

Stormwater Management Plan

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1.0 Introduction

Worcester State University (WSU) is a public university that discharges stormwater to a municipal separate storm sewer system (MS4), which is considered a small MS4 according to United States Environmental Protection Agency (EPA). As such, in accordance with the requirements of 40 Code of Federal Regulations (CFR) 122 and 314 Code of Massachusetts Regulations (CMR) 3.00, WSU applied to the EPA for coverage under a general permit to discharge stormwater in 2003. WSU received and has maintained permit coverage since 2004. In addition, this Stormwater Management Plan (SWMP) has been prepared in accordance with the requirements of 40 CFR 122.30-122.37 and the EPA's 2016 Massachusetts Small MS4 General Permit, which was signed April 4, 2016 and will become effective July 1, 2018.

WSU's environmental program addresses air pollution control, hazardous waste management, and water pollution control. A key component of the WSU approach to environmental management is pollution prevention, which is incorporated into all areas of material/chemical storage and management. This SWMP will be used in conjunction with WSU's overall environmental sustainability program.

2.0 Overview of Regulatory Requirements

In 1990, the EPA promulgated rules establishing Phase I of the National Pollutant Discharge Elimination System (NPDES) Stormwater Program. The Phase I program for MS4s requires operators of medium and large MS4s, serving populations of greater than 100,000, to implement a Stormwater Management Program in order to obtain authorization to discharge polluted runoff from these MS4s.

The Phase II rule extended coverage of the NPDES Stormwater Program to small MS4s in 1999. A small MS4 is any MS4 not already covered by the Phase I program as a medium or large MS4. The Phase II rule automatically extends the program on a nationwide basis, to all MS4s located in “urbanized areas” (UA) as defined by the Bureau of the Census and on a case-by-case basis those small MS4s located outside of UAs that the NPDES permitting authority designates.

The Phase II program for MS4s is designed to accommodate a general permit approach using a Notice of Intent (NOI) as the permit application. The operator of a small MS4 must include its chosen Best Management Practices (BMPs) and measurable goals for each minimum control measure as part of the NOI.

WSU filed a NOI for coverage under the NPDES General Phase II program on July 31, 2003. WSU obtained coverage under the general permit, issued by the EPA and Massachusetts Department of Environmental Protection (MassDEP) on July 16, 2004.

The EPA issued a revision of the NPDES Small MS4 General Permit in April of 2016. While the permit will not become effective until July 1 2018, WSU will fill out and submit a timely NOI for coverage that will expire on June 20, 2022. A copy of the NOI and the permit is included in Appendix A.

As a condition of general permit coverage, operators of small MS4s are required to design Stormwater Management Programs to:

- Reduce the discharge of pollutants to the maximum extent possible
- Protect water quality
- Satisfy the appropriate water quality requirements of the Clean Water Act

The Phase II rule defines a small MS4 Stormwater Management Program as a program comprised of six elements, that when implemented together, are expected to result in significant reductions of pollutants discharged into receiving water bodies. The six MS4 elements termed “minimum control measures” include:

- Public education and outreach
- Public participation/involvement
- Illicit discharge detection and elimination
- Construction site runoff control
- Post-construction runoff control
- Pollution prevention/good housekeeping

As required, WSU's SWMP addresses each of the following areas: stormwater pollution prevention requirements, stormwater management team, pollutant source assessment, six minimum control measures, BMP selection and design, implementation plan, inspection/maintenance and recordkeeping, plan evaluation and updates.

Each of the members of the stormwater management team (refer to Section 3.0 of this plan) has an updated copy of the WSU SWMP. In addition, copies of the Plan are made available to the EPA and the MassDEP upon request.

3.0 Stormwater Management Team

The SWMP must designate specific personnel familiar with the campus and its operation who will be responsible for development, implementation, maintenance and updates to the SWMP. WSU has designated the following personnel to be members of its stormwater management team.

Stormwater Management Leader

Bob Daniels – Associate Director of Facilities, EH&S

Stormwater Management Team Members

Ed Horniak – Supervisor of Trades

Steven Bandera – Sustainability Coordinator

Matt Richardson – Grounds Supervisor

The stormwater management team is responsible for:

- Implementation of NPDES stormwater discharge permit and SWMP requirements, specifically the six minimum control measures
- Identification and development of specific goals for continuous improvement to the WSU stormwater management program
- Review and evaluation of changes to plant operations to determine potential impact and need for update of the WSU SWMP
- Review and evaluation of other related WSU plans for consistency with the SWMP, including: Oil Spill Prevention, Control, and Countermeasures (SPCC) Plan (40 CFR 112)
- Communication with all stakeholders (facilities department, faculty, students, contractors, Department of Capital Asset Management (DCAMM), and the Massachusetts State College Building Authority (MSCBA)) to ensure a cooperative partnership
- The team leader will assign specific team member responsibility upon designating the members

4.0 Pollutant Source Assessment

As part of the WSU SWMP, a pollutant source assessment has been completed to help ensure appropriate BMPs can be implemented. The pollutant source assessment detailed below includes a site map identifying pollutant sources, a materials inventory, evaluation of past spill and leak incidents, and a review to identify potential non-stormwater discharges and illicit connections and a summary of findings.

4.1 Site Map

Appendix B contains a site map illustrating specific features pertinent to stormwater management at WSU, including: location of discharge points (“outfalls”), drainage patterns, direction of flow, location of nearby surface water bodies receiving stormwater discharges from the site, physically constructed features to control stormwater flows, locations of materials potentially exposed to stormwater, locations of activities potentially exposed to stormwater. (Refer to the materials inventory in Appendix C for the identification of types of pollutants, which could be potentially discharged to the drainage areas near the shipping and receiving docks).

4.2 Materials Inventory/Outdoor Activities

A partial WSU materials inventory is provided in Appendix C. Most of the materials in this inventory are unlikely to come in contact with the stormwater because they are used and stored within campus buildings. The following have been identified as areas/materials potentially coming in contact with stormwater at WSU.

4.2.1 Aboveground #2 Fuel / Diesel Oil Storage Tanks

Seven aboveground storage tanks, ranging in size from 100 gallons to 2000 gallons are located on campus (Refer to Site Plan, Appendix B). The tanks are constructed of steel. These tanks are associated with emergency generators.

Existing BMPs:

- Employees follow standard operating procedures for loading/unloading hazardous materials for spill prevention and response; the filling of these tanks is on an as-needed basis and is not manned by a WSU employee
- All emergency generators are double-walled with interstitial space monitoring, except the one located near the gymnasium, which is double-walled but does not have interstitial space monitoring
- Spill containment equipment (speedi-dry, pigs, pads) is available to contain small spills, which may occur during oil loading and unloading
- WSU has posted the “Oil Spill Plan Flow Chart” in a conspicuous location so that oil delivery personnel will be able to follow instructions in case of a fuel tank overflow

- The tanks are inspected according to the SPCC Plan
- Campus personnel attend annual stormwater training in order to be familiarized with spill prevention and control

New BMPs:

- None

4.2.2 Waste Dumpsters

Three dumpsters are located on campus; one 15 yard roll-off containing construction debris is located near the LRC Building central receiving dock, two 10 yard trash dumpsters near Dowden Hall loading dock.

Existing BMPs:

- Employees, contractors, students are directed to not dispose of any chemicals or waste oils in the dumpsters
- The dumpster areas are inspected according to the inspection schedule in Appendix E
- Maintenance cleans around the dumpster when material falls outside of the dumpster

New BMPs:

- None

4.2.3 Waste Compactors

Six waste compactors are located on campus. Two compactors are located at the Student Center loading dock, one is for trash and the other is for single stream recycling. Two compactors are located at the Sheehan loading dock, one is for trash and the other is for single stream recycling. There are two more compactors located on the upper campus, one at Chandler Village and one inside the building at Wasylean Hall. The Wasylean Hall compactor is not an exposure issue because it is total enclosed.

Existing BMPs:

- Employees are directed to not dispose of any chemicals or waste oils in the compactors
- The compactors are self-contained
- The compactor areas are inspected according to the inspection schedule in Appendix E; special attention will be given to inspection of hydraulic systems
- Maintenance cleans around the compactors when material falls outside of the compactors

New BMPs:

- None

4.2.4 Loading/Unloading Docks

Trucks load and unload materials and chemicals at shipping/receiving areas located at the Student Center, Learning Resources Center, and Ghosh Science Tech Building. Materials and chemicals are not exposed to stormwater during loading and unloading operations at the shipping/receiving docks. WSU only purchases very small quantities of chemicals (5-15 gallon pails).

Existing BMPs:

- The docks are sufficiently covered from rainfall with roofs
- Employees use a dock leveler when unloading chemicals from trucks
- Employees follow standard operating procedures for loading and unloading chemicals for spill prevention and response
- Spill containment equipment (speedi-dry, pigs, pads) is available to contain small spills, which may occur during chemical receiving
- Campus personnel attend annual stormwater training in order to familiarize as many as possible with spill prevention and control

New BMPs:

- None

4.2.5 Roof Ventilation Stacks

There are various roof stacks associated with the laboratory hoods in the Ghosh Science Tech Building.

Existing BMPs:

- The roof ventilation stacks are inspected annually according to the Inspection Schedule in Appendix E
- Campus personnel attend annual stormwater training in order to familiarize as many as possible with spill prevention and control

New BMPs:

- None

4.2.6 Salt Pile

There is one salt pile located on the south side of campus.

Existing BMPs:

- The salt pile is located within a three-sided containment area to prevent the pile from eroding into the surrounding area
- WSU maintains a cover on the pile in order to minimize run-on and run-off
- WSU inspects the cover annually and replaces it when needed

New BMPs:

- WSU is now using only salt as a snowmelt rather than a sand and salt mixture. Eliminating sand will reduce the amount of sand and sediment that will be exposed to stormwater. It will also reduce the cost and frequency requirements of other BMPs such as, street sweeping, catch basin clean outs, and Lake Ellie dredging

4.2.7 Salt Application

WSU uses salt annually for deicing the campus walkways and roads.

Existing BMPs:

- Use only when necessary
- WSU currently has a street sweeper to clean-up sand from the roads/walkways each spring to minimize sand run-off from reaching the campus stormwater retention pond
- WSU currently has four Vortech units and two Stormceptor units, and one level spreader which are designed to remove sediment from stormwater run-off
- WSU cleans out catch basins and sediment separators as needed to prevent sediment from getting to the campus stormwater retention pond (Lake Ellie)
- WSU is using salt alternatives on walkways

New BMPs:

- WSU is now using only salt as a snowmelt rather than a sand and salt mixture. Eliminating sand will reduce the amount of sand and sediment that will be exposed to stormwater. It will also reduce the cost and frequency requirements of other BMPs such as, street sweeping, catch basin clean outs, and Lake Ellie dredging

4.2.8 Student Activities

Student activities could potentially create pollutant sources, such as leaking oil from cars, oil or gasoline leaks that could occur from car accidents on campus. Car washes, which would be considered a non-stormwater discharge, are no longer allowed on campus.

Existing BMPs:

- University police keep a look out for leaking oil from cars, and reports to the EH&S Department
- Speed bumps are located throughout the campus minimizes the chances of car accidents on campus
- Spill containment equipment (speedi-dry, pigs, pads) are available to contain small spills

New BMPs:

- None

4.2.9 Construction Projects

In an effort to constantly improve itself and stay competitive with other universities, WSU always has a construction project underway. This may include construction of a new building or modification of existing structures. Most of these projects are funded and managed by DCAMM and/or MSCBA (dorms).

Existing BMPs:

- If greater than one acre of land will be disturbed, WSU requires DCAMM and MSCBA, contractors/subcontractors to obtain coverage under a General NPDES Construction Permit, which requires submission of an NOI, development of a Stormwater Pollution Prevention Plan (SWP3) and implementation of Best Management Practices to prevent contamination of stormwater (See Section 5.4. Construction Site Run-off Control)
- For projects where less than one acre of land will be disturbed, Appendix H will be used at the discretion of WSU
- WSU developed a checklist for construction projects under the control of DCAMM and MSCBA
- EH&S Department will periodically inspect to ensure that the construction companies are conducting inspections as required

New BMPs:

- None

4.2.10 Past Incidents of Spills and/or Leaks

WSU will track past spills (i.e., three years) as required by stormwater regulation. If a reportable spill should occur, copies of spill reports for incidents will be provided in Appendix D. Spill incidents are reviewed and, if appropriate, changes to the WSU Spill Prevention Control and Countermeasures Plan are implemented to help minimize the likelihood of future occurrences and to improve spill response measures. In addition, spill incidents and responses are reviewed during both formal and informal training sessions with WSU personnel to help improve WSU spill prevention and response activities.

4.3 Non-Stormwater Discharges

As required by the General Permit, WSU evaluates potential non-stormwater discharges. WSU utilizes visual inspections and plant schematic reviews to periodically check for non-stormwater discharges, including: boiler blow down, non-contact cooling water, vehicle discharges, and sanitary wastewater. These sources and their potential drainage locations were visually inspected to determine whether actual non-stormwater discharges occurred. In addition, WSU reviews piping and wastewater distribution/drainage system configurations. WSU has discovered groundwater/surface water infiltration into the stormwater system on-site, on upper campus.

4.4 Stormwater Outfalls

There are six stormwater outfalls on campus, as follows:

1. Outfall 1 is located at the head of Moore Brook, it is the outlet of Lake Ellie and collects stormwater from the majority of campus; in addition, it collects stormwater from the athletic field and discharges to Moore Brook
2. Outfall 2 is located at the head of Moore Brook; it consists of flow from the City of Worcester MS4 as well as stormwater from the north parking lot near the Wellness Center and discharges to Moore Brook
3. Interconnection/Outfall 3 is located in Chandler Street; some roof drains and parking lots from the east side of campus discharges into the City of Worcester MS4, this stormwater comes back onto campus and discharges to Moore Brook via Outfall 2
4. Outfall 4 is located on the hill between Sheehan hall and the athletic field.; it consists of roof drains and stormwater from the north side of Sheehan Hall; the stormwater from this outfall discharges to Moore Brook, though it likely infiltrates into the ground before reaching the waterway
5. Outfall 5 is located in the woods to the north and west of Dowden hall, it consists of roof drainage and stormwater from the north east side of Dowden Hall; the stormwater from this outfall discharges to Moore Brook, though it likely infiltrates into the ground before reaching the waterway
6. Interconnection/Outfall 6 is located to the east of Dowden Hall at the end of Candlewood Street; it consists of a roof drain and stormwater from the east side of Dowden Hall and discharges into the City of Worcester MS4

4.5 Outfall Prioritization

All 6 outfalls on the WSU campus are classified as Low Priority Outfalls. Of these Low Priority Outfalls, outfalls 1 and 2 are the highest priority.

4.6 Monitoring Data

Sampling of NPDES stormwater discharges at WSU is not required as part of the General Permit.

5.0 Summary of Minimum Control Measures

5.1 Public Education and Outreach

WSU must implement a public education program to distribute stormwater educational materials to the community (i.e., campus) or conduct equivalent outreach activities about the impacts of stormwater discharges on water bodies and the steps the public can take to reduce pollutants in stormwater runoff.

BMP - City of Worcester information is available to the students and faculty via internet, which cover stormwater management tips.

Measurable Goal: Educate people on the availability of information available online.

Justification: The information will be a good first attempt at educating the campus community.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

BMP - Construction of a web page on the WSU web site so that students, faculty, employees, and contractors can read about specific BMPs that are being implemented to help prevent contamination of stormwater on campus is underway. Students and faculty will be invited to participate in campus clean-ups through web-site announcements. WSU will post the EPA pamphlet, "After the Storm", on the web site.

Measurable Goal: The page was launched in August 2007; a new web page is being developed in 2017.

Justification: WSU will target students, faculty, maintenance and grounds keeping, administrators, general public and contractors to follow BMPs to help prevent stormwater pollution. The above-mentioned are targeted because they all are involved in activities that could potentially impact stormwater quality. The pollutant sources that WSU will target include those items mentioned in Section 4.2 including fuel oil tank filling, dumpsters, compactors, salt application and storage, leaking oil from cars and car accidents.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

BMP: Create a pamphlet for contractors. Pamphlets are available in the EH&S office

Measurable Goal: The amount of contractor incidents that have occurred in the year.

Justification: WSU will explain BMPs regarding minimizing potential SW pollutant sources to contractors working on-site.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

BMP: Participation at the annual WSU Sustainability Fair

Measurable Goal: Increased awareness of the students as well as positive interactions for people attending the fair.

Justification: Spread word about good environmental practices and help generate interest/involvement in stormwater management at WSU.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

BMP: Princeton Review Guide to Green Colleges

Measurable Goal: Be published in the Princeton Review as a green campus in spring 2017.

Justification: Be listed as a green campus to increase awareness about green infrastructure and sustainability efforts.

Responsible Party: Steve Bandera

5.2 Public Involvement/Participation

WSU must comply with state, tribal, and local notice requirements when implementing a public involvement/participation program. This could include providing opportunities for citizens (e.g., students and faculty) to participate in program development or implementation, including effectively publicizing public hearings and/or encouraging citizen representatives on a stormwater management panel.

BMP - Catch basin painting

Measurable Goal: Paint all campus catch basins annually or as needed

Justification: WSU is getting the students, faculty, grounds keepers, and contractors involved by making the stormwater catch basins more prominent on campus. The catch basins are being painted a bright green. This will make students, faculty and contractors more aware of the catch basins, which ultimately either drain to Lake Ellie or the Moore Brook.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

BMP: Annual campus clean-up day

Measurable Goal: Annual implementation, when possible.

Justification: Annually in late April-early May, WSU has a clean-up day which students and faculty participate in. Participants rake, pick up litter, plant flowers, and beautify campus. This gives students a chance to feel like they can improve the campus they share.

Responsible Party: Steve Bandera, Sustainability Coordinator

BMP: Clean-up of Moore Brook

Measurable Goal: Clean brook annually or as needed.

Justification: Aesthetically pleasing to public.

Responsible Party: WSU grounds crew and work study students

BMP: Post the SWMP Online for Plan and BMP Review by September 2017

Measurable Goal: Visibility of the plan to the community and suggestions for plan improvement from the public.

Justification: SWMP and BMP improvements through student and faculty suggestion.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S, WSU students and faculty

BMP: Formed Neighborhood Advisory Council

Measurable Goal: Continued and expanded Neighborhood Advisory Council to share information with local community, and get involved win community and campus clean ups.

Justification: Public involvement and information sharing.

Responsible Party: Presidents Office and Public Relations

BMP: American College and University President's Climate Commitment

Measurable Goal: Submitted Climate Action Plan

Justification: The climate Action Plan referred the WSU's SWMP, considered a member in good standing.

Responsible Party: Steve Bandera

BMP: Live, Learn Cohort - Eco Housing

Measurable Goal: Students who want to live with common interest in sustainability are grouped in Sheehan Hall. They are required to take a sustainability seminar.

Justification: Students become more active in sustainability issues on campus.

Responsible Party: Steve Bandera

5.3 Illicit Discharge Detection and Elimination

WSU must develop, implement and enforce a plan to detect and eliminate illicit discharges to the storm sewer system. Being a fairly contained campus, the sources for illicit discharges are limited. A written Illicit Discharge Detection and Elimination plan is constituted of several of the following BMPs, including but not limited to: A storm sewer site plan, a checklist for the detection of and inspection for illicit discharges, and a reporting form in case an illicit discharge is detected.

BMP: Develop a storm sewer plan with all storm catch basins and storm sewer lines by contracting BSI.

Measurable Goal: An updated storm sewer plan was completed in 2016 and is continually revised as new sewer lines/catch basins are added.

Justification: In order to conduct illicit discharge inspections, WSU needs a storm sewer plan for the campus. The plan will be updated whenever there is a change in the stormwater sewer system and reviewed on an annual basis.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

BMP: Develop a checklist to detect illicit discharges (complete) and conduct illicit discharge inspections (on-going)

Measurable Goal: WSU will conduct dry weather inspections semiannually, spring and fall.

Justification: Though there are not expected to be many sources of illicit discharges, WSU wants to ensure that there are no “non-stormwater” discharges, other than groundwater, entering the stormwater system.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

BMP: Develop an illicit discharge reporting form (completed)

Measurable Goal: Use the form for each illicit discharge discovered.

Justification: If an illicit discharge is discovered, WSU will approach the responsible party and request the elimination of the illicit discharge immediately.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

BMP: Subsurface utilities survey

Measurable Goal: Completed plans.

Justification: Determine stormwater flow throughout campus and illicit discharge verification.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

BMP: Outfall Prioritization

Measurable Goal: Rank stormwater outfalls by where a potential discharge is likely to occur.

Justification: Determine the places where BMPs, such as stormwater control structures, can be deployed most effectively to prevent discharge.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

5.4 Construction Site Stormwater Run-Off Control

WSU must develop, implement, and enforce an erosion and sediment control program for construction activities that disturb one or more acres of land (controls include silt fences and temporary stormwater detention ponds). As noted earlier, DCAMM and MSCBA are the primary agencies involved in construction disturbing one or more acres. Funding and contractor selection is not made by WSU. Therefore, WSU will need to ensure communication on construction projects is open between WSU DCAMM and/or MSCBA and the designated contractors and subcontractors.

BMP: Develop/implement construction run-off plan training

Measurable Goal: Retrain all facilities personnel annually.

Justification: In order to ensure that facilities personnel understand the stormwater requirements for construction projects on the WSU campus, WSU will provide required training.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

BMP: Develop an enforcement strategy, when construction inspections and BMPs are not implemented

Measurable Goal: EH&S department will document all “Stop Work” Notices that are issued.

Justification: In order to protect stormwater quality on campus, WSU facilities department will have the power to issue “Stop Work” notices if the construction site operators are not complying with the BMPs included in their SWP3.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

BMP: SW Review with Construction Site Personnel and MSCBA/DCAMM

Measurable Goal: Meet with construction companies and MSCBA/DCAMM before and during construction projects that impact greater than one acre.

Justification: Interaction with construction companies and MSCBA/DCAMM for future projects that could impact SW.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

BMP: Construction site inspections

Measurable Goal: Periodic construction site inspections against the SW permits already pulled by the construction company.

Justification: Periodic inspections will help to ensure that construction companies and contractors are implementing the correct stormwater actions.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

BMP: SW controls for construction projects impacting less than one acre

Measurable Goal: Meet with contractors and subcontractors before and during construction projects impacting less than 1 acre about proper implantation of SW controls.

Justification: SW controls at construction projects can help reduce impact of potential SW pollutants and will encourage best practices from and contractors and subcontractors on site.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

5.5 Post-Construction Run-Off Control

WSU must develop, implement and enforce a program to address discharges of post-construction stormwater runoff from new development and redevelopment areas that are equal to or greater than one acre. Applicable controls could include preventative actions such as protecting sensitive areas (e.g., wetlands) or the use of structural BMPs such as grassed swales or porous pavement.

BMP: Develop a plan for maintenance of structural controls

Measurable Goal: By Fall 2005, develop a plan to maintain structural controls on campus (complete – updated May 2010). This will include: Street sweeping annually in spring, clean out catch basins, Vortechinics, Stormceptor units, and Level Spreader at least annually (refer to Appendix I); Updated in 2015 as well.

Justification: WSU currently has structural controls to include catch basins, Vortechinics and Stormceptor units, which help collect solids from stormwater runoff. A scheduled maintenance of cleaning these units at least annually will allow them to do their jobs properly.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

BMP: Develop training for maintenance of structural controls

Measurable Goal: Incorporate as part of the periodic pollution prevention training for maintenance and grounds keepers.

Justification: To ensure that all those involved in structural BMP maintenance understand their role in the maintenance program.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&SEH&S

BMP: Use of salt based products for road and walkway deicing, where practical

Measurable Goal: Effectiveness and reduced labor intensive clean-up.

Justification: WSU currently uses a large amount of salt, which contributes less to the solids run-off in stormwater than when the mixture of sand/salt was used. Also the costs associated with salt application and clean-up is less than when sand was used. Some alternatives are reportedly less harmful to the environment. WSU has experimented with alternatives on walkways.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

BMP: Catch Basin Clean Out

Measurable Goal: Catch basins will be cleaned out on an annual basis or as needed.

Justification: Cleaning the catch basins on a regular basis will help to ensure that they will be able to convey SW.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

BMP: Upgraded Salt Storage Shed

Measurable Goal: Improved salt storage shed.

Justification: By effectively protecting the salt pile effectively from weather, less salt will run off into the SW system.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

BMP: Rain Water Harvesting

Measurable Goal: Increase the amount of on site infiltration of rainwater as well as a reduction of city water used for irrigation at the new Wellness Center.

Justification: Collection of rain water for irrigation will increase the amount SW that will infiltrate back into the ground rather than being directed into surface waters.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

5.6 Pollution Prevention/Good Housekeeping

WSU must develop and implement a program with the goal of preventing or reducing pollutant runoff from campus operations. The program must include campus staff training on pollution prevention measures and techniques (e.g., regular street sweeping, reduction in the use of pesticides, or street salt, or frequent catch-basin cleaning)

BMP: Develop pollution prevention training

Measurable Goal: Annually review and revise training for maintenance and grounds keepers, and contractors (e.g., snow removal, plumbers). Provide annual updates to the training program for new stormwater concerns and new employees. Provide information about the Illicit Discharge Detection and Elimination program and how to recognize illicit discharges.

Justification: In order to get grounds keepers, maintenance crews, and contractors thinking about WSU's Stormwater Management Plan in the same way, WSU needs to provide training to ensure everyone understands the goals of the Plan and the BMPs that should be implemented.

Responsible Party: Bob Daniels, Associate Director of Facilities, EH&S

6.0 BMP Selection and Design

WSU reviewed various management practices to control and help prevent potential stormwater contamination. This section describes the BMPs that have been selected for WSU. As required, the selected BMPs incorporate good housekeeping, preventative maintenance, visual inspections, spill prevention and response, sediment and erosion prevention, traditional stormwater management practices as well as other BMPs as appropriate, employee training, and recordkeeping and reporting.

6.1 Good Housekeeping

EPA guidance designates “good housekeeping” practices as an effective first step toward stormwater pollution prevention. Good housekeeping practices will be utilized throughout WSU, including: routine maintenance and inspection of industrial equipment to ensure efficient operation, implementation of careful material storage practices, maintaining a current materials inventory, properly labeling materials throughout the campus, conducting routine cleanup operations, maintaining well organized work areas, and fostering a positive attitude among employees to maintain good housekeeping practices.

6.2 Preventive Maintenance

In conjunction with its regular inspection programs, routine maintenance will be scheduled and conducted to prevent stormwater pollution prevention via faulty equipment. Refer to Appendix E of this Plan for copies of inspection records.

6.3 Visual Inspections

WSU will conduct routine inspections of facility operations and areas potentially exposed to stormwater in order to identify and correct potential problem areas. As required, the inspection schedule and copies of inspection forms are provided in Appendix E.

6.4 Spill Prevention and Response

Areas where spills could potentially occur have been identified on the site map (refer to Appendix B). WSU has incorporated its Stormwater Management Plan into its existing facility SPCC Plan. The stormwater management training program (refer to Section 7.2) includes segments on spill prevention and response.

WSU operations that could potentially come in contact with stormwater if a spill incident were to occur include: offloading of diesel fuel from tank truck to the aboveground storage tank, shipping/receiving of chemicals, and storage of refuse in waste dumpsters and compactors.

Should a spill incident occur the spill prevention and response coordinator/emergency coordinator is to be contacted immediately. The emergency coordinator will assess the situation and determine the appropriate response action. WSU employees may respond to minor spill incidents under the direction of the emergency coordinator. For spill incidents that cannot be handled by in-house trained personnel, an outside emergency contractor will be contacted. The emergency coordinator is responsible for immediately notifying the appropriate regulatory agencies and emergency response agencies. Following any spill incident, the SPCC Plan will be reviewed by the pollution prevention team and modified, if necessary, to help prevent future spill incidents.

As noted in existing spill response plan, emergency contacts for spill response incidents are as follows:

WSU EMERGENCY PERSONNEL

Primary Emergency Coordinator:

Bob Daniels Associate Director of Facilities, EH&S
 Office: 508-929-8099
 Home: 508-885-4886

Alternate Emergency Coordinator:

WSU Campus Police
 Emergency 508-929-8044

OUTSIDE AGENCY/ EMERGENCY RESPONSE

Worcester Police Department 911 or 508-799-8600
 Worcester Fire Department 911 or 508-799-1816
 Ambulance Service 911

Hospitals:

UMass Medical Center..... 508-334-1000

REGULATORY AGENCY NOTIFICATION

MassDEP Central Regional Office 508-792-7650
 MassDEP 24-Hour Emergency Response 1-888-304-1133
 National Response Center..... 800-424-8802

OUTSIDE CLEAN UP CONTRACTOR

Triumvirate Environmental..... 800-966-9282

6.5 Sediment and Erosion Control

The stormwater from the upper campus drains from graded, paved surfaces to a series of catch basins situated throughout the site and through a Vortechnic unit located near the Learning Resource Center to a concrete culvert discharging to Lake Ellie, which eventually flows to Moore Brook. Stormwater from May Street parking lot drains from graded, paved surfaces to a series of catch basins, which flow to the Worcester municipal separate stormwater system, along Chandler Street, and then back on to campus where they flow into a four foot box culvert to the Moore Brook. Stormwater from the gymnasium parking lot flows to a catch basin from graded paved surfaces and then to a series of two Vortechnic units for solids removal, before flowing to Moore Brook.

7.0 Implementation Plan

Implementation of the WSU SWMP involves two primary areas:

- Implementation of the appropriate BMP controls identified in Section 6.0
- Employee training

7.1 Minimum Control Measures Implementation

Sections 5 and 6 of this Plan identifies BMPs that have been selected for WSU relative to stormwater pollution prevention. As required, WSU has identified specific individuals within the facility assigned roles and responsibilities for instituting these BMPs at WSU.

7.2 Employee Training

WSU is required to develop and implement a training program relative to storm pollution prevention. The training program is designed to train personnel, at all levels of responsibility, the components and goals of the WSU SWMP and to develop sensitivity to stormwater pollution prevention concerns. Topics include spill prevention and response, good housekeeping and material management practices. A copy of the SWMP personnel training program that has been developed for WSU is provided in Appendix F. This training program is reviewed and, if applicable, updated annually. As required, WSU will conduct periodic training of personnel with roles and responsibilities relative to stormwater pollution prevention and implementation of BMPs.

8.0 Evaluations and Updates

By regularly evaluating the SWMP and updating as appropriate, WSU will help assure that the goals of stormwater management and BMPs are met as well as meet the NPDES requirements for routine evaluation of the Plan.

8.1 Annual Program Compliance Evaluation and Revisions

At a minimum, program compliance evaluations must be conducted annually to help ensure appropriate implementation of the SWMP is in accordance with the conditions of the permit.

WSU must evaluate the appropriateness of the selected BMPs in efforts towards achieving the defined measurable goals. The SWMP may be changed in accordance with the following provisions:

- Changes adding (but not subtracting or replacing) components, controls or requirements to the SWMP may be made at any time upon written notification to the EPA and MassDEP
- Changes replacing an ineffective or infeasible BMP specifically identified in the SWMP with an alternative BMP may be requested in writing to EPA and MassDEP at any time; unless denied, changes proposed in accordance with the criteria below will be deemed approved and may be implemented 60 days from submittal of the request; if the request is denied, EPA and MassDEP, as applicable, will send you a written explanation of the denial
- Modification requests, must include the following information:
 - An analysis of why the BMP is ineffective or infeasible (including cost prohibitive)
 - Expectations on the effectiveness of the replacement BMP
 - An analysis of why the replacement BMP is expected to achieve the goals of the BMP to be replaced
 - Change requests or notifications must be in writing and signed in accordance with signatory requirements of the permit

EPA or MassDEP may require changes to the SWMP as needed to:

- Address impacts on receiving water quality caused or contributed to by discharges from MS4
- To include more stringent requirements necessary to comply with new federal or statutory or regulatory requirement
- To include other conditions deemed necessary to comply with the goals and requirements of Clean Water Act
- Any changes requested by EPA or MassDEP will be in writing and will set forth the schedule for WSU to develop the changes and offer the opportunity to

propose alternative program changes to meet the objective of the requested modification

8.2 Recordkeeping

As required, records of spills, leaks, inspections, and maintenance activities pertaining to stormwater management must be maintained for five years and are in Appendix E of this Plan. For spill/leak incidents, records include information on date and time of incident, weather conditions, cause, environmental impact, response actions and follow-up corrective measures implemented. WSU must make records available to the public upon request.

8.3 Reporting

- WSU must submit an annual report by the anniversary of the permit effective date each year; reports should be submitted to EPA and MassDEP (Refer to Appendix J). Reports should contain:
 - A self-assessment review of compliance with the permit
 - An assessment of BMP selection appropriateness
 - If applicable, status of any discharges that could impact water quality standards or impaired waters
 - An assessment of the progress towards achieving the measurable goals and objectives for each of the six minimum control measure in section 5
 - All outfall screening and monitoring data collected
 - Description of activities for the next reporting cycle
 - Description of any changes in identified BMPs or measurable goals

Reports can be submitted to the EPA at the following address:

United State Environmental Protection Agency
Stormwater and Construction Permits Section (OEP06-1)
Five Post Office Square, Suite 100
Boston, MA 02109

Massachusetts Department of Environmental Protection
One Winter Street – 5th Floor
Boston, MA 02108
ATTN: Frederick Civan

Or they can be submitted electronically to EPA at: stormwater.reports@epa.gov