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DRAINAGE REPORT

June 05, 2024

Property Located at:

91 Boston Post Rd
EAST LYME CT

Prepared For:

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Prepared By:
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The stormwater management report is developed in support of a proposed multi-family housing development at 91 Boston Post Road, East Lyme CT. The proposed development is resubmitted for preliminary plan review for 830g affordable housing application. The 2023 Connecticut Stormwater Quality Manual standards have been considered and evaluated for a preliminary plan review to demonstrate stormwater design and devices can be effectively implemented to achieve Water Quality Volumes and Required Retention Volumes.

SITE DESCRIPTION:

The site is a 11.36 acre parcel located on the north side of Boston Post Rd (CT RT 1) in the town of East Lyme, CT. The existing parcel is a developed single family residential parcel that has wooded areas with mature deciduous trees and large meadows with grassed areas situated along Latimer Brook. The parcel has slopes ranging from 3% to 14%. There are wetlands and water courses located on this parcel. The soil type is primarily a hydraulic soil group B consisting of Agawam, Hollis-Chatfield and Ninigret fine sandy loams. The soil types were evaluated for their permeability and have a moderate to high infiltration rate referencing the USDA Natural Resource Conservation Service Soil Survey for this parcel.

The existing parcel has existing Directly Connected Impervious Areas (DCIA) that conveys stormwater along the existing paved driveway and direct flows from the east side of the parcel, traveling south-west towards the property line along Latimer Brook. Existing stormwater discharges currently convey untreated stormwater runoff with no outlet controls or stormwater treatment devices to reduce suspended solids or pollutants.

The resubmitted preliminary design proposal calls for the addition of three multi-family apartments with 8 units each. The existing house, sheds and outbuildings are to be removed. The existing ~900 ft long paved/gravel driveway is proposed to be regraded, widened, paved and installation of catch basins with deep sumps.

The proposed preliminary design will have approximately 1.8 ac of disturbance for the 11.36 parcel. Water quality volumes (WQV), Water Quality Flows (WQF) and pollutant reduction BMPs are evaluated and accomplished by the implementation of stormwater infiltration and retention devices to achieve the required 90% reduction in total suspended solid (TSS) and pollutant reduction. The stormwater collection system proposed will also be designed to infiltrate storm water to reduce WQV and WQF. A stormwater collection system has been preliminary modeled and sized to ensure sufficient reduction of stormwater WQV and 100% Required Retention Volume (RRV).

DESIGN METHODOLOGY AND EVALUATION

The existing 11.36 ac site consists of ~1.3 ac of developed areas which contains 11,874 sf (0.3ac) pavement and 2,600sf of roof impervious areas. The site also contains ~4.5 ac of grassed pasture areas that will remain as is. The proposed development ~1.6 ac of developed area which 33,280 sf (0.76ac) pavement and ~6,300 sf of roof area. The remaining developed areas will be grassed lawns. All paved areas are design to have a stormwater collection system with stormwater infiltration system along the catch basin system.. The stormwater collection infiltration system is modeled to have the capacity that will exceed WQV requirements for all paved areas. Stormwater from roofed areas will be placed in rain gardens sized to meet WQV. Stormwater WQF and WQV will be diverted to 600 lft of closed infiltration trench sized to accommodate storm design events for the 1.3" of stormwater runoff and conveyance to down stream stormwater devices. Stormwater infiltration trenches will also provide infiltration to recharge groundwater and also to reduce peak runoff. The stormwater infiltration trench is designed using conservative infiltration rates based on USDA Soil Survey for this parcel, design to drain down withing a 72 hour period.

- Required Retention Volume (RRV) 100% of the site's Water Quality Volume (WQV) is 0.132ac-ft or 5750 cf

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- Stormwater Infiltration Trench provided - 600 LF x (7'x4') = 0.149 ac-ft 6,500 cf of storage (1/-1/2" stone filled trench with 40% volume of voids)

SUMMARY

The resubmitted preliminary site plan has reduced the area of disturbance and the construction impacts as compared to the preliminary plan submitted February 2024. The new proposed preliminary plan reduces impervious paved areas and eliminates much of the graded areas with steep slopes. Water Quality volumes and Required Retention Volumes can be achieved and implemented with standard design practices within parameters of the existing site conditions using standard stormwater designs; Best Management Practices (2023 CT Stormwater Design Manual).