STAFF REPORT
Application #WPL-11785-23
155 Riverside Avenue
Assessor's Map: C08 Tax Lot: 047
Prepared: August 18, 2023 and last revised September 7, 2023
Public Hearing: September 13, 2023

Application Request: The applicant is proposing the demolition of an existing residence and hardscape, and the construction of a new single family residence with spa, terrace, walkways, raingardens, and associated site improvements. The proposed work is occurring substantially within the WPLO area of the Saugatuck River.

Plans Reviewed:

1. **Site Development Plan**, 155 Riverside Avenue, Westport, Connecticut, prepared for Estate of Jose E. Andrade, Westport, CT, prepared by McChord Engineering Associates, Inc., dated August 17, 2023, Scale: 1" = 10'.
2. **Existing Conditions Plan**, Prepared for Andrade,155 Riverside Avenue, Westport, Connecticut, prepared by Leonard Surveyors, LLC, dated April 20, 2023, last revised to August 7, 2023, Scale: 1" = 10'.
3. **CAM Planting Plan,** Proposed Addition, 155 Riverside Drive, Westport, Connecticut, prepared by Environmental Land Solutions, LLC, dated August 17, 2023, Scale: 1" = 10'.
4. **Engineering Summary** (report), Proposed Site Development 155 Riverside Avenue, Westport, Connecticut, prepared for Estate of Jose E. Andrade, Westport, CT, prepared by McChord Engineering Associates, Inc., dated August 17, 2023, Scale: 1" = 10'.
5. **Architectural Renderings**, dated August 17, 2023, Scale As Noted.

i.	**Basement Level Floor Plan**	Sheet A-100
ii.	**Level 01 Floor Plan**	Sheet A-101
iii.	**Level 02 Floor Plan**	Sheet A-102
iv.	**Level 02.5 Floor Plan**	Sheet A-103
v.	**Roof Plan**	Sheet A-104
vi.	**Exterior Elevations**	Sheet A-200
vii.	**Exterior Elevations**	Sheet A-201
viii.	**Building Sections**	Sheet A-210

Past Permits: None

Property Description:
Location of 25-year flood boundary: 9 ft. contour interval. The WPL is established 15 linear feet (LF) from the 9 ft. contour interval.
Property is situated in Flood Zones AE (el. 10') as shown on F.I.R.M. Panel 09001C0413G (Map revised to July 8, 2013).
Proposed First Floor Elevation: 15.0 ft.
Proposed Garage Elevation: 6.4 ft
Proposed Crawl Space Elevation: 10.5 ft.
Proposed Equipment Pad Elevation: 11.0 ft.
Proposed Top of Retaining Wall Elevation: 11.0 ft.

Existing Average Site Grade Elevation: 8.4 ft.
Proposed Average Site Grade Elevation: 9.5 ft.
Lot Area: 0.09 acres (5,540 sq. ft.)
Base Lot Area: 5,456 sq. ft.
Existing Site Coverage: 34.82% (1,900 sq. ft.)
Proposed Site Coverage: 34.48% (1,881 sq. ft.)
Existing Building Coverage: 21.90% (1,195 sq. ft.)
Proposed Building Coverage: 22.86% (1,247 sq. ft.)
Sewer Line: The property is serviced by municipal sewer.
Zoning: Property is located in Residential Zone A

Aquifer:
The property is outside of the Aquifer Protection Overlay Zone. The property is underlain by Saugatuck River Aquifer which is a coarse-grained stratified drift aquifer.

Coastal Area Management:
The subject property is located within the Coastal Area Management (CAM) zone. The coastal resources are identified as: **Estuarine Embayments**, **Nearshore Waters**, **Shellfish Area** and **Coastal Flood Hazard Area**. Estuarine Embayments are protected coastal bodies of water with an open connection to the sea in which saline sea water is measurably diluted by fresh water including tidal rivers, bays, lagoons and coves. Estuarine embayments facilitate high biological productivity, provide significant habitat for shellfish, finfish and waterfowl, serve as spawning and feeding grounds for a wide variety of fish species and various aquatic fauna. Nearshore Waters are those waters and their substrates lying between mean high water and a depth approximately by the ten-meter contour. Shellfish Area areas support an important source of food, provide recreational shellfishing opportunities, provide economic opportunities for the shellfish industry, and provide employment through the shellfish industry. Coastal Flood Hazard Areas are defined as those land areas inundated during coastal storm events. A-zones are subject to still-water flooding during "100-year" flood events. Coastal Hazard Areas serves as flood storage areas. They are, by their nature, hazardous areas for structural development, especially residential type uses.

Proposed Storm Water Treatment:
The applicant proposes to treat the first 1" of runoff with a stormwater management system. Roof leaders from the western portion of the house will convey roof runoff to an underground stormwater detention system consisting of one row of 12' concrete leaching gallery, to the west of the proposed house. The roof leader on the northeast corner of the house will discharge to the rear lawn at grade, where it will sheet flow towards the permeable paver portion of driveway. The asphalt portion of the driveway will drain towards the permeable paver portion of the driveway and the water will be stored within a 14"- deep crushed stone reservoir beneath the driveway. General site runoff from the remainder of the site will drain towards two rain gardens features along the seawall at the eastern end of the property.

Discussion:
The WPL Ordinance requires that the Conservation Commission consider the following when reviewing an application:

“ ***An applicant shall submit information to the Conservation Commission showing that such activity will not cause water pollution, erosion and/or environmentally related hazards to life and property and will not have an adverse impact on the preservation of the natural resources and ecosystems of the waterway, including but not limited to: impact on ground and surface water, aquifers, plant and aquatic life, nutrient exchange and supply, thermal energy flow, natural pollution filtration and decomposition, habitat diversity, viability and productivity and the natural rates and processes of erosion and sedimentation.”***

The eastern portion of the property lies within the WPLO boundary (elevation 9’) of the Saugatuck River. The property abuts the Saugatuck River. The site survey indicates the presence of tidal wetlands. Though, during a site visit by Staff, they noted the water line was devoid of any submerged or emergent aquatic vegetation, and it is best characterized as muddy intertidal and man-made seawall. The mean high water line of the abutting tidal marsh is established at elevation 3.3’ (NAVD88) to the east of the property. The Coastal Jurisdiction Line is established at elevation 5.3’. The site plan demonstrates the coastal jurisdiction line (CJL) is located along eastern property boundary.

Based on the existing spot elevations shown on the site plan, the existing topography of the site slopes downward from the western portion of the site at the roadway towards the eastern end of the of the property where it meets the river. The elevations indicate the site drains east towards the waterway. Though the average grade elevation will increase slightly, the slope is proposed to remain relatively the same. With the proposed plan, stormwater will continue to flow across the site and be collected by the multiple pervious areas.

The proposed location of the new house is substantively within the same footprint of the existing house. The house will be connected to municipal sewer service. The application proposes to clear the site of existing structures and hardscaping and construct a new house and garage with a first habitable floor elevation of 15.0’ and basement elevation of 10.5’ and a garage floor elevation of 6.4’. The equipment pads will be surrounded by a new retaining wall. The tope of wall and equipment pads will be located at elev. 11’. A crawl space will be constructed at the basement level. A stone terrace (elev 8.5’) will be constructed in the place of the existing deck. There will be a spa constructed within the terrace footprint. The terrace will be bordered by a landscape bed of native plantings. The small amount of existing lawn area towards the rear of the property will be turned into walkways and planted raingardens. The driveway will mostly remain as it is currently configured, but the most eastern and downgradient portion of the driveway will be constructed as pervious. A stormwater detention gallery will be installed at the front of the house. The building coverage will increase minimally, from 21.90% to ~23%, but associated improvements will not expand any further towards the wetland. The plan proposes to pull back the limit of impervious coverage from the natural resources.

The proposed residence will be built to conform to FEMA standards with the first habitable floor (el. 15.0’) constructed above the 100-year base flood elevation (el. 10’). The carport is proposed at elevation ~6.4’. The architectural rendering, “Basement Level Floor Plan”, demonstrates there will be two 2’ flood vent openings in the garage wall and a flood vent opening int the garage

door. The Flood and Erosion Control Board meeting approved the application on September 6, 2023 with no special conditions.

Water Quality Considerations:
The potential for the proposed project to have an adverse impact on the preservation of natural resources and the ecosystem of the adjacent waterways should focus on stormwater quality impacts and percentage of impervious area. The proposed site coverage is 35%, which is greater than the 10-25% cover that is expected to impact water quality. Coverage calculations are provided in the "Engineering Summary" report. The 2004 Connecticut Stormwater Manual provides research that water quality experiences degradation when coverage in a watershed exceeds 10%. As the Saugatuck River Watershed/Saugatuck Shores is densely developed, the coverage exceeds the percentage in which water quality can be assumed to be impacted.

The site plan depicts one layer of perimeter silt fence immediately downgradient of each of the proposed raingardens, beyond the limit of disturbance at the eastern end of the property. The silt fence extends along a portion of the southern boundary. Staff recommends the silt fence be extended along the entire limit of disturbance where installation is practical. A detail for typical silt fence installation is provided on the site plan. The application proposes minimal grading across the site. The average grade will change from an elevation of 8.4' to 9.5', and site contours will remain the same. The applicant does not provide an estimate of total cut and fill to account for the grade change shown on the plans.

Staff recommends the commission require a phasing sequence of demolition, construction and planting be submitted due to potential impacts of disturbance from intense activity within the limited space on the site.

Staff notes that the applicant provides a planting plan of the proposed rain gardens, adjacent to the top of the adjacent to the top of the seawall, up-gradient from the tidal wetlands, to create a vegetative buffer. This buffer will provide some water quality treatment for sheet flow runoff from stormwater. Stormwater from the rear of the house will be discharged to grade to lawn where it will drain towards the pervious driveway and northern raingarden. Stormwater runoff from the terrace will be intercepted and diffused by the connected planted landscape bed, prior to draining towards the rain gardens.

The stormwater collected within the raingarden areas will slowly infiltrate and drain into the Saugatuck river through an existing 18" RCP located beneath the shared driveway. Staff considers this an improvement to the existing drainage, which is assumed to have no biofiltration prior to discharge into the surface water of the tidal river.

Stormwater calculations are provided in the "Engineering Summary" report. The "Permeable Paver Driveway Detail" detail provided on the site plan demonstrates that the driveway will be constructed of permeable pavers and open joints filled with crushed stone. The stormwater detention area at the front (west) of the proposed house will consist of a single row of concrete leaching gallery. The permeable walkway will consist of a 2" layer of pea stone over a 4" layer of gravel. The subbase will be constructed with a 6" layer of ASTM No. 57 clean crushed stone over an 8" layer of ASTM No. 2 clean crushed stone. The drainage calculations demonstrate the

proposed stormwater detention has a retention volume of 142 cu. ft. The rain gardens have a combined stormwater storage capacity of 131 cu. ft which is greater than the 83 cu. ft. required by Town drainage standards for the first 1" of runoff from the new development. The drainage report demonstrates that the stormwater runoff volume from the driveway will be collected and retained by the permeable driveway. The applicant provided drainage to treat the first inch of runoff from the impervious areas proposed onsite, which is considered the Water Quality Volume (WQV). Staff considers the proposed pervious surfaces as a benefit, and these features should enhance the stormwater quality across the site from the existing conditions. Staff recommends that the design engineer shall witness and certify all site drainage features and submit said certification to the Conservation Department prior to the issuance of a Conservation Certificate of Compliance.

The site plan demonstrates that groundwater was not encountered at deep test pits #DT1 at the eastern end of the property and #DT2 at the western end of the property. Both of which were advanced to 60" below ground surface. Mean high water for the adjacent tidal river is located at elev. 3.3'. Given that the average existing grade is elev. 8.4', Staff expects that any excavations exceeding ~62" have the potential of being inundated at periods of high tide. Staff notes that the site plan does not specify the use any dewatering methods or locations should the project encounter groundwater during excavation activities for the house. Architectural plans indicate that excavations for the basement level will not advance further than the mean high-water level. Therefore, Staff feels there is not a need for a site-specific dewatering plan.

Staff recommends the Commission requires a deed restriction to be filed on the land record stating that the proposed permeable paver driveway and permeable gravel walkway will remain pervious in perpetuity. Staff notes the terrace is pitched toward a landscape bed, and runoff from the terrace surface will be collected within the planted bed, as depicted in the planting plan. Staff doesn't feel the terrace should incorporate additional drainage features for the purpose of water quality improvement.

Staff feels stormwater quality across the property has the potential to improve with the inclusion of the stormwater detention units, pervious walkway and driveway portion, and the rain garden planting along the eastern limit of the proposed development. These features should help mitigate any potential impacts to surface water quality within the waterways from on-site runoff.

Natural Habitat Considerations:
Conservation Staff performed a preliminary review of the State of Connecticut DEEP Natural Diversity Database (NDDB) for potential presence of state-listed species on or adjacent to the subject property using the EZfile online tool. The review provided results of potential habitat for the following and the following state species of special concern; mudwort (*Limosella australis*), and blueback herring (*Alosa aestivalis*). Since the project does not propose intertidal work or work within the water column of the Saugatuck River, the project does not propose impacts to Connecticut listed species. At present, Conservation Staff does not require additional review or consultation for listed species or critical habitat(s).

Sediment release from loose soil is one of the most significant potential impacts from the proposed project activities. Sediment releases during storm or flood events can result in

temporary and long-term impacts to water quality. Impacted water quality may negatively affect the shellfish and aquatic vegetative community of the Saugatuck River and tidal wetland.

The proposed limit of development extends to ~4' from the existing seawall. The natural habitat resource along the seawall is the river intertidal zone. Staff notes the total extent of the proposed development is occurring with the footprint of the existing development. The existing vegetation along the existing seawall can be characterized as a mix of landscape plantings and successional growth of nuisance vegetation. The "CAM Planting Plan" demonstrates that the existing vegetation and lawn along the top of the seawall will be replaced by rain gardens. The applicant proposes a planting plan of native plants within the rain gardens.

The planting plan demonstrates that within the rain gardens the planting will consist of trees, shrubs, and perennial herbaceous plants. Within the raingardens and the planted area adjacent to the driveway, the proposed trees include two serviceberry and nine arborvitae. The proposed shrubs include one red chokeberry, eight spicebush, twelve hydrangea and eight winterberry. The proposed perennials include six black cohosh, and 24 switchgrass. Staff feels the plan should help stabilize the rain garden detentions as well as absorb and diffuse the flow of storm water towards the seawall. The landscape proposes the removal of existing landscape trees shrubs and herbaceous plants along the top of the seawall as well as removing entirety of the lawn in the rear of the property. Staff feels replacing the existing landscape vegetation in the rear of the property with native vegetation is a significant improvement, as the proposed plants should serve as habitat and forage for birds and pollinating insects. The planted raingardens and other stormwater management features should result in a moderate improvement to water quality coming off the property and entering the tidal river, benefitting the intertidal shellfish and benthic community.

Information Gaps / Errors

- The applicant does not provide an estimate of total cut and fill to account for the grade change shown on the plans.
- Discuss with the applicant why there is a break in the silt fence proximal to the steps up to the existing dock.

Alternatives to Reduction of Impacts

1. No construction alternative.
2. Approval of application with the following conditions:
   a) Conformance to Flood & Erosion Control Board **September 6, 2023** conditions of approval.
   b) The driveway and walkways shall remain permeable in perpetuity with said restriction placed on the land records prior to issuance of a Conservation Certificate of Compliance.
   c) The design engineer shall witness and certify the construction of all permeable surfaces proposed for this project (driveway and walkways) and submit said certification to the Conservation Department prior to the issuance of a Conservation Certificate of Compliance.
   d) A sequence of demolition, construction and planting shall be submitted to the Conservation Department for approval prior to the issuance of the Zoning permit.

e) A revised Site Development Plan shall be submitted to the Conservation Department for approval, depicting a continuous perimeter silt fence around the entire limit of disturbance or development.