*MILLENNIUM ENGINEERING, INC.*

*Land Surveyors and Civil Engineers*

# POLLUTION PREVENTION AND OPERATION AND MAINTENANCE PLAN

FOR THE

## SITE PLAN

AT

## 38 RAILROAD STREET
## HAVERHILL, MA

PREPARED FOR:

## CIOTO REALTY TRUST
38 RAILROAD STREET
HAVERHILL, MA

DATE: OCTOBER 13, 2021
REVISED: NOVEMBER 10, 2021

Massachusetts:

62 Elm Street-
Salisbury, MA 01952
Phone: 978-463-8980

New Hampshire:

13 Hampton Road
Exeter, NH 03833
Phone: 603-778-0528

This long-term Stormwater Management System Operations and Maintenance (O&M) Plan, filed with the City of Haverhill, shall be implemented for the proposed development at 38 Railroad Street to ensure that the stormwater management system functions as designed. The Owner holds the primary responsibility for overseeing and implementing the O&M Plan and assigning a Property Manager who will be responsible for the proper operation and maintenance of the stormwater structures. In case of transfer of property ownership, future property owners shall be notified of the presence of the stormwater management system and the requirements for proper implementation of the O&M Plan. Included in the manual is a Stormwater Management O&M Plan identifying the key components of the stormwater system and a log for tracking inspections and maintenance.

The stormwater management system protects and enhances the stormwater runoff water quality through the removal of sediment and pollutants, and source control significantly reduces the amount of pollutants entering the system. Preventive maintenance of the system will include a comprehensive source reduction program of regular vacuuming and litter removal, and prohibitions on the use of pesticides.

The purpose of the Stormwater Operations and Maintenance (O&M) plan is to ensure inspection of the system, removal of accumulated sediments, oils, and debris, and implementation of corrective action and record keeping activities.

The ongoing responsibility is the Owner, its successors and assigns. Adequate maintenance is defined in this document as good working condition.

Contact information is provided below:

**Responsibility for Operations and Maintenance**
Cioto Realty Trust
38 Railroad Street
Haverhill, MA

Illicit Discharge Compliance Statement

I, _____, verify that all illicit discharges to the stormwater management system are prohibited and no illicit discharges exist on the site.

EROSION AND SEDIMENT CONTROL BMPs

***Minimize Disturbed Area and Protect Natural Features and Soil***

Topsoil

Topsoil stripped from the immediate construction area can be temporarily stockpiled on site providing that the perimeter of the stockpiles is properly staked with silt fence at the toe of slope. The stockpiles shall be in areas that will not interfere with construction and at least 15 feet away from areas of concentrated flows or pavement. The area shall be inspected weekly for erosion and immediately after storm events. Areas on or around the stockpile that have eroded shall be stabilized immediately with erosion controls.

***Stabilize Soils***

Temporary Stabilization

- All vegetated areas which do not exhibit a minimum of 85% vegetative growth by Oct. 15th, or which are disturbed after Oct. 15th, shall be stabilized by seeding and installing erosion control blankets on slopes greater than 3:1, and seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting, elsewhere. The placement of erosion control blankets or mulch and netting shall not occur over accumulated snow or on frozen ground and shall be completed in advance of thaw or spring melt events.
- All ditches or swales which do not exhibit a minimum of 85% vegetative growth by Oct. 15th, or which are disturbed after Oct. 15th, shall be stabilized with stone or erosion control blankets appropriate for the design flow conditions.
- After November 15th, incomplete road surfaces, where work has stopped for the winter season, shall be protected with a minimum of 3 inches of crushed gravel.

***Protect Slopes***

Geotextile erosion control blankets shall be used to provide stabilization for slopes exceeding 3:1. Prepare soil before installing erosion control blanket, including any necessary application of lime, fertilizer, and seed. Begin at the top of the slope by anchoring the blanket in a 6" deep x 6" wide trench with approximately 12" extended beyond the upslope portion of the trench. Anchor the blanket with a row of staples/stakes approximately 12" apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to compacted soil and fold remaining 12" portion of back over seed and compacted soil. Secure over compacted soil with a row of staples/stakes spaced approximately 12" apart across the width of the blanket. Roll erosion control blanket either down or horizontally across the slope. Blanket will unroll with appropriate side against the soil surface. All blankets must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide. When using the dot system, staples/stakes should be placed through each of the colored dots corresponding to the appropriate staple pattern. The edges of parallel blankets must be stapled with approximately

2"-5" overlap. Consecutive blankets spliced down the slope must be placed end over end (shingle style) with an approximate 3" overlap. Staple through overlapped area, approximately 12" apart across entire blanket's width. In loose soil conditions, the use of staple or stake lengths greater than 6" may be necessary to properly anchor the blanket.

***Establish Perimeter Controls and Sediment Barriers***

Silt fence shall be installed along the edge of wetlands. The silt fence shall be installed before construction begins. Wooden posts shall be doubled and coupled at filter cloth seams. Filter cloth shall be fastened securely to support netting with ties spaced every 24" at top, midsection, and bottom. When two sections of filter cloth adjoin each other, they shall be overlapped by 6 inches, folded and stapled. Silt fence shall be removed upon completion of the project and stabilization of all soil.

Maintenance:
1. Silt fence shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any repairs that are required shall be made immediately.
2. If the fabric on the silt fence shall decompose or become ineffective during the expected life of the fence, the fabric shall be replaced promptly.
3. Sediment deposits shall be inspected after every storm event. The deposits shall be removed when they reach approximately one-half the height of the barrier.
4. Sediment deposits that are removed or left in place after the fabric has been removed shall be graded to conform with the existing topography and vegetated.

***Establish Stabilized Construction Entrance***

A stabilized construction entrance shall be installed before construction begins on the site. The stone anti-tracking pad shall remain in place until the subgrade of pavement is installed.

1. Stone shall be 1-2" stone, reclaimed stone, or recycled concrete equivalent.
2. The length of the stabilized entrance shall not be less than 50'.
3. The thickness of the stone for the stabilized entrance shall not be less than 6".
4. Geotextile filter cloth shall be placed over the entire area prior to placing the stone.
5. All surface water that is flowing to or diverted toward the construction entrance shall be piped beneath the entrance. If piping is impractical, a berm with 5:1 slope that can be crossed by vehicles may be substituted for the pipe.
6. The entrance shall be maintained in a condition that will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top-dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, washed, or tracked onto public rights-of-way must be removed promptly.
7. Wheels shall be cleaned to remove mud prior to entrance onto public rights-of way. When washing is required, it shall be done on an area stabilized with stone which drains into an approved sediment trapping device.

***Catch Basin Inlet Protection***

Inlet protection devices intercept and/or filter sediment before it can be transported from a site into the storm drain system and discharged into a lake, river, stream, wetland, or other waterbody. These devices also keep sediment from filling or clogging storm drain pipes, ditches, and downgradient sediment traps or ponds. A siltsack or approved equal shall be used for catch basin inlet protection. It should be inspected weekly. When the restraint cord is no longer visible, siltsack is full and shall be emptied.

<u>POST-CONSTRUCTION BMPs</u>

*Snow and Snow Melt Management*

Proper management of snow and snow melt, snow removal and storage, use of deicing compounds, and other practices can minimize major runoff and pollutant loading impacts. Snow will be stored in areas adjacent to the edge of the roadway. Use of alternative deicing compounds, such as calcium chloride and calcium magnesium acetate, will be investigated for use. Professional services will be used for snow management.

*Deep Sump/Hooded Catch Basins*

Deep sump/hooded catch basins are incorporated in the proposed development's stormwater management plan as pre-treatment for the proposed drainage system. The sump provides for settlement of suspended solids and a hood is provided to remove floatables and trapped hydrocarbons. It is not anticipated that the proposed roadway will become an area of high sediment loading. The sump should be inspected and cleaned at least four times per year; the more frequent the cleaning, the less likely sediment will be resuspended and subsequently discharged. Catch basin sediments and debris shall be disposed of at an approved DEP landfill. The owner shall be responsible for the catch basin cleaning operations.

*Infiltration Chamber*

Infiltration chambers are incorporated into the site design for infiltration. The chambers shall be inspected after every major storm event in the first 4 months after construction to ensure proper function. Inspection ports shall be utilized for access and assessment. After the four-month period, the chambers shall be inspected a minimum of twice per year. Any grit or sediment found within the chambers impacting infiltration shall be removed by manual or mechanical methods, such as a vacuum truck. The Condominium Association will be responsible for proper maintenance of the subsurface systems.

*CDS System*

A CDS2015-4 is incorporated into the site design for treatment for the proposed underground infiltration system. At a minimum, the unit shall be inspected twice per year (spring and fall). The CDS unit should be vacuum cleaned when the level of sediment has reached 75% of capacity in the isolated sump. Sediments and debris shall be disposed of at an approved DEP landfill. The owner shall be responsible for the CDS cleaning operations.

*ADS Underground Detention System*

A high-density polyethylene pipe (HDPE) underground detention system is incorporated into the site design for runoff storage. The system should be inspected quarterly for accumulated sediment. The system should be cleaned when inspection reveals that accumulated sediment or trash is clogging the discharge orifice. Accumulated sediment and trash can typically be removed through the riser over the outlet orifice. Sediments and debris shall be disposed of at an approved DEP landfill. The Condominium Association shall be responsible for the underground system cleaning operations.

Rip Rap

Inspect the rip rap outlets regularly, especially after major storm events. Notation of any low spots or erosion should be made. Any erosion or displaced rip-rap shall be repaired.

FINAL STABILIZATION

Permanent Seeding

Loam and hydroseed any disturbed surfaces after the final design grades have been achieved. A minimum of 6" of loam shall be installed. Seed mix shall be a maximum of 10% rye grass and a minimum of 90% permanent bluegrass and/or fescue. Lime shall be applied at a rate of 2 tons/acre.

Construction debris, trash and temporary BMPs (including silt fences, material storage areas, and inlet protection) will also be removed and any areas disturbed during removal will be seeded immediately.

# Stormwater System Inspection Report

| General Information | | | |
|---|---|---|---|
| **Location:** | | | |
| **Date of Inspection** | | **Start/End Time** | |
| **Inspector's Name(s)** | | | |
| **Inspector's Title(s)** | | | |
| **Inspector's Contact Information** | | | |
| **Purpose of Inspection** | | | |

**Site-Specific Stormwater Devices**

| | Description | Installed and Operating Properly? | Corrective Action Needed | Date for Corrective Action/Responsible Person |
|---|---|---|---|---|
| 1 | | ❑Yes ❑No | | |
| 2 | | ❑Yes ❑No | | |
| 3 | | ❑Yes ❑No | | |
| 4 | | ❑Yes ❑No | | |
| 5 | | ❑Yes ❑No | | |

**Certification Statement**:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Print name: _____

Signature: _____

Date: _____

MERRIMACK RIVER

PROP. DMH

PROP. SUB SURFACE DETENTION AREA 1

PROP. DMH 5

PROP. DMH 4 W/ CONTECH UNIT

PROP. CB W/ CONTECH UNIT

NEW RAIL TRAIL

PROP. CB 5

50' WETLAND SETBACK

PROP. SUBSURFACE INFILTRATION AREA 2

PROPOSED BUILDING 2
6,422 S.F.
F.F. = 29.80

PROPOSED BUILDING 3
6,422 S.F.
F.F. = 29.80

PROPOSED BUILDING 1
6,422 S.F.
F.F. = 29.80

100' WETLAND SETBACK

N/F
SIXTY RAILROAD STREET LLC
BK. 23711 PG. 357

EXISTING
2 STORY

702
6.35-1

PROP. CB 3

PROP. DMH 3

PROP. CB 2

PROP. DMH 2

PROP. CB 4

701
6.30-8

N/F
GEORGE E. FRASCONE
DONNA J. FRASCONE
BK. 7022 PG. 54

#25

DECK

RAMP

PROP. CB 1

PROP. DMH 1

200' RIVERFRONT AREA

ZONE AE
ZONE X

RAILROAD STREET

PROP. CB

GRAPHIC SCALE
20 0 10 20 40 80
( IN FEET )
1 inch = 20'

PREPARED FOR

CIOTO REALTY TRUST
38 RAILROAD STREET
HAVERHILL, MA

| NO. | DATE | DESCRIPTION | BY |
|---|---|---|---|

MEI
MILLENNIUM ENGINEERING, INC.
ENGINEERING AND LAND SURVEYING
62 ELM ST. SALISBURY, MA 01952 (978) 463-8980
13 HAMPTON RD. EXETER, NH 03833 (603) 778-0528

SCALE: 1"=20' | CALC. BY: S.R.C.
DATE: OCT. 13, 2021 | CHKD. BY: J.T.M.
PROJECT: M173138

# PLAN OF LAND
IN
HAVERHILL, MA
SHOWING
PROPOSED CONDITIONS
AT
38 RAILROAD STREET

OPERATION & MAINTENANCE PLAN

SHEET: 1 OF 1