# Operations & Maintenance Plan

For

# 39 Main Street

MEDWAY MA, 02053

*Proposed Residential Development*

March 26, 2019
REVISED June 10, 2019
REVISED June 26, 2019

PREPARED BY:
LEGACY ENGINEERING, LLC
Consulting Engineers
730 Main Street, Suite 2C
Millis, MA 02054

PREPARED FOR:
Strategic land ventures
257 Hillside Avenue
Needham, MA 02494

# TABLE OF CONTENTS

# INTRODUCTION

This Operations and Maintenance Plan (hereinafter referred to "O&M Plan") is provided to ensure the long-term monitoring and maintenance of various components of the development. This O&M Plan includes the following provisions:

1. Stormwater System Operations and Maintenance
2. Integrated Pest Management Plan
3. Miscellaneous Provisions
4. Accidental Spill and Emergency Response Plan

The "Development" and the various components which are referenced in this O&M Plan are described on the site plan referenced below.

## Project Name

39 Main Street

## Project Location

39 Main Street
Medway MA, 02053

## Operator Name and Address

Strategic Land Ventures
257 Hillside Avenue
Needham, MA 02494

## References

This O&M Plan references other documents as follows:

*Site Plan* - Plans entitled "39 Main Street Site Plan of Land" with an original date of March 26, 2019 (as may be amended), and prepared by Legacy Engineering, LLC, hereinafter referred to as the "Site Plan".

*Stormwater Report* – Report entitled "Stormwater Report for 39 Main Street Medway, MA 02053" prepared by Legacy Engineering, LLC with an original date of March 26, 2019 (as may be amended).

## Site Description

The proposed use consists of a 4.5 story, 190 unit apartment building located on 12.3 acres of land on Main Street in Medway and includes all appurtenant utility systems, landscape areas, and stormwater management systems. Those land areas are collectively referred to herein as the "Development."

## Site Usage and Activities

Residential apartment and associated appurtenances.

# PART 1: STORMWATER SYSTEM OPERATIONS AND MAINTENANCE

In order to maximize the continued effectiveness of the Stormwater Management BMP's for the development, the following Operation and Maintenance requirements apply to all stormwater facilities within the extents of the Development. The stormwater facilities are depicted on the Site Plan and are hereinafter referred to as the "Stormwater Facilities."

## Operations and Maintenance Responsibilities

The Operator or its designee shall be responsible for implementing all Operations and Maintenance (O&M) responsibilities.

## Commencement of Operations and Maintenance Responsibilities

Operations and Maintenance tasks shall be commenced once each respective Stormwater Facility is fully constructed and is receiving runoff from the Development.

## Operations and Maintenance Tasks

*Deep Sump Catch Basins/Area Drains:*

1. Deep sump catch basins shall be inspected daily during construction activities and all sediments and debris shall be removed four times per year unless the owner can determine through recorded observations that sediment accumulation does not warrant such frequent cleanings. If deep sump catch basin cleaning occurs less than four times per year, cleaning shall occur when two feet of sediments have accumulated in the sump and at least once per year.
2. Silt sacks shall be installed on all catch basins throughout the time of construction.
3. All sediments and hydrocarbons shall be disposed of off-site in accordance with all applicable local, state, and federal regulations.
4. Area drains on the west side of the building are to be cleared of leaves weekly during the fall.

*Stormwater Treatment Units (shown on the Site Plan as "First Defense Units"): (maintenance tasks and frequency from manufacturer published data)*

1. Stormwater Treatment units shall be inspected twice per year. Sediments and floating debris and petroleum products shall be removed with a vacuum truck when either the sediment depth reaches 6-inches or the floating depth of petroleum products reaches 3-inches. Sediment and floating debris removal shall occur at least once per year unless the Operator can demonstrate that sediment/floating debris accumulation does not achieve the thresholds noted above within a typical year. The Operator shall submit an analysis by a Registered Professional Engineer to the Planning Board explaining the basis for more infrequent cleaning.

2. All sediments and hydrocarbons shall be disposed of off-site in accordance with all applicable local, state, and federal regulations.

*Underground Infiltration Field:*

1. Perform all pretreatment BMP maintenance, structural and non-structural, as required herein.
2. Inspect the infiltration field at least twice per year, approximately 2-4 days after a rainfall event to ensure that water is not still in the field (as it should have infiltrated into underlying soils by then). Should the infiltration field fail to infiltrate water sufficiently, the field system shall be excavated and replaced in accordance with the original design.
3. Clean out the Separator Row when sediment reaches 3".

*Stormwater Infiltration Basin:*

1. Stormwater basins shall be inspected at least twice per year to insure proper operation (during a storm event).
2. Inspections shall include ensuring that inlet, outlet, and splash pad rip-rap aprons are in good condition and that that interior wall systems are in good condition. Deficiencies shall be remedied immediately.
3. Inspections shall include an observation of the accumulation of sediment in the basin. Pretreatment BMPs are intended to capture and contain coarse sediments. Should indication of significant accumulation of sediments in the infiltration basin be observed, increased frequency of cleaning of the preceding sediment forebay and catch basins shall be implemented.
4. Inspections shall include ensuring that outlet structures are unobstructed and free-flowing per the Site Plan design specifications.
5. Inspections shall include ensuring that all berms are fully stabilized, structurally sound and not eroded. Deficiencies shall be remedied immediately.
6. Stormwater basins should be mowed and all clippings and debris removed at least twice per year. Debris shall be removed at more frequent intervals if warranted by extreme weather events. If wetland vegetation grows at the bottom of the stormwater basin, it shall only be mowed once per year at the beginning of the winter season.
7. Sediment should be removed at least once every 5 years or when 2-inches of sediment accumulates anywhere in the basin and disposed of off-site in accordance with all applicable local, state, and federal regulations. Two sedimentation markers shall be installed in the basin by a Registered Land Surveyors with a clear marking of the 2-inch accumulation line. It is recommended that stone bounds be installed with chiseled marks indicating the limit of accumulation, although other similarly permanent marking methods may be utilized.

*Stormwater Pipes, Inlets and Outfalls:*

1. All stormwater inlets and outfalls shall be inspected twice per year.
2. Trash, leaves, debris and sediment shall be removed from inlets and outfalls as needed to keep them free flowing.

3. If inspections indicate that stormwater pipelines have become partially obstructed with trash, leaves, debris or sediment, the pipelines shall be cleaned by water jet truck and the obstructions removed and disposed of.

The various operations and maintenance schedule requirements listed above may be reduced in frequency by approval from the Town. Should such permission be desired, the Operator shall provide documentation of actual on-site maintenance observations by a qualified source (engineer or other qualified person meeting the approval of the Town) demonstrating that the particular Stormwater BMP in question does not warrant the specified frequency of inspection or maintenance activities.

## Reporting Requirements

The following documentation shall be submitted no later than December 31st of each calendar year to the Town:

1. A statement, signed by an authorized representative of the Operator indicating that the requirements of this O&M Plan were performed during the previous calendar year. Where requirements were not met, a schedule for their completion shall be provided and a follow-up statement submitted when complete.
2. A list of the maintenance activities performed along with the approximate date of the work.
3. A list of the inspections performed along with a statement by each inspector summarizing the results of the inspections performed in accordance with this O&M plan.
4. Copies of appurtenant documentation supporting the completion of the O&M responsibilities such as copies of contracts and/or receipts with parties engaged to perform maintenance and inspection services.
5. A notation regarding whether there has been any change in the name and or contact information for the Operator.

## Public Safety Features

The stormwater system has been designed to safely collect surface runoff from developed areas (as described on the Site Plan and Stormwater Report) by providing collections systems at regular intervals to prevent surface flooding and to treat that runoff in accordance with the provisions of the Massachusetts Stormwater Management Standards and Handbook.

# PART 2: INTEGRATED PEST MANAGEMENT PLAN

## Applicability

The Development shall adhere to this IPM in perpetuity, unless the conservation Commission releases the Operator from this obligation in writing.

## Lawn Preparation and Installation

The following methods shall be employed for all lawn installation and replacements.

- Topsoil installed in lawn areas shall be installed to a minimum thickness of 4-inches. Installation shall be in a manner that minimizes compaction of the topsoil. Topsoil should include a minimum organic content of 18% in the top 4-inches. In areas where existing topsoil is limited or non-existent due to bedrock or hardpan, 6-24 inches of sandy loam topsoil should be spread with a minimum 18% organic content in the top 6-inches.
- Topsoil shall be tested for pH, organic content and mineral content including calcium, magnesium, potassium and sodium at the time of installation and supplements shall be added as recommended. Lime shall be added at the rates recommended by the soil test lab to bring topsoil pH within recommended levels.
- Seeding shall include at least three of the following turf types: Fine Fescue, Kentucky Bluegrass, Perennial Rye Grass, and Tall Fescue.
- Fertilizer application at the time of seeding shall not exceed 0.5 pounds per 1,000 square feet and shall be either organic or mineral. Fertilizer shall be slow release, organic, and low in phosphorous in the 100' wetland buffer.
- During the period of turf establishment (1-2 seasons after seeding), up to two broadleaf weed control applications per year may be applied to the entire lawn area to encourage the establishment of the turf and prevent weed infestations.

## Mechanical Lawn Care Standards

The following maintenance guidelines shall be generally applied to lawn care, although specific adherence to every standard is not necessary. Adherence to these mechanical lawn care standards will encourage the development of a thick, dense, and healthy turf system which will ultimately result in fewer Lawn Care Treatment requirements.

- Lawn cutting height should be adjusted according to the season using the following as guidance:
    - May – June: 2.5" Cut Height
    - July – August: 3-3.5" Cut Height
    - September: 2.5-3" Cut Height
    - October – November: 2" Cut Height
- Lawn mowing should be at sufficient frequency such that not more than 1/3 of the leaf blade height is cut off.
- Aerate the lawn generally once per year in the mid-summer to mid-fall period. A second aeration in the spring may be appropriate for compact soils conditions.
- Dethatching is generally not necessary unless the thatch layer exceed ¾".

## Core Lawn Care Treatment Program

Each lawn shall adhere to the following lawn care practices and restrictions:

- A soil test shall be conducted at least once every two years to evaluate topsoil pH level and the necessary application of lime will be made to bring soil pH within recommended levels. Recommended topsoil pH levels are between 6.5 and 6.8. Soils testing shall also include organic content, mineral content, including calcium, magnesium, potassium and sodium, total cation exchange capacity, and hydrogen. Ideal base saturation percentages for these parameters are as follows:
    - Calcium: 68-70%
    - Magnesium: 15-20%
    - Potassium: 4.5-6%
    - Sodium: <3%
    - Other Bases: 4-8%
    - Hydrogen: 5-10%
- Fertilizer application shall be as-needed based on the results of the latest soils test, plant health, rooting characteristics, growth rate desired, and season. Fertilizer application shall not exceed five times per calendar year and the total quantity of fertilizer applied in any given year shall not result in the application of more than three pounds of nitrogen per 1,000 square feet with not more than one pound of nitrogen applied per 1,000 square feet in any single application. Nitrogen, in the form of fertilizer, should generally be applied in small increments to avoid nitrate leachate and runoff, undesired sprits in growth, and increase in pest population. Granular organic/slow release fertilizers shall be used. The optimal use of fertilizers is to create an organic foundation for soil health and development which provides sufficient nutrients for controlled plant growth and avoiding subsurface and surface nutrient loss to groundwater or stormwater runoff.
- Except as noted below, only one application of crab-grass prevention product is permitted per year during March or April, and only in portions of the lawn in full sun which are prone to such infestations. The use of corn gluton (organic crab-grass control method) is permitted twice per year.
- At the time of fertilizer application, any accidental spillage onto impervious surfaces such as driveways, walkways, patios, and streets shall be swept up and either applied to the lawn or removed from the site.

## Optional Maintenance Practices to be Applied as Needed

- Where topsoil testing demonstrates a deficiency, mineral or organic micro-nutrients may be added to achieve recommended levels.
- Generally, chemical pesticides should be used as a final option and the minimum amount necessary to achieve the desired result should be used. Non chemical means of pest control should be tried first. In the event of suspected pest problem, a visual inspection shall first be made by qualified personnel to confirm the presence of stressed vegetation, wildlife activity, pathogens, and other similar indicators. Should a pest problem be identified, the condition shall be monitored periodically such that if the problem subsides, treatment methods can stop as soon as possible thereafter.
- Root bio-stimulants from organic sources (examples include Roots, Organica, or PHC type products, which are brand names and which may change depending on market conditions) may be used as needed.
- Compost topdressing (1/8" – ¼" depth) may be applied as needed.

- Spot treatment of weeds and Crabgrass may be implemented at any time as needed, but only on a spot-treatment basis and only to those areas affected.
- Spot treatment for turf disease may be implemented at any time as needed, but only one a spot-treatment basis and only to those areas affected.
- Grub control products and similar products may be applied to localized areas only where grub activity is evident. Grub control may be applied when grub populations reach an average of 8 -10 grubs per square foot or if the plant/lawns are showing signs of stress from grub activity.
- One application of Imidacloprid (Merit) or similar products per year is permitted during June and July in areas where grub activity has historically occurred.
- Pesticides which are classified for Restricted Use pursuant to 333 CMR may only be applied by properly licensed or certified personnel or by individuals under the direct on-site supervision of properly licensed or certified personnel in accordance with 333 CMR.

# PART 3: MISCELLANEOUS PROVISIONS

## Good Housekeeping Controls

The following good housekeeping measures will be implemented in the day-to-day operation of the Development:

1. The site will be maintained in a neat and orderly manner.
2. Fertilizers and pesticide application on the lots shall be in accordance with this plan.
3. All waste materials from the development will be collected in dumpsters and removed from the site by properly licensed disposal companies.
4. Pool water may not be discharged into or towards the wetlands.

## Management of Deicing Chemicals and Snow

Management of on-site snow will be as follows:

1. The site shall be plowed as needed to maintain safe driving conditions. Snow will be stored in windrows along pavement edges and shall be piled in landscape strips as needed.
2. Snow will not be plowed into piles which block or obstruct stormwater management facilities.
3. Snow will not be plowed into piles at roadway intersections such that it would obstruct visibility for entering or exiting vehicles.
4. Deicing chemicals application will be as little as possible while provide a safe environment for vehicular operation and function.
5. Deicing chemicals in shall be limited to sand, sodium chloride or calcium chloride.
6. Snow is not to be stored where runoff will flow directly to the wetlands.

## Operator Training

The Operator is responsible for providing training for the staff that will be responsible for the implementation of this O&M Plan. Such training shall occur at least once annually.

### Illicit Discharges

The Operator shall not allow non-stormwater discharges into the development's stormwater system. Any discovered non-stormwater discharges into the development's stormwater system shall be immediately disconnected.

### Estimated Operations and Maintenance Budget

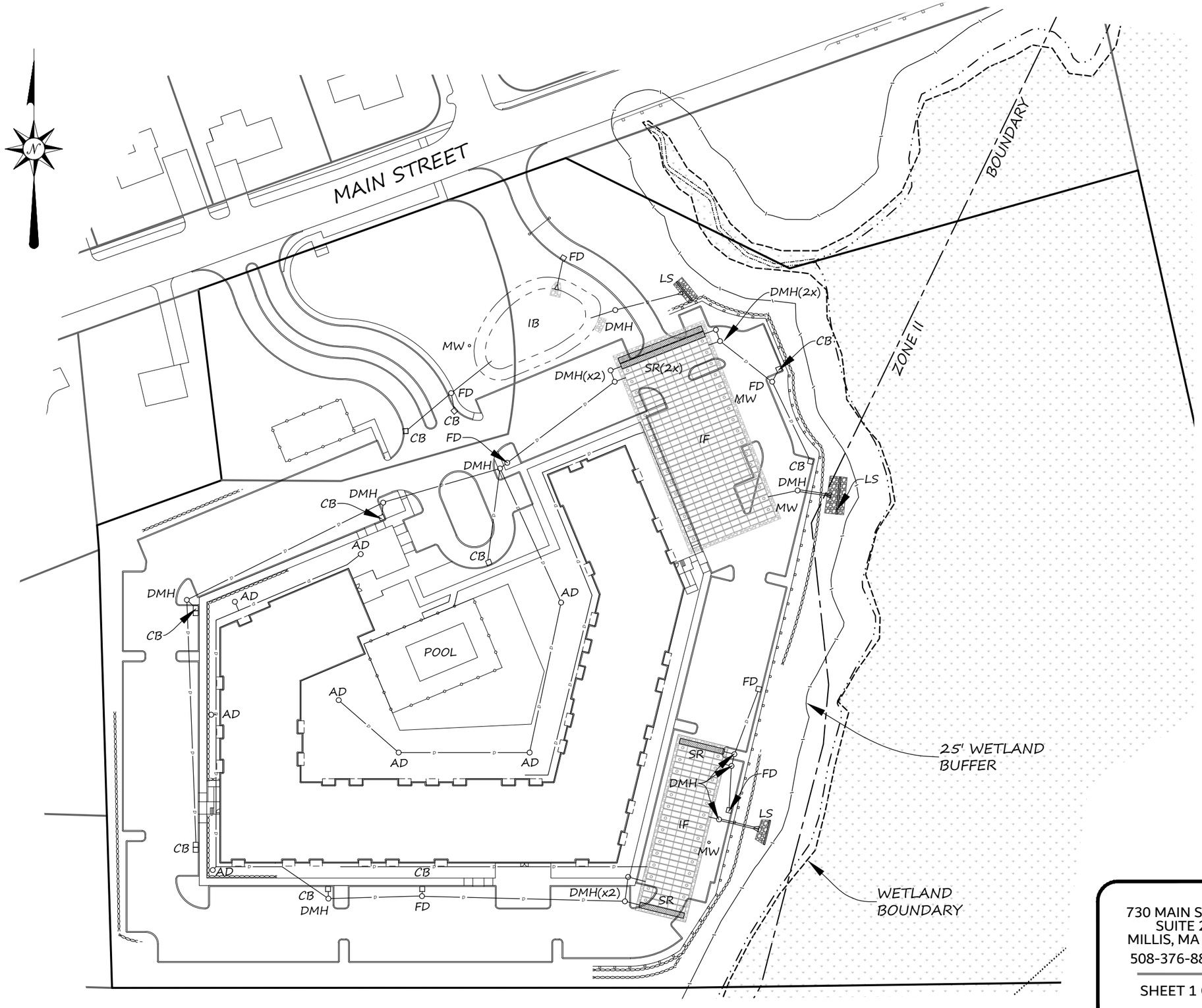
It is estimated that the regular annual maintenance tasks described herein will cost $5,000 per year (2019 value).

## PART 4: ACCIDENTAL SPILL AND EMERGENCY RESPONSE PLAN

In the event of an accident within the boundaries of the Site, where significant gasoline or other petroleum products or other hazardous materials are released, the following procedure shall be followed in the order noted.

1. As quickly as possible, attempt to block the nearest stormwater catch basins if on a roadway, or if in proximity to wetlands, create a berm of soil downslope of the spill.
2. Immediately, and while the containment measures are implemented as described above, notify the following governmental entities and inform them of the type of spill that occurred:
   - Medway Fire Department at 911,
   - Medway Board of Health at 508-533-3206,
   - Medway Conservation Commission at 508-533-3292,
   - Mass. Department of Environmental Protection (DEP) Central Region at (508) 792-7650 (address is 8 New Bond Street, Worcester MA 01606), and
   - National Response Center (NRC) at (800) 424-8802 (for spills that require such notification pursuant to 40 CFR Part 110, 40 CFR Part 117, and 40 CR Part 302).
3. Once the various emergency response teams have arrived at the site and if the spill occurs on a lot, the owner shall follow the instructions of the various governmental entities, which may include the following:
   - A clean up firm may need to be immediately contacted.
   - If the hazardous materials have entered the stormwater system, portions of it may need to be cleaned and restored per the DEP. All such activities shall be as specified by the DEP.

# **EXHIBIT 1** STORMWATER FACILITIES SITE PLAN




PLAN SCALE: 1"=80"

0' 80' 160'

PLAN DATE: MARCH 26, 2019

| REVISION | DATE | BY |
|---|---|---|
| REV. PER TOWN COMMENTS | 6/10/19 | DJM |
| REV. PER TOWN COMMENTS | 6/26/19 | DJM |

# 39 MAIN STREET O&M PLAN OF LAND IN MEDWAY, MA

LEGEND:

LS= LEVEL SPREADER
CB= CATCH BASIN
DMH= DRAIN MANHOLE
FD= FIRST DEFENSE UNIT
IB= INFILTRATION BASIN
IF= INFILTRATION FIELD
MW= MONITORING WELL
SR= SEPARATOR ROW

730 MAIN STREET
SUITE 2C
MILLIS, MA 02054
508-376-8883(o)

SHEET 1 OF 1

LEGACY ENGINEERING

# **EXHIBIT 2** STORMWATER SYSTEM OPERATIONS AND MAINTENANCE LOG FORM

# Stormwater System Operations and Maintenance Log

## Year _____

| General Information | |
|---|---|
| Project Name | 39 Main Street |
| Site Location | 39 Main Street, Medway Ma, 02053 |
| Inspector's Name | |
| Inspector's Title | |
| Inspector's Phone | |
| Signature of Operator at end of Year, Certifying that Work was Completed as Noted. Date: | |

## O&M Task Checklist

| | O&M Activity | Date Completed | Notes/Comments |
|---|---|---|---|
| Deep Sump Catch Basins | | | |
| | 1st Quarter Cleanout | | |
| | 2nd Quarter Cleanout | | |
| | 3rd Quarter Cleanout | | |
| | 4th Quarter Cleanout | | |
| Underground infiltration Fields | | | |
| | 1st Annual Inspection | | |
| | 2nd Annual inspection | | |
| | Sep. Row Cleaned? | | |
| | System Repl. Req'd? | | |
| Stormwater Infiltration Basin | | | |
| | 1st Annual Inspection | | |
| | 2nd Annual Inspection | | |
| | 1st Annual Mowing | | |
| | 2nd Annual Mowing | | |
| | Sediment Removal Req'd? | | |

| | | | |
|---|---|---|---|
| First Defense Units | | | |
| | 1st Inspection | | |
| | 2nd Inspection | | |
| | Unit Cleaning | | |
| Stormwater Pipes, Inlets and Outlets | | | |
| | 1st Annual Inspection | | |
| | 2nd Annual inspection | | |