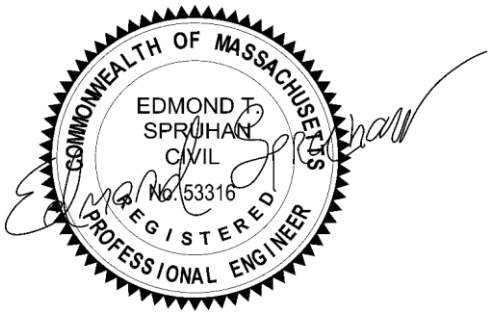
SPRUHAN ENGINEERING, P.C.
80 JEWET STREET (SUITE 2),
Newton, MA
Phone: 617-816-07-22/617-782-1533

STORMWATER DRAINAGE SYSTEM

OPERATION AND MAINTENANCE PLAN

130 NONANTUM ROAD, NEWTON, MA



Prepared By: Spruhan Engineering, P.C.
Date: April 20th, 2023

Operations & Maintenance Plan

Introduction

The following Stormwater Operations & Maintenance plan is for **130 Nonantum Road, Newton, MA**. All erosion and sediment control measures to be used are to be constructed and installed according to the 'Massachusetts Erosion and Sediment Control Guidelines for Urban and Sub-Urban Areas.'

The plan consists of the following elements:

- Owners' information
- Operation and maintenance guidance – Pre and Post Construction
- Landscape installation and maintenance guidance
- Proposed inspection log

All erosion and sediment control measures must be installed prior to the commencement of any work. All sediment and erosion control measures shall remain in place until the entire site has been stabilized. The site is deemed stabilized when all landscaped areas have been loamed and seeded with vegetation having had the chance to establish itself. Any proposed paved areas shall have their binder course of pavement installed prior to the removal of these control measures.

The long-term operation and maintenance of a stormwater management system is as critical to its performance as its design and construction. Proper operation and maintenance ensure that the BMP will continue to remove pollutants effectively over the long-term, decreases the risk of re-suspending sediment; and therefore, improves water quality. Without proper maintenance, BMPs are likely to fail and no longer provide the necessary stormwater treatment.

- **Property Owners:**

Name and contact information:

London on the Charles LLC

Change of ownership: The owner(s) of the stormwater management systems, with the exception of those associated with two-family dwellings, shall notify the Department of Public Works & the Conservation Commission of changes in ownership or assignment of financial responsibility.

This plan is valid in perpetuity and any future property owners are solely responsible for the management of the stormwater system on-site in accordance with this O&M Plan

- **Before & During Construction, Operation and Maintenance Plan:**
    - Significant efforts shall be made to only disturb the minimum amount of area necessary to reduce potential erosion and sediment runoff. The control of dust in disturbed areas shall consist of at the least, wetting of disturbed soil or application of calcium chloride as required to minimize airborne dust.
    - A stabilized construction entrance shall be installed to reduce the tracking of material onto the main road, &, if necessary, a wheel wash station put in place.
    - Hay wattles shall be installed per the site plan to prevent sediment from being washed off site.
    - All drainage structures shall be protected by filter fabric (or approved equal) to prevent sedimentation from entering the drainage system during the construction period.
    - Driveway, pavement, and roadway (if required) areas shall be swept to remove sediments prior to introduction into the storm water management system.
    - Drainage structures shall be inspected daily and cleaned as necessary of all sedimentation and construction materials during the construction period.
    - The contractor is required to contact the engineer of record for drainage system inspection at least 72 hours prior to backfilling in order to receive inspection signoff.

- **Maintenance Responsibilities:**

  The maintenance of the stormwater runoff controls is the responsibility of the homeowner. The actual work to inspect and clean the trench drain, drain manhole and the crushed stone infiltration system shall be subcontracted to a company that specializes in the cleaning of storm drainage facilities.

Operations & Maintenance

The following operations and maintenance plan has been developed to preserve the drainage infrastructure that will be constructed and to ensure the drainage and infiltration system continues to function as designed.

The major components associated with maintenance needs are the trench drain, drain manhole, drainpipes, area drains & a storm-tech infiltration system. These will need to be inspected and cleaned periodically (the trench drains, drain manholes & area drains must be cleaned at least twice a year) as noted below. Cleaning of these structures should be contracted by the homeowner to a specialty contractor with hydraulic cleaning ability. In addition to the facilities noted below, the homeowners should maintain any roof gutters/drains, on a regular basis to prevent clogging and carryover of debris into the drainage system. The property owner should also provide for the periodic cleaning of the driveway areas to remove large debris, grass cuttings, and sand particles prior to discharge through the trench drain. The following outlines the major maintenance issues associated with the project:

- **Post Construction Operation and Maintenance Plan**

  Once the construction is completed, it is the owner's responsibility to maintain the items outlined below to ensure the efficiency and integrity of the drainage systems. The post construction inspections shall take place at a minimum of once during the Spring (March-May), and a minimum of once during the fall (September – November) and after every major storm.

  - All drainage structures and pipes shall be inspected at a minimum on a semi-annual basis. These inspections shall take place during the spring and fall months of the year. The inspector shall take note of any debris/sediment/clogging and shall document the condition of each structure. Based upon the observed condition, the inspector shall make recommendations if any further action is required.

  - All drainage structures, including manholes, catch basins & trench drains, shall be inspected four times per year and shall be cleaned of all sand, debris, and sediment four times per year or whenever the depth of deposits is greater than or equal to one half the depth from the bottom of the invert of the lowest pipe in the basin.

  - Roof Gutters shall be inspected annually and after major rain events. Remove leaves and sediment as necessary to allow rainwater to flow to system.

  - Drainpipes shall be inspected four times per year and shall be cleaned of all sand, debris, and sediment four times per year or whenever the depth of deposits is greater than or equal to one-half the depth from the bottom of the invert of the lowest pipe in the basin.

  - **Storm-tech SC-740 Maintenance procedures:**

    - Storm-tech system shall be inspected at a minimum on a semi-annual basis, or after a major storm event.
    - Remove lid and cap from inspection ports which must be brought to finished grade.
    - Using a flashlight and stadia rod, measure the depth of sediment.
    - If sediment is above 3" depth, then cleaning is required.
    - A licensed professional shall provide cleanout/ flushing services of all sediment and debris via cleanouts and catch basins located per plans.
    - All caps and covers shall be replaced.

- The homeowner (London on the Charles LLC) is obligated to designate a team of professionals to carry out inspection and maintenance as required. Please refer to the site plan for the location of the crushed stone system and other drainage structures.

- **Other Activities:**

  Pavement Sweeping: The paved areas shall be swept every quarter, four (4) times per year.

  Lawn and Landscape Repairs: The lawn and landscaped areas on the site shall be inspected in the spring and fall of each year and the areas shall be restabilized as needed by seeding as lawn or mulching landscaped areas.

AN OPERATION & MAINTENANCE LOG:

Example format is shown below on Table B.1. This must be filled every time an inspection or maintenance activity is performed on any element of the stormwater management on site, included but not limited to:

a) Pretreatment devices.

b) Vegetation or filter media.

c) control structures.

d) Embankments and slopes.

e) Inlet and outlet channels and structures.

f) Underground drainage.

g) Sediment and debris accumulation in storage and forebay areas (including catch basins).

h) Any nonstructural practices.

i) Any other item that could affect the proper function of the stormwater management system

j) Annual reporting must be submitted to the Department of Public Works.

- **FINAL IMPORTANT NOTE 1: THIS OPERATION AND MAINTENANCE PLAN MUST BE RECORDED AT THE APPROPRIATE REGISTRY OF DEEDS. PROOF OF SUCH RECORDING MUST BE PROVIDED TO BOTH THE NEWTON CONSERVATION COMMISSION AS WELL AS THE ENGINEERING OFFICE AT THE CITY HALL.**
- **FINAL IMPORTANT NOTE 2: PROVISIONS MUST EXIST ALLOWING THE CONCOM OR ITS DESIGNEE TO ENTER THE PROPERTY AT REASONABLE TIMES AND IN A REASONABLE MANNER FOR THE PURPOSE OF INSPECTION.**

London on the Charles LLC
PROPERTY OWNER

OPERATION & MAINTENANCE PLAN
(Post Construction)
LOG SHEET
130 NONANTUM ROAD, NEWTON, MA

INSPECTION REPORT:

Inspection Firm:_____

Inspector's Name:_____Date:_____

Components Inspected: _____

Signed: _____

SYSTEM MAINTENANCE:

Maintenance Firm:_____Date:_____

Trench Drain Cleaned: Yes____No_____Comments:_____

_____

Drain Manhole Cleaned: Yes_____No_____Comments:_____

_____

Drain Lines Inspected: Yes_____No_____Comments:_____

_____

Crushed Stone System Cleaned: Yes_____No_____Comments:_____

_____

Storm Tech System Cleaned: Yes_____No_____Comments:_____

_____

Estimate of Material Removed: _____

Other Comments: _____

Signed: _____

Table B.1. Inspection log

STORMWATER MANAGEMENT SYSTEMS INSPECTION LOG						
DATE	NAME OF INSPECTOR	NAME/TYPE OF BMP INSPECTED	CONDITION OF BMP OBSERVED	DESCRIPTION OF NEED FOR MAINTENANCE	OBSERVATIONS OF ANY PHYSICAL CHANGES TO SYSTEM COMPARED TO AS BUILT PLAN	ANNUAL SUBMISSION TO DPW