Project File: WEL-0014
#136 & #140 Worcester Street
Wellesley, Massachusetts 02482

OPERATION AND MAINTENANCE PLAN AND LONG-TERM POLLUTION PREVENTION PLAN #136 & #140 Worcester Street

Wellesley, Massachusetts

Date: April 11, 2019 Revised October 22, 2019 Revised February 24, 2020

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OPERATION AND MAINTENANCE PLAN
#136 & # 140 WORCESTER STREET
WELLESLEY, MASSACHUSETTS

April 11, 2019, Revised October 22, 2019, revised February 24, 2020

William R Bergeron, P.E.
2-24-2020

GENERAL

The management plan incorporates a combination of three or more of the following chain of structural Best Management Practices to improve the water quality of the stormwater runoff from the proposed impervious areas. The Property Manager will be responsible to carry out the provisions of this O&M Plan.

1. Deep Sump Catch Basin with hood
2. Proprietary Particle Separator
3. Parking Lot Sweeping
4. Permeable Pavers (If used)

These stormwater management facilities have unique characteristics, uses, planning considerations and maintenance requirements. The maintenance requirements, as suggested by the DEP in "Volume 2 Chapter 2: Structural BMP Specifications for the Massachusetts Stormwater Handbook", and the suggested schedules, are summarized in the following sections. It is suggested that the following guidelines be adhered to for a one-year cycle following completion of the project, then adjusted, as necessary, based on the results of the required inspections, unless otherwise stated.

Deep Sump Catch Basin

- Deep Sump Catch Basins should be inspected and cleaned a minimum of four (4) times per year and at the end of foliage and snow removal seasons for the first two years of operation. If the results of these cleanings reveal that less frequent cleaning is needed then the frequency may be adjusted but catch basins will be inspected and cleaned at least once annually.

- Sediment must be removed 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.

- All sediments and hydrocarbons should be properly handled and disposed, in accordance with local, state and federal guidelines and regulations.

Stormwater Management Areas (Subsurface Detention Chambers)

Chamber maintenance is not generally required. However, Subsurface systems are prone to failure due to clogging. Regulating the sediment and petroleum product input to the proposed system is the priority maintenance activity. Sediments and any oil spillage should be trapped and removed before they reach the chambers. Catch basin and proprietary particle separator pre-treatment devices which flow into the infiltration system shall be regularly cleaned according to the maintenance schedules provided herein to prevent fine sediments and debris from entering and clogging the subsurface system.

To assist with the function of the infiltration chambers the first row in the system is an Isolator Row.

Isolator Row Inspection and Maintenance

- Inspect the Isolator Row after the site is stabilized and twice annually for the first year thereafter.
- Inspection should be adjusted after the first year as needed but at a minimum annually.
- Maintenance is required if sediment exceeds three inches throughout the length of the Isolator Row.
- Clean the Isolator Row with a JetVac system with a rear facing nozzle.
- The nozzle should be fed down the length of the Isolator Row and retrieved while the manhole used to access the system is vacuumed.
- Repeat the process until the backflush is clean.

In addition, Hayes Engineering, Inc. recommends the following to ensure that the chambers function well into the future.

- The Contractor shall verify that the required crushed stone and geotechnical fabric materials are clean and free of sediments and petroleum residue prior to, during and after the chamber system installation.

- Inspections of the chamber system shall be made by a registered professional engineer after every major storm for the first few months after construction to verify that proper function has been achieved. During these initial inspections, water levels in the chambers should be measured and recorded in a permanent log over several days to check the drainage duration and verify that sediments are not accumulating. If ponded water is present after 24 hours or an accumulation of sediment or debris is noted within the chambers, the designated Property Manager and engineer shall determine the cause for this condition and devise an action plan to improve system functionality. Any required maintenance or major repair will be documented in the permanent logbook and be completed within seven business days, with a report of such to the Towns Engineer.

- Once the chamber system has been verified to perform as designed, interior chamber conditions shall be inspected at least annually. Post construction inspections (to be conducted through inspection ports) shall consist of documenting interior chamber and bed conditions, measured water depth, and presence of sediment. If inspection indicates that the system is clogged (ponding water present after 24 hours or sediment accumulations present), replacement or major repair actions may be required as determined by a professional engineer. In this case the designated Property Manager and engineer shall determine the cause for this condition and devise an action plan. Any required maintenance or major repair will be documented in the permanent logbook and be completed within seven business days, with a report of such to the Town Engineer.

- The inspection and maintenance responsibility for the subsurface system shall belong to the Property Manager.

VortSentry HS Water Quality Chamber

Regulating the input to the proposed water quality system is the priority maintenance activity. Sediments and any oil spillage should be trapped and removed before they reach the chambers.

- VortSentry HS chamber maintenance shall be performed on a regular basis as recommended by the manufacturer (described in the attached excerpt from the VortSentry HS Guide Operation, Design, Performance and Maintenance Brochure obtained from the website summarized below.

- Sediment removal is recommended annually but is likely to vary widely based on site conditions and loadings. Typical maintenance cleaning can be done with a vacuum truck. Inspection for each of the VortSentry HS units will include a quantification of the sediment load and oil and grease volumes. This is easily made from the surface with a tube dipstick with ball valve inserted through the cleanout pipe or other access port. Depths of sediment indicating maintenance are presented in the following table for the various models. Inspection of the internal structure should be part of the routine inspection plan. The units are designed to accept 15% of their capacity in solids annually based on maximum drainage area loading. Removal of sediment, oils, and grease from the system will depend on rates of accumulation. All sediment and oil waste materials shall be disposed of in accordance with all Federal, State, and Local regulations.

REQUIRED MAINTENANCE *

Model	Sediment Depth (in.)
VortSentry HS	24"

Parking Lot Sweeping and Street Sweeping

In order to minimize the TSS load to the deep sump catch basins and those BMPs downstream it is planned to sweep the pavement areas four (4) times per year or more frequently if conditions require. Based upon actual experience and documentation a revised schedule may be submitted but all pavement areas will be swept at least once annually.

During construction the developer will be required to sweep adjacent roadways as needed to collect any offsite tracking. This will be done as needed with a mechanical sweeper.

Permeable Paver Maintenance and Installation if used onsite

1. Do not compact subgrade when infiltration into native soil is the goal
2. Cover pavement when dirty vehicles and landscaping is being done
3. Fill joint material to top of the paver. Refill after 3 to 6 months
4. Do not stockpile mulch and topsoil on the pavers when doing finishing landscaping

5. Monthly inspection to remove debris and trash from becoming clogged into joints and sweep or blow off grass clipping or fallen leaves to more robust maintenance such as stiff brush sweeping.

Yearly Maintenance Checklist

1. Vacuum sweep the entire pavement to clean lose debris from the joints. This should be done more frequently if the pavement is heavy trafficked or has a lot of overhanging trees.
2. Inspect joints and refill to the top of the paver if necessary
3. Settlement areas exceeding ½" and any protruding pavers that lip by more than ¼ "from surrounding pavers should be picked up an re-laid after base or bed layers are repaired.
4. Replace any badly damaged pavers.
5. Inspect paver areas to ensure that there is no undo ponding of surface water after rainfall events.
6. If it is determined that the infiltration ability has been reduced it may be necessary to provide regenerative maintenance which would include removal of the top ½ "of joint material, which contains a debris chip and then replace it with new washed aggregates.
7. Snow and ice can be removed with normal hand equipment or motorized snow blowers. The use of rock salts or sodium-based deicers can be used but pure magnesium chloride is a premium deicer that will help maintain the surface color without effloresce. Any product that is used to provide traction like sand or sawdust should be avoided as these products will increase clogging.

Removal of Siltation Controls

All siltation controls, including, but not limited to, hay bales and silt fence, shall be removed, with the approval of the Town Engineer, as soon as practical after paving, re-vegetation and total stabilization of the site. Unvegetated areas remaining in the area of the siltation controls shall be loamed and seeded with the appropriate groundcover to ensure re-vegetation as rapidly as possible after the removal of the siltation controls. In the case of all proposed stormwater management facilities, during construction of the proposed stormwater management system the developer shall be the owner and party responsible for maintenance.

Owner and Maintenance Responsibilities

Once the development is complete, the Property Management and Owner will assume the responsibility of on-going maintenance, as well as the long-term pollution prevention plan, unless other legally binding agreements are established with another entity.
The yearly maintenance records will be forwarded to the Wellesley Town Engineer by January 31st for the prior year's inspections.

INSPECTION AND MAINTENANCE REPORT FORM
#136 & #140 Worcester Street
Wellesley, Massachusetts

TO BE COMPLETED FOR REQUIRED INSPECTIONS AND MAINTENANCE
AT THE FREQUENCY SPECIFIED IN THE OPERATION AND MAINTENANCE PLAN

Inspector: _____ Date: _____

Inspector's Title: _____

Days Since Last Rainfall: _____ Amount of Last Rainfall: _____

	BMP	BMP Installed at Grade? (circle one)		BMP Maintenance Required or performed? (circle one)		Corrective Action Needed And Notes
1	Catch Basin inlets And gas traps	Yes	No	Yes	No	
2	CONTECH Vortsentry HS	Yes	No	Yes	No	
3	Isolator Row	Yes	No	Yes	No	
4	Subsurface Detention	Yes	No	Yes	No	
5	Permeable Pavers	Yes	No	Yes	No	
6		Yes	No	Yes	No	
7		Yes	No	Yes	No	

Additional Comments:
_____
_____
_____

LONG TERM POLLUTION PREVENTION PLAN
#136 & #140 Worcester Street
Wellesley, Massachusetts

- Good housekeeping practices: Prevent or reduce pollutant runoff from the project development through the use of street sweeping, erosion control and catch basin cleaning. It should be noted that we are not seeking credit for TSS removal with street sweeping for this project.

- Provisions for storing materials and waste products inside or under cover: All materials stored on site should be stored in a neat and orderly fashion in their appropriate containers and, if possible, under a roof or other secure enclosure. Waste products should be placed in secure receptacles until they are emptied by a licensed solid waste management company in Massachusetts.

- Vehicle washing controls: The project is comprised of multi-family structure; therefore, the responsibility lies with the property manager to enforce a no vehicle washing policy.

- Requirements for routine inspections and maintenance of stormwater BMPs: Follow the guidelines outlined above.

- Spill prevention and response plans:

  Prevention: All materials stored on site should be stored in a neat and orderly fashion in their appropriate containers and, if possible, under a roof or other secure enclosure. Products should be kept in their original containers with the original manufacturer's label. Products should not be mixed with one another unless recommended by the manufacturer. If possible, all of the product should be used up before disposing of the container. The Manufacturer's recommendations for proper use and disposal should be followed.

  Response: Manufacturer's recommended methods for cleanup should be followed. Spills should be cleaned up immediately after discovery. The spill area shall be kept well ventilated and personnel shall wear appropriate protective clothing to prevent injury from contact with a hazardous substance. Spills of toxic or hazardous material shall be reported to the appropriate State and/or local authority in accordance with local and/or State regulations.

- Provisions for maintenance of lawns, gardens, and other landscaped areas: The project is comprised of a multi-family building; therefore, these activities should be left up the property manager to schedule and perform.

- Requirements for storage and use of fertilizers, herbicides, and pesticides (Should any questions arise about these materials the Order of Conditions for this project should be consulted if applicable):

Fertilizers: Fertilizers shall be applied in the minimum amounts recommended by the manufacturer. Once applied, fertilizers shall be worked into the soil to limit exposure to stormwater. Storage shall be stored under a roof or other secure enclosure. The contents of any partially used bags of fertilizers shall be transferred to a sealable plastic bag or bin to avoid spills.

Herbicides and Pesticides: Store herbicides and pesticides in original containers that are closed and labeled, in a secure area out of reach of children and pets. Avoid storing in damp areas where containers may become moist or rusty. Herbicides and Pesticides should not be stored near food. Follow the label instructions strictly about where and how much to apply. Do not put herbicides and pesticides in the trash or down the drain. Use rubber gloves when handling and use an appropriate cartridge mask if using products extensively.

- Pet waste management provisions: The project is comprised of a multi-family building; therefore, the responsibility lies with the Property Manager to establish areas for residents who own pets to perform the clean up and disposal of their pet waste.

- Provisions for solid waste management: Waste products should be placed in secure receptacles until they are emptied by a licensed solid waste management company in Massachusetts.

- The Property Manager will be responsible for snow disposal and plowing plans relative to Wetland Resource Areas: Snow disposal should be in accordance with the Bureau of Resource Protection Snow Disposal Guidelines, Guideline No. BRPG01-01 effective December 21, 2015, a copy of which is attached. The locations for onsite snow storage will be away from wetland areas. Should an extreme weather conditions require additional snow storage at the three-parking space area located on the west side of the site will be used for temporary snow storage for storms up to 24 inches. The snow will be trucked offsite and disposed of at an acceptable location. The site layout plan has been adjusted to show the snow storage areas and a sign has been added to restrict snow storage in the loading area. A note has also been added to the plan indicating that the temporary snow storage area must have the snow removed within two business days unless there is another major storm event predicted. Under that case the snow will be removed as the plowing operations are being done.

- Winter Road Salt and/or Sand Use and Storage restrictions:

  Road Salt: Use and storage should be in accordance with the Bureau of Resource Protection Drinking Water Program Guidelines on Deicing Chemical (Road Salt) Storage, Guideline No. DWSG97-1 effective December 19, 1997, a copy of which is attached.

  Sand: Whenever possible, use of environmentally friendly alternatives, i.e. calcium chloride and sand instead of salt for melting ice should be considered.

- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan: The responsibility lies with the Property Manager.

Effective Date: March 8, 2001

Guideline No. BRPG01-01

Applicability: Applies to all federal, state, regional and local agencies, as well as to private businesses.

Supersedes: BRP Snow Disposal Guideline BRPG97-1 issued 12/19/97, and all previous snow disposal guidance

Approved by: Glenn Haas, Assistant Commissioner for Resource Protection

PURPOSE: To provide guidelines to all government agencies and private businesses regarding snow disposal site selection, site preparation and maintenance, and emergency snow disposal options that are acceptable to the Department of Environmental Protection, Bureau of Resource Protection.

APPLICABILITY: These Guidelines are issued by the Bureau of Resource Protection on behalf of all Bureau Programs (including Drinking Water Supply, Wetlands and Waterways, Wastewater Management, and Watershed Planning and Permitting). They apply to public agencies and private businesses disposing of snow in the Commonwealth of Massachusetts.

INTRODUCTION

Finding a place to dispose of collected snow poses a challenge to municipalities and businesses as they clear roads, parking lots, bridges, and sidewalks. While we are all aware of the threats to public safety caused by snow, collected snow that is contaminated with road salt, sand, litter, and automotive pollutants such as oil also threatens public health and the environment.

As snow melts, road salt, sand, litter, and other pollutants are transported into surface water or through the soil where they may eventually reach the groundwater. Road salt and other pollutants can contaminate water supplies and are toxic to aquatic life at certain levels. Sand washed into waterbodies can create sand bars or fill in wetlands and ponds, impacting aquatic life, causing flooding, and affecting our use of these resources.

There are several steps that communities can take to minimize the impacts of snow disposal on public health and the environment. These steps will help communities avoid the costs of a contaminated water supply, degraded waterbodies, and flooding. Everything we do on the land has the potential to impact our water resources. Given the authority of local government over the use of the land, municipal officials and staff have a critically important role to play in protecting our water resources.

The purpose of these guidelines is to help municipalities and businesses select, prepare, and maintain appropriate snow disposal sites before the snow begins to accumulate through the winter.

RECOMMENDED GUIDELINES

These snow disposal guidelines address: (1) site selection; (2) site preparation and maintenance; and (3) emergency snow disposal.

1. SITE SELECTION

The key to selecting effective snow disposal sites is to locate them adjacent to or on pervious surfaces in upland areas away from water resources and wells. At these locations, the snow meltwater can filter into the soil, leaving behind sand and debris which can be removed in the springtime. The following areas should be avoided:

- Avoid dumping of snow into any waterbody, including rivers, the ocean, reservoirs, ponds, or wetlands. In addition to water quality impacts and flooding, snow disposed of in open water can cause navigational hazards when it freezes into ice blocks.
- Do not dump snow within a Zone II or Interim Wellhead Protection Area (IWPA) of a public water supply well or within 75 feet of a private well, where road salt may contaminate water supplies.
- Avoid dumping snow on MassDEP-designated high and medium-yield aquifers where it may contaminate groundwater (see the next page for information on ordering maps from MassGIS showing the locations of aquifers, Zone II's, and IWPAs in your community).
- Avoid dumping snow in sanitary landfills and gravel pits. Snow meltwater will create more contaminated leachate in landfills posing a greater risk to groundwater, and in gravel pits, there is little opportunity for pollutants to be filtered out of the meltwater because groundwater is close to the land surface.
- Avoid disposing of snow on top of storm drain catch basins or in stormwater drainage swales or ditches. Snow combined with sand and debris may block a storm drainage system, causing localized flooding. A high volume of sand, sediment, and litter released from melting snow also may be quickly transported through the system into surface water.

Site Selection Procedures

1. It is important that the municipal Department of Public Works or Highway Department, Conservation Commission, and Board of Health work together to select appropriate snow disposal sites. The following steps should be taken:
2. Estimate how much snow disposal capacity is needed for the season so that an adequate number of disposal sites can be selected and prepared.

3. Identify sites that could potentially be used for snow disposal such as municipal open space (e.g., parking lots or parks).

4. Sites located in upland locations that are not likely to impact sensitive environmental resources should be selected first.

5. If more storage space is still needed, prioritize the sites with the least environmental impact (using the site selection criteria, and local or MassGIS maps as a guide).

MassGIS Maps of Open Space and Water Resources

If local maps do not show the information you need to select appropriate snow disposal sites, you may order maps from MassGIS (Massachusetts Geographic Information System) which show publicly owned open spaces and approximate locations of sensitive environmental resources (locations should be field-verified where possible). Different coverages or map themes depicting sensitive environmental resources are available from MassGIS on the map you order. At a minimum, you should order the Priority Resources Map. The Priority Resources Map includes aquifers, public water supplies, MassDEP-approved Zone II's, Interim Wellhead Protection Areas, Wetlands, Open Space, Areas of Critical Environmental Concern, NHESP Wetlands Habitats, MassDEP Permitted Solid Waste facilities, Surface Water Protection areas (Zone A's) and base map features. The cost of this map is $25.00. Other coverages or map themes you may consider, depending on the location of your city or town, include Outstanding Resource Waters and MassDEP Eelgrass Resources. These are available at $25.00 each, with each map theme being depicted on a separate map. Maps should be ordered from MassGIS. Maps may also be ordered by fax at 617-626-1249 (order form available from the MassGIS web site) or mail. For further information, contact MassGIS at 617-626-1189.

2. SITE PREPARATION AND MAINTENANCE

In addition to carefully selecting disposal sites before the winter begins, it is important to prepare and maintain these sites to maximize their effectiveness. The following maintenance measures should be undertaken for all snow disposal sites:

- A silt fence or equivalent barrier should be placed securely on the downgradient side of the snow disposal site.
- To filter pollutants out of the meltwater, a 50-foot vegetative buffer strip should be maintained during the growth season between the disposal site and adjacent waterbodies.
- Debris should be cleared from the site prior to using the site for snow disposal.
- Debris should be cleared from the site and properly disposed of at the end of the snow season and no later than May 15.

3. EMERGENCY SNOW DISPOSAL

As mentioned earlier, it is important to estimate the amount of snow disposal capacity you will need so that an adequate number of upland disposal sites can be selected and prepared.

If despite your planning, upland disposal sites have been exhausted, snow may be disposed of near waterbodies. A vegetated buffer of at least 50 feet should still be maintained between the site and the waterbody in these situations. Furthermore, it is essential that the other guidelines for preparing and maintaining snow disposal sites be followed to minimize the threat to adjacent waterbodies.

Under extraordinary conditions, when all land-based snow disposal options are exhausted, disposal of snow that is not obviously contaminated with road salt, sand, and other pollutants may be allowed in certain waterbodies under certain conditions. In these dire situations, notify your Conservation Commission and the appropriate MassDEP Regional Service Center before disposing of snow in a waterbody.

Use the following guidelines in these emergency situations:

- Dispose of snow in open water with adequate flow and mixing to prevent ice dams from forming.
- Do not dispose of snow in saltmarshes, vegetated wetlands, certified vernal pools, shellfish beds, mudflats, drinking water reservoirs and their tributaries, Zone IIs or IWPAs of public water supply wells, Outstanding Resource Waters, or Areas of Critical Environmental Concern.
- Do not dispose of snow where trucks may cause shoreline damage or erosion.
- Consult with the municipal Conservation Commission to ensure that snow disposal in open water complies with local ordinances and bylaws.

FOR MORE INFORMATION

If you need more information, contact one of MassDEP's Regional Service Centers:

Northeast Regional Office, Wilmington, 978-694-3200
Southeast Regional Office, Lakeville, 508-946-2714
Central Regional Office, Worcester, 508-792-7683
Western Regional Office, Springfield, 413-755-2214

or

Call Thomas Maguire of DEP's Bureau of Resource Protection in Boston at 617-292-5602.

Effective Date: December 19, 1997

Guideline No. DWSG97-1

Applicability: Applies to all parties storing road salt or other chemical deicing agents.

Supersedes: Fact Sheet: DEICING CHEMICAL (ROAD SALT) STORAGE (January 1996)

Approved by: Arleen O'Donnell, Asst. Commissioner for Resource Protection

PURPOSE: To summarize salt storage prohibition standards around drinking water supplies and current salt storage practices.

APPLICABILITY: These guidelines are issued on behalf of the Bureau of Resource Protection's Drinking Water Program. They apply to all parties storing road salt or other chemical deicing agents.

I. The Road Salt Problem:
Historically, there have been incidents in Massachusetts where improperly stored road salt has polluted public and private drinking water supplies. Recognizing the problem, state and local governments have taken steps in recent years to remediate impacted water supplies and to protect water supplies from future contamination. As a result of properly designing storage sheds, new incidents are uncommon. These guidelines summarize salt storage prohibition standards around drinking water supplies and current salt storage practices.

II. Salt Pile Restrictions in Water Supply Protection Areas:
Uncovered storage of salt is forbidden by Massachusetts General Law Chapter 85, section 7A in areas that would threaten water supplies. The Drinking Water Regulations, 310 CMR 22.21(2) (b), also restrict deicing chemical storage within wellhead protection areas (Zone I and Zone II) for public water supply wells, as follows: "storage of sodium chloride, chemically treated abrasives or other chemicals used for the removal of ice and snow on roads [are prohibited], unless such storage is within a structure designed to prevent the generation and escape of contaminated runoff or leachate." For drinking water reservoirs, 310 CMR 22.20C prohibits, through local bylaw, uncovered or uncontained storage of road or parking lot de-icing and sanding materials within Zone A at new reservoirs and at those reservoirs increasing their withdrawals under MGL Chapter 21G, the Water Management Act.

For people on a low-sodium diet, 20 mg/L of sodium in drinking water is consistent with the bottled water regulations' meaning of "sodium free." At 20 mg/L, sodium contributes 10% or less to the sodium level in people on a sodium-restricted diet. For more information contact: Catherine Sarafinas at 617-556-1070 or catherine.sarafinas@state.ma.us, or Suzanne Robert at 617-292-5620 or suzanne.robert@state.ma.us.

III. Salt Storage Best Management Practices (BMP):

Components of an "environment-friendly" roadway deicing salt storage facility include:

- the right site = a flat site;
- adequate space for salt piles;
- storage on a pad (impervious/paved area);
- storage under a roof; and
- runoff collection/containment.

For more information, see The Salt Storage Handbook, 6th ed. Virginia: Salt Institute, 2006 (phone 703-549-4648 orhttp://www.saltinstitute.org/publication/safe-and-sustainable-snowfighting/).

IV. Salt Storage Practices of the Massachusetts Highway Department:

The Massachusetts Highway Department (MHD) has 216 permanent salt storage sheds at 109 locations in the state. On leased land and state land under arteries and ramps, where the MHD cannot build sheds, salt piles are stored under impermeable material. This accounts for an additional 15 sites. The MHD also administers a program to assist municipalities with the construction of salt storage sheds. Of 351 communities, 201 municipalities have used state funds for salt storage facilities.

For more information about MHD's salt storage facilities, contact Paul Brown at the Massachusetts Highway Department, 10 Park Plaza, Boston, MA 02116 (phone 617-973-7792).