**Final Coastal Site Plan**

<table>
<thead>
<tr>
<th>PLPZ #202000377</th>
<th><strong>Koch residence</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location:</strong></td>
<td>10 South Crossway</td>
</tr>
<tr>
<td><strong>Zone:</strong></td>
<td>R-20</td>
</tr>
<tr>
<td><strong>Parcel Size:</strong></td>
<td>22,147 sf (½ acre)</td>
</tr>
<tr>
<td><strong>Flood Zone:</strong></td>
<td>AE-13 / VE-16</td>
</tr>
</tbody>
</table>

### Zoning Statistics

<table>
<thead>
<tr>
<th></th>
<th>EXISTING</th>
<th>PERMITTED</th>
<th>PROPOSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROSS SQUARE FEET:</td>
<td>4494 sf</td>
<td>4983 sf</td>
<td>4975.9 sf</td>
</tr>
<tr>
<td>FLOOR AREA RATIO:</td>
<td>0.203</td>
<td>0.225</td>
<td>0.2246</td>
</tr>
<tr>
<td>GREEN AREA:</td>
<td>n/a</td>
<td>62 %</td>
<td>62 %</td>
</tr>
<tr>
<td>BUILDING COVERAGE:</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>HEIGHT:</td>
<td>37.5’</td>
<td>36’ 8.625”</td>
<td></td>
</tr>
<tr>
<td>BUILDING SETBACKS *</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front Yard Setback:</td>
<td>35’ (52.5’)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Side Yard Setback:</td>
<td>10’ (no less than 25’ total)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rear Yard Setback:</td>
<td>35’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessory:</td>
<td>5’ side / 5’ rear</td>
<td>5.25’ (pool)</td>
<td></td>
</tr>
</tbody>
</table>

* R-12 setbacks used due to deficient frontage

### APPLICATION SUMMARY

A final coastal site plan application was submitted to demolish an existing house and construct a new 4469 sf house, plus 507 sf detached studio, patios, pool, pool terracing, new driveway, HVAC units, sewer lateral, new dock with pier, ramp and float, landscaping and storm water management systems on a ½ acre property located in the R-20 zone and AE-13 and VE-16 flood zones. The applicant seeks Planning & Zoning Commission approval under Sections 6-5, 6-9, 6-13, 6-14, 6-15, 6-93, 6-111, 6-139.1, and 6-205 of the Town of Greenwich Building Zone Regulations.

### RECOMMENDATIONS/ ISSUES TO BE RESOLVED

1. Provide the language of the various deed restrictions including the view easement, right of way and pedestrian easement and determine if the Town is a party to any of the restrictions.
2. DPW-Engineering comments dated 2-9-21 require resubmittal prior to site plan approval. The plans appear to be acceptable in concept but revisions are needed in regard to the points of concern and watershed analysis, and notations need to be added to plans. The applicant has been informed that these outstanding issues should be fully resolved at their next appearance at a P+Z meeting.

3. Harbor Management Commission has submitted comments indicating that they reviewed a pre-application for the proposed dock with pier ramp and float and have no objection to the DEEP application for the referenced dock.

4. Zoning comments dated 2-10-21 indicate compliance with applicable regulations. A diagram of the building envelope is included with the staff report.

5. Conservation comments dated 2-7-21 recommend pulling the pool back to maintain at least a 15 foot buffer to the seawall / tidal wetlands, to reduce the size of the new driveway, to keep mature trees and to add larger trees to planting plan.

6. The site does not contain inland wetlands. The applicant received signoff from IWWA on 12/30/2020.

7. Any forthcoming comments from Sewer and CT DEEP should be addressed.

8. Work in the VE zone must be consistent with Section 6-139.1(12)(F) and DEEP guidelines.

**DEPARTMENT COMMENTS**

ZEO- Attached
ENG- Attached
CONS- Attached
SEWER – Not received
DEEP- Not received

**SITE DESCRIPTION**

The property is located at the terminus of South Crossway, also shown as Van Loon Lane on certain maps. The site is a direct waterfront property on Greenwich Cove within the Coastal and Flood Hazard Overlay Zones. The property is in the R-20 zone and contains a total of 22,147 sq. ft. to the Mean High Waterline (MHW) which is located at elevation 3.4’. The entire property is within flood overlay hazard zones AE-13 and VE-16. The coastal jurisdiction line is located at elevation 5.5’. No inland wetlands are present on site.

The property currently contains an existing house with patios, decks, walkways, and driveway. A seawall (stone masonry retaining wall) runs the length of the western boundary. Existing vegetation on site includes rows of hemlocks and arborvitae, a stand of forsythia and a number of trees, such as sycamore and maple, interspersed throughout the property.
There is a triangular area encumbered by a view easement in the southern quadrant of the property. There is a 3’ wide pedestrian easement and a 5’ right of way along the eastern boundary. These appear to be in relation to the abutting Lucas Point Association property to the south.

The site is served by public water and sewer.

Coastal Subdivision PLPZ201600205 was reviewed and approved for an equal area exchange with 3 Cove Road. No other site plans or subdivisions were found for this address in the P+Z files.

**PROPOSAL**

A final coastal site plan application was submitted to demolish an existing house and construct a new 4469 sf house, plus 507 sf detached studio, patios, pool, pool terracing, new driveway, HVAC units, sewer lateral, new dock with pier, ramp and float, landscaping and storm water management systems on a ½ acre property located in the R-20 zone and AE-13 and VE-16 flood zones. The stone masonry retaining seawall is shown to remain in place. Some smaller walls near the driveway entrance will be removed. A net cut of 22 cubic yards is required.

It appears that the rows of 12 arborvitae, 12 hemlocks and the stand of forsythia will be removed for placement of the new driveway. Eight (8) more trees throughout the property are proposed to be removed. A planting plan dated 1-27-21 shows a variety of trees, shrubs, grasses, groundcover and perennials to be planted throughout the property including between the new driveway edge and the adjacent property (English Laurel shrubs) and between the pool and the seawall (sedges and perennials). A total of 53 trees including Juniper, Shadblow, Birch and Magnolia are proposed to be planted.

Conservation comments dated 2-7-21 recommend pulling the pool back to maintain at least a 15 foot buffer to the seawall / tidal wetlands, to reduce the size of the new driveway, to keep mature trees and to add larger trees to planting plan.

The development increases impervious areas by 2221 sq. ft. over pre-construction conditions. Three points of concern have been identified. Porous asphalt, permeable pavers and catch basins will direct water to underground laterals. The use of storm water BMP’s will reduce peak flow rates and runoff volume according to the drainage summary report. DPW has reviewed the plans and drainage summary report and has required revisions prior to Site Plan approval.

It appears that the new construction does not encroach into the 3’ pedestrian easement nor 5’ right of way. A wood shed, portion of a wall and HVAC units appear to be within the view easement. The language of these easements should be reviewed to confirm that the Town is not a party to such deed restrictions.

RACE submitted a Flood Zone Compliance Review letter which summarizes the analyses performed and confirms the pool and associated terracing, as proposed, comply with VE standards.
ZONING
The FAR worksheets show 2284.9 sq. ft. on the first floor, and 2184 sq. ft. on the second floor. The lower level and the attic area, which is less than 40% of the floor below it, are not counted toward FAR. The gross floor area (GFA) of the house equals 4468.9 sq. ft., and the accessory studio is 507 sq. ft. resulting in 4975.9 GFA on site, or 0.2246 FAR, in the R-20 zone.

The average grade plane is 10.34’ as calculated by the engineer. Based on a BFE of 13’, the flood zone grade plane is 11’, which is greater than the average grade plane, therefore the flood zone grade plane is utilized. The first floor elevation is 15.83’ and the resulting differential is 4.83’.

Zoning comments dated 2-10-21 indicate compliance with applicable regulations. A diagram outlining the required setbacks for the property is included with this staff report.

SEDIMENTATION AND EROSION CONTROL
The sedimentation and erosion control plan (D’Andrea) proposes installation of silt fencing and around the entire site. A construction entrance with an anti-tracking mat is proposed in the area of the driveway entrance and street sweeping will be used to minimize tracking of mud. Tree protection is shown around one 4” and one 8” diameter trees in the northwest corner. Catch basins will be protected with silt sacks and hay bales and threes stockpile areas have been indicated on site to be enclosed by silt fencing. Sedimentation and erosion controls as shown on plans, and any other measures required to stabilize the site, should be installed and maintained during the duration of construction until the site is permanently stabilized.

COASTAL AREA MANAGEMENT
The coastal resources on site include Greenwich Cove and coastal flood hazard areas. The Mean High Water line is located at elevation 3.4’.

Work in the VE zone should be consistent with Section 6-139.1(12)(F) and DEEP guidelines.

Vegetation will be removed from site for the new construction and a planting plan proposes 53 trees along with shrubs, ground cover and perennials.

APPLICABLE REGULATIONS
Sections 6-5, 6-9, 6-13, 6-14, 6-15, 6-93, 6-111, 6-139.1, and 6-205
ZONING ENFORCEMENT

Project No. PLPZ202000377

Reviewed for Planning and Zoning Commission.

TITLE OF PLAN REVIEWED: Koch

LOCATION: 10 South Crossway

PLAN DATE:

ZONE: R-20

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

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

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

Reviewed by: Jodi Couture

Date: 2/10/2021

Note: These comments do not represent Building Inspection Division approval. Plans subject to review by ZEO at time of building permit application.
VIA EMAIL

February 3, 2021

Mr. James J. Bajek
4570 Bowen Bayou Road
Sanibel, Florida 33957

Subject: Pre-application plans for construction of a private dock for recreational boating in Greenwich Cove in the Greenwich Harbors Area (GHA) at 10 South Crossway

Dear Mr. Bajek:

The Greenwich Harbor Management Commission (HMC) has reviewed the pre-application plans submitted by you to the HMC on behalf of Heath Koch (the Applicant), 98 Peartree Point Road, Darien, Connecticut. As described in the submitted materials, the Applicant proposes to construct a pile-supported pier, ramp, floating dock, and other improvements for recreational boating use at 10 South Crossway, Old Greenwich, Connecticut.

In accordance with the coastal permitting process and requirements of the Connecticut Department of Energy and Environmental Protection’s Land and Water Resources Division (DEEP LWRD), the Applicant’s pre-application plans were submitted to the HMC for review. That review is conducted for the purpose of considering the consistency of the plans with the Greenwich Harbor Management Plan (the Plan).

The HMC considered the pre-application plans, dated December 7, 2020 and January 4, 2021, during its meeting on January 20, 2021. At that time, and with the understanding that the Shellfish Commission has expressed no objection to the proposed project, the HMC approved a motion to inform the Applicant and DEEP LWRD that the HMC has: 1) reviewed the Applicant’s pre-
application plans and has no objection to their inclusion in an application submitted to the DEEP LWRD; and 2) reserves its right to continue to review the Applicant’s proposed project and provide additional comments, including a determination of consistency with the Plan, at such time as additional information may be provided, the proposal may be modified, or the proposal is the subject of a DEEP LWRD Public Notice or Public Hearing.

At such time as the pre-application plans reviewed by the HMC may be included in an application submitted to the DEEP LWRD, please provide a copy of that application to the HMC.

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

Sincerely,

Bernard Armstrong
Chairman, HMC Application Review Committee

Enclosure
cc:
Mr. Roger Bowgen, Chair, Greenwich Shellfish Commission
Ms. Katie DeLuca, Director of Planning and Zoning
Ms. Beth Forbes, HMC Application Review Committee
Ms. Susan Jacobson, CT DEEP LWRD
Mr. Casey McKee, HMC Application Review Committee
Ms. Diane Ray, U.S. Army Corps of Engineers
Mr. Mike Van Oss, Chair, HMC
DEPARTMENT OF PUBLIC WORKS – ENGINEERING DIVISION

SITE DEVELOPMENT REVIEW

Engineering Project No. 21-5(6)  Department Project No. PLPZ202000377
Submittal Received Date: 2/4/2021

Submittal Reviewed For: Planning and Zoning  Traffic Review Requested: No  Review Type: Final Site Plan

PLAN SET INFORMATION

Plan Title: Heath Koch  Project Address: 10 South Crossway
Engineering Firm: Rocco V. D'Andrea, Inc.  Original Plan Date: 12/6/2020  Latest Plan Revision Date: 1/19/2021

DRAINAGE SUMMARY REPORT INFORMATION

Engineering Firm: Rocco V. D'Andrea, Inc.  Original Report Date: 12/21/2020  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: 2/9/21

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

1. A revised Form SC-107 needs to be submitted.
2. The Drainage Summary Report is not acceptable. The following revisions and additional information need to be submitted:
   a. The use of an infiltrating porous pavement driveway for watershed 4S is acceptable in concept.
   b. The use of an infiltrating porous pavement patio for watershed 5S is acceptable in concept.
   c. The existing conditions watersheds need to be revised (see attached for additional information).
      i. POC A: This is the 8’ pipe discharge into Greenwich Cove. The watershed that goes to the catch basin in the driveway is this watershed. This appears to be all or part of watershed 2S.
      ii. POC B: This appears to only be the lawn area that drains to South Crossway, but it may also enter into the catch basin. This needs to be looked at.
      iii. POC C: It appears that existing watershed 3S does not all discharge toward POC C. It appears that only a small portion discharges over the existing retaining wall toward POC C. The area towards the rear appears to pond and proceeds toward the property line with 11 Cove Road. The front discharges toward 3 Cove Road (a new POC D needs to be added). See the attached existing conditions survey for the approximate watershed area to POC C and the location of POC D.
      iv. POC D: Needs to be added as stated in 2a(iii) above.
v. POC E: A new point of concern needs to be added at the property line with 11 Cove Road (watershed 1S drains to this location).

d. The proposed conditions watersheds need to be revised:
   i. The revised grading for the pool needs to be added.
   ii. It appears that the area to the south of watershed 5S and the sea wall will all drain into the gravel trench and discharge to POC A. The remaining area of watershed 1S will discharge to POC E.
   iii. Revise the other watersheds to POC B, C, and D as needed.

e. The peak flow must be met for POC B, C, D, and E.

f. The RRV must be met for POC B, C, D, and E.

g. See if the bottom of stone for the porous pavement driveway can be raised to 4.5 and still meet the infiltration requirement for WQV.

h. The HydroCad analysis needs to be revised with the correct elevations for Pond 7P (plans and report shall match).
   i. The pipe between JB No.1 and JB No. 2 needs to be removed (see attached plan).
   j. The pipe for the roof discharge from JB No. 2 needs to not be connected to CB No.1 (see attached plan).

k. The runoff through the porous pavement patio areas must discharge down. A liner will need to be installed between the systems and the gravel trench. The liner must be wrapped under the stone bed for 2-feet.

l. Review and revise all other information as needed.

3. The construction plan set needs to be revised as follows:

   a. Site Plan Sheets
      i. Show proposed spot elevations along the existing retaining wall to show the runoff is directed to the correct point of concern.
      ii. Show and callout the impermeable liner between the porous pavement patio system and the gravel trench.
      iii. Show the gravel trench 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.

   b. Driveway Profile & Sight Distance Sheet
      i. Show width of driveways at property line.
      ii. Show width of driveways at edge of road.
      iii. Show profile for the 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.
      iv. Show slope of driveways for first five feet on profile (required minimum slope is +3% to 6%).
      v. Show slope of driveways for next twenty feet on profile (required maximum slope is 4% when remaining slope ≥ 10%).
      vi. 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).

   c. Construction Details Sheets
      i. A section needs to be added from the sea wall to the planter going through one of the porous pavement patio areas.

4. The draft Operations and Maintenance Plan Report shall be revised as follows:


   b. Exhibit A: Long-term Maintenance Plan needs to have maintenance items added for the following:
      i. Stormwater Control Structures.
      ii. Gravel Infiltration Trench.

**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).
This is the approximate watershed area that drains to POC C. Goes over the wall based on elevations.

This watershed area doesn't drain to POC C. It drains to 3 Cove Road. Add a new POC D.

POC A
POC E
POC B - This may drain to the catch basin in the driveway.

More spot elevations.
Remove this pipe. Runoff must be directed to stone bed. No chance for bypass of flow.

Remove this pipe. Roof runoff must not be connected to discharge pipe.
MEMORANDUM

TO: Patrick LaRow, Deputy Director, P & Z / Assistant Town Planner

FROM: Aleksandra Moch, Environmental Analyst

DATE: February 7, 2021

RE: Heath Koch, 10 South Crossway, PLPZ 2020 00377
   Site plan by Rocco V. D’Andrea, Inc., dated December 21, 2020 and landscape plan by Yost Design, dated January 27, 2021

I have reviewed the above-referenced plan and visited the site. The following comments are offered for your consideration:

1. The proposed site redevelopment will be conducted predominantly over the existing footprint of the old residence. While the existing residence offers more than an 18-foot buffer from the tidal wetland, the new proposal eliminates the buffer by placing a swimming pool here. The proposed swimming pool is not only located within the VE zone, but also well within the CT DEEP-recommended tidal wetland buffer. Considering the nature of the landscape and developed areas, a buffer averaging 15 feet in depth should be established along the seawall. The buffer would provide important environmental functions such as:
   - Storm water filtration to protect Long Island Sound.
   - Support coastal habitat and provide resting places and food sources to coastal birds, pollinators and other species utilizing the water’s edge.
   - Protect and improve the structure of the soil.
   - Prevent erosion and provide additional protection against storms and wave action.
   - Deter geese from visiting the site, which decreases number of droppings and improves the storm water quality.
   - Preserve the space for the increasing sea levels.

The balance between residential consumption of the site and the need to retain some functionally appropriate natural space in the form of a buffer, the applicant should consider decreasing the size of the pool, moving the pool further from the seawall, and/or replace the accessory structure with the swimming pool.

2. The proposed planting plan replaces a significant portion of the existing lawn, trees, and shrubs with predominantly native plant species. It is recommended, the preservation of the existing trees and shrub
be considered. Large trees growing along the property lines should be incorporated into the proposed landscaping. Mature trees offer large canopies supporting a large biologically active surface which is impossible to compensate for with much smaller new trees. Also, every function a tree provides such as shade, soil protection, habitat, organic matter, air filtration, noise absorption, wind break, stormwater and pollution attenuation, and soil microbial support is amplified by its size.

3. Making the entire length of the driveway permeable is a positive attribute of the site plan. however, the positivity of the permeable pavement is dampened by nearly doubling the area the driveway consumes as compared to existing conditions. Expanded pavement will cause clearing of several trees and replacement of vegetated areas with blacktop. The applicant should take measures to shorten the area of pavement, potentially considering grass pavers for the guest house parking which may not be used on regular basis.

cc: Conservation Commission
PERMIT NEED DETERMINATION QUESTIONNAIRE
[This form is NOT an IWWA Application]

PROJECT: Street Address ___________ 10 South Crossway ________

PARCEL ID #: ___________ 06-2225 ___________ Has there ever been an IWWA application for this site? YES NO ___________ Appl. ___________

ACTIVITY: (Circle) ___________ Addition ___________ Demolition ___________ Deck ___________ Garage ___________ Interior renovations ___________ Generator ___________ Site Work/Landscaping ___________ Septic ___________ Other (please specify) ___________

Will this activity require an addition to the septic system or Biota? YES NO

FEE: $65 for reviews requiring a site visit or further in office analysis

Owner's full name [please print] ________ Heath Koch ________ Phone ________

Mailing address ___________ 98 Pear Tree Point Road ___________ Town Darien ___________ Zip 06820

Authorized Agent's name [please print] ________ Rocco V. D'Andrea, Inc. ________ Phone (203) 637-1779

Mailing address ___________ 6 Neil Lane ___________ Town Riverside ___________ Zip 06878

A PLOT PLAN IS REQUIRED SHOWING THE PROPOSED ACTIVITY IN RED.
Staff cannot review your proposal without a plan.

IWWA staff will review this questionnaire to determine if regulated activities are associated with the proposal and whether an IWWA permit is required. Do not apply for a Building Permit until this review is complete.

If your project does not require an IWWA permit, we will sign off on this questionnaire, which you will need if you are obtaining permits from other departments.

If an IWWA permit is required, we will supply you with a permit application packet. You must obtain an IWWA permit prior to the commencement of your project. No work may begin until you receive an IWWA permit. The issuance of a building permit alone does not constitute an authorization to proceed.

If you do not receive notice regarding your questionnaire within two weeks of submission, please contact the IWWA office.

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

Signature ________ Matthew Kingjew ________ for Rocco V. D'Andrea, Inc ________ Date 12/21/2020

If mailing, return completed form.

If a site visit is required, you will be notified and asked to remit a $65 fee (payable to "Town of Greenwich") to the Greenwich Inland Wetlands & Watercourses Agency.

The site visit will not take place until this fee is received.

STAFF NOTES

Office Rev Date 12.30.20 Field Inv Date / / WET/WCT YES NO TIDAL

Action Required? YES NO ___________ if yes, DR AA AR SIA Staff

Soils Report Date / / Author Soils

Comments:

Fee Received: YES NO Comment:
NARRATIVE

Applicant proposes to demolish the existing residence and construct a 4,468.9sf new single-family dwelling at 10 South Crossway.

Pursuant to BZR Section 6-111(c)(4), Applicant requests coastal site plan approval to construct the new home within 100’ of coastal resources; as well as a 507sf accessory studio and pool. The area to be developed is separated from the coastal jurisdiction line and mean high water line by an existing seawall. A majority of the development will occur in the AE-13 flood zone on the property, with only the pool being located in the VE-15 flood zone. The new home will roughly occupy the same footprint of the existing home to be removed and will not encroach on the deeded view line easement on the property. The project features a stormwater management system that will treat and improve the quality of runoff. There will be no adverse impacts to coastal resources.

RACE Coastal Engineering has reviewed the project for flood zone compliance with respect to the FEMA guidelines and BZR Section 6-139.1. Their review concluded that the proposed home, terrace and studio will meet the design requirements for structures located in the AE-13 zone; and the pool and proposed minor grading will comply with the standards of the VE-15 zone. The proposed site improvements will not create adverse impacts with respect to flooding at the site or adjacent properties.

The project will comply with the zoning criteria for the R-20 zone, including green area, FAR, and building height. Applicant reviewed the required yards and setbacks with the Zoning Enforcement Officer prior to filing the application.

The new home and studio will be connected to the sewer line in South Crossway. If required by the Sewer Department, Applicant shall provide acknowledgment that ownership of the structures cannot be separated without recording of a sewer maintenance agreement.
An administrative green sheet sign off has been requested from the Inland Wetlands and Watercourses Agency staff.

Applicant notes that an application has or will be filed with the Department of Energy and Environmental Protection to repair the existing pier and install a new dock.

Applicant requests that the Planning and Zoning Commission grant final coastal site plan approval to construct a new single-family dwelling, studio, and pool at 10 South Crossway.

Respectfully Submitted,
John J. Heagney
Dated: December 30, 2020
DRAINAGE SUMMARY REPORT

For

10 South Crossway
Greenwich, Connecticut

Prepared For

Heath Koch

December 21, 2020

Leonard C. D’Andrea, PE
CT License No. 14869
Table of Contents

1. Introduction & LID Techniques 2
   1.1. Project Narrative 2
   1.2. Land Use Regulations 2
   1.3. Site Inventory & Evaluation 2
   1.4. Development Envelope 2
   1.5. LID Control Strategies 3
2. Structural BMPs 3
   2.1. Water Quality Volume and TSS Removal 3
   2.2. Runoff Reduction Volume 3
   2.3. Groundwater Recharge Volume 3
   2.4. Peak Runoff Attenuation 3
3. Conclusion 4
4. HydroCAD Summary Table 5

Exhibits

Watershed Map – Existing Conditions Exhibit A
Watershed Map – Proposed Conditions Exhibit B
USDA Soil Delineation Map Exhibit C
FEMA Flood Map Exhibit D

Appendices

Stormwater Management Standards Narrative Appendix A
Credits for LID BMPs Appendix B
Runoff Volume & Retention System Design Calculations Appendix C
HydroCAD Analysis – Existing Conditions Appendix D
HydroCAD Analysis – Proposed Conditions Appendix E
Pipe Conveyance Calculations Appendix F
Soil Results Forms Appendix G
Introduction & LID Techniques

1.1. Project Narrative

The applicant is proposing improvements to the subject property. The proposed improvements will include the construction of a single-family dwelling and a new driveway and parking area. Improvements also include the installation of a storm drainage system, site grading, and associated landscaping.

For a depiction of existing conditions and the proposed development refer to a development plan set entitled “Final Site Plan Review Set, Residential Development, Location 10 South Crossway, Greenwich, Connecticut, prepared for Heath Koch” as prepared by Rocco V. D’Andrea, Inc.

The subject parcel is 22,147 square feet in size and is located at the terminus of South Crossway. The proposed redevelopment of the parcel will increase the impervious coverage by approximately 2,221 square feet. Refer to Appendix “C” for a depiction of the proposed stormwater BMPs and drainage calculations.

This proposed project will conform to all applicable Town stormwater management standards to the maximum extent practicable. Refer to Appendix “A” for a narrative detailing the projects compliance with each stormwater management standard.

1.2. Land Use Regulations

The subject parcel is located in the “R-20” zone. All applicable zoning setbacks and regulations will be adhered to. There are no inland wetlands or watercourses located on the property.

1.3. Site Inventory & Evaluation

The site consists of an existing asphalt driveway, a dwelling, and various hardscapes. The topography of the site exhibits slopes in all directions from the dwelling with flows discharging onto adjacent properties and ultimately into the Long Island Sound. Existing drainage patterns will generally be maintained under post-construction conditions.

Refer to Exhibit “C” for the USDA soil delineation map and hydraulic soil group ratings for the site. Refer to the Development Plan for the test pit locations and Appendix “G” for the soil test results forms.

1.4. Development Envelope

Due to the size, layout, topography of the property and scope of work proposed, the development envelope will encompass approximately 80% of the site. Sediment and erosion controls will be installed around the proposed development envelope prior to the start of construction to minimize the impact to the surrounding areas.
1.5. LID Control Strategies

In the watershed analysis of existing and proposed conditions, the site has been divided into various sub-drainage areas discharging to various POCs, “points of concern.” The analysis is limited to the subject parcel. Refer to Exhibits “A” and “B” for a depiction of the existing and proposed conditions drainage areas and flow paths. Refer to Appendices “D” and “E” for the existing and proposed HydroCAD Analysis.

Conformance to the standards for water quality, TSS removal, and runoff volume reduction will be achieved through the construction of the proposed BMPs. The runoff peak flow reduction standard has been met for all storms up to the 25-year storm to all points of concern. Refer to the HydroCAD Summary Table at the end of this introduction for a comparison of existing and proposed condition stormwater runoff volumes and flow rates to all points of concern.

2. Structural BMPs

2.1. Water Quality Volume and TSS Removal

Refer to Appendix “C” for Water Quality Volume calculations. The proposed BMPs will provide adequate storage to retain and infiltrate the water quality volume of the contributing runoff from the proposed impervious improvements.

Retention of the Water Quality Volume from newly constructed impervious areas will provide the minimum 80% removal of total suspended solids (TSS), which exceeds Town standards. Refer to Appendix “C” for TSS removal calculations.

This volume will be retained and infiltrated by the proposed stormwater systems. Refer to Appendix “C” for 72-Hour Drawdown Calculations.

2.2. Runoff Reduction Volume

The proposed development will not result in an increase in runoff volume from the site for the 1-year storm event towards all points of concern, as compared to existing conditions. Refer to Appendix “C” for Runoff Reduction Volume Calculations.

2.3. Groundwater Recharge Volume

The groundwater recharge standard has been satisfied through the stormwater infiltration capabilities of the proposed systems. Refer to Appendix “C” for Groundwater Recharge Volume Calculations.

2.4. Peak Runoff Attenuation

The proposed development will decrease peak runoff flow rates to less than pre-construction conditions to all points of concern. Refer to Appendices “D” and “E”. The decrease in peak runoff flow rates meets the standard of reduction for all storms up to the 25-year storm.
3. Conclusion

The proposed improvements to the subject parcel will increase the impervious coverage on the site and thus increase the volume and peak rate of runoff generated during a storm event. However, with the use of the proposed BMPs and site grading there will be a reduction in stormwater runoff volume and flow rates to all points of concern.

The proposed development will meet the water quality volume, TSS removal, runoff reduction volume, and groundwater recharge volume standards of the Town of Greenwich Drainage Manual to the maximum extent practicable. The proposed development incorporates pre-treatment and attenuation of runoff to the maximum extent practicable. If the development is constructed as depicted on the proposed plans, there will be no adverse impacts to adjoining properties, the subject parcel, or the town drainage system, due to the proposed improvements.
January 22, 2021

Bianca Dygert
Planning and Zoning Department
Greenwich Town Hall
101 Field Point Road
Greenwich, CT 06830

C/O: Leonard C. D’Andrea
LCD@rvdi.com

Reference: Flood Zone Compliance Review
10 South Crossway – Old Greenwich
RACE Project No. 2020138

Dear Ms. Dygert:

RACE COASTAL ENGINEERING (“RACE”) has been retained by Ms. Heath Koch to review the proposed site improvements at 10 South Crossway in Old Greenwich, Connecticut. RACE reviewed the proposed site improvements for flood zone compliance with respect to FEMA guidelines and requirements, analyzed the proposed pool structure to determine flood loads for proper design, and reviewed that the proposed work would not result in an increase in the Base Flood Elevation (BFE) at the site or on adjacent properties, in compliance with the Town of Greenwich Section 6-139.1. These improvements include a proposed dwelling, pool, terrace and walls, grading and other site improvements and are depicted on the following project plans:


The site, as well as the adjacent properties, are located in the Special Flood Hazard Area (SFHA) on FEMA Flood Insurance Rate Map (FIRM) No.09001C0514G effective July 8th, 2013. The flood zone designations include a Zone VE with a BFE of +16 feet (NAVD 88) and Zone AE with a BFE of +13 feet (NAVD 88). The Zone VE designation represents a Coastal High Hazard Area. The proposed pool and a minor amount of grading will be located in the Zone VE and the dwelling, terrace and retaining walls are to be located in the Zone AE.

RACE has been contracted to design the pool shell such that it will remain in the ground during the base flood event in accordance with ASCE 24-14 Section 9.6 and FEMA Technical Bulletin 5, Free of Obstruction Section 7.9, which include the following:
The pool can be elevated so the bottom of the lowest horizontal structural member supporting the pool (and the pool itself) is at or above the required flood elevation, or

The pool can be designed and constructed to break away without producing debris capable of damaging nearby buildings, or

The pool can be designed and constructed to remain in the ground and not divert flow or waves that can damage nearby buildings.

In order to document that the pool would not divert flow or waves that could increase the BFE, and therefore not increase the potential for nearby damage, RACE has performed the following analyses:

1. A wave crest analysis of existing and proposed site conditions.
2. A wave runup analysis of existing and proposed site conditions.
3. A wave reflection analysis of existing and proposed site conditions.

As such, it is the professional opinion of RACE that the proposed pool is consistent with FEMA guidelines for pools in the VE Zone. These analyses were also performed on the proposed terraces, patio, and fill as described below.

RACE employed the USACE’s Automated Coastal Engineering System’s (ACES) Windspeed Adjustment and Wave Growth application to calculate the wave heights on site. Equations in FEMA’s Coastal Construction Manual (2011) were used to determine the maximum wave crest at the site. The analysis showed the proposed work does not increase the wave crest elevation on the site or adjacent properties.

Wave runup was analyzed for the existing and proposed conditions using ACES’s Irregular Wave Runup on Beaches and Wave Runup and Overtopping on Impermeable Structures Application. The analysis demonstrated that there would be no increase in wave runup elevations on the site or adjacent properties under varying water level conditions that could cause runup on the structures.

The ACES Combined Reflection and Diffraction by a Vertical Wedge application was used to analyze wave reflection under varying water level conditions. An incident wave traveling perpendicular to shore was analyzed. The reflection analysis showed the BFE will not be increased at the site or adjacent sites due to reflected waves.

Based on our review, it is RACE’s professional opinion that the proposed site improvements will not create adverse impacts with respect to flooding at the site or adjacent properties. RACE certifies that the proposed work will:

1. Not increase wave crest elevations on the site or adjacent properties.
2. Not increase wave runup elevations on the site or adjacent properties.
3. Not increase wave crest elevations on the site or adjacent properties due to reflected waves.

As such, RACE certifies that the proposed work will not cause an increase in the FEMA designated BFE at the site.
Should you have any questions, please contact the undersigned at 203-377-0663.

Very truly yours,

RACE COASTAL ENGINEERING

Jill Pietropaolo, PE
Senior Coastal Engineer
CT PE License No. 31773

Enclosure: Wave Calculation Package
CONSTRUCTION SITE PLAN REVIEW SET
"RESIDENTIAL DEVELOPMENT"
LOCATION
10 SOUTH CROSSWAY
GREENWICH, CONNECTICUT
PREPARED FOR
HEATH KOCH

SHEET INDEX

<table>
<thead>
<tr>
<th>SHEET</th>
<th>TITLE</th>
<th>REVISION</th>
<th>DATE</th>
</tr>
</thead>
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<td>1</td>
<td>1-19-21</td>
</tr>
<tr>
<td>2</td>
<td>SEDIMENTATION &amp; EROSION CONTROL PLAN</td>
<td>1</td>
<td>1-19-21</td>
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<tr>
<td>3</td>
<td>NOTES &amp; DETAILS</td>
<td>1</td>
<td>1-19-21</td>
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<td>1-19-21</td>
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