



University of Massachusetts Amherst

Storm Water Management Program (SWMP)

Per the General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in the Commonwealth of Massachusetts

Permit # MAR042056 (“non-traditional” state owned property)

June 28, 2019

Revised September 13, 2019

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2 BACKGROUND

2.1 THE STORM WATER MANAGEMENT PROGRAM (SWP)

This Storm Water Management Program is a planning document that will help the University manage storm water run-off that enters our storm water drainage system. This system known technically as the “municipal separate storm sewer system” (MS4) empties, most often untreated, into brooks, rivers, ponds, lakes and eventually the ocean. The purpose of the MS4 system is to prevent flooding of our buildings and infrastructure. Unfortunately, these systems can also carry pollutants such as silt, chemicals, trash and any other material found on lawns, streets and parking lots, which can harm the fauna utilizing our water bodies. This program describes our system as well as prevention activities and measures. In summary, it includes the following:

- A public education program to help our students, staff, contractors and visitors understand their role in keeping our storm systems clean
- Provides opportunities for our public to participate and provide comments and suggestion to our storm water program
- Plans to find unauthorized or problematic discharges to our MS4 and correct these discharges
- The UMA approach to ensure that construction projects implement effective best management practices to control runoff from their sites, especially silt and debris.
- Procedures to ensure effective storm water infrastructure and controls are included in the design of new and re-development projects and that the maintenance of the newly installed controls are added to our preventive maintenance system
- A program detailing pollution prevention activities such as proper storage, street sweeping, catch basin cleaning, and maintaining a trained and properly equipped spill cleanup team

2.2 REGULATORY BACKGROUND

On May 1, 2003, EPA Region 1 issued its Final General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (2003 small 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. Under the 2016 MS4 general permit, which became effective on July 1, 2018, the town of Amherst was added as an urbanized area, thus UMass Amherst falls under the “non-traditional General Permit# MAR042056. The permit expires on July 1, 2023. The permit is issued and managed by both the US Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MADEP).

On September 27, 2018, UMass submitted a Notice of Intent (NOI). The NOI can be viewed at the website:

<https://www3.epa.gov/region1/npdes/stormwater/ma/ntms4noi/umass-amherst.pdf>

On July 2, 2019, UMass received the authorization to discharge from our MS4 from EPA under Permit # MAR042056.

3 OVERVIEW

The University is located in Hampshire County with the main campus located in Amherst and Hadley Massachusetts. UMA also owns satellite areas throughout the state of Massachusetts. However only the main campus and the Mount Ida Campus are located in urbanized areas with runoff into a waterbody. Note that the UMA Central Heating Plant is covered under the NPDES 2015 Multisector General Permit.

3.1 STAFF ORGANIZATION

Name: Niels laCour Title: Senior Physical Planner
 Department: Campus Planning Phone# (413) 577-1723 Email: nplacour@cp.umass.edu
 Responsibilities: SWMP Team Co-Coordinator

Name: Theresa Wolejko Title: Asst Director, Environmental & HazMat Services
 Department: Env Health & Safety Phone# (413) 545-2682 Email: twolejko@ehs.umass.edu
 Responsibilities: SWMP Co-Coordinator, Plan updates, Environmental and testing, review endangered species annually

Name: Jason Venditti Title: Project Executive
 Department: Design & Constr Mgmt Phone# (413) 545-1383 Email: venditti@umass.edu
 Responsibilities: Campus Construction and Utilities

Name: Pamela Monn Title: Assistant Director, Buildings and Ground
 Department: Physical Plant Phone# (413) 545-6478 Email: psmonn@facil.umass.edu
 Responsibilities: Maintenance

Name: Ezra Small Title: Campus Sustainability Manager
 Department: Physical Plant Phone# (413) 545-0799 Email: esmall@facil.umass.edu
 Responsibilities: Public Outreach

3.2 RECEIVING WATERS

The following table lists all receiving water, impairments and number of outfall discharging to each waterbody segment. Currently UMA does not directly discharge to a listed impaired water.

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
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
UMA: Hawley Brook (Tilson Farms)	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
UMA: Unnamed Wetlands (North Village Wetlands)	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
UMA: Unnamed Brook (Wysocki Brook)	5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
UMA: Tan Brook (Mid West Campus)	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
UMA: Tan Brook (Campus pond)	6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
UMA: Unnamed Brook (Stadium Brook)	4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
UMA: Unnamed Wetland (Midwest Campus)	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Mt Ida: Unnamed pond	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

3.3 ENDANGERED AND THREATENED SPECIES AND CRITICAL HABITAT

3.3.1 Species Present at UMass

UMass assessed whether any endangered species, threatened species or critical habitat can be found on our main campus and at our Mt Ida campus as part of the covered MS4 areas. In 2018 the US Fish and Wildlife Service's "Information for Planning and Consultation" (IPaC) online system was utilized to determine if we have any endangered species, threatened species or critical habitat on our campus for the NOI. The IPaC website can be found at:

<http://ecos.fws.gov/ipac/>

Environmental Health and Safety will review this document annually.

The last review date: June 28, 2019

According to IPaC the following Species have been found on campus:

- The Northern Long-Eared Bat (*Myotis septentrionalis*): Threatened
- The Small Whorled Pogonia (*Isotria medeoloides*): Threatened
- There are no listed critical habitats at this time

UMass determined eligibility for the Endangered Species Act (ESA) under "Criterion C". "Using the best scientific and commercial data available, the effect of the storm water 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 affect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the USFWS."

3.3.2 Measures to Protect Threatened Species

1. Consultations for Endangered Species Act will be made prior to construction activities
2. Annual Review of IPaC and affected habitat
3. Public Education: The following document will be displayed at a minimum on the EHS website and Sustainability Website

ENDANGERED SPECIES



These species are found on or near our community.

They are either endangered or threatened. Help mother nature allow the Northern Long-Eared Bat, the Puritan Tiger Beetle, the Dwarf Wedgemussel, and the Small Whorled Pogonia make a come back!!



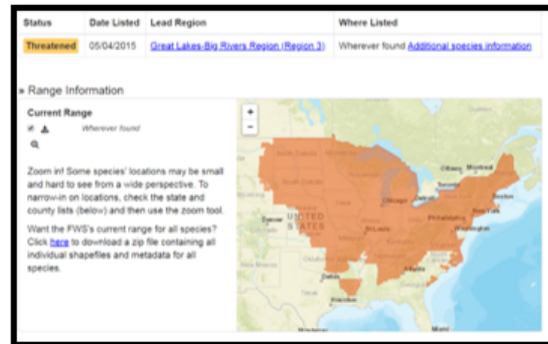
Northern Long-Eared Bat (*Myotis septentrionalis*) Found in this region

Information obtained from the US Fish and Wildlife Service

The northern long-eared bat is a medium-sized bat about 3 to 3.7 inches in length but with a wingspan of 9 to 10 inches. As its name suggests, this bat is distinguished by its long ears, particularly as compared to other bats in its genus, *Myotis*, which are actually bats noted for their small ears (*Myotis* means mouse-eared). The northern long-eared bat is found across much of the eastern and north central United States and all Canadian provinces from the Atlantic coast west to the southern Northwest



Territories and eastern British Columbia. The species range includes 37 states. White-nose syndrome, a fungal disease known to affect bats, is currently the predominant threat to this bat, especially throughout the Northeast where the species has declined by up to 99 percent from pre-white-nose syndrome levels at many hibernation sites. Although the disease has not yet spread throughout the northern long-eared bat's entire range (white-nose syndrome is currently found in at least 25 of 37 states where the northern long-eared bat occurs), it continues to spread. Experts expect that where it spreads, it will have the same impact as seen in the Northeast.



Tiger beetle, Puritan Wherever found (*Cicindela puritana*) Not on Campus, but can be found nearby in Hadley

Information obtained from the US Fish and Wildlife Service

Tiger beetles are a family of insects that are voracious predators, capturing other invertebrates in a tiger-like manner. The Puritan tiger beetle, brownish bronze above with a metallic blue underside and narrow white lines on each wing, measures under ½ inch in length. This species was Federally listed as threatened throughout its range in 1990.



The Puritan tiger beetle is found in only two regions: along the Chesapeake Bay in Maryland and along the Connecticut

River in New England. The Puritan tiger beetle populations in these two regions have probably been separated for thousands of years and have developed significant genetic and ecological differences.

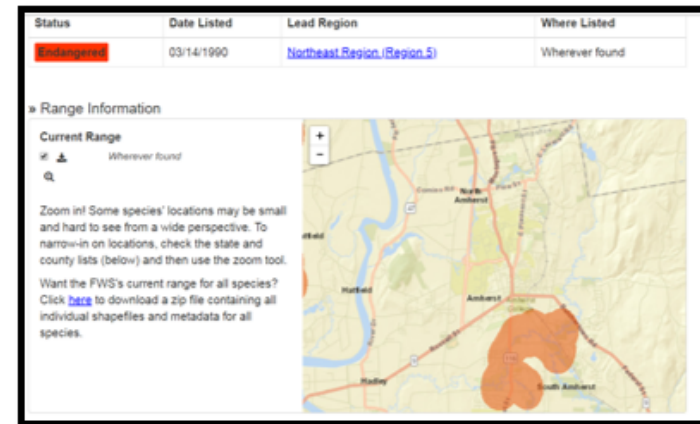
In New England, only a few small populations, comprising a single metapopulation (a group of spatially separated subpopulations of the same species which interact at some level) of Puritan tiger beetles remain in New England; one along the Connecticut River, near Hadley, Massachusetts and the others near Cromwell, Connecticut. Because of dam-building and modifications of the Connecticut River, only a remnant of the once extensive Puritan tiger beetle populations remains there. In New England, Puritan tiger beetle distribution follows the sand and clay deposits formed by glacial lakes during the last ice age.

Successful propagation of Puritan tiger beetles has been developed through research at the University of Massachusetts and Randolph Macon College. Translocation of propagated Puritan tiger beetle larvae has been attempted at cliffs along the Chesapeake Bay, but was not successful, possibly due to vandalism at the translocation site. The Service intends to continue work with translocating propagated Puritan tiger beetle larvae, particularly along the Connecticut River in New England, where unoccupied sites with good potential habitat have been identified.

Dwarf wedgemussel (*Alasmodonta heterodon*) Not on Campus, but can be found in the Fort River

Information obtained from the US Fish and Wildlife Service

The dwarf wedgemussel is a small bivalve, rarely exceeding 45 mm in length. Clean young shells are usually greenish-brown with green rays. As the animal ages, the shell color becomes obscured by diatoms or mineral deposits and appears black or brown. The shell is thin but does thicken somewhat with age, especially toward the anterior end. Maximum age for the dwarf wedgemussel is around twelve years. The species is a bradyctictic breeder, meaning that females become gravid in the early fall and glochidia are released by mid-spring. The tessellated darter (*Etheostoma olmstedi*), johnny darter (*Etheostoma nigrum*), and mottled sulpin (*Cottus bairdi*) have been identified as hosts for the dwarf wedgemussel. An anadromous fish may also serve as a host species but this has not been documented for the dwarf wedgemussel in the southern portion of its range.



The dwarf wedgemussel appears to be a generalist in terms of its preference for stream size, substrate and flow conditions – it inhabits small streams less than five meters wide to large rivers more than 100 meters wide; it is found in a variety of substrate types including clay, sand, gravel and pebble, and sometimes in silt depositional areas near banks; and it usually inhabits hydrologically stable areas, including very shallow water along streambanks and under root mats, but it has also been found at depths of 25 feet in the Connecticut River. Dwarf wedgemussels are often patchily distributed in rivers. It is known from 54 locations in 15 major watersheds, with the largest populations in the Connecticut River watershed.

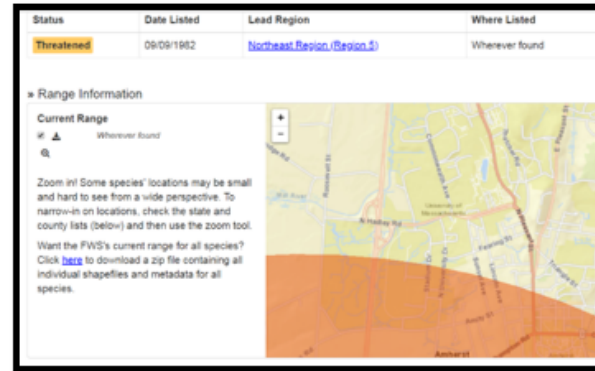
Short life spans, low fecundity, high degree of host specificity, limited dispersal ability of its primary host, low population densities, coupled with the threats facing the species, likely all contribute to the endangered status of the dwarf wedgemussel.

Small whorled pogonia (*Isotria medeoloides*) – Found on Southern part of Campus

Information obtained from the US Fish and Wildlife Service



Small whorled pogonia in Guilford County, NC. Photo by David McAadoo, CC BY-NC 2.0.



Small-whorled pogonia has a greenish-white stem that grows to between three and 13 inches tall. It gets its common name from the five or six grayish-green leaves that are displayed in a single whorl around the stem.

When the leaves are well developed, a single flower or sometimes a pair rises from the center of the circle of leaves. The flowers are yellowish-green with a greenish-white lip. Each flower has three sepals of equal length that spread outward. The flowers are scentless, lack nectar, and are primarily self-pollinating. The pogonia produces fruit that ripens in the fall. The seeds contain very little food reserves and therefore need to fall on soil containing with mycorrhizal fungi in order for the seed to germinate and seedlings to become established. An over-wintering vegetative bud may form in late August or September. Occasionally small whorled pogonia will reproduce vegetatively, without the use of seeds.

Small whorled pogonia can be limited by shade. The species seems to require small light gaps, or canopy breaks, and generally grows in areas with sparse to moderate ground cover. Too many other plants in an area can be harmful to this plant. This orchid typically grows under canopies that are relatively open or near features that create long-persisting breaks in the forest canopy such as a road or a stream. It grows in mixed-deciduous or mixed-deciduous/coniferous forests that are generally in second- or third-growth successional stages. The soils in which it lives are usually acidic, moist, and have very few nutrients.

How you can help

- Tread lightly and stay on designated trails. On some popular mountains, the vegetation has virtually been destroyed by human trampling.
- Do not disturb or touch small whorled-pogonia. The salts on your hands may attract slugs, which are serious pests for the orchid.

3.4 HISTORIC PROPERTIES

UMass has one building that is listed in the National Register of Historic Properties List.

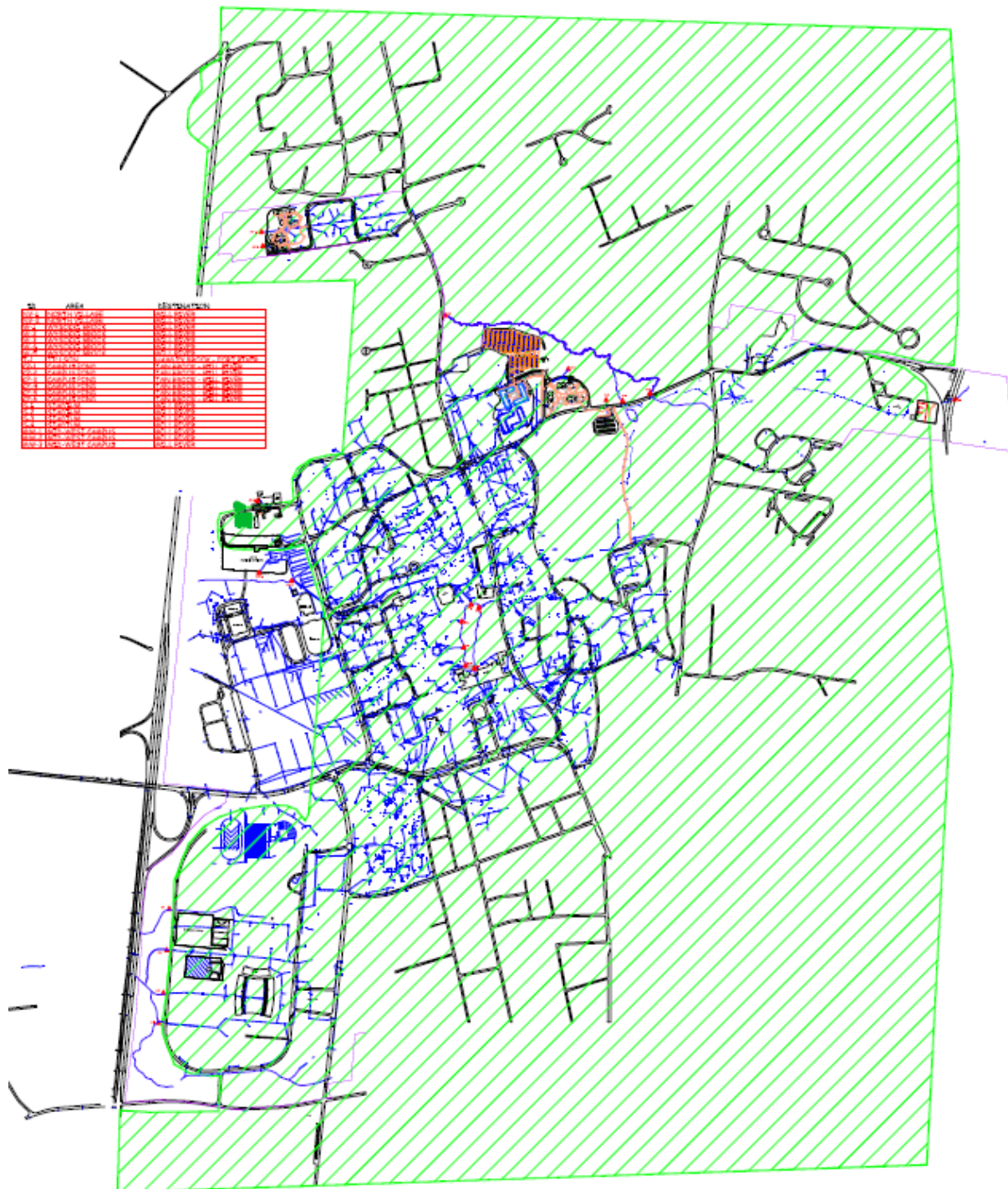
The University of Massachusetts Amherst's Old Chapel, built in 1885, is the iconic landmark at the heart of the Commonwealth's flagship campus. It was added to the National Register of Historic Places in 2015. It is located adjacent to the campus pond, which is part of Tan Brook and noted as UMA: Tan Brook (Campus Pond) on our MS4 map. The Old Chapel is higher in elevation than the pond, and other infrastructure would flood before getting to this location. The Pond Management Plan outlines the controls for the Campus Pond level in order to protect infrastructure and the chapel from flooding.

UMass determined that it meets eligibility under Criterion A. "The discharges do not have the potential to cause effects on historic properties."



3.5 MAP OF SEPARATE STORM SEWER SYSTEM

See [attached link for a pdf "Outfalls Urban area overlay 2018 09"](#)

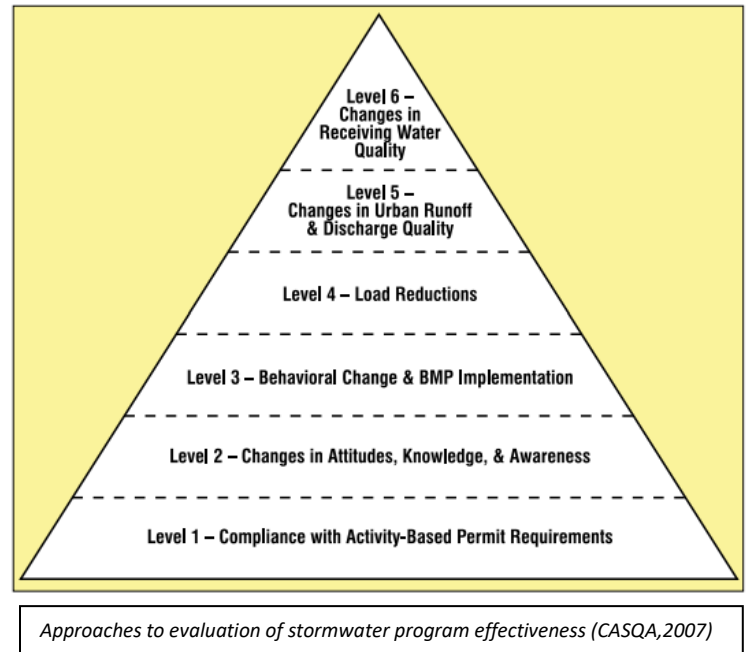


4 ANNUAL PROGRAM SELF-EVALUATION / REPORT & RECORD KEEPING

Annually, the University is required to collect and report information about the development and implementation of its Stormwater Management Program (SWMP). Over time, this will show the effectiveness of our program by measuring program operations, social indicators and water quality.

The annual evaluation will include

- Program compliance,
- The appropriateness of our Best Management Practices (BMPs)
- The status on permit requirements and progress towards achieving identified measurable goals, which includes reducing the discharge of pollutants to the maximum extent practicable (“MEP”).
- This will be documented in the Annual Report.



Annual reports are due to the EPA and MassDEP each year within 90 days (September 30th) of the close of the permit year (July 1st). Reports shall be submitted to the following addresses:

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 Civian

UMA will keep records required by the MS4 General Permit for at least five (5) years after they are generated. Records include, but not limited to: information used in the development of any written (hardcopy or electronic) program required by this permit, any monitoring results, copies of reports, records of screening, follow-up and elimination of illicit discharges; maintenance records; inspection records; and data used in the development of the notice of intent, SWMP, SWPPP, and annual reports. Records will be available for public observation as requested.

5 WATER QUALITY STANDARDS

5.1 IMPAIRED WATERS

Discharges to waterbodies with approved Total Maximum Daily Load (TMDL) or to water quality limited water bodies, or discharges causing or contributing to impairment have additional requirements in parts 2.1 and 2.2 of the MS4 General Permit. Waters exhibiting impairment for one or more uses are placed in either Category 4 (impaired, but not requiring TMDLs) or Category 5 (impaired, and requiring one or more TMDLs) according to the EPA guidance. Category 4 is further divided into three sub-categories – 4a, 4b and 4c – depending upon the reason that TMDLs are not needed. Category 4a includes waters for which the required TMDL(s) have already been completed and approved by the EPA. Categories 1-3 include those waters whose designated uses are either supported or not assessed.

5.2 LAKE WARNER SEGMENT MA34098 (PHOSPHORUS)

The University MS4 discharges to the town of Amherst and Hadley's MS4, Tan Brook and various unnamed brooks which discharge into the Mill River, which is a tributary to Lake Warner. Lake Warner, located in Hadley, is listed under Category 4A and has a TMDL for Phosphorous. Therefore, the University must develop a Lake Phosphorus Control Plan (LPCP), according to Appendix F Part A.II, designed to reduce the amount of phosphorus in our storm water discharge to the Mill River by the required percent reduction of 24%. See Section 9.

5.3 LONG ISLAND SOUND (NITROGEN)

The University MS4 discharges to the town of Amherst and Hadley's MS4, Tan Brook and various unnamed brooks, that discharge into the Mill River, which is a tributary to the Connecticut River, which in turn is a tributary to the Long Island Sound. Long Island Sound has an approved TMDL for nitrogen. Thus, the University must comply with Appendix F Part B.I which includes:

1. Enhanced BMPs in addition to the requirements of part 2.3 of the Permit. The requirements are listed in Section 5 of this plan.
2. Create a Nitrogen Source Identification Report (See Section 10)
3. Evaluate structural BMPs to reduce Nitrogen

5.4 MILL RIVER SEGMENT MA34-25 (E-COLI)

The University MS4 discharges to the town of Amherst and Hadley's MS4, Tan Brook and various unnamed brooks, which discharge to the Mill River. The Mill River is listed as a Category 5 water on the 303(d) List – "Waters requiring a TMDL" as having an impairment for Escherichia coli (e-Coli). The University's MS4 does not directly discharge to the Mill River and the town of Amherst and Hadley are not listed in 2.2.2.a-b. Therefore, the University is not subject to the provisions of appendix H. Note that the University of Massachusetts' Central Heating Plant is covered under the EPA NPDES Multisector General Permit and the discharge is monitored for e-coli once per year.

5.5 FORT RIVER SEGMENT MA34-27 (E-COLI)

The University MS4 discharges to Hawley brook, which discharges to Adams Brook, which discharges to Fort River. The Fort River is listed as a Category 5 water on the 303(d) List – “Waters requiring a TMDL” as having an impairment for Escherichia coli (e-Coli). The University’s MS4 does not directly discharge to the Fort River and the town of Amherst is not listed in 2.2.2.a-b. Therefore, the University is not subject to the provisions of appendix H.

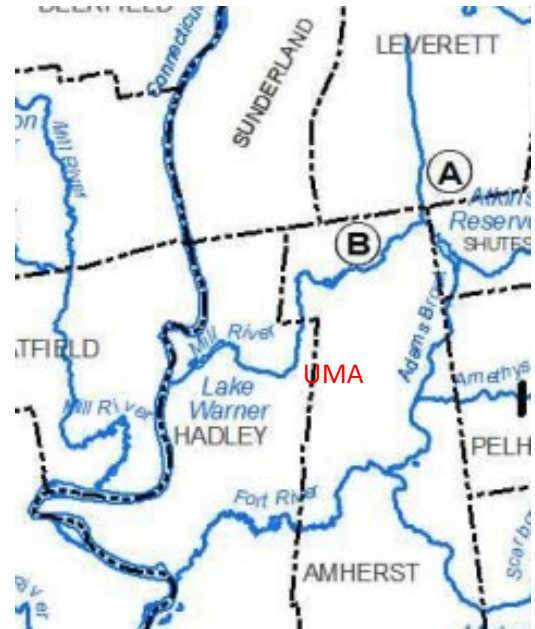
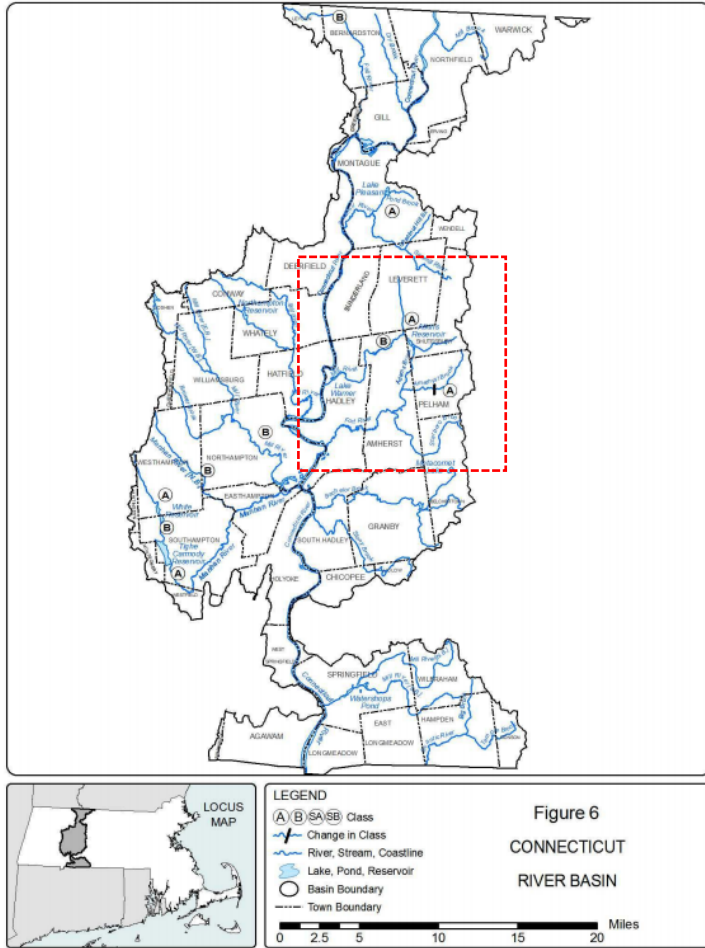
5.6 INCREASED DISCHARGES

The University of Massachusetts shall comply with the provisions of 314 CMR 4.04 including information submittal requirements and obtaining authorization for increased discharges where appropriate. Any authorization of an increased discharge by MassDEP shall be incorporated within this SWMP.

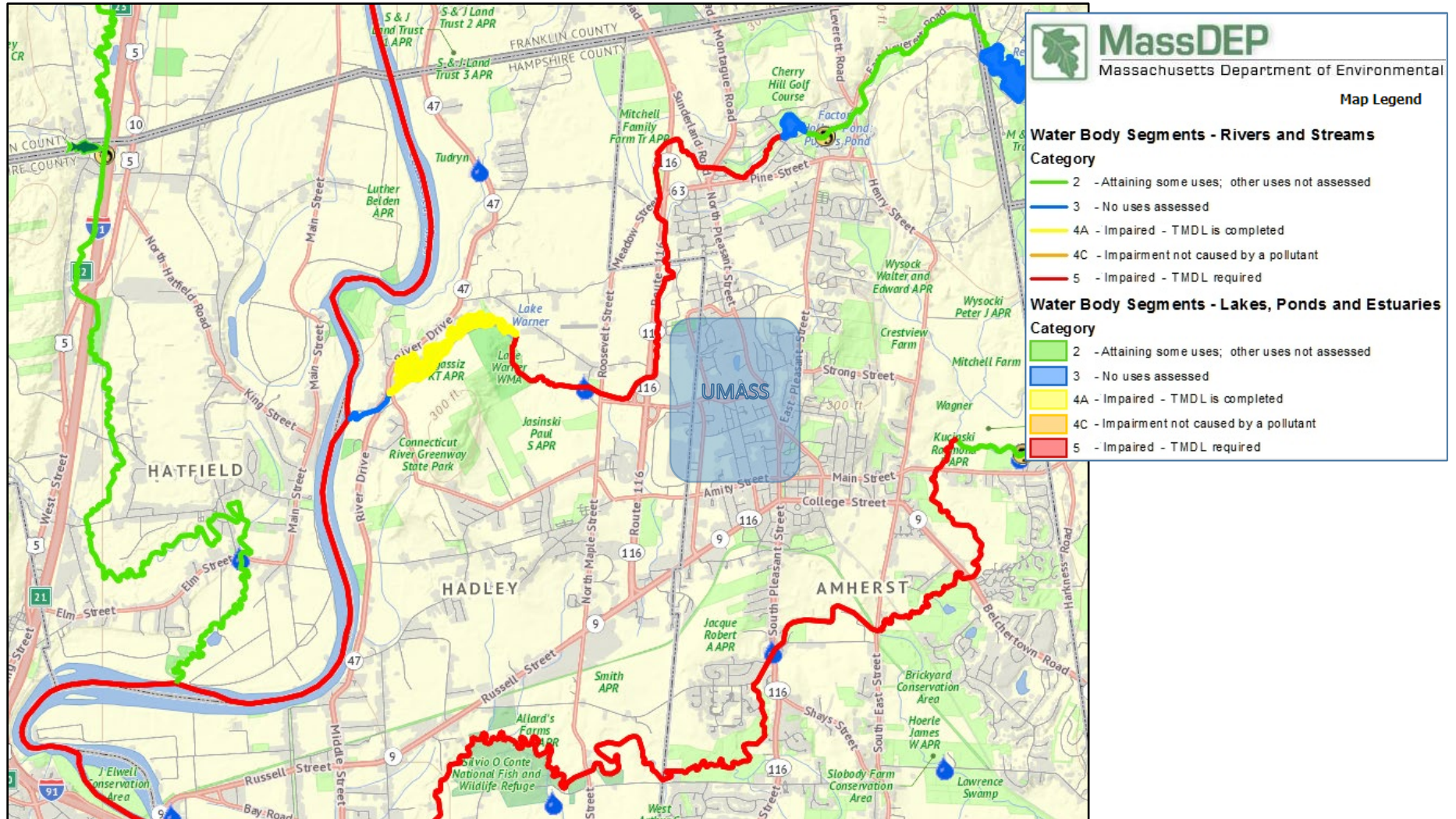
There shall be no increased discharges, including increased pollutant loading(s) from the MS4 to impaired waters listed in categories 5 or 4b on the most recent Massachusetts Integrated Report of waters listed pursuant to Clean Water Act section 303(d) and 305(b) unless the discharger demonstrates that there is no net increase in loading from the MS4 to the impaired water of the pollutant(s) for which the waterbody is impaired. If necessary, the University will demonstrate compliance with this provision by either:

- Documenting that the pollutant(s) for which the waterbody is impaired is not present in the MS4’s discharge and retaining documentation of this finding with the SWMP; or
- Documenting that the total load of the pollutant(s) of concern from the MS4 to any impaired portion of the receiving water will not increase as a result of the activity and retaining documentation of this finding in the SWMP. Unless otherwise determined by the U.S. EPA or by MassDEP that additional demonstration is necessary, compliance with the requirements of the MS4 General Permit that address “Discharges to Certain Water Quality Limited Waters” (Section 2.2.2 of the MS4 General Permit) and Control Measures associated with regulation of Stormwater Management in New Development and Redevelopment of this Permit, including all reporting and documentation requirements, are considered as demonstrating no net increase or increased discharge.

Connecticut River Basin



2014 Integrated List of Waters Map



6 CONTROLS TO REDUCE POLLUTANTS – BMPs, GOALS & IMPLEMENTATION SCHEDULE

The following sections describe best management practices that UMass will implement to reduce pollution from entering the UMass Separate Storm Sewer System.

6.1 PUBLIC EDUCATION AND OUTREACH (PERMIT SECTION 2.3.2)

Objective: To implement an education program that includes educational goals based on stormwater issues of significance within the MS4 area. The ultimate objective is to increase knowledge and change behavior of the public so that the pollutants in storm water are reduced.

BMP ID#	BMP Description	Permit Section Reference	Measurable Goal(s)	Responsible Party	Deadlines
PE-1	Develop a public education and outreach program	2.3.2.a	Develop educational messages utilizing information from 2.3.2.d. <ul style="list-style-type: none"> Identify steps and/or activities that the public can take to reduce the pollutants in storm water runoff and their impacts to the environment Document type of audiences as it relates to a College setting for (1) residential, (2) businesses, institutions, and commercial facilities, (3) developers and construction Document the absence of industry 	Terri	6/30/19 Update annually
PE-2	Develop or update storm water related web pages on the Env Health & Safety (EHS), Facility and Campus Services (FCS) and the sustainability web pages	2.3.2.c	Content brochures and links have been added to website <ul style="list-style-type: none"> Create specific content for (1) students, parents, general staff and visitors (2) maintenance staff and auxiliary Services (3) developers and construction Link to PVPC Connecticut River Storm water Committee 	Terri and Ezra	6/30/19 Update annually
PE-3	Deliver targeted educational messages via the websites for (1) students, parents, general staff and visitors (2) maintenance staff and auxiliary Services (3) developers and construction	2.3.2.c	<ul style="list-style-type: none"> Evaluate number of hits on the sites Keep track of added or updated Content on the Sites 	Niels	6/30/20

PE-4	Hold training classes for Physical Plant (Business) which includes storm water training	2.3.2.c	Document classes and attendance	Terri	6/30/20
PE-5	Hold Pre-construction meetings for contractors (Contractors)	2.3.2.c	Document classes and attendance	Terri	6/30/20
PE-6	Environmental related meetings, clubs and classes include storm water related content	2.3.2.c	<ul style="list-style-type: none"> • Creation of a database of relevant professors and organizations • Reach out to contacts • Record storm water information given, method given and to whom 	Niels	6/30/19
PE-7	Earth Day Event to include Storm Water Information	2.3.2.c	Successful Event – general amount of attendance and type of attendees (staff, students, visitors, contractors) Critique of event	Terri Niels and Ezra	6/30/20
PE-8	Bid Specifications contain Storm Water Requirements	2.3.2.c	Evaluate and update as needed	Terri and Jason	6/30/20
PE-8	Deliver Supplemental educational messages in areas that discharge to Nitrogen impaired waterbodies (Lake Warner)	2.2.1.c.i and Appendix F part B.I	<ul style="list-style-type: none"> • Distribute an annual message in the spring (April/May) timeframe that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release fertilizers. • Distribute an annual message in the summer (June/July) timeframe encouraging the proper management of pet waste, including noting any existing ordinances where appropriate. • Distribute an annual message in the Fall (August/September/October) timeframe encouraging the proper disposal of leaf litter. 		

6.2 PUBLIC INVOLVEMENT AND PARTICIPATION (PERMIT SECTION 2.3.3)

Objective: Provide opportunities to engage the public in the review and implementation of the SWMP.

BMP ID#	BMP Description	Permit Section Reference	Measurable Goal(s)	Responsible Party	Deadlines
PI-1	Provide opportunities for the public to review and comment on the SWMP (Encourage comments on the website)	2.3.3.a	Document public comments and participation	Niels and Terri	Annual
PI-2	Public Meeting for annual review of SWMP (post the date on the website)	2.3.3.b & c	Document public comments and participation	Niels and Terri	Annual
PI-3	Website documentation and training on handling of solid wastes and universal wastes	2.3.3.a	Procedures on the website Number of training Classes Owl On-line Trainings taken	Terri	Annual
PI-4	Hazardous Waste Pickups	2.3.3.a	Document the number of hazardous waste requests	Terri	Annual
PI-5	Environmental Classes (reach out to professors for Storm water discussion items)	2.3.3.a	Class Schedules Document Discussion items	Niels	6/30/20
PI-6	Discussions for Establish clubs or organizations Possibly part of eco-rep, UMass Water Resource Research Center	2.3.3.a	Agenda Item and Minutes, reports	Ezra and Niels	6/30/20

6.3 ILLICIT DISCHARGE DETECTION AND ELIMINATION “IDDE” (PERMIT SECTION 2.3.4)

Objective: Implement an IDDE program to systematically find and eliminate source of non-storm water discharges to its municipal separate storm sewer system and implement procedures to prevent such discharges

BMP ID#	BMP Description	Permit Section Reference	Measurable Goal(s)	Responsible Party	Deadlines
ID-1	Develop a Sanitary Sewer Overflow (SSO) Inventory in accordance of permit conditions	2.3..4.4	Current drawings indicate that we do not have any on campus If identified in the field, notify EPA within 24 hours and provide written notice to EPA and Mass DEP within 5 day (See IDDE Plan for details) Completed SSO Inventory form	Jason	At point of discovery
ID-02	Continue to develop storm sewer system map	2.3.4.5	Phase I: Update the system map to include: <ul style="list-style-type: none"> • outfalls and receiving waters, open channel conveyances (swales, ditches) • interconnections with other MS4s and other storm sewer systems • stormwater treatment structures (e.g., detention and retention basins, infiltration systems , bioretention areas, water quality swales, gross particle separators, oil/water separators, or other proprietary systems) • waterbodies as identified on the most recent EPA approved Massachusetts Integrated List of waters report (name and use impairments) • initial catchment delineations (a catchment is the area that drains to an individual outfall or interconnection) 	Niels and Jason	6/30/23
			Phase II: Update the system map annually as the following information becomes available during implementation of catchment investigation procedures: <ul style="list-style-type: none"> • outfall spatial location (latitude and longitude) • pipes • manholes 	Jason	6/30/28

			<ul style="list-style-type: none"> • catch basins • refined catchment delineations • sanitary sewer • combined sewer systems (if available or applicable). 		
			<p>Continuous: Include in map as information becomes available:</p> <ul style="list-style-type: none"> • Storm sewer material, pipe diameter and age • Sanitary sewer system material, pipe diameter and age • Seasonal high water table elevations impacting sanitary alignments • Topography • Orthophotography • Alignments, dates and representation of work completed (with legend) of past illicit discharge investigations (e.g., flow isolation, dye testing, CCTV) • Locations of suspected, confirmed and corrected illicit discharges (with dates and flow estimates) 	Jason	As documented
ID-03	Develop a written IDDE Program Manual	2.3.4.6	Develop a written IDDE Program document that includes at a minimum: Legal authority, statement of responsibilities, outfall/interconnection inventory and initial priority ranking, outfall/interconnection screening and sampling procedures, follow-up ranking, catchment investigation procedures, illicit discharge confirmation and removal procedures, indicators or IDDE Program progress, ongoing screening, and training.	Terri	As soon as possible complete by 6/30/22
ID-03a		2.3.4.6(a) and (b)	Establish legal authority and a statement of responsibilities	Terri	6/30/20 goal
ID-03b		2.3.4.7(a)	Assess and Priority Rank outfalls/Interconnections	Terri	6/30/20 goal
ID-03c		2.3.4.7(b)	Develop a written outfall and interconnection screening and sampling procedure	Terri	6/30/20 goal
ID-03d		2.3.4.8	Develop a systematic procedure to investigate each catchment associated with an outfall or interconnection	Terri	6/30/20
ID-04	Employee training on IDDE Program	2.3.4.11	Provide training at least annually to employees involved in IDDE program including how to recognize illicit discharges and SSOs. (Include the frequency and type of employee training in the annual report)	Terri	annually

ID-05	Implement IDDE Program	2.3.4.6		Terri	6/30/28
ID-05a	Conduct dry weather screening	2.3.4.7	<p>Conduct dry weather screening in accordance with outfall screening procedure and permit condition. Report progress annually</p> <ul style="list-style-type: none"> • Dry weather screening and sampling shall proceed only when no more than 0.1 inches of rainfall has occurred in the previous 24-hour period • Where dry weather flow is found at an outfall/interconnection, at least one (1) sample shall be collected and samples analyzed for: ammonia, chlorine, conductivity, salinity, E. coli surfactants (such as MBAS), temperature, and any pollutants of concern • If no flow is observed, but evidence of illicit flow exists, the permittee shall revisit the outfall during dry weather within one week of the initial observation, if practicable, to perform a second dry weather screening and sample any observed flow <p>Update IDDE Program Manual and reprioritize outfalls and interconnections as necessary</p>		6/30/21 goal
ID-05b	Conduct wet weather outfall/interconnection screening and sampling	2.3.4.8	<p>Conduct wet-weather outfall/interconnection screening in catchments with System Vulnerability Factors prior to initiation of catchment investigation. Provide data annually.</p> <ul style="list-style-type: none"> • Wet weather screening and sampling shall be conducted during or after a precipitation event of sufficient intensity to produce a discharge. Recommended in the Spring. Sample for ammonia, chlorine, conductivity, salinity, E. coli, surfactants, temperature and pollutants of concern 		6/30/28
ID-05c	Conduct catchment investigations	2.3.4.8	<p>Conduct investigations consistent with IDDE Program Manual; inspect key junction manholes and refine mapping information on the location of pipes, manholes, and extent of catchment.</p>		6/30/28
ID-05d	Conduct expeditious removal of verified sources of illicit discharge or SSO and confirmatory screening	2.3.4.8	<p>Upon verification of an illicit discharge, locate, identify, and eliminate the illicit discharge as expeditiously as possible. Where elimination of an illicit discharge within 60 days is not</p>		As found

			possible, establish an expeditious schedule and report the dates of identification and schedule for removal in the annual report. Confirm removal of verified illicit discharges through dry and/or wet sampling.		
ID-06	Evaluate the overall effectiveness of the IDDE program	2.3.4.9	Evaluate and document in the annual report <ul style="list-style-type: none"> the number of SSOs and illicit discharges identified and removed, the number and percent of total outfall catchments served by the MS4 evaluated using the catchment investigation procedure, all dry weather and wet weather screening and sampling results and the volume of sewage removed 		Ongoing, document in annual report
ID-07	Ongoing screening	2.3.4.10	Reprioritize for screening in accordance with part 2.3.4.7.a and schedule for ongoing screening once every five years. Ongoing screening shall consist of dry weather screening and sampling consistent with part 2.3.4.7.b; wet weather screening and sampling shall also be required at outfalls where wet weather screening was required due to SVFs		Upon completion of all catchment investigations, then ongoing screening once every 5 years
ID-08	Develop a Lake Phosphorus Control Plan (LPCP)	Appendix F Part A.II	<ul style="list-style-type: none"> Develop a Lake Phosphorus Control Plan (LPCP) 		As prescribed in plan
ID-09	Develop a Nitrogen Source Identification Report	Appendix F Part B.I.1.b	<ul style="list-style-type: none"> Calculation of Total Urbanized Area Mapping of the MS4 and catchment delineations (see ID-02) Dry weather screening (see ID-05a) Impervious Area and Directly Connected Impervious Area (DCIA) to the Mill River Identification, delineation and prioritization of potential catchments with high nitrogen loading Identification of potential structural BMPs 		June 30, 2024 Submit NSIR as part of the year 4 annual report

6.4 CONSTRUCTION SITE STORM WATER RUNOFF CONTROL (PERMIT SECTION 2.3.5)

Objective: The objective of an effective Construction Storm Water Runoff Control Program is to minimize or eliminate erosion and maintain sediment on site so that it is not transported in storm water and allowed to discharge to a water of the U.S. through the MS4.

BMP ID#	BMP Description	Permit Section Reference	Measurable Goal(s)	Responsible Party	Deadlines
CS-1	Develop a construction site runoff control program	2.3.5 (c)	A completed construction and Post Construction site runoff control program	Terri and Jason	June 30, 2021
CS-1a	Establish an ordinance or regulatory mechanism that require the use of sediment and erosion control practices at construction sites	2.3.5 (c) (i)	Review Construction specs (013543 and 015719 - Environmental Protection Procedures and 312500 Erosion and sedimentation control and the Storm Water Pollution Prevention Plan) and update as necessary to meet the requirements of the MS4 General Permit	Terri	June 30, 2021
CS-1b	Develop written construction site storm water runoff control program procedures for site inspections and enforcement of sediment and erosion control measures.	2.3.5 (c) (ii) and 2.3.5 (c) (v)	Create procedures and workflow for site plan review, pre-construction review, receipt and consideration of information submitted by the public, inspections, responsible parties and data tracking	Jason and Terri	June 30, 2021
CS-1c	Requirements for construction site operators to implement <ul style="list-style-type: none"> • a sediment and erosion control program • to control waste (e.g. discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes) 	2.3.5 (c) (iii) and 2.3.5 (c) (iv)	Review Construction specs (013543 and 015719 - Environmental Protection Procedures and 312500 Erosion and sedimentation control and the Storm Water Pollution Prevention Plan) and update as necessary to meet the requirements of the MS4 General Permit	Jason and Terri	June 30, 2021
CS-2	Implement the construction site runoff control program	2.3.5 (c)	Attend design pre during and post construction meetings Audit construction sites as outlined above and take enforcement actions as needed. Track site plan reviews, preconstruction meetings, site audits, and corrective actions. Include the number of each category in the annual report	Jason and Terri	As developed annually, Full implementation by June 30, 2021
CS-3					

6.5 STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT “POST CONSTRUCTION STORM WATER MANAGEMENT (PERMIT SECTION 2.3.6)

Objective: The objective of this control measure is to reduce the discharge of pollutants found in storm water through the retention or treatment of storm water on regulated new or redevelopment sites within the regulated MS4 area.

BMP ID#	BMP Description	Permit Section Reference	Measurable Goal(s)	Responsible Party	Deadlines
PC-1	Develop written post construction storm water run off procedures	2.3.6 (a)	A completed Construction and Post Construction site runoff control program. (Note: Combine construction and post construction procedures into one program)	Terri and Jason	June 30, 2021
PC-1a	Develop procedures and guidelines for site planning and design to minimize storm water runoff into the MS4	2.3.6 (a) (ii)	<p>Track the Low Impact Development (LID) site planning and design strategies</p> <ul style="list-style-type: none"> • The design of treatment and infiltration practices should follow the guidance in Volume 2 of the Massachusetts Stormwater Handbook, as amended, or other federally or State approved BMP design guidance. <ul style="list-style-type: none"> a. Not allow new stormwater conveyances to discharge untreated stormwater (MSH Standard 1) b. Control peak runoff rates (MSH Standard 2) c. Recharge groundwater (MSH Handbook Standard 3) d. Eliminate or reduce the discharge of pollutants from land uses with higher pollutant loads (MSH Standard 5) e. Protect Zone II or Interim Wellhead Protection Areas of public water supplies (MSH Standard 6) f. Implement long term maintenance practices (MSH Standard 9) • Stormwater management systems on new development sites must also be designed to 1) Retain the first inch of runoff from impervious surfaces AND/OR 2) Remove 90% of the Total Suspended Solids (TSS) AND 60% of Total Phosphorus (TP) generated from all impervious surfaces • Stormwater management systems on redeveloped sites must also be designed to 1) Retain the first 0.80 inches of runoff from impervious surfaces AND/OR 2) Remove 80% of the Total Suspended Solids (TSS) AND 50% of Total Phosphorus (TP) generated from all impervious surfaces 	Jason	June 30, 2021

			<ul style="list-style-type: none"> ○ Stormwater management systems on redevelopment sites may utilize offsite mitigation 		
		Appendix F Part B.1.1.a.i.(2)	Include BMPs to reduce nitrogen discharges	Jason	June 30, 2021
PC-1b	Develop procedures for post construction	2.3.6 (a) (iii)	<p>Record post construction site controls from each project (document projects in the annual report)</p> <ul style="list-style-type: none"> ● as-built drawings must be submitted no later than two (2) years after completion of construction projects ● Document the completion of work tasks via Tririga. ● Audit that work tasks are completed at a minimum on an annual basis <p>Document procedures to go from Construction to getting into Tririga as a work task in the Site Run-off Control Program</p>	Terri and Jason	June 30, 2021
	Reduce impervious Cover on streets and parking Lots.	2.3.6 (b)	<ul style="list-style-type: none"> ● Assess the current street design and parking lot guidelines that affect the creation of impervious cover. ● Determine if changes to design standards for streets and parking lots can be made to support low impact design options and update as feasible. <ul style="list-style-type: none"> ○ This assessment shall be part of the SWMP. ○ Report in each annual report on the status of this assessment including any planned or completed changes to specifications and guidelines. 	Terri and Jason	June 30, 2024 (added two years)
	Integrate infiltration and Water Reuse practices for utilizing storm-water for non-potable uses	2.3.6 (c)	<p>Include where feasible</p> <ul style="list-style-type: none"> ● Green roofs; ● Infiltration practices such as rain gardens, curb extensions, planter gardens, porous and pervious pavements, and other designs ● Water harvesting devices such as rain barrels and cisterns <p>The assessment should indicate if the practices are allowed in the MS4 jurisdiction. If the practices are not allowed, determine what hinders the use of these practices, what changes in local regulations would be required to make them allowable.</p> <ul style="list-style-type: none"> ● Provide a schedule for implementation of recommendations. ● Implement all recommendations, in accordance with the schedules. ● Include in the annual report, findings and progress towards making the practices allowable. 		June 30, 2024 (added two years)

	Identify Retrofits for the reduction of Impervious Areas (IA)	2.3.6 (d)	<ul style="list-style-type: none"> Identify a minimum of 5 areas with significant impervious cover (including parking lots, buildings, and maintenance yards) that could potentially be retrofitted with BMPs, designed to reduce the frequency, volume, and pollutant loads of stormwater discharges to and from its MS4 via the reduction of IA. Identify BMPs listed in the NSIR. Include cost and feasibility, followed by an implementation schedule (List in the annual report) 		June 30, 2024 (added two years)
	Implement structural BMPs	Appendix F Part B.I.1.c	<ul style="list-style-type: none"> Plan and install a minimum of one structural BMP as a demonstration project. The demonstration project shall be installed targeting a catchment with high nitrogen load potential. Install remaining BMPs according to schedule listed in NSIR 		June 30, 2025 (added 2 years)

6.6 POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS (PERMIT SECTION 2.3.7)

Objective: To implement a Pollution Prevention & Good Housekeeping Program

BMP ID#	BMP Description	Permit Section Reference	Measurable Goal(s)	Responsible Party	Deadlines
PP-1	Update the Operations and Maintenance (O&M) Program	2.3.7.a (ii) and Appendix F Part B.1.1.a.3	<p>Update written O&M Procedures to ensure:</p> <ul style="list-style-type: none"> • Proper use storage, storage and disposal of pesticides, herbicides and fertilizers to include the use of slow release fertilizers • Lawn maintenance and landscaping activities are protective of water quality and includes managing grass cuttings and leaf litter and prohibits blowing organic waste materials onto adjacent impervious surfaces • That pet waste will be disposed of appropriately (education, signage, containers) • The reduction of geese droppings from entering the Campus Pond and swales at the playing fields • The proper management of trash containers (cleaned, emptied, sufficient numbers) • The areas with poor vegetative cover or are eroding are corrected to prevent erosion from entering the MS4 • That the UMA Spill Prevention Control and Countermeasure Plan is up to date • Dumpsters and other waste management equipment is operated and maintained appropriately • Vehicles and Equipment are maintained • Fueling areas are being operated and maintained • Ensure that vehicle wash waters are not discharging to the MS4 	Terri and Pam	June 30, 2022 Document in annual report
		2.3.7.a (iii) and Appendix F Part B.1.1.a.3	<p>Optimize routine inspections cleaning and maintenance of catch basins</p> <ul style="list-style-type: none"> • Develop a log of catch basins cleaned and inspected • Revise cleaning or conditions to ensure that at no time a catch basin sump is more than 50% full 	Terri and Pam	June 30, 2022 Document in annual report

			<ul style="list-style-type: none"> • Include in the 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 <p>Update procedures for street sweeping</p> <ul style="list-style-type: none"> • two (2) times per year, once in the spring (following winter activities such as sanding) and at least once in the fall (Sept 1 – Dec 1; following leaf fall). Report the number of miles cleaned on the annual report • Ensure the proper disposal of sediments <p>Evaluate procedures for winter road maintenance including the use and storage of salt and sand; and ensure that snow disposal activities do not result in disposal of snow into waters of the United States.</p> <p>Establish and implement inspection and maintenance frequencies and procedures for all stormwater treatment structures (swales, retention/detention basins, infiltration structures, proprietary treatment devices or other similar structures). Inspected annually at a minimum.</p>		
PP-2	Develop Stormwater Pollution Prevention Plan (SWPPP) for the campus	2.3.7.b	Develop SWPPP for the campus. SWPPP shall include the elements listed in 2.3.7.b. ii. Keep all records associated with the development and implementation of the SWPPP. Report status of SWPPP annually.	Terri	June 30, 2022 Document annually thereafter
PP-2	Conduct quarterly inspections as listed in the SWPPP	2.3.7.b.(iii)	Inspect areas exposed to stormwater and stormwater control measures at least once per calendar quarter and report findings in the annual report.	Terri and Pam	Quarterly after completion of PP-2
PP-3	Conduct employee training as specified in the SWPPP	2.3.7.h	Training to include the SWPPP and the SPCC Plans, including spill response, good housekeeping, material management practices, any best management practices for operation and maintenance	Terri	Annually after completion of PP-2

7 PUBLIC EDUCATION AND OUTREACH PROGRAM

8 PUBLIC INVOLVEMENT AND PARTICIPATION

9 IDDE PROGRAM (*WORK IN PROCESS*)

9.1 IDDE PROGRAM MANUAL

9.2 SEPARATE STORM SEWER SYSTEM MAP

9.3 SSO INVENTORY

9.4 RECEIVING WATERBODIES

9.5 INTERCONNECTED SEPARATE STORM SEWER SYSTEMS

10 SITE PLANNING AND DESIGN

11 CONSTRUCTION AND POST CONSTRUCTION STORM WATER MANAGEMENT PROGRAM (*WORK IN PROCESS*)

11.1 SITE INSPECTIONS AND E&SC PROCEDURES

11.2 NEW DEVELOPMENT AND REDEVELOPMENT ORDINANCE

11.3 STREET DESIGN AND PARKING LOT REQUIREMENTS ASSESSMENT

12 UMass FACILITIES OPERATIONS AND MAINTENANCE PLAN (*WORK IN PROCESS*)

12.1 INVENTORY OF FACILITIES AND EQUIPMENT

UMass has developed a facility inventory consistent with the requirements of Part 2.3.7.a.ii of the MS4 permit. The inventory includes:

- Parks and open space
- Buildings where pollutants are exposed to runoff
- Vehicles and equipment

12.2 INFRASTRUCTURE OPERATIONS AND MAINTENANCE PLAN

UMass has developed a written Infrastructure Operations and Maintenance Plan (O&M Plan) consistent with the requirements of part 2.3.7.a of the MS4 General Permit. The objective of the O&M Manual is to establish procedures for MS4 infrastructure maintenance that would help reduce discharge of pollutants. The O&M Plan includes:

- Catch basin inspection, cleaning and maintenance procedures, and a plan for optimization of these routine activities
- Street sweeping and cleaning procedures
- Management and disposal of the waste produced by catch basin cleaning and street sweeping
- Winter road maintenance procedures that aim at minimizing the use of sodium chloride and other salts
- Stormwater Treatment Structures inspection and maintenance procedures

13 LAKE PHOSPHORUS CONTROL PLAN (LPCP) (*WORK IN PROCESS*)

The written portions of the LPCP (Phase 1), must be completed by July 1, 2025, and will include the following elements with timelines as defined in Appendix F Part A.II.1.i.:

Number	LPCP Component and Milestones	Completion Date
1	Legal Analysis	7/1/22
2	Funding source assessment	7/1/23
3	Define LPCP scope (LPCP Area)	7/1/24
4	Calculate Baseline Phosphorus, Allowable Phosphorus Load and Phosphorus Reduction Requirement	7/1/24
5	Description of planned nonstructural and structural controls	7/1/25
6	Description of Operation and Maintenance (O&M) Program	7/1/25
7	Implementation schedule	7/1/25
8	Cost and Funding Source Assessment	7/1/25
9	Complete written LPCP	7/1/25
10	Full implementation of nonstructural controls.	7/1/26

As the components are completed, information will be included in Section 9 of this SWMP with updates recorded in the annual reports. Additional action items are required for years 6-20 related to LPCP review, development, and implementation of the LPCP. They are not summarized here, but will be included in the SWMP upon conclusion of the above milestones.

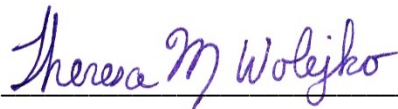
14 NITROGEN SOURCE IDENTIFICATION REPORT (*WORK IN PROCESS*)

15 CERTIFICATION

"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."

Signature

Date



September 13, 2019

Theresa M Wolejko

Assistant Director, Environmental and Hazardous Material Management Services

16 DEFINITIONS AND ACRONYMS

16.1 DEFINITIONS

Best Management Practices (BMPs) - Schedules of activities, practices (and prohibitions of practices), structures, vegetation, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Common Plan of Development - A "larger common plan of development or sale" is a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan. For example, if a developer buys a 20-acre lot and builds roads, installs pipes, and runs electricity with the intention of constructing homes or other structures sometime in the future, this would be considered a larger common plan of development or sale. If the land is parceled off or sold, and construction occurs on plots that are less than one acre by separate, independent builders, this activity still would be subject to stormwater permitting requirements if the smaller plots were included on the original site plan.

Control Measure - Refers to any BMP or other method (including effluent limitations) used to prevent or reduce the discharge of pollutants to waters of the United States.

Discharge - When used without qualification, means the "discharge of a pollutant."

Discharge of a Pollutant - Any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source". This includes additions of pollutants into waters of the United States from surface runoff which is collected or channeled by man; or discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.

Discharge-related Activities - Activities which cause, contribute to, or result in stormwater and allowable non-stormwater point source discharges, and measures such as the siting, construction and operation of BMPs to control, reduce, or prevent pollution in the discharges.

Disturbance - Action to alter the existing vegetation and/or underlying soil of a site, such as clearing, grading, site preparation (e.g., excavating, cutting, and filling), soil compaction, and movement and stockpiling of top soils.

Existing Discharger - An operator applying for coverage under this permit for discharges covered previously under an NPDES general or individual permit.

Facility or Activity - Any NPDES "point source" or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program.

Illicit Discharge - Any discharge to a municipal separate storm sewer that is not composed entirely of stormwater except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from firefighting activities.

Impaired Water - A water is impaired if it does not meet one or more of its designated use(s). For purposes of this permit, “impaired” refers to categories 4 and 5 of the five- part categorization approach used for classifying the water quality standards attainment status for water segments under the TMDL program. Impaired waters compilations are also sometimes referred to as “303(d) lists.” Category 5 waters are impaired because at least one designated use is not being supported or is threatened and a TMDL is needed. Category 4 waters indicate that at least one designated use is not being supported but a TMDL is not needed (4a indicates that a TMDL has been approved or established by EPA; 4b indicates other required control measures are expected in result in the attainment of water quality standards in a reasonable period of time; and 4c indicates that the non- attainment of the water quality standard is the result of pollution (e.g. habitat) and is not caused by a pollutant). See USEPA’s 2006 Integrated Report Guidance, July 29, 2005 for more detail on the five part categorization of waters [under EPA National TMDL Guidance <http://www.epa.gov/owow/tmdl/policy.html>].

Impervious Surface - Any surface that prevents or significantly impedes the infiltration of water into the underlying soil. This can include but is not limited to: roads, driveways, parking areas and other areas created using non porous material; buildings, rooftops, structures, artificial turf and compacted gravel or soil.

Industrial Activity - The ten categories of industrial activities included in the definition of “stormwater discharges associated with industrial activity,” as defined in 40 CFR 122.26(b)(14)(i)-(ix) and (xi).

Industrial Stormwater - Stormwater runoff associated with the definition of “stormwater discharges associated with industrial activity.”

Interconnection - The point (excluding sheet flow over impervious surfaces) where the permittee’s MS4 discharges to another MS4 or other storm sewer system, through which the discharge is eventually conveyed to a water of the United States. Interconnections shall be treated similarly to outfalls throughout the permit. In Lexington, locations where stream channels discharge to adjacent communities have also been mapped as Interconnections.

Junction Manhole - For the purposes of this plan, a junction manhole is a manhole or structure with two or more inlets accepting flow from two or more MS4 alignments. Manholes with inlets solely from private storm drains, individual catch basins, or both are not considered junction manholes for these purposes.

Key Junction Manhole - For the purposes of this plan, key junction manholes are those junction manholes that can represent one or more junction manholes without compromising adequate implementation of the illicit discharge program. Adequate implementation of the illicit discharge program would not be compromised if the exclusion of a particular junction manhole as a key junction manhole would not affect the permittee’s ability to determine the possible presence of an upstream illicit discharge. A permittee may exclude a junction manhole located upstream from another located in the immediate vicinity or that is serving a drainage alignment with no potential for illicit connections.

Municipal Separate Storm Sewer - A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man- made channels, or storm drains):

- (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;
- (ii) Designed or used for collecting or conveying stormwater;
- (iii) Which is not a combined sewer; and
- (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

Municipal Separate Storm Sewer System (MS4) - Means all separate storm sewers that are defined as “large” or “medium” or “small” municipal storm sewer systems pursuant to paragraphs 40 CFR 122.26 (b)(4) and (b)(7), or designated under paragraph 40 126.26(a) (1)(v). For the purposes of this permit “MS4” may also refer to the permittee with jurisdiction over the sewer system.

New Development - Any construction activities or land alteration resulting in total earth disturbances greater than 1 acre (or activities that are part of a larger common plan of development disturbing greater than 1 acre) on an area that has not previously been developed to include impervious cover. (see part 2.3.6. of the permit)

Outfall - a point source as defined by 40 CFR § 122.2 as the point where the municipal separate storm sewer discharges to waters of the United States. An outfall does not include open conveyances connecting two municipal separate storm sewers or pipes, tunnels or other conveyances that connect segments of the same stream or other waters of the United States and that are used to convey waters of the United States. (40 CFR § 122.26(b)(9)). However, it is strongly recommended that a permittee inspect all accessible portions of the system as part of this process. Culverts longer than a simple road crossing shall be included in the inventory unless the permittee can confirm that they are free of any connections and simply convey waters of the United States.

Outfall Catchment - The land area draining to a single outfall or interconnection. The extent of an outfall’s catchment is determined not only by localized topography and impervious cover but also by the location of drainage structures and the connectivity of MS4 pipes.

Owner or Operator - The owner or operator of any “facility or activity” subject to regulation under the NPDES program.

Point Source - Any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff.

Pollutant - Dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal and agricultural waste discharged into water.

Pollutant of Concern - A pollutant which causes or contributes to a violation of a water quality standard, including a pollutant which is identified as causing an impairment in a State's 303(d) list.

Redevelopment - For the purposes of this plan, any construction, land alteration, or improvement of impervious surfaces resulting in total earth disturbances greater than 1-acre (or activities that are part of a larger common plan of development disturbing greater than 1 acre) that does not meet the definition of new development (see above).

Site - For the purposes of this plan, the area extent of construction activities, including but not limited to the creation of new impervious cover and improvement of existing impervious cover.

Stormwater - Stormwater runoff, snow melt runoff, and surface runoff and drainage.

Stormwater Discharges Associated with Construction Activity - A discharge of pollutants in stormwater runoff from areas where soil disturbing activities (e.g., clearing, grading, or excavating), construction materials, or equipment storage or maintenance (e.g., fill piles, borrow areas, concrete truck washout, fueling), or other industrial stormwater directly related to the construction process (e.g., concrete or asphalt batch plants) are located. (See 40 CFR 122.26(b)(14)(x) and 40 CFR 122.26(b)(15)).

Total Maximum Daily Loads (TMDLs) - A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. A TMDL includes waste load allocations (WLAs) for point source discharges, load allocations (LAs) for nonpoint sources and/or natural background and must include a margin of safety (MOS) and account for seasonal variations. (See section 303(d) of the Clean Water Act and 40 CFR 130.2 and 130.7).

Urbanized Area - US Census designated area comprised of a densely settled core of census tracts and/or census blocks that meet minimum population density requirements, along with adjacent territory containing non-residential urban land uses as well as territory with low population density included to link outlying densely settled territory with the densely settled core. For the purposes of this permit, Urbanized Areas as defined by any Census since 2000 remain subject to stormwater regulation even if there is a change in the reach of the Urbanized Area because of a change in more recent Census data.

Water Quality Limited Water - for the purposes of this permit, a water quality limited water is any waterbody that does not meet applicable water quality standards, including but not limited to waters listed in categories 5 or 4b on the Massachusetts Integrated Report of waters listed pursuant to Clean Water Act section 303(d) and 305(b).

Water Quality Standards - A water quality standard defines the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses. States and EPA adopt WQS to protect public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act (See CWA sections 101(a)2 and 303(c)).

16.2 ABBREVIATIONS AND ACRONYMS

BMP – Best Management Practice CGP – Construction General Permit

CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)

DCIA – Directly Connected Impervious Area EPA – U. S. Environmental Protection Agency ESA – Endangered Species Act

USFWS – U. S. Fish and Wildlife Service IA – Impervious Area

IDDE – Illicit Discharge Detection and Elimination LA – Load Allocations

LPCP – Lake Phosphorus Control Plan (pertaining to Charles River Watershed phosphorus)

MOS – Margin of Safety

MS4 – Municipal Separate Storm Sewer System MSGP – Multi-Sector General Permit

NHPA – National Historic Preservation Act NMFS – U. S. National Marine Fisheries Service NOI – Notice of Intent

NPDES – National Pollutant Discharge Elimination System NRHP – National Register of Historic Places

PCP – Phosphorus Control Plan (pertaining to Charles River Watershed phosphorus)

POTW – Publicly Owned Treatment Works

SHPO – State Historic Preservation Officer

SPCC – Spill Prevention, Control, and Countermeasure SWMP – Stormwater Management Program

SWPPP – Stormwater Pollution Prevention Plan TMDL – Total Maximum Daily Load

USGS – United States Geological Survey WLA – Wasteload Allocation

WQS – Water Quality Standard

17 RECORD OF CHANGES

Date	Description	Section(s) updated
9/13/19	Added information to the Water Quality Standards; added associated requirements to the BMPs; added sections for the Lake Phosphorus Control Plan and Nitrogen Source Identification Report	Section 5, Section 6, Section 13, section 14

