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Stormwater BMP, Operation/Maintenance Manual & Erosion & Sedimentation Control

For

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Lynnfield, Massachusetts

Prepared by:

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Project Narrative:

Cyprus Design, Inc. (Cyprus) is pleased to submit this Stormwater BMP Operation & Maintenance Manual for the construction of residential home additions, drainage infiltrators to mitigate for the increase in impervious areas, and all associated site work and drainage improvements.

Existing Conditions:

The subject parcel is developed with a single-family dwelling, driveway, walks, deck is bound by Daventry Court to the east and residential properties to the north, south and west. Existing conditions detail and topography as shown on the site plan is based on field survey conducted by Cyprus in October 2021. The site slopes from elevation 160 in front at Daventry Court to low elevation of 151. As shown on the attached soil map the existing soils are designated as 306c – Paxton fine sandy loam, 8 to 15 percent slopes with a hydraulic soils class (B) with infiltration rate of 1.02 inches/hour based on attached table 2.3.3. 1982 Rawls Rates and groundwater elevation 66 cm / 26" below existing grade based on web soil survey by united state department of agriculture, natural resources conservation service.

Proposed Conditions:

As shown on the attached site plan the proposed development will include the construction of additions to existing dwelling, 20 drainage infiltrators to mitigate for the increase impervious areas 865 s.f. increase (pre-conditions = 3,040 s.f. / post-conditions = 3,905 s.f.), and all associated site grading and drainage improvements. To mitigate increase of runoff from proposed development we have incorporated an infiltration system comprised of 20 Stormtech SC-160lp infiltration chambers which are designed to accept 1,300 s.f. of runoff from portions of rooftop of proposed additions and existing dwelling as shown on attached site plan with zero outflow during a storm event with 6.3 of rain in 24-hour period (greater than 25 year event). Surcharge overflow for any storm event greater than 6.3" of rain in 24 hours will flow overland in same direction as pre-conditions (drainage patterns are unchanged). See site plan and details, hydrology calculations, O&M manual, and notes on attached site plan.

Erosion & Sedimentation Control

Prior to the commencement of site work, a silt fence will be installed downgradient of the proposed site work to prevent the intrusion of sediment to the abutting properties. We do not anticipate a need for dewatering during excavation for construction of the additions, but if it is necessary, a dewatering pump will be installed, and the water will be discharged to mirafi fabric encompassed by a 10-foot by 10-foot area of hay bales to prevent erosion as shown in detail on attached site plan.

If applicable, the surface of all disturbed areas shall be stabilized during and after construction. Temporary measures shall be taken during construction to prevent erosion and siltation. All disturbed slopes will be stabilized with a permanent vegetative cover. Some or all the following measures will be utilized on this project as conditions may warrant.

a. Temporary Seeding
b. Temporary Mulching
c. Permanent Seeding
d. Placement of Sod
e. Hydroseeding
f. Placement of Hay
g. Placement of Jute Netting

Stormwater BMP Operation and Maintenance:

This Operation and Maintenance Manual has been prepared to conform to the Department of Environmental Protection's Stormwater Management guidelines and more specifically follows the format of Stormwater Management Standards Operation and Maintenance Plans (Standard 9).

Stormwater Management System(s) Owner(s) & The Party Responsible for Operation and Maintenance:

The stormwater management plan includes installation of roof gutters / leaders which will be connected to 4"pvc piping and directed to the (20) Stormtech SC-160lp infiltrators that will accept runoff from portions of rooftops of proposed additions and existing dwelling as shown on attached site plan. Once installed, approved, and accepted by the Town of Lynnfield the responsibility for the operation and maintenance of the roof gutters, leaders, and Stormtech infiltrators will be the record owner(s) of the property as depicted on deed recorded at the Essex South Registry of Deeds.

Schedule for Maintenance and Inspection

During Construction

During construction, erosion control measures shall be implemented in accordance with the design plan approved by the Town of Lynnfield to eliminate silt intrusion to drainage systems, Wetlands (if applicable), and abutting properties. During this period, it shall be the responsibility of the owner's representatives (contractor) to maintain erosion control measures. These measures include ensuring siltation devices are in-place prior to any construction. A silt sock is proposed down gradient from proposed site work and must be in place and in working condition prior to any construction activities. Contractor must confirm that these measures are effectively preventing silt and/or sediment from entering catch basins, wetlands, and abutting properties. The silt sock must be checked at the end of each workday and repaired immediately if applicable.

Upon Completion of Development and Town of Lynnfield Approval

Once the construction is complete to the satisfaction of the Town of Lynnfield, inspection, and maintenance of all the subject parcel structures (Pvc roof leaders, building gutters, infiltrators) will be the responsibility of the the record owner(s) of the property as depicted on deed recorded at the Essex South Registry of Deeds.

Stormtech Infiltrators Maintenance:

During the first two years of operation, the owner shall inspect infiltration units through the observation port after the first 15 storm events and after each heavy rainfall event thereafter. In addition, the infiltrators shall be inspected at least once a year outside of the storm events during the first two years. After the first two years, the owner shall inspect the infiltrators after an unusually heavy storm and once each year. The owner shall be responsible for inspection of the drainage system every spring and maintenance as needed to ensure proper operation and to prevent a significant accumulation of sand, silt and/or debris from entering the chambers. Screens must be placed on all building gutters throughout the project to eliminate debris and leaves from entering the roof leaders, which are connected to the infiltrator chamber systems. The owner shall also be responsible for clearing any accumulated leaves, and tree debris such as branches, acorns, seedlings from roof gutter system. Any debris collected from gutters is considered solid waste by DEP and must be handled and disposed in accordance with all DEP regulations, policies, and guidance. In the absence of written approval from the DEP, the cleanings and debris removal must be taken to a facility permitted by the DEP to accept solid waste. Maintenance of structures shall coincide with the previously identified inspection schedule at a minimum. If accumulated water inside the infiltration chambers is observed (as visible from an observation well) 24 hours or several days after a storm event, it may indicate that the bottom of the trench has been fouled. In this case, stormwater entering the system may reach the overflow level and exit surcharge pipe as shown on detail on attached site plans. If this occurs, a Professional Civil Engineering Consultant shall be contracted by the owner to determine if maintenance and/or replacement of some or all the units will be required. If water accumulates in the units (as observed in the well), the contracted Professional Civil Engineering consulting firm will determine the extent of system repair and/or replacement. Once approved, the owner will be responsible for implementation of the remedy.