

NOTE: The EPA will reissue the CGP in February 2012 and this document will be updated in conformance with the reissued permit in effect at the time of the Notice of Intent filing with the EPA.

DRAFT Stormwater Pollution Prevention Plan for
Coverage Under the EPA National Pollutant Discharge
Elimination System General Permit for Stormwater
Discharges From Construction Activities

Project Site:

The Residences at Johnson Farm
189 Landham Road
Sudbury, MA 01776

Project Operators:

Owner

Madison Place Sudbury, LLC
15 Brickyard Lane
Westborough, MA 01581

Contractor

To Be Determined

Prepared By:

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Preparation Date: December, 2011

Estimated Construction Start Date: TBD

Estimated Construction End Date: TBD

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Completed Corrective Action Logs
Completed SWPPP Amendment Logs
Completed Training Logs
Completed Progress Maps

1.0 Introduction

This Stormwater Pollution Prevention Plan (SWPPP) is intended to identify measures to control stormwater runoff and minimize impacts resulting from the proposed “Residences at Johnson Farm Project” located on Landham Road, in Sudbury, Massachusetts. See USGS Project Location Figure 1 in Appendix A for the project location. The project will include the construction of ten (10) buildings, property management offices, garages, at-grade parking areas and supporting infrastructure and amenities including utilities, pedestrian walkways and landscaping. Demolition of an existing house and one outbuilding will also occur. Erosion and Sedimentation Control Plans, provided in Appendix A, are included for those project components resulting in land disturbance.

This SWPPP establishes the project’s approach to controlling the pollution of stormwater runoff during demolition and construction activities and lists structural and non-structural Best Management Practices (BMPs) that may be employed during construction.

This SWPPP has been prepared, based on the current level of design, in accordance with the regulations, guidelines, and conditions set forth by the U.S. Environmental Protection Agency (EPA) in its National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Construction Activities as modified Effective January 8, 2009 (CGP). A copy of the CGP is included in Appendix B.

2.0 Contact Information/Responsible Parties

In accordance with Part 5.12 and Appendix A of the CGP, Madison Place Sudbury, LLC is considered an Operator. In addition, the site contractor, to be determined, herein referred to as the “Contractor” is also considered an Operator. This SWPPP will be updated to include the site contractor information upon contract award and prior to the start of construction.

Madison Place Sudbury, LLC, the Owner, has operational control over the construction plans and specifications for the project and has the ability to make modifications to the plans and specifications. The Contractor will be responsible for the implementation and day-to-day operational control of activities that are necessary to ensure compliance with the SWPPP for all project components, including monitoring and inspections, and any necessary modifications to the SWPPP. The Contractor may subcontract certain portions of the proposed work; however, as an Operator they are responsible for ensuring that subcontracted work occurs in compliance with this SWPPP and the CGP. The Contractor shall be responsible for any enforcement action taken or imposed by federal, state, or local agencies, including the cost of fines, construction delays, and remedial actions resulting from their failure to comply with the CGP.

All subcontractors working on the project who are engaged in activities that may generate pollution and could potentially impact stormwater must sign a certification statement. The certification states that they have reviewed the SWPPP, understand the terms and conditions of the SWPPP and they agree to follow the practices described in the SWPPP. Examples of subcontractors who may generate pollution include the concrete vendor, carpenters, and paving company. A Subcontractor Agreement/Certification Form is provided in Appendix C.

Operator/Owner of Plans and Specifications:

Madison Place Sudbury, LLC
15 Brickyard Lane
Westborough, MA 01581

Operator/Owner Contact:

Robert Moss, President
508-366-1966

Madison Place Sudbury, LLC has operational control over the construction plans and specifications for the project and must ensure that all other Operators and subcontractors implementing the SWPPP or portions of the SWPPP are notified in a timely manner of any changes to the plans or specifications that may impact compliance with the CGP and/or this SWPPP.

Operator/Site Contractor:

TBD

Construction Project Manager 24-hour Contact and SWPPP Contact:

TBD

The Contractor has operational control over day-to-day activities at the site that is necessary to ensure compliance with the SWPPP. The Contractor will be responsible for providing a qualified inspector and performing inspections as required by the CGP. “Qualified Personnel” is defined as a person knowledgeable in the principles and practices of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact stormwater quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of stormwater discharges from the construction activity.

The Contractor is responsible for ensuring compliance with the CGP by implementing the erosion prevention and sediment control practices outlined in this SWPPP. However, the Contractor may elect to vary the erosion and sediment control practices from those outlined in this SWPPP and/or may choose to implement alternative measures. Alternative erosion and sediment control practices not described in the SWPPP must be selected, installed, and maintained in compliance with the CGP and the Contractor must modify this SWPPP accordingly. SWPPP modifications must be documented using the “SWPPP Amendment Log” found in Appendix E.

2.1 Notice of Intent Filing

All Operators must file a Notice of Intent (NOI) with the EPA to obtain coverage under the CGP prior to the start of construction. Notices of Intent may be filed electronically through the EPA “eNOI” web site <http://cfpub.epa.gov/npdes/stormwater/enoi.cfm>. In order to file electronically, the Operator must first register through the same web site.

The NOI must be certified or signed by a qualifying official meeting the definition provided in Section VII of the NOI Instruction form (page 4 of 4). The Operators must provide a copy of the EPA Active Status notification (referred to as the Notice of Coverage (NOC) in Appendix D of this SWPPP as soon as it becomes available. The NOC can be printed from the EPA's web site at the above referenced EPA web site.

All NOI's, NOC's (see Appendix D) and a Construction Site Notice (see Appendix G) must be posted at the site entrance and inside construction office.

3.0 Project Site Information

The site consists of approximately 35.4 acres with a farm house and several outbuildings. The front portion of the site (eastern) near the road contains abandoned agricultural fields, farmhouse, garage, shed, stable and barn. An existing cart road traverses the site from east to west. The site is relatively level in topography and contains stands of upland forest and wetlands.

3.1 Project Name and Location

The Residences at Johnson Farm
189 Landham Road
Sudbury, MA 01776
Middlesex County

Latitude: 42.355056
Longitude: -71.406586

3.2 Construction Dates

The expected start and finish dates for the project is as follows:

Estimated Construction Start Date: 2012*
Estimated Construction End Date: 2014*

**To be confirmed and updated prior to the start of construction.*

3.3 Major Construction Activities

Major land disturbing activities will include the construction of the main access and loop roads, placement of subbase material associated with porous pavement, placement of fill and grading associated with building construction, the installation of retaining walls and utilities, and the construction of a series of vegetated stormwater basins.

4.0 Expected Construction Sequencing

For this project, porous pavement will be used in all paved areas including access roadways, parking areas and walkways. Phasing associated with the installation of the pavement and subbase system is critical to the successful performance of the pavement. Because of this, the Contractor may not deviate from the sequencing and phasing associated with the installation of porous pavement system components. The SWPPP, including the Erosion and Sediment Control Plans, includes general sequencing relative to the installation of porous pavement; the Contractor must refer to the Design and Construction Specifications for Porous Asphalt Pavement and Infiltration Beds and the Porous Pavement Construction Phasing and Detail Plan for complete, comprehensive instructions regarding the installation and phasing of the porous pavement system.

4.1 Phasing/Sequencing

Soil disturbing activities will be phased according to the construction schedule. Erosion and Sedimentation Control Plans and details of BMP's are provided in Appendix A. The sequence of major activities is shown on the Erosion and Sedimentation Control Plans and is expected to be as follows:

Phase 1 Preconstruction Meeting & Initial Sediment Controls

- Conduct pre-construction kick off meeting with the Site Contractor, Developer, Porous Pavement Designer, Site Engineer Consultant, Environmental Consultant and Town of Sudbury representatives prior to land disturbing activities.
- Clear and grub to facilitate installation of silt fence
- Install silt fence in locations shown-maintain throughout all phases until final stabilization is achieved
- Establish material storage and equipment area
- Demolish existing house, outbuilding and concrete pad

Phase 2 Rough Grading, Porous Pavement Subbase, Temporary Overfill & Utilities

- Install utilities at exit
- Construct temporary stabilized construction exit
- Install culverts at three wetlands crossings

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- Construct temporary sediment traps in location of permanent vegetated stormwater basins - convert traps to basins by installing subdrains when all contributing areas achieve final stabilization.
 - Excavation of existing topsoil and subsoil organic soil layers (stockpile in designated area for later use) and placement of properly compacted select bank run gravel fill material up to bottom elevation of the porous media infiltration bed (subgrade) within the footprint of construction site access “temporary access road” area (permanent access drive) and development “loop road” area
 - Install utilities
 - Sideslope geotextile and porous pavement subbase shall be placed immediately after approval of subgrade preparation. Any accumulation of debris or sediment which has taken place after approval of the subgrade shall be removed prior to installation.
 - Following placement of subbase aggregate, the sideslope geotextile shall be folded back along all bed edges to protect from sediment washout along bed edges. At least a four-foot edge strip shall be used to protect beds from adjacent bare soil. This edge strip shall remain in place until all bare soils contiguous to beds are stabilized and vegetated. In addition, take any other necessary steps to prevent sediment from washing into beds during site development.
 - For the temporary construction access road area, construct porous pavement subbase with select materials. This includes bottom reservoir layer to the top of the choker course plus 2” of additional choker course material as overfill.
 - No run-on is to be permitted onto constructed subbase prior to installation of temporary binder
 - For the loop road, construct porous pavement subbase with select materials, including the bottom reservoir layer to the top of the filter course plus 2” of additional filter course material as overfill.
 - NOTE: loop road areas with filter course overfill are allowed for construction traffic and stockpile.
 - See porous pavement notes in Design and Construction Specifications for Porous Asphalt Pavement and Infiltration Beds for specifications on subbase construction and quality control.
 - Construct wetland replication areas, stabilize and plant per replication plans. Refer to wetland mitigation plans for specific sequencing and planting details.

Phase 3 Installation of Temporary Construction Access Road Binder Course

- Install leaching catch basins with frames and grates
- Construct retaining walls and grading along site access drive
- Install 2” of temporary binder
- Perform weekly vacuuming of temporary access road until the end of Phase 6 to prevent tracking onto porous pavement
- Restore work zone used to construct retaining walls along temporary roadway

Phase 4 Site Work & Building Construction

- Construct site development retaining walls
- Prepare building pad areas and begin construction of buildings. NOTE: building construction, grading and stabilization of soils around the building must be completed prior to porous pavement installation. It is assumed that buildings #1-5 will be constructed first, followed by buildings #6-10.
- Install utility tie ins
- Perform grading at front and rear of buildings
- Loam, seed and stabilize all slopes around buildings
- Inspect and clean temporary sediment traps
- Convert temporary traps to vegetated basins by installing subdrains and applying final ground cover once all contributing areas have achieved final stabilization.
- Install building roof drain/yard drain pipe network
- Construct Wastewater Treatment Facility and leaching areas

Phase 5: Install of Porous Pavement for Buildings 1-5, Property Management Office, and Close Area to Construction Traffic

- Final porous pavements are not to be paved until loamed and seeded areas surrounding building areas 1 through 5 are stabilized.
- All perimeter slopes will be loamed, seeded and stabilized.

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- Remove 2” of temporary overfill, regrade, compact, and inspect as per porous pavement notes for specifications on subbase construction and quality control.
 - Subgrade or subbase over-compacted during excavation or where erosion has caused accumulation of fine materials, this material shall be removed and/or scarified to a minimum depth of 6 inches, and retested for compaction and infiltration as per specifications.
 - The Engineer shall be notified and shall inspect at his/her discretion before proceeding with the porous pavement installation.
 - Install 4” of choker course as per specifications.
 - Install 2.5” of binder course of porous asphalt (PG64-28 with fibers, see latest specification for updates).
 - Install curbing
 - All trucks (including concrete trucks) will be stopped prior to entering the site and instructed to make large radius turns within the porous asphalt area to limit disturbance to the new pavement.
 - Concrete trucks will perform the mixing cycle prior to entering the site. A washout area will be designated outside of porous pavement area.
 - Concrete trucks will only be allowed during hours while the pavement is cool to avoid damaging new mat placement. Plywood will be used as required under trucks to prevent damage to the pavement.
 - Trucks and other construction traffic will not be allowed to access the site while the pavement is excessively hot. Water may be used to cool excessively hot pavement prior to trucks entering the site.
 - No stockpiling of materials (soil, stone, landscaping) will be allowed on porous pavement binder course.
 - Materials excavated for curb installation and landscaping stockpiles shall be placed outside of porous pavement area.
 - Install 1.5” of wearing course of porous asphalt (PG64-28SBR with fibers, see latest specification for updates)
 - Temporary construction fencing will be used to close porous pavement areas to construction traffic during project completion.

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- Erosion and sediment controls will continue to be used as needed to prevent runoff to the porous pavement.
 - All areas disturbed during construction will be loamed, seeded and stabilized.
 - Following completion of Phase 5, all construction traffic will be routed back around the loop road away from the completed areas. A construction fence will be placed at the end of the porous pavement to close the transition to the unpaved areas.

Phase 6: Install of Porous Pavement for Buildings 6-10

- Final porous pavements are not to be paved until building areas (6 through 10) are stabilized.
- All perimeter slopes will be loamed, seeded and stabilized.
- Repeat sequence as described for Phase 5

Phase 7: Removal of Temporary Road and Final Completion of Porous Pavement

- All perimeter slopes will be loamed, seeded and stabilized
- Remove stabilized construction exit immediately prior to pavement construction in this area; this area at exit is to be paved last
- Mill and remove temporary binder 2"
- Remove approximately 2" of existing overfill to finish grade
- Remove accumulated sediment within leaching catch basin
- Replace stone surrounding leaching catch basins
- The Engineer shall inspect all Phases for damage or clogging of pavements during construction at his/her discretion before proceeding with the porous pavement installation. Areas determined to be clogged will need to be replaced.
- Install 2.5" of binder course of porous asphalt (PG64-28 with fibers, see latest specification for updates).
- Install 1.5" of wearing course of porous asphalt (PG64-28SBR with fibers, see latest specification for updates)
- All areas disturbed during paving will be loamed, seeded and stabilized

Phase 8 Final Landscaping and Clean up

- Perform final landscaping
- Inspect and clean stormwater basins, leaching catch basins and all porous pavement areas- remove remaining construction term sediment and debris.
- Inspections, maintenance, record keeping and site postings shall continue until final stabilization is achieved on all disturbed portions of the site.
- Remove silt fence only after all finished paving is complete and disturbed surfaces achieve final stabilization.

4.2 Soils and Drainage Patterns

Natural Resources Conservation Service (NRCS) Middlesex County Soil Survey, 2009 indicate that soils onsite consist of the following (Refer to the County Soils Map in Appendix C):

- Deerfield loamy fine sand (256A, 256B), 0 to 8 percent slopes, Hydrologic Group B
- Windsor loamy sand (255B), 3 to 8 percent slopes, Hydrologic Group A
- Wareham loamy fine sand (32B), 0 to 5 percent slopes, Hydrologic Group C
- Scarborough mucky fine sand (6A), 0 to 3 percent slopes, Hydrologic Group D

The site varies in elevation from 134 feet NGVD near Landham Road, to elevation 124 feet along the western portion of the site. Drainage patterns at the site generally flow towards the two streams located on site and toward the interior isolated wetland. The direction of stormwater flow during construction is shown on the Erosion and Sediment Control Plans.

4.3 Construction Site Estimates

The following are estimates of the project:

Project Site Acreage = 35.44 acres

Construction Site Area to be disturbed = 8.7 acres

Percentage impervious area before construction = 0.4 %

Runoff coefficient before construction = 0.33

Percentage impervious area after construction = 10.5%

Runoff coefficient after construction = 0.58

5.0 Permit Eligibility Documentation

5.1 Receiving Waters/ Total Maximum Daily Load Information (TMDL)

The site's receiving waters are located on the property and include an unnamed perennial stream and unnamed intermittent stream and associated bordering wetlands; one isolated vegetated wetland and wetlands bordering an unnamed stream immediately off the property at the western end of the project. All streams and wetlands are tributary to Hop Brook. According to the EPA's Waterbody Assessment and TMDL Status Map of Sudbury, neither the unnamed streams nor wetlands are mapped as having a TMDL.

Documentation supporting a determination of permit eligibility with regard to receiving waters having a TMDL is included in Appendix H.

5.2 Endangered Species and Critical Habitat

The USFWS has established project consultation procedures to assist applicants in determining whether a federally-listed, proposed and/or candidate species may occur within a proposed project area and whether agency consultation is necessary for projects with federal authorization. Following the procedures outlined on the New England Field Office web site (see Appendix H), a review of the state list of counties in which federally listed endangered and threatened species occur was conducted. According to the Massachusetts list, the small whorled pogonia is a federally listed threatened species present in Middlesex County.

The next step in the USFWS process is a review of the Massachusetts Natural Heritage and Endangered Species Program (NHESP) website, which lists species by Town. A review of the list indicates that there are no federally listed species in the Town of Sudbury.

Based upon the information above, there are no federally-listed, proposed and/or candidate species known to occur within the project area and the project will not result in impacts to federally listed endangered or threatened species. Based on this information, the USFWS process allows a letter to be downloaded stating "no species are known to occur in the project area." Appendix H includes a copy of the letter along with supporting documentation.

In Massachusetts, federally mapped non-coastal critical habitat is limited to Plymouth County. Therefore the project will not result in impacts to critical habitat.

In addition to the USFWS review process presented above, the CGP Conditions for the Commonwealth of Massachusetts requires the project to comply with the Massachusetts Endangered Species Act (MESA). The Natural Heritage and Endangered Species Program administers the MESA and jurisdiction extends to areas mapped by NHESP as Priority Habitat. Based upon review of Priority Habitat mapping on the MassGIS website, the project is not located within any Priority Habitat and therefore it is not subject to jurisdiction pursuant to MESA.

5.3 Site Features and Sensitive Areas to be Protected

The site contains wetlands which must be protected during construction. The majority of the limit of disturbance is demarcated by the silt fence and the Contractor shall not perform any activities beyond the silt fence limit.

5.4 Potential Pollution Sources

The materials or substances listed below are expected to be present onsite during demolition and construction activities. They represent potential pollutants, other than sediment, to stormwater runoff:

- Asphalt
- Cement
- Concrete and associated waste/products/additives
- Paints/Solvents
- Petroleum products
- Rubber/plastic products
- Demolition debris
- Sanitary wastes
- Solid construction wastes
- Cleaning solvents

5.5 Plans and Maps

Site Locus Map. A USGS Project Locus Map, Figure 1, is provided in Appendix A. This map identifies the project location relative to receiving waters and adjacent waters of the U.S.

Erosion and Sedimentation Control Plans. Erosion and Sedimentation Control Plans are provided in Appendix A. The plans show the approximate slopes before and after grading activities, areas of soil disturbance, and locations of major structural and non-structural BMPs identified in the SWPPP.

Progress Maps. The CGP requires that as conditions change at the construction site (such as the location of BMPs), the Contractor must update the SWPPP to reflect such changes. The Contractor shall post a full size set of plans inside the construction office for use as Progress Maps. In addition to tracking the changes associated with the BMPs, the Contractor will indicate and track the location of the following on the Progress Maps:

- Portable toilets
- Material storage areas
- Vehicle and equipment fueling and maintenance areas
- Concrete washout areas
- Dedicated off-site material, waste, borrow, or equipment storage areas
- Paint and stucco washouts
- Dumpster or other trash and debris containers
- Spill kits
- Stockpiles
- Any other non-structural non-stormwater management BMPs
- Any changes to structural BMPs
- Areas where final stabilization has been achieved

If a Progress Map becomes too full to easily read, it should be dated, folded, and put into the SWPPP in Appendix I for documentation and a new Progress Map should be started.

6.0 Permit Conditions Applicable to the Commonwealth of Massachusetts and the Project

Part 10 A.1 of the CGP provides specific conditions required by the Commonwealth of Massachusetts that must be met in order qualify for coverage under the CGP. The proposed project meets the following regulations and/or policies and/or they are not applicable to the project:

Massachusetts Clean Water Act (Ch. 21, ss. 23-56) :

- 314 CMR 4.00 - Surface Water Quality Standards- *the SWPPP includes best management practices to maintain the background condition of receiving waters. Discharge of fill material will be subject to a permit under Section 401 and 404 of the CWA and conditions relative to the implementation of the SWPPP will be referenced and added to the plans.*
- 314 CMR 3.00 - Surface Water Discharge Permit Program. – *not applicable*
- Wetlands Protection Act, Ch. 131, s. 40 and its regulations, 310 CMR 10.00 –*The project is subject to the Wetlands Protection Act and a Notice of Intent was filed with the Sudbury Conservation Commission. Upon issuance of the Order of Conditions by the Commission, conditions relative to the SWPPP will be referenced and added to the plans.*
- Massachusetts Stormwater Management Standards – *The project meets the DEP Stormwater Standards and conformance is provided in the Notice of Intent filing under the Wetlands Protection Act.*
- Massachusetts Endangered Species Act [MESA] (MGL Ch. 313A and regulations at 321 CMR 10.00). – *The project is not subject to MESA since there is no mapped priority habitat within the project site.*
- Mosquito Control Chapter 252 including s. 5A and MassDEP Guideline BRP GP01-02, West Nile Virus Application of Pesticides to Wetland Resource Areas and Buffer Zones, and Public Water Systems – *not applicable*

7.0 General Approach to CGP Compliance

During demolition and construction activities, the Contractor will comply with the measures provided in this SWPPP and conduct activities in such a manner that is in accordance with the CGP. It is the Contractor's responsibility not to undertake more than that magnitude of work that can be safely and adequately controlled by the methods at their disposal. The Contractor's approach must emphasize preventing erosion before it occurs, as opposed to treating sediment-laden stormwater runoff. The use of erosion and sediment controls is mandatory and must be employed to minimize impacts to the wetlands and streams on site. If sediment escapes the construction site, off-site accumulations of sediment must be removed immediately.

The enclosed Erosion and Sedimentation Control Plans (Appendix A) represent the BMPs selected to minimize the discharge of pollutants and control sediment laden stormwater runoff during construction. The Contractor's approach to controlling stormwater runoff from the site may vary; however, they must modify this SWPPP to reflect the changes and appropriate corresponding erosion and sedimentation control measures using the Progress Maps and the SWPPP Amendment Log (provided in Appendix E).

The practices that are required to prevent stormwater pollution during construction must remain functional until all disturbed areas have achieved final stabilization. Erosion and sedimentation control products are to be installed and maintained in accordance with manufacturer's specifications and good engineering practices. During all phases, the Erosion and Sediment Control BMPs outlined in the following sections must be inspected based the frequency discussed in Section 11.0. In addition, stabilization measures must be instituted on disturbed areas as soon as practicable, but no more than 14 days after construction activity in that portion of the site has temporarily or permanently ceased.

7.1 Best Management Practices (BMPs)

BMPs for each expected construction phase are shown on the Erosion and Sedimentation Control Plans. Details of BMP's are included on the Detail Sheet. The intended sequencing and timing of major activities and associated BMP's for Phases 1 through 8 are as follows:

7.1.1 Phase 1

During Phase 1 initial mobilization will occur including the installation of the silt fence and establishment of the material storage and stockpile areas. Demolition of the existing house and barn will also occur during this phase. The BMPs for this phase will include the following:

Silt Fence: At the beginning of Phase 1 silt fence will be installed in the locations shown on the Erosion and Sedimentation Control Plans to prevent sediment-laden runoff from leaving the site. Silt fence is a sediment control BMP consisting of a length of geotextile fabric stretched between anchoring posts spaced at regular intervals along the site at low/down-slope areas. The geotextile fabric must be entrenched in the ground between the support posts. Silt fence is effective in treating low velocity sheet flow and is not intended for use in areas of concentrated or channelized flow. Silt fence must be inspected for rips, tears, and gaps between the fence and the ground. Accumulated sediment must be removed from the silt fence when it reaches 50% of the exposed height of the fabric. An adequate reserve of silt fence must be kept on site at all times for emergency and/or routine replacement. Silt fence shall be removed only after exposed soils in the contributing drainage area achieve final stabilization. Silt fence may be used as an effective perimeter control to contain stockpiles of topsoil or other erodable material.

Material Storage and Stockpile Management Areas: Stockpiles of erodable material, including any topsoil salvaged during construction and imported material for grading, must be include silt fence as perimeter protection to prevent stormwater runoff from being contaminated by eroded sediment. Stockpiles of erodable material must be stabilized utilizing a temporary stabilization technique if they remain inactive for more than fourteen (14) days. Stockpile locations must be tracked on the Progress Maps.

7.1.2 Phase 2

The BMPs installed during Phase 1 will continue to be used throughout Phase 2. During Phase 2 the footprint of the temporary access road area and loop roads will be rough graded and prepared for subgrade. The stabilized exit will be constructed, utilities installed beneath the subbase and

the culverts installed at the stream crossings. In addition, the vegetated stormwater basins and wetland replication area will be constructed. In addition to the BMPs used during Phase 1, the following BMPs will be used during Phase 2:

Stabilized Construction Exit: In order to prevent the off-site tracking of sediment onto Landham Road, a stabilized construction exit(s) must be installed at the location where vehicles will exit the site. The stabilized construction exit(s) will consist of three to five inch (3"-5") stone, placed over a layer of geotextile fabric (in order to provide separation from the underlying soil and prevent the stone from being ground down into the soil). The stabilized construction exit must be wide enough to cover the entire width of the exit and it should be flared where it meets the roadway to accommodate longer construction vehicles. The stabilized construction exit must be long enough to allow mud and sediment to become dislodged from vehicle tires, and/or a minimum of fifty feet (100') in length. The Contractor must inspect the public way several times per day to determine if sediment is being tracked from the site and onto Landham Road. If tracking of sediment occurs, the Contractor must immediately remove accumulated sediment on the paved roadways by mechanical means or manually sweeping the pavement. The Contractor may elect to wheel wash if the exit and street sweeping are not effectively reducing sediment tracking onto the public roadway. Wheel wash runoff must be directed to an appropriate BMP such as a sediment trap.

During the course of construction the stabilized construction exit will become filled with accumulated sediment and/or the stone will become compacted. The Contractor must repair the exit as necessary by removing accumulated sediment, replacing the stone or back-blading the stone to refresh it.

Temporary Sediment Traps: The series of permanent vegetated detention basins to be constructed throughout project will be used as temporary sediment traps and will be constructed prior to the placement of fill and grading of the roadways and building areas. Per Section 3.13 E of the CGP, for drainage locations serving less than 10 acres, sediment traps providing storage for runoff volume of 3,600 cubic feet of storage per acre drained or the 2-year storm event should be provided. For this project, the temporary traps were designed to handle the 2-year storm event. The Contractor shall not construct the underdrain portion of the traps while they are used during construction in order to avoid clogging the voids in the stone with sediment. The traps shall be converted to permanent basins with the installation of the sub drains once the contributing trap areas achieve final stabilization.

Temporary sediment traps are a sediment control BMP that consist of an excavated or natural depression that detains/retains storm water runoff allowing sediments to settle out of suspension prior to discharge via a suitably stabilized outlet. They also provide an opportunity for storm water infiltration. The temporary sediment trap side-slopes and bottom must be appropriately stabilized prior to directing runoff to it. Accumulated sediment must be removed when the design capacity is reduced by 50% in order to maximize sediment settling potential and minimize the possibility of sediment washout during high intensity/long duration storm events. Effective implementation of erosion control BMPs on exposed soils located upslope within the contributing drainage area will significantly reduce maintenance requirements. Temporary sediment basins usually discharge to off-site locations and therefore represent a "last chance"

means of treating storm water runoff so it is critically important that they be properly constructed and maintained to prevent instances on non-compliance with the CGP.

- ❖ **Note to the Contractor:** The location of the temporary traps is based post-development grading and features. The purpose of the traps is to capture storm water runoff during construction. Through the course of construction, the traps may not be situated to receive storm water flows from all portions of the site, and it is the responsibility of the Contractor to ensure that storm water runoff is directed to the trap or other stabilized area. The Contractor may elect to construct additional traps as necessary to manage stormwater during construction.

Outlet Stabilization and Velocity Dissipation. Outlet stabilization and velocity dissipation measures will be installed at the inlet and outlet of each vegetated stormwater management area, and overflow pipes where the velocity of the discharge may result in erosion at the outlet or receiving channel.

Dewatering: Dewatering may be required during excavation activities. Accumulation of dewatering fluids and runoff in the vegetated basins between the buildings will either infiltrate or can be drawn down by mechanical means such as pumping. The discharge must be visibly free of suspended solids prior to discharge. The fluids must be first be routed through a dewatering bag consisting of a no-woven geotextile fabric that collects silts and fines or a sedimentation tank prior to discharge. Discharges must be located in an upland undisturbed area where fluids can disperse onto a stabilized surface.

7.2 Phase 3

The BMPs previously installed during Phases 1 and 2 will continue to be used during Phase 3. During Phase 3 the temporary access road and retaining walls along the access road will be constructed. Leaching catch basins will be located within the access roadway to manage runoff from the binder course.

Leaching Catch Basins: Leaching catch basins will be used within the access road during construction to manage construction term runoff from the temporary asphalt binder course. The basins will capture runoff from the roadway where it infiltrate the ground. The basins will be used for post development and the stone must be replaced prior to the basins connections to the stormwater management basins. Sediment accumulation must be removed if water does not infiltrate and ponding water occurs.

Concrete Washout Area: Concrete washout areas consist of a prefabricated or site-built impermeable containment area sized to hold concrete wastes and wash water. Concrete washouts are used to contain concrete and liquids when the chutes of concrete mixers and hoppers of concrete pumps are rinsed out after delivery. The washout facilities consolidate solids for easier disposal and prevent runoff of liquids. The wash water is alkaline and contains high levels of chromium, which can leach into the ground and contaminate groundwater. It can also migrate to a storm drain, which can increase the pH of area waters and harm aquatic life. Solids that are improperly disposed of can clog storm drain pipes and cause flooding. The

concrete washout areas must be constructed prior to placement of concrete on-site. The concrete washout area must be located in an area where its likelihood of contributing to storm water discharges is negligible. Washouts shall not be located in the vicinity of storm drain inlets, storm water conveyances, surface waters or wetlands.

These specially designated areas should be properly signed and onsite personnel and subcontractors shall be instructed in their proper use. The hardened residue from the concrete wash out area will be disposed of in the same manner as other non-hazardous construction waste materials or may be broken up and used onsite as appropriate. It is also acceptable for waste concrete to be poured into forms to make riprap or other useful concrete products. It is the responsibility of the Contractor to ensure that these procedures are followed. The Contractor must track concrete washout locations on the Progress Map if they are moved or if additional concrete washouts need to be constructed. The concrete washout must remain until the end of Phase 6 during which time the placement of concrete for the last phase of buildings is expected to be completed.

7.3 Phases 4 through 7

The BMPs installed to during previous Phases 1, 2 and 3, will continue to be used during Phases 4 through 7. During these phases, the majority of the earth work, building construction and associated grading will be performed. Since all of the **sediment** control BMP's will be in place prior to the start of this Phase, **erosion** control measures will be the key components until final stabilization is achieved. Temporary and permanent measures for all disturbed areas are described below.

Temporary Stabilization

Per Part 3.1 H. of the CGP, stabilization measures must be initiated as soon as practicable on portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Temporary stabilization refers to a variety of erosion control BMPs that protect exposed soils from the erosive forces of precipitation (raindrop and sheet erosion) and/or prevent the formation of channelized flow (rill, gully and channel erosion). The following temporary stabilization BMPs will be used for this project:

Erosion Control Blankets: Erosion control blankets are erosion control BMPs consisting of natural or synthetic geotextile fabrics formed into long sheets or mats that are rolled out over exposed soils and fastened with stakes, pegs or staples. They are used in areas where high runoff velocity makes traditional mulching ineffective. Blankets are highly effective at stabilizing steep slopes (3:1 or greater) and can used to stabilize areas of concentrated flow such as swales. A detail is provided on the Erosion and Sediment Control Detail Sheet.

Soil Roughening: Soil roughening is an erosion control BMP that involves creating grooves or impressions in exposed soil surfaces with tracked construction equipment (bulldozer, excavator, etc.). Slopes that are not fine graded or smoothed, but left in a roughened condition reduce erosion by decreasing slope length and runoff velocity, increasing infiltration, trapping sediment, and allowing seed to take hold and grow. It is critically important that the impressions be made perpendicular to the slope contours (never parallel to the contour); improper use of this technique

can actually accelerate erosion. A detail is provided on the Erosion and Sediment Control Detail Sheet.

Temporary Seeding: Temporary seeding can be used on disturbed areas requiring temporary protection until permanent vegetation is established or on areas which may be re-disturbed following an extended period of inactivity. Temporary seeding controls runoff by establishing root systems which hold down the soils so they are less likely to be carried off site by stormwater runoff or wind. Temporary seeding offers a fairly rapid protection of exposed soils. Proper seed bed preparation is crucial for effectiveness. Soil should be loosened or roughened prior to seed application. Seeds may be applied by broadcasting, drilling or hydraulic application. Temporary seeding rates and specifications are provided on the Detail Sheet.

Mulching: Mulching is an erosion control BMP that involves using materials such as hay, straw, wood chips/fibers, stone/gravel, etc. to protect exposed soils. Mulch must be applied at the appropriate rate and properly anchored (using netting, tackifiers or an anchoring tool). Mulch can be applied to disturbed areas as a temporary stabilization measure. Mulching is highly effective, and when installed correctly provides a level of protection comparable to dense vegetative cover. Mulch is also very beneficial for recently planted areas holding seeds, fertilizers, and topsoil in place, preventing birds from eating seeds, retaining moisture, and insulating plant roots against extreme temperatures. The mulch must be reapplied if any bare spots are observed. Mulch application rates are provided on the Erosion and Sediment Control Detail Sheet.

The Contractor must inspect temporarily stabilized areas to assess the effectiveness of temporary stabilization BMPs and replace/repair them as necessary.

Permanent Stabilization: Permanent stabilization refers to a variety of erosion control BMPs that allow a construction project to achieve “final stabilization.” Final stabilization is defined in Appendix A of the CGP as: all soil disturbing activities at the site have been completed and either of the two criteria are met: (a.) a uniform (evenly distributed, without large bare areas) perennial vegetative cover with a density of seventy percent (70%) of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or (b.) equivalent permanent stabilization measures have been employed. All areas disturbed during demolition activities must meet final stabilization criteria. The following permanent stabilization BMPs will be used on this project:

- Porous Pavement
- Permanent Seeding consists of using select varieties of grasses and/or other plants to establish vegetative cover. Permanent seeding utilizes perennial, persistent species that provide dense, long-term vegetative cover. Phase 8, the Landscaping Plan, provides a seeding specification.

8.0 Good Housekeeping Best Management Practices

The following good housekeeping BMPs must be used during all construction phases.

Dust Control: Dust control BMPs are various means and methods of preventing soil erosion by wind. During building demolition, generation of dust must be minimized to prevent air and water pollution as well as minimize risks to human health. The most effective dust control BMP for preventing wind erosion involves stabilizing (temporary or permanent) exposed soils. However, where soil stabilization is not practical, techniques that increase soil moisture and encourage the formation of soil clods or reduce wind velocity at the soil surface are also effective. The following dust control BMPs options shall be used by the Contractor to control fugitive dust from the project site:

- Watering/Irrigation: Sprinkling the ground surface with water until it is moist.
- Soil Stabilization: Vegetative cover, mulch, riprap or any method that covers the soil surface reduces the potential for soil particles to become airborne.
- Windbreaks: Windbreaks are barriers (either natural or constructed) that reduce wind velocity across exposed soil surfaces and reduce the potential for soil particles to become airborne. Windbreaks may include constructed barriers such as a wind fence or screen.

8.1 Material Handling and Waste Management

The following measures will be implemented to prevent the discharge of solid materials to waters of the U.S.:

- Manufacturer's recommendations for proper use and disposal will be followed.
- The Contractor will perform inspections based on the frequency outlined in Section 11.0 to ensure the proper storage, use, and disposal of materials.
- The Contractor will arrange for all sanitary waste to be collected from portable toilet units by a licensed sanitary waste management operator, or as required by local regulation. Pickups must be done on a regular basis. No burial or discharge of the sanitary waste may be conducted on-site.
- Subcontractors will be responsible for managing litter and construction debris. The Contractor must ensure that subcontractor waste is managed and disposed of properly.
- The Contractor will be responsible for the off-site removal and disposal of all demolition related debris in accordance with state and federal law. No on-site waste disposal will occur. Where the use of dumpsters is proposed, the Contractor must determine and apply specific measures to keep waste within the dumpsters from being intermixed with stormwater, including closing the dumpsters or installing drain plugs.

8.2 Material Storage Areas

Construction materials expected to be stored on-site are listed in Section 5.4. Procedures for the storage of these materials to minimize exposure to stormwater are as follows:

- All materials stored on-site must be stored in a neat, orderly manner in appropriate containers. Materials that are hazardous or toxic such as paints, solvents, pesticides, fuels and oils should be stored under a roof or other enclosure. Where cover is not available, all hazardous or toxic materials should be stored in a location with secondary containment.
- Materials will be kept in their original containers with the original manufacturer's label.
- Asphalt substances used on-site will be applied according to manufacturer's recommendations.

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- Petroleum products will be stored in tightly sealed containers that are clearly labeled.

8.3 Spill Prevention and Control Plan

The Contractor will be responsible for preventing spills in accordance with applicable federal, state, and local regulations and will identify an appropriately trained project employee involved with day-to-day site operations to be the spill prevention and cleanup coordinator. Each employee will be instructed that spills must be reported to the spill prevention and cleanup coordinator. In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and response:

Equipment/Vehicle Fueling and Maintenance Practices. All construction vehicles and equipment should be inspected daily for leaks, equipment damage, and other service problems. A dedicated area for equipment maintenance location will be established. Drip pans, drip cloths, or absorbent pads will be used when replacing spent fluids.

Spill Control Equipment. Spill control/containment equipment will be kept locally in the area of construction. Materials and equipment necessary for spill cleanup will be kept in the material storage area on-site. Equipment and materials will include but not be limited to absorbent booms or mats, brooms, dust pans, mops, rags, gloves, goggles, sand and plastic and metal trash containers specifically for this purpose. It is the responsibility of the Contractor to ensure the inventory will be readily accessible and maintained.

Notification. Workers will be directed to inform the on-site supervisor and spill prevention and cleanup coordinator in the event of a spill or leak. The supervisor and coordinator will assess the incident and initiate containment procedures. Workers should avoid direct contact with the spilled material during containment procedures. Notification of a spill will be to a certified cleanup operator if deemed necessary. Emergency contact phone numbers are provided in Appendix F. The specific clean-up operator to be used must be identified by the Contractor and listed on the Emergency Contact Information Form.

Spill Containment and Clean-up Measures. Spills will be contained with granular sorbent materials, sand, sorbent pads, booms, or all of the above to prevent spreading. Catch basins will be plugged and drainage channels should be protected from the spill. Manholes will not be entered unless personnel are trained in confined space entry and have the appropriate safety equipment and backup personnel. Spill clean-up should be completed by trained certified clean-up operators. Manufacturer's recommended methods for spill cleanup will be maintained and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.

Hazardous Materials Spill Report. Following each occurrence, the Contractor must prepare a spill report. The spill report must present a description of the release, including quantity and type of material, date of the release, circumstances leading to the release, location of spill, response actions and personnel, documentation of notifications, and corrective measures implemented to prevent reoccurrence. A Reportable Quantity Release Form is included in Appendix F.

The NPDES CGP does not relieve the Contractor of the reporting requirements 40 CFR Part 110, 40 CFR Part 117, and 40 CFR Part 302 relating to spills or other releases of oils or hazardous substances. Where a release containing hazardous substances in an amount equal to or in excess of a reporting quantity established under the above referenced federal regulations occurs during a 24-hour period the Contractor is required to: provide notice to the National Response Center (see Emergency Contacts in Appendix F) and must, within 7 calendar days of knowledge of the release, provide a description of the release, circumstances leading to the release, and the date of the release; and measures must be implemented to prevent the reoccurrence of such releases. The Contractor must notify the DEP in writing of a reportable release within 14 days of the occurrence. Contact numbers are provided in Appendix F.

9.0 Allowable Non-Stormwater Discharges

Part 1.3 B. of the CGP allows for the following non-stormwater discharges:

- Discharges from fire-fighting activities;
- Fire hydrant flushings;
- Waters used to wash vehicles where detergents are not used;
- Water used to control dust in accordance with Part 3.1.B;
- Potable water including uncontaminated water line flushings;
- Routine external building wash down that does not use detergents;
- Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used;
- Uncontaminated air conditioning or compressor condensate;
- Uncontaminated ground water or spring water;
- Foundation or footing drains where flows are not contaminated with process materials such as solvents;
- Uncontaminated excavation dewatering;
- Landscape irrigation.

These types of discharges will be allowed under the condition that no pollutants will be allowed to come in contact with the water prior to or after its discharge. The BMPs which have been outlined previously in this SWPPP or other measures identified by the Contractor to achieve CGP compliance will be strictly followed to ensure that no contamination of these allowable non-stormwater discharges takes place or that they do not result in a discharge of pollutants to waters of the U.S.

10.0 Post-Construction Best Management Practices

The post development stormwater management system for the project was designed in compliance with the Massachusetts DEP Stormwater Management Standards. Clean roof runoff and area yard drains will discharge directly to vegetated basins; all other surface runoff receives treatment through stormwater quality controls, consisting of the porous pavement stone choker

and filter courses. As required by the DEP Standards, an Operations and Maintenance Plan was prepared for the project and will be implemented by the Owner's facility management team. A maintenance schedule, inspection methods and maintenance actions are provided for each specific BMP including the porous pavement, stormwater management basins, yard drains, and drainage outlets, are included in the Operations and Maintenance Plan.

11.0 Inspections and Maintenance

11.1.1 Inspection Personnel

The Contractor shall be responsible for providing "Qualified Personnel" to conduct all inspections required by the CGP. "Qualified Personnel" is defined as a person knowledgeable in the principles and practices of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact stormwater quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of stormwater discharges from the construction activity. Inspectors must also be knowledgeable in the control of hazardous materials as they may be stored, transported and used during construction.

11.1.2 Inspection Schedule and Procedures

Inspections of all non-structural and structural best management practices proposed and implemented as part of the SWPPP must be conducted at least once every seven (7) calendar days OR at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater. Inspections should also be performed prior to storm events anticipated to result in substantial stormwater runoff. These inspections will include areas used for storage of materials that are exposed to rainfall, structural control measures, locations where vehicles exit the site, all disturbed areas and discharge point locations. Written records of these inspections must be kept on file for the duration of the project and be available for review. Completed forms must be maintained in Appendix I.

If site inspections indicate that BMPs are not operating effectively and maintenance, modifications or additional BMPs are necessary, they must be performed as soon as possible and before the next storm event whenever practicable to maintain the continued effectiveness of the BMPs.

A blank site inspection report form is provided in Appendix E. The Inspector will record the following information on an inspection report form and/or the Progress Map:

1. On a Progress Map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14 days;
2. Dates when grading activities occur;
3. Dates when construction activities temporarily or permanently cease on a portion the site;
4. Dates when stabilization measures are initiated;

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5. Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume;
 6. Inspect all stormwater pollution prevention control practices and record all maintenance requirements such as verifying the integrity of barrier and containment systems. Identify any evidence of rill or gully erosion occurring and any loss of stabilizing vegetation or seeding/mulching. Document excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures;
 7. Inspect areas that are designated for the storage and/or transfer of fuels, lubricants or other hazardous materials;
 8. All points of discharge (locations provided on ESC plans) to determine if a sediment laden discharge is occurring;
 9. All deficiencies that are identified with the implementation of the SWPPP.

The certification statement on page 4 of the inspection report must be signed for each report. If the site is in compliance, then the compliance certification statement box provided at the top on page 4 must be checked off.

11.2 Maintenance of Controls

The general following practices will be used by the Contractor to maintain erosion and sediment controls:

- All erosion and sediment control measures and other protective measures must be maintained in effective operating condition until the site achieves final stabilization.
- Any accumulated sediment within catch basin inlet protection must be removed.
- Damaged silt fence (rips, tears, not toed-in to the ground) shall be repaired/replaced.
- If issues are identified at hazardous materials storage areas, corrective actions will be implemented immediately.
- If leaks or spills are identified procedures outlined in Section 8.1 through 8.3 will be followed.
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The BMPs listed for each phase (Section 7.1) provides specific maintenance practices for each measure.

11.3 Corrective Action Log

The Contractor must maintain a log of all corrective actions performed as a result of inspections or maintenance activities and for items noted during daily observations. A Corrective Action Log is provided in Appendix E.

12.0 Record Keeping, Modifications, and Training

12.1 Record Keeping

The following is a list of records which the Operators must maintain at the project site and made available for inspectors to review:

- Completed Inspection Reports (Appendix I).
- A copy of the Construction General Permit (Appendix B).
- Signed and certified NOI (Appendix D).
- A copy of the letter from the EPA acknowledging receipt of the NOI receipt (Appendix D).
- Permit eligibility documentation pertaining to TMDLs and Endangered Species (Appendix H)

Copies of the SWPPP and all reports required by the CGP, and records of all data used to complete the Notice of Intent to be covered by this permit, must be retained by the Operators for a period of at least three (3) years from the date that the site achieves final stabilization.

12.2 Modifying the SWPPP

This SWPPP must be modified or amended as necessary to:

1. Ensure permit compliance when notified by EPA that the plan does not comply.
2. Include additional or modified BMPs that correct problems identified as a result of an inspection. Revisions must be completed with seven (7) calendar days following the inspection.
3. Ensure the effectiveness of the SWPPP in eliminating or significantly minimizing pollutants from stormwater discharges from the site.
4. Prevent the reoccurrence of releases of a hazardous material or oil.
5. Address a change in design, construction, operation, or maintenance which has or may have a significant effect on the potential for the discharge of pollutants.
6. Changes in personnel.

All modifications to the SWPPP must be recorded on the SWPPP Amendment Log found in Appendix E and retained in Appendix I, Completed SWPPP Amendment Logs.

12.3 Training

Training sessions must be provided by the Contractor for all construction personnel. The training will review specific BMPs used in the work area as well as reporting and response measures that may be required by either construction personnel and/or inspectors to implement the SWPPP. A Training Log form is provided in Appendix E, with suggested training topics including:

- Temporary Sediment Controls
- Temporary Erosion Controls
- Wind Erosion Control
- Tracking Control
- Non-Stormwater Management
- Waste Management and Materials Pollution Control

The selected topic should be relevant to the current phase of construction and/or any issues that require attention.

13.0 Final Stabilization and Notice of Termination

Once construction activities are complete and the site achieves final stabilization per Appendix A of the CGP, a Notice of Termination must be filed with the EPA within 30 days of final stabilization on all portions of the site for which the Operator was responsible. A blank NOT is provided in Appendix D. However, before terminating permit coverage, the Contractor must ensure that the following items have been accomplished:

- Remove any construction debris and trash
- Remove temporary BMPs (such as inlet protection and compost filter socks). Remove any residual sediment as needed.
- Ensure that seventy percent (70%) of vegetated coverage has been achieved or equivalent stabilization measures have been applied.
- Repair any remaining signs of erosion
- Inspect catch basins and clean accumulated sediment or debris
- Seed and mulch or otherwise stabilize any areas where runoff flows might converge or high velocity flows are expected.
- Ensure subcontractors have repaired their work areas before final closeout.