

Stormwater Management Report Operations and Maintenance Plan

Submitted pursuant to the
Massachusetts Stormwater Standards &
The Town of Shrewsbury Stormwater Management Rules and Regulations

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Centech Park Campus Master Plan 384-386 South Street & 721 Hartford Turnpike Shrewsbury, MA

Prepared for

NBP III Shrewsbury LLC



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- Appendix A – Stormwater Management System Site Plan
- Appendix B – Maintenance Program Summary Checklist
- Appendix C – Operation and Maintenance Forms
- Appendix D – Staff training
- Appendix E – Copies of key permits and Stormwater Management Report

A.1 Introduction

Development projects such as the Warehouse Facility on the site located at 384-386 South Street and 721 Hartford Turnpike in Shrewsbury are typically constructed with complex stormwater management systems to maintain compliance with a variety of regulations and standards. These systems are often constructed as multi-faceted systems that feature a combination of treatment and conveyance devices, often resulting in a variety of configurations within a single development project. The introduction of new impervious surfaces, landscaped areas (both soft scape and hard scape) can impact the receiving waterbodies in many ways. Control and treatment of the resulting runoff from these surfaces is of paramount importance to improving and maintaining the quality of the Commonwealth's waterbodies.

The stormwater management system can protect and enhance the stormwater runoff water quality through the removal of sediments and pollutants, and source control significantly reduces the amount of pollutants entering the system. Preventative maintenance of the system will include a comprehensive source reduction program of regular vacuuming and litter removal, prohibitions on the use of pesticides and maintenance of designated waste and recycling areas.

This long-term Stormwater Management System Operations and Maintenance (O&M) Manual, filed with the Town of Shrewsbury, shall be implemented at the Warehouse Facility development site to ensure that the stormwater management system functions as designed. The Owner possesses 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 the 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.

It is the intent of this document to provide guidance and detail for the long-term inspection and maintenance requirements of the project site to ensure the overall stormwater management system functions as intended for the life of the system. This manual provides basic criteria and schedules for inspection and trigger points for required maintenance. Included in this manual is an overall site plan which identifies the locations of the key components of the stormwater management system and a log for tracking the inspections and maintenance.

A.2 Program Administration

A reliable administrative structure must be established to assure implementation of the maintenance programs described in the foregoing section. Key factors that must be considered in establishing a responsive administrative structure include:

1. Administrative body must be responsible for long-term operation and maintenance of the facilities.
2. Administrative body must have the financial resources to accomplish the inspection and maintenance program over the life of the facility.
3. The administrative body must have a responsible administrator to manage the inspection and maintenance programs.
4. The administrative body must have the staff to accomplish the inspection and maintenance programs, or must have authority to contract for the required services.
5. The administrative body must have a management information system sufficient to file, retain, and retrieve all inspection and maintenance records associated with the inspection and maintenance programs.

If any of the above criteria cannot be met by the entity assigned inspection and maintenance responsibilities, it is likely that the system will fail to meet its water quality objectives at some point during its life. While each of the above criteria may be met by a variety of formats, it is critical to clearly establish the assigned administrative body in a responsible and sustainable manner.

A.3 Responsibility

The purpose of the Stormwater Operations and Maintenance Manual is to ensure the 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. Staff shall be trained for the requirements of this Manual, and training documentation is included in Appendix D.

Contact information is provided below:

Responsibility for Operation and Maintenance & Emergency Contact

Name: Centech Park Campus Master Plan
Address: 401 Edgewater Place, Suite 265
City, State: Wakefield, MA 01880
Contact: Owen Hall
Telephone: (617) 702-1604
Email: owen.hall@northbridgecre.com

Owen T. Hall

Signature

The owner(s) of the stormwater management system must notify the Town of Shrewsbury's DPW Department of changes in ownership or assignment of financial responsibility.

A.4 Documentation

An Inspection and Maintenance Record Log and Schedule shall be kept by the Owner or Property Manager summarizing inspections, maintenance, repairs and any corrective actions taken. The log will include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean-out of any sediments or debris, the location where the sediment and debris was disposed after removal will be indicated. Inspection and Maintenance Logs shall be kept on file at the property management office.

A.5 Maintenance Program and Budget

The Owner, Property Manager and maintenance staff shall conduct the Operation and Maintenance program set forth in this document. The Owner or Property Manager will ensure that inspections and record keeping are timely and accurate and that cleaning and maintenance are performed in accordance with the recommended frequency for each stormwater component. Inspection and Maintenance Log Forms (provided herein) shall include the date and amount of the last significant storm event in excess of on (1) inch of rain in a 24-hour period, physical conditions of structures, depth of sediment in structures, evidence of overtopping or debris blockage and maintenance required of each structure. The estimated annual cost of the Maintenance Program is \$7,500 to \$10,000.

A list of the individual inspection/maintenance elements is provided in the table of contents. The guidelines are proposed for initial use with adjustments made as appropriate based upon specific project experience.

A.6 Project Overview

Key permits issued (or applied for) on the project include:

- Building Height Variance
- Site Plan Review
- Use and Parking Special Permit
- Abbreviated Notice of Resource Area Delineation (ANRAD)
- Order of Conditions
- State Highway Access Permit
- Building Permit

The permit applications for the project include the design information for the stormwater system.

A copy of the permits and Stormwater Management Report shall be appended to this manual as Appendix E. The Owner/Operator of the stormwater management system shall review these permits for a general description and background of the project, as well as any specific permit conditions or requirements of the project.

The applicant has retained Beals Associates, Inc. for civil engineering for the proposed site design. Beals Associates, Inc. has prepared the design for the stormwater management facilities for this project and may be contacted at:

Beals Associates, Inc.
2 Park Plaza, Suite 200
Boston, Massachusetts 02116
(617) 242.1120

Any particular questions on the design intent or similar issues shall be directed to the designer of the system.

The applicable plans/design documents which apply to the project are:

1. Civil Site Plans/Permit Applications
2. The Erosion Control/Sedimentation Control Plan for the project.
3. The Stormwater Management Plan for the project.
4. O&M Stormwater Maintenance Plan for the project.

A copy of these documents shall be retained with the manual.

B.1 Standard Inspection and Maintenance Descriptions

The following narratives describe the inspection/maintenance provisions for the Stormwater Management area. These O&M procedures will complement scheduled sweeping of the pavement areas anticipated to occur at least twice per year in the Spring and Fall.

B.2 Routine Maintenance Tasks

Routine maintenance of lawns, gardens, and other landscaped areas shall occur as necessary to maintain the property in a neat and orderly fashion. Clippings and/or mulch shall not be washed into the drainage infrastructure.

Maintenance of the Stormwater Management System shall be in accordance with the Operations and Maintenance Checklist below.

Good housekeeping – all areas shall be kept free of trash and debris. Any storage of materials and waste products shall be inside or under cover. Fertilizers, herbicides and pesticides, if stored on site, shall be stored properly contained and under cover. Storage of salt or deicing chemicals, if any, shall be on impervious area, covered and protected from runoff.

B.2.0 Parking Lot Trash Removal

The operator of the site has expressed interest and concern regarding the cleanliness and appearance of the property in general. In order to maintain the site in a neat and clean manner that is free of windblown debris and trash, the parking lot trash receptacles shall be inspected twice per week and emptied a minimum of once per week. Windblown debris and trash shall be removed from the paved surfaces and along the fence line on a weekly basis. All trash and debris shall be properly disposed of.

The number and location of outdoor trash receptacles shall be monitored on a month to month basis to determine if they have been effectively located and an adequate number of outdoor receptacles are available. In the event it is found that the number or locations are not adequate to serve the needs of the facility, then adjustments shall be made immediately.

B.2.1 Catch Basins and Manholes

Regular maintenance is essential. Deep sump catch basins remain effective at removing pollutants only if they are cleaned out frequently. Once 50% of the sump volume is filled, the catch basin may not be able to retain additional sediment. Inspect or clean deep sumps at least four times per year and at the end of the foliage and snow removal seasons. Sediments must also be removed four times per year or whenever the depth of deposits is greater than or equal to one half the depth (two feet) measured down from the bottom of the invert to the bottom of the sump.

Clamshell buckets are typically used to remove sediment; however, vacuum trucks are preferable as they remove more trapped sediment than clamshells. Vacuuming is also a speedier process and is less likely to damage the hood within the deep sump catch basin. Always consider the safety of the staff cleaning deep sump catch basins. Cleaning a deep sump catch basin within a road with active traffic or even within a parking lot is dangerous and a police detail may be necessary to safeguard workers. Although catch basin debris often contains oil and hazardous material such as petroleum hydrocarbons and metals, MassDEP classifies them as solid waste. Unless there is evidence that they have been contaminated by a spill or other means, MassDEP does not routinely require catch basin cleanings to be tested before disposal. Contaminated catch basin cleanings must be evaluated in accordance with the Hazardous Waste Regulations, 310 CMR 30.000, and handled as hazardous waste.

In the absence of evidence of contamination, catch basin cleanings may be taken to a landfill or other facility permitted by MassDEP to accept solid waste, without any prior approval by MassDEP; however, some landfills may require testing before they are accepted.

B.2.2 Level Spreaders

Regular maintenance of level spreaders are essential to ensure flow is spread out over wide level areas at locations where stormwater has been concentrated. If the spreader is not level, flow will concentrate at a low point and possibly cause erosion to waters of the Commonwealth. The design of the level spreaders allows for the adjustment of the weir to prevent this concentration. The weir shall be adjusted to be absolutely level.

Level spreaders shall be inspected regularly, and especially after large storm events. Inspect semi-annually the first year, and at least once a year thereafter. Sediment shall be removed annually, and when the spreader cannot be adjusted to be level.

B.2.3 Flared Ends

Flared ends should be inspected annually to ensure that no debris or sediment is obstructing the flared end. Debris should be immediately cleaned out, and sediment should be removed upon accumulation.

B.2.4 R-Tank Infiltration System

Regular inspection and maintenance are essential to assure a properly functioning system. Inspection is accomplished through the inspection ports. These inspection ports allow inspection to be accomplished from the surface without the need for confined space entry. A stadia rod may be inserted to determine the depth of sediment. If upon visual inspection it is found that sediment has accumulated to an average depth exceeding six (6) inches, the system should be back-flushed. To back-flush the R-tank, water is pumped into the system through the maintenance ports as rapidly as possible. Water should be pumped into ALL maintenance ports. The turbulent action of the water moving through the R-Tank will suspend sediments which may then be pumped out. For systems with large footprint that would require extensive volumes of water to properly flush the system, you should consider performing your maintenance within 24 hours of a rain event. Stormwater entering the system will aid in the suspension of sediments and reduce the volume of water required to properly flush the system.

The system should be initially inspected immediately after the completion of the site's construction. While every effort should be made to prevent sediment from entering the system during construction, it is during this time that excess amounts of sediments are most likely to enter and stormwater systems. Inspection and maintenance, if necessary should be performed prior to the contractor passing responsibility over to the site's owner. Once in normal service, the system should be inspected bi-annually until an understanding of the site's characteristics is developed. The site's maintenance manager can then revise the inspection schedule based on experience or local requirements.

The system proposed for this site does not include an isolator row. Because of the lack of an isolator row, cleaning of the system in general will be very difficult due to minimal access to the majority of the components. The key component to ensuring the long-term performance of the system is to remain diligent about the maintenance of the stormwater BMP's located upstream of the infiltration and filtration systems, in this case the catch basins, Stormceptor units, and roof leaders. Ensuring these upstream units function as intended will help to eliminate the inflow of debris and sediment into the infiltration and filtration systems.

B.2.5 Subsurface Infiltration Systems- Stormtech MC3500 & MC4500 Chambers

Regular inspection and maintenance are essential to assure a properly functioning system. Inspection is accomplished through the inspection ports. These inspection ports allow inspection to be accomplished

from the surface without the need for confined space entry. A stadia rod may be inserted to determine the depth of sediment. If upon visual inspection it is found that sediment has accumulated to an average depth exceeding three (3) inches, cleanout is required.

The system should be initially inspected immediately after the completion of the site's construction. While every effort should be made to prevent sediment from entering the system during construction, it is during this time that excess amounts of sediments are most likely to enter and stormwater system. Inspection and maintenance, if necessary should be performed prior to the contractor passing responsibility over to the site's owner. Once in normal service, the system should be inspected bi-annually until an understanding of the site's characteristics is developed. The site's maintenance manager can then revise the inspection schedule based on experience or local requirements.

The system proposed for this site does not include an isolator row. Because of the lack of an isolator row, cleaning of the system in general will be very difficult due to minimal access to the majority of the components. The key component to ensuring the long-term performance of the system is to remain diligent about the maintenance of the stormwater BMP's located upstream of the infiltration system, in this case the Stormceptor units and the deep sump catch basins. Ensuring these upstream units function as intended will help to eliminate the inflow of debris and sediment into the infiltration system.

B.2.6 Subsurface Infiltration Systems- StormCapture Modules

Because subsurface structures are installed underground, they are extremely difficult to maintain. State and local regulations typically require all stormwater management systems to be inspected on a regular basis and maintained as necessary to ensure performance and protect downstream receiving waters. Inspections should be used to evaluate the conditions of the system. Based on these inspections, maintenance needs can be determined. Maintenance needs vary by site and system. Using this Inspection & Maintenance Guide, qualified maintenance personnel should be able to provide a recommendation for maintenance needs. Requirements may range from minor activities such as removing trash, debris or pipe blockages to more substantial activities such as vacuuming and removal of sediment and/or non-draining water. Long-term maintenance is important to the operation of the system since it prevents excessive pollutant buildup that may limit system performance by reducing the operating capacity and increasing the potential for scouring of pollutants during periods of high flow. Only authorized personnel shall inspect and/or enter a StormCapture system. Personnel must be properly trained and equipped before entering any underground or confined space structure. Training includes familiarity with and adherence to any and all local, state and federal regulations governing confined space access and the operation, inspection, and maintenance of underground structures.

The StormCapture system should be inspected on a regular basis, typically twice per year, and maintained as required. The maintenance frequency will be driven by the amount of runoff and pollutant loading encountered by a given system.

- Maintenance should be scheduled if any of the following conditions are identified during the inspection: Inlet or outlet piping is blocked or obstructed.
- Internal components are broken, missing, or obstructed.

- Accumulation of more than three inches of sediment on the system floor or in the sump, if applicable.
- Significant accumulation of floating trash and debris that cannot be retrieved with a net.
- The system has not drained completely after it hasn't rained for one to three days, or the drain down does not meet permit requirements.
- Any hazardous material is observed or reported.

B.2.7 Open Basin Infiltration System

Inspect infiltration basin at least once per year to ensure it is operating as designed. Inspect the outlet structure for evidence of clogging or excessive outflow releases. Potential problems to check include: subsidence, erosion, cracking or tree growth on the embankment, damage to the emergency spillway, sediment accumulation around the outlet, inadequacy of the inlet/outlet channel erosion control measures, changes in the condition of the pilot channel, erosion within the basin and banks, and the emergence of invasive species. Make any necessary repairs immediately. During inspections, note any changes to the infiltration basin or the contributing watershed area because these may affect basin performance. At least twice a year, mow the upper-stage, side slopes, embankment and emergency spillway. Remove sediment from the basin as necessary, and at least once every 10 years. Providing an on-site sediment disposal area will reduce the overall sediment removal costs.

B.2.8 Drainage Channels

The maintenance and inspection schedule should take into consideration the effectiveness of the drainage channel. Inspect drainage channels the first few months after construction to make sure that there is no rilling or gullyng, and that vegetation in the channels is adequate. Thereafter, inspect the channel twice a year for slope integrity, soil moisture, vegetative health, soil stability, soil compaction, soil erosion, ponding, and sediment accumulation.

Regular maintenance tasks include mowing, watering, pruning, weeding, and pest control. Mow channels at least once per year. Do not cut the grass shorter than three to four inches. Keep grass height under 6 inches to maintain the design depth necessary to serve as a conveyance. Do not mow excessively, because it may increase the design flow velocity.

Remove sediment and debris manually at least once per year. Re-seed periodically to maintain the dense growth of grass vegetation. Take care to protect drainage channels from snow removal procedures and off-street parking. When drainage channels are located on private residential property, the operation and maintenance plan must clearly specify the private property owner who is responsible for carrying out the required maintenance

B.2.9 Grassed Channels

Mowing: Set the mower blades no lower than 3 to 4 inches above the ground. Do not mow beneath the depth of the design flow during the storm associated with the water quality event (e.g., if the design flow

is no more than 4 inches, do not cut the grass shorter than 4 inches). Mow on an as-needed basis during the growing season so that the grass height does not exceed 6 inches.

Inspection: Inspect semi-annually the first year, and at least once a year thereafter. Inspect the grass for growth and the side slopes for signs of erosion and formation of rills and gullies. Plant an alternative grass species if the original grass cover is not successfully established. If grass growth is impaired by winter road salt or other deicer use, re-establish the grass in the spring.

Trash/Debris Removal: Remove accumulated trash and debris prior to mowing.

B.2.10 Parking Lot Sweeping

One effective nonstructural source control is street and parking lot sweeping. Many municipalities and some private entities (e.g., commercial shopping areas or office parks) have street sweeping programs. Although intended to provide important nonpoint source pollution control, many street sweeping programs are not effective at capturing the peak sediment loads.

There are three factors in particular that can have a major influence on the effectiveness of a street sweeping program: access, the type of sweeper, and the frequency of sweeping.

Effective sweeping requires access to the areas to be swept. Parked cars impede street sweeping. Studies have shown that up to 95% of the solids on a paved surface accumulate within 40 inches of the curb, regardless of land use. It is essential that applicants or those responsible for stormwater maintenance have the ability to impose parking regulations to facilitate proper sweeping, particularly in densely populated or heavily traveled areas, so that sweepers can get as close to curbs as possible.

A good street sweeping program requires an efficient sweeper. There are three types of sweepers: Mechanical, Regenerative Air, and Vacuum Filter. Each has a different ability to remove TSS.

Mechanical: Mechanical sweepers use brooms or rotary brushes to scour the pavement. Although most of the sweepers currently in use in Massachusetts are mechanical sweepers, they are not effective at removing TSS (from 0% to 20% removal). Mechanical sweepers are especially ineffective at picking up fine particles (“fines”) (less than 100 microns). Frequent use (>1x per month) of these types of sweepers can prevent buildup of large volumes of sediment on paved surfaces.

Regenerative Air: These sweepers blow air onto the road or parking lot surface, causing fines to rise where they are vacuumed. Regenerative air sweepers may blow fines off the vacuumed portion of the roadway or parking lot, where they contaminate stormwater when it rains.

Vacuum filter: These sweepers remove fines along roads. Two general types of vacuum filter sweepers are available - wet and dry. The dry type uses a broom in combination with the vacuum. The wet type uses water for dust suppression. Research indicates vacuum sweepers are highly effective in removing TSS. Regardless of the type chosen, the efficiency of street sweeping is increased when sweepers are operated in tandem.

The frequency of sweeping is a major factor in determining efficiency. Unlike other stormwater treatment practices that function whenever it rains, street sweeping only picks up street dirt when streets and parking lots are actually swept. TSS removal efficiency is determined based on annual loading rates. If a road were swept only once a year with a sweeper that is 100% efficient, it would remove only a small fraction of the annual TSS load.

Street dirt accumulates on roads and parking lots and runs off in response to precipitation. The average interval between precipitation events in Massachusetts is approximately 3 days. Therefore, the hypothetical maximum effectiveness for street dirt removal requires sweeping at least once every 3 days, with a street sweeper with 100% efficiency at removing solids on paved surfaces before they become suspended. Modeling studies by Claytor (1999) in the Pacific Northwest suggest that optimum pollutant removal occurs when surfaces are swept every two weeks. Given the sensitive nature of this site, weekly sweeping of the parking lots are recommended.

B.2.11 Maintenance of Lawns and other landscaped areas

Lawns and other landscaping areas will be mowed on a monthly basis as needed. Lawns and other landscaping areas shall be kept in proper order to ensure there is no erosion towards stormwater management facilities or wetland resource areas.

B.2.12 Winter Maintenance

Ensure structures are not blocked by ice, snow, debris or trash during winter months. Accumulated snow shall be stored in specified snow storage area which are shown on the submitted O&M Plan OM-1 found in Appendix A.

C.1 Storage, Handling, and Disposal of Building Products, Materials, and Wastes

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff. The owner will be responsible for ensuring that these procedures are followed.

C.1.1 Good Housekeeping

The following good housekeeping practices will be followed onsite:

1. An effort will be made to store only enough products necessary for the operation of the warehouse.
2. All materials stored onsite will be stored in a neat, orderly manner and, if possible, under a roof or in a containment area. At a minimum, all containers will be stored with their lids on when not in use. Drip pans shall be provided under any and all dispensers.
3. Products will be kept in their original containers with the original manufacturer's label in legible condition.
4. Substances will not be mixed with one another unless recommended by the manufacturer.
5. Whenever possible, all of a product will be used up before disposing of the container.
6. Manufacturer's recommendations for proper use and disposal will be followed.
7. The Contractor's Superintendent will be responsible for daily inspections to ensure proper use and disposal of materials.

C.1.2 Fertilizer Selection

It is not currently known if fertilizer will be used. If fertilizer is used it shall be to enhance the ground cover of the facility, yet not result in adverse water quality impacts. The following guidelines are recommended.

The selection of fertilizer shall be based upon site-specific requirements. Recommendations for the fertilizer will be made upon completion of the project and actual tests of the soil mix. The benefit of the use of a soil mix is the ability of the soil to absorb and store nutrients for subsequent plant growth better than a sandy loam.

The soil shall be resampled every three (3) years and the plan adjusted accordingly.

C.1.2.1 Fertilizer Storage

If used, it shall be stored in a weatherproof area with containers protected from damage. Fertilizer from any damaged containers shall be placed in appropriate weatherproof containers.

C.1.2.2 Fertilizer Application

Fertilizer shall be applied with appropriate mechanical equipment properly calibrated to meet the recommended application rates of the soil tests and manufacturer. The Owner or its agents shall instruct personnel on the use of equipment and the proper measurement of the fertilizer.

Personnel assigned to application shall be instructed that over-application of fertilizer is averse to the landscaped areas and environment. Fertilizer shall not be applied to steep slopes, saturated ground, during periods of precipitation, or immediately prior to major rain events.

C.1.3 Diesel Fuel, Oil, Hydraulic Fluids, Other Petroleum Products, and Other Chemicals

C.1.3.1 Petroleum Products

All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers that are clearly labeled. Maximum total aggregate above ground storage capacity (for the total permit area) shall not exceed 1,320 gallons (which includes both bulk and equipment operational storage volumes in fuel tanks greater than 55 gallons). Total aggregate petroleum storage exceeding 1,320 gallons shall require preparation, certification (using a Professional Engineer) and implementation of a Spill Prevention Control and Countermeasures (SPCC) Plan. The SPCC Plan, if needed, will be furnished by the Contractor. Any petroleum storage tanks will be double wall tanks. The location of any fuel tanks and/or equipment storage areas must be identified on the Erosion Control Plan, by the Contractor once the locations have been determined.

C.1.3.2 Paints, Paint Solvents, and Cleaning Solvents

All containers will be tightly sealed and stored when not in use. Excess paint and solvents will not be discharged to the storm sewer system but will be properly disposed of according to manufacturer's instructions or state and federal regulations.

C.1.4 Hazardous or Toxic Waste

C.1.4.1 Hazardous Wastes

It is imperative that all Hazardous Waste be properly identified and handled in accordance with all applicable Hazardous Waste Standards, including the storage, transport and disposal of the Hazardous Wastes. There are significant penalties for the improper handling of Hazardous Wastes. It is important that the Site Superintendent seeks appropriate assistance in making the determination of whether a substance or material is a Hazardous Waste. For example, Hazardous Waste may include certain hazardous substances, as well as pesticides, paints, paint solvents, cleaning solvents, pesticides, contaminated soils, and other materials, substances or chemicals that have been discarded (or are to be discarded) as being out-of-date, contaminated, or otherwise unusable, and can include the containers for those substances; other materials and substances can also be or become Hazardous Wastes, however. The Contractor's Superintendent is also responsible for ensuring that all site personnel are instructed as to these Hazardous Waste requirements and also that the requirements are being followed.

C.1.4.2 Hazardous Substances

These practices will be used to reduce the risks associated with Hazardous Substances. Material Safety Data Sheets (MSDS's) for each product with hazardous properties that is used on the site will be obtained and used for the proper management of potential wastes that may result from these products. An MSDS will be posted in the immediate area where such product is stored and/or used and another copy of each MSDS will be maintained in the job trailer at the Project. Each employee who must handle a Hazardous Substance will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

1. Products will be kept in original containers with the original labels in legible condition.
2. Original labels and MSDS's will be procured and used for each product.

3. If surplus product must be disposed manufacturer's and local/state/federal required methods for proper disposal must be followed.

C.1.4.3 Domestic Waste

All waste materials will be collected and stored in an appropriate container and/or securely contained metal dumpster rented from a local waste management company which must be a solid waste management company licensed to do business in the Commonwealth of Massachusetts. The dumpster will comply with all local and state solid waste management regulations.

All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied as necessary. The dumpster will be emptied as necessary or when 95% full, or more often if necessary to prevent over-flow and the trash will be hauled to a landfill approved by the Commonwealth of Massachusetts. No waste materials will be buried on site. All personnel will be instructed regarding the correct procedures for waste disposal.

All waste dumpsters and roll-off containers will be located in an area where the likelihood of the containers contributing to storm water discharges is negligible. Solid waste containers shall be located no less than 50 feet tributary from any storm inlet, drainage way, or surface water. If required, additional BMPs must be implemented, such as gravel bags, wattles, dikes, berms, and fences around the base, to prevent wastes from contributing to storm water discharges.

C.1.5 Sewer

The proposed project will be connected to sewer, and there will be no septic systems on the project site.

C.1.7 Washing of Applicators and Containers used for Paint or Other Materials

Excess paint and solvents will not be discharged to the storm sewer system but will be properly disposed of according to manufacturer's instructions or state and federal regulations.

C.1.8 Other Pollution Prevention Practices

Any contaminated soils (resulting from spills of Hazardous Substances or Oil or discovered during the operation of the facility) which may result from daily operations will be contained and cleaned up immediately in accordance with the procedures given in the Materials Management Plan and in accordance with applicable state and federal regulations. Contaminated soils which pre-existed operation, but which are discovered by virtue of ongoing operations, shall be reported in the same manner as spills, but with sufficient information to indicate that the discovery of an existing condition is being reported. If there is a release that occurs by virtue of the discovery of existing contamination, this shall be reported as a spill, if it otherwise meets the requirements for a reportable spill.

C.1.9 Deicing Materials

Proper storage of deicing materials is paramount to ensure proper protection of public and private drinking water supplies. Uncovered storage of salt is forbidden by Massachusetts General Law Chapter 85 section 7A in areas that would threaten water supplies. Additionally, the Drinking Water Regulations, 310 CMR 22.21(2)(b), 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.

C.1.9.1 Deicing Materials Storage

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
- Runoff collection/containment

Deicing materials for this project will be stored inside the building.

C.1.10 Snow Storage and Disposal

Finding locations to dispose of collected snow can pose a challenge as roadways, parking lots, and sidewalks are cleared. Public safety is of importance, however care must be taken to ensure that collected snow, which may be contaminated with road salt, sand, litter, and automotive pollutants such as oil, is disposed of in a manner that will minimize threats to nearby sensitive resource areas.

Snow storage areas have been identified on the Operation and Maintenance Site Plan found in Appendix A. These locations have been carefully planned to ensure that potential contaminants will drain to the stormwater management facilities to provide necessary treatment. Snow shall be stored in unused portions of the parking and paved surface. In the likely event that insufficient areas are available for snow storage, then the owner shall remove snow from the site entirely. In no event shall snow be stored in areas that would drain directly towards resource areas.

C.1.11 Illicit Discharges to Stormwater Management System

The stormwater management system is the system for conveying, treating, and infiltrating stormwater on-site, including stormwater best management practices and any pipes intended to transport stormwater to the groundwater, a surface water, or municipal separate storm sewer system. Illicit discharges to the stormwater management system are discharges that are not entirely comprised of stormwater. Notwithstanding the foregoing, an illicit discharge does not include discharges from the following activities or facilities: firefighting, water line flushing, landscape irrigation, uncontaminated groundwater, potable water sources, foundation drains, air conditioning condensation, footing drains, individual resident car washing, flows from riparian habitats and wetlands, dechlorinated water from swimming pools, water used for street washing and water used to clean residential buildings without detergents.

C.1.12 Washing of Equipment and Vehicles

Any and all equipment and vehicle washing will be performed off-site.

C.1.13 Shutdown and Containment

The project stormwater management system and subsurface infiltration systems have been designed to release stormwater to wetland resource areas during various storm events. In the event of a spill, shutoff valves have been designed downstream of the water quality units in the truck dock area. These valves should be shutoff in the event of a spill to act as a containment area to allow time for cleanup activities.

Appendix A

Stormwater Management System Site Plan

Detailed Site Plans are
Available under Separate Cover

Appendix B

**Stormwater Management System
Maintenance Program Summary Checklist**

Stormwater Management System Maintenance Program Summary Checklist						
Item	Commentary	Frequency				
		Weekly	Monthly	Quarterly	Semi- Annually	Annually
Catch Basins and Manholes	Inspect for sediment quarterly; inspect at tend of foliage and at end of snowmelt; remove upon accumulation			X		
Parking Lot Sweeping	Sweep to remove small debris and sediments; large debris shall be removed by hand prior to sweeping actions.	X				
Water Quality Units	Inspect monthly for first six months; inspect for sediment accumulation quarterly or semi—annually thereafter; inspect immediately after spills			X	X	
Subsurface Systems – Stormtech MC-3500 & MC4500 Chambers	Inspect for accumulated sediment immediately after construction; inspect semi-annually thereafter until an understanding of the site’s characteristics is developed				X	
R-Tank Infiltration System	Inspect for accumulated sediment immediately after construction; inspect semi-annually thereafter until an understanding of the site’s characteristics is developed				X	
Adjustable Weir Level Spreader	Inspect semi-annually the first year, at least once a year thereafter, and following large storm events					X
Flared End Sections	Inspected annually to ensure that no debris or sediment is causing obstructions					X
Subsurface Infiltration System – StormCapture Modules	Inspected on a regular basis, typically twice per year, and maintained as required				X	

Item	Commentary	Frequency				
		Weekly	Monthly	Quarterly	Semi-Annually	Annually
Open Infiltration Basin	Inspect at least once per year to ensure it is operating as designed. Inspect the outlet structure for evidence of clogging or excessive outflow releases					X
Drainage Channel	Remove sediment and debris manually at least once per year. Re-seed periodically				X	
Maintenance of Lawns and other landscaped areas	Mow grass as needed and maintain in good working order. Seed as needed		X			
Winter Maintenance	Ensure structures are not blocked by ice, snow, debris or trash during winter months.		X			
Trash Inspection	Ensure receptacles are empty and operable; remove and pick up litter from ground surfaces and fence-line	X				

Appendix C

**Stormwater Management System
Operation and Maintenance Forms**

**STORM WATER MANAGEMENT SYSTEM
OPERATIONS AND MAINTENANCE MANUAL
Parking Lot Trash Removal**

Name of Inspector: _____ Title of Inspector: _____

Inspector's Signature: _____

Inspection Date	Satisfactory			Location	Maintenance Needed and Description	Implementation Date of Maintenance
	Yes	No	N/A			

**STORM WATER MANAGEMENT SYSTEM
OPERATIONS AND MAINTENANCE MANUAL
Catch Basins and Manholes**

Name of Inspector: _____ Title of Inspector: _____

Inspector's Signature: _____

Inspection Date	Satisfactory			Location	Maintenance Needed and Description	Implementation Date of Maintenance
	Yes	No	N/A			

**STORM WATER MANAGEMENT SYSTEM
OPERATIONS AND MAINTENANCE MANUAL
Water Quality Units**

Name of Inspector: _____ Title of Inspector: _____

Inspector's Signature: _____

Inspection Date	Satisfactory			Location	Maintenance Needed and Description	Implementation Date of Maintenance
	Yes	No	N/A			

**STORM WATER MANAGEMENT SYSTEM
OPERATIONS AND MAINTENANCE MANUAL
Stormtech MC-3500 & MC-4500 Chambers**

Name of Inspector: _____ Title of Inspector: _____

Inspector's Signature: _____

Inspection Date	Satisfactory			Location	Maintenance Needed and Description	Implementation Date of Maintenance
	Yes	No	N/A			

**STORM WATER MANAGEMENT SYSTEM
OPERATIONS AND MAINTENANCE MANUAL
R-Tank Infiltration System**

Name of Inspector: _____ Title of Inspector: _____

Inspector's Signature: _____

Inspection Date	Satisfactory			Location	Maintenance Needed and Description	Implementation Date of Maintenance
	Yes	No	N/A			

**STORM WATER MANAGEMENT SYSTEM
OPERATIONS AND MAINTENANCE MANUAL
Adjustable Weir Level Spreader**

Name of Inspector: _____ Title of Inspector: _____

Inspector's Signature: _____

Inspection Date	Satisfactory			Location	Maintenance Needed and Description	Implementation Date of Maintenance
	Yes	No	N/A			

**STORM WATER MANAGEMENT SYSTEM
OPERATIONS AND MAINTENANCE MANUAL
Flared End Sections**

Name of Inspector: _____ Title of Inspector: _____

Inspector's Signature: _____

Inspection Date	Satisfactory			Location	Maintenance Needed and Description	Implementation Date of Maintenance
	Yes	No	N/A			

**STORM WATER MANAGEMENT SYSTEM
OPERATIONS AND MAINTENANCE MANUAL
StormCapture Modules**

Name of Inspector: _____ Title of Inspector: _____

Inspector's Signature: _____

Inspection Date	Satisfactory			Location	Maintenance Needed and Description	Implementation Date of Maintenance
	Yes	No	N/A			

**STORM WATER MANAGEMENT SYSTEM
OPERATIONS AND MAINTENANCE MANUAL
Open Infiltration Basin**

Name of Inspector: _____ Title of Inspector: _____

Inspector's Signature: _____

Inspection Date	Satisfactory			Location	Maintenance Needed and Description	Implementation Date of Maintenance
	Yes	No	N/A			

**STORM WATER MANAGEMENT SYSTEM
OPERATIONS AND MAINTENANCE MANUAL
Drainage Channels**

Name of Inspector: _____ Title of Inspector: _____

Inspector's Signature: _____

Inspection Date	Satisfactory			Location	Maintenance Needed and Description	Implementation Date of Maintenance
	Yes	No	N/A			

**STORM WATER MANAGEMENT SYSTEM
OPERATIONS AND MAINTENANCE MANUAL
Parking Lot Sweeping**

Name of Inspector: _____ Title of Inspector: _____

Inspector's Signature: _____

Inspection Date	Satisfactory			Location	Maintenance Needed and Description	Implementation Date of Maintenance
	Yes	No	N/A			

**STORM WATER MANAGEMENT SYSTEM
OPERATIONS AND MAINTENANCE MANUAL
Maintenance of lawns and other landscaped areas**

Name of Inspector: _____ Title of Inspector: _____

Inspector's Signature: _____

Inspection Date	Satisfactory			Location	Maintenance Needed and Description	Implementation Date of Maintenance
	Yes	No	N/A			

**STORM WATER MANAGEMENT SYSTEM
OPERATIONS AND MAINTENANCE MANUAL
Winter Maintenance**

Name of Inspector: _____ Title of Inspector: _____

Inspector's Signature: _____

Inspection Date	Satisfactory			Location	Maintenance Needed and Description	Implementation Date of Maintenance
	Yes	No	N/A			

Appendix D

Staff Training

Name	Describe Training	Date Training Completed

Appendix E

Copies of key permits and Stormwater Management Report

Available under Separate Cover