University of Massachusetts Medical School

Stormwater Management Program

For Coverage Under The

National Pollutant Discharge Elimination System (NPDES)
General Permit for Municipal Separate Storm Sewer Systems (MS4)

University of Massachusetts Medical School
55 Lake Ave North, Worcester, MA 01655

EPA NPDES Permit Number MAR042049

June 30, 2020

Contents

Appendices

Certification

Authorized Representative: University of Massachusetts Medical School has designated John Baker, Associate Vice Chancellor for Facilities Management, as an authorized representative to sign MS4 reports. John Baker is designated as an authorized person for signing all reports including but not limited to the stormwater management plan, stormwater pollution prevention plans, inspection reports, annual reports, monitoring reports, reports on training, and other information required by the MS4 Permit. The authorization letter is provided in Appendix A.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

John Baker, Associate Vice Chancellor for Facilities Management

Signature:  Date: 8/17/2020

Background

The University of Massachusetts Medical School (UMMS) is committed to sustainability throughout our operations, as well as by encouraging sustainable practices among students, faculty and staff. This commitment extends to protecting water resources through education, stewardship, and facility operations that prevent stormwater pollution. UMMS' Stormwater Management Program (SWMP) outlines UMMS' existing and planned measures to protect water resources and to comply with the National Pollutant Discharge Elimination System (NPDES) Phase II General Permit for Municipal Separate Storm Sewer Systems (MS4s).

Regulatory Context

Under the Clean Water Act, the Stormwater Phase II Final Rule was promulgated in 1999 and was the next step after the 1987 Phase I Rule in the Environmental Protection Agency's (EPA's) effort to preserve, protect, and improve the Nation's water resources from polluted stormwater runoff. The Phase II program expanded the Phase I program by requiring additional operators of MS4s in urbanized areas and operators of small construction sites, through the use of NPDES permits, to implement programs and practices to control polluted stormwater runoff. Under the Phase II rule, all MS4s with stormwater discharges from Census designated Urbanized Area are required to seek NPDES permit coverage for those stormwater discharges.

On May 1, 2003, EPA Region 1 issued its Final General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (2003 MS4 Permit) consistent with the Phase II rule. The 2003 small MS4 permit covered "traditional" (i.e., cities and towns) and "non-traditional" (i.e., Federal and state agencies) MS4 Operators located in the states of Massachusetts and New Hampshire. This permit expired on May 1, 2008 but remained in effect until operators were authorized under the 2016 MS4 Permit, which became effective on July 1, 2018.

UMMS is categorized as a non-traditional MS4 and a new permittee, since it was not covered under the 2003 MS4 Permit.

University of Massachusetts Medical School MS4 Facilities

UMMS operates at four campuses located within the MS4 regulated area.

Main Campus, Worcester
The UMMS main campus is located on more than 60 acres in Worcester, Massachusetts, just north of Route 9 on the west side of Lake Quinsigamond, between Plantation Street and North Lake Avenue. The physical address of the main campus is 55 North Lake Avenue. The main campus includes UMass Medical School and the UMass Memorial Medical Center University Campus and buildings that are either owned or leased, with spaces for academics, research, laboratories, offices, patient care, and ancillary support. The main campus also includes a biotechnology park along Plantation Street, also known as Biotech parcels 1 through 5. The Biotech parcels are owned by Worcester City Campus Corporation and maintained by UMMS.

333 South Street, Shrewsbury
The satellite campus at 333 South Street, Shrewsbury includes one building, detached garages, and parking for the University of Massachusetts System Office and Collaborative Services Facility.

222 Maple Avenue, Shrewsbury
The satellite campus at 222 Maple Avenue, Shrewsbury includes six buildings and parking for UMMS facilities, such as the Center for Mindfulness.

MassBiologics, Mattapan Campus
The satellite campus at 460 Walk Hill Street, Mattapan, also known as MassBiologics Main Campus, consists of two buildings and parking for research, administration, and manufacturing.

Stormwater Management Program (SWMP)

The SWMP describes the activities and measures, or Best Management Practices (BMPs), that UMMS will implement to meet the terms and conditions of the permit. The SWMP has been prepared to comply with the overall general permit, modified requirements for Non-Traditional MS4s, and timeline extensions for New Permittees. The SWMP is intended to be a "living document", which UMMS will update and/or modify during the permit term as new information is developed or UMMS' activities are modified, changed, or updated to meet permit conditions. UMMS will assess the need for SWMP updates as part of the Annual Evaluation to be completed, along with the Annual Report, by the end of September each year. Permit years referenced in the SWMP correspond to fiscal years, beginning with fiscal year 2019 (permit year 1).

The main elements of the SWMP are organized by minimum control measures (MCMs) and additional BMPs for discharges to water quality limited waterbodies.

MCM 1: A public education program aiming to affect public behavior causing stormwater pollution,

MCM 2: An opportunity for the public to participate and provide comments on the stormwater program,

MCM 3: A program to effectively find and eliminate illicit discharges within the MS4,

MCM 4: A program to effectively control construction site stormwater discharges to the MS4,

MCM 5: A program to ensure that stormwater from development projects entering the MS4 is adequately controlled by the construction of stormwater controls,

MCM 6: A good housekeeping program to ensure that stormwater pollution sources on municipal properties and from municipal operations are minimized, and

TMDLs and Water Quality Impairments: Enhanced and additional BMPs to reduce pollutants of concern discharging to waterbodies with water quality impairments and Total Maximum Daily Loads (TMDLs) related to urban stormwater runoff.

Small MS4 Authorization

UMMS submitted its Notice of Intent (NOI) on September 24, 2019. EPA granted Authorization to Discharge on February 14, 2019. The NOI and Authorization Letter can be found at the following links:

- NOI: https://www3.epa.gov/region1/npdes/stormwater/ma/ntms4noi/umass-medical-school.pdf
- Authorization Letter: https://www3.epa.gov/region1/npdes/stormwater/ma/ntms4noi/umass-medical-school-auth.pdf

Stormwater Management Program Team

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Receiving Waters

The following table lists UMMS' receiving waters, impairments, and the number of outfalls discharging to each waterbody segment.

Waterbody segment that receives flow from the MS4	Number of outfalls into receiving water segment	Chloride	Chlorophyll-a	Dissolved Oxygen/ DO Saturation	Nitrogen	Oil & Grease/PAH	Phosphorus	Solids/TSS/Turbidity	E. Coli	Enterococcus	Other pollutant(s) causing impairments
Lake Quinsigamond (MA51125) (Receiving water for Worcester campus via interconnection with DCR MS4)	0 (interconnection only)			X						X	Eurasian Water Milfoil (Myriophyllum spicatum), Non-Native Aquatic Plants, Algae
Canterbury Brook (Receiving water for Mattapan campus via unconfirmed interconnection with BWSC MS4)	0 (interconnection only)										N/A
Wetland east of Chestnut Street and interconnection with Town of Shrewsbury MS4 (Receiving water for 333 South Street, Shrewsbury Campus)	1 (and interconnection)										N/A
West Brook (MA51-43) and interconnection with Town of Shrewsbury MS4 (Receiving water for 222 Maple Avenue, Shrewsbury Campus)	1 (and interconnection)										N/A

Eligibility: Endangered Species and Historic Properties

Endangered Species Act (ESA) eligibility determination

UMMS has completed the ESA eligibility process outlined in MS4 Permit Appendix C. According to the U.S. Fish & Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) tool, UMMS campuses potentially contain habitat for Northern Long-eared Bat, which is listed as a threatened species.

UMMS has determined that the stormwater discharges and discharge related activities will have no effect on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the USFWS. If, during the course of the permit term, UMMS plans to install a structural BMP not identified in the NOI, UMMS will conduct an endangered species screening for the proposed site and will contact the USFWS if UMMS determines that the new activity "may affect" or is "not likely to adversely affect" listed species or critical habitat under the jurisdiction of the USFWS.

In accordance with the ESA eligibility process outlined in MS4 Permit Appendix C, UMMS certifies permit eligibility with the ESA under **Criterion C.**

USFWS Criterion C: *Using the best scientific and commercial data available, the effect of the stormwater discharge and discharge related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the applicant and affirmed by EPA, that the stormwater discharges and discharge related activities will have "no effect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the USFWS.*

The following attachments are included in Appendix B:

- Lake Avenue North, Worcester campus IPaC resource list
- South Street, Shrewsbury campus IPaC Resource List
- Maple Ave, Shrewsbury campus IPaC Resource List
- Mattapan, Boston campus IPaC resource list

National Historic Preservation Act (NHPA) eligibility determination

UMMS has completed the NHPA eligibility process outlined in MS4 Permit Appendix D. UMMS campuses do not have property listed or eligible for listing on the National Register of Historic Places. No prior surveys or disturbances have revealed the existence of historic properties or artifacts. Operation of UMMS' MS4 does not have the potential to cause effects on historic properties.

In accordance with the NHPA eligibility process outlined in MS Permit Appendix D, UMMS certifies permit eligibility with the NHPA under **Criterion B.**

NHPA Criterion B: *A survey was conducted. The survey concluded that no historic properties are present. Discharges do not have the potential to cause effects on historic properties.*

MCM 1 Public Education and Outreach

Permit Part 2.3.2

Objective

The objective of UMMS' public education and outreach program is to increase awareness and influence behavior of the public so that stormwater pollutants are reduced.

Program Overview

UMMS' program is structured in accordance with the MS4 Permit at Part 2.3.2 and with specific requirements for impaired waterbodies in Appendix H and Appendix F of the MS4 Permit. As a non-traditional MS4, UMMS' target audiences differ slightly from those targeted by traditional (municipal) MS4s. UMMS' target audiences include the people who are most likely to affect pollution on UMMS properties, and those who are most likely to be reached through interaction with UMMS: visitors, students, staff, and contractors. The messages focus on stormwater pollutants that are most likely to be generated by the public on UMMS properties and to impact UMMS' receiving waterbodies:

- Trash,
- Sediment,
- Fertilizer,
- Leaf litter, and
- Grass clippings.

The educational messages will be distributed through a range of forums, selected to best reach each target audience. Each public education BMP has a measurable goal, which UMMS will assess annually to ensure that educational messages are reaching target audiences effectively.

The following table summarizes the educational messages, target audiences, and distribution schedule.

BMP	**Target Audience**	**Schedule by Permit Year (Fiscal Year)**				
		1 (FY19)	2 (FY20)	3 (FY21)	4 (FY22)	5 (FY23)
1-1: Think Blue Advertising Campaign	Visitors, Students, Staff	x				
1-2: Web Page	Visitors, Students, Staff	x	x	x	x	x
1-3: Growing Green Newsletter	Visitors, Students, Staff	x	x	x	x	x
1-4: Stormwater Fact Sheet	Visitors, Students, Staff			x	x	x
1-5: Contractor Education	Contractors			x	x	x
1-6: Facility Staff Education	Facility Staff				x	x

BMP 1-1: Think Blue Advertising Campaign

Description:

Think Blue Massachusetts (https://www.thinkbluemassachusetts.org/) ran an advertising campaign on behalf of MS4 communities from May 31 to June 25th, 2018. The "Fowl Water" advertisement, targeting MA urban residents, aimed to help viewers visualize stormwater pollution from motor oil, pet waste, and trash. Even though UMMS is not part of a municipal coalition, UMMS staff and visitors reside within those communities. Relevant to UMMS, Think Blue targeted outreach to the Charles River region (TOC-TBM-Charles-River-Regional-Campaign-Report-06252018) and the Central Massachusetts region (TOC-TBM-Central-Massachusetts-Campaign-Report-06252018). UMMS will amplify the "Fowl Water" message by adding links to UMMS' stormwater webpage (BMP 1-2).

Targeted Audience:

- Visitors, students, and staff

Responsible Department/Parties:

- Environmental Health & Safety, Sustainability

Measurable Goal(s):

- Views in Charles River and Central MA Regions

BMP 1-2: Web Page

Description:

UMMS will create and maintain stormwater management page on Growing Green website. The webpage will include stormwater pollution prevention tips, links to ThinkBlue Massachusetts videos and educational materials, and information about UMMS' stormwater management program.

Targeted Audience:

- Visitors, students, and staff

Responsible Department/Parties:

- Environmental Health & Safety, Sustainability

Measurable Goal(s):

- Website views

BMP 1-3: Growing Green Newsletter

Description:

UMMS will post on UMMS Growing Green newsletter about stormwater pollution prevention and will provide a link to UMMS' Growing Green stormwater webpage. This post will be repeated annually, potentially with slight variations in the content. The educational message will focus on general stormwater awareness and pollution prevention (such as ThinkBlue's stormwater 101 materials).

Targeted Audience:

- Visitors, students, and staff

Responsible Department/Parties:

- Environmental Health & Safety, Sustainability

Measurable Goal(s):

- Followers, likes, shares, and comments

BMP 1-4: Stormwater Fact Sheet

Description:

UMMS will set up a table with stormwater education materials, including a stormwater fact sheet, and other educational media (such as the Think Blue video) at its annual Earth Day event.

Targeted Audience:

- Visitors, students, and staff

Responsible Department/Parties:

- Environmental Health & Safety

Measurable Goal(s):

- Number of people engaged at Earth Day event

BMP 1-5: Contractor Education

Description:

UMMS will provide stormwater awareness and pollution prevention fact sheets to contractors with each purchase order to educate them on stormwater management.

Targeted Audience:

- Contractors

Responsible Department/Parties:

- Facilities Engineering, Facilities Maintenance, and Environmental Health and Safety

Measurable Goal(s):

- Number of Contractors reached

BMP 1-6: Facility Staff Education

Description:

UMMS will provide annual training to facility staff on UMMS's O&M Plan. O&M procedures will include measures such as landscape maintenance to reduce phosphorus loading.

Targeted Audience:

- Facility staff

Responsible Department/Parties:

- Facilities Engineering, Facilities Maintenance, and Environmental Health and Safety

Measurable Goal(s):

- Number of facility staff reached

MCM 2 Public Involvement and Participation

Permit Part 2.3.3

Objective

UMMS' objective for its Public Involvement and Participation program is to engage the public in review and implementation of the SWMP.

Program Overview

The following table summarizes the public involvement and participation BMPs and schedule.

BMP	Schedule by Permit Year (Fiscal Year)				
	1 (FY19)	2 (FY20)	3 (FY21)	4 (FY22)	5 (FY23)
2-1: Public Review of SWMP	x	x	x	x	x
2-2: Earth Day Event	x	x	x	x	x
2-3: E-Waste Recycling Events	x	x	x	x	x

BMP 2-1: Public Review of Stormwater Management Program (SWMP)

Description:

UMMS will post its SWMP online on its Growing Green-Stormwater Management webpage (BMP 1-2) to allow for ongoing public review of its SWMP. The webpage will provide an email address (stormwater@umassmed.edu) for the public to provide comments, ask questions, or report stormwater issues. UMMS will annually share the stormwater management website link in the Growing Green newsletter so the public can easily navigate to the page and review the SWMP. The SWMP will be located at: https://www.umassmed.edu/growinggreen/stormwater-management/.

Responsible Department/Parties:

- Environmental Health & Safety, Sustainability

Measurable Goal(s):

- Post stormwater management plan on website
- Track comments received and resolutions

BMP 2-2: Earth Day Event

Description:

UMMS hosts an annual Earth Day Event at its main campus in Worcester. At the Earth Day event, UMMS will display information about stormwater management and hand out brochures. Specific focus

topics will vary by year and may include volunteer opportunities for pollution prevention. More information is available at https://www.umassmed.edu/growinggreen/earthday/.

Responsible Department/Parties:

- Environmental Health & Safety, Sustainability

Measurable Goal(s):

- Event and volunteer opportunities sponsored/supported annually

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BMP 2-3: E-Waste Recycling Events

Description:

UMMS will host E-waste recycling events on each campus for members of the UMMS community to dispose of electronic waste for recycling purposes.

Responsible Department/Parties:

- Environmental Health & Safety, Sustainability

Measurable Goal(s):

- Number of events hosted annually

MCM 3 Illicit Discharge Detection and Elimination (IDDE) Program

Permit Part 2.3.4

Objective

UMMS' objective for the IDDE program to systematically find and eliminate illicit sources of non-stormwater discharges to its MS4 and to prevent such discharges.

Program Overview

The following table summarizes the IDDE BMPs and schedule.

BMP	Schedule by Permit Year (Fiscal Year)				
	1 (FY19)	2 (FY20)	3 (FY21)	4 (FY22)	5 (FY23)
3-1: Sanitary Sewer Overflow (SSO) Inventory				Initial inventory	x
3-2: Storm Sewer System Mapping	x	x	x	x	Complete phase 1 map
3-3: Written IDDE Program				x	x
3-4: Employee Training	x	x	x	x	x
3-5: Dry Weather Screening					x
3-6: Catchment Investigations (beyond permit term)					
3-7: Wet Weather Screening (beyond permit term)					
3-8: Ongoing Screening (beyond permit term)					

BMP 3-1: Sanitary Sewer Overflow (SSO) Inventory

Description:

UMMS will develop an inventory of sanitary sewer overflows (SSOs) that have occurred on UMMS campuses over the past 5 years and will update that list annually. An SSO is a discharge of untreated sanitary wastewater from a municipal sanitary sewer. While UMMS does not own sanitary sewer lines and is therefore not directly responsible for SSOs, UMMS will identify and report locations and maintain an inventory of SSOs that have occurred on UMMS properties, in coordination with those entities responsible for the sanitary sewer systems.

An overflow or bypass must be reported within 24 hours by phone to MassDEP, EPA, and other relevant parties. Follow up the verbal notification with a written report following MassDEP's Sanitary

Sewer Overflow (SSO)/Bypass notification form within 5 calendar days of the time you become aware of the overflow, bypass, or backup.

DEP 24-hour Emergency Line: 1-888-304-1133		
DEP Northeast Region (978) 694-3215 205B Lowell Street Wilmington, MA 01887	DEP Central Region (508) 792-7650 8 New Bond Street Worcester, MA 01606	EPA New England (617) 918-1510 5 Post Office Square Boston, MA 02109

Responsible Department/Parties:

- Environmental Health & Safety, Facility Engineering & Construction, Facilities Maintenance Services

Measurable Goal(s):

- Complete within 4 years of permit effective date (by June 30, 2022) and update annually thereafter

BMP 3-2: Map of Storm Sewer System

Description:

UMMS will incrementally build a GIS map of its stormwater system, beginning in Permit Year 1. The Phase I map, scheduled to be completed by June 30, 2023, will include:

- Outfalls
- Open channel conveyances (swales, ditches, etc.)
- Interconnections with other MS4s and other storm sewer systems
- UMMS-owned stormwater treatment structures (e.g., detention and retention basins, infiltration systems, bioretention areas, water quality swales, particle separators, oil/water separators, or other proprietary systems)
- Waterbodies identified by name and indication of all use impairments as identified on the most recent EPA approved Massachusetts Integrated List of Waters report
- Initial catchment delineations. A catchment is the area that drains to an individual outfall or interconnection.

The Phase II map, scheduled to be completed by June 30, 2031, will include:

- Outfall spatial location (latitude and longitude with a minimum accuracy of +/-30 feet)
- Pipes
- Manholes
- Catch basins
- Refined catchment delineations. Catchment delineations will be updated to reflect information collected during catchment investigations
- Municipal sanitary sewer system (if available)
- Municipal combined sewer system (if applicable).

Responsible Department/Parties:

- Environmental Health & Safety, Facility Engineering & Construction, Facilities Maintenance Services

Measurable Goal(s):

- Complete Phase 1 map within 5 years of permit effective date (by June 30, 2023) and complete full system map 13 years after permit effective date (by June 30, 2031)

BMP 3-3: Written IDDE Program

Description:

UMMS will develop a written IDDE program, which will include:

- Illicit discharge policy,
- Roles and responsibilities
- SSO inventory
- Assessment and priority ranking of outfalls/interconnections
- Dry weather outfall screening and sampling procedures
- Catchment investigation procedures
- Wet weather sampling procedures
- Training
- Reporting

UMMS will complete initial outfall assessment and ranking in Permit Year 4 (FY2023), using available data. As new data become available through GIS mapping, outfall inspections, and catchment investigations, UMMS will annually update the outfall ranking. Outfalls will be categorized as Problem, High Priority, Low Priority, or Excluded, as defined in the MS4 Permit at Part 2.3.4.7. Outfalls discharging to waterbodies impaired for or with a TMDL for bacteria or pathogens will be categorized as Problem or High Priority.

UMMS will update the IDDE Program annually and will post the Program online on its stormwater management webpage.

Responsible Department/Parties:

- Facility Engineering & Construction, Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Complete the written IDDE Program within 4 years of permit effective date (by June 30, 2022) and update as required

BMP 3-4: Employee Training

Description:

UMMS will add IDDE Program training, including how to recognize and respond to illicit discharges and SSOs, to its annual Spill Prevention, Control, and Countermeasure (SPCC) training. Environmental Health & Safety, Facility Engineering & Construction, Facilities Maintenance Services both On-site and

Off-site, and MBL EH&S Safety Officer employees complete a SPCC training on the anniversary of their hire date.

Responsible Department/Parties:

- Environmental Health & Safety, Facility Engineering & Construction, Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Train annually

BMP 3-5: Dry Weather Screening

Description:

UMMS will conduct in dry weather screening in accordance with outfall screening procedures and permit conditions to identify illicit contributions to the system. Procedures for and findings from dry weather outfall screening will be documented in the written IDDE Program (BMP 3-3). UMMS will complete dry weather screening of all outfalls by June 30, 2024.

Responsible Department/Parties:

- Facility Engineering & Construction, Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Complete within 6 years of permit effective date (by June 30, 2024)

BMP 3-6: Catchment Investigations

Description:

UMMS will implement catchment investigations according to program and permit conditions. Procedures for and findings from catchment investigations will be documented in the written IDDE Program (BMP 3-3). UMMS will complete catchment investigations by June 30, 2031.

Responsible Department/Parties:

- Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Complete within 13 years of permit effective date (by June 30, 2031)

BMP 3-7: Wet Weather Screening

Description:

UMMS will conduct wet weather screening in accordance with outfall screening procedure to identify

illicit discharges to its MS4. Procedures for and findings from wet weather screening will be documented in the written IDDE Program (BMP 3.3). UMMS will complete wet weather screening by June 30, 2031.

Responsible Department/Parties:

- Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Complete within 13 years of permit effective date (by June 30, 2031)

BMP 3-8: Ongoing Screening

Description:

After completion of BMPs 3-5, 3-6, and 3-7, UMMS will continue dry weather and wet weather screening as necessary to identify and eliminate illicit discharges.

Responsible Department/Parties:

- Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Complete ongoing outfall screening upon completion of IDDE program

MCM 4 Construction Site Stormwater Runoff Control

Permit Part 2.3.5

Objective

UMMS' objective for its construction stormwater runoff control program is to minimize or eliminate erosion and maintain sediment on site so that it is not transported in stormwater and allowed to discharge to a water of the U.S. through UMMS' MS4.

Program Overview

The following table summarizes Construction Site Stormwater Runoff Control BMPs and schedule.

BMP	Schedule by Permit Year (Fiscal Year)				
	1 (FY19)	2 (FY20)	3 (FY21)	4 (FY22)	5 (FY23)
4-1: Construction Site Stormwater Runoff Control	x	x	x	x	x
4-2: Project Design and SWPPP Review	x	x	x	x	x
4-3: Site Inspection	x	x	x	x	x

BMP 4-1: Construction Site Stormwater Runoff Control

Description:

As a non-traditional MS4, UMMS does not have the authority to enact an ordinance, bylaw, or other regulatory mechanism regarding construction site stormwater management. The MS4 Permit at Part 5.1.2 stipulates that MS4s without the authority to enact an ordinance should instead have written policies or procedures in place to ensure erosion and sediment control, and control of construction wastes, on projects that disturb one or more acres of land.

UMMS will ensure construction site stormwater management through compliance with the NPDES Construction General Permit. UMMS includes a bid item and special provisions on construction contracts to be advertised for bid which exceed the one-acre land disturbance threshold. The bid item and special provisions require preparation of a Stormwater Pollution Prevention Plan (SWPPP) in accordance with the Construction General Permit.

UMMS will develop more detailed specifications and will continue to include contract bid items and special provisions for construction site stormwater management for projects that disturb one or more acres of land.

Responsible Department/Parties:

- Facility Engineering & Construction, Facilities Maintenance Services both On-site and Off-site,

MBL EH&S Safety Officer

Measurable Goal(s):

- Continue to include bid item and special provisions in applicable projects

BMP 4-2: Project Design and SWPPP Review

Description:

UMMS will continue perform internal reviews of project design work to ensure projects include appropriate erosion and sediment control practices. UMMS will also continue to review construction SWPPPs.

Responsible Department/Parties:

- Facility Engineering & Construction, Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Number of construction starts with Construction General Permit coverage

BMP 4-3: Site Inspection

Description:

UMMS will require contractors to perform site inspections in accordance with NPDES construction general permit requirements. UMMS' Resident Engineer will also observe erosion and sediment controls on construction projects.

Responsible Department/Parties:

- Facility Engineering & Construction, Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Number of construction projects that start with SWPPPs

MCM 5 Post-Construction Stormwater Management in New Development and Redevelopment

Permit Part 2.3.6

Objective

UMMS' objective for its post-construction stormwater management program is to reduce the discharge of stormwater pollutants to its MS4 and receiving waterbodies. This is accomplished by retaining or treating stormwater runoff after construction on new or redeveloped sites, and by ensuring proper maintenance of installed stormwater controls.

Program Overview

The following table summarizes Post-Construction Stormwater Management BMPs and schedule.

BMP	Schedule by Permit Year (Fiscal Year)				
	1 (FY19)	2 (FY20)	3 (FY21)	4 (FY22)	5 (FY23)
5-1: Design Guidelines for New Development and Redevelopment			x		
5-2: As-Built Plans for On-Site Stormwater Control			x	x	x
5-3: Target Properties for Stormwater Retrofits (beyond permit term)					
5-4: Street Design and Parking Lot Guidelines (beyond permit term)					

BMP 5-1: Design Guidelines for New Development and Redevelopment

Description:

UMMS will adopt design guidelines for post-construction stormwater management to meet permit requirements to ensure any stormwater controls or management practices for new development and redevelopment meet the retention or treatment requirements of the MS4 Permit and all applicable requirements of the Massachusetts Stormwater Handbook.

Responsible Department/Parties:

- Facility Engineering & Construction, Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Complete within 3 years of permit effective date (by June 30, 2021).

BMP 5-2: As-Built Plans for On-Site Stormwater Control

Description:

UMMS will continue to require contractors to submit as-built plans. Procedures will require submission of as-built drawings no later than two (2) years after completion of applicable UMMS construction projects. The as-built drawings will depict all on-site controls, both structural and non-structural, designed to manage stormwater associated with the completed site.

Responsible Department/Parties:

- Facility Engineering & Construction, Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Require submission of as-built plans for completed projects.

BMP 5-3: Target Properties for Stormwater Retrofits

Description:

UMMS will identify at least five (5) campus sites that could be modified or retrofitted with stormwater BMPs to reduce the frequency, volume, and pollutant loads of stormwater discharges from its MS4. UMMS will prioritize properties with significant impervious cover that fall within areas discharging to waterbodies with phosphorus impairments. In determining the potential for modifying or retrofitting particular properties, UMMS will consider factors such as maintenance access; subsurface conditions; proximity to water supply, swimming beaches, and shellfish growing areas; and opportunities for public education. UMMS will compile the list of potential retrofits, with five (5) prioritized sites, by the end of Permit Year 6. Beginning with the seventh annual report and in each subsequent annual report, UMMS will identify additional sites that could be retrofitted, to maintain a minimum of five (5) sites in the inventory. UMMS will report on all properties that have been modified or retrofitted with BMPs in each annual report.

Responsible Department/Parties:

- Facility Engineering & Construction, Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Complete within 6 years of permit effective date (by June 30, 2024) and report annually on retrofitted properties.

BMP 5-4: Street Design and Parking Lot Guidelines

Description:

UMMS will review UMMS street and parking lot design standards and other design guidelines that affect the creation of impervious cover. The assessment will help determine if changes to design standards can be made to support low impact design options, such as permeable paving and minimizing impervious surface. If the assessment indicates that changes can be made, the report will include recommendations and proposed schedules to incorporate policies and standards into relevant documents and procedures to minimize impervious cover attributable to parking areas and street designs. UMMS will implement recommendations, in accordance with the schedules contained in the assessment.

Responsible Department/Parties:

- Facility Engineering & Construction, Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Complete within 6 years of permit effective date (by June 30, 2024) and implement recommendations of report.

MCM 6 Good Housekeeping and Pollution Prevention for Permittee Owned Operations

Permit Part 2.3.7

Objective

The objective of UMMS' Good Housekeeping program is to prevent or reduce pollutant runoff from Town facilities and operations.

Program Overview

The following table summarizes Good Housekeeping BMPs and schedule.

BMP	Schedule by Permit Year (Fiscal Year)				
	1 (FY19)	2 (FY20)	3 (FY21)	4 (FY22)	5 (FY23)
6-1: Facilities Inventory				x	x
6-2: Facility O&M Procedures				x	x
6-3: Facility SWPPPs				x	x
6-4: Written MS4 O&M Program				x	x
6-5: Catch Basin Inspection and Cleaning	x	x	x	x	x
6-6: Street and Parking Lot Sweeping	x	x	x	x	x
6-7: Winter Road Maintenance	x	x	x	x	x
6-8: Stormwater Treatment Facility Inspections	x	x	x	x	x

BMP 6-1: Facilities Inventory

Description:

UMMS will create inventory of campus open spaces, buildings and facilities, and vehicles and equipment maintenance and storage areas.

Responsible Department/Parties:

- Facility Engineering & Construction, Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Complete within 4 years of permit effective date (by June 30, 2022) and implement annually.

BMP 6-2: Facility Operations and Maintenance (O&M) Procedures

Description:

UMMS will develop written O&M procedures including all requirements contained in 2.3.7.a.ii for open spaces, buildings and facilities, and vehicle and equipment storage and maintenance areas. The O&M Procedures will include pollution prevention practices specific to each category, as listed below. The O&M procedures will include measures such as landscape maintenance to reduce phosphorus loading to impaired waterbodies, as applicable.

1) Open Space:
    - Use, storage, and disposal of pesticides, herbicides, and fertilizers
    - Lawn maintenance and landscaping
    - Trash container placement and cleanings
    - Erosion control and vegetative cover
2) Buildings and facilities where pollutants are exposed to stormwater runoff:
    - Use, storage, and disposal of petroleum products and other potential stormwater pollutants
    - Employee training
    - Spill prevention plans, if applicable
    - Management of dumpsters and other waste management equipment
    - Sweeping and cleaning around facilities
3) Vehicles and equipment
    - Vehicle storage
    - Management of vehicles with fluid leaks
    - Fueling areas
    - Vehicle wash waters

Responsible Department/Parties:

- Facility Engineering & Construction, Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Complete and implement within 4 years of permit effective date (by June 30, 2022).

BMP 6-3: Stormwater Pollution Prevention Plan (SWPPP)

Description:

UMMS will annually evaluate campus facilities to determine whether any facilities have materials and waste storage or handling that may be exposed to stormwater. UMMS currently does not have any facilities that meet the criteria that would require implementation of facility SWPPPs.

UMMS will continue to implement existing Spill Prevention, Control, and Countermeasure (SPCC) plans.

Responsible Department/Parties:

- Facility Engineering & Construction, Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Annually evaluate applicability of facility SWPPP requirements

BMP 6-4: MS4 Infrastructure O&M

Description:

UMMS will develop a written a program detailing the activities and procedures UMMS will implement so that the MS4 infrastructure is maintained in a timely manner to reduce the discharge of pollutant from the MS4. The written O&M program will include catch basin cleaning (BMP 6-5), street and parking lot sweeping (BMP 6-6), winter road maintenance (BMP 6-7), and stormwater treatment facility inspection (BMP 6-8).

Responsible Department/Parties:

- Facility Engineering & Construction, Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Complete within 4 years of permit effective date (by June 30, 2022).

BMP 6-5: Catch Basin Cleaning

Description:

UMMS will establish a catch basin cleaning program, including documenting annual catch basin cleaning and prioritized areas to be cleaned based on the sensitivity of the area and receiving waters.

During Permit Year 2, UMMS will start to track catch basin sediment depth during routine catch basin cleaning. Inspectors will record sediment depth within catch basin sumps as empty, less than half full, half full, and greater than half full. Catch basins found to have sediment depth greater than half full will be prioritized for cleaning during Permit Year 3. Following two years of data collection, UMMS will complete an optimization analysis to schedule routine inspections, cleaning, and maintenance of catch basins such that the following conditions are met:

- Prioritize inspection and maintenance for catch basins located near construction activities. Clean catch basins in such areas more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings.
- Establish a schedule with a goal that the frequency of routine cleaning will ensure that no catch basin at any time will be more than 50 percent full.
- If a catch basin sump is more than 50 percent full during two consecutive routine inspections/cleaning events, document that finding, investigate the contributing drainage area for sources of excessive sediment loading, and to the extent practicable, abate contributing

sources. Describe any actions taken in annual report.

UMMS will report in each annual report the total number of catch basins, number inspected, number cleaned, and the total volume or mass of material removed from all catch basins.

Responsible Department/Parties:

- Facility Engineering & Construction, Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Clean catch basins on established schedule and report number of catch basins cleaned and volume of material removed annually.

BMP 6-6: Street and Parking Lot Sweeping

Description:

UMMS will sweep all UMMS roads and parking lots a minimum of twice per year (in the fall and spring). UMMS will also sweep more frequently in areas with land uses that generate higher sediment loading and/or where catch basin inspections indicate higher loading rates.

Responsible Department/Parties:

- Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Report on compliance with street sweeping schedule annually

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BMP 6-7: Winter Road Maintenance

Description:

UMMS will establish and implement written procedures for winter road maintenance, including the use and storage of salt and sand. UMMS will minimize the use of sodium chloride and other salts and will evaluate opportunities for use of alternative materials. UMMS will also ensure that snow disposal activities do not result in disposal of snow into waters of the United States.

Responsible Department/Parties:

- Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Report on compliance with winter road maintenance procedures annually

BMP 6-8: Inspection and Maintenance of Stormwater Treatment Structures

Description:

UMMS will establish and implement inspection and maintenance procedures and frequencies of stormwater treatment structures such as water quality swales, detention basins, infiltration structures, and proprietary treatment devices. UMMS will inspect all UMMS-owned stormwater treatment structures (excluding catch basins) annually at a minimum.

Responsible Department/Parties:

- Facilities Maintenance Services both On-site and Off-site, MBL EH&S Safety Officer

Measurable Goal(s):

- Report on compliance with inspection and maintenance of treatment structures per established schedule

TMDLs and Water Quality Limited Waters

The MS4 Permit at Part 2.2 describes additional requirements for MS4s that discharge to waters that are subject to Total Maximum Daily Loads (TMDLs) and/or that discharge to certain water quality limited waters. Specific requirements are detailed in the MS4 Permit Appendix F (for TMDLs) and Appendix H (for impaired waters).

This section identifies UMMS' receiving waterbodies that are impaired or are subject to TMDLs. This section also describes the BMPs that UMMS will implement to meet the MS4 Permit requirements at Part 2.2 and Appendices F and H.

The following table summarizes the additional BMPs that UMMS will implement to meet MS4 Permit Appendix F and Appendix H requirements.

BMP	Schedule by Permit Year (Fiscal Year)				
	1 (FY19)	2 (FY20)	3 (FY21)	4 (FY22)	5 (FY23)
7-1: Charles River Phosphorus Control Plan				x	x
7-2: Lake Phosphorus Control Plans				x	x

Bacteria/Pathogens

Applicable Waterbodies

The following receiving waters are water quality limited due to bacteria or pathogens, and/or have an approved TMDL for bacteria/pathogens. Discharges to these waterbodies are subject to the provisions of MS4 Permit Appendix H Part III and Appendix F at Part III.

UMMS Campus	Receiving Waterbody	Segment ID	TMDL Name
Mattapan	Canterbury Brook via BWSC interconnection	n/a	Final Pathogen TMDL for the Charles River Watershed (CN 0156.0)
Main	Lake Quinsigamond via DCR interconnection	MA51125	n/a

Enhanced BMPs

The following table summarizes the Enhanced BMPs, as described under the MCMs above, that UMMS will implement to meet Appendix H and Appendix F requirements for discharge to bacteria/pathogen impaired waterbodies.

Requirements	Enhanced BMPs
Supplement public education program with an annual message encouraging the proper management of pet waste	This requirement is not applicable to UMMS, as dog walking is not allowed on UMMS campuses
Disseminate educational materials to dog owners at the time of issuance or renewal of a dog license, or other appropriate time	This requirement is not applicable to UMMS, as it does not have the authority to issue dog licenses
Provide information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria or pathogens	This requirement is not applicable to UMMS, as it does not own or operate septic systems
Designate catchments draining to any waterbody impaired for bacteria/pathogens as either Problem Catchments or High Priority in implementation of the IDDE Program.	BMP 3-3: Written IDDE Program • Outfalls discharging to waterbodies with a bacteria or pathogen impairment will be categorized as Problem or High Priority.

Charles River Watershed Phosphorus TMDL

On October 17, 2007, EPA approved the *Final TMDL for Nutrients in the Lower Charles River Basin* (Lower Charles TMDL). The MS4 Permit Appendix F at Part A.I details the requirements that permittees must meet for MS4s that discharge within the Charles River Watershed. UMMS will meet these requirements as described under BMP 7-1 below.

The following receiving waters fall within the Charles River Watershed and are covered by the phosphorus TMDL for the Charles River.

UMMS Campus	Receiving Waterbody	Segment ID	TMDL Name
Mattapan	Canterbury Brook via BWSC interconnection	n/a	Total Maximum Daily Load for Nutrients in the Lower Charles River Basin, Massachusetts (CN 301.0)

BMP 7-1 Charles River Phosphorus Control Plan

Description:

UMMS will develop a phosphorus control plan (PCP) for its Mattapan campus, which discharges within the Charles River Watershed. A PCP is a plan to reduce the amount of phosphorus in stormwater discharges from the MS4 to the Charles River and its tributaries. UMMS will complete the plan according to the phases and schedule outlined in the MS4 Permit Appendix F at Part A.I. Key milestones through Permit Year 8 are summarized below. EPA has specified a 2-year timeline extension for new permittees.

Phase 1 of the PCP Component and Milestones	Completion Date
Legal analysis	4 years after permit effective date
Funding source assessment	5 years after permit effective date
Define scope of PCP (PCP area), baseline phosphorus load, phosphorus reduction requirement, and allowable phosphorus load	6 years after permit effective date
Description of Phase 1 planned nonstructural controls	8 years after permit effective date
Description of Phase 1 planned structural controls	7 years after permit effective date
Description of operation and maintenance program for structural controls	7 years after permit effective date
Phase 1 implementation schedule	7 years after permit effective date
Estimated cost for implementing Phase 1 of the PCP	7 years after permit effective date
Complete written Phase 1 PCP	7 years after permit effective date
Full implementation of nonstructural controls	8 years after permit effective date

Responsible Department/Parties:

- MBL EH&S Safety Officer and MBL Facilities Engineering

Measurable Goal(s):

- Fully implement plan within 22 years of permit effective date

Lake and Pond Phosphorus TMDLs

Between 1999 and 2010 EPA has approved 13 Lake TMDLs completed by MassDEP covering 78 lakes and ponds within the Commonwealth of Massachusetts[1]. Any permittee that discharges to a waterbody segment covered by the Lake TMDLs is subject to the requirements of MS4 Permit Appendix F at Part A.II. UMMS will meet these requirements as described under BMP 7-2 below.

The following receiving waters fall within watersheds covered by the Lakes and Ponds TMDLs.

UMMS Campus	Receiving Waterbody	Segment ID	TMDL Name
Worcester	Lake Quinsigamond	MA51125	Total Maximum Daily Load of Phosphorus for Lake Quinsigamond and Flint Pond (CN 115.0)
222 Maple Ave, Shrewsbury	West Brook	MA51-43*	Total Maximum Daily Load of Phosphorus for Selected Northern Blackstone Lakes (CN 70.1)

BMP 7-2 Lake Phosphorus Control Plans

Description:

UMMS will develop lake phosphorus control plans (LPCP) for each TMDL listed in the table above. A PCP is a plan to reduce the amount of phosphorus in stormwater discharges from the MS4 to impaired waters and their tributaries covered under those TMDLs. UMMS will complete the plans according to the phases and schedule outlined in the MS4 Permit Appendix F at Part A.II. Key milestones through Permit Year 8 are summarized below. EPA has specified a 2-year timeline extension for new permittees.

Phase 1 of the PCP Component and Milestones	Completion Date
Legal analysis	4 years after permit effective date
Funding source assessment	5 years after permit effective date
Define LPCP scope (LPCP area)	6 years after permit effective date
Calculate baseline phosphorus, allowable phosphorus load, and phosphorus reduction requirement	6 years after permit effective date
Description of planned nonstructural and structural controls	7 years after permit effective date
Description of operation and maintenance program	7 years after permit effective date
Implementation schedule	7 years after permit effective date
Cost and funding source assessment	7 years after permit effective date
Complete written LPCP	7 years after permit effective date
Full implementation of nonstructural controls	7 years after permit effective date

Responsible Department/Parties:

- Facilities Engineering & Construction, Facilities Maintenance Services both On-site and Off-site

Measurable Goal(s):

- Fully implement plans within 17 years of permit effective date

[1] Final TMDLs for lakes and ponds can be found at:
http://www.mass.gov/eea/agencies/massdep/water/watersheds/total-maximum-daily-loads-tmdls.html

Assabet River Phosphorus TMDL

On September 23, 2004 EPA approved the *Assabet River Total Maximum Daily Load for Total Phosphorus*[2]. The MS4 Permit Appendix F at Part A.V details the requirements that permittees must meet for MS4s that discharge within the Assabet River Watershed. UMMS will meet these requirements as described under the enhanced BMPs below.

The following receiving waters fall within the Assabet River Watershed and are covered by the phosphorus TMDL for the Assabet River.

UMMS Campus	Receiving Waterbody	Segment ID	TMDL Name
333 South Street, Shrewsbury Campus)	Wetland east of Chestnut Street	n/a	Assabet River Total Maximum Daily Load for Total Phosphorus, Massachusetts (CN 101.0)

Enhanced BMPs

The following table summarizes the Enhanced BMPs, as described under the MCMs above, that UMMS will implement to meet Appendix F requirements for discharges within the Assabet River Watershed.

Requirements	Enhanced BMPs
Supplement public education program with an annual message encouraging the proper disposal of grass clippings and use of flow-release and phosphorus-free fertilizers	BMP 1-6: Facility Staff Education • UMMS will provide annual training to facility staff on UMMS's O&M Plan. O&M Procedures will include measures such as landscape maintenance to reduce phosphorus loading.
Supplement public education program with an annual message encouraging the proper management of pet waste	This requirement is not applicable to UMMS, as dog walking is not allowed on UMMS campuses
Supplement public education program with an annual message encouraging the proper disposal of leaf litter	BMP 1-6: Facility Staff Education • UMMS will provide annual training to facility staff on UMMS's O&M Plan. O&M Procedures will include measures such as landscape maintenance to reduce phosphorus loading.
Supplement new development and redevelopment design guidelines to optimize for phosphorus removal and consideration of BMPs that infiltrate stormwater where feasible	BMP 5-1: Design Guidelines for New Development and Redevelopment • Design guidelines for projects located at the Shrewsbury campus will include optimization for phosphorus removal and prioritization of infiltration practices where feasible
Establish program to properly manage grass cutting and leaf litter on permittee property	BMP 6-2: Facility Operations and Maintenance (O&M) Procedures • O&M Procedures will include measures such as

[2] Massachusetts Department of Environmental Protection, 2004. *Assabet River Total Maximum Daily Load for Total Phosphorus.* CN 201.0

	landscape maintenance to reduce phosphorus loading.
Sweep streets and parking lots twice per year	BMP 6-6: Street and Parking Lot Sweeping • UMMS roads and parking lots will be swept twice per year (in the fall and spring).

Annual Evaluation

This section will be updated annually as annual reports are completed.

Year 1 Annual Report
https://www3.epa.gov/region1/npdes/stormwater/ma/reports/2019/umass-medical-school-ma-ar19.pdf

Year 2 Annual Report
Document Name and/or Web Address:

Year 3 Annual Report
Document Name and/or Web Address:

Year 4 Annual Report
Document Name and/or Web Address:

Year 5 Annual Report
Document Name and/or Web Address:

Appendix A – Delegation of Authority

University of Massachusetts
UMASS Medical School

Office of the Executive Vice Chancellor for Administration and Finance
University of Massachusetts Medical School
55 Lake Avenue North, S1-349
Worcester, MA 01655-0002 USA
508.856.2199 (office) 508.856-8181 (fax)

June 21, 2019

MEMO TO FILE

Re: Documentation for delegation of "Authorized Representative" for NPDES 2016 Massachusetts Small Municipal Separate Storm Sewer System (MS4) General Permit

This document serves to affirm that **John Baker** has responsibility for the operation of the MS4 and is hereby designated as an authorized person for signing all reports including but not limited to the Stormwater Management Plan (SWMP), Stormwater Pollution Prevention Plans (SWPPPs), inspection reports, annual reports, monitoring reports, reports on training, and other information required by the General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) in Massachusetts for University of Massachusetts Medical School. This authorization cannot be used for signing a NPDES permit application (e.g., Notice of Intent (NOI)) in accordance with 40 CFR 122.22).

By signing this authorization, I confirm that I meet the following requirements to make such a designation as set forth in Part B.11 of Appendix B of the Small MS4 General Permit:

> *For a municipality, state, federal, or other public agency: By either a principal executive officer or ranking elected official.*

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

6-24-19

John Lindstedt
Executive Vice Chancellor, Administration and Finance

Date

Appendix B – IPaC Resource Lists

Worcester Main Campus

Includes pages 1 - 3 showing location and endangered species (excludes pages 4 – 9 listing of migratory birds, USFWS facilities, and NWI wetlands)

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Worcester County, Massachusetts

Local office

New England Ecological Services Field Office

(603) 223-2541
(603) 223-0104

70 Commercial Street, Suite 300
Concord, NH 03301-5094

http://www.fws.gov/newengland

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species

[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are

333 South Street, Shrewsbury Campus

Includes pages 1 - 3 showing location and endangered species (excludes pages 4 – 10 listing of migratory birds, USFWS facilities, and NWI wetlands)

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

IPaC resource list

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Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Worcester County, Massachusetts

Local office

New England Ecological Services Field Office

(603) 223-2541
(603) 223-0104

70 Commercial Street, Suite 300
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Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species

[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act [1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are

222 Maple Avenue Shrewsbury Campus

Includes pages 1 - 3 showing location and endangered species (excludes pages 4 - 9 listing of migratory birds, USFWS facilities, and NWI wetlands)

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

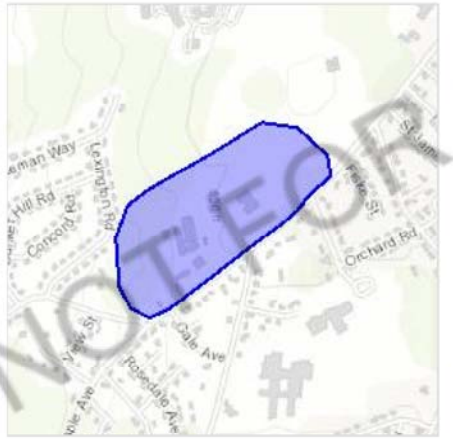
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Worcester County, Massachusetts



Local office

New England Ecological Services Field Office

(603) 223-2541
(603) 223-0104

70 Commercial Street, Suite 300
Concord, NH 03301-5094

http://www.fws.gov/newengland

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species

[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

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MassBiologics Mattapan Campus

Includes pages 1 - 2 showing location and endangered species (excludes pages 3 - 13 listing of migratory birds, USFWS facilities, and NWI wetlands)

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Location

Suffolk County, Massachusetts

Local office

New England Ecological Services Field Office

(603) 223-2541
(603) 223-0104

70 Commercial Street, Suite 300
Concord, NH 03301-5094

http://www.fws.gov/newengland

Endangered species

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2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

THERE ARE NO ENDANGERED SPECIES EXPECTED TO OCCUR AT THIS LOCATION.