

Long Term Pollution Prevention & Stormwater System Operation and Maintenance Plan

***Acton Crossroads
321 Main Street
Acton, MA***

January 2013

***Submitted to:
Acton Board of Selectmen and
Conservation Commission
Acton Town Hall
472 Main Street
Acton, MA 01720***

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***Project No:
121072***



LONG TERM POLLUTION PREVENTION AND STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

Preface:

The goal of this manual is to improve water quality by initiating performance standards for the operation and maintenance of stormwater management structures, facilities, and recognized practices. The stormwater performance standards are set up to meet the statutory and regulatory authorities of the Department of Environmental Protection, including the Wetland Protection Act, surface water discharge permits under the Clean Waters Act, the 401 certification program for fill in wetlands, and the 401 certification of federal permits based on the water quality standards.

The local Conservation Commission and the Department of Environmental Protection are responsible for ensuring the protection of wetlands through the issuance of permits for activities in flood plains and in or near wetlands, as per the Wetlands Protection Act, MGL c.131 s. 40. Proposed work within a resource area or a one hundred (100') foot buffer zone requires an order of conditions.

Resource areas include freshwater and coastal wetlands, banks, beaches, and dunes bordering on estuaries, streams, riverfront, ponds, lakes, or the ocean; lands under any of these bodies of water; land subject to tidal action, coastal storm flowage, or flooding.

The discharge of pollutants to water of the Commonwealth without a permit is prohibited under the state Clean Waters Act, MGL c. 21, ss 26-53. Stormwater discharges are subject to regulations when two criteria are met under 314 CMR 3.04(2). First, there must be "conveyance or system of conveyances (including pipes, ditches, and channels) primarily used for collecting and conveying stormwater runoff." 314 CMR 3.04(2)(a). Second, the stormwater runoff must be "contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, or oil and grease," or, be designated on a case-by-case basis. Such designations must be made when the "stormwater discharge" is subject to effluent or toxic pollutant limitations, is located in an industrial plant area, or may be a significant contributor of pollutants to waters of the Commonwealth. Any activity resulting in a discharge to waters of the United States must comply with Section 401 of the Federal Clean Water Act and comply with state water quality standards. All stormwater discharges must be set back from the receiving waters or wetlands and best management practices (BMP) must be implemented. A permit is required for any stormwater discharge to an Outstanding Resource Water (ORW) which meets the regulatory definition in 314 CMR 3.04(2). Outstanding Resource Waters are defined under Surface Water Quality Standards 314 CMR 4.06 and include public surface water supplies, coastal and some inland Areas of Critical Environmental Concern (ACECs), and certified vernal pools.

This manual is set up to explain how to operate and maintain Best Management Practices that control erosion and minimize delivery of sediment and other pollutants to surrounding water and air.

- Chapter 1 is an introduction to the site and describes the Best Management Practices used on this site.
- Chapter 2 outlines the inspection and maintenance schedules for the site.
- Chapter 3 shows the location of the Best Management Practices used on-site.
- Chapter 4 outlines the operation and function of the Best Management Practices.
- Chapter 5 describes how and when the Best Management Practices should be inspected and how frequently they must be maintained and cleaned.

1. Introduction:

The property is located at 321 Main Street, Acton, MA, nestled in the southwest corner of the intersection of Route 2 and Route 27 (Main Street), at exit interchange number 42. The proposed development outlined and which this Manual pertains to is limited to the newly constructed parking area on the east side of the three story Acton Medical Associates, PC building. This parking area was designed and permitted in 2012 and 2013 to provide additional parking spaces to employees and patients currently using the facility with no proposed building additions or changes in existing use proposed. While the intend of this Manual is to be a free standing document complying with current stormwater management regulations, the property owner and BMP caretakers should make every effort to incorporate it into any current operation manuals for existing drainage features on the property.

The project area consists of three parcels that contain the medical office building and parking areas, covering the majority of the property. The site generally slopes from its high point along Main Street, downward to the rear of the property to a wetland area in a stepped fashion. Grades within parking areas themselves are relatively flat, ranging between 2 and 3.5 percent. Landscape areas and the grades of the access driveway on the southern side of the building are much more sharply sloped with the paved areas averaging 8.5 percent and landscape areas sloped at a ratio averaging 2.5 feet vertical to 1 foot horizontal. The wetland resource area, located at the toe of slope along the rear parking spaces, covers the southern portion of the property, conveying the surrounding areas stormwater runoff in an east to west direction. The wetland resource area is protected by, but not limited to, the Wetlands Protection Act, Massachusetts Department of Environmental Protection and the Town of Acton conservation Commission, including the Acton Wetland Bylaw Rules and Regulations and Chapter F.

Stormwater runoff from the expansion parking area will be directed into a Best Management Practice (BMP), called a bioretention area. Stormwater runoff will enter the bioretention area via the curb cut provided near the limit of existing parking and proposed parking before ultimately being discharged to the wetland resource area.

To control erosion and minimize delivery of sediment and other pollutants into the atmosphere and adjacent wetlands, Best Management Practice (BMP) has been provided within the site's stormwater management system. These practices include but are not limited to:

- Bioretention Area
- Street Sweeping;

This manual is designed to help responsible parties become aware of urban non-point pollution problems and to provide detailed information about operating and maintaining stormwater management practices. The success of the Best Management Practices is dependent on their continued operations and maintenance.

2. Maintenance Requirements:

BMP's Owners:

- The OWNERS of the BMP's shall be the person, persons, trust, corporation, etc., or their successors who have title to the land on which the BMP is located. It is anticipated that all BMP's will be owned and maintained by Acton Crossroads, Inc. Should the title of land upon which they are located is transferred the purchaser of the property, at that time, will assume all responsibilities set forth within this document.

Operation and Maintenance Responsibilities:

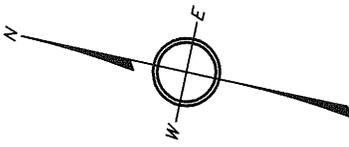
- The party or parties responsible for the funding, operation and maintenance of the BMP's shall be the OWNER or their designees.
- BMP's each have specific maintenance requirements to ensure long-term effectiveness. These stormwater management systems will be operated, inspected and maintained on a regular basis **by a qualified professional with expertise in inspecting drainage system components**. All of the stormwater BMP's shall be kept in good working order at all times.
- A maintenance agreement providing for the funding, operation and maintenance of all the stormwater management BMP's shall be provided.

Source of Funding for Operation and Maintenance:

- The party or parties responsible for the funding, operation and maintenance of the BMP's shall be the OWNER or their designees.
- A maintenance agreement providing for the funding, operation and maintenance of all the stormwater management BMP's shall be provided.
- Approximate estimated annual maintenance costs for the site are:
 - Bioretention area - \$750
 - Street sweeping - \$2500 to \$1,000 (depending on frequency and type of sweeping preformed)

Schedule for Inspection and Maintenance:

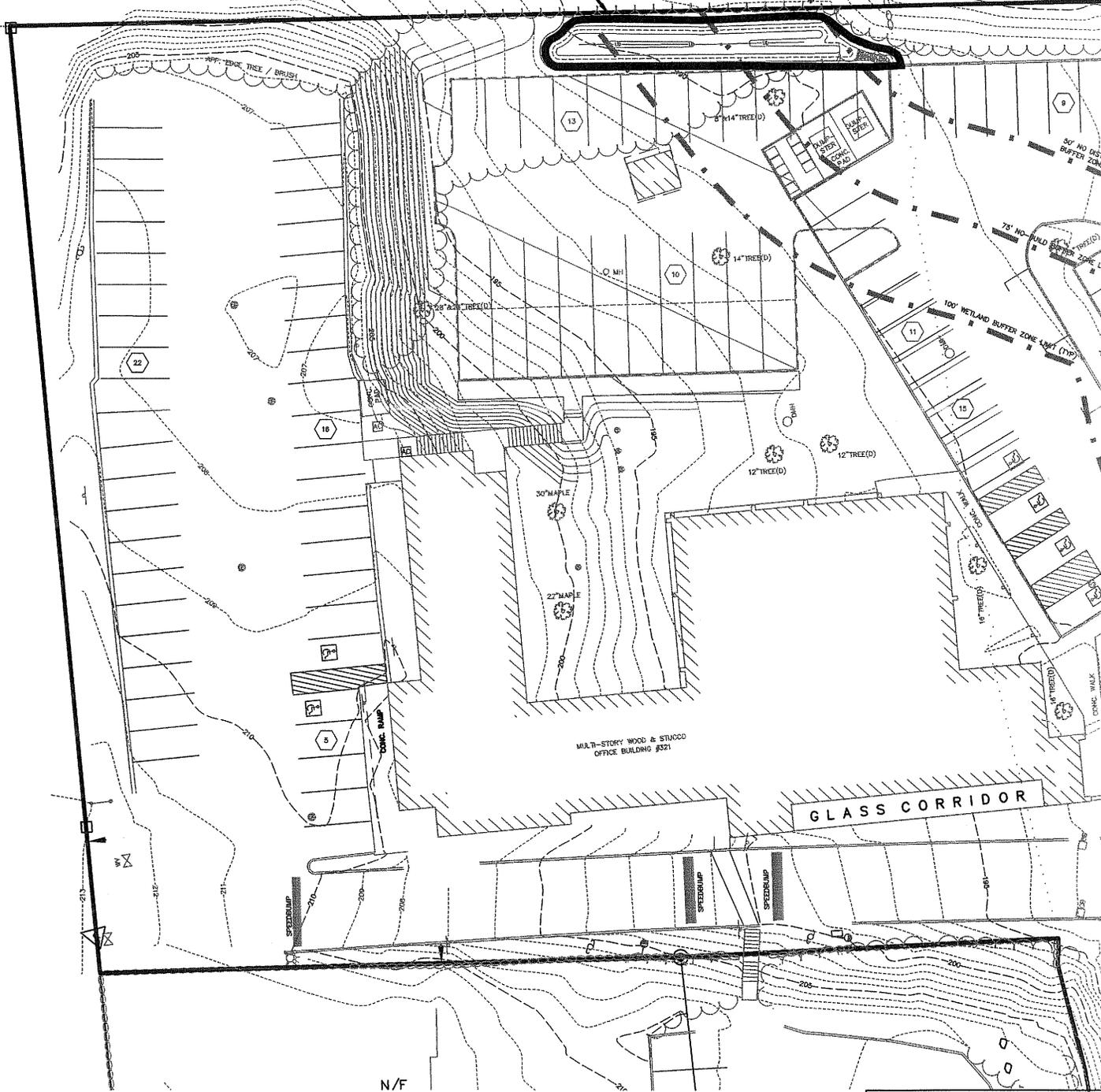
- * BMP's each have specific maintenance requirements to ensure long-term effectiveness. These stormwater management systems will be operated, inspected and maintained on a regular basis in accordance with this manual. All of the stormwater BMP's shall be kept in good working order at all times.
- * As a minimum, the OWNER shall follow the general guidelines outlined herein for the BMP's provided on this site.
- * An Operation and Maintenance log must be maintained for the last three years, outlining inspections, repairs, replacement and disposal for each Best Management Practice (BMP). In the case of disposal, the log shall indicate the type and material and the disposal location. This rolling log shall be made available to the Mass DEP and/or the Groton Conservation Commission upon request.



BIORETENTION AREA

ROUTE 2
SHEETS 9 & 10 OF LAYOUT No. 3713
ACTON - 1950 - 800' WIDTH

MAIN (60' WIDTH) STREET



N/F

GLASS CORRIDOR

MULTI-STORY WOOD & STUCCO
OFFICE BUILDING #321

SCALE : 1" = 40'

JOB: 121072

BY: NMP | CHK: DEM

DATE: DEC. 2012

5 OF 7

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**BEST MANAGEMENT
PRACTICE LOCUS**

4. Operation of Best Management Practices:

Bioretention Area – bioretention is a technique that uses soil, plants, and microbes to treat stormwater before it is infiltrated and/or discharged. Bioretention areas are shallow depressions filled with sandy soil topped with a thick layer of mulch and planted with dense native vegetation that are sometimes divided into sub-areas. Stormwater runoff is directed into the area via piped or sheet flow. The runoff percolates through the sandy soil media that acts like a filter. There are two types of bioretention areas; those designed to function solely as an organic filter, called a filtering bioretention area, and those configured to recharge groundwater in addition to acting as a filter, called an exfiltrating bioretention area. A filtering bioretention area includes an impermeable liner and underdrain that intercepts the runoff before it reaches the groundwater table so that it can be conveyed to a discharge outlet, other BMP or a municipal storm drain system. Some exfiltrating bioretention areas also have an underdrain system designed to enhance exfiltration of runoff into the groundwater. The functions of a bioretention area include:

- Provide groundwater recharge and preserves the natural water balance of the site;
- Supply shade, absorbs noise and provides windbreaks;
Remove other pollutants beside Total Suspended Solids (TSS) including nitrogen, phosphorus and metals.

Street Sweeping – is a nonstructural source control performed by mechanical means in an effort to limit sediment and particulates from impervious surfaces as an effort to control or limit the sediment migration to other stormwater BMP's during storm events. There are three typical types of sweeping methods, including mechanical, regenerative air and vacuum filter. Mechanical sweepers are the most common and use brooms or brushes to scour the pavement. Regenerative air sweepers blow air onto the impervious surface causing sediment and other fine particles to be blown from the surface so they can be vacuumed. Vacuum filter sweepers are available in wet and dry types. Dry types use brooms to agitate the sediment prior to vacuuming. Wet types work in a similar fashion but use water to suppress dust during the collection activity. The functions of street sweeping include:

- Limit sediment and other fine particulates on impervious surfaces from entering other BMP's;
- Remove and prevent the accumulation of sediment along road and driveway edges.

5. Inspection and Maintenance of Best Management Practices:

Bioretention Areas - at a minimum, the bioretention area shall be inspected after every major storm event (1-inch or greater) for the first six (6) months and monthly thereafter. Miscellaneous trash and liter shall be removed at the time of each inspection. During each inspection, areas of vegetation and soil shall be identified for repair prior to the next inspection.

Grasses within the area will be mowed at a minimum of twice a year during the time between the winter snow melt and first frost of the following winter. Remove grass clippings and other organic matter after mowing. Eroded or barren areas in the mulch layer shall be re-mulched

as needed. The entire mulch layer shall be replaced every two years in the early spring. Removal of dead vegetation and invasive species shall be done as needed and pruning of plants will be done once a year.

Collected sediment and debris will be properly disposed of per local, state and federal requirements. Any sediment and debris removed from the bioretention area deemed to be contaminated must be evaluated in accordance with the Hazardous Waste Regulations, 310 CMR 30.000, and handled as hazardous waste.

Street Sweeping / Pavement Area - At a minimum, will be inspected every spring to determine if any damage has occurred from snow plowing operations. Additionally, asphalt and curbing should be checked every six (6) months [Spring & Fall] in high traffic areas and truck travel areas for damage.

Curbing and/or asphalt is to be repaired using similar materials, to prevent erosion to surrounding soils.

Vacuum, regenerative air or rotary broom sweepers may be used at the minimum schedule outlined below:

| | |
|-----------------------------|---|
| Vacuum Sweeper (wet or dry) | A quarterly average of once per 4 months over the period of each year |
| Regenerative Air Sweepers | A quarterly average of once per 4 months over the period of each year |
| Rotary Broom Sweepers | An average of once per month over the period of each year |

Regardless of type of sweeper used, sweeping will be scheduled primarily in the spring immediately following winter snowmelt and again prior to the first frost of the year in the fall, with the remaining sweepings at regular intervals between these times. The above schedule may be modified in connection with the use of alternative de-icing methods to impervious surfaces during the winter months, such as brine solutions that are applied as a liquid rather than traditional sand and salt methods.

Snow shall not be stockpiled in wetland areas or any of the Best Management Practice areas. Every effort shall be made to plow snow so when it melts, the runoff will be toward a best management practice which provides treatment.

Best Management Practices (BMP) Inspection Log

| General Information | | | |
|--|----------------------------|----------------|--|
| Project Name | Acton Crossroads | | |
| Location | 321 Main Street, Acton, MA | | |
| Date of Inspection | | Start/End Time | |
| Inspector's Name(s) | | | |
| Inspector's Title(s) | | | |
| Inspector's Contact Information | | | |
| Inspector's Qualifications | | | |
| Type of Inspection: <input type="checkbox"/> Regular <input type="checkbox"/> Emergency | | | |
| Weather Information | | | |
| Weather at time of this inspection? <input type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain <input type="checkbox"/> Sleet <input type="checkbox"/> Fog <input type="checkbox"/> Snowing <input type="checkbox"/> High Winds <input type="checkbox"/> Other: _____ Temperature: _____ | | | |
| Are there any discharges at the time of inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: <div style="border: 1px solid black; height: 40px; margin-top: 5px;"></div> | | | |

Site-specific BMPs

- *The structural BMPs are identified on the BEST MANAGEMENT PRACTICES LOCUS included within the LONG TERM POLLUTION PREVENTION & STORMWATER SYSTEM OPERATION & MAINTENANCE PLAN. Carry a copy of the Locus map with you during your inspections. This list will ensure that you are inspecting all required BMPs at your site.*
- *Describe corrective actions initiated, date completed, and note the person that completed the work in the Corrective Action Log.*

| | BMP | BMP Installed? | BMP Maintenance Required? | Corrective Action Needed and Notes |
|----|-----|--|--|------------------------------------|
| 1 | | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 2 | | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 3 | | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4 | | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5 | | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 6 | | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 7 | | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8 | | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9 | | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10 | | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |

Overall Site Issues

Below are some general site issues that should be assessed during inspections. Customize this list as needed for conditions at your site.

| | BMP/activity | Implemented? | Maintenance Required? | Corrective Action Needed and Notes |
|---|--|--|--|---|
| 1 | Are discharge points and receiving waters free of any sediment deposits? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 2 | Are storm drain inlets properly working? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 3 | Is trash/litter from site areas collected and placed in covered dumpsters? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4 | Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5 | Are materials that are potential stormwater contaminants stored inside or under cover? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5 | Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 6 | (Other) | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |

Non-Compliance

| |
|---|
| Describe any incidents of non-compliance not described above: |
|---|

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 and title: _____

Signature: _____ **Date:** _____