Signature (required):

Date:
Section 4

ESA Compliance
December 2020

LOMC Clearinghouse
847 South Pickett Street
Alexandria, VA 22304-4605
ATTN: LOMC Manager

Reference: CLOMR-F Application
675 Steamboat Road
Greenwich, CT
RACE Project No. 2020113

To Whom It May Concern:

RACE COASTAL ENGINEERING (“RACE”), on the behalf of Ms. Patricia Barakett, submits the following information to demonstrate compliance with the *Endangered Species Act (ESA)*:

This project has been reviewed under the procedures outlined by the United States Fish & Wildlife Service’s New England Field Office website, https://www.fws.gov/newengland/endangeredspecies/index.html.

The review indicated that there are no federally listed, threatened or endangered species or critical habitat on the project site. As such the proposed project will not “Take or Harm” any listed species.

Enclosed please find the supporting documentation:

- A “No Species Present” letter from the U.S. Fish and Wildlife Service.
- Northern Long-eared Bat Consistency Letter
- Species Summary Table

It is anticipated that this information is acceptable and that the application can be processed in a timely manner. If you have any questions, please do not hesitate to contact the undersigned.

Very truly yours,
RACE COASTAL ENGINEERING

Jill Pietropaolo, PE
Project Manager
CT PE #31773

Enclosures: As Stated
January 22, 2020

To Whom It May Concern:

This project was reviewed for the presence of federally listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service’s New England Field Office website:


Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact David Simmons of this office at 603-227-6425 if we can be of further assistance.

Sincerely yours,

[Signature]

Thomas R. Chapman
Supervisor
New England Field Office
Subject: Consistency letter for the ‘675 Steamboat Road CLOMR-F’ project indicating that any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Dear Hailey Simpson:

The U.S. Fish and Wildlife Service (Service) received on November 06, 2020 your effects determination for the ‘675 Steamboat Road CLOMR-F’ (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. You indicated that no Federal agencies are involved in funding or authorizing this Action. This IPaC key assists users in determining whether a non-Federal action may cause “take” of the northern long-eared bat that is prohibited under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the Action is not likely to result in unauthorized take of the northern long-eared bat.

Please report to our office any changes to the information about the Action that you entered into IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation.

If your Action proceeds as described and no additional information about the Action’s effects on species protected under the ESA becomes available, no further coordination with the Service is required with respect to the northern long-eared bat.

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species that also may occur in your Action area:

- Roseate Tern, *Sterna dougallii dougallii* (Endangered)
You may coordinate with our Office to determine whether the Action may cause prohibited take of the animal species listed above.

[1] Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].
Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

675 Steamboat Road CLOMR-F

2. Description

The following description was provided for the project '675 Steamboat Road CLOMR-F':

The project site is located along Smith Cove of the Long Island Sound in Greenwich, CT. The Applicant is proposing to construct a new dwelling, pool, spa and accessory structures. The proposed dwelling will be placed within a FEMA Flood Zone (Zone VE BFE +15'/Zone AE BFE +13'/Zone X). As such, the Applicant is filing for a CLOMR-F to fill the area surrounding the proposed dwelling and ultimately remove the proposed dwelling from the SFHA.

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/41.01316900460479N73.62161099910738W

Determination Key Result

This non-Federal Action may affect the northern long-eared bat; however, any take of this species that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o).

Determination Key Description: Northern Long-eared Bat 4(d) Rule
This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.
This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for non-Federal actions is to assist determinations as to whether proposed actions are excepted from take prohibitions under the northern long-eared bat 4(d) rule.

If a non-Federal action may cause prohibited take of northern long-eared bats or other ESA-listed animal species, we recommend that you coordinate with the Service.
Determination Key Result

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?
   
   No

2. Will your activity purposefully Take northern long-eared bats?

   No

3. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?
   
   Automatically answered
   
   No

4. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

   Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html.

   Yes

5. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

   No

6. Will the action involve Tree Removal?

   No
Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type ‘0’ in questions 1-3.

1. Estimated total acres of forest conversion:
   0

2. If known, estimated acres of forest conversion from April 1 to October 31
   0

3. If known, estimated acres of forest conversion from June 1 to July 31
   0

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type ‘0’ in questions 4-6.

4. Estimated total acres of timber harvest
   0

5. If known, estimated acres of timber harvest from April 1 to October 31
   0

6. If known, estimated acres of timber harvest from June 1 to July 31
   0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type ‘0’ in questions 7-9.

7. Estimated total acres of prescribed fire
   0

8. If known, estimated acres of prescribed fire from April 1 to October 31
   0

9. If known, estimated acres of prescribed fire from June 1 to July 31
   0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type ‘0’ in question 10.
10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0
USFWS New England Field Office: Species Summary Table for Endangered Species Project Review

Your name: Hailey Simpson, RACE Coastal Engineering  
Date: 12/1/2020  
Project name used in IPaC: 675 Steamboat Road CLOMR-F

Step 1 – Review project on IPaC Website:  https://ecos.fws.gov/ipac/

<table>
<thead>
<tr>
<th>Step 2</th>
<th>Step 2A</th>
<th>Step 3A</th>
<th>Step 3B</th>
<th>Step 4</th>
<th>Notes and Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed or candidate species that are likely present according to the Official Species List from IPaC.</td>
<td>Is your action area in Critical Habitat* for any of these species (only for Plymouth red-bellied cooter)?</td>
<td>Is suitable habitat for listed or candidate species present in your action area?</td>
<td>Does the species occur in your action area?</td>
<td>Determinations for the Endangered Species Act – Federal agencies or designated non-Federal representatives complete this column</td>
<td>Attach additional information and/or pages if needed</td>
</tr>
<tr>
<td>Northern Long-eared Bat, Myotis septentrionalis</td>
<td>No</td>
<td>Don’t Know</td>
<td>Don’t Know</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Roseate Tern, Sterna dougallii dougallii</td>
<td>No</td>
<td>Don’t Know</td>
<td>Don’t Know</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Red-Throated Loon, Gavia stellate</td>
<td>No</td>
<td>Don’t Know</td>
<td>Don’t Know</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

* Critical Habitat refers to officially designated areas, but species may occur anywhere that there is suitable habitat.

Notes for when a species is present:
- If you determine "No Effect" no further consultation is necessary.
- If you determine "May Affect/Not likely to adversely affect," submit a Project Review Package.
- If "adverse effect", contact us to either initiate formal consultation or initiate discussion on ways to avoid adverse effect.
Section 5

Meets and Bounds Drawing
PROPOSED C-LOMR-F METES AND BOUNDS

Beginning at the southwest corner of the subject property known as 675 Steamboat Rd at LAT N:41.01281822 and LONG W:73.62206891 and proceeding northerly along the easterly side of Steamboat Rd with bearings in the CT State Plane Coordinate system (NAD83) the following courses:
N 02°41'53" E a distance of 11.55';
thence N 02°12'53" E a distance of 164.40';

thence along the boundary of property known as 665 Steamboat Rd S 88°40'37" E a distance of 73.25';

thence along a proposed contour of elevation 13 feet NAVD S 05°07'40" E a distance of 9.05';
thence S 21°25'20" E a distance of 7.43';
thence S 58°20'33" E a distance of 13.74';
thence S 81°55'42" E a distance of 12.39';

thence along a proposed retaining wall S 88°51'32" E a distance of 9.33';
thence S01°46'49" W a distance of 32.18';
thence S 87°31'05" E a distance of 6.17';
thence S 01°46'49" W a distance of 5.92';

thence along the landside edge of a swimming pool N 88°13'11" W a distance of 22.16';
thence S 01°46'49" W a distance of 41.99';
thence S 88°13'11" E a distance of 22.16';

thence along a proposed retaining wall S 01°46'49" W a distance of 14.00';
thence N 88°13'11" W a distance of 6.17';
thence S 01°46'49" W a distance of 13.26';

thence along a proposed contour of elevation 13 feet NAVD S 74°25'46" W a distance of 15.38';
thence S 20°11'14" W a distance of 4.81';
thence S 04°25'53" E a distance of 13.20';
thence S 28°44'13" E a distance of 15.01';
thence S 48°45'25" E a distance of 9.29';
thence S 17°17'20" E a distance of 7.25';

thence along the boundary of property known as 697 Steamboat Rd N 86°50'07" W a distance of 114.67';

which is the point of beginning, having an area of 18019.77 square feet, 0.414 acres
Stormwater Management Practices Maintenance Declaration

THIS DECLARATION is made this date, ______________, 20___, by and between the Town of Greenwich, a municipal corporation with principal offices located at 101 Field Point Road, Greenwich, CT 06830 and

[Owner(s) Name]

675 Steamboat Road

[Address]

hereinafter referred to as "Owner(s)" of the "Property" as more fully described in a deed recorded in Book ______ at Page ______ of the Greenwich Land Records. In accordance with the Town of Greenwich Drainage Manual as Amended, the "Owner(s)" agree to install and maintain stormwater management practice(s) on the subject Property in accordance with approved plans and conditions. The Owner further agrees to the terms stated in this document to ensure that the stormwater management practice(s) continues serving the intended function in perpetuity. This Declaration includes the following exhibits located in the project files of one or all of the following Town of Greenwich Departments:

- Building Division – Permit # __________________
- Inland Wetlands and Watercourses Agency – Application # __________________
- Planning and Zoning – Application # __________________

Exhibit A: Long-term Maintenance Plan that prescribes those activities that must be carried out to maintain compliance with this Declaration. Approved Maintenance Plan dated ________________.

Exhibit B: Improvement Location Survey depicting “As-Built” conditions and showing an accurate location of each stormwater management practice affected by this Declaration. Approved Improvement Location Survey dated ________________.

Note: After construction has been verified and accepted by the Town of Greenwich for the stormwater management practices, this declaration shall be recorded by the Owner on the Greenwich Land Records and copies of the recorded document shall be submitted to all of the following Town of Greenwich Departments involved in the approval:

- Building Division
- Inland Wetlands and Watercourses Agency
- Planning and Zoning

Through this Declaration, the Owner(s) hereby subjects the Property to the following covenants, conditions, and restrictions:

1. The Owner(s), at its expense, shall secure from any affected owners of land all easements and releases of rights-of-way necessary for utilization of the stormwater practices identified in Exhibit B and shall record them with the Town Clerk. These easements and releases of rights-of-way shall
not be altered, amended, vacated, released or abandoned without prior written approval of the Town of Greenwich.

2. The Owner(s) shall be solely responsible for the installation, maintenance and repair of the stormwater management practices, drainage easements and associated landscaping identified in Exhibit B in accordance with the Operation and Maintenance Plan (Exhibit A).

3. No alterations or changes to the stormwater management practice(s) identified in Exhibit B shall be permitted unless they are deemed to comply with this Declaration and are approved in writing by the Town of Greenwich.

4. The Owner(s) shall retain the services of a qualified inspector (as described in Exhibit A) to operate and ensure the maintenance of the stormwater management practice(s) identified in Exhibit B in accordance with the Operation and Maintenance Plan (Exhibit A).

5. The Owners(s) must maintain all records (logs, invoices, reports, data, etc.) and have them readily available for inspection at all times. Inspection Documentation must be maintained as frequently as required in Exhibit A.

6. The Town of Greenwich or its designee is authorized to access the property as necessary to conduct inspections of the stormwater management practices or drainage easements to ascertain compliance with the intent of this Declaration and the activities prescribed in Exhibit A. Upon written notification by the Town of Greenwich or their designee of required maintenance or repairs, the Owner(s) shall complete the specified maintenance or repairs within a reasonable time frame determined by the Town of Greenwich. The Owner(s) shall be liable for the failure to undertake any maintenance or repairs so that the public health, safety, general welfare or the environment shall not be endangered.

7. If the Owner(s) does not keep the stormwater management practice(s) in reasonable order and condition, or complete maintenance activities in accordance with the Operation and Maintenance Plan contained in Exhibit A, or the required maintenance or repairs under 6 above within the specified time frames, the Town of Greenwich is authorized, but not required, to perform the specified inspections, maintenance or repairs in order to preserve the intended functions of the practice(s) and prevent the practice(s) from becoming a threat to public health, safety, general welfare or the environment. In the case of an emergency, as determined by the Town of Greenwich, no notice shall be required prior to the Town of Greenwich performing emergency maintenance or repairs. The Town of Greenwich may levy the costs and expenses of such inspections, maintenance, repairs and appropriate fees against the Owner(s). The Town of Greenwich at the time of entering upon said stormwater management practice for the purpose of maintenance or repair may file a notice of lien upon the property affected by the lien. If said costs and expenses are not paid by the Owner(s), the Town of Greenwich may pursue the collection of same through appropriate court actions.

8. The Owner(s) hereby conveys to the Town of Greenwich an easement over, on and in the Property for the purpose of access to the stormwater management practice(s) for the inspection, maintenance and repair thereof, should the Owner(s) fail to properly inspect, maintain and repair the practice(s). The Town of Greenwich’s execution of any repair or maintenance does not alter the Owner(s) responsibility to maintain in future.
9. The Owner(s) agrees that this Declaration shall be recorded and that the land described in a deed recorded in Book ______ at Page ______ of the Greenwich Land Records shall be subject to the covenants and obligations contained herein, and this Declaration shall bind all current and future owners of the property.

10. The Owner(s) agrees in the event that the Property is sold, transferred, or leased to provide information to the new owner, operator, or lessee regarding proper inspection, maintenance and repair of the stormwater management practice(s). The information shall accompany the first deed transfer and include Exhibits A and B and this Declaration. The transfer of this information shall also be required with any subsequent sale, transfer or lease of the Property.

11. The Owner(s) agree that the rights, obligations and responsibilities herunder shall commence upon execution of the Declaration.

12. The parties whose signatures appear below hereby represent and warrant that they have the authority and capacity to sign this declaration and bind the respective parties hereto.

13. The Proprietor, its agents, representatives, successors and assigns shall defend, indemnify and hold the Town of Greenwich harmless from and against any claims, demands, actions, damages, injuries, costs or expenses of any nature whatsoever, hereinafter “Claims”, fixed or contingent, known or unknown, arising out of or in any way connected with the design, construction, use, maintenance, repair or operation (or omissions in such regard) of the storm drainage system referred to in the permit as Exhibit “A” hereto, appurtenances, connections and attachments thereto which are the subject of this Declaration. The Proprietor, its agents, representatives, successors and assigns shall not be required to indemnify the Town, its officers, agents, servants, or employees, against any such damages occasioned solely by acts or omissions of the Town, its officers, agents, servants or employees, other than supervisory acts or omissions of the Town, its officers, agents; servants, or employees, in connection with such Claims or the enforcement of this Declaration.
IN WITNESS WHEREOF, the "Owner(s)" have executed this Declaration on this _____ day of ______________, 20____.

By: _____________________________
    [Owner(s)]

By: _____________________________
    [Owner(s)]

STATE OF CONNECTICUT        
    ss: Greenwich

COUNTY OF FAIRFIELD

The foregoing instrument was acknowledged before me on this_______ day of ____________, 20____, by _____________________________, the [Owner(s)]

"Owner(s)" of _____________________________________________________.
    [Address]

__________________________________________
Notary Public

My Commission Expires On:


WHEN RECORDED RETURN COPY TO:
[All of the following departments involved in approval:
  Building Division, Inland Wetlands & Watercourses Agency, and Planning & Zoning]

Form MD-100

February 2014
Exhibit A
Operations and Maintenance Plan
675 Steamboat Road, Greenwich, CT
January 18, 2021

Scope:

The purpose of the Operations and Maintenance Plan is to ensure that the existing and proposed stormwater components installed at 675 Steamboat Road are maintained in operational condition throughout the life of the project. The service procedures associated with this plan shall be performed as required by the parties legally responsible for their maintenance.

Recommended Frequency of Service:

As further defined below, all stormwater components should be checked on a periodic basis and kept in full working order. Ultimately, the required frequency of inspection and service will depend on runoff quantities, pollutant loading, and clogging due to debris. At a minimum, we recommend that all stormwater components be inspected and serviced twice per year, once before winter begins and once during spring cleanup.

Qualified Inspector:

The inspections must be completed by an individual experienced in the construction and maintenance of stormwater drainage systems. Once every five years the inspections must be completed by a professional engineer.

Service Procedures:

1. Catch Basins & Drainage Inlets:
   a. Catch basins and drainage inlets shall be completely cleaned of accumulated debris and sediments at the completion of construction.
   b. For the first year, catch basins and drainage inlets shall be inspected on a quarterly basis.
   c. Any accumulated debris within the catch basins/inlets shall be removed and any repairs as required.
   d. From the second year onward, visual inspections shall occur twice per year, once in the spring and once in the fall, after fall cleanup of leaves has occurred.
   e. Accumulated debris within the catch basins/inlets shall be removed and repairs made as required.
   f. Accumulated sediments shall be removed at which time they are within 12 inches of the invert of the outlet pipe.
   g. Any additional maintenance required per the manufacturer’s specifications shall also be completed.

2. Storm Drainage Piping and Manholes/Junction Boxes:
   a. All storm drainage piping shall be completely flushed of debris and accumulated sediment at the completion of construction.
   b. Manholes/Junction Boxes shall be inspected and repaired on an annual basis.
c. Unless system performance indicates degradation of piping, comprehensive video inspection of storm drainage piping shall occur once every ten years.

d. Any additional maintenance required per the manufacturer's specifications shall also be completed.

3. Drainage Outfalls/Splash Pads/Scour Holes/Level Spreaders:

a. All outfalls shall be completely cleaned of accumulated debris and sediments at the completion of construction. Any repairs to outlet protection material (rip rap) shall be performed.

b. For the first year, outfalls shall be inspected on a quarterly basis.

c. Any accumulated debris shall be removed and any repairs made to the outfalls as required.

d. From the second year onward, visual inspections shall occur twice per year, once in the spring and once in the fall, after fall cleanup of leaves has occurred.

e. Accumulated debris shall be removed and repairs made as required.

f. Any erosion shall be promptly repaired and the cause of the erosion shall be identified and corrected.

g. Any additional maintenance required per the manufacturer's specifications shall also be completed.

4. Bioretention/Biofiltration Basins and Rain Gardens:

a. Bioretention/Biofiltration basins and rain gardens shall be cleaned of debris and sediments upon the completion of construction. Any filter media (bioretention soil) impacted by the construction activities shall be removed and replaced at this time.

b. The filter media (bioretention soil) shall be visually inspected on a monthly basis for the first 6 months. Any erosion or displacement of the filter media (bioretention soil) shall be promptly repaired and the cause of the problem shall be identified and corrected. Monthly inspections shall continue until successful operation of the system is confirmed.

c. Bioretention/Biofiltration areas and rain gardens with grass shall not be mowed more than twice during the growing season, preferably only in late October. More frequent mowing will eliminate native forbs and sedges from the meadow cover.

d. Bioretention/Biofiltration areas and rain gardens with mulch and plantings shall be inspected during spring cleanup and one just prior to the winter season.

e. All dead plants and missing mulch shall be replaced and any necessary pruning of vegetation shall be completed.

f. The surface of these structures shall be inspected on a quarterly basis after the first six months of successful operation and after heavy runoff events (e.g. >3.0" in a 24-hour period). One inspection shall occur immediately following the completion of winter sanding and subsequent sweeping operations, and one shall occur just prior to the winter season. Any accumulated debris and sediments shall be removed.

g. Check draining time of bioretention/biofiltration areas and rain gardens annually. Check within 72 hours after a minimum one inch rain event. If there is no standing water, infiltration is acceptable. If draining time is excessive, quantitatively determine infiltration rate. Use a double ring infiltrometer or monitor drop in water level after a significant storm. If infiltration rate <0.5 in./hour, remedial action shall be taken.

h. A soil-core investigation may be used to identify the clogged portion of stormwater facility and depth of clogging. Remedial measures may include removal of clogged soil layer and replacement with suitable media, aeration, and mixing upper strata with lower soil strata. After corrective measures have been implemented, infiltration rate and draining time shall be retested.
5. Gravel Pavement (Gravel Driveway with Gravel Pave 2 (Or Approved Equal)):
   a. Changing the gravel pavement surface to an impervious surface requires the review and approval of the Town of Greenwich DPW Engineering Division.
   b. Clean upon the completion of construction.
   c. The gravel pavement shall be graded and additional gravel added as needed during spring and fall cleanup.
   d. Check for standing water on the surface of the gravel pavement after a precipitation event. If standing water remains within 30 minutes after rainfall had ended, repair to the gravel pavement is recommended.
   e. In the event that the gravel pavement surface becomes clogged an engineer must be retained to determine how to restore the gravel pavement surface to its original condition.
   f. Any additional maintenance required per the manufacturer’s specifications shall also be completed.

6. Roof Gutters:
   a. Remove accumulated debris and inspect for damage. Any damage should be repaired as required.

7. Groundwater Pump System:
   a. Pump system shall be inspected for proper operation including all connections, force mains and electrical system.
   b. The backup generator must be inspected for proper operation.
   c. Sump of the pump chamber shall be cleared of all debris and silt.
   d. The approved pump model is:
   e. The existing pump can only be replaced with a pump matching the specifications of the existing pump listed above. A change to a different pump must be approved by the Engineering Division.
   f. Any additional maintenance required per the manufacturer’s specifications shall also be completed.

Disposition of Debris and Sediment:

All debris and sediment removed from the stormwater structures and bioretention/biofiltration basins shall be disposed of legally. There shall be no dumping of silt or debris into or in proximity to any inland or tidal wetlands.

Maintenance Records:

The Owners(s) must maintain all records (logs, invoices, reports, data, etc.) and have them readily available for inspection at all times.
# Operations and Maintenance Log (Page 1 of 3)

675 Steamboat Road, Greenwich, CT
January 18, 2021

## Type of Inspection:
- [ ] Spring
- [ ] Fall
- [ ] Other

---

## Inspector's Name: __________________________ Date of Inspection: __________________________

Affiliation: __________________________ Phone #: __________________________

---

## Catch Basins & Drainage Inlets:

- Has accumulated debris been removed from grates?  [ ] Yes  [ ] No  [ ] N/A
- Do any basins require additional repair? (identify below):  [ ] Yes  [ ] No  [ ] N/A
- Have sumps been cleaned of sediment?  [ ] Yes  [ ] No  [ ] N/A

---

## Storm Drainage Piping and Manholes/Junction Boxes:

- Has accumulated debris been removed?  [ ] Yes  [ ] No  [ ] N/A
- Do any manholes require additional repair? (identify below):  [ ] Yes  [ ] No  [ ] N/A
- Is there any evidence of stormwater piping failure?  [ ] Yes  [ ] No  [ ] N/A
- Has a comprehensive video inspection been completed?  [ ] Yes  [ ] No  [ ] N/A

---

## Drainage Outfalls/Splash Pads/Scour Holes/Level Spreaders:

- Have all drainage outlets been cleared of debris?  [ ] Yes  [ ] No  [ ] N/A
- Have all outlet protections been inspected/repairsd?  [ ] Yes  [ ] No  [ ] N/A
- Have all erosion issues been repaired?  [ ] Yes  [ ] No  [ ] N/A

---

Notes:

---

Form MD-100 November 2013
Operations and Maintenance Log (Page 2 of 3)
675 Steamboat Road, Greenwich, CT
January 18, 2021

Bioretention/Biofiltration Basins/Rain Gardens:
- Have basins been cleared of debris/sediments? □ Yes □ No □ N/A
- Have draining times of basins been verified? □ Yes □ No □ N/A
- Has vegetation been mowed (twice/year max.)? □ Yes □ No □ N/A
- Has plantings and mulch been replaced (twice/year)? □ Yes □ No □ N/A

Notes:

Gravel Pavement:
- Has pavement been graded and additional gravel added? □ Yes □ No □ N/A
- Has draining times been verified? □ Yes □ No □ N/A

Notes:

Roof Gutters:
- Has accumulated debris been removed from gutters? □ Yes □ No □ N/A
- Do any gutters require additional repair? (identify below): □ Yes □ No □ N/A

Notes:
Operations and Maintenance Log (Page 3 of 3)
675 Steamboat Road, Greenwich, CT
January 18, 2021

Groundwater Pump System:

- Has the electrical connections been inspected? □ Yes □ No □ N/A
- Has the electrical connections for the generator been inspected? □ Yes □ No □ N/A
- Has the generator been exercised? □ Yes □ No □ N/A
- Has the sump been cleaned? (identify below): □ Yes □ No □ N/A

Notes:


Please make additional notes/observations and particular concerns below. Also record any additional maintenance that has been performed:

Signature of Inspector: ____________________________  Date: ____________________________

Form MD-100  November 2013
STORMWATER MANAGEMENT REPORT

Prepared For

PROPOSED SITE DEVELOPMENT

675 STEAMBOAT ROAD, GREENWICH, CT

January 18th, 2021
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</tbody>
</table>
1. INTRODUCTION

1.1 PROJECT NARRATIVE

McChord Engineering Associates, Inc. has been commissioned by Patricia Barakett to perform stormwater management computations for the proposed site development at 675 Steamboat Road in Greenwich, Connecticut. The property consists of 0.6214 acres and is located on the east side of Steamboat Road on Smith Cove. Figure 1 shows the location of the property on the United States Geological Survey (USGS) map.

![Figure 1: Location Map](image)

The property is currently developed with a single family residence, gazebo, driveway, patios, lawn and landscaped areas. The proposed project consists of the demolition of the existing residence and the subsequent construction of a new house, driveway, pool and patio areas. The existing gazebo and a small patio area will remain.

1.2 LAND USE REGULATIONS

The property is located within the R-6 residential zone. The proposed development meets all regulations applicable to the zone, including all setback, coverage, and height regulations. There are no inland wetlands or tidal wetlands on the property. The site is on Long Island Sound, Smith Cove and is subject to a Coastal Site Plan Review by the Planning & Zoning Department. All structures are outside of the VE flood zone and filling is proposed to remove the proposed house from the AE flood zone. A Conditional Letter of Map Revision based on
Fill (CLOMR-F) has already been submitted to FEMA by RACE Coastal Engineering, LLC on behalf of the project.

1.3 SITE INVENTORY

The entire property is currently developed, including the landscape areas which have been manipulated to create berms and a water feature. There is a stone seawall along Smith Cove on the east property line. There is a stone privacy wall along Steamboat Road on the west property line with two gated driveway entrances. There is also a stone retaining wall along the north property line. Topography on the site consists of gradual to moderate slopes. The entire property drains directly to Smith Cove and there is no runoff onto adjoining properties.

There is an existing storm drainage system on the property that connects two catch basins on Steamboat Road directly to an outlet in the stone seawall. There does not appear to be any records or easements for this drainage system. The system was camera inspected and field located. It consists of a 10” Ductile Iron Pipe under Steamboat Road and a 12” Clay Tile Pipe that transitions to a 12” HDPE pipe through the property. Portions of the existing site drainage system also tee into the 12” HDPE. The inspection revealed that the existing system is in good working order.

Additionally, there is a driveway trench drain, multiple yard drains, and a number of roof leaders on the existing property that discharge through the seawall directly to Smith Cove. Sump pumps in the basement also discharge directly to Smith Cove. There is no evidence of any detention or treatment devices on the existing property.

The Natural Resources Conservation Service (NRCS) Web Soil Survey identifies all the soils on the developed portion of the property to be Urban land – Chatfield complex, 3 to 15 percent slopes. These soils have a Hydraulic Soil Group (HSG) of D, indicating a slow infiltration rate. However, field evaluation indicated that the soils on the property were better drained than the soil type would indicate. Soil textural analysis showed these areas to be sandy loam soils that were more consistent with a HSG of B. Additional NRCS information and field test results are included in Appendix A.

1.4 DEVELOPMENT ENVELOPE

The development envelope for the project will be delineated by either silt fence or construction fencing. The existing stone seawall, privacy wall and retaining wall along the property lines will all be preserved. Tree protection fencing is proposed to protect an existing holly tree near the north property line. The existing gazebo, which is built on a steep ledge outcropping near the water, will not be disturbed.

1.5 LID CONTROL STRATEGIES

The proposed site development plan utilized LID strategies wherever feasible within the constraints of the lot. The new house will be significantly further from Smith Cove, creating a larger planted buffer between the site development and Long Island Sound. All direct connection from the site’s impervious surfaces to Long Island Sound will be removed. Instead, the majority of runoff from impervious surfaces on the property will be treated before it leaves the site. Runoff from portions of the house will be directed to vegetated lawn and landscape areas, utilizing the LID techniques for stormwater disconnection. A rain garden and permeable driveway will collect driveway, roof and patio runoff and will provide water quality
treatment, peak flow attenuation, groundwater recharge, and runoff volume reduction for the site. The "Credit for Low Impact Development Best Management Practices" checklist is included in Appendix B and summarizes the LID techniques used.

2. **Scope of Study**

This stormwater management report contains studies of peak flow, runoff volume, and water quality. These studies seek to compare the existing conditions with the proposed development to ensure that the proposed development will have no adverse impact on adjoining property owners or downstream drainage systems. The site will be developed with its own on-site stormwater management system capable of renovating stormwater and controlling peak rates of runoff.

3. **Analysis Methodology**

Runoff was modeled with HydroCAD 8.50 software produced by HydroCAD Software Solutions LLC. This software uses the NRCS TR-20 method for analyzing stormwater runoff. Soil characteristics, cover conditions, slope, time of concentration, and historical rainfall data are all parameters that are utilized by this method. The analysis considered the 1, 2, 5, 10, 25, 50 and 100-year storm events.

Runoff Reduction Volume (RRV) and Groundwater Recharge Volume (GRV) were calculated to assess post development runoff from the site. Water Quality Volume (WQV), Water Quality Flow (WQF) and Total Suspended Solids (TSS) removal were calculated to assess pollutant reduction from the site runoff. These calculations used the methods outlined in the Town of Greenwich Drainage Manual and the 2004 Connecticut Stormwater Quality Manual.

Conveyance was modeled with Stormwater Studio 2019 software. This software uses standard engineering criteria to determine the hydraulic grade line (HGL) within the storm sewer system. Junction loss and Inlet calculations follow the latest HEC-22, Third Edition procedures. The rational method is used for analyzing stormwater runoff. IDF values were obtained from the on-line web tool for extreme precipitation analysis developed as a joint collaboration between the Northeast Regional Climate Center (NRCC) and the USDA Natural Resources Conservation Services (NRCS). The analysis considered the 25-year storm event.

4. **Stormwater Management Strategy**

The existing storm drainage network that runs from the two catch basins on Steamboat Road to the seawall will need to be reconfigured to accommodate the proposed house. Three new manholes are proposed to route the flows around the proposed development. The existing 12" clay tile pipe at the upstream end of the network will be preserved in order to minimize disturbance to the western privacy wall. This pipe has been camera inspected and is in good condition. The existing 12" HDPE at the downstream end of the system that penetrates the seawall will also be preserved. This has also been camera inspected and is in good condition. Overflows from the proposed permeable driveway and rain garden will tie into the new storm drainage network at manholes. A drainage easement to the Town doesn’t exist, so the
development we will require that a Grant of a Right to Drain Watershed Area be completed for the project.

Water quality was the focus of the proposed on-site stormwater management system. The property drains entirely to Long Island Sound and therefore peak flow attenuation is not required. The majority of the proposed impervious surfaces on the site will be treated by a large permeable courtyard on the west side of the property, and a rain garden on the east side of the property. These two treatment measures were specifically chosen because they promote both filtration and infiltration. They also have high nitrogen and bacteria removal since the property is located in a coastal area. Some portions of the proposed development will also be treated with simple disconnection.

The permeable gravel driveway courtyard will receive runoff from the existing driveway aprons and front roof leaders, as well as the courtyard itself. The courtyard is designed with layers of various gradations of gravel designed to filter and store stormwater runoff, while also promoting infiltration into the underlying soils. The driving surface of the permeable driveway will consist of a plastic lattice structure with geotextile backing. This will support the traffic loads and prevent rutting and mixing of the gravel layers. Two driveway drains were integrated into the driveway courtyard as a precautionary measure, and are not expected to see any flow. They will serve primarily as inspection points for the system. An 8" perforated PVC underdrain is designed through the center of the courtyard as a high level overflow mechanism. The underdrain is designed to have a minimum of 6" of stone below it, which will create a minimum reservoir volume of 834 ft$^3$ below the outlet invert. Roof leaders from the front of the house will also discharge into the permeable gravel via perforated 4" PVC pipes. This perforated roof leaders will be a minimum of 12" above the bottom of the gravel storage layer.

The rain garden is located to the east of the proposed pool and will receive runoff from the back of the house, the asphalt portion of the driveway and the pool and pool patio. The rain garden consists of a planted depression with an underlying permeable soil mix and gravel drainage layer. The rain garden will have a surface area of approximately 560 ft$^2$ and a storage volume of approximately 676 ft$^3$ below the overflow standpipe. A 4" PVC underdrain is provided withing the gravel layer, however the underdrain outlet is raised to create internal water storage for nitrogen removal. This rain garden will primarily rely on infiltration into the underlying soils, which consist of a permeable sand and large stones. During typical storm events, runoff will filter through the rain garden soil mix and infiltrate into the underlying soils. An 18" diameter standpipe outlet will provide relief during extreme storm events. Both the underdrain and standpipe overflow will be directed to a new manhole, which discharges to an existing 12" HDPE pipe through the seawall.

Runoff from the northeast and southeast corner of the house will discharge to splash pads at the base of the new retaining wall at the rear of the residence. The yard between the retaining wall and seawall will provide a vegetated flow path which will promote filtration and infiltration of the stormwater runoff and is consistent with the principals of simple stormwater disconnect.

Detailed information on the size and configuration of the proposed stormwater management measures is available on the most recent revision of the "Site Development Plan" prepared for Patricia Barakett by this office. A Stormwater Management Practices Maintenance Declaration has also been prepared for the property.
5. **Analysis & Results**

5.1 PEAK FLOW CONTROL

Runoff from the property was analyzed under existing and proposed conditions. No runoff from off site area will be captured by the proposed stormwater management system and was therefore not factored into the analysis. The existing conditions analysis modeled this entire site as a whole. The proposed conditions analysis divided the property into detained and undetained areas, routing the detained areas through the proposed detention systems. Drainage maps are included in Appendix C.

Using the NRCS TR-20 method, the peak rate of runoff and runoff volume for the 1, 2, 5, 10, 25, 50 and 100-year storm event was computed for the site. Cover conditions were derived from site observations and the "Site Development Plan" prepared for Patricia Barakett by this office, dated January 15, 2021. The resulting runoff volume and peak flow rates under both the existing and proposed conditions are summarized in Table 1. For detailed computations see Appendix C.

<table>
<thead>
<tr>
<th>Storm Event</th>
<th>Existing (ft³)</th>
<th>Proposed (ft³)</th>
<th>Δ (ft³)</th>
<th>Δ (%)</th>
<th>Existing (cfs)</th>
<th>Proposed (cfs)</th>
<th>Δ</th>
<th>Δ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-year</td>
<td>2139</td>
<td>1260</td>
<td>-879</td>
<td>-41.09</td>
<td>0.61</td>
<td>0.16</td>
<td>-0.45</td>
<td>-73.77</td>
</tr>
<tr>
<td>2-year</td>
<td>2917</td>
<td>2092</td>
<td>-825</td>
<td>-28.28</td>
<td>0.85</td>
<td>0.25</td>
<td>-0.6</td>
<td>-70.59</td>
</tr>
<tr>
<td>5-year</td>
<td>4447</td>
<td>3691</td>
<td>-756</td>
<td>-17.00</td>
<td>1.33</td>
<td>0.8</td>
<td>-0.53</td>
<td>-39.85</td>
</tr>
<tr>
<td>10-year</td>
<td>5906</td>
<td>5192</td>
<td>-714</td>
<td>-12.09</td>
<td>1.78</td>
<td>1.36</td>
<td>-0.42</td>
<td>-23.60</td>
</tr>
<tr>
<td>25-year</td>
<td>8409</td>
<td>7739</td>
<td>-670</td>
<td>-7.97</td>
<td>2.53</td>
<td>2.17</td>
<td>-0.36</td>
<td>-14.23</td>
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<tr>
<td>50-year</td>
<td>10817</td>
<td>10172</td>
<td>-645</td>
<td>-5.96</td>
<td>3.25</td>
<td>2.95</td>
<td>-0.3</td>
<td>-9.23</td>
</tr>
<tr>
<td>100-year</td>
<td>13915</td>
<td>13289</td>
<td>-626</td>
<td>-4.50</td>
<td>4.15</td>
<td>3.64</td>
<td>-0.31</td>
<td>-7.47</td>
</tr>
</tbody>
</table>

The analysis shows that there is no increase in the peak rate of runoff from the property during the 1-year through 100-year storm events. Analysis was also conducted to show that the entire volume within the rain garden and permeable driveway will empty within 72 hours of a storm event.

5.2 RUNOFF REDUCTION VOLUME & GROUNDWATER RECHARGE VOLUME

The proposed permeable driveway and rain garden are designed to accommodate both the Groundwater Recharge Volume (GRV) and the Runoff Reduction Volume (RRV) by allowing the storage volume to infiltrate into the ground. The GRV was calculated to be 52 ft³ and the RRV was calculated to be 632 ft³. The combined storage volume below the overflows of the permeable driveway and rain garden is 1,510 ft³, which exceeds both the GRV and RRV. For detailed computations see Appendix D.

5.3 POLLUTANT REDUCTION

The stormwater management measures employed on the site are designed to remove a minimum of 80% of the average annual post construction load of Total Suspended Solids (TSS). Treatment measures were also selected that have high nitrogen and bacteria
removal since the property is located in a coastal area. Runoff from portions of the roof will be directed to vegetated lawn areas, utilizing the LID techniques for stormwater disconnection. The remaining roof, driveway, patio and pool runoff will be treated by the permeable driveway and rain garden. It was also determined that 93.2% of the proposed impervious coverage will be treated by LID BMP's.

The Water Quality Volume from the rear roof, asphalt driveway and pool patio was calculated to be 414 ft\(^3\), which can be accommodated within the 676 ft\(^3\) storage capacity of the rain garden. The Water Quality Volume from the front roof and gravel courtyard was calculated to be 516 ft\(^3\), which is within the 834 ft\(^3\) storage capacity of the permeable driveway. Allowing the WQV from the roof, driveway and patios to infiltrate into the ground and through the rain garden soil mix is expected to remove 80-90\% of the post construction load of TSS. See Appendix E for detailed computations.

5.4 CONVEYANCE

A complete pipe to pipe analysis was also performed for the proposed storm drainage network from the Steamboat Road catch basins to the outlet point at the seawall. This analysis was done for a 25-year storm event. The contributing drainage area to the street catch basin was calculated from available GIS information. The total contributing area is 0.725-acres and is entirely within the R-6 residential zone. The runoff coefficient of 0.49 was taken from table 6-5 of the Greenwich Drainage Manual for the R-7 zone with average slopes. Contributions from the on-site permeable driveway and rain garden overflows were also factored into the analysis. These on-site contributions did not account for any infiltration, and should therefore be conservative estimates. The proposed drainage network is detailed on the "Site Development Plan" prepared for Patricia Barakett by this office, dated January 15, 2021. The pipe to pipe analysis found that the proposed storm sewer can adequately convey runoff from the 25-year storm event. Detailed calculations and a HGL profile are included in Appendix F.

The on-site storm drainage system was analyzed to verify that it has adequate capacity to convey the flows from a 25-year storm event. Peak flows were determined using the Rational Method. Maximum pipe conveyance capacity was determined using Manning's equation. All of the proposed on-site storm drainage piping was found to have a conveyance capacity that exceeded the 25-year peak flow. Detailed calculations are included in Appendix F.

6. CONCLUSIONS

Based on our analysis, McChord Engineering Associates, Inc. has demonstrated that the proposed stormwater management system will adequately control peak flow, reduce runoff volume and treat pollutants from the proposed site development at 675 Steamboat Road per the requirements of the Town of Greenwich Drainage Manual. It is the opinion of this office and the conclusion of this report that the proposed site development will have no adverse impacts to the adjoining property owners or any downstream drainage systems.
APPENDIX A:

SOIL DATA
MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot

Spoil Area
Stony Spot
Very Stony Spot
Wet Spot
Other
Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

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.

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

<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>275C</td>
<td>Urban land-Chafied complex, rocky, 3 to 15 percent slopes</td>
<td>1.3</td>
<td>85.9%</td>
</tr>
<tr>
<td>W</td>
<td>Water</td>
<td>0.2</td>
<td>14.1%</td>
</tr>
<tr>
<td><strong>Totals for Area of Interest</strong></td>
<td></td>
<td><strong>1.5</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>
State of Connecticut

275C—Urban land-Chatfield complex, rocky, 3 to 15 percent slopes

Map Unit Setting
National map unit symbol: 91lp
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
Urban land: 45 percent
Chatfield and similar soils: 30 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting
Landform: Hills, ridges

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

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
Bw2 - 15 to 29 inches: gravelly fine sandy loam
2R - 29 to 80 inches: unweathered 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 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

Minor Components

Hollis
Percent of map unit: 5 percent
Landform: Hills, ridges
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

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

Chariton
Percent of map unit: 5 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Leicester
Percent of map unit: 5 percent
Landform: Depressions, drainageways
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Udorthents
Percent of map unit: 3 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

Data Source Information

Soil Survey Area: State of Connecticut
Survey Area Data: Version 20, Jun 9, 2020
# Soil Evaluation Test Results

**Project Name:** Barakett Residence  
**Project Address:** 675 Steamboat Road, Greenwich, CT

<table>
<thead>
<tr>
<th>Test Pit or Soil Boring #</th>
<th>DT1</th>
<th>Elevation</th>
<th>Soil Texture (Percent Sand, Silt and Clay)</th>
<th>Depth Range in Inches</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>8.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.8 - 8.1</td>
<td></td>
<td>Topsoil</td>
<td></td>
<td>0&quot; - 8&quot;</td>
</tr>
<tr>
<td>8.1 - 7.5</td>
<td></td>
<td>Brown Sandy Loam</td>
<td></td>
<td>8&quot; - 16&quot;</td>
</tr>
<tr>
<td>7.5 - 3.3</td>
<td></td>
<td>Sand and Large Angular Rocks</td>
<td></td>
<td>16&quot; - 66&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elevation</th>
<th>Depth in Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>n/a</td>
<td>Motling (Seasonally High Groundwater)</td>
</tr>
<tr>
<td>n/a</td>
<td>Groundwater</td>
</tr>
<tr>
<td>3.3</td>
<td>Ledge</td>
</tr>
</tbody>
</table>

**Saturated Hydraulic Conductivity Test Location #:**

- **Ground Elevation:**
- **Top Elevation of Proposed Infiltration System:**
- **Bottom Elevation of Proposed Infiltration System:**
- **Elevation of Test**: 
- **Test Method (check one of the following acceptable methods**):
  - Borchoie infiltration test (NHDES, 2008)
  - Guelph permeameter - ASTM D5126-90 Method
  - Falling head permeameter - ASTM D5126-90 Method
  - Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
  - Amoozegar or Amoozegar (constant head) permeameter – Amoozegar 1992

Attach field data forms for the respective infiltration test method.

**Calculated Saturated Hydraulic Conductivity Rate:**

**A percolation test, performed in accordance with the guidelines of the Connecticut State Health Code or otherwise, is not an acceptable test for saturated hydraulic conductivity. Percolation tests overestimate the saturated hydraulic conductivity rate.**

**All field infiltration tests must be conducted in the actual location and soil layer where stormwater infiltration is proposed.**

---

**Test Certification**

I HEREBY CERTIFY THAT THE INFORMATION CONTAINED IN THIS REPORT IS TRUE AND CORRECT.

<table>
<thead>
<tr>
<th>Name of Test Conductor</th>
<th>Signature of Test Conductor</th>
<th>Date</th>
</tr>
</thead>
</table>

---

*All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.*

---

Form NC-101  
February 2012
# SOIL EVALUATION TEST RESULTS

**Project Name:** Barakett Residence  
**Project Address:** 675 Steamboat Road, Greenwich, CT

<table>
<thead>
<tr>
<th>Test Pit or Soil Boring #:</th>
<th>DT2</th>
<th>Ground Elevation: 11.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevation</td>
<td>Soil Texture (Percent Sand, Silt and Clay)</td>
<td>Depth Range in inches</td>
</tr>
<tr>
<td>11.1 - 10.3</td>
<td>Topsoil</td>
<td>0&quot; - 10&quot;</td>
</tr>
<tr>
<td>10.3 - 8.9</td>
<td>Sandy Fill</td>
<td>10&quot; - 26&quot;</td>
</tr>
<tr>
<td>8.9 - 8.1</td>
<td>Gray-Brown Sand</td>
<td>26&quot; - 36&quot;</td>
</tr>
<tr>
<td>8.1 - 7.1</td>
<td>Sand and Large Angular Rocks</td>
<td>36&quot; - 48&quot;</td>
</tr>
</tbody>
</table>

**Saturated Hydraulic Conductivity Test Location #:**

- **Ground Elevation:** ____________________________
- **Top Elevation of Proposed Infiltration System:** ____________________________
- **Bottom Elevation of Proposed Infiltration System:** ____________________________
- **Elevation of Test***: ____________________________

- **Test Method (check one of the following acceptable methods**
  - Borehole infiltration test (NHDES, 2008)
  - Guelph permeameter - ASTM D5126-90 Method
  - Falling head permeameter – ASTM D5126-90 Method
  - Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
  - Anmozer or Amoozegar (constant head) permeameter – Amoozegar 1992

**Attach field data forms for the respective infiltration test method.**

- **Calculated Saturated Hydraulic Conductivity Rate:** ____________________________

**Elevation**          | **Depth in Inches**
------------------------|-------------------
 n/a                    | Motting (Seasonally High Groundwater) n/a |
 n/a                    | Groundwater n/a   |
 7.1                    | Ledge 48"         |

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

**A percolation test, performed in accordance with the guidelines of the Connecticut State Health Code or otherwise, is not an acceptable test for saturated hydraulic conductivity. Percolation tests overestimate the saturated hydraulic conductivity rate.

* All field infiltration tests must be conducted in the actual location and soil layer where stormwater infiltration is proposed.

## TEST CERTIFICATION

I THEREBY CERTIFY THAT THE INFORMATION CONTAINED IN THIS REPORT IS TRUE AND CORRECT.

<table>
<thead>
<tr>
<th>Name of Test Conductor</th>
<th>Signature of Test Conductor</th>
<th>Date</th>
</tr>
</thead>
</table>
SOIL EVALUATION TEST RESULTS

Project Name: Barakett Residence
Project Address: 675 Steamboat Road, Greenwich, CT

Engineering Firm's Name: McChord Engineering Assoc. Inc.
Engineer's Name: Thomas Nelson, P.E.

Test Pit or Soil Boring #: DT3
Ground Elevation: 15.0
Depth Range in Inches

<table>
<thead>
<tr>
<th>Elevation</th>
<th>Soil Texture (Percent Sand, Silt and Clay)</th>
<th>Depth Range in Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.0 - 13.3</td>
<td>Sandy Fill</td>
<td>0&quot; - 21&quot;</td>
</tr>
<tr>
<td>13.3 - 12.4</td>
<td>Original Topsoil</td>
<td>21&quot; - 31&quot;</td>
</tr>
<tr>
<td>12.4 - 10.9</td>
<td>Tan Fine Sandy Loam</td>
<td>31&quot; - 49&quot;</td>
</tr>
<tr>
<td>10.9 - 8.0</td>
<td>Compact Tan Sandy Loam</td>
<td>49&quot; - 84&quot;</td>
</tr>
</tbody>
</table>

Saturated Hydraulic Conductivity Test Location #:

Ground Elevation: ____________________________
Top Elevation of Proposed Infiltration System: ____________________________
Bottom Elevation of Proposed Infiltration System: ____________________________
Elevation of Test*: ____________________________

Test Method (check one of the following acceptable methods**):

- Borchoie infiltration test (NHDES, 2008)
- Guelph permeameter - ASTM D5126-90 Method
- Falling head permeameter - ASTM D5126-90 Method
- Double ring permeameter or infiltrometer - ASTM D3385-02, D5093-02, D5126-90 Methods
- Amoozegar or Amoozegar (constant head) permeameter – Amoozegar 1992

Attach field data forms for the respective infiltration test method.
Calculated Saturated Hydraulic Conductivity Rate: ____________________________

<table>
<thead>
<tr>
<th>Elevation</th>
<th>Depth in Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>n/a</td>
<td>Motling (Seasonally High Groundwater) n/a</td>
</tr>
<tr>
<td>n/a</td>
<td>Groundwater n/a</td>
</tr>
<tr>
<td>n/a</td>
<td>Ledge n/a</td>
</tr>
</tbody>
</table>

**A percolation test, performed in accordance with the guidelines of the Connecticut State Health Code or otherwise, is not an acceptable test for saturated hydraulic conductivity. Percolation tests overestimate the saturated hydraulic conductivity rate.

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

* All field infiltration tests must be conducted in the actual location and soil layer where stormwater infiltration is proposed.

TEST CERTIFICATION

THEREBY CERTIFY THAT THE INFORMATION CONTAINED IN THIS REPORT IS TRUE AND CORRECT.

Name of Test Conductor ____________________________ Signature of Test Conductor ____________________________ Date ____________________________

Form SC-101
February 2012
# SOIL EVALUATION TEST RESULTS

**Project Name:** Barakett Residence  
**Project Address:** 675 Steamboat Road, Greenwich, CT

**Engineering Firm's Name:** McChord Engineering Assoc. Inc.  
**Engineer's Name:** Thomas Nelson, P.E.

### Test Pit or Soil Boring #: DT4  
**Ground Elevation:** 13.8

<table>
<thead>
<tr>
<th>Elevation</th>
<th>Soil Texture (Percent Sand, Silt and Clay)</th>
<th>Depth Range in Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.8 - 12.6</td>
<td>Sandy Fill</td>
<td>0&quot; - 15&quot;</td>
</tr>
<tr>
<td>12.6 - 11.2</td>
<td>Original Topsoil</td>
<td>15&quot; - 31&quot;</td>
</tr>
<tr>
<td>11.2 - 9.0</td>
<td>Tan Fine Sandy Loam</td>
<td>31&quot; - 58&quot;</td>
</tr>
<tr>
<td>9.0 - 7.8</td>
<td>Compact Tan-Gray Sandy Loam</td>
<td>58&quot; - 72&quot;</td>
</tr>
</tbody>
</table>

### Saturated Hydraulic Conductivity Test Location #:

**Ground Elevation:**

| Top Elevation of Proposed Infiltration System: |
| Bottom Elevation of Proposed Infiltration System: |
| Elevation of Test*: |

Test Method (check one of the following acceptable methods**):

- Borehole infiltration test (NHDES, 2008)
- Guelph permeameter - ASTM D5126-90 Method
- Falling head permeameter - ASTM D5126-99 Method
- Double ring permeameter or infiltrometer - ASTM D3385-03, D5093-02, D5126-90 Methods
- Amoozegar or Amoozegar (constant head) permeameter - Amoozegar 1992

Attach field data forms for the respective infiltration test method.

**Calculated Saturated Hydraulic Conductivity Rate:**

**A percolation test, performed in accordance with the guidelines of the Connecticut State Health Code or otherwise, is not an acceptable test for saturated hydraulic conductivity. Percolation tests overestimate the saturated hydraulic conductivity rate.**

* All test pits or soil borings shall be excavated to an elevation four feet below the proposed bottom elevation of the infiltration system.

### TEST CERTIFICATION

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<table>
<thead>
<tr>
<th>Name of Test Conductor</th>
<th>Signature of Test Conductor</th>
<th>Date</th>
</tr>
</thead>
</table>
APPENDIX B:

CREDITS FOR LOW IMPACT DEVELOPMENT

BEST MANAGEMENT PRACTICES
<table>
<thead>
<tr>
<th>LID Technique</th>
<th>Compliance Requirements</th>
<th>Credit</th>
<th>LID Used</th>
<th>Credit Taken</th>
</tr>
</thead>
</table>
| Minimizing Soil Compaction (Section 4.4.1) | - The "no disturbance" areas are protected by having the limits of disturbance and access clearly shown on the Stormwater Management Plan, all construction drawings, and delineated/flagged/fenced in the field.  
- "No disturbance" areas are not to be stripped of existing topsoil.  
- "No disturbance" areas are not to be stripped of existing vegetation.  
- Vehicle movement, storage, or equipment/material lay-down is not to be permitted in "no disturbance" areas.  
- Use of soil amendments and additional topsoil is permitted in other areas being disturbed. Grading may be performed using low ground pressure equipment (less than 3 pounds per square inch) to reduce the potential for soil compaction.  
- Lawn and turf grass are acceptable uses. Planted meadow is an encouraged use. | Areas that comply (i.e., "no disturbance areas") can use the forested cover and open space site cover runoff coefficient (R) when calculating the required Water Quality Volume. See Section 5.6.3 and Table 5-5, Site Cover Runoff Coefficients. | ☐        | ☐            |
| Minimizing Site Disturbance (Section 4.4.2) | Site disturbance including earthwork and clearing of vegetation should be limited to 40 feet beyond the building perimeter. 10 feet beyond the primary roadway curbs, walkways, and main utility branch trenches, and 25 feet beyond areas of proposed infiltration in order to limit compaction in the proposed infiltration area. This guidance is not intended to limit lawn areas. | Areas that comply can use the forested cover and open space site cover runoff coefficient (R) when calculating the required Water Quality Volume. See Section 5.6.3 and Table 5-5, Site Cover Runoff Coefficients. | ☐        | ☐            |
| Protecting Sensitive Natural Areas (Section 4.4.3) | Sensitive natural areas should be conserved at development sites, thereby preserving predevelopment hydrologic and water quality characteristics. The area must be permanently protected under a conservation easement. | The project proponent can subtract the conservation area from the total area in the Water Quality Volume calculation. | ☐        | ☐            |
| Protecting Riparian Buffers (Section 4.4.4) | Effective treatment of stormwater runoff is achieved when pervious and impervious area runoff is discharged to a grass or forested buffer via overland flow. The use of a filter strip is recommended to treat overland flow in the green space of a development site.  
- The minimum stream buffer width (i.e., perpendicular to the stream flow path) shall be 50 feet as measured from the top bank elevation of a stream or the boundary of a wetland.  
- The maximum contributing path shall be 150 feet for pervious surfaces and 75 feet for impervious surfaces.  
- The average contributing overland slope to and across the buffer shall be less than or equal to 5%.  
- Runoff shall enter the buffer as sheet flow. A level spreader shall be utilized where local site conditions prevent sheet flow from being maintained.  
- The stream buffer remains unmanaged other than routine debris removal.  
- The buffer is protected by an acceptable conservation easement or other enforceable instrument that provides perpetual protection of the area. The easement must clearly specify how the natural area vegetation shall be | The area draining by sheet flow to a buffer can be subtracted from the total area in the Water Quality Volume calculation, and the impervious area draining to the buffer by sheet flow can be subtracted from the impervious area in the Groundwater Recharge Volume calculation and post-development impervious area in the Runoff Reduction Volume calculation. | ☐        | ☐            |
<table>
<thead>
<tr>
<th>LID Technique</th>
<th>Compliance Requirements</th>
<th>Credit</th>
<th>LID Used</th>
<th>Credit Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoiding Disturbance of Steep Slopes (Section 4.4.5)</td>
<td>Development on steep slope areas shall be avoided. Unnecessary grading should be avoided on all slopes, as should the flattening of hills and ridges. Development shall follow the natural contours of the landscape.</td>
<td>Undisturbed steep slope areas can use the forested cover and open space site cover runoff coefficient (R) when calculating the required Water Quality Volume. See Section 5.6.3 and Table 5-5, Site Cover Runoff Coefficients.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Siting on Permeable and Erodible Soils (Section 4.4.6)</td>
<td>Whenever possible, highly erodible soils should be left undisturbed and protected from disturbance during site construction. Gravel soils tend to be the least erodible. Also as clay and organic matter increase erodibility tends to decrease. Infiltration practices should be located on those portions of the site with the most permeable soils.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protecting Natural Flow Pathways (Section 4.4.7)</td>
<td>Site designs should use and/or improve natural drainage pathways whenever possible to reduce or eliminate the need for stormwater pipe networks. Natural drainage pathways should be protected from significantly increased runoff volumes and rates due to development. The design should prevent the erosion and degradation of natural drainage pathways through the use of upstream volume and rate control BMPs, if necessary. Level spreaders, erosion control matting, revegetation, outlet stabilization, and check dams can also be used to protect natural drainage features.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reducing Impervious Surfaces (Section 4.4.8)</td>
<td>By reducing the amount of paved surfaces, stormwater runoff is decreased while infiltration and evapotranspiration opportunities are increased.</td>
<td>Reducing impervious surfaces reduces the Water Quality Volume. Runoff Reduction Volume, Groundwater Recharge Volume, and Peak Flow/Runoff Attenuation requirements.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Stormwater Disconnection (Section 4.4.9)</td>
<td>Disconnecting roof leaders and routing road and driveway runoff from conventional stormwater conveyance systems allows runoff to be collected and managed onsite. Runoff can be directed to vegetated areas designed for onsite storage, treatment, and volume control. All design criteria from section 4.4.9 must be met in order to obtain the credits shown.</td>
<td>Methods to compute the resultant runoff volumes and peak runoff rates from disconnected impervious areas are discussed in Section 4.6 of this manual and the design references cited therein. For simple disconnection, subtract 100% of the disconnected area from the total area in the Water Quality Volume calculation if the receiving pervious area is HSG A or B soils or 50% of the</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
## Credits for Low Impact Development (LID) Best Management Practices (BMPs)

<table>
<thead>
<tr>
<th>LID Technique</th>
<th>Compliance Requirements</th>
<th>Credit</th>
<th>LID Used</th>
<th>Credit Taken</th>
</tr>
</thead>
</table>
| **Compost-Amended Soils** | Restore the original properties and porosity of the soil by deep till and amendment with compost to reduce the generation of runoff and enhance the runoff reduction performance of infiltration BMPs.  
  - Soil must be tilled to 12 to 16 inches and amended with small amounts of organic material.  
  - For mechanical aeration of lawns/turf to be effective:  
    - Utilize a soil aerator that has a mechanical action that not only penetrates the soil surface but also shatters the soil matrix, causing the soil to decompact and crack, thus creating void space and increasing infiltration. (Passive-type aerators which simply poke a hole into the soil, whether it removes a plug or simply spikes a hole, can create a hardpan effect at the depth of penetration.)  
    - Shatter-type aerators include vertidrain, soil reliever, agravator, and groundbreaker. Shatter-type aerators should penetrate the soil at depths of 8 to 18 inches.  
  - The depth to water table or bedrock must be greater than 18 inches.  
  - Existing soils may not be saturated or seasonal wet.  
  - Slopes may not exceed 10%.  
  - Existing tree root systems shall be avoided, no deep till or amendment under the tree drip lines. | disconnected area if the receiving pervious area is HSG C or D soils.  
  For disconnection to LID BMPs, subtract 100% of the disconnected area from the total area in the Water Quality Volume calculation.  
  Subtract 50% of any restored areas (100% of any restored and reforested areas) from the total post development site area and re-calculate the Runoff Reduction Volume. | ☐        | ☐            |
| **Rainwater Harvesting (Rain Barrels)** | Rain barrels should hold a minimum of 50 gallons.  
Rain barrels can be connected in series to provide larger storage volumes.  
Equip rain barrels with a drain spigot near the bottom of the barrel with garden hose threading to allow easy hook up and use for watering.  
Provide an overflow pipe or hose near the top of the rain barrel.  
Provide removable, child-resistant covers.  
Provide mosquito screening on water entry holes to prevent mosquito breeding in standing water | Subtract 25% of the contributing drainage area from the total area in the Water Quality Volume calculation. | ☐        | ☐            |
## Credits for Low Impact Development (LID) Best Management Practices (BMPs)

<table>
<thead>
<tr>
<th>LID Technique</th>
<th>Compliance Requirements</th>
<th>Credit</th>
<th>LID Used</th>
<th>Credit Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rainwater Harvesting</td>
<td>The rooftop runoff must be captured and either (1) used on site for irrigation of lawns and gardens, wash water and other non-potable uses, or (2) treated and released, or (3) infiltrated. The cistern must be sized to treat the design rainfall from the roof area directed to the water harvesting system. If all of the design volume captured cannot be used, then a scaled reduction in credit will be given. The remaining volume must be treated by a properly designed BMP. A minimum factor of safety equal to 1.2 must be applied to the calculated cistern volume required. All stormwater collected must have a dedicated, year-round, use to assure no overflow of the system during a design rainfall. A water balance calculation must be used to establish the dedicated use volumes and rates. The water balance calculation must demonstrate that the design volume can: (1) be drawn down (used) within 3 days to allow for available volume in the system for the next rain event to be captured and stored, or (2) have an overflow of no more than 14 percent of the annual average historic rainfall, or (3) be drawn down within 3 days and discharged to a properly designed BMP. On a case-by-case basis, reduced credit may be given if the design volume cannot be reliably drawn down within 3 days, or if a year-round reuse is not available. The dedicated water use system must be automated to ensure that the water will be used at the rate and volume designed. The overflow shall discharge flows in excess of the design volume to a vegetated or natural area, or to another properly designed BMP (e.g., rain garden). This discharge shall be non-erodible flow for the 10-yr rainfall event. It shall not discharge directly to impervious surfaces. The elevation of the overflow pipe from the cistern shall be at or above the design volume elevation. If a first flush diverter is used, the bypassed water must discharge to a properly designed BMP. The first flush can be directed to a relatively small BMP next to the water harvesting system, or it can be directed to and accounted for in other BMPs on the site. At a minimum, a 1 mm or smaller screen at the entrance to the cistern from the gutter system shall be provided to filter out debris and to keep mosquitoes out of the cistern. If the water reuse system is designed to accommodate basement sump/foundation drain water and roof runoff, the design must allow for adequate storage for the full volume of roof runoff for the next design storm and basement sump/foundation drain water.</td>
<td>Subtract 100% of the contributing drainage area from the total area in the Water Quality Volume calculation.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

C-4
<table>
<thead>
<tr>
<th>LID Technique</th>
<th>Compliance Requirements</th>
<th>Credit</th>
<th>LID Used</th>
<th>Credit Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A properly designed footing for the cistern must be designed if the load of the cistern at full capacity is greater than the soils will support. If it is buried, buoyancy calculations must be provided to show the cistern will not float when empty. Buoyancy calculations and flotation constraints must be provided if any part of the buried cistern is below the seasonal high water table, or if the area is subject to flooding. An appropriate pump shall be selected to provide adequate pressure for its designated uses. Above ground cisterns shall be made of a material or color that prevents light from entering the cistern, which helps prevent algae growth within the cistern. Irrigation water from a cistern shall be applied so that the water infiltrates into the ground. If for any reason the designed dedicated end use becomes unavailable because of some change, it will be required that an approved alternative end use or a properly designed BMP treatment system be installed on site to manage the roof runoff. The harvesting system shall be labeled and identified as non-potable water. The harvesting system shall meet all local and state building and plumbing codes.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX C:

PEAK FLOW COMPUTATIONS
**Events for Link SUM1: Sum Hydrographs at Seawall**

<table>
<thead>
<tr>
<th>Event</th>
<th>Inflow (cfs)</th>
<th>Volume (cubic-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Year</td>
<td>0.61</td>
<td>2,139</td>
</tr>
<tr>
<td>2-Year</td>
<td>0.85</td>
<td>2,917</td>
</tr>
<tr>
<td>5-Year</td>
<td>1.33</td>
<td>4,447</td>
</tr>
<tr>
<td>10-Year</td>
<td>1.78</td>
<td>5,906</td>
</tr>
<tr>
<td>25-Year</td>
<td>2.53</td>
<td>6,409</td>
</tr>
<tr>
<td>50-Year</td>
<td>3.25</td>
<td>10,817</td>
</tr>
<tr>
<td>100-Year</td>
<td><strong>4.15</strong></td>
<td><strong>13,915</strong></td>
</tr>
</tbody>
</table>
### Existing Conditions - 675 Steamboat

**Type III 24-hr 1-Year Rainfall=2.90"**

Prepared by (enter your company name here)

HydroCAD® 6.00  ss/n 004601 © 2007 HydroCAD Software Solutions LLCPeople on Page 1

<table>
<thead>
<tr>
<th>Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runoff by SCS TR-20 method, UH=SCS</td>
</tr>
<tr>
<td>Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method</td>
</tr>
</tbody>
</table>

**Subcatchment E1a: Undetained Area to Runoff Area=27,070 sf**

- Impervious: Runoff Depth=0.95"
  - Flow Length=98" TC=6.0 min CN=76 Runoff=0.61 cfs 2.139 cf
- Pervious: Runoff Depth=0.55"
  - Flow Length=98" TC=6.0 min CN=76 Runoff=0.61 cfs 2.139 cf

**Link SUM1: Sum Hydrographs at Seawall**

- Inflow=0.61 cfs 2.139 cf
- Primary=0.61 cfs 2.139 cf

**Total Runoff Area = 27,070 sf**

- Runoff Volume = 2.139 cf
- Average Runoff Depth = 0.95"
  - 59.51% Pervious = 16,110 sf
  - 40.49% Impervious = 10,960 sf

---

### Existing Conditions - 675 Steamboat

**Type III 24-hr 2-Year Rainfall=3.40"**

Prepared by (enter your company name here)

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<table>
<thead>
<tr>
<th>Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runoff by SCS TR-20 method, UH=SCS</td>
</tr>
<tr>
<td>Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method</td>
</tr>
</tbody>
</table>

**Subcatchment E1a: Undetained Area to Runoff Area=27,070 sf**

- Impervious: Runoff Depth=1.29"
  - Flow Length=98" TC=6.0 min CN=76 Runoff=0.85 cfs 2.917 cf
- Pervious: Runoff Depth=1.29"
  - Flow Length=98" TC=6.0 min CN=76 Runoff=0.85 cfs 2.917 cf

**Link SUM1: Sum Hydrographs at Seawall**

- Inflow=0.85 cfs 2.917 cf
- Primary=0.85 cfs 2.917 cf

**Total Runoff Area = 27,070 sf**

- Runoff Volume = 2.917 cf
- Average Runoff Depth = 1.29"
  - 59.51% Pervious = 16,110 sf
  - 40.49% Impervious = 10,960 sf
Existing Conditions - 675 Steamboat

Type III 24-hr 5-Year Rainfall = 4.30" 
Prepared by (enter your company name here) 
HydroCAD® 6.50 \编 064601 © 2007 HydroCAD Software Solutions LLC 

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1a: Undetained Area to
Runoff Area = 27,070 sf 40.49% Impervious  Runoff Depth = 1.57" 
Flow Length = 98' Tc=8.0 min CN=76  Runoff=1.33 cfs 4.447 cf

Link SUM1: Sum Hydrographs at Seawall
Inflow=1.33 cfs 4.447 cf 
Primary=1.33 cfs 4.447 cf

Total Runoff Area = 27,070 sf  Runoff Volume = 4,447 cf  Average Runoff Depth = 1.57"
59.51% Pervious = 16,116 sf  40.49% Impervious = 10,950 sf

Existing Conditions - 675 Steamboat

Type III 24-hr 10-Year Rainfall = 5.10" 
Prepared by (enter your company name here) 
HydroCAD® 6.50 \编 064601 © 2007 HydroCAD Software Solutions LLC 

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1a: Undetained Area to
Runoff Area = 27,070 sf 40.49% Impervious  Runoff Depth = 2.62" 
Flow Length = 98' Tc=8.0 min CN=76  Runoff=1.78 cfs 5,906 cf

Link SUM1: Sum Hydrographs at Seawall
Inflow=1.78 cfs 5,906 cf 
Primary=1.78 cfs 5,906 cf

Total Runoff Area = 27,070 sf  Runoff Volume = 5,906 cf  Average Runoff Depth = 2.62"
59.51% Pervious = 16,110 sf  40.49% Impervious = 10,960 sf
**Existing Conditions - 675 Steamboat**

Prepared by (enter your company name here)

Type III 24-hr 25-Year Rainfall=8.40"  
Type III 24-hr 50-Year Rainfall=7.60"

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---

### Time span=0.00-36.00 hrs  dt=0.01 hrs  3601 points
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-ind method

### Subcatchment E1a: Undetained Area to

- Runoff Area=27,070 sf  40.49% Impervious  Runoff Depth=3.73"  
  - Flow Length=98'  C=8.6 min  CN=76  Runoff=2.53 cfs  8,409 cf

### Link SUM1: Sum Hydrographs at Seawall

- Inflow=3.35 cfs  8,409 cf  
  - Primary=3.35 cfs  8,409 cf

**Total Runoff Area = 27,070 sf**  
**Runoff Volume = 8,409 cf**  
**Average Runoff Depth = 3.73"**

55.51% Pervious = 16,110 sf  
40.49% Impervious = 10,960 sf

---

### Time span=0.00-36.00 hrs  dt=0.01 hrs  3601 points
Reach routing by SCS TR-20 method  UH=SCS  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-ind method

### Subcatchment E1a: Undetained Area to

- Runoff Area=27,070 sf  40.49% Impervious  Runoff Depth=4.80"  
  - Flow Length=98'  C=8.6 min  CN=76  Runoff=3.25 cfs  10,817 cf

### Link SUM1: Sum Hydrographs at Seawall

- Inflow=3.25 cfs  10,817 cf  
  - Primary=3.25 cfs  10,817 cf

**Total Runoff Area = 27,070 sf**  
**Runoff Volume = 10,817 cf**  
**Average Runoff Depth = 4.80"**

59.51% Pervious = 16,110 sf  
40.49% Impervious = 10,960 sf
Existing Conditions - 675 Steamboat
Prepared by (enter your company name here)

Type III 24-hr 100-Year Rainfall=9.10"

Time span=0.30-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by GCB TR-20 method, UH=5C6
Reach routing by Stor-nd+Trans method - Pond routing by Stor-nd method

Subcatchment E1a: Undetained Area

Runoff Area = 27.070 sf  40.49% Impervious  Runoff Depth = 6.17"
Flow Length = 0 ft  Tc=8.0 min  CN=76  Runoff = 4.15 cfs  13.915 cf

Link SUM1: Sum Hydrographs at Seawall

Inflow = 4.15 cfs  13.915 cf
Primary = 4.16 cfs  13.015 cf

Total Runoff Area = 27.070 sf  Runoff Volume = 13.915 cf  Average Runoff Depth = 6.17"
59.51% Pervious = 16,110 sf  40.49% Impervious = 10,960 sf
Undetained Area to Smith Cove

Sum Hydrographs at Seawall

Existing Conditions - 675 Steamboat
Prepared by [enter your company name here]

<table>
<thead>
<tr>
<th>Area (sq-ft)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15,840</td>
<td>81</td>
<td>&gt;75% Grass cover, Good, HSG B (E1a)</td>
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<tr>
<td>270</td>
<td>90</td>
<td>Ledge (E1a)</td>
</tr>
<tr>
<td>5,060</td>
<td>98</td>
<td>Driveway (E1a)</td>
</tr>
<tr>
<td>100</td>
<td>98</td>
<td>Gazebo (E1a)</td>
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<tr>
<td>4,030</td>
<td>98</td>
<td>House (E1a)</td>
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<td>1,630</td>
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<td>Patio (E1a)</td>
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<tr>
<td>140</td>
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<td>Walks (E1a)</td>
</tr>
<tr>
<td>27,079</td>
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<td>TOTAL AREA</td>
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</tbody>
</table>
**Existing Conditions - 675 Steamboat**

**Type III 24-hr 25-Year Rainfall=6.40"**

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---

**Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points**

**Runoff by SCS TR-20 method, UH=SCS**

Reach routing by Stor-ind+Trans method - Pond routing by Stor-ind method

**Subcatchment E1a: Undetained Area to Smith Cove**

**Runoff Area=27,070 sf, 40.49% impervious, Runoff Depth=3.73"**

Flow Length=98’ Tc=8.0 min CN=76 Runoff=2.53 cfs 8,409 cf

**Link SUM1: Sum Hydrographs at Seawall**

Inflow=2.53 cfs 8,409 cf

Primary=2.53 cfs 8,409 cf

Total Runoff Area = 27,070 sf Runoff Volume = 8,409 cf Average Runoff Depth = 3.73"

59.51% Pervious = 16,110 sf 40.49% impervious = 10,960 sf

---

**Existing Conditions - 675 Steamboat**

**Type III 24-hr 25-Year Rainfall=6.40"**

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**Summary for Subcatchment E1a: Undetained Area to Smith Cove**

Runoff = 2.53 cfs @ 12.11 hrs, Volume = 8,409 cf, Depth = 3.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span=0.00-36.00 hrs, dt=0.01 hrs

**Type III 24-hr 25-Year Rainfall=6.40"**

---

**Area (ft²) CN Description**

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<th>Area</th>
<th>CN</th>
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<td>16,110</td>
<td>86</td>
</tr>
<tr>
<td>27,070</td>
<td>75</td>
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<tr>
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<td>86</td>
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<tr>
<td>270</td>
<td>90</td>
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**To | Length | Slope | Velocity | Capacity | Description**

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<thead>
<tr>
<th>To (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
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<td>0.4</td>
<td>23</td>
<td>0.0200</td>
<td>1.04</td>
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<td>Grass Dense n=0.240 P=3.36&quot;</td>
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<tr>
<td></td>
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<td></td>
<td></td>
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<td>Smooth surfaces n=0.011 P=3.30&quot;</td>
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</table>

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**Subcatchment E1a: Undetained Area to Smith Cove**

**Hydrograph**

- **Type III 24-hr 25-Year Rainfall=6.40"**
- **Runoff Area=27,070 sf**
- **Runoff Volume=8,409 cf**
- **Runoff Depth=3.73"**
- **Flow Length=98’**
- **To=8.0 min**
- **CN=76**
**Summary for Link SUM1: Sum Hydrographs at Seawall**

- **Inflow Area**: 27,070 sf, 40.40% Impervious, Inflow Depth = 3.72" for 25-Year event
- **Inflow**: 2.53 cfs @ 12.11 hrs, Volume = 8,409 cf
- **Primary**: 2.53 cfs @ 12.11 hrs, Volume = 8,409 cf, Attenuation = 0%, Lag = 0.0 min

Primary outflow = Inflow, Time Span = 0.00-26.00 hrs, ct = 0.01 hrs

**Inflow Area = 27,070 sf**
Events for Link SUM1: Sum Hydrographs at Seawall

<table>
<thead>
<tr>
<th>Event</th>
<th>Inflow (cfs)</th>
<th>Volume (cubic-feet)</th>
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<tr>
<td>1-Year</td>
<td>0.16</td>
<td>1,260</td>
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<tr>
<td>2-Year</td>
<td>0.25</td>
<td>2,092</td>
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<td>5-Year</td>
<td>0.80</td>
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<td>10-Year</td>
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<td>25-Year</td>
<td>2.17</td>
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<td>10,172</td>
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<tr>
<td>100-Year</td>
<td>3.84</td>
<td>13,289</td>
</tr>
</tbody>
</table>
Proposed Conditions - 675 Steamboat

Type III 24-hr 1-Year Rainfall=2.90"  
Prepared by (enter your company name here)

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment Pt a: Undeated Area to  
Runoff Area=12,210 sf  17.77% Impervious  Runoff Depth=0.58"  
Flow Length=40'  Slope=0.0375'  Tc=5.3 min  CN=68  Runoff=0.16 cfs  586 cf

Subcatchment Pt b: Area to Permeable  
Runoff Area=8,300 sf  72.89% Impervious  Runoff Depth=1.73"  
Tc=5.0 min  CN=98  Runoff=0.40 cfs  1,196 cf

Subcatchment Pt c: Area to Rain Garden  
Runoff Area=6,560 sf  74.39% Impervious  Runoff Depth=1.31"  
Tc=5.0 min  CN=98  Runoff=0.33 cfs  989 cf

Pond Dtb: Permeable Driveway  
Peak Elev=11.29'  Storage=926 cf  Inflow=0.40 cfs  1,196 cf  8.0' x 23.0' Culvert  Outflow=0.01 cfs  361 cf

Pond RG1c: Rain Garden  
Peak Elev=9.51'  Storage=678 cf  Inflow=0.33 cfs  989 cf  Outflow=0.02 cfs  314 cf

Link SUM1: Sum Hydrographs at Seawall  
Inflow=0.16 cfs  1,260 cf  Primary=0.16 cfs  1,260 cf

Total Runoff Area = 27,070 sf  Runoff Volume = 2,771 sf  Average Runoff Depth = 1.23"  
51.61% Pervious = 13,970 sf  48.39% Impervious = 13,100 sf

Proposed Conditions - 675 Steamboat

Type III 24-hr 2-Year Rainfall=3.40"  
Prepared by (enter your company name here)

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment Pt a: Undeated Area to  
Runoff Area=12,210 sf  17.77% Impervious  Runoff Depth=0.84"  
Flow Length=40'  Slope=0.0375'  Tc=5.3 min  CN=68  Runoff=0.25 cfs  859 cf

Subcatchment Pt b: Area to Permeable  
Runoff Area=8,300 sf  72.89% Impervious  Runoff Depth=2.15"  
Tc=5.0 min  CN=98  Runoff=0.50 cfs  1,506 cf

Subcatchment Pt c: Area to Rain Garden  
Runoff Area=6,560 sf  74.39% Impervious  Runoff Depth=2.26"  
Tc=5.0 min  CN=98  Runoff=0.41 cfs  1,238 cf

Pond Dtb: Permeable Driveway  
Peak Elev=11.29'  Storage=581 cf  Inflow=0.50 cfs  1,506 cf  9.0' x 23.0' Culvert  Outflow=0.03 cfs  671 cf

Pond RG1c: Rain Garden  
Peak Elev=5.53'  Storage=686 cf  Inflow=0.41 cfs  1,238 cf  Outflow=0.10 cfs  363 cf

Link SUM1: Sum Hydrographs at Seawall  
Inflow=0.25 cfs  2,092 cf  Primary=0.25 cfs  2,092 cf

Total Runoff Area = 27,070 sf  Runoff Volume = 1,603 cf  Average Runoff Depth = 1.69"  
51.61% Pervious = 13,970 sf  48.39% Impervious = 13,100 sf
Proposed Conditions - 675 Steamboat

Prepared by [enter your company name here]

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Page 3

Time span=0:00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment Pt.a: Undetained Area to Flow Length=40'

Runoff Area=12,210 sf 17.77% Impervious Runoff Depth=1.40'
\( Tc=5.3 \text{ min} \) \( CN=68 \) Runoff=0.45 cfs 1.423 cf

Subcatchment Pt.b: Area to Permeable

Runoff Area=8,300 sf 72.89% Impervious Runoff Depth=3.01'
\( Tc=5.0 \text{ min} \) \( CN=68 \) Runoff=0.69 cfs 2.081 cf

Subcatchment Pt.c: Area to Rain Garden

Runoff Area=6,580 sf 74.33% Impervious Runoff Depth=3.11'
\( Tc=5.0 \text{ min} \) \( CN=69 \) Runoff=0.69 cfs 1.998 cf

Pond D1b: Permeable Driveway

Peak Elev=11.39' Storage=1.142 cf Inflow=0.69 cfs 2.081 cf
\( 8.5' \times 25.0' \) Culvert Outflow=0.12 cfs 1.245 cf

Pond RG1c: Rain Garden

Peak Elev=9.5' Storage=704 cf Inflow=0.55 cfs 1.698 cf
Outflow=0.41 cfs 1.022 cf

Link SUM1: Sum Hydrographs at Seawall

Inflow=0.80 cfs 3.691 cf
Primary=0.80 cfs 3.691 cf

Total Runoff Area = 27,070 sf Runoff Volume = 5,202 cf Average Runoff Depth = 2.31'
51.61% Pervious = 13,970 sf 48.39% Impervious = 13,100 sf

Proposed Conditions - 675 Steamboat

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Time span=0:00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment Pt.a: Undetained Area to Flow Length=40'

Runoff Area=12,210 sf 17.77% Impervious Runoff Depth=1.95'
\( Tc=5.3 \text{ min} \) \( CN=68 \) Runoff=0.64 cfs 1.985 cf

Subcatchment Pt.b: Area to Permeable

Runoff Area=8,300 sf 72.89% Impervious Runoff Depth=3.75'
\( Tc=5.0 \text{ min} \) \( CN=68 \) Runoff=0.85 cfs 2.603 cf

Subcatchment Pt.c: Area to Rain Garden

Runoff Area=6,580 sf 74.33% Impervious Runoff Depth=3.87'
\( Tc=5.0 \text{ min} \) \( CN=69 \) Runoff=0.69 cfs 2.114 cf

Pond D1b: Permeable Driveway

Peak Elev=11.48' Storage=1,292 cf Inflow=0.85 cfs 2.603 cf
\( 8.5' \times 25.0' \) Culvert Outflow=0.23 cfs 1.798 cf

Pond RG1c: Rain Garden

Peak Elev=9.62' Storage=716 cf Inflow=0.69 cfs 2.114 cf
Outflow=0.67 cfs 1.439 cf

Link SUM1: Sum Hydrographs at Seawall

Inflow=1.36 cfs 5.192 cf
Primary=1.36 cfs 5.192 cf

Total Runoff Area = 27,070 sf Runoff Volume = 6,703 cf Average Runoff Depth = 2.97'
51.61% Pervious = 13,570 sf 48.39% Impervious = 13,100 sf
Proposed Conditions - 675 Steamboat

Prepared by (enter your company name here)

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Type III 24-hr 25-Year Rainfall=6.40"  

Time span=0.00-36.00 hrs, d-t=0.01 hrs, 3601 points 
Runoff by SCS TR-20 method, UH=SCS 
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-ind method

Subcatchment P1a: Undetained Area to 
Runoff Area=2,210 sf  17.77% Impervious  Runoff Depth=2.33" 
Flow Length=40'  Slope=0.0376"  Tc=5.2 min  CN=68  Runoff=0.98 cfs  2.931 cf

Subcatchment P1b: Area to Permeable 
Runoff Area=8,300 sf  72.88% Impervious  Runoff Depth=5.01" 
Tc=0.0 min  CN=99  Runoff=1.12 cf  3.407 cf

Subcatchment P1c: Area to Rain Garden 
Runoff Area=6,560 sf  74.38% Impervious  Runoff Depth=5.12" 
Tc=5.0 min  CN=69  Runoff=0.99 cf  2.801 cf

Pond D1b: Permeable Driveway 
Peak Elev=11.61'  Storage=1,512 cf  Inflow=1.12 cfs  3.467 cf 
8.6" x 25.5' Culvert  Outflow=0.49 cfs  2.631 cf

Pond RG1c: Rain Garden 
Peak Elev=9.65'  Storage=725 cf  Inflow=0.05 cfs  2.801 cf 
Outflow=0.66 cfs  2.125 cf

Link SUM1: Sum Hydrographs at Seawall 
Inflow=2.17 cfs  7.739 cf 
Primary=2.17 cfs  7.739 cf

Total Runoff Area = 27,070 sf  Runoff Volume = 9,220 cf  Average Runoff Depth = 4.10" 
51.61% Pervious = 13,970 sf  48.39% Impervious = 13,100 sf

Proposed Conditions - 675 Steamboat

Prepared by (enter your company name here)

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Type III 24-hr 50-Year Rainfall=7.00"  

Time span=0.00-36.00 hrs, d-t=0.01 hrs, 3601 points 
Runoff by SCS TR-20 method, UH=SCS 
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-ind method

Subcatchment P1a: Undetained Area to 
Runoff Area=12,210 sf  17.77% Impervious  Runoff Depth=3.90" 
Flow Length=40'  Slope=0.0375"  Tc=5.3 min  CN=68  Runoff=1.31 cfs  3.970 cf

Subcatchment P1b: Area to Permeable 
Runoff Area=8,300 sf  72.88% Impervious  Runoff Depth=6.15" 
Tc=5.0 min  CN=84  Runoff=1.36 cfs  4.732 cf

Subcatchment P1c: Area to Rain Garden 
Runoff Area=6,560 sf  74.38% Impervious  Runoff Depth=6.29" 
Tc=5.0 min  CN=69  Runoff=1.05 cfs  3.441 cf

Pond D1b: Permeable Driveway 
Peak Elev=11.72'  Storage=1,697 cf  Inflow=1.36 cfs  4.732 cf 
8.6" x 25.5' Culvert  Outflow=0.72 cfs  3.437 cf

Pond RG1c: Rain Garden 
Peak Elev=5.67'  Storage=733 cf  Inflow=1.05 cfs  3.441 cf 
Outflow=0.68 cfs  2.766 cf

Link SUM1: Sum Hydrographs at Seawall 
Inflow=2.95 cfs  10.172 cf 
Primary=2.95 cfs  10.172 cf

Total Runoff Area = 27,070 sf  Runoff Volume = 11,684 cf  Average Runoff Depth = 6.14" 
51.61% Pervious = 13,970 sf  48.39% Impervious = 13,100 sf
Proposed Conditions - 675 Steamboat

Prepared by (enter your company name here)

Type III 24-hr 100-Year Rainfall=9.10"%

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment P1a: Undetained Area to**
- Runoff Area=12,210 sf
- $17.77\%$ Impervious
- Runoff Depth=5.17"$
- Flow Length=40'$
- Slope=0.6376$'
- $T_c=5.2$ min
- CN=68
- Runoff=1.74 cfs
- 5.265 cf

**Subcatchment P1b: Area to Permeable**
- Runoff Area=8,300 sf
- $72.69\%$ Impervious
- Runoff Depth=7.65"$
- T_c=5.0$ min
- CN=49
- Runoff=1.66 cfs
- 5.269 cf

**Subcatchment P1c: Area to Rain Garden**
- Runoff Area=6,560 sf
- $74.39\%$ Impervious
- Runoff Depth=7.77"$
- T_c=5.0$ min
- CN=69
- Runoff=1.33 cfs
- 4.247 cf

**Pond D1b: Permeable Driveway**
- Peak Elev=11.84'
- Storage=1,889 cf
- Inflow=1.66 cfs
- 5.289 cf
- 8.6' x 25.5' Culvert
- Outflow=0.53 cfs
- 4.452 cf

**Pond RG1c: Rain Garden**
- Peak Elev=9.69'
- Storage=742 cf
- Inflow=1.33 cfs
- 4.247 cf
- Outflow=1.31 cfs
- 3.571 cf

**Link SUM1: Sun Hydrographs at Seawall**
- Inflow=3.84 cfs
- 13,289 cf
- Primary=3.84 cfs
- 13,289 cf

**Total Runoff Area = 27,070 sf**
**Runoff Volume = 14,800 cf**
**Average Runoff Depth = 6.56"**
**51.61\% Pervious = 13,970 sf**
**48.39\% Impervious = 13,100 sf**
Area Listing (all nodes)

<table>
<thead>
<tr>
<th>Area (sq-ft)</th>
<th>CN</th>
<th>Description</th>
<th>Subcatchment-numbers</th>
</tr>
</thead>
<tbody>
<tr>
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<td>61</td>
<td>&gt;75% Grass cover, Good, HSG B (Pt1a,Pt1b,Pt1c)</td>
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<tr>
<td>270</td>
<td>90</td>
<td>Ledge (Pt1a)</td>
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<td>1,010</td>
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<td>Driveway (Pt1c)</td>
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<td>Ex Patio (Pt1a)</td>
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<td>3,260</td>
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<td>House (Pt1b,Pt1c)</td>
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<td>TOTAL AREA</td>
<td></td>
</tr>
</tbody>
</table>
Provisional Conditions - 675 Steamboat

Prepared by (enter your company name here)

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Inz+Trans method - Pond routing by Stor-Ind method

Subcatchment P1a: Undetained Area to
Flow Length=40' Runoff Area=12,210 sf 17.77% Impervious Runoff Depth=2.93''
Slope=0.0375'' 7c=5.3 min CN=68 Runoff=0.98 cfs 2.983 cf

Subcatchment P1b: Area to Permeable
Runoff Area=8,300 sf 72.99% Impervious Runoff Depth=5.01''
Tc=5.0 min CN=88 Runoff=1.12 cfs 3.467 cf

Subcatchment P1c: Area to Rain Garden
Runoff Area=6,560 sf 74.39% Impervious Runoff Depth=5.12''
Tc=3.0 min CN=89 Runoff=0.90 cfs 2.601 cf

Pond D1b: Permeable Driveway
Peak Elev=11.61' Storage=1,512 cf Inflow=1.2 cfs 3.467 cfs
8.0' x 26.0' Culvert Outflow=0.49 cfs 2.631 cf

Pond RG1c: Rain Garden
Peak Elev=9.65' Storage=725 cf Inflow=0.90 cfs 2.601 cf
Outflow=0.88 cfs 2.125 cf

Link SUM1: Sum Hydrographs at Seawall
Inflow=2.17 cfs 1.739 cf
Primary=2.17 cfs 1.739 cf

Total Runoff Area = 27,870 sf Runoff Volume = 9,250 cf Average Runoff Depth = 4.10''
51.61% Pervious = 12,370 sf 48.39% Impervious = 13,100 sf

Proposed Conditions - 675 Steamboat

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Summary for Subcatchment P1a: Undetained Area to Smith Cove

Runoff = 0.98 cfs @ 12.08 hrs. Volume= 2.983 cf. Depth= 2.93''
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall= 8.40''

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>98</td>
<td>Ex Gazebo</td>
</tr>
<tr>
<td>310</td>
<td>98</td>
<td>Ex Patio</td>
</tr>
<tr>
<td>1,200</td>
<td>98</td>
<td>Simple Disconnect Roof</td>
</tr>
<tr>
<td>400</td>
<td>98</td>
<td>Walks</td>
</tr>
<tr>
<td>270</td>
<td>90</td>
<td>Ledge</td>
</tr>
<tr>
<td>970</td>
<td>61</td>
<td>&gt;75% Grass cover, Good, HSG B</td>
</tr>
<tr>
<td>12,210</td>
<td>68</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>10,040</td>
<td>68</td>
<td>Pervious Area</td>
</tr>
<tr>
<td>2,170</td>
<td>68</td>
<td>Impervious Area</td>
</tr>
</tbody>
</table>

Tc Length Slope Velocity Capacity Description
(min) (feet) (ft/sec) (cf)

5.3 40 0.0375 0.13 Sheet Flow, AB
Grass Dense n= 0.240 P= 3.30

Subcatchment P12: Undetained Area to Smith Cove

Hydrograph

Type III 24-hr 25-Year Rainfall=6.40''
Runoff Area=12,210 sf
Runoff Volume=2,983 cf
Runoff Depth=2.93''
Flow Length=40'
Slope=0.0375''
Tc=5.3 min
CN=68
Summary for Subcatchment P1b: Area to Permeable Driveway

Runoff = 1.12 cfs @ 12.07 hrs, Volume = 3,467 cf, Depth = 5.01" 

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs 
Type III 24-hr 25-Year Rainfall=6.40" 

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,460</td>
<td>98</td>
<td>House</td>
</tr>
<tr>
<td>380</td>
<td>98</td>
<td>Driveway Aprons</td>
</tr>
<tr>
<td>4,130</td>
<td>98</td>
<td>Permeable Driveway</td>
</tr>
<tr>
<td>80</td>
<td>98</td>
<td>Walk</td>
</tr>
<tr>
<td>2,250</td>
<td>61</td>
<td>&gt;75% Grass cover, Good, HSG B</td>
</tr>
<tr>
<td>5,300</td>
<td>98</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>2,350</td>
<td></td>
<td>Pervious Area</td>
</tr>
<tr>
<td>6,050</td>
<td></td>
<td>Impervious Area</td>
</tr>
</tbody>
</table>

Tc | Length | Slope | Velocity | Capacity | Description |
---|--------|-------|----------|----------|-------------|
5  | 0      |       |          |          | Direct Entry, Minimum |

Subcatchment P1b: Area to Permeable Driveway

Type III 24-hr 25-Year Rainfall=6.40" 
Runoff Area=8,300 sf 
Runoff Volume=3,467 cf  
Runoff Depth=5.01"  
Tc=5.0 min  
CN=88

Summary for Subcatchment P1c: Area to Rain Garden

Runoff = 0.90 cfs @ 12.07 hrs, Volume = 2,831 cf, Depth = 5.12" 

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs 
Type III 24-hr 25-Year Rainfall=6.40" 

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,800</td>
<td>98</td>
<td>House</td>
</tr>
<tr>
<td>1,010</td>
<td>98</td>
<td>Driveway</td>
</tr>
<tr>
<td>730</td>
<td>98</td>
<td>Patio/Walk</td>
</tr>
<tr>
<td>950</td>
<td>98</td>
<td>Pool</td>
</tr>
<tr>
<td>330</td>
<td>98</td>
<td>Paver Stones</td>
</tr>
<tr>
<td>1,680</td>
<td>61</td>
<td>&gt;75% Grass cover, Good, HSG B</td>
</tr>
<tr>
<td>6,550</td>
<td>98</td>
<td>Weighted Average</td>
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<tr>
<td>1,680</td>
<td></td>
<td>Pervious Area</td>
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<tr>
<td>4,800</td>
<td></td>
<td>Impervious Area</td>
</tr>
</tbody>
</table>

Tc | Length | Slope | Velocity | Capacity | Description |
---|--------|-------|----------|----------|-------------|
5  | 0      |       |          |          | Direct Entry, Minimum |

Subcatchment P1c: Area to Rain Garden

Type III 24-hr 25-Year Rainfall=6.40" 
Runoff Area=6,560 sf 
Runoff Volume=2,801 cf  
Runoff Depth=5.12"  
Tc=5.0 min  
CN=89
### Summary for Pond D1b: Permeable Driveway

- **Inflow Area**: 0.500 sf, 72.89% Impervious, **Inflow Depth** = 5.01" for 25-Year event.
- **Inflow**: 1.12 cfs @ 12.07 hrs, **Volume** = 3,467 cf
- **Outflow**: 0.49 cfs @ 12.24 hrs, **Volume** = 2,531 cf, **Attns**: 56%, **Lag** = 10.0 min.
- **Primary**: 0.49 cfs @ 12.24 hrs, **Volume** = 2,531 cf

Routing by Stor-Ind method, **Time Span** = 0.00-36.00 hrs, **dt** = 0.01 hrs / 2.
- **Peak Elev** = 11.51' @ 12.24 hrs, **Surf.Area** = 4,134 sf, **Storage** = 1,512 cf.
- **Flood Elev** = 13.30', **Surf.Area** = 4,134 sf, **Storage** = 4,312 cf.

Plug-Flow detention time = 189.5 min calculated for 2,631 cf (78% of inflow).
- Center-of-Mass det. time = 106.4 min = (694.7 - 598.4)

### Volume Storage Table

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>19.70'</td>
<td>4,295 cf</td>
<td>Custom Stage Data (Prismatic) Listed below (Recalc)</td>
</tr>
<tr>
<td>2</td>
<td>9.20'</td>
<td>24 cf</td>
<td>10.738 cf Overall x 42.9% Volts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4,319 cf</td>
<td>Total Available Storage</td>
</tr>
</tbody>
</table>

### Device Routing

<table>
<thead>
<tr>
<th>Device</th>
<th>Routing</th>
<th>Invert</th>
<th>Outlet Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Primary</td>
<td>11.20'</td>
<td>8.0&quot; x 25.0 long 8&quot; PVC Outlet, Kc = 0.500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13.30'</td>
<td>Outlet Invert = 10.79', S = 0.0300', Cc = 0.900, n = 0.12</td>
</tr>
</tbody>
</table>

**Primary OutFlow**: Max=0.49 cfs @ 12.24 hrs, HW=11.61" (Free Discharge)

**1=8" PVC Outlet** (Inlet Controls 0.49 cfs @ 2.18 fps)
Summary for Pond RG1c: Rain Garden

Inflow Area = 0.500 ft², 74.32% Impervious, Inflow Depth = 5.12" for 25-Year event
Inflow = 0.90 cfs @ 12.07 hrs, Volume = 2.801 cf
Outflow = 0.86 cfs @ 12.08 hrs, Volume = 2.125 cf, Atten = 1%, Lag = 0.7 min
Primary = 0.86 cfs @ 12.08 hrs, Volume = 2.125 cf

Routing by Stor-Ind method, Time Span = 0.20-36.00 hrs, d = 0.01 hr / 2
Peak Elev = 9.65' @ 12.08 hrs, Surf Area = 1.468 ft², Storage = 725 cf
Flood Elev = 10.30', Surf Area = 1.080 ft², Storage = 987 cf

Plug-Flow detention time = 156.2 min calculated for 2.125 cf (76% of inflow)
Center-of-Mass det. time = 55.1 min (840.3 - 765.1)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Available Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>6.00'</td>
<td>290 cf</td>
<td>Gravel (Prismatic) Listed below (Recal)</td>
</tr>
<tr>
<td>#2</td>
<td>7.25'</td>
<td>294 cf</td>
<td>Soil Mix (Prismatic) Listed below (Recal)</td>
</tr>
<tr>
<td>#3</td>
<td>9.00'</td>
<td>313 cf</td>
<td>Rain Garden (Conic) Listed below (Recal)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elevation (feet)</th>
<th>Surf Area (sq-ft)</th>
<th>Inc Store (cubic-feet)</th>
<th>Cum Store (cubic-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.00</td>
<td>560</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7.25</td>
<td>560</td>
<td>700</td>
<td>700</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elevation (feet)</th>
<th>Surf Area (sq-ft)</th>
<th>Inc Store (cubic-feet)</th>
<th>Cum Store (cubic-feet)</th>
<th>Wtr Area (sq-ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.25</td>
<td>560</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>9.00</td>
<td>560</td>
<td>990</td>
<td>990</td>
<td></td>
</tr>
</tbody>
</table>

Primary OutFlow: Max = 0.88 cfs @ 12.08 hrs HV = 9.65' TV = 4.00' (Fixed TW Elev = 4.00)
1=Overflow Pipe (Passes 0.68 cfs of 2.30 cfs potential flow)
2=High Level Overflow Gate (Weir Controls 0.38 cfs @ 1.26 fps)
3=Underdrain (Controls 0.00 cfs)
Summary for Link SUM1: Sum Hydrographs at Seawall

Inflow Area = 27,070 sf, 46.39% Impervious, Inflow Depth = 3.43' for 25-Year event

Inflow = 2.17 cfs @ 12.09 hrs, Volume = 7.735 cf
Primary = 2.17 cfs @ 12.09 hrs, Volume = 7.735 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Inflow Area=27,070 sf
Detention System Drawdown Calculation Worksheet
675 Steamboat Road, Greenwich, CT

Scope: Verify that the proposed stormwater management structures will drain within 72 hours of a rain event.

\[
\text{Time of Drawdown} = \frac{V_{\text{TOT}}}{(K)(A_{\text{BOTTOM}})}
\]

where:
- \( V_{\text{TOT}} \) = Total Storage Volume of Structure
- \( K \) = Field Infiltration Rate (See Table B-2)
- \( A_{\text{BOTTOM}} \) = Bottom Area of Structure

<table>
<thead>
<tr>
<th>Texture Class</th>
<th>NRCS Group</th>
<th>Infiltration Rate (in/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>sand</td>
<td>A</td>
<td>8.27</td>
</tr>
<tr>
<td>loamy sand</td>
<td>A</td>
<td>2.41</td>
</tr>
<tr>
<td>sandy loam</td>
<td>B</td>
<td>1.02</td>
</tr>
<tr>
<td>loam</td>
<td>B</td>
<td>0.52</td>
</tr>
<tr>
<td>silt loam</td>
<td>C</td>
<td>Saturated Hydraulic</td>
</tr>
<tr>
<td>sandy clay loam</td>
<td>C</td>
<td>Conductivity Testing</td>
</tr>
<tr>
<td>clay loam</td>
<td>D</td>
<td>Infiltration Not Allowed</td>
</tr>
<tr>
<td>Silty Clay Loam</td>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>

**Structure 1:** Permeable Driveway

\[
V_{\text{TOT}} = 834 \text{ ft}^3
\]

\[
K = 0.52 \text{ in/hr (loam)}
\]

\[
A_{\text{BOTTOM}} = 4130 \text{ ft}^2
\]

\[
\text{Time of Drawdown} = \frac{834}{(0.52)(4130)} = 4.7 \text{ hrs}
\]

**Structure 1:** Rain Garden

\[
V_{\text{TOT}} = 676 \text{ ft}^3
\]

\[
K = 2.41 \text{ in/hr (loamy sand)}
\]

\[
A_{\text{BOTTOM}} = 560 \text{ ft}^2
\]

\[
\text{Time of Drawdown} = \frac{676}{(2.41)(560)} = 6.0 \text{ hrs}
\]
APPENDIX D:

GRV & RRV COMPUTATIONS
Groundwater Recharge Volume (GRV) Calculation Worksheet
675 Steamboat Road, Greenwich, CT

<table>
<thead>
<tr>
<th>NRCS Hydrologic Soil Group</th>
<th>F</th>
<th>Pre-Development Impervious Area (ft²)</th>
<th>Post-Development Impervious Area (ft²)</th>
<th>Net Increase in Impervious Area (ft²)</th>
<th>GRV (ft³)</th>
<th>Storage Provided (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B (based on field texture analysis)</td>
<td>0.35</td>
<td>10960</td>
<td>13100</td>
<td>2140</td>
<td>62</td>
<td>1510</td>
</tr>
</tbody>
</table>

GRV = F x I

where: 
GRV = Required Groundwater Recharge Volume (ft³)
F = Target Depth Factor (See Table 5-2)
I = Net Increase in Impervious Area (ft²)

### Table 5-2 - Recharge Target Depth by Hydrologic Soil Group

<table>
<thead>
<tr>
<th>NRCS Soil Group</th>
<th>Approx. Soil Texture</th>
<th>Target Depth Factor (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>gravels, sand, loamy sand, sandy loam</td>
<td>0.60 in</td>
</tr>
<tr>
<td>B</td>
<td>silty loam</td>
<td>0.35 in</td>
</tr>
<tr>
<td>C</td>
<td>sandy clay loam</td>
<td>0.25 in</td>
</tr>
<tr>
<td>D</td>
<td>clay, silty clay loam, sandy clay, silty clay</td>
<td>0.10 in</td>
</tr>
</tbody>
</table>
### Runoff Reduction Volume (RRV) Calculation Worksheet

675 Steamboat Road, Greenwich, CT

<table>
<thead>
<tr>
<th>$V_{\text{pre}}$</th>
<th>$V_{\text{post}}$</th>
<th>$V_{\text{net}}$</th>
<th>Storage Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Development 1-year Storm Runoff Volume (ft³)</td>
<td>Post-Development 1-year Storm Runoff Volume (No Detention) (ft³)</td>
<td>Net Increase in 1-year Storm Runoff Volume (ft³)</td>
<td>(ft³)</td>
</tr>
<tr>
<td>2139</td>
<td>2771</td>
<td>632</td>
<td>1510</td>
</tr>
</tbody>
</table>

For the purpose of meeting the Runoff Volume Reduction criterion in Stormwater Management Standard 5, the project proponent shall calculate pre- and post-development total runoff volumes. The post-development total runoff volume shall not exceed the predevelopment total runoff volume for the 1-year, 24-hour design storm. For new development and redevelopment, the required Runoff Reduction Volume (RRV) is the difference between the pre- and post-development total runoff volumes for the 1-year design storm.
## Stage-Area-Storage for Pond D1b: Permeable Driveway

<table>
<thead>
<tr>
<th>Elevation (feet)</th>
<th>Storage (cubic-feet)</th>
<th>Elevation (feet)</th>
<th>Storage (cubic-feet)</th>
<th>Elevation (feet)</th>
<th>Storage (cubic-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.20</td>
<td>0</td>
<td>11.28</td>
<td>956</td>
<td>13.36</td>
<td>4,312</td>
</tr>
<tr>
<td>9.24</td>
<td>0</td>
<td>11.32</td>
<td>1,033</td>
<td>13.40</td>
<td>4,312</td>
</tr>
<tr>
<td>9.28</td>
<td>0</td>
<td>11.36</td>
<td>1,099</td>
<td>13.44</td>
<td>4,312</td>
</tr>
<tr>
<td>9.32</td>
<td>0</td>
<td>11.40</td>
<td>1,155</td>
<td>13.48</td>
<td>4,312</td>
</tr>
<tr>
<td>9.36</td>
<td>1</td>
<td>11.44</td>
<td>1,231</td>
<td>13.52</td>
<td>4,312</td>
</tr>
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<td>9.40</td>
<td>1</td>
<td>11.48</td>
<td>1,298</td>
<td>13.56</td>
<td>4,313</td>
</tr>
<tr>
<td>9.44</td>
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<td>13.60</td>
<td>4,313</td>
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<td>9.48</td>
<td>1</td>
<td>11.56</td>
<td>1,430</td>
<td>13.64</td>
<td>4,313</td>
</tr>
<tr>
<td>9.52</td>
<td>1</td>
<td>11.60</td>
<td>1,496</td>
<td>13.68</td>
<td>4,313</td>
</tr>
<tr>
<td>9.56</td>
<td>1</td>
<td>11.64</td>
<td>1,563</td>
<td>13.72</td>
<td>4,313</td>
</tr>
<tr>
<td>9.60</td>
<td>2</td>
<td>11.68</td>
<td>1,629</td>
<td>13.76</td>
<td>4,313</td>
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<tr>
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<td>2</td>
<td>11.72</td>
<td>1,695</td>
<td>13.80</td>
<td>4,314</td>
</tr>
<tr>
<td>9.68</td>
<td>2</td>
<td>11.76</td>
<td>1,761</td>
<td>13.84</td>
<td>4,314</td>
</tr>
<tr>
<td>9.72</td>
<td>2</td>
<td>11.80</td>
<td>1,828</td>
<td>13.88</td>
<td>4,314</td>
</tr>
<tr>
<td>9.76</td>
<td>2</td>
<td>11.84</td>
<td>1,894</td>
<td>13.92</td>
<td>4,314</td>
</tr>
<tr>
<td>9.80</td>
<td>2</td>
<td>11.88</td>
<td>1,960</td>
<td>13.96</td>
<td>4,314</td>
</tr>
<tr>
<td>9.84</td>
<td>3</td>
<td>11.92</td>
<td>2,026</td>
<td>14.00</td>
<td>4,314</td>
</tr>
<tr>
<td>9.88</td>
<td>3</td>
<td>11.96</td>
<td>2,093</td>
<td>14.04</td>
<td>4,315</td>
</tr>
<tr>
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<td>3</td>
<td>12.00</td>
<td>2,159</td>
<td>14.08</td>
<td>4,315</td>
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<tr>
<td>9.96</td>
<td>3</td>
<td>12.04</td>
<td>2,225</td>
<td>14.12</td>
<td>4,315</td>
</tr>
<tr>
<td>10.00</td>
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<td>12.08</td>
<td>2,291</td>
<td>14.16</td>
<td>4,315</td>
</tr>
<tr>
<td>10.04</td>
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**Volume of rain unmeasured**
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<th>Storage (cubic-feet)</th>
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APPENDIX E:

WQV & TSS COMPUTATIONS
## Water Quality Volume (WQV) Calculation Worksheet

675 Steamboat Road, Greenwich, CT

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<th>Subcatchment</th>
<th>Total Area (ft²)</th>
<th>Rvl Coeff.</th>
<th>Imperv. Area (ft²)</th>
<th>%I Imperv.</th>
<th>RV T Coeff.</th>
<th>Turf Area (ft²)</th>
<th>%T Turf</th>
<th>RVF Coeff.</th>
<th>Forest Cover</th>
<th>A Forest Area (ft²)</th>
<th>%F Forest</th>
<th>R Runoff Coeff.</th>
<th>WQV (ft³)</th>
<th>Storage Provided (ft³)</th>
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## Total Amount of New Site Impervious

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<th>% Treated by LID BMP</th>
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\[
WQV = \frac{(1)(R)(A)}{12}
\]

(5.1)

where:

\[
WQV = \text{water quality volume (acre-feet)}
\]

\[
R = \text{site cover runoff coefficient} = Rvl \times \%I + Rvl' \times \%T + Rvl'' \times \%F
\]

\[
Rvl = \text{runoff coefficient for impervious cover (see Table 5-5)}
\]

\[
Rvl' = \text{runoff coefficient for lawn or managed turf (see Table 5-5)}
\]

\[
Rvl'' = \text{runoff coefficient for forested cover and open space (see Table 5-5)}
\]

\[
\%I = \text{percent of site in impervious cover (fraction)}
\]

\[
\%T = \text{percent of site in lawn or managed turf (fraction)}
\]

\[
\%F = \text{percent of site in forested cover and open space (fraction)}
\]

\[
A = \text{site area (acres)}
\]
### TSS Removal Calculation Worksheet

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<th>C</th>
<th>D</th>
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**Total TSS Removal =**

**Project:** 675 Steamboat Road  
**Prepared By:** McChord Engineering  
**Date:** 1/18/2021

*Separate Form Needs to be Completed for Each Outlet or BMP Train*

*Equals remaining load from previous BMP (E) which enters the BMP*
INSTRUCTIONS:
2. Complete only highlighted cells

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**Total TSS Removal** = 80%

Separate Form Needs to be Completed for Each Outlet or BMP Train

---

Project: 675 Steamboat Road
Prepared By: McChord Engineering
Date: 1/18/2021

*Equals remaining load from previous BMP (E) which enters the BMP*
Appendix F:

Conveyance Computations
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<th>Tc</th>
<th>Intensity (in/hr)</th>
<th>Total Q (cfs)</th>
<th>Capacity (ft/s)</th>
<th>Velocity (ft/s)</th>
<th>Line Size (in)</th>
<th>Slope (%)</th>
<th>Up (ft)</th>
<th>Dn (ft)</th>
<th>Up (ft)</th>
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Notes: IDF File = GreenwichIDF.idf, Return Period = 25-yrs.
# IDF Report

**Stormwater Studio 2019 v 3.6.0.15**

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Minimum Tc = 5 minutes

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CI = Correction Factor applied to Rational Method windiff coefficient

**Greenwich IDF Curves**

- 100yr
- 50yr
- 25yr
- 10yr
- 5yr
- 2yr
- 1yr

![Greenwich IDF Curves](image-url)
### Table 1: Maximum Pipe Capacity

<table>
<thead>
<tr>
<th>Pipe ID#</th>
<th>Description</th>
<th>Dia. (in)</th>
<th>Material</th>
<th>n Roughness Coeff.</th>
<th>Min. Slope (ft/ft)</th>
<th>Max Capacity (cfs)</th>
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<tbody>
<tr>
<td>1</td>
<td>North RL to Perm Dwv</td>
<td>4</td>
<td>PVC</td>
<td>0.010</td>
<td>0.010</td>
<td>0.25</td>
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<td>2</td>
<td>South RL to Perm Dwv</td>
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<td>PVC</td>
<td>0.010</td>
<td>0.010</td>
<td>0.25</td>
</tr>
<tr>
<td>3</td>
<td>Dwy Drain to RG</td>
<td>6</td>
<td>PVC</td>
<td>0.010</td>
<td>0.020</td>
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</tr>
<tr>
<td>4</td>
<td>North RL Disconnect</td>
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<td>0.020</td>
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<td>7</td>
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<td>PVC</td>
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<td>0.020</td>
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</table>

### Table 2: 25-Year Peak Design Flow

<table>
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<th>Pipe ID#</th>
<th>Area (ft²)</th>
<th>C Runoff Coeff.</th>
<th>t_c Time of Concentration (min)</th>
<th>i 25-yr Intensity (in/hr)</th>
<th>Q 25-year Peak Flow (cfs)</th>
<th>Max Capacity from Table 1 (cfs)</th>
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<tbody>
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<td>7.44</td>
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</table>
4" PVC @ 1%

Channel 1

CIRCULAR PIPE
Diameter = 4.0 in
Invert Elevation = 12.70 ft
Pipe Slope = 1.000 %
Manning's n = 0.010

DISCHARGE
Method = Known Depth
known Depth = 0.33 ft

CALCULATION SAMPLE

<table>
<thead>
<tr>
<th>Flow (cfs)</th>
<th>Depth (in)</th>
<th>Area (sqft)</th>
<th>Velocity (ft/s)</th>
<th>WP (ft)</th>
<th>n-value</th>
<th>Crit Depth (in)</th>
<th>HGL (ft)</th>
<th>EGL (ft)</th>
<th>Max Shear (lb/sqft)</th>
<th>Top Width (ft)</th>
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<tr>
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4" PVC @ 1% - Section
4" PVC @ 2%

Channel 2

CIRCULAR PIPE
Diameter = 4.0 in
Invert Elevation = 10.00 ft
Pipe Slope = 2.000 %
Manning's n = 0.010

DISCHARGE
Method = Known Depth
known Depth = 0.33 ft

CALCULATION SAMPLE

<table>
<thead>
<tr>
<th>Flow (cfs)</th>
<th>Depth (in)</th>
<th>Area (sqft)</th>
<th>Velocity (ft/s)</th>
<th>WP (ft)</th>
<th>n-value</th>
<th>Crit Depth (in)</th>
<th>HGL (ft)</th>
<th>EGL (ft)</th>
<th>Max Shear (lb/sqft)</th>
<th>Top Width (ft)</th>
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<tr>
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4" PVC @ 2% - Section
### 6" PVC @ 2% Channel 3

#### CIRCULAR PIPE
- Diameter = 6.0 in
- Invert Elevation = 10.00 ft
- Pipe Slope = 2.000 %
- Manning's n = 0.010

#### DISCHARGE
- Method = Known Depth
  - known Depth = 0.50 ft

### CALCULATION SAMPLE

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<th>Depth (in)</th>
<th>Area (sqft)</th>
<th>Velocity (ft/s)</th>
<th>WP (ft)</th>
<th>n-value</th>
<th>Crit Depth (in)</th>
<th>HGL (ft)</th>
<th>EGL (ft)</th>
<th>Max Shear (lb/sqft)</th>
<th>Top Width (ft)</th>
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![6" PVC @ 2% - Section](image-url)
# Grade Plane Calculation Worksheet

**Proposed Sections**

ETS Steamboat Road, Greenwich, CT

January 15, 2021

<table>
<thead>
<tr>
<th>6' D/S Line</th>
<th>Lowest Elevation</th>
<th>Length x Elevation</th>
<th>Corresponding Foundation Side</th>
<th>Length of Side at more than 2' Diff. Between F.F. &amp; Grade Plane</th>
</tr>
</thead>
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<td>Length</td>
<td></td>
<td>Side</td>
<td>Length</td>
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*See Attached Drawing No. 0-1*

**Weighted Average of Grade Plane =**

13.3

**Weighted Finished Floor Elevations =**

16.25

**Weighted FF Elevation - Grade Plane =**

2.15

**Total of Column B/Total of Column A =**

0.59

**NOTE:** Grade plane analysis is based on a proposed grading scheme. See the "Site Development Plan" prepared by McCord Engineering Associates, Inc., dated January 15, 2021.